

LIBRARY OF CONGRESS

Copyright Office

37 CFR Part 201

[Docket No. RM 20088]

Exemption to Prohibition on Circumvention of Copyright Protection Systems for  
Access Control Technologies

AGENCY:

Copyright Office, Library of Congress.

ACTION:

Final rule.

SUMMARY:

The Librarian of Congress announces that the prohibition against circumvention of technological measures that effectively control access to copyrighted works shall not apply to persons who engage in noninfringing uses of six classes of copyrighted works.

EFFECTIVE DATE:

[date of publication in the Federal Register]

FOR FURTHER INFORMATION CONTACT:

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SUPPLEMENTARY INFORMATION:

In this notice, the Librarian of Congress, upon the recommendation of the Register of Copyrights, announces that the prohibition against circumvention of technological measures that effectively control access to copyrighted works shall not apply to persons who engage in noninfringing uses of six classes of works. This announcement is the culmination of a rulemaking proceeding commenced by the Register on October 6, 2008. A more comprehensive statement of the background and legal requirements of the rulemaking, a discussion of the record and the Register's analysis may be found in the Register's memorandum to the Librarian of Congress dated June 11, 2010, which contains the full explanation of the Register's recommendation. A copy of the Register's memorandum may be found at <http://www.copyright.gov/1201>. This notice summarizes the Register's recommendation, announces the Librarian's determination, and publishes the regulatory text codifying the six exempted classes of works.

## I. Background

### A. Legislative Requirements for Rulemaking Proceeding

The Digital Millennium Copyright Act (DMCA) was enacted to implement certain provisions of the WIPO Copyright Treaty and WIPO Performances and Phonograms Treaty. It established a wide range of rules that govern not only copyright owners in the marketplace for electronic commerce, but also consumers, manufacturers, distributors, libraries, educators, and online service providers. It defined whether consumers and businesses may engage in certain conduct, or use certain devices, in the course of transacting electronic commerce.

Chapter 12 of title 17 of the United States Code prohibits circumvention of certain technological measures employed by or on behalf of copyright owners to protect their works (i.e., access controls). Specifically, Section 1201(a)(1)(A) provides, in part, that no person shall circumvent a technological measure that effectively controls access to a work protected under this title. In order to ensure that the public will have continued ability to engage in noninfringing uses of copyrighted works, such as fair use, subparagraph (B) limits this prohibition. It provides that the prohibition against circumvention shall not apply to persons who are users of a copyrighted work which is in a particular class of works, if such persons are, or are likely to be in the succeeding threeyear period, adversely affected by virtue of such prohibition in their ability to make noninfringing uses of that particular class of works under this title as determined in a rulemaking. The proceeding is conducted by the Register of Copyrights, who is to provide notice of the rulemaking, seek comments from the public, consult with the Assistant Secretary for Communications and Information of the Department of Commerce, and recommend final regulations to the Librarian of Congress. The regulations, to be issued by the Librarian of Congress, announce any class of copyrighted works for which the Librarian has determined, pursuant to the rulemaking conducted under subparagraph (c), that noninfringing uses by persons who are users of a copyrighted work are, or are likely to be, adversely affected, and the prohibition contained in subparagraph (A) shall not apply to such users with respect to such class of works for the ensuing 3year period. This is the fourth Section 1201 rulemaking.

### B. Responsibilities of Register of Copyrights and Librarian of Congress

The primary responsibility of the Register and the Librarian in this rulemaking proceeding was to assess whether the implementation of access control measures is diminishing the ability of individuals to use copyrighted works in ways that are not infringing and to designate any classes of works with respect to which users have been adversely affected in their ability to make noninfringing uses. Congress intended that the Register solicit input that would enable consideration of a broad range of current or likely future adverse impacts. The statute directs that in conducting the rulemaking, the Register and the Librarian shall examine:

- (1) The availability for use of copyrighted works;
- (2) The availability for use of works for nonprofit archival, preservation, and educational purposes;
- (3) The impact that the prohibition on the circumvention of technological

measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research;

(4) The effect of circumvention of technological measures on the market for or value of copyrighted works; and

(5) Such other factors as the Librarian considers appropriate.

These factors to be considered in the rulemaking process require the Register and the Librarian to carefully balance the availability of works for use, the effect of the prohibition on particular uses, and the effect of circumvention on copyrighted works.

### C.The Purpose and Focus of the Rulemaking

#### 1.Purpose of the Rulemaking

The task of this rulemaking is to determine whether the availability and use of access control measures has already diminished or is about to diminish the ability of the users of any particular classes of copyrighted works to engage in noninfringing uses of those works similar or analogous to those that the public had traditionally been able to make prior to the enactment of the DMCA. In examining the factors set forth in Section 1201(a)(1)(C), the focus is on whether the implementation of technological protection measures has had an adverse impact on the ability of users to make lawful uses.

#### 2.The Necessary Showing

Proponents of a class of works have the burden of proof. In order to make a prima facie case for designation of a class of works, proponents must show by a preponderance of the evidence that there has been or is likely to be a substantial adverse effect on noninfringing uses by users of copyrighted works. De minimis problems, isolated harm or mere inconveniences are insufficient to provide the necessary showing. Similarly, for proof of likely adverse effects on noninfringing uses, a proponent must prove by a preponderance of the evidence that the harm alleged is more likely than not; a proponent may not rely on speculation alone to sustain a prima facie case of likely adverse effects on noninfringing uses. It is also necessary to show a causal nexus between the prohibition on circumvention and the alleged harm.

Proposed classes are reviewed de novo. The existence of a previously designated class creates no presumption for consideration of a new class, but rather the proponent of such a class of works must make a prima facie case in each threeyear period.

#### 3.Determination of Class of Works

The starting point for any definition of a particular class of works in this rulemaking must be one of the categories of works set forth in section 102 of the Copyright Act. However, those categories are only a starting point and a class will generally constitute some subset of a section 102 category. The determination of the appropriate scope of a class of works; recommended for exemption will also take into account the likely adverse effects on noninfringing uses and the adverse effects that designation of the class may have on the market for or value of copyrighted works.

While starting with a section 102 category of works, or a subcategory thereof, the description of a particular class of works ordinarily should be further refined by reference to other factors that assist in ensuring that the scope of the class addresses the scope of the harm to noninfringing uses. For example, the class might be defined in part by reference to the medium on which the works are distributed, or even to the access control measures applied to them. The description of a class of works may also be refined, in appropriate cases, by reference to the type of user who may take advantage of the designation of the class of works or by reference to the type of use of the work that may be made pursuant to the designation. The class must be properly tailored not only to address the harm demonstrated, but also to limit the adverse consequences that may result from the creation of an exempted class. In every case, the contours of a class will depend on the unique factual circumstances established in the rulemaking record on a casebycase basis.

#### D. Consultation with the Assistant Secretary for Communications and Information

Section 1201(a)(1)(C) requires the Register of Copyrights to consult with the Assistant Secretary for Communications and Information of the Department of Commerce (who is also the Administrator of the National Telecommunications and Information Administration) and report and comment on the views of the Assistant Secretary (NTIA) when she makes her recommendation to the Librarian of Congress.

In addition to informal consultations throughout the course of the rulemaking proceeding, NTIA formally communicated its views in letters to the Register on November 4, 2009, and April 16, 2010. NTIA's views were considered by the Register in forming her recommendation. A discussion of NTIA's substantive analysis of particular proposals is presented in the relevant sections of the Register's recommendation.

#### II. Solicitation of Public Comments and Hearings

On October 6, 2008, the Register initiated this rulemaking proceeding pursuant to Section 1201(a)(1)(C) with publication of a Notice of Inquiry. The NOI requested written comments from all interested parties, including representatives of copyright owners, educational institutions, libraries and archives, scholars, researchers, and members of the public.

During the initial comment period that ended on December 2, 2008, the Copyright Office received nineteen written comments proposing twentyfive classes of works, all of which were posted on the Office's website. Because some of the initial comments contained similar or overlapping proposals, the Copyright Office arranged related classes into groups, and set forth and summarized all proposed classes in a Notice of Proposed Rulemaking (NPRM) published on December 29, 2008. This NPRM did not present the initial classes in the form of proposed rule, but merely as a starting point for further consideration.

The NPRM asked interested parties to submit comments providing support, opposition, clarification, or correction regarding the proposals, and to provide factual and/or legal arguments in support of their positions. The Copyright Office received a total of fiftysix responsive comments before the comment period closed on February 2, 2009, all of which were posted on the Copyright Office website.

Four days of public hearings were conducted by the Register in May 2009 at Stanford University and the Library of Congress. Thirtyseven witnesses,

representing proponents and opponents of proposed classes of works, testified on twentyone proposed classes. Following the hearings, the Copyright Office sent followup questions to some of the hearing witnesses, and responses were received during the summer. The entire record in this and the previous section 1201(a)(1)(C) rulemakings are available on the Office's website, <http://www.copyright.gov/1201/index.html>.

On October 27, 2009, the Librarian of Congress published in the Federal Register a Notice of an interim rule, extending the existing classes of works exempted from the prohibition until the conclusion of the current rulemaking proceeding and the designation of any classes of works to be exempt from the prohibition for the ensuing threeyear period by the Librarian of Congress.

### III.The Designated Classes

A.Motion pictures on DVDs that are lawfully made and acquired and that are protected by the Content Scrambling System when circumvention is accomplished solely in order to accomplish the incorporation of short portions of motion pictures into new works for the purpose of criticism or comment, and where the person engaging in circumvention believes and has reasonable grounds for believing that circumvention is necessary to fulfill the purpose of the use in the following instances:

- Educational uses by college and university professors and by college and university film and media studies students;

- Documentary filmmaking;

- Noncommercial videos.

DVDs protected by the Content Scrambling System (CSS) have been an issue in this rulemaking proceeding since its inception in 2000. In the 2006 rulemaking proceeding, the Librarian designated a class of [a]udiovisual works included in the educational library of a college or university's film or media studies department, when circumvention is accomplished for the purpose of making compilations of portions of those works for educational use in the classroom by media studies or film professors.

In the current rulemaking, educators sought to renew and, in a number of ways, to expand the existing class of works designated in the last proceeding. The proposed expansions of the class involved extending the class to include all of the motion pictures on CSSprotected DVDs contained in a college or university library (rather than just a film or media studies department) and to encompass classroom use by all college and university professors and students as well as elementary and secondary school teachers and students.

Apart from educators, others sought designation of similar classes of works to address what they contended are adverse impacts on their ability to engage in noninfringing uses of copyrighted works. Documentary filmmakers argued that the prohibition on circumvention adversely affects their ability to use portions of motion pictures in documentary films, many of which would qualify as noninfringing uses for the purposes of criticism or comment. Creators of noncommercial videos that incorporate portions of motion pictures contained on CSSprotected DVDs also alleged that the prohibition on circumvention adversely affected their ability to engage in noninfringing criticism or comment.

Based on the record in this proceeding, the Register determines that CSS is a

technological measure that protects access to copyrighted motion pictures. She also determined that a substantial number of uses in the record with respect to education, documentary filmmaking, and noncommercial videos qualify as noninfringing uses.

NTIA supports expansion of the existing class of audiovisual works to include all college and university level instructors and students but does not believe the record justifies an expansion that would include elementary and secondary school teachers and students. NTIA also recommended limiting the class to address the use of DVDs included in the educational library or departments of the academic institutions. It also supported the proposal to designate a class of works for the benefit of documentary filmmakers. Finally, it expressed general support for the request to designate a class that would permit extraction of film clips for use in noncommercial videos, but suggested a requirement that the clips from the audiovisual work must be for remix videos that are used for social comment or criticism, or that are used in transformativetype works according to established fair use principles.

Given that all of these proposed classes at issue involved motion pictures on CSSprotected DVDs, the Register recommends that the Librarian designate a single class addressing all of these adversely affected uses of DVDs. However, the Register concludes that the record does not support all of the proposed expansions of the existing class of audiovisual works and that in at least one respect, the record supported a contraction of that class.

What the record does demonstrate is that college and university educators, college and university film and media studies students, documentary filmmakers, and creators of noncommercial videos frequently make and use short film clips from motion pictures to engage in criticism or commentary about those motion pictures, and that in many cases it is necessary to be able to make and incorporate highquality film clips in order effectively to engage in such criticism or commentary. In such cases, it will be difficult or impossible to engage in the noninfringing use without circumventing CSS in order to make highquality copies of short portions of the motion pictures. Because not all uses by educators, documentary filmmakers or makers of noncommercial videos will be noninfringing or will require such highquality copies, the class of works recommended by the Register is not as extensive as what was requested by some proponents, and the class contains some limitations. First, proponents for educators failed to demonstrate that highquality resolution film clips are necessary for K12 teachers and students, or for college and university students other than film and media studies students. Because other means, such as the use of screen capture software, exist that permit the making of lowerquality film clips without circumventing access controls, the Register finds no justification in the record for expanding the class of works to include such persons as express beneficiaries of the designation of this class of works.

Second, the circumvention of access controls must be accomplished solely in order to enable incorporation of short portions of motion pictures into new works for purposes of criticism or comment. The justification offered by proponents for designating a class of audiovisual works, and a key element of the Register's conclusion that the intended uses will frequently be noninfringing fair uses, was that the uses that justify designation of the class were for purposes of criticism and commentary, which are classic fair use purposes. Moreover, all of the evidence in the rulemaking demonstrating noninfringing uses involved the use of short portions of motion pictures. While the Register is persuaded that it would be difficult and imprudent to quantify the precise contours of what constitutes a short portion, there was no evidence

in the record to support the conclusion that anything more than incorporating relatively short portions of motion pictures into a new work for purposes of criticism or commentary would be a fair use. Similarly, in order to meet the requirements of the designated class of works, a new work must be created, whether that work is a compilation of clips for use in the classroom, or a documentary or video incorporating a clip or clips from a copyrighted motion picture.

The final requirement of the recommended class is that the person engaging in the circumvention must reasonably believe that the circumvention is necessary in order to fulfill the purpose of the use i.e., the noninfringing criticism or commentary. Because alternatives to circumvention such as video capture may suffice in many, and perhaps the vast majority of situations, users must make a reasonable determination that heightened quality is necessary to achieve the desired goal. The justification for designating this class of works is that some criticism and/or commentary requires the use of highquality portions of motion pictures in order to adequately present the speechrelated purpose of the use. Where alternatives to circumvention can be used to achieve the noninfringing purpose, such noncircumventing alternatives should be used. Thus, this limitation seeks to avoid an overly broad class of works given the limited number of uses that may require circumvention to achieve the intended noninfringing end.

The class has also been limited to include only motion pictures rather than all audiovisual works. Because there was no evidence presented that addressed any audiovisual works other than motion pictures, there was no basis for including the somewhat broader class of audiovisual works (which includes not only motion pictures, but also works such as video games and slide presentations).

B. Computer programs that enable wireless telephone handsets to execute software applications, where circumvention is accomplished for the sole purpose of enabling interoperability of such applications, when they have been lawfully obtained, with computer programs on the telephone handset.

The Electronic Frontier Foundation (EFF) proposed a class that would allow circumvention of the technological measures contained on certain wireless phone handsets (known as smartphones) that prevent thirdparty software applications from being installed and run on such phones. This circumvention activity is colloquially referred to as jailbreaking a phone.

The factual record with respect to this proposed class focused primarily on Apple's iPhone, although there are allegations in the record involving other mobile phone manufacturers as well. EFF asserted, and Apple's testimony confirmed, that any software or application to be used on the iPhone must be validated with the firmware that controls the iPhone's operation. This validation process is intended to make it impossible for an owner of an iPhone to install and use thirdparty applications on the iPhone that have not been approved for distribution through Apple's iTunes App Store.

EFF argued that jailbreaking is a noninfringing activity for three reasons. First, it alleged that at least in some cases, jailbreaking can be done within the scope of what is authorized under the license Apple grants to every iPhone user. It stated that [t]o the extent a jailbreaking technique does not modify any of the individual software programs that comprise the iPhone firmware collection, but instead simply adds additional software components to the collection, the practice may not exceed the scope of the license to `use the iPhone software` or constitute a `modification` of any Apple

software components, any more than the addition of a new printer driver to a computer constitutes a "modification" of the operating system already installed on the computer.

Second, EFF asserted that to the extent a jailbreak technique requires the reproduction or adaptation of existing firmware beyond the scope of any license or other authorization by the copyright owner, it would fall within the ambit of 17 U.S.C. 117(a). EFF contended that the iPhone owner is also the owner of the copy of the firmware on the iPhone and that jailbreaking falls within the owner's privilege to adapt those copies to add new capabilities, so long as the changes do not harm the interests of the copyright proprietor.

Finally, EFF contended that in any event, jailbreaking constitutes fair use of the firmware because jailbreaking is a purely noncommercial, private use of computer software, a largely functional work that operates the phone, and that the phone owner must reuse the vast majority of the original firmware in order for the phone to operate. Because the phone owner is simply modifying the firmware for her own use on the phone, there is no harm to the market for the firmware.

Apple responded that jailbreaking by purchasers of the iPhone is a violation of the prohibition against circumvention of access controls. It stated that its validation system is necessary to protect consumers and Apple from harm. Apple further contended that modifying Apple's operating system constituted the creation of an infringing derivative work. Specifically, Apple argued that because purchasers of an iPhone are licensees, not owners, of the computer programs contained on the iPhone, Section 117 of the Copyright Act is inapplicable as an exemption to the adaptation right. Apple further argued that the fair use defense codified in 107 would not apply to jailbreaking activity under the statutory factors.

Based on the record, the Register has determined that the encryption and authentication processes on the iPhone's computer programs are technological measures that control access to the copyrighted work (the firmware) for purposes of 1201(a)(1). Moreover, the Register finds that the evidence supports the contention that a technological protection measure is adversely affecting adding applications to the iPhone. The critical question is whether jailbreaking an iPhone in order to add applications to the phone constitutes a noninfringing use.

The Register does not find that the contract between Apple and purchasers of the iPhone authorize modification of the iPhone. Moreover, the Register cannot clearly determine whether the various versions of the iPhone contracts with consumers constituted a sale or license of a copy of the computer programs contained on the iPhone. The contractual language is unclear with respect to particular copies of the computer programs. Although Apple retains ownership of the computer programs, the contracts also expressly grant users ownership of the device. Since the copy of the computer program is fixed in hardware of the device, it is unclear what ownership status is to be given to the particular copy of the computer program contained in the device. Apple unquestionably has retained ownership of the intangible works, but the ownership of the particular copies of those works is unclear.

Moreover, the state of the law with respect to the determination of ownership is in a state of flux in the courts. Both proponents and opponents cited case law in support of their respective positions, but the Register finds it impossible to determine how a court would resolve the issue of ownership on the facts

presented here. While both parties agreed that the Second Circuit's decision in *Krause v. Titleserv*, 402 F.3d 119 (2d Cir. 2005) is good law, that case dealt with a situation that is distinguishable in many respects from the present situation. The Register finds that the *Krause* case does not provide clear guidance as to how resolve the current issue.

However, the Register does find that the proponent's fair use argument is compelling and consistent with the congressional interest in interoperability. The four fair use factors tend to weigh in favor of a finding of fair use.

Under the first factor in Section 107, it appears fair to say that the purpose and character of the modification of the operating system is to engage in a private, noncommercial use intended to add functionality to a device owned by the person making the modification, albeit beyond what Apple has determined to be acceptable. The user is not engaging in any commercial exploitation of the firmware, at least not when the jailbreaking is done for the user's own private use of the device.

The fact that the person engaging in jailbreaking is doing so in order to use Apple's firmware on the device that it was designed to operate, which the jailbreaking user owns, and to use it for precisely the purpose for which it was designed (but for the fact that it has been modified to run applications not approved by Apple) favors a finding that the purpose and character of the use is innocuous at worst and beneficial at best. Apple's objections to the installation and use of unapproved applications appears to have nothing to do with its interests as the owner of copyrights in the computer programs embodied in the iPhone, and running the unapproved applications has no adverse effect on those interests. Rather, Apple's objections relate to its interests as a manufacturer and distributor of a device, the iPhone.

Moreover, Congress has determined that reverse engineering for the purpose of making computer programs interoperable is desirable when certain conditions are met, and has crafted a specific exemption from Section 1201(a)'s prohibition on circumvention in such cases. While an iPhone owner who jailbreaks does not fall within the four corners of the statutory exemption in Section 1201(f), the fact that he or she is engaging in jailbreaking in order to make the iPhone's firmware interoperable with an application specially created for the iPhone suggests that the purpose and character of the use are favored.

Turning to the second fair use factor, it is customary for operating systems functional works to enable third party programs to interoperate with them. It does not and should not infringe any of the exclusive rights of the copyright owner to run an application program on a computer over the objections of the owner of the copyright in the computer's operating system. Thus, if Apple sought to restrict the computer programs that could be run on its computers, there would be no basis for copyright law to assist Apple in protecting its restrictive business model. The second factor decisively favors a finding of fair use.

Turning to the third factor, the amount and substantiality of the portion used in relation to the copyrighted work as a whole, EFF admitted that because the Apple firmware is necessary in order to operate the iPhone, it is necessary for individuals who jailbreak their phones to reuse the vast majority of the original firmware. However, the amount of the copyrighted work modified in a typical jailbreaking scenario is fewer than 50 bytes of code out of more than 8 million bytes, or approximately 1/160,000 of the copyrighted work as a whole. Where the alleged infringement consists of the making of an unauthorized

derivative work, and the only modifications are so de minimis, the fact that iPhone users are using almost the entire iPhone firmware for the purpose for which it was provided to them by Apple undermines the significance of this factor. While the third factor arguably disfavors a fair use finding, the weight to be given to it under the circumstances is slight.

Addressing the fourth factor, the effect of the use upon the potential market for or value of the copyrighted work, EFF asserted that the firmware has no independent economic value, pointing out that the iPhone firmware is not sold separately, but is simply included when one purchases an iPhone. EFF also argued that the ability to lawfully jailbreak a phone will increase, not decrease, overall sales of the phones because users will know that by jailbreaking, they can take advantage of a wider array of third party applications.

Apple responded that unauthorized uses diminish the value of the copyrighted works to Apple. However, Apple is not concerned that the practice of jailbreaking will displace sales of its firmware or of iPhones; indeed, since one cannot engage in that practice unless one has acquired an iPhone, it would be difficult to make that argument. Rather, the harm that Apple fears is harm to its reputation. Apple is concerned that jailbreaking will breach the integrity of the iPhone's ecosystem. The Register concludes that such alleged adverse effects are not in the nature of the harm that the fourth fair use factor is intended to address.

NTIA does not support designating the proposed class. While acknowledging that permitting iPhone jailbreaking could facilitate innovation, better serve customers, and encourage the market to utilize open platforms, NTIA believes it might just as likely deter innovation by not allowing the developer to recoup its development costs and to be rewarded for its innovation. NTIA also believes that the proponents's public policy arguments should properly be considered by expert regulatory agencies, the Department of Justice, and the Congress. It concludes that the Register ought only to consider recommending the proposed class if she concludes that the access control measure would be a bar to actions that the above bodies might take in response to policy judgments made at those agencies.

The Register appreciates that many regulatory and policy issues pertaining to jailbreaking and smartphones fall within the competence of other agencies, and the Register has no desire to interfere with those agencies's jurisdiction. However, the only question before the Register and the Librarian is whether Section 1201(a)(1)'s prohibition on circumvention is adversely affecting the ability of users of smartphones from engaging in noninfringing uses of the firmware on their devices. No other agency has the power to limit the application of the prohibition on circumvention in this (or any other) context. Any future action by a federal agency to permit jailbreaking will be futile without an exemption from liability under Section 1201(a)(1), but if a class is not designated in this rulemaking, all that it will mean is that Section 1201 cannot be used to prevent jailbreaking, without prejudice to any other legal or regulatory authority that might limit or prohibit jailbreaking.

On balance, the Register concludes that when one jailbreaks a smartphone in order to make the operating system on that phone interoperable with an independently created application that has not been approved by the maker of the smartphone or the maker of its operating system, the modifications that are made purely for the purpose of such interoperability are fair uses. Case law and Congressional enactments reflect a judgment that interoperability is favored. The Register also finds that designating a class of works that would permit

jailbreaking for purposes of interoperability will not adversely affect the market for or value of the copyrighted works to the copyright owner.

Accordingly, the Register recommends that the Librarian designate the following class of works:

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<EXTRACT><FP2-2>Computer programs that enable wireless communication handsets to execute software applications, where circumvention is accomplished for the sole purpose of enabling interoperability of such applications, when they have been lawfully obtained, with computer programs on the telephone handset.</FP2-2>  
</EXTRACT>

C. Computer programs, in the form of firmware or software, that enable used wireless telephone handsets to connect to a wireless telecommunications network, when circumvention is initiated by the owner of the copy of the computer program solely in order to connect to a wireless telecommunications network and access to the network is authorized by the operator of the network.

In 2006, the Librarian designated a class of Computer programs in the form of firmware that enable wireless telephone handsets to connect to a wireless telephone communication network, when circumvention is accomplished for the sole purpose of lawfully connecting to a wireless telephone communication network, in order to permit the circumvention of access controls that prevent the owner of a cellphone from switching service on that cellphone to another wireless communication network. The access controls in question are embedded in the mobile phone's firmware or software and prevent the mobile phone owner from gaining access to the settings that connect the mobile phone to a network (e.g., Verizon's) other than the original network (e.g., AT&T's). Beneficiaries of that designation have now requested that the Librarian again designate a similar class of works. Representatives of wireless communication networks have opposed the request.

As she did three years ago, the Register recognizes that the requests fall within the zone of interest subject to this rulemaking. That is, circumventing a mobile phone lock, without the authority of the copyright owner, to gain access to the protected work (i.e., the firmware) is likely actionable under Section 1201(a)(1) of the Act. Further, a wireless carrier who is harmed by the circumvention of the software lock may bring an action for violation of Section 1201(a)(1) against anyone who circumvents such a technological protection measure.

The proponents of this class have presented a prima facie case that the prohibition on circumvention has had an adverse effect on noninfringing uses of firmware on wireless telephone handsets. Proponents have shown that mobile phone locks prevent consumers from legally accessing alternative wireless networks with the phone of their choice. This is the same type of activity that was at issue when the existing class of works was being considered in 2006.

The wireless networks asserted that by using a cellphone on another network, an act that is not authorized under their contracts, the customers infringe the exclusive right to reproduce copies of the computer software, because use of the mobile phones necessarily involves the making of copies in the random access memory of the mobile phone. Moreover, they asserted that the alteration of the computer programs in order enable the mobile phones to connect to another network constituted the unlawful making of derivative works, in violation of the copyright owner's exclusive right to prepare derivative works.

Proponents of the class asserted that the owners of mobile phones are also the owners of the copies of the computer programs on those phones and that as owners they are entitled to exercise their privileges under Section 117 of the Copyright Act, which gives the owner of a copy of a computer program the privilege to make or authorize the making of another copy or adaptation of that computer program under certain circumstances. The wireless networks responded that their contracts with their customers restrict the uses of the customers' mobile phones and retain ownership of the copies of the computer programs that are loaded onto the mobile phones and enable the phones to operate. They also asserted those contractual restrictions make the networks and not the customers the owners of the copies of the computer programs, and therefore the privilege under Section 117 to make copies and adaptations of computer programs does not apply because that privilege is enjoyed only by the owner of the copy of the computer program. They also argued that the privilege does not extend to the customers' conduct because the making of a new copy or adaptation in order to use the mobile phone on a network other than the original network is not, as the statute requires, an essential step in the utilization of the computer program in conjunction with a machine.

The Register has reviewed the appropriate case law with respect to who is the owner of a copy of a computer program for purposes of Section 117 when a license or agreement imposes restrictions on the use of the computer program and has concluded that the state of the law is unclear. The Register cannot determine whether most mobile phone owners are also the owners of the copies of the computer programs on their mobile phones. However, based on the record in this proceeding, the Register finds that the proponents of the class have made a prima facie case that mobile phone owners are the owners of those copies. While the wireless networks have made a case that many mobile phone owners may not own the computer program copies because the wireless network's contract with the consumer retains ownership of the copies, they have not presented evidence that this is always the case even if their interpretation of the law governing ownership is correct. The record therefore leads to the conclusion that a substantial portion of mobile phone owners also own the copies of the software on their phones.

The Register also concludes that when the owner of a mobile makes RAM copies of the software in order to operate the phone even if she is operating it on another network she is making a noninfringing use of the software under Section 117 because the making of that copy is an essential step in the utilization of that software in conjunction with a machine.

Similarly, the making of modifications in the computer program in order to enable the mobile phone to operate on another network would be a noninfringing act under Section 117. As a general rule, anyone who wishes to switch her mobile phone from one network to another must alter some information embedded in the device. However, in a substantial number of cases those alterations do not appear to implicate Section 117 because the elimination and insertion of codes or digits, or completely reflashing a phone, cannot be considered an infringement of the computer program controlling the device. When specific codes or digits are altered to identify the new network to which the phone will connect, those minor alterations of data also do not implicate any of the exclusive rights of copyright owners. And complete reflashing does not even constitute circumvention of an access control because it actually deletes the copy of the entire work that had been protected by the access control, thereby permanently denying access to that work.

In those cases where more substantial changes must be made to the computer

program in order to enable use of the mobile phone on another network, those changes might implicate the exclusive right to prepare derivative works. However, those changes would be privileged under Section 117, which permits the making of a new copy or adaptation that is created as an essential step in the utilization of the computer program in conjunction with a machine.

Section 1201(a)(1)(C) factors. As was the case in 2006, the Register finds that the four factors enumerated in Section 1201(a)(1)(C)(i)(iv) do not weigh either in favor of or against designation of the proposed class of works. Moreover, because it appears that the opposition to designating the proposed class is based primarily on the desires of wireless carriers to preserve an existing business model that has little if anything to do with protecting works of authorship, it is appropriate to address the additional factor (such other factors as the Librarian considers appropriate) set forth in Section 1201(a)(1)(C)(v). It seems clear that the primary purpose of the locks is to keep consumers bound to their existing networks, rather than to protect the rights of copyright owners in their capacity as copyright owners. This observation is not a criticism of the mobile phone industry's business plans and practices, which may well be justified for reasons having nothing to do with copyright law and policy, but simply a recognition of existing circumstances. Because there appear to be no copyright-based reasons why circumvention under these circumstances should not be permitted, the Register recommends that the Librarian designate a class of works similar to the class designated in 2006.

The Register notes that the 2006 class, and the new one designated herein, are both narrow, apply only to claims under Section 1201(a)(1), and do not establish a general federal policy of ensuring that customers have the freedom to switch wireless communications service providers. The designated classes, both new and old, simply reflect a conclusion that unlocking a mobile phone to be used on another wireless network does not ordinarily constitute copyright infringement and that Section 1201(a)(1), a statute intended to protect copyright interests, should not be used to prevent mobile phone owners from engaging in such noninfringing activity.

NTIA supported designation of a class similar to the class designated in 2006, but proposed that while nonprofit entities should be permitted to take advantage of the exemption, commercial users should not. The Register's recommendation, in contrast, would permit some commercial activity, so long as it (1) involves only used handsets, (2) is done by the owner of the copy of the computer program, and (3) is done solely in order to access such a wireless telecommunications network and access to the network is authorized by the operator of the network. The Register believes that these limitations ensure that the designation of this class will not benefit those who engage in the type of commercial activity that is at the heart of the objections of opponents of the proposed class: the bulk resellers who purchase new mobile phone handsets at subsidized prices and, without actually using them on the networks of the carriers who market those handsets, resell them for profit. The type of commercial activity that would be permitted would be the resale of used handsets after the owners of the handsets have used them and then given or sold them to somebody else, who then resells them just as a used bookstore sells used books. The Register acknowledges that NTIA's general view that the class should not extend to any commercial activity is inconsistent with aspects of the Register's recommendation, but believes that to the extent her recommendation goes beyond what NTIA was willing to endorse, it does so in a way that, in NTIA's words, prevents unlawful use by those that would misuse the exemption for commercial purposes.

However, the applicability of the proposed class to commercial recyclers, such as the ones who had proposed the original class of works, is limited. When the commercial recycler has made a derivative work that is within Section 117's privilege for making adaptations, the recycler is subject to a significant limitation contained within Section 117: such adaptations may be transferred only with the authorization of the copyright owner. Thus, a recycler who prepares such an adaptation may not transfer ownership of the copy of the adapted computer program to anybody else without the authorization of the copyright owner. On the other hand, a recycler who has not prepared an adaptation is free to resell the mobile phone along with the copy of the computer program contained within it.

The new class is also cabined by existing law in two important respects. First, as with any regulation under Section 1201(a)(1)(C) and (D), the designation of this class offers no safe harbor from liability under Section 1201(a)(2) which strictly prohibits an entity from offering a circumvention service. Second, a wireless carrier's Terms of Purchase and Terms of Service, which are binding contracts, still impose use restrictions on consumers notwithstanding the designation of this class. However, the wireless carrier must seek a remedy by asserting a claim of breach of contract, and not a claim under Section 1201(a)(1).

D. Video games accessible on personal computers and protected by technological protection measures that control access to lawfully obtained works, when circumvention is accomplished solely for the purpose of good faith testing for, investigating, or correcting security flaws or vulnerabilities, if:

- The information derived from the security testing is used primarily to promote the security of the owner or operator of a computer, computer system, or computer network; and

- The information derived from the security testing is used or maintained in a manner that does not facilitate copyright infringement or a violation of applicable law.

Professor J. Alex Halderman proposed two classes of works relating to investigating and correcting security flaws or vulnerabilities created or exploited by technological measures protecting certain kinds of works. The Register concludes that Halderman has made the case for a class pertaining to video games, but has not made the case for a broader class pertaining to literary works, sound recordings and audiovisual works.

In each case, Halderman qualified the scope of the proposed class by restricting it to (1) lawfully obtained works protected by access control measures that create or exploit security flaws or vulnerabilities that compromise the security of personal computers, and (2) cases where circumvention is accomplished solely for the purpose of good faith testing, investigating, or correcting such security flaws or vulnerabilities.

In the current proceeding, Halderman did not present any evidence that the prohibition on circumvention is adversely affecting or is likely, in the next three years, to adversely affect the ability to engage in noninfringing uses of sound recordings or audiovisual works, or of literary works except to the extent that video games may be considered, in part, to constitute audiovisual works associated with such sound recordings. There is no information in the record that would justify again exempting the class designated three years ago.

However, Halderman did present evidence and legal analysis in support of a class of works limited to video games. Under Section 102(a) of the Copyright Act, video games are hybrid in that they fall within two statutory classes of works. Video games typically are, in part, computer programs, which are a subset of the statutory category of literary works. The evidence related to two types of access controls applied to video games: Macrovision's SafeDisc software and Sony's SecuRom software. Halderman asserted that the measures constitute access controls because, in both cases, the measures authenticate discs and enforce access policies.

The alleged underlying noninfringing use involved is twofold. First, purchasers of video games (including researchers) are engaged in noninfringing use when they install, access, and play authorized copies of such video games while further seeking to protect the security of their computers. Second, researchers in lawful possession of copies of games are engaged in noninfringing uses when they seek solely to research and investigate whether a video game, or the technological measure protecting it, creates security vulnerabilities or flaws. Professor Halderman asserted that such good faith research that does not cause or promote infringement generally constitutes fair use.

Halderman alleged that SecuROM may create security flaws or vulnerabilities. He referred to a number of articles and class action lawsuits suggesting that SecuROM may contain flaws or cause vulnerabilities. He further stated that a single definitive scientific study might quell the panic, protests, and litigation to what may turn out to be nonexistent or easily repairable faults.

Halderman also alleged that harm is caused by Macrovision's SafeDisc. He alleged that SafeDisc was preinstalled on nearly every copy of the Microsoft Windows XP and Windows 2003 operating systems, [and that] the vulnerability affected nearly one billion PCs, two thousand times more than the [Sony] rootkit, the security vulnerability that serviced as the factual basis for designating a class in the last rulemaking. He claimed that the security flaw created by SafeDisc was much more dangerous than the Sony rootkit flaw involved in the previous rulemaking that concluded in 2006, because this flaw allowed attackers to execute unrestricted `kernellevel' code and read or write to any area of the hard disk or memory of the PC, thus facilitating the complete compromise of the security of the PC.

Opponents raised three principal arguments against Halderman's proposal. First, they argued that he provided little concrete or documented evidence that any security flaws or vulnerabilities associated with access control mechanisms used in connection with video games exist. Second, they argued that there is no evidence that research has been chilled, pointing to what they called a robust ecosystem within which security experts routinely identify such flaws, collaborate on remedies, and disseminate information to alert computer users of the problems and them to solutions. Third, they argued that Professor Halderman failed to establish that the conduct at issue is prohibited by Section 1201(a)(1), since a statutory exemption (in particular, 17 U.S.C. 1201(j) might apply to the security research.

NTIA has advised the Register that he believes the record supports designating the requested class relating to video games and other works accessible on personal computers. NTIA believed that the proponents have persuasively argued that without a research exemption, research into all current and future vulnerabilities will be and is chilled now, and concurred with the Librarian's conclusion in 2006 that the research may not be covered

completely by the existing statutory exemptions. NTIA further believes that although the Sony Rootkit vulnerability no longer exists, it seems to be a certainty that new vulnerabilities will emerge in the next three years.

Overall, the Register has concluded that the factors set forth in 17 U.S.C. 107 tend to strongly support a finding that such good faith research constitutes fair use. The socially productive purpose of investigating computer security and informing the public do not involve use of the creative aspects of the work and are unlikely to have an adverse effect on the market for or value of the copyrighted work itself. The proponents established an underlying noninfringing use.

The next question is whether the prohibition is causing an adverse effect on such noninfringing uses. The record is essentially limited to SecuRom and SafeDisc. The evidence relating to SecuRom tends to be highly speculative, but Professor Halderman asserted that this situation has been crying out for an investigation by reputable security researchers in order to rigorously determine the nature of the problem that this system cause[s], and dispel this uncertainty about exactly what's going on. He believed that the prohibition on circumvention is at least in part to blame for the lack of rigorous, independent analysis.

In contrast to SecuROM, SafeDisc has created a verifiable security vulnerability on a large number of computers. Opponents of the proposed class did not dispute that SafeDisc created a security vulnerability, but they argued that the security flaw was patched by Microsoft in 2007, without the need of an exemption. However, SafeDisc was preloaded on nearly every copy of Microsoft's Windows XP and Windows 2003 operating systems and was on the market for over six years before a security researcher discovered malware exploiting the security. The vulnerability had the capacity to affect nearly one billion PCs.

The record supports the conclusion that since the 2006 rulemaking, substantial vulnerabilities have existed with respect to video games certainly with respect to SafeDisc and possibly with respect to SecuROM. Within the same class of works, security researchers have proposed investigation of unconfirmed allegations of security vulnerabilities on another technological protection measure (SecureROM) that protects access, but have expressed unwillingness to do so without clear legal authority. Aggregating the evidentiary record, the proponents have shown that they need to be able to fix flaws that are identified in this class of works and they need to be able to investigate other alleged security vulnerabilities in this class.

Opponents argued that there may be no need to designate a class in this proceeding because circumvention may already be excused pursuant to Section 1201(j), which provides an exemption for security testing. However, the Register has concluded, as she did three years ago, that it is unclear whether Section 1201(j) applies in cases where the person engaging in security testing is not seeking to gain access to, in the words of Section 1201(j), a computer, computer system, or computer network. Therefore, it is appropriate to designate a class of works in this proceeding.

Section 1201(j) does, however, influence both the decision to recommend designation of a class and the decision on how to fashion the class. Section 1201(j) is evidence of Congress's general concern to permit circumvention under appropriate circumstances for purposes of security testing, and it also is evidence of the conditions Congress believes should be imposed on those who take

advantage of an exemption for security testing. Accordingly the Register recommends that the Librarian designate a class of video games protected by access controls, when circumvention is done for the purpose of good faith testing for, investigating, or correcting security flaws or vulnerabilities. Further refinements to the class include a requirement that the information derived from the testing be used primarily to promote the security of the owner or operator of a computer, computer system, or computer network; and a requirement that that information be used or maintained in a manner that does not facilitate copyright infringement or a violation of applicable law.

E. Computer programs protected by dongles that prevent access due to malfunction or damage and which are obsolete. A dongle shall be considered obsolete if it is no longer manufactured or if a replacement or repair is no longer reasonably available in the commercial marketplace.

Three years ago, the Librarian designated the abovereferenced class of works, which is similar to classes of works designated in each of the previous rulemakings. In the current proceeding the proponent of that class, Joseph V. Montoro, Jr., on behalf of Spectrum Software, Inc., has proposed an expanded class of works related to dongles. Dongles are a type of hardware that attach to either the printer port or the USB port of a computer in order to make secured software function. Montoro stated that dongles are sold along with certain types of software and are necessary for the user to access that software on a computer. He further explained that in order for the dongle to operate properly, the operating system must support the hardware and the required device driver must be installed. Montoro submitted that there are four situations where an exemption is necessary to rectify actual harm: (1) when dongles become obsolete; (2) when dongles fail; (3) where there are incompatibilities between the dongle and the operating system, and (4) where there are incompatibilities between the dongle and certain hardware. Montoro had stressed that his proposal is as much about the computer ecosystem as it is about dongles, in particular. He said that it is important to realize that the dongle, the operating system software and the computer hardware work in tandem and that the proposed class necessarily covers all of these parts.

Representatives of the computer software industry stated that they do not oppose renewing the existing class of works, but object to expanding it beyond its current terms.

As in 2006, the Register finds that the case has been made for designation of a class of works protected by dongles. Montoro has effectively met his burden of proof for a class relating to dongles that are malfunctioning or damaged and that are obsolete, a point on which there is no disagreement in the record. When the dongle no longer functions and is obsolete, there is a substantial adverse effect on noninfringing uses because there is no other means to access the lawfully acquired software. When a dongle malfunctions or becomes obsolete, a person lawfully entitled to access the software should be able to rely on selfhelp if remedial measures are not reasonably available in the commercial marketplace. Moreover, the record reveals no evidence of harm to the market for, or value of, copyrighted works protected by dongles since the designation of the original class of works in 2000.

The class, however, should not include cases where a replacement dongle is reasonably available or can be easily repaired. Some copyright owners legitimately use dongles to control access to a computer program by unauthorized users and are entitled to the full benefit of the prohibition as long as reasonable accommodations are offered for malfunctioning or damaged dongles.

Montoro has not demonstrated that the standard previously applied reasonably available in the marketplace is insufficient to meet the needs of users of copyrighted works whose dongles malfunction or are damaged.

Montoro also argues that the current class should be expanded to reach situations involving incompatibility between the dongle and a new or upgraded version of an operating system. The Register finds that he has failed to submit cogent evidence to support an expanded class in this context. A sufficient record would require more detail about the precise cause of the problems, the scope of the problem, and the noninfringing means available to resolve the problem.

The evidence presented in the record also does not support Montoro's request to expand the class in relation to obsolete hardware, specifically parallel ports on computers. While it appears to be the case that parallel ports may be obsolescent, there is insufficient evidence in the record to support the conclusion that parallel ports are currently, or in the next three years will be, obsolete. In order to make a case for an expanded class in relation to obsolete hardware, Montoro would have to demonstrate that the hardware is, or is likely to be, obsolete in the next three year period (either as a preinstalled item or as an optional configuration), that the unavailability of this obsolete hardware would adversely affect noninfringing uses, and that copyright owners are not meeting the legitimate needs of existing users.

#### IV. Other Classes Considered, but Not Recommended

A. Subscription based services that offer DRMprotected streaming video where the provider has only made available players for a limited number of platforms, effectively creating an access control that requires a specific operating system version and/or set of hardware to view purchased material; and Motion pictures protected by antiaccess measures, such that access to the motion picture content requires use of a certain platform.

Two proposals sought designation of classes of works that would allow circumvention of technological protection measures in order to provide access to motion pictures on platforms other than those authorized by content providers or their licensees.

Megan Carney proposed a class of works in order to allow circumvention of DRMprotected streaming videos offered by subscription based services, where the provider has made players available only for a limited number of platforms. She argued that this restriction of viewing options effectively constitutes an access control by requiring a specific operating system version and/or set of hardware to view purchased material. She sought to use Netflix's Watch Instantly streaming video feature, which installs digital rights management and runs only on certain platforms of computer software and hardware. Watch Instantly is included, at no charge, in the monthly Netflix membership, but Carney said that she is unable to use it because she does not own a computer that operates on a compatible platform (PCs running Windows or Apple computers with Intel chips). Carney proposed that the Librarian designate a class or works in order to allow a user in her situation to create a separate program to circumvent the DRM on the streaming service system in order to view streaming video content made available by Netflix.

Another proponent, Mark Rizik, proposed a class of works to allow the circumvention of motion pictures on DVDs protected by the CSS access control system, which requires the use of a certain platform for access. Specifically,

Rizik would like to view, on a Linuxbased computer that does not have a CSSlicensed video player, DVDs that are only viewable on CSSlicensed players. Rizik sought designation of a class in order to permit the creation of an unencrypted digital copy of the DVD by decrypting and extracting contents of DVDs for personal viewing purposes on Linux operating systems.

The Motion Picture Association of America, Time Warner, and a coalition of copyright industry trade associations (the Joint Creators) opposed these requests. NTIA has advised that it believes that the record does not support granting the requests.

The proponents of both classes of works sought to circumvent the access controls because, they contended, it is too expensive to acquire the hardware and software with the minimum requirements necessary to view motion pictures on the distribution mechanism of their choice. They also argued that there are no reasonable, noninfringing alternatives to circumvention for those wishing to engage in the activity affected by these platform requirements.

Similar classes to those proposed by Carney and Rizik have been requested and denied in the past three rulemakings. Although the streaming video proposal presents a new factual situation, the Register concludes that the legal arguments are fundamentally similar to the proposals relating to the viewing of DVDs on computers with Linux operating systems that were advanced in the previous three rulemakings, when those proposals were rejected. Likewise, arguments for the streaming video and Linux classes fail for fundamentally the same reasons as the earlier Linux proposals, and the Register cannot recommend that the Librarian designate either of these proposed classes of works.

In these rulemakings, proposed classes have regularly been rejected in cases where a user who wished to engage in a noninfringing use of a work using a particular device already had the ability lawfully to engage in the same noninfringing use of the work using a different device. The same principle applies here. Alternative means exist to gain access to and view the motion pictures that Carney and Rizik wish to view after circumventing access controls. In any event, it is unclear from the record regarding streaming videos what is actually prohibiting Carney from being able to access the Netflix Watch Instantly feature and, in particular, whether the technological issue is centered around an access control. It cannot be discerned from the record whether Carney cannot gain access due to digital rights management or due to software and/or hardware incompatibility.

Regarding DVD circumvention, many operating systems on the market enable authorized access to the works contained on CSSprotected DVDs. Moreover, CSScompatible DVD players are in fact available for some Linux systems.

Further, many alternatives exist for both Carney and Rizik, including other streaming video alternatives and online content download sites. There are many reasonablypriced alternatives that may fulfill consumers's wants and needs, including purchasing a DVD player. Mere consumer inconvenience is not sufficient to support the designation of a class of works. The statute does not provide that this rulemaking is to enable the most convenient method of consuming video content. The proponents have merely advanced requests in order to satisfy their convenience and preferences as to how they would like to access media and have failed to demonstrate a need for remedial action. Accordingly, the Register cannot recommend the Librarian designate either proposed class in light of the alternatives that exist in the marketplace today.

B. Lawfully purchased sound recordings, audiovisual works, and software programs distributed commercially in digital format by online music and media stores and protected by technological measures that depend on the continued availability of authenticating servers, when such authenticating servers cease functioning because the store fails or for other reasons; and

Lawfully purchased sound recordings, audiovisual works, and software programs distributed commercially in digital format by online music and media stores and protected by technological measures that depend on the continued availability of authenticating servers, prior to the failure of the servers for technologists and researchers studying and documenting how the authenticating servers that effectuate the technological measures function.

Christopher Soghoian of the Berkman Center for Internet & Society at Harvard University has proposed two classes of works to allow the circumvention of technological measures that depend on the continued availability of authenticating servers (or DRM servers) for the following uses: (1) by consumers, for access to and ordinary enjoyment of purchased works, and (2) by technologists and researchers, documenting the function of the technological measures. The technological measures in question regulate user access to copyrighted works via connections to remote online authenticating servers, and therefore always require that the server be operational; if the server is shut down, the authentication process cannot take place and access for the user will be denied.

Joint Creators and Time Warner opposed Soghoian's requests, and NTIA has advised the Register that it believes that the record does not support them.

Soghoian's first proposal, regarding DRM servers that control access to lawfully purchased sound recordings, audiovisual works and software programs, was based upon several recent instances where online music and media stores that tethered their commercial distribution of digital works to DRM servers ceased operations. The proposal would not permit circumvention of operational DRM servers, but would cover only situations in which the particular authentication server has ceased to function. Soghoian argued that when the DRM servers malfunction or are shut down by their operators, consumers lose the ability to engage in the legitimate, noninfringing usage of content that they lawfully purchased and reasonably expected to continue using. However, there is no evidence that such a loss of rights has actually occurred thus far.

Soghoian argued that, given the record he presents of digital media stores shutting down their DRM servers, and given the increased migration of customers from physical CDs to downloads, it is likely that in the next three years at least one DRM media store and/or its authenticating servers will shut down, adversely affecting the ability to engage in noninfringing use of the protected works by those who purchased them. He proposed that exempting circumvention of DRM server technology after a server has stopped functioning is a reasonable remedy for these adverse effects under three of the four Section 1201(a)(1)(C) factors.

The Register cannot recommend this proposed class for the simple reason that the proponent has not sustained his burden of demonstrating that the prohibition on circumvention of access controls either has produced, or is likely to produce, any adverse effects on noninfringing uses of the proposed class of works. Here, no such instances of adverse effects have been shown. If, in the absence of current adverse effect, designation of a class of works is to be based solely upon anticipated harm, the evidence of likelihood of future adverse impact

during that time period [must be] highly specific, strong and persuasive. Evidence of such a compelling nature is lacking here as well.

The fundamental question in evaluating this proposal is whether the adverse effects complained of by the proponent, DRM-based stores that cease to operate or abandon their authenticating server system cause their customers to lose full, and often any, access to, and thus use of, their lawfully purchased works, are real, verifiable and reasonably likely to recur. There are several persuasive reasons in the record to answer this question in the negative.

Regarding the three categories of copyrighted works that Soghoian identified in his proposal, he presented no information that one of them, software in this instance, is even being sold by online retailers using authentication servers. Thus, the Register's review of adverse effects must be restricted to sound recordings and audiovisual works. Soghoian asserts that such works were sold by two entities, Circuit City and Google, who, upon deciding to withdraw from the market, fully refunded their customers' purchase costs. In his testimony, Soghoian stated that he was willing to narrow the proposed class to permit circumvention only in the event that the service does not provide any remedy for consumers. He further stated that a refund is a totally appropriate and satisfactory remedy. Since the record of DRM-protected audiovisual works reveal only two defunct services and reveals that both provided acceptable remedies, there is no reason for the Register to consider this category of works in her determination.

With regard to sound recordings, of the three retailers who stopped selling DRM-protected works, Yahoo Music has provided full refunds. The two others, MSN Music and Walmart, announced in response to consumer backlash that they would keep their servers operational. The record demonstrates that, thus far, there have been no adverse effects on the noninfringing use of DRM-protected sound recording downloads since purchasers retain identical access and use abilities.

Soghoian's proposed class focused more on future harm, arguing that there is no reason to believe that other companies or services that fail or are shut down in the future will provide similar corrective steps. He predicted that companies smaller than Microsoft and Walmart will not have the resources to provide refunds or keep authentication servers operating and that given the state of the economy, more companies will be jettisoning their DRM-protected music businesses and may decide simply to deactivate their authentication servers without advance warning. This appears to be pure conjecture. Soghoian presented no evidence supporting his claim that if another online retailer decides to disable its authentication server, it will leave affected consumers without a remedy. To the contrary, the record shows that the two companies (MSN Music and Walmart) that have discontinued their services are still keeping the servers operational. Thus, the prediction that, within the next three years, consumers will be prevented from accessing and using DRM-protected works due to the cessation of operations by an authentication server is purely hypothetical.

The Register therefore recommends rejection of this proposed class.

Soghoian's second proposal relates to circumvention of the same DRM servers controlling access to the same categories of works as his first proposal. However, instead of being for the direct benefit of consumers, it would aid technologists and researchers studying and documenting how the authenticating servers that effectuate the technological measures function. Such study and documentation, the proposal states, would take place prior to the failure of the servers. This is intended to support Soghoian's first

proposed user class by providing consumers with documentation about how DRM servers function, so that they can actually understand how to engage in circumvention of works in his first proposed class.

Soghoian's legal argument in support of the researcher class rested upon a comparison with a similar class relating to rootkits that was designated in the 2006 rulemaking, where the Librarian designated a class to permit circumvention technological measures that (1) control access to lawfully purchased sound recordings and associated audiovisual works on CDs and (2) create or exploit security flaws or vulnerabilities that compromise the security of personal computers, when circumvention is accomplished solely for the purpose of good faith testing, investigating, or correcting such security flaws or vulnerabilities. Soghoian's proposal focused on the purpose of the existing rootkit class, contending that because his researcher class is also intended solely for good faith testing, investigation, and correction, it too meets the requirements for exemption from the anticircumvention statute. He did point out, however, that the cases of failed DRM and copy protection systems do not easily fit into the category of security flaw or vulnerability.

Soghoian's proposed research class of works ultimately rests upon the same speculative argument as his user class. Since the record makes clear that the purpose of designating the research class is to facilitate circumvention of works in the user class, the arguments supporting the research class fail on the same basis as those supporting the user class. Accordingly, the Register recommends the rejection of this proposed class.

C. Software and information recorded, produced, stored, manipulated or delivered by the software, that a forensic investigator seeks to copy, activate, or reverse engineer in order to obtain evidence in a court proceeding.

Glenn Pannenberg proposed designating a class of works for the benefit of forensic investigators (i.e., courtappointed evidence examiners) seeking evidence in a court proceeding. According to Pannenberg, forensic examiners practicing in the fields of financial or information technology may be faced with evidence that is recorded, produced, stored, manipulated or delivered by software covered under 17 U.S.C. 1201, or evidence that may be the software itself, as in a patent or licensing dispute. He asserted that in order to obtain access to such evidence, a forensic investigator may have to circumvent a technological protection measure in violation of Section 1201(a)(1)(A).

Joint Creators opposed Pannenberg's proposal, and NTIA has advised the Register that it believes the record does not support granting the request.

The Register finds that the proponent in this case has not met the statutory burden of proof. Pannenberg failed to intelligibly describe the nature of authorship of the proposed class of works. Moreover, he presented no compelling evidence, and provides no concrete examples, that noninfringing uses of works in the proposed class have been or will be affected by the circumvention ban. Indeed, he provided little information about the works to which he has apparently been denied access. Because of the lack of such information in the record, an evaluation of whether and the extent to which the prohibition on circumvention caused an adverse effect on noninfringing uses was not possible. The Register, therefore, declines to recommend that the Librarian designate this proposed class of works.

D. Audiovisual works delivered by digital television (DTV) transmission intended for free, overtheair reception by anyone, which are marked with a broadcast flag

indicator that prevents, restricts, or inhibits the ability of recipients to access the work at a time of the recipient's choosing and subsequent to the time of transmission, or using a machine owned by the recipient but which is not the same machine that originally acquired the transmission.

In the 2006 rulemaking, a number of commenters sought the designation of classes of works that target broadcast flags for television and radio broadcasts, noting that such restrictions could possibly interfere with the personal recording of digital broadcast content for timeshifting and formatshifting purposes. The Register rejected those requests, stating that there was no broadcast flag mandate in effect for either television or radio at that time and concluding that no relief could be granted based upon nonexistent regulations. The broadcast flag can be described as a digital code embedded in a digital television (DTV) broadcasting stream, which prevents digital television reception equipment from redistributing broadcast content. The FCC had broadcast flag restrictions, but they were overturned by the United States Court of Appeals for the District of Columbia Circuit.

In the current proceeding, Matt Perkins proposed a new broadcast flag class based upon the belief that broadcasters and copyright owners will experiment with copy protection measures to restrict the recording of broadcast television content after the completion of the transition to DTV. He asserted that consumers will experience frustration if their television recording privileges are in any way restricted.

The National Association of Broadcasters (NAB) opposed this request, and NTIA advised the Register that it believes the record does not support the request.

Perkins has failed to make his case for designating the proposed class. He has generally stated that a broadcast flag would interfere with the recording of digital television programming for personal use. However, he has not met his burden of proof in showing that regulatory action by the Librarian is warranted. There is no broadcast flag mandate for digital television broadcasts in effect, and it is highly speculative as to whether broadcasters and copyright owners will work to implement measures to restrict consumer recording privileges in the new DTV era.

In addition, the record does not indicate that there currently are any devices that include broadcast flags. Furthermore, Perkins's theory in support of his request lacks any explanation or justification as to what noninfringing use would be prevented by the prohibition on circumvention with respect to the broadcast flag and fails to provide evidence that actual harm exists or that it is likely to occur in the ensuing three year period. The proposed class is also misguided because it affects redistribution of content and does not appear to be related to an access control technology measure for purposes of Section 1201(a)(1). For the reasons stated above, the Register cannot recommend that the proposed request be granted.

E. Audiovisual works embedded in a physical medium (such as Blu-ray discs) which are marked for downconversion or downresolution (such as by the presence of an Image Constraint Token ICT) when the work is to be conveyed through any of a playback machine's existing audio or visual output connectors, and therefore restricts the literal quantity of the embedded work available to the user (measured by visual resolution, temporal resolution, and color fidelity).

Matt Perkins proposed a class of works based on audiovisual works embedded in Blu-ray discs. He stated that the Blu-ray disc's data structure allows a

disc publisher to assign an image constraint token to an audiovisual work. He further explained that a licensed Bluray disc player responds to that token by downrezzing the electronic video signal when conveyed over an untrusted analog connection (i.e., a trio of RCA cables). He asserted that no such constraints occur when the signal is conveyed over the preferred, trusted digital pathway (HighDefinition Multimedia Interface [HDMI] incorporating Highbandwidth Digital Content Protection [HDCP]). He argued that ICT denies access to discarded video details until a condition is satisfied (HDMI connectivity), and therefore that ICT qualifies as an access control measure under Section 1201. He admitted that there is little evidence that ICTs are currently embedded in available Bluray discs, but nevertheless asserted that the possible inclusion of an image constraint token will cause user frustration because program content will not be seen in the promised high definition format.

Advanced Access Content System Licensing Administrator, LLC (AACS LA) opposed the request, and NTIA has advised the Register that it believes the record does not support granting the request.

Perkins's request cannot withstand scrutiny. He has failed to meet his burden of proof demonstrating that relief is warranted with regard to the willful downconversion of high definition programming recorded on Bluray discs. He has not shown that the prohibition on circumvention has had or is likely to have a substantial adverse effect on a clearly identifiable noninfringing use. Similarly, he has not demonstrated the existence of actual harm, or the likelihood of future harm that designation of the proposed class would necessarily rectify. Specifically, he has not provided evidence that ICTs are currently being used on Bluray discs to restrict users from accessing the highest resolution format offered by Bluray discs. Further, the request is unnecessary because the potential problem described by Perkins is a rapidly disappearing legacy issue related to early generation high definition televisions. The Register recommends that the proposed class of works be rejected.

F. Literary works distributed in ebook format when all existing ebook editions of the work (including digital text editions made available by authorized entities) contain access controls that prevent the enabling either of the book's readaloud function or of screen readers that render the text into a specialized format.

In 2006, the Librarian designated a class consisting of Literary works distributed in ebook format when all existing electronic book (ebook) editions of the work (including digital text editions made available by authorized entities) contain access controls that prevent the enabling either of the book's readaloud function or of screen readers that render the text into a specialized format. The American Foundation for the Blind (AFB), which was the principal proponent of ebook exemptions in 2003 and 2006, has proposed that the Librarian redesignate the existing class to ensure that people who are blind or visually impaired are not excluded from the digital revolution in education, information and entertainment.

In support of its proposal, AFB offered an examination of five ebooks, two which it tested in the PDF format and three which it tested in the Microsoft Lit format. AFB stated that of these five books, only one or twenty percent of the sample was accessible. In order to make its case, the AFB had to demonstrate that the prohibition on circumvention has adversely affected, or is likely to adversely affect, users' ability to make noninfringing uses of a particular class of works. There was no dispute that making an ebook accessible

to blind and visually impaired persons is a noninfringing use. Therefore, the main question is whether the prohibition on circumvention of technological measures that control access has adversely affected the ability of blind and visually impaired persons to gain access to the literary content in ebooks.

In short, the proponents surveyed five ebook titles and found that three (Brian's Hunt, The Bridges of Madison County, and The Einstein Theory of Relativity) were not accessible in editions published in the Microsoft Lit format, one (The Sign of the Fish) was not accessible in an edition published in the Adobe PDF format, and one (The Complete Works of Edgar Allan Poe Volume 1) was accessible in the Adobe PDF format. Thus, four out of the five titles sampled were available in formats that were not accessible.

Proponents of the class presented no other factual information relating to whether (and the extent to which) the prohibition on circumvention actually has had an adverse effect on the ability of blind and visually impaired persons to engage in the noninfringing use of reading ebooks by using screen readers and the readaloud function offered in many ebooks.

Joint Creators did not oppose the request, but did question whether the prohibition on circumvention of access controls was to blame for the discrepancy between access for the fully sighted and access for the visually impaired. NTIA has advised the Register that it believes that an exemption based on this proposals should be renewed. NTIA did not state that the record supports granting the requested exemption; in fact, it observed that the case made by proponents is weak. Nevertheless, NTIA concluded that despite the limited level of information provided, it is persuaded that harm to these uses and users is likely to exist.

In reviewing the evidence presented in support of designating the proposed class, the first issue that is readily apparent is that two of the five works examined by AFB (The Einstein Theory of Relativity and The Complete Works of Edgar Allan Poe Volume 1) are in the public domain. Section 1201 does not prohibit circumvention of a technological protection measure when it simply controls access to a public domain work; in such a case, it is lawful to circumvent the technological protection measure and there is no need for an exemption. Thus, the two works in the public domain included in the tiny sample forty percent of the entire sample are irrelevant to the case for an exemption. Even though one of these two public domain works was found to be inaccessible, the prohibition on circumvention cannot be said to be adversely affecting uses of that work given that the prohibition does not apply to public domain works.

Two of the other ebooks cited in support of designating the class Brian's Hunt and The Bridges of Madison County, are alleged to be inaccessible in Microsoft Lit format. However, the proponents did not state whether those titles are accessible and available in other formats, such as the widelyused PDF format. Because the proposed class, like the classes approved in 2003 and 2006, requires that all existing ebook editions of the work (including digital text editions made available by authorized entities) contain access controls that prevent the enabling either of the book's readaloud function or of screen readers that render the text into a specialized format, the evidence relating to these two titles is insufficient to justify the designation of the proposed class. If Brian's Hunt and The Bridges of Madison County are available in other editions that provide readaloud and screen reader accessibility, then they are not examples of works justifying redesignation of the class. In failing to even check to see whether Brian's Hunt and The Bridges of Madison County are available in an accessible format, the proponents failed to meet their

burden of proof with respect to those two titles.

The final book offered as an example of inaccessibility was *The Sign of the Fish*, by Joann Klusmeyer. The proponents of the class stated that the book opened in Acrobat, but content was not accessible. Nothing was said about whether the book was also available in other formats (and, if so, whether those formats were accessible). Again, the proponents presented insufficient evidence to evaluate whether yet another of the limited number of titles in their sample was inaccessible in all ebook formats.

Although the Register could recommend against designation of the proposed class based simply upon the proponents' failure to provide sufficient evidence to evaluate whether any of the three nonpublic domain books cited by the proponents are inaccessible in all ebook formats, the Register's staff conducted some additional research to determine whether the case could be made that any or all of those books are inaccessible in all formats. With respect to Brian's Hunt and *The Bridges of Madison County*, a quick review of the market revealed that both of these works are available as digital texts through Bookshare.org. However, *The Sign of the Fish* is not available in any edition that permits the enabling of the ebook readaloud function or of screen readers. However, the Register cannot conclude that the prohibition on circumvention has had an adverse effect on the noninfringing use of reading ebooks with screen readers or the readaloud function when the evidence reveals the case is built upon a single obscure book.

The Register fully supports universal accessibility to ebooks for the blind and visually impaired. However, the rulemaking established by Congress requires proponents to demonstrate, de novo, in each rulemaking proceeding, that relief relating to a particular class of works is warranted for the ensuing three-year period. The Register is sympathetic to the needs of the blind and visually impaired, and agrees that as a matter of policy, access to ebooks for the visually impaired should be encouraged and that, when there is evidence that the prohibition on circumvention is having an adverse impact on that goal, an appropriate class of works should be designated in this rulemaking. The Register has not hesitated to recommend such classes when the record has supported such a recommendation. However, unless the burden of presenting a prima facie case is met, the statutory standard established for this rulemaking does not permit the designation of a class of works. Presenting strong policy arguments in favor of exempting a class of works from the prohibition on circumvention is only part of the battle that a proponent must wage; it is also necessary to provide sufficient facts to justify a finding that the prohibition actually is having or is likely to have an adverse effect on noninfringing uses.

For all of the reasons set forth above, the Register finds no factual basis for designating the proposed class of works. While the Register's recommendations in previous rulemakings made clear that the Register understands and accepts the legal and policy reasons for such an exemption, the constraints established by Congress in this rulemaking proceeding do not permit the designation of a class of works in the absence of a factual record that supports the need for the designation. No such showing has been made in this proceeding.

#### IV. Conclusion

Having considered the evidence in the record, the contentions of the parties, and the statutory objectives, the Register of Copyrights recommends that the Librarian of Congress publish the five classes of copyrighted works designated above, so that the prohibition against circumvention of technological measures

that effectively control access to copyrighted works shall not apply to persons who engage in noninfringing uses of those particular classes of works.

Dated: July 19, 2010

Marybeth Peters,

Register of Copyrights.

<EXTRACT><FP2>Determination of the Librarian of Congress</FP2>  
</EXTRACT>

Having duly considered the recommendation of the Register of Copyrights as summarized above and having accepted that recommendation with respect to all but one of the classes of works under consideration, the Librarian of Congress is exercising his authority under 17 U.S.C. 1201(a)(1)(C) and (D) and is publishing as a new rule the six classes of copyrighted works that shall be subject to the exemption found in 17 U.S.C. 1201(a)(1)(B) from the prohibition against circumvention of technological measures that effectively control access to copyrighted works set forth in 17 U.S.C. 1201(a)(1)(A).

The Librarian has considered but rejected the Register's recommendation with respect to the proposed class of works consisting of literary works distributed in ebook format. This class of works was proposed by the American Foundation for the Blind (AFB) and is identical to that for which an exemption was granted in 2006 and similar to the class for which an exemption was granted in 2003.

The Librarian understands, and agrees with, the Register regarding the requirement that a decision on a proposed class of works be made based on the record developed in the rulemaking proceeding. In the view of the Librarian, the proposed exemption should be granted because: (1) the record includes statements on the likelihood of access not being available to blind individuals, (2) no one opposed the exemption, and (3) there are broad benefits to society in making works accessible to the visually impaired. The Librarian notes that, in contrast with its actions in both 2003 and 2006, the Copyright Office did not submit any posthearing questions on this proposed exemption. Such development of the record would have been helpful. The Librarian also notes that the Assistant Secretary for Communications and Information of the Department of Commerce, with whom the Register is required by Section 1201(a)(1)(C) to consult when she makes her recommendation, supports granting the exemption.

Accordingly, the Librarian is designating the class of works relating to literary works distributed in ebook format.

Notwithstanding the above, the Librarian is aware that, in the past two years, the Register and her legal staff have invested a great deal of time in analyzing the myriad of issues that combine to make it difficult for blind and printdisabled persons to obtain access to certain ebooks. The Copyright Office has hosted comprehensive meetings with stakeholders, solicited public comment on the application of domestic and international law to accessibility, participated in interagency and intergovernmental meetings in Washington, DC and Geneva, and, with the World Intellectual Property Organization, cosponsored a major international training program for experts from developing countries. Through this work, the Register has come to believe that more general Congressional attention on the issue of accessibility is merited. I agree with the Register in

this determination.

The section 1201 process is a regulatory process that is at best ill-suited to address the larger challenges of access for blind and print-disabled persons. The exemption that the Librarian is approving here offers a solution to specific concerns that were raised in the narrow context of the rulemaking. Moreover, it is a temporary solution, as the 1201 process begins anew every three years.

Outside of section 1201 and the issue of technological protection measures, the Register has been examining whether copyright law, and to some extent related disabilities and education laws, adequately serve the blind and print-disabled population in the digital age. In particular, the Register has learned that, even where books are published electronically for the general public, the digital format used or licensed may be employed in a way that is incompatible with Braille readers and other assistive technologies on which blind and print-disabled persons rely. In the long run, this incompatibility may lead to delays, cost challenges and standards issues that may offset the long-awaited benefits of digital media. Copyright and content issues cannot be divorced from the general goal of ensuring that hardware devices are designed with accessibility in mind. The Librarian fully supports the Register in her examination of these issues and urges Congress to work with the Copyright Office to consider accessibility beyond the contours of this 1201 rulemaking.

List of Subjects in 37 CFR 201  
Copyright, Exemptions to prohibition against circumvention.

#### Final Regulations

For the reasons set forth in the preamble, 37 CFR part 201 is amended as follows:

<REGTEXT TITLE="GENERAL PROVISIONS" PART="201">  
Part 201 GENERAL PROVISIONS

1. The authority citation for part 201 continues to read as follows:

Authority:  
17 U.S.C. 702

2. Section 201.40 is amended by revising paragraph (b) to read as follows:

201.40 Exemption to prohibition against circumvention.

(b) Classes of copyrighted works. Pursuant to the authority set forth in 17 U.S.C. 1201(a)(1)(C) and (D), and upon the recommendation of the Register of Copyrights, the Librarian has determined that the prohibition against circumvention of technological measures that effectively control access to copyrighted works set forth in 17 U.S.C. 1201(a)(1)(A) shall not apply to persons who engage in noninfringing uses of the following five classes of copyrighted works:

(1) Motion pictures on DVDs that are lawfully made and acquired and that are protected by the Content Scrambling System when circumvention is accomplished solely in order to accomplish the incorporation of short portions of motion

pictures into new works for the purpose of criticism or comment, and where the person engaging in circumvention believes and has reasonable grounds for believing that circumvention is necessary to fulfill the purpose of the use in the following instances:

(i) Educational uses by college and university professors and by college and university film and media studies students;

(ii) Documentary filmmaking;

(iii) Noncommercial videos.

(2) Computer programs that enable wireless telephone handsets to execute software applications, where circumvention is accomplished for the sole purpose of enabling interoperability of such applications, when they have been lawfully obtained, with computer programs on the telephone handset.

(3) Computer programs, in the form of firmware or software, that enable used wireless telephone handsets to connect to a wireless telecommunications network, when circumvention is initiated by the owner of the copy of the computer program solely in order to connect to a wireless telecommunications network and access to the network is authorized by the operator of the network.

(4) Video games accessible on personal computers and protected by technological protection measures that control access to lawfully obtained works, when circumvention is accomplished solely for the purpose of good faith testing for, investigating, or correcting security flaws or vulnerabilities, if:

(i) The information derived from the security testing is used primarily to promote the security of the owner or operator of a computer, computer system, or computer network; and

(ii) The information derived from the security testing is used or maintained in a manner that does not facilitate copyright infringement or a violation of applicable law.

(5) Computer programs protected by dongles that prevent access due to malfunction or damage and which are obsolete. A dongle shall be considered obsolete if it is no longer manufactured or if a replacement or repair is no longer reasonably available in the commercial marketplace.

(6) Literary works distributed in ebook format when all existing ebook editions of the work (including digital text editions made available by authorized entities) contain access controls that prevent the enabling either of the book's readaloud function or of screen readers that render the text into a specialized format.

Dated: July 20, 2010

James H. Billington,

The Librarian of Congress.

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