



UNITED STATES COPYRIGHT OFFICE

Long Comment Regarding a Proposed Exemption Under 17 U.S.C. § 1201

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ITEM A. COMMENTER INFORMATION

The Petition submitter is Software Freedom Conservancy (“Conservancy”), a 501(c)(3) not-for-profit organization that helps promote, improve, develop, and defend Free and Open Source Software (“FOSS”) – software developed by volunteer communities and licensed for the benefit of everyone. Conservancy is the nonprofit home for dozens of FOSS projects representing approximately five thousand volunteer contributors. Conservancy’s communities maintain some of the most fundamental utilities in computing today, and introduce innovations that will shape how software will be created in the future.

Among the projects that are a part of Conservancy and for which it provides logistical, administrative, and legal support are BusyBox, Samba, OpenWrt and the GPL Compliance Project for Linux Developers. BusyBox is software that provides a number of key system utilities that enable “smart” or (what can more accurately be called) computer-embedded consumer electronics devices to perform their function. Samba is software that facilitates communication between different file systems, such as between a Windows operating system and a Unix operating system. OpenWrt is wireless router software. Linux, like Windows and macOS, is a computer operating system upon which user applications run. These programs of Conservancy’s focus and interest in particular are ones affected by the absence of the requested exemption. Other non-profit organizations, companies, and individual copyright holders in FOSS are similarly impacted regarding the matter of this exemption.

Conservancy may be contacted through its authorized representative:

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Privacy Act Advisory Statement: Required by the Privacy Act of 1974 (P.L. 93-579)

The authority for requesting this information is 17 U.S.C. §§ 1201(a)(1) and 705. Furnishing the requested information is voluntary. The principal use of the requested information is publication on the Copyright Office Web site and use by Copyright Office staff for purposes of the rulemaking proceeding conducted under 17 U.S.C. § 1201(a)(1). NOTE: No other advisory statement will be given in connection with this submission. Please keep this statement and refer to it if we communicate with you regarding this submission.

ITEM B. PROPOSED CLASS ADDRESSED

Class 16: Computer Programs—Copyright License Investigation:

To permit circumvention of TPMs protecting computer programs for purposes of (a) investigating potential copyright infringement of the computer programs; and (b) making lawful use of computer programs (e.g., copying, modifying, redistributing, and updating free and open source software (FOSS)).¹

ITEM C. OVERVIEW

Conservancy’s member software projects all license their software under FOSS licenses. For a license to be considered “free” or “open source,”² the license must allow software to be freely used, modified and shared.³ Software under FOSS licenses is available without a licensing fee or royalty obligation; anyone can use FOSS (both commercially and non-commercially) subject only to their compliance with the conditions of the license. Some licenses use the word “public” in their title, for example the “Apple Public Source License,” the “Eclipse Public License,” the “European Union Public License,” the “GNU General Public License” and the “Mozilla Public License,”⁴ to signal that the software is licensed for use by anyone, known and unknown.

FOSS licenses are commonly characterized as two general types: “non-copyleft” licenses (sometimes called “permissive” or “lax”) and “copyleft” licenses. Non-copyleft licenses have modest conditions for compliance, most often consisting only of the duty to provide a copy of the copyright notice or author attribution and a copy of the FOSS license within the software or its documentation.⁵ Virtually all FOSS licenses (copyleft or not), include a duty to provide this information. The copyleft variety of licenses includes further requirements designed to expand the FOSS commons and assure rights to the public. Specifically, copyleft licenses impose a duty on those modifying the software to license some or all of their derivative works under the same license and to provide a copy of the source code for the software.⁶ This provides an important

¹ Exemptions to Permit Circumvention of Access Controls on Copyrighted Works, 85 Fed. Reg. 65293, 65308 (Oct. 15, 2020).

² The two terms represent a philosophical difference, but they both can be understood as ensuring the grant of licenses that allow the use, modification and distribution of software with a limited set of conditions on the grant.

³ Open Source Initiative, *Licenses and Standards*, <https://opensource.org/licenses> (last visited Dec. 4, 2020).

⁴ Open Source Initiative, *Licenses by Name*, <https://opensource.org/licenses/alphabetical> (last visited Dec. 5, 2020).

⁵ See for example the MIT License, which grants permission to “use, copy, modify, merge, publish, distribute, sublicense and/or sell copies” of the licensed software subject to the condition that the user include the copyright notice and a copy of the license. Open Source Initiative, *The MIT License*, <https://opensource.org/licenses/MIT> (last visited Dec. 4, 2020).

⁶ The most widely used licenses of this type are the GNU General Public License, or “GPL,” family of licenses. One of the licenses imposes the copyleft requirement thusly, “You may convey ... the modifications ... in the form of source code under the terms of section 4, provided that you also meet all of these conditions: ... (c) You must license the entire work, as a whole, under this License to anyone who comes into possession of a copy.” GNU General Public License Version 3, <https://www.gnu.org/licenses/gpl-3.0.en.html> (2007). Another common copyleft license, the Mozilla Public License Version 2, creates the obligation this way: “All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under the terms of this License.” Mozilla Public License Version 2.0, <https://www.mozilla.org/en-US/MPL/2.0/> (2012). The related obligation to provide a copy of the source code is in Section 3 of the GNU Gen-

opportunity for users of devices with copylefted code to better control their own equipment – an ideological goal of the software freedom movement more relevant than ever as devices surveil and otherwise exploit their users.

FOSS is also big business. Firms leverage the mix of contributions, coming from hobbyists and corporate contributors alike, to create excellent products cheaply. One survey reports that nearly 99% of codebases audited in 2019 contained open source software with an average of 445 FOSS components per code base.⁷ An analysis of GitHub repositories⁸ revealed that some of the most active FOSS contributors were using Microsoft, Google, IBM, and Intel employee email addresses.⁹ “FOSS ... has now become an integral component of the modern economy and a fundamental building block of everyday technologies like smart phones, cars, the Internet of Things, and numerous pieces of critical infrastructure.”¹⁰ Whether it is a website,¹¹ a personal computer,¹² or a thermostat,¹³ FOSS is there.

Computer software may be unique among all copyrighted works for the reason that one often cannot detect copying simply by observation.¹⁴ For example, a “smart” doorbell will contain an operating system, software to operate the camera, software to operate the microphone, codecs to convert the images and sounds to a specific file format, software for wireless connectivity, and software that conveys information back and forth between the doorbell and the laptop computer or mobile device through which the user controls the doorbell’s functions. All of the software on the doorbell itself and much of the software running the laptop or mobile device is invisible to the user; one cannot know what particular camera program, operating system or networking system is on the doorbell through mere observation.

One of the activities Conservancy does on behalf of some of its member projects is to investigate whether third parties are using the project software but failing to comply with the license terms. This activity is a public benefit, as it assures all consumers receive rights guaranteed by copyleft licenses. Typically, Conservancy receives reports from concerned consumers who report their

eral Public License Version 3 and in Section 3.2 of the Mozilla Public License Version 2.

⁷ Synopsys, 2020 Open Source Security and Risk Analysis Report 7 (2020), <https://www.synopsys.com/software-integrity/resources/analyst-reports/2020-open-source-security-risk-analysis.html>.

⁸ GitHub is a platform for the collaborative development of software, much of it available under FOSS licenses. GitHub, *The Largest Open Source Community In the World*, <https://github.com/open-source> (last visited Dec. 5, 2020).

⁹ Frank Nagle, Jessica Wilkerson, James Dana & Jennifer Hoffman, *Vulnerabilities in the Core 25* (2020), <https://www.coreinfrastructure.org/programs/census-program-ii/>.

¹⁰ Harvard Business School, *The Linux Foundation and Harvard’s Lab for Innovation Science Release Census for Open Source Software Security*, <https://www.hbs.edu/news/releases/Pages/census-open-source-software-security.aspx> (Feb. 18, 2020).

¹¹ Solarwinds, 75% of Top 10K Websites Served by Open Source Software, (May 22, 2012) <https://www.pingdom.com/blog/75-percent-top-10k-websites-served-by-open-source-software/>.

¹² Lenovo, Lenovo Open Source, <https://pcsupport.lenovo.com/us/en/solutions/ht511330-lenovo-open-source-portal> (last visited Dec. 7, 2020).

¹³ Dan Seifert, *Nest Releases Open-source Version of Its Networking Protocol*, The Verge (May 11, 2016) <https://www.theverge.com/circuitbreaker/2016/5/11/11652106/nest-open-source-thread-protocol>.

¹⁴ Computer programs ... are typically distributed for public use in object code form, embedded in a silicon chip or on a floppy disk. For that reason, humans often cannot gain access to the unprotected ideas and functional concepts contained in object code without disassembling that code—*i.e.*, making copies.

Sega Enters. Ltd. v. Accolade, Inc., 977 F.2d 1510, 1525 (9th Cir. 1992), *as amended* (Jan. 6, 1993).

suspicion that a device contains FOSS but that the terms of the license have not been met. The infringement of FOSS through license non-compliance¹⁵ is so pervasive that Conservancy can only pursue approximately 50% of the suspected infringements reported to it.

When Conservancy receives a report that a member project's copyright might be infringed as the result of license non-compliance,¹⁶ it investigates the device's software (whether the device is a mobile computing device, entertainment device like a television or game player, a special purpose "Internet of Things" computing device, or other computer) for indications that the device contains one of its projects' software and that there is an absence of license compliance, particularly that a copyright notice and license are absent, or (for copyleft software) that there is no information about how one can obtain a copy of the source code.

By observing the attributes and behavior of the device or the software, or reviewing its advertising or its documentation, Conservancy can make an educated guess about whether there may be a particular FOSS program included on the device or in the program. However, confirming its use usually requires circumvention of technological protection measures. There are currently no statutory or regulatory exceptions that allow circumvention of TPMs for this purpose. Thus, a copyright owner must break the law to learn whether they are being denied their lawful right of exclusivity under the Copyright Act.

If Conservancy elects to pursue the matter, it contacts the entity that is out of compliance to assist it with remediation of the infringement by providing education and information about how to meet the requirements of the license. As stated in its Principles of Community-Oriented GPL Enforcement,¹⁷ the primary goal of the engagement is to bring about compliance. Legal action is a last resort, but it is sometimes a necessary resort.

Where the accused software includes software under a copyleft license, the remediation may include convincing the infringer to comply with the copyleft terms of the license by releasing its derivative work under the copyleft license. In these cases, Conservancy then makes this new software publicly available for others to use and improve. For example, copyright owners of the software project BusyBox (including Conservancy) filed lawsuits in 2007 through 2009¹⁸ against

¹⁵ See *Sun Microsystems, Inc. v. Microsoft Corp.*, 188 F.3d 1115, 1121 (9th Cir. 1999) (stating that, where a license acts outside the scope of the license, there is an action for copyright infringement); *Universal Instruments Corp. v. Micro Sys. Eng'g, Inc.*, 924 F.3d 32, 40 (2d Cir. 2019) *Jacobsen v. Katzer*, 535 F.3d 1373, 1380 (Fed. Cir. 2008); *ITOFCA, Inc. v. MegaTrans Logistics, Inc.*, 322 F.3d 928, 940 (7th Cir. 2003); *Stenograph L.L.C. v. Bossard Assocs., Inc.*, 144 F.3d 96, 99 (D.C. Cir. 1998); *MacLean Assocs., Inc. v. Wm. M. Mercer-Meidinger-Hansen, Inc.*, 952 F.2d 769, 779 (3d Cir. 1991).

¹⁶ Conservancy avoids disclosing with any specificity the indications that a device is using FOSS in order to preserve the confidentiality of its investigative methodology. Historically, infringers, upon learning of the methodologies, implemented countermeasures to thwart Conservancy's investigation efforts.

¹⁷ <https://sfconservancy.org/copyleft-compliance/principles.html> (last visited Dec. 5, 2020).

¹⁸ Complaint, *Andersen v. Monsoon Multimedia, Inc.*, No. 07-CV-8205 (S.D.N.Y. Sep. 19, 2007); Complaint, *Andersen v. Xterasys Corp.*, No. 07-CV-10455 (S.D.N.Y. Nov. 19, 2007); Complaint, *Andersen v. High-Antennas, L.L.C.*, No. 07-CV-10456 (S.D.N.Y. Nov. 19, 2007); Complaint, *Andersen v. Verizon Communications, Inc.*, No. 07-CV-11070 (S.D.N.Y. Dec. 6, 2007); Complaint, *Andersen v. SuperMicro Computer, Inc.*, No. 08-CV-5269 (S.D.N.Y. June 9, 2008); Complaint, *Andersen v. Bell Microproducts, Inc.*, No. 08-CV-5270 (S.D.N.Y. June 9, 2008); Complaint, *Software Freedom Conservancy, Inc. v. Best Buy Co., Inc.*, No. 09-CV-10155 (S.D.N.Y. Dec. 14, 2009).

companies distributing FOSS on wireless routers and televisions without complying with the GPL license terms. Various license enforcement actions, including lawsuits against Cisco (who at the time owned Linksys) and Verizon, produced and aided in the improvement of software that is the foundation of what is now a robust, full-featured FOSS system for wireless routers called OpenWrt, used by commercial companies and individuals alike. A lawsuit against Samsung for televisions produced software that became the SamyGo software project, which can be used as replacement firmware on certain models of Samsung televisions.

Software is no longer just the purview of companies with business models based primarily on the exploitation of copyright, but is offered by banks,¹⁹ appliance manufacturers²⁰ and even toothbrushes²¹ as a component of their primary product or service offering. Conservancy has received credible reports that the following types of devices contain FOSS but that the license requirements have not been met:

Servers

Laptop and desktop computers

Remote computing environments/cloud virtual machines²²

Network attached storage (NAS) devices

Tablet computers

Android phones

Routers/switches/access points

Modems

Speakers and other audiovisual equipment

Television sets

Set-top boxes

DVRs

Gaming consoles

VoIP phones/analog telephone adapters

Video calling appliances

IP cameras

Cars

Aerial drones

Industrial automation machines/computer numerical control (CNC) routers

Thermostats

¹⁹ Wells Fargo, *Wells Fargo App for Apple and Android Devices*, <https://www.wellsfargo.com/mobile/apps/> (last visited Dec. 10, 2020).

²⁰ GE Appliances, *Refrigerator – Software / Firmware Updates*, <https://products.geappliances.com/appliance/gea-support-search-content?contentId=36354> (last visited Dec. 10, 2020).

²¹ S&P Global Market Intelligence, *Colgate-Palmolive to Unveil App-enabled Toothbrush with AI*, (Jan. 8, 2018), https://www.spglobal.com/marketintelligence/en/news-insights/trending/el4ig0fld2u4fdcyi_ptg2 (stating that FOSS is used for the toothbrush).

²² A “virtual machine” is a software emulation of a computer system, providing the functionality of a physical computer. Wikipedia, *Virtual Machine*, https://en.wikipedia.org/wiki/Virtual_machine (last visited Dec. 19, 2020).

Dashcams
Alarm systems
Doorbells
Watches

The Office asked Conservancy to “narrow or clarify the specific uses of computer programs that the proposed exemption seeks to permit.”²³ As demonstrated above, software is everywhere, both programs used on traditional computers – server, desktop, laptop and mobile – and on an increasing kind and number of the devices that are part of our everyday lives. Conservancy is impaired in its ability to investigate all of these uses because of TPMs. The exemption is therefore sought for any device that is capable of running a software program, because these devices are all likely to be using FOSS.²⁴

The Office further commented about the request for the exemption that “[I]t is somewhat unclear whether the requested exemption for ‘lawful use of computer programs’ would apply to *any* lawful use or seeks merely to allow licensed uses of FOSS software.”²⁵ Conservancy seeks approval of this request for its own work investigating breach of FOSS licenses and its use of FOSS in compliance with its license. However, the rationale that justifies this exception for FOSS is equally applicable to all software. A copyright owner-licensor should not have to break the law to determine whether their copyright is being infringed.

ITEM D. TECHNOLOGICAL PROTECTION MEASURE(S) AND METHOD(S) OF CIRCUMVENTION

With the growth of mobile computing, “smart” electronics and the “Internet of Things,” Conservancy is frequently investigating special-purpose devices driven by software. In these cases, Conservancy can sometimes access the software through a hardware connection with the device or it may be able to obtain a copy by intercepting the upgrade process. Alternatively, a device manufacturer may provide a binary file on their website for the software. For example, device manufacturers often make updated software publicly available, such as updated firmware for a television.

Conservancy also investigates software applications that are intended for use on a general purpose computer, server, mobile device, or virtual machine. These software programs are available by download, whether through a mobile device app store or directly from a company’s website or reseller site.

However, regardless of the source of the software or the device upon which it is ultimately installed, the software package is likely to have mechanisms that prevent access to the work. These barrier can take many forms. In the easiest of cases, the software package is encrypted or obfuscated by simply using a keyword or other password (often a guessable one, such as the

²³ Exemptions to Permit Circumvention of Access Controls on Copyrighted Works, 85 Fed. Reg. 65293, 65308 (Oct. 15, 2020).

²⁴ *See also* text accompanying note 11 stating that FOSS is the building block of technologies like smart phones, cars, the Internet of Things, and numerous pieces of critical infrastructure.

²⁵ Exemptions to Permit Circumvention of Access Controls on Copyrighted Works, 85 Fed. Reg. 65293, 65308 (Oct. 15, 2020).

name of the firm itself), to obfuscate the firmware. In the most difficult case, the accused software will have end-to-end encryption tied to firmware. In these cases, the firmware uses a TPM to verify that the software contains the digital signature of the manufacturer, and a device will not boot unless the encrypted software is verified to be controlled by the manufacturer. In those cases, Conservancy must sacrifice the motherboard of the device, taking it apart and connecting to it with specialized electronics hardware, to either extract a soft copy of the firmware or view boot messages that may indicate the presence of FOSS components.

A “technological [protection] measure” is defined as a measure that “effectively controls access to a work if the measure, in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work.”²⁶ One “circumvents” a technological protection measure by descrambling, decrypting, or “otherwise avoid[ing], bypass[ing], remov[ing], deactivat[ing] or impair[ing]” the technological protection measure.²⁷ The steps taken by Conservancy, whether entering an easily guessable password (a technological measure in the form of information) or tearing a device apart in order to connect it to specialized hardware, are steps taken to “avoid” or “bypass” the technological measures and therefore could be susceptible to an interpretation that they are unlawful under Section 1201(a)(1).

ITEM E. ASSERTED ADVERSE EFFECTS ON NONINFRINGEMENT USES

The requester offers the following information for the Copyright Office’s use in assessing the merits of the requested exemption. To begin, the Office should first appreciate this is an unusual situation where there are almost always at least two copyrighted works involved – the infringed FOSS work and the accused work, with the accused work protected by a TPM. An example of the former is an operating system, such as Linux (available under the GNU General Public License, version 2), and an example of the latter is the compilation of several software programs that function together to operate a “smart” doorbell, which would include the Linux operating system upon which it is built. In weighing the policy interest in protecting the accused work from harm through circumvention of TPMs, the Office should also consider the equal and countervailing interests of the owner of the copyright in the infringed FOSS work, which should be on an equal par with those of the accused work.

1. Whether the proposed class includes at least some works protected by copyright.

The subject matter of the proposed class is computer programs, which are protected by copyright.

2. Whether the uses at issue are noninfringing under title 17.

The uses identified in the request for the exemption – the investigation of copyright infringement and the re-use of software that is under a FOSS license – are noninfringing uses in all cases.

One part of the exemption request is to allow “making lawful use of computer programs (e.g., copying, modifying and redistributing, and updating free and open source software).” Consider

²⁶ 17 U.S.C. § 1201(a)(3)(B).

²⁷ 17 U.S.C. § 1201(a)(3)(A).

the case where the only work protected by a TPM is a work under a FOSS license. Circumventing the TPM in order to gain access to and use the work as permitted by its license – such as fixing a bug in the software and reinstalling the repaired software on the device – would be an entirely noninfringing use.

The other part of the exemption, investigating infringement, will often require the reverse engineering of software code to ascertain whether it is using FOSS code but not meeting all the conditions of the licenses, thusly an infringing use. Reverse engineering code for this purpose is a fair use.²⁸ It may also be possible to examine the software on the device without any reverse engineering by mere observation, that is, simply reading the code. Simply reading the text of the code on the device does not implicate any of the exclusive rights of the copyright owner and is also not infringing.

This requested exemption is therefore limited solely to non-infringing use of the TPM-protected work.

3. *Whether users are adversely affected in their ability to make such noninfringing uses or, alternatively, whether users are likely to be adversely affected in their ability to make such noninfringing uses during the next three years.*

The proposed exemption is supported by each of the five statutory factors in 17 U.S.C. § 1201(a)(1)(C)(i)-(v).

- i. *The availability for use of copyrighted works;*

There are no alternatives to circumvention of TPMs for a copyright infringement investigation. The investigation is whether a particular copy of the accused software is infringing the copyright of a work available under a FOSS license. No other work can serve the same purpose.

Where the access is simply to make lawful use of the FOSS protected by TPMs, there may be other copies of the same software available from other sources, such as public source code repositories. However, the version protected by the TPM is unique. In nearly all cases, it has been modified or used in ways that are unique to that particular device, so that a publicly available version (aka the “upstream version”) is not a substitute.

- ii. *The availability for use of works for nonprofit archival, preservation, and educational purposes;*

As described above, the FOSS components of the accused works may be unique but are not publicly archived or preserved. It is Conservancy’s practice to make the works that it obtains access to through its license compliance work publicly available. As discussed earlier in this document, those works often become the basis of larger FOSS projects, which (through the

²⁸ *Atari Games Corp. v. Nintendo of Am. Inc.*, 975 F.2d 832, 843 (Fed. Cir. 1992) (stating that reverse engineering is fair use as long as it does not exceed what is necessary to understand the unprotected elements of the work; an infringing use of another’s work would be an unprotected element of a work); *Bond v. Blum*, 317 F.3d 385, 397 (4th Cir. 2003), *abrogated on other grounds by Kirtsaeng v. John Wiley & Sons, Inc.*, 136 S. Ct. 1979, 195 L. Ed. 2d 368 (2016) (affirming district court holding that the defendants’ use of a manuscript as evidence in a state-court proceeding fell within the scope of fair use).

public and open nature of FOSS development) serves to educate an entire new generation of developers. Indeed, OpenWrt developers who became involved in the earliest days of this project educated themselves through that work, and are now some of the most respected wireless device router engineers in the field.²⁹ The circumvention of TPMs therefore advances the public interest by making works that are meant to be available to all accessible for purposes of archiving, preservation and educational purposes.

iii. 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;

The prohibition on the circumvention of TPMs has a significant negative impact on criticism, comment, teaching, scholarship and research. The philosophy of FOSS is that the shared, collaborative development of software is a benefit to society.³⁰ Users have the freedom and right to study and learn from the software they use: “Free software means the users have the freedom to run, copy, distribute, study, change and improve the software.”³¹ TPMs prevent others from being able to learn from, comment on and criticize the accused software’s use and implementation of the FOSS software.

iv. The effect of circumvention of technological measures on the market for or value of copyrighted works;

With respect to the value of the FOSS work, when someone incorporates FOSS without complying with the license, they have effectively removed the software from the commons. The authors of FOSS do not seek direct income from their creative works – instead their reward comes in the form of public recognition (including for purposes of career advancement) and in contributing to, and being able to use, modify and improve a shared, publicly available commons of software.³² An accused infringer’s incorporation of FOSS without meeting the obligations of

²⁹ As another example, Conservancy was the first organization to vet and legitimately release source code for the Linux “exfat” module under the GPL after Samsung was discovered distributing infringing versions of Linux with this source code. The code was released to the public at <https://github.com/bkuhn/exfat> and announced by Conservancy at <https://sfconservancy.org/news/2013/aug/16/exfat-samsung/>.

³⁰ See, e.g., Committee of Best Practices for a Future Open Code Policy for NASA Space Science, Open Source Software Policy Options for NASA Earth and Space Sciences 1-2 (2018) (stating that the purposes of NASA’s Science Mission Directorate’s open source policies are (1) enhance and enable innovation and discovery; (2) increase the visibility, accessibility, and reuse of NASA-funded code; (3) facilitate scientific reproducibility; (4) encourage collaboration inside and outside NASA; (5) maximize NASA’s benefit to society; (6) respect the security and privacy of citizens; and (7) comply with broader government policies.).

³¹ GNU Operating System, <https://www.gnu.org/> (last visited Dec. 7 2020).

³² Traditionally, copyright owners sold their copyrighted material in exchange for money. The lack of money changing hands in FOSS licensing should not be presumed to mean that there is no economic consideration, however. There are substantial benefits, including economic benefits, to the creation and distribution of copyrighted works under public licenses that range far beyond traditional license royalties. For example, program creators may generate market share for their programs by providing certain components free of charge. Similarly, a programmer or company may increase its national or international reputation by incubating FOSS projects. Improvement to a product can come rapidly and free of charge from an expert not even known to the copyright holder. The Eleventh Circuit has recognized the economic motives inherent in public licenses, even where profit is not immediate. See *Planetary Motion, Inc. v. Techsplosion, Inc.*, 261 F.3d 1188, 1200 (11th Cir. 2001) (Program creator “derived value from the distribution [under a public li-

the license, such as providing the copyright notice, licensing its own modifications (as may be required by a copyleft license), or providing a copy of the license so that other users are made aware that they may also enjoy the use of the software, deprives the FOSS copyright author of all of the benefits of their labor. Furthermore, new FOSS contributors learn and improve in their field by accessing and improving the real-world uses of the FOSS projects in the devices they own. Companies are not only hiding their infringement behind § 1201, they are also impeding the professional development of their next generation of employees in addition to tomorrow's experts who will further the field of computing.

With respect to the value of the accused work, there is no negative effect on the value. The circumvention for the investigation of infringement does not create any publicly available copy of the accused software; all copies are solely in possession of the investigating party and not made publicly available.³³ Access for the lawful use of the FOSS (which may include its reinstallation and redistribution) does not negatively impact the value of the accused work either: since the owner of the accused work is not the copyright owner of the FOSS work, they have no right to claim any value that accrues from the use of the copyright in the FOSS.

v. Such other factors as the Librarian considers appropriate.

The absence of an exemption will have the effect of denying the copyright author the benefits promised in the Constitution – “securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”³⁴ Without an exemption that allows for the investigation of infringement, infringers have impunity to infringe copyright without any consequences simply by imposing the most trivial of technological circumvention measures, such as incorporating a password string “password,” and threatening a suit under Section 1201 if the copyright owner takes any steps to investigate.

The potential for a Section 1201-based lawsuit is not a hypothetical threat but affects how Conservancy goes about its license compliance work. The ultimate outcome of an investigation may be a copyright infringement lawsuit. However, Conservancy is fully aware that if it circumvented TPMs to investigate the infringement claim, without an exemption it will be at risk of a counterclaim under Section 1201. Any counterclaim will turn what may be a simple, clear-cut infringement case into a legally complicated, fact-intensive suit at significantly higher cost, one that a charitable non-profit or hobbyist FOSS developer can ill afford.

cense] because he was able to improve his Software based on suggestions sent by end-users.... It is logical that as the Software improved, more end-users used his Software, thereby increasing [the programmer's] recognition in his profession and the likelihood that the Software would be improved even further.”).

Jacobsen v. Katzer, 535 F.3d 1373, 1379 (Fed. Cir. 2008); *Philpot v. Music Times LLC*, No. 16CV1277 (DLC) (DF), 2017 WL 9538900, at *8 (S.D.N.Y. Mar. 29, 2017), *report and recommendation adopted*, No. 16CV1277 (DLC), 2017 WL 1906902 (S.D.N.Y. May 9, 2017) (awarding \$5,000 in statutory damages for infringement of a work made available under “a ‘free’ [Creative Commons] license, paid for only with the required attribution of copyright ownership.”).

³³ If not kept confidential, the owner of the accused work would have a claim for infringement of the copyright in any non-FOSS portions of the accused work.

³⁴ U.S. Const., Art. I, § 8, cl. 8.

4. Whether the statutory prohibition on circumventing access controls is the cause of the adverse effects.

The statutory prohibition on circumventing access controls is the only cause of the described adverse effects. Conservancy seeks access only to works to which it is lawfully entitled and the only barrier to its access are technological protection measures.

DOCUMENTARY EVIDENCE

None.