Reply Comment of Software Freedom Conservancy
Regarding a Proposed Exemption
Under 17 U.S.C. 1201

(No multimedia evidence is being provided in connection with this comment.)

Item 1. Commenter Information

Petitioner Software Freedom Conservancy ("Conservancy") is a 501(c)(3) not-for-profit organization that helps promote, improve, develop, and defend Free, Libre, and Open Source Software ("FLOSS") created by its members and affiliated developers. Conservancy is home to dozens of FLOSS projects, maintained by over a thousand volunteer contributors.

Among these projects are BusyBox and Samba, widely used in Smart TVs and other embedded Linux-based computing devices. BusyBox provides a number of key system utilities that enable core functions of these devices.[1] Samba is a software suite that provides file and print services.[2] Linux, BusyBox, Samba, and many other applications used in Linux operating systems are licensed under the GNU General Public License ("GPL") or similar free and open source software licenses. Recipients of GPL software are permitted to obtain the software's source code and may copy, modify, and redistribute the software to others without fee.[3] The GPL allows Smart TV manufacturers to use GPL-licensed software but requires that Smart TV purchasers be allowed to modify the software and run it without restriction.[4]

Conservancy's initial petition was filed with the Copyright Office on October 31, 2014 ("Conservancy Petition"). The Copyright Office identified Conservancy's proposed class with the short title "Jailbreaking – smart TVs."[5] Conservancy submitted its long comment on February 6, 2015, with answers to the Copyright Office's specific queries as well as additional background on the proposed class and exemption. Three others, the Exploiteers, Jay Freeman, and the Free Software Foundation, submitted long comments on or before February 6th 2015. Over 1,700 individual commenters submitted short comments in support of Smart TV unlocking on February 6, 2015.

The only opposition comment was filed by the Joint Creators and Copyright Owners ("Opponents") on March 27, 2015. Opponents are made up of three underlying organizations: the Entertainment Software Association ("ESA"), the Motion Picture Association of America ("MPAA"), and the Recording Industry Association of America ("RIAA").

Item 2. Proposed Class Addressed

Proposed Class 20 – Smart TVs.

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1   e.g. running applications, file interaction, network access, and other basic functions. *See* Busybox, *BusyBox - The Swiss Army Knife of Embedded Linux*, http://www.busybox.net/downloads/BusyBox.html (last accessed April 29, 2015)
2   Specifically between Linux/Unix servers and Windows-based clients. *See* Samba.org, *What is Samba*, https://www.samba.org/samba/what_is_samba.html
3   *See* GNU General Public License, version 2, online at https://www.gnu.org/licenses/gpl-2.0.html
4   *See* Id. at Section 0 ("The act of running the Program is not restricted.").
5   *See* December 12, 2014 Notice of Proposed Rulemaking, 79 F.R. 239, p. 13, at http://copyright.gov/fedreg/2014/79fr73856.pdf

Item 3. Overview

Opponents Ignore Substance of the Requested Exemption

Opponents' comment ignores the class of works at issue in Conservancy's petition: "Smart TV operating system software."[6] As Conservancy's petition and long comment make clear, these operating systems contain copyrighted software produced by Conservancy member projects and developers, and licensed to promote access by users. TV manufacturers have derived tremendous value from FLOSS projects such as Linux, BusyBox, and Samba; the proposed exemption merely seeks to give effect to these projects' licenses.

Opponents ignore the copyrights of Conservancy's members and developers and instead direct their comments against an exemption that no one proposed—one to circumvent TPMs designed to control access to video, audio, and proprietary applications played or run on Smart TVs. While Conservancy does not support the use of them, Conservancy's petition does not propose, and would not enable, circumvention of the Digital Right Management ("DRM") systems and other TPMs controlling access to these works. For this reason, Opponent's objections miss Conservancy's petition entirely.

The FLOSS programs to which the proposed exemption would enable access are freely distributed and cannot be "pirated" in the same sense as proprietary software or media. With regard to the proprietary software on Smart TVs, Opponents do not cite a single instance of so-called piracy and we are not aware of any. As our long comment explained, even if a proprietary application, not independently protected by its own DRM, was extracted from an unlocked Smart TV, it could not be trivially shared in the same way software on a personal computer can be.[7] The hardware architecture of Smart TVs often vary significantly from one model to the next, and each application must be compiled for the architecture of the TV it is intended to run on—if it was copied to a TV with a different architecture, it simply wouldn't run.

Opponents Have No Stake in the Proposed Class

Of Opponents' underlying organizations, only the ESA represents software producers. The ESA describes itself as "the U.S. association exclusively dedicated to serving the business and public affairs needs of companies that publish computer and video games for video game consoles, handheld devices, personal computers, and the Internet."[8] Opponents do not represent that ESA's or any ESA members' software is in use on Smart TVs. While the public comment process does not have a "standing" requirement, the submitters' relative stake in the outcome is an appropriate factor for the Register to consider.

This petition relates to TPMs controlling access to Smart TV operating systems. No opposition was filed by any Smart TV manufacturer, any software developer working on Smart TV applications,

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6   Conservancy Petition, Item 3, p. 1

7   Smart TVs operate using a different architecture, called ARM, than most personal computers, which use an X86 architecture. X86 architecture (CISC) is a more flexible platform but typically bulkier and requiring more power, while ARM(RISC) is a simpler, more power efficient platform but also less flexible. A detailed discussion of these architectures can be found here: Emily Blem, et al., *A Detailed Analysis of Contemporary ARM and x86 Architectures* (2013) at http://research.cs.wisc.edu/vertical/papers/2013/isa-power-struggles-tr.pdf or Posting of Auselen to http://stackoverflow.com/questions/14794460/how-does-the-arm-architecture-differ-from-x86/14795541#14795541 (Feb. 10, 2013, 7:05)

8   Entertainment Software Association, *About ESA*, at www.theesa.com/about-esa/ (last accessed April 29, 2015)

or any other party directly involved with the proposed class of works or the relevant devices. Opponents represent organizations that produce video and audio media, and proprietary software. The TPMs at issue do not control access to their works. Apart from unsupported speculation that the exemption would somehow enable piracy, Opponents have not shown their interests are significantly affected by allowing TPM circumvention to access Smart TV firmware.

Item 4. Technological Protection Measure(s) and Circumvention

Opponents Misstate the Burden on Petitioners

The Copyright Office's September 17 Notice of Inquiry says that, "[w]hile the petition may seek to propose precise regulatory language for the exemption, it need not do so."[9] Ignoring these instructions, Opponents say that the fact that "[n]one of the proponents … proposed language identifying a class of works for the Register to recommend... should weigh against granting any exemption related to smart TVs,"[10] Conservancy's petition and long comment "focus instead on providing a clear description of the specific elements of the proposed exemption," as the Notice of Inquiry directs.

Opponents also invented the requirement that Conservancy "demonstrate specific access controls and methods for defeating them."[11] The Notice of Inquiry asks submitters to "consider the appropriate level of specificity" for the type of copyrighted work and the medium or device.[12] Petitioners identified two primary circumvention methods for Smart TVs: firmware update decryption, and bypassing administrative access controls. These circumvention methods are sufficiently specific to cover Smart TVs currently in production and those likely to be developed in the next three years. An overly specific definition would defeat the purpose of the exemption, because it could itself be circumvented by manufacturers.

Item 5. Asserted Noninfringing Uses

The Exemption is Consistent with Section 1201's Purpose

Section 1201's purpose is not, as opponents assert, only to "protect the right of the developers of such platforms to choose how to design their systems."[13] Rather, Congress passed Section 1201 "to facilitate the development of electronic commerce in the digital age."[14] Section 1201(a)(1)(C) is a "fail-safe" mechanism intended to avoid an "outcome[] resulting in less access, rather than more, to copyrighted materials that are important to education, scholarship, and other socially vital endeavors."[15] It is not to protect developers, but to assure the "ability of individuals to use [copyrighted] works in ways that are otherwise lawful"[16] and to prevent a "substantial adverse effect on noninfringing use of

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9   *See* Notice of Inquiry, 79 Fed. Reg. 55,688 (Sep. 17, 2014) available at at
    http://copyright.gov/fedreg/2014/79fr55687.pdf ("the Librarian is responsible for promulgating the final rule setting forth any exempted classes of works")
10 Opposition Comment, p. 2
11 Opposition Comment, p. 3
12 Notice of Inquiry, 79 F.R. 55,692 at Note 8
13 Opposition Comment, at p. 2
14 Copyright Office, *DMCA Executive Summary*, paragraph 4,
    http://www.copyright.gov/reports/studies/dmca/dmca_executive.html (last accessed April 30, 2015)
15 H. R. Rep. No. 105-551 pt. 2, at 36 (1998) ("Commerce Comm. Rpt.")
16 *Id.* at 37

[a] particular class of works"[17] The Committee created this fail-safe to prevent, among other things, "an outcome that included the … permanent encryption of all electronic copies and adoption of business models that restrict distribution and availability of works."[18]

The lockdown of Smart TV firmwares is a prime example of the unreasonable restriction of lawful use that the fail-safe exists to prevent—it prevents TV owners from accessing the FLOSS applications embedded in the TVs that they are licensed to copy, modify, and redistribute, and that the applications' developers wish for them to access. In some cases, TV manufacturers have infringed the copyrights in FLOSS materials incorporated in Smart TVs. The exemption will allow individual owners to investigate and seek remedy for these instances of infringement (something Conservancy works with individual device owners to do on behalf of FLOSS projects).

Item 6. Asserted Adverse Effects

There is No Viable Alternative to Circumventing Smart TVs

Opponents suggest a laptop connected to a television is a sufficient alternative to allowing circumvention of Smart TV firmware TPMs. But the exemption's purpose is to give Smart TV owners the right to access and modify the FLOSS code and applications on their devices. A laptop connected to a television in no way promotes this right.

Opponents' proposed alternative also ignores the lawful educational, news reporting, scholarship, and research uses of Smart TVs that are enabled by allowing access to the firmware, such as research and reporting into the privacy and security concerns introduced by Smart TVs.[19] Nor would it enable the same access to Smart TV hardware that user-loaded applications do. Several applications already exist that make use of Smart TV capabilities in ways a TV-connected laptop cannot.[20] An exemption would enable the development of many more over the next 3 years.

Opponents wish to have it both ways: to argue that unlocking a Smart TV so it can run user-supplied applications would enable rampant piracy, but that connecting a laptop to a TV achieves the same goal as the proposed exemption. We agree with Opponents on one point: that an unlocked TV does not enable piracy via applications any more than a TV with an HDMI port. Permitting unlocking, however, also gives Smart TV owners access to software they're licensed to use, and more meaningful ownership over their TVs.

Item 7. Statutory Factors

The Register's Analysis for Exemption is not Affected by *Oracle v. Google*

Opponents cite *Oracle v. Google*[21] as a reason to upset the fair use analysis applied to unlocking exemptions for interoperability, but *Oracle v. Google* has no bearing on fair use. At trial, the jury

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17 Final Rule – Exemption to Prohibition on Circumvention, 65 F.R. 64,558 (Oct. 27, 2000)

18 *Id.* at 64,557-58

19 Catherine Philips, Newsweek, *Privacy Fears Over Samsung's 'Orwellian' Smart TV*, Feb. 9, 2015, at http://europe.newsweek.com/privacy-fears-over-samsungs-orwellian-smart-tv-305532

20 e.g. the "Block Bezel Buttons" application allows a user to lock the hardware buttons on the Smart TV to prevent accidental button presses by children or pets, the "Channel Info" application displays extended television channel information, and the "Signal Strength & Remote" application allows testing the signal strength of digital television signals to aid reception. All are listed on the SamyGo wikipedia page: *Content Library applications[sic] List*, SamyGo wiki http://wiki.samygo.tv/index.php5/Content_Library_applications_list (last updated May 30, 2013)

21 *Oracle America Inc. v. Google Inc.*, 750 F. 3d 1339 (Ct. of Apps., Fed. Circ. 2014)

deadlocked on fair use.[22] The Federal Circuit court remanded the case for further consideration of the fair use question, but the case is pending certiorari to the Supreme Court, and is still on remand.[23] Moreover, the court in *Oracle v. Google* neither overruled nor abrogated either *Sega Enterprises*[24] or *Connectix Corp.,*[25] but drew a factual distinction that brought Google's actions of copying code, structure, and naming conventions for its own Java-like packages and APIs for Android OS outside the reach of those prior cases.

Opponents claim *Oracle v. Google* affects the copyrightability of code.[26] This broad claim remains to be seen, as the Federal Circuit's appellate decision was drawn to the very narrow set of facts of the case. It is not an appeal that is easily applied to the wider question of software copyrightability. Regardless, it would not change the analysis for this proposed exemption. Conservancy does not question the copyrightability of code or applications. As discussed above, Conservancy and its members and developers own the copyright to several applications used widely in Smart TVs, which are licensed under the GPL and other free and open source software licenses. The terms of these licenses require that recipients be given the right and ability to access, modify, and distribute the underlying code.

Finally, *Oracle v. Google* is a case decided by the Federal Circuit, applying 9th Circuit law. It is not binding on any court, and it is certainly not binding in the context of these proceedings.

Allowing Circumvention Will Not Negatively Impact Consumers, Manufacturers, or Developers

Opponents suggest that the Smart TV firmware TPMs are necessary to create a stable, reliable ecosystem for manufacturers and application developers to work. This is not supported by the facts. Merely allowing individual Smart TV owners the option to circumvent these TPMs on their own TVs will not disturb any manufacturing or development ecosystem. Smart TVs will be unchanged from the factory, and will function no differently unless the user chooses to unlock their Smart TV. Manufacturers, developers, and end-users will retain the reliable ecosystem that Opponents suggest is necessary. The only difference will be that some end-users will be permitted to circumvent the TPMs controlling access to their device firmware without violating the DMCA.

Prior unlocking exemptions demonstrate why Opponents' concern of negative market effects is unrealistic. The exemptions granted for smartphone and tablet unlocking have increased, not harmed, both software availability and innovative uses of the devices.[27] Smartphone manufacturers and in-house developers retain a reliable ecosystem for their products and applications, while individual users may opt to load custom software or develop their own programs for use on their devices. A similar effect can be expected if this exemption is granted. Making access easier for developers, researchers, and technically inclined end-users will promote software availability and innovation.

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22 *Oracle v. Google*, 750 F. 3d at 1347 (Ct. of Apps., Fed. Circ. 2014).
23 *Id*. at 1348.
24 *Sega Enterprises v. Accolade Inc.*, 977 F.2d 1510 (9th Circ. 1992)
25 *Sony Computer Entertainment v. Connectix Corp.*, 203 F.3d 596 (9th Circ. 2000)
26 Opposition Comment, at pp. 3-4
27 Ramon Llamas, *Smartphone Outlook Remains Strong for 2014, Up 23.8%, Despite Slowing Growth in Mature Markets, According to IDC,* International Data Corporation (IDC) (Aug. 28, 2014), http://www.idc.com/getdoc.jsp?containerId=prUS25058714 (showing the smartphone market increased by 23.8% between 2013 and 2014, and projecting continued growth through 2014) (last accessed May 1, 2015)

Conclusion

Opponents' comment ignores fundamental elements of Conservancy's petition and requested exemption, and primarily addresses TPMs and copyrighted works that are not at issue here. Their factual points miscast the nature of the requested exemption. Their legal points misstate the intent of the exemption process, seek to impose an unfounded and high burden on petitioners, and misinterpret the law. Opponents also suggest a wholly insufficient alternative to circumvention, which likewise ignores core elements of Conservancy's requested exemption.

For the reasons above, Conservancy asks the Register to grant the requested anti-circumvention exemption for Proposed Class 20.