

Dear Sirs,

I am a private citizen of the United States of America. I speak for no company or person other than myself. I have serious concerns regarding means by which I believe our Digital Millennium Copyright Act is being misused, and I wish to comment upon these concerns as part of 37 CFR Part 201 [Docket No. RM 99-7] "Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies".

> A. Technological Measures:

> 1. What technological measures that effectively control access to
> copyrighted works exist today?

If I may interpret this question broadly, I have seen 4 major systems for controlling and enforcing copyrights:

1) Guaranteed-Authenticity: The consumer (purchaser) of an item is supplied with unduplicatable materials that guarantee authenticity. It relies on consumers being aware of the unduplicatable materials, and refusing to accept unauthenticated copies.

Typical implementations of Guaranteed-Authenticity include holograms or special writing on the original media itself.

2) User-Identification: This technique involves identifying each copy uniquely, and relies on folks' fear of being traced should they illegally copy or distribute copyrighted works.

Implementations include unique serial numbers or passwords that users must enter to install or utilize the copyrighted work, such as the serial numbers that are required by so many software packages for installation.

An alternative, somewhat more questionable implementation is to silently embed unique hardware identifiers into the copyrighted work during installation, or into work generated through the copyrighted work during its use. An example of this would be the unique id, based upon a MAC address, that Microsoft Office was silently including in all the documents it created as of last March.

3) Anti-Copying: Technological means of preventing duplication of the work

Implementations include inks that will not photocopy, and video signals that prevent duplication.

4) Anti-Use: Technological means that prevent viewing or using the work. Typically complemented by dedicated viewing hardware or software that must be acquired separately.

Implementations include encryption systems, such as those utilized by DVDs, Cable TV providers, and certain musical formats.

- > 2. Do different technological measures have different effects
- > on the ability of users to make noninfringing uses? Can and should the
- > Librarian take account of those different effects in determining
- > whether to exempt any classes of works from the anticircumvention
- > provisions of section 1201? If so, how? In determining what
- > constitutes a class of works?

Yes, different technological measures have different effects on the ability of users to make noninfringing uses.

Guaranteed Authenticity has no effect whatsoever.

User identification has no immediately discernible effect. Although it can, and has, been used to trace information back to the user who generated it. Sometimes, perhaps, inappropriately.

Anti-Copying inhibits the production of archival copies. As modern media, such as videotape, cdroms, and DVD's, lack the durability of paper, in some cases having an expected lifespan of a mere 10 years, this becomes more of an issue to the extent that duplication is allowed by law.

Anti-Use inhibits the user from making any sort of NON-infringing use, except those sanctioned by the producer of that material. Effectively, it abridges the law of the people in favor of a totalitarian system imposed by the whim of the producer. It is at best disturbing, and at worst immoral. However, you can still copy the material perfectly fine.

> B. Availability of Works:

- > 3 How has the use of technological measures that effectively control
- > access to copyrighted works affected the availability of such works to
- > persons who are or desire to be lawful users of such works?

The advent of Anti-Use technology for DVD-based movies prevents lawful users from viewing works lawfully purchased outside their region. As different countries have different standards of morality, this restriction is noteworthy. The United States tends to edit sexuality out of its movies. Europe tends to edit out the American violence. The same movie, cut for different countries, is no longer the same work. And all movies are not necessarily available in all regions.

- > 4. Are there specific works or classes of works that, because of the
- > implementation of such technological measures, have become unavailable
- > to persons who desire to be lawful users of such works? If so,
- > identify those works or classes of works and explain how they have
- > become unavailable.

As we move into the future, I believe DVD's will bear much the same relationship to VHS tapes as CD's currently relate to audio tapes and vinyl records. I believe that pictures for which there is a low demand will not be produced on VHS, or will be produced only after an extended time delay.

This has already begun to occur. The recent movie "The Matrix" was released on DVD on September 21, 1999. It was released on VHS on December 7, 1999.

Works, available solely in the DVD format, suffering from the previously mentioned constraints against non-infringing use, will then be rendered unavailable to persons who desire to make such non-infringing use. (Please see my response to question #13.)

- > 6. If there are works that are available both in formats to which
- > technological measures have been applied and in formats to which
- > technological measures have not been applied, to what extent can the
- > works in the latter formats substitute for the works in the formats
- > to which technological measures have been applied?

With respect to DVD's and VHS, they cannot substitute. DVD's tend

to be of higher quality. DVD's tend to include extra information that VHS tapes lack. Most VHS tapes are not letterboxed. Instead, they are pan-and-scan'ed to fit the 4:3 aspect ratio of a TV screen. As a result, parts of the movie are lost. In the case of the movie "Silverado", this led to the removal of one of the two gunfighters in the climatic scene!

> C. Availability of Works for Nonprofit Archival, Preservation, and Educational Purposes:

> 9. Has the use of technological measures that effectively control access to copyrighted works created problems with respect to the preservation of such works? If so, how? Are there specific works or classes of works that have been affected in this respect? If so, identify them and explain how they have been affected.

Anti-Copying, to the extent that it cannot be legally circumvented, prevents nonprofit archiving, period.

Anti-Use does not prevent nonprofit archiving. The bits will copy just fine. However, as the copy is not a source sanctioned by the manufacturer, Anti-Use will prevent anyone from ever actually using that archival copy, even to verify that the copying has occurred correctly. Typically, as addressed in question #18, this is not so much a technological barrier as a legal barrier.

> 10. Has the use of technological measures that effectively control access to copyrighted works affected the availability of such works for nonprofit educational purposes? If so, how? Are there specific works or classes of works that have been affected in this respect? If so, identify them, explain how they have been affected, and explain whether those works or classes of works are also available in other formats to which such technological measures have not been applied.

Anti-Use prevents any use, including use for nonprofit educational purposes, except under circumstances dictated by the manufacturer.

Please see my response to question #13.

> 11. For purposes of this rulemaking, in classifying works that are to be exempted from the prohibition against circumvention of technological measures that control access, should any classes of

- > works be defined, in part, based on whether the works are being used
- > for nonprofit archival, preservation, and/or educational purposes?
- > (E.g., "new broadcasts" may not be an exempted class of works, but
- > "news broadcasts used in the course of face-to-face teaching
- > activities of a nonprofit educational institution, in a classroom or
- > similar place of instruction," may be an exempted class.) Explain why
- > or why not.

No. I feel a better choice would be to permit all consumers to produce unlimited copies, with the restriction that no more than one copy ever be utilized at any given time. (This may involve changing our existing copyright laws.)

This relates to my earlier comments in question #2 regarding media lifespan. It is considered to be a problem when books disintegrate after a century or so. How much more of a problem will it be when digital storage media disintegrates after a mere decade?

Perhaps I can illuminate my position better with a question: If I buy a CD, do I own a copy of the music? Or just the media? What have I bought? If my pet uses this media as a chew toy, am I required to buy a new copy of the CD? Or am I permitted to produce and utilize a backup copy? What if it's a DVD that gets destroyed? Or a videotape? Granted, reproduction of DVD's is not yet practical. But reproduction of CD's and videotapes is practical. And DVD reproduction will become available in the future.

- > D. Impact on Criticism, Comment, News Reporting, Teaching,
- > Scholarship, or Research

- > 12. What impact has the use of technological measures that effectively
- > control access to copyrighted works had on the ability of interested
- > persons to engage in criticism, comment, news reporting, teaching,
- > scholarship, or research?

Anti-Copying and Anti-Use prevent the inclusion of excerpts as provided under "Fair Use".

Anti-Use prevents utilization for anything other than what the manufacturer has dictated. Please see my response to question #13.

- > 13. What impact has the use of technological measures that effectively
- > control access to copyrighted works had on the ability of interested

- > persons to engage in noninfringing uses of such works, including fair
- > use and activities permitted by exemptions prescribed by law?

DVD's utilize the Anti-Use protection mechanism.

I have, regrettably, purchased several DVD's. I have purchased a DVD-ROM drive. I have purchased a video card capable of playing DVD's.

In order to play the DVD's I bought, I now had to buy:

- * Microsoft Windows.
- * DVD playing software that the Motion Picture Association of America has sanctioned.
- * And enough harddrive space to store all this software.

These sanctioned DVD players are lousy. They frequently fail to work right. Patches refuse to install. Support is a nightmare. Windows itself is near legendary for its lack of reliability and support.

Costwise, the software can easily exceed the cost of the hardware.

Now, I write software for a living under Linux. If I attempt to write or use software to play DVD's under Linux, I risk arrest, the confiscation of my computers and livelihood, and years of civil and criminal legal proceedings.

Quite frankly, I don't care how good the movie is, IT'S JUST NOT WORTH IT.

In terms of non-infringing uses, Anti-Use is quite totalitarian. In exchange for your money, you are allowed to watch these movies on "sanctioned" platforms.

- * Any other platform is prohibited by law! This includes Linux, BEOS, DOS, Alpha-base hardware, Sparcs, SGIs, MIPS machines, etc.
- * If you want to feed the video imagery into software designed to sort video clips? It's outlawed!
- * If you want to use the video to test new your new 4-D video compression algorithms? It's outlawed!
- * If you want to perform histograms? If you want to perform statistical analysis of the video imagery, or perhaps the audio

data? It's outlawed!

* If you want to project the video image onto a warped (non-flat) surface? It's outlawed!

* If you want to use the video imagery as wallpaper on your computer? It's outlawed!

* If you want to use the audio as part of your computer's sounds? It's outlawed!

* If you want to write software to count the number of cuts to different cameras? It's outlawed!

* If you want to perform 3-D scene extraction? It's outlawed!

* If you want to extract a 3-D representation of a character? It's outlawed!

* If you want to run facial-recognition software on the video imagery? It's outlawed!

* If you want to run image enhancement software? It's outlawed!

* If you want to run speech-recognition software on the audio? It's outlawed!

* If you want to view every 10th frame, backwards? It's outlawed!

* If you want to colorize? It's outlawed!

* If you want to make it black and white? It's outlawed!

Let's face it, if you can think of it, and it's not merely watching the movie under Microsoft Windows, it's outlawed!

And by outlawed, I mean OUTLAWED! Title 17 USC Section 1201(a)(1) clearly states that it is illegal to circumvent a technological measure that effectively controls *ACCESS*! Literally, it is illegal for me to view the raw data I have LEGALLY PURCHASED!

I'm sure that somebody out there, particularly the folks from Time Warner, will still refuse to recognize my point. So permit me a small example. I wish to publish the text string "This is a test." However, as an copyprotection measure, I will publish it encrypted with a simple substitution cipher. I will replace 'a' with 'n', 'b'

with 'o', and so on. I can now publish the result:

"Guvf vf n grfg."

Now, as a consumer of this published text, you can trivially break the code. But that is illegal. If you want to read it, you must buy a "sanctioned" reader. My friend will sell you one for a fee. If you want to count the number of times I use the character 'i', you can't do it. My friend's "sanctioned" reader will not support it. And writing your own software is outlawed under Title 17 USC Section 1201(a)(1).

This is the nature of the problem that Time Warner and the Motion Picture Association of America deny exists. Then again, members of the MPAA are directly responsible for the arrest of a 16 year old kid, and the impoundment of that kid's computers. They even had his cell phone impounded! All for the crime of trying to view a movie he had legally purchased!

As I said before: I don't care how good the movie is, IT'S JUST NOT WORTH IT!

- > 14. Are there specific works or classes of works with respect to which
- > the ability of interested persons to engage in criticism, comment,
- > news reporting, teaching, scholarship, or research has been hindered
- > because of the implementation of such technological measures? If so,
- > identify them, explain how such activities have been hindered, and
- > explain whether those works or classes of works are also available in
- > other formats to which such technological measures have not been
- > applied.

The classes of work would be those protected by Anti-Use such as DVD, and to a lesser extent Anti-Copying.

Please see my response to question 13.

- > 15. Are there specific works or classes of works with respect to which
- > the ability of interested persons to engage in noninfringing uses has
- > been hindered because of the implementation of such technological
- > measures? If so, identify them, explain how such activities have been
- > hindered, and explain whether those works or classes of works are also
- > available in other formats to which such technological measures have
- > not been applied.

The classes of work would be those protected by Anti-Use such as DVD, and to a lesser extent Anti-Copying.

Please see my response to question 13.

- > 16. For purposes of this rulemaking, in classifying works that are to
- > be exempted from the prohibition against circumvention of
- > technological measures that control access, should any classes of
- > works be defined, in part, based on whether the works are being used
- > for purposes of criticism, comment, news reporting, teaching,
- > scholarship, or research? Explain why or why not.

Yes. I believe that any software or hardware that allows the circumvention of any copyright-protection measures for purposes of LAWFULLY utilizing LEGALLY obtained copyrighted material should be permitted.

- > 17. For purposes of this rulemaking, in classifying works that are
- > to be exempted from the prohibition against circumvention of
- > technological measures that control access, should any classes of
- > works be defined, in part, based on whether the works are being used
- > in ways that do not constitute copyright infringement, e.g., as fair
- > use or in a manner permitted by exemptions prescribed by law? Explain
- > why or why not.

Yes. I believe that any software or hardware that allows the circumvention of any copyright-protection measures for purposes of LAWFULLY utilizing LEGALLY obtained copyrighted material should be permitted.

> E. Effect of Circumvention on the Market for or Value of Copyrighted Works

- > 18. In what ways can technological measures that effectively control
- > access to copyrighted works be circumvented? How widespread is such
- > circumvention?

Everything man can build can be broken. Copy protection is the classical endless loop story. Laws prohibiting the export of decent encryption only decrease the amount of time before scrambling-based systems are broken.

In the case of DVD's, numerous means were initially developed to

intercept the digital output from sanctioned viewing software. Subsequently, the CSS encryption algorithm itself was broken.

Interception techniques are well known and publicly documented. However, the knowledge of their existence does not appear to be particularly widespread beyond those individuals who derive enjoyment from pushing the boundaries of technology.

In contrast, knowledge of the decryption algorithm is widespread among the technologically inclined. Word got out quickly that folks were taking legal action against anyone who distributed the decryption information. The effect was roughly the equivalent of attempting to extinguish an electrical fire with gasoline. Rather than discouraging the spread of this knowledge, everybody figured they'd better get their copy right away. With the net effect that the distribution of the decryption code accelerated rapidly by several orders of magnitude. Naturally, with the "gift culture" being common to so many of the technologically inclined, practically everyone who has the decryption information feels an obligation to share it, which has manifested itself in a series of contests, T-Shirts, and so forth.

Other systems, such as Anti-Copy, can and have been broken through technological means. One cannot outlaw electrical engineering. The equipment is generally obtainable. I've seen it for sale myself. But, as it does not interest me, I have not investigated this any further.

> 19. Has such circumvention (or the likelihood of circumvention) had
> any impact on the price of copyrighted works? Please explain.

CD's are readily copyable. Software exists to overcome the inherent problems of the media and generate perfect copies. Such copies can be converted to the mp3 format.

In spite of all the noise from the RIAA, I have yet to see them show any substantial financial loss. Or see any significant change to the price of CD's.

> 20. Has such circumvention (or the likelihood of circumvention) had
> any impact on the availability of copyrighted works? In particular
> formats or in all formats? Please explain.

I am aware that the latest Star Wars film was not released on DVD. It is rumored that this may be related to the insecurities of DVD. However, other rumors speculate that Mr. Lucas is merely playing a

waiting game, so as to increase his profits when a DVD version is finally released. Only Mr. Lucas knows for certain.

> F. Other Factors and Questions

> 23. For purposes of this rulemaking, what criteria should be used in
> determining what is a "class" of copyrighted works?

I would determine the classes based upon the means by which the copyrighted work is protected, as I defined in question #1.

Anti-Use is the only class that seriously affects and worries me. The only serious barrier to lawful non-infringing utilization of copyrighted works protected by Anti-Use is the very law you are about to judge. Title 17 USC Section 1201(a)(1) clearly states that it is illegal to *ACCESS* copyrighted materials that are protected by a technological measure.

Lawsuits are being filed over this very statement. Battles are being fought. People's lives are being ruined.

> 24. With respect to any adverse effect on use of or access to
> copyrighted works that has been identified in response to any of the
> preceding questions, is there an explanation for the adverse effect
> other than the presence of technological measures that effectively
> control access to copyrighted works?

No.

> 26. Has the use of technological measures that effectively control
> access to copyrighted works resulted in facilitating lawful uses of
> copyrighted works?

No. Quite the contrary. The use of technological measures that control access to copyrighted works has resulted in PREVENTING and OUTLAWING otherwise lawful uses of copyrighted works!

> 28. What other comments, if any, do you have?

I feel I should point out that DVD's utilize an Anti-Use system known as CSS to encrypt their content. This does not inhibit copying.

The encrypted material can easily be copied bit for bit, just like you can photocopy a book written in a foreign language.

However, DVD's cannot be viewed unless the encrypted data is first decrypted. CSS itself was easily broken, and did not serve as a substantial deterrent. The knowledge as to how to decrypt a DVD is widely known among the technologically inclined.

However, actually using the decryption software is outlawed under Title 17 USC Section 1201(a)(1), which is the only thing actually preventing users from making non-infringing use of DVD's that they have lawfully purchased.

This law effectively says that, while I may have purchased a copy of "The Matrix", I am not allowed to watch it unless I use specially sanctioned software. If my computer does not support that specially sanctioned software, I may NOT watch the movie I have legally purchased, or use it in any way.

I would also like to comment on Digital Duplication fears of Time Warner and the Motion Picture Association of America.

Yes, it can be done. Yes, the copies are (hopefully) perfect.

BUT IT IS NEITHER TRIVIAL NOR INEXPENSIVE!

My employer has collected a series of visual images from a digital camera over a 1.5 year period, to the tune of approximately eight gigabytes of data. These are still-camera pictures of a construction site. It would take less than five minutes to display the entire eight gigabytes of data at 30 frames per second.

For the past several weeks, I have been involved in a side project, at my employer's request, to download and archive this data onto CDROM's. Note the time period: Weeks!!! I am still working on this project!!!

I am among the fortunate few with access to a high-bandwidth ADSL connection. That is not enough. Failures, errors, network problems, machines rebooting, scheduled and unscheduled maintenance, scheduled and unscheduled outages, hardware failures, software failures, night-long download runs, time consuming CD burns, they all take their toll.

In about 10 or 20 years, it might be possible to download a movie.

After most of the internet networking infrastructure has been upgraded with technology that does not yet exist.

In the nearer term, it might be possible to download some postage-stamp sized, severely compressed, extremely lossy video. But who is going to be satisfied with that?

Then there is the issue of storing it. At present, you could copy and store a single DVD. But the cost for the media to store all this data on is an order of magnitude higher than the cost of the original DVD. Short of convenience, copying a movie onto a laptop harddrive for use on an airplane, I can't see it being used much.

Of course, hardware capabilities will increase with time, and prices will fall. But we are still a few years out before this becomes a practical consideration.

> 29. Do you wish to testify at a hearing to be conducted by the
> Copyright Office in connection with this rulemaking?

It would be a serious and expensive inconvenience. However, if it is necessary, and my schedule permits, I will do so.

Sincerely,

Mr. David Apfelbaum.