Before the U.S. Copyright Office, Library of Congress

Petition for Proposed Exemption Under 17 U.S.C. § 1201

Item 1. Submitter and Contact Information

The Petition submitter is Software Freedom Conservancy ("Conservancy"), a not-for-profit organization that helps promote, improve, develop, and defend Free, Libre, and Open Source Software (FLOSS)—software developed by volunteer communities and licensed for the benefit of everyone. Conservancy is the nonprofit home for dozens of FLOSS projects representing well over a thousand volunteer contributors. Our 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.

Conservancy may be contacted through their authorized representatives at Tor Ekeland, P.C., 195 Plymouth Street, Brooklyn, New York 11201:

Aaron Williamson
(718) 285-9349
aaron@torekeland.com

Frederic Jennings
(718) 514-2075
fred@torekeland.com

Item 2. Brief Overview of Proposed Exemption

The proposed exemption would permit owners of computer-embedded televisions ("Smart TVs") to circumvent firmware encryption and administrative access controls that control access to the TVs' operating systems, for the purpose of accessing lawfully-acquired media, installing licensed applications, and enabling interoperability with external devices.

Item 3. Copyrighted Works Sought to be Accessed

The proposed exemption would enable access to Smart TV operating system software. The operating system is a computer program protected by copyright as a "literary work" under 17 U.S.C. § 102.

Item 4. Technological Protection Measure

The technological protection measures (TPMs) consist of firmware encryption schemes that prevent the installation of modified firmware files, as well as administrative access controls (such as developer passwords) that prevent the installation of user-supplied applications.

Item 5. Noninfringing Uses

Circumventing the TPMs that control access to Smart TV operating systems will enable TV owners to make several new, lawful uses of the operating system, including: installing user-supplied applications, enabling the operating system to interoperate with local networks and external peripherals, accessing media stored on external storage devices, and improving the TV's accessibility features (e.g. for hearing-impaired viewers).[1]

In most cases, these uses are non-infringing because they are licensed by the developers of the Smart TV operating system. The flagship Smart TVs of the top manufacturers[2]—Samsung,[3] Sony,[4] and LG[5]—all run operating systems based on Linux, a FLOSS operating system kernel developed in part by Conservancy members. Many also contain BusyBox, a collection of FLOSS operating system tools produced by a Conservancy member project.

Linux and BusyBox, and often other components of Smart TV operating systems, are licensed by their developers under the GNU General Public License (the "GPL"), a FLOSS license that permits recipients of the software to obtain the software's source code and to copy, modify, and redistribute the software without fee (and requires distributors of the software to extend these rights to recipients).[6] The GPL's terms permit television manufacturers to use GPL-licensed software in their Smart TVs, but they also ensure that consumers who purchase TVs containing that software have the right to modify it and to run it without restriction.[7]

While Smart TV firmwares typically contain the manufacturer's proprietary software in addition to the FLOSS operating system, the uses listed above typically require access only to the latter. For example, on some Smart TV models, once the owner has circumvented the firmware encryption, they can enable the TV to connect to other devices on their local network simply by

[1] *See, e.g.,* the SamyGo project, which provides instructions and applications for enhancing the functionality of Samsung SmartTVs, and provides FLOSS applications for all of these uses and more. See Samygo TV Wiki, Content Library Applications List, online at http://wiki.samygo.tv/index.php5/Content_Library_applications_list.

[2] *See* Best TV brands, ConsumerReports.com, Dec. 2013, online at http://www.consumerreports.org/cro/2013/03/find-the-best-plasma-and-lcd-tvs/index.htm.

[3] Samsung distributes the source code for its TVs' FLOSS components online at http://opensource.samsung.com/reception/receptionSub.do?method=sub&sub=T&menu_item=tv_n_video&classification1=tv.

[4] Sony distributes the source code for its TVs' FLOSS components online at https://products.sel.sony.com/opensource/source_tv.shtml.

[5] LG distributes the source code for its TVs' FLOSS components online at https://www.lg.com/global/support/opensource/opensourceList?superOsCategoryId=CAT00000005&osCategoryId=.

[6] *See* GNU General Public License, version 2, online at https://www.gnu.org/licenses/gpl-2.0.html.

[7] *See Id.* at Section 0 ("The act of running the Program is not restricted.").

causing the FLOSS operating system to run a FLOSS application (a telnet server) when it starts up.[8]

Even in cases where these uses described above require accessing a proprietary vendor application, they are non-infringing. Courts have held that copying operating system software to enable access to the hardware it runs, or to unprotected features of the operating system, is fair use.[9] In particular, the 9th Circuit found that "the copying of works in order to make independent creative expression possible," such as the development of new applications for the game console in that case (or the Smart TVs here), promotes rather than discourages the kind of expression protected by copyright law and weighs in favor of a finding of fair use.[10]

Item 6. Adverse Effects

Modern Smart TVs are full-featured computers capable of serving their owners in myriad ways that their manufacturers did not anticipate or did not choose to enable, for whatever reason. They are Internet-enabled, but limited to accessing only services chosen by the manufacturer. They have USB ports, but often these can only be used to install manufacturer-supplied updates and connect to manufacturer-sanctioned devices.

These restrictions prevent the Smart TVs' owners from accessing media they have lawfully acquired from other sources, connecting their TVs to other devices, and running applications of their choosing. These restrictions limit the functionality of FLOSS operating systems and applications produced by Conservancy members and other developers, which the manufacturers have no right to restrict. These limitations undermine the freedoms that FLOSS software developers intend to pass on to users of their software.

Restrictions on Smart TV firmwares also pose a security risk for TV owners. For example, security researchers recently demonstrated a number of vulnerabilities in Samsung Smart TVs that could enable malicious hackers to access or damage a user's device remotely.[11] In some cases, these issues could be fixed or mitigated by the user, by installing a firewall or other countermeasures.[12]

[8] *See* SamyGO TV Wki, How to enable Telnet on Samsung TVs, online at http://wiki.samygo.tv/index.php5/How_to_enable_Telnet_on_samsung_TV%27s.

[9] *See, e.g., Sega Enterprises Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1523 (9th Cir. 1992) and *Sony Computer Entm't, Inc. v. Connectix Corp.*, 203 F.3d 596, 603 (9th Cir. 2000).

[10] *See Sega* at 1523.

[11] *See* Paul Roberts, Samsung Smart TV: Like a Web App Riddled With Vulnerabilities, The Security Ledger, Aug. 1, 2013, https://securityledger.com/2013/08/samsung-smart-tv-like-a-web-app-riddled-with-vulnerabilities/.

[12] *Id.* ("The two researchers said the devices lack basic security features like firewalls or strong authentication requirements.")