



July 2, 2012

David O. Carson
General Counsel
U.S. Copyright Office
P.O. Box 70400
Washington, DC 20024

Re: Docket No. RM 2011-7
Exemptions to Prohibition on Circumvention of Technological
Measures that Control Access to Copyrighted Works

Dear Mr. Carson:

Thank you for the opportunity to participate in the recent hearings in the Copyright Office's 1201 rulemaking proceeding, and for your June 21, 2012 letter with follow-up questions about Class 5.

1. Please provide details on how Google's Android operating system restricts access to third party applications.

Google's Android operating system does not restrict the installation of third-party applications on a user's device. However, some third-party applications require administrator-level permissions to run. Users do not have root access to the Android operating system by default, and so must "root" their devices to gain full administrative access to the device.¹

Examples of applications that require root access include:

- SetCPU, which allows the user to slow down or speed up the device's processor as needed to enhance battery life or improve performance.²
- Titanium Backup, which can back up and restore apps and device settings through the user's Dropbox cloud storage account.³

¹ In Linux-based operating systems such as Android, the term "root access" means full administrative access to the operating system.

² SetCPU, <http://www.setcpu.com/> (last visited July 2, 2012).

³ Titanium Backup (root), <https://play.google.com/store/apps/details?id=com.keramidas.TitaniumBackup&hl=en> (last visited July 2, 2012).

- ClockworkMod Recovery, which completely images the device for back-up/restore purposes.⁴
- Cerberus, an anti-theft app that operates on non-rooted devices, but offers additional features such as uninstall protection and auto-enabled GPS tracking on rooted devices.⁵
- WiFi-Tether, which enables wifi and Bluetooth tethering.⁶

In addition to using apps that require root privileges, obtaining full administrative access allows Android users to customize their devices in other innovative ways such as:

- Installing custom ROMs with modified versions of the Android operating system that offer features unavailable in stock versions of the OS.⁷
- Enabling multitouch screen functionality on devices that don't support it by default.⁸
- Installing data input methods that do not come with the device by default, like a keyboard interface with predictive text input.⁹
- Adjusting memory and graphics settings.¹⁰
- Removing software installed on the device by default that the user does not wish to keep.¹¹

⁴ Awais Imran, *How to Backup and Restore Nandroid Images on Android Using ClockworkMod Recovery Tutorial*, REDMOND PIE, Dec. 27, 2011, <http://www.redmondpie.com/how-to-backup-and-restore-nandroid-images-on-android-using-clockworkmod-recovery-tutorial/>.

⁵ Cerberus, <https://play.google.com/store/apps/details?id=com.lsdroid.cerberus&hl=en> (last visited July 2, 2012).

⁶ Android-wifi-tether, <https://code.google.com/p/android-wifi-tether/> (last visited July 2, 2012).

⁷ Awais Imran, Best, *Most Popular Custom ROMs for Android and Why You Should Try Them Out*, REDMOND PIE, Nov. 26, 2011, <http://www.redmondpie.com/best-most-popular-custom-roms-for-android-and-why-you-should-try-them-out/>; Awais Imran, *Why Should I Root My Android Smartphone or Tablet?*, REDMOND PIE, March 28, 2012, <http://www.redmondpie.com/why-should-i-root-my-android-smartphone-or-tablet/>.

⁸ Aatif Khan, *Top 10 Reasons to Root Your Android Phone*, ADDICTIVE TIPS, May 21, 2010, <http://www.addictivetips.com/mobile/top-10-reasons-to-root-your-android-phone-2/>.

⁹ *Id.*

¹⁰ Eric2112, *Why Should I Root My Android Phone or Tablet?*, HUBPAGES, Apr. 18, 2012, <http://eric2112.hubpages.com/hub/Android-What-is-Root-and-should-I-do-it>.

¹¹ *Uninstall Pre-Installed Apps on Droid Eris*, PHANTROID, Nov. 23, 2009, <http://androidforums.com/eris-support-troubleshooting/20840-uninstall-pre-installed-apps-droid-eris.html>.

The ability to gain full administrative privileges to a device is important not just for users, but developers, too. As Mozilla has explained, software developers require root access “to read, write, modify, and execute system files that allow them to build innovative capabilities into applications, to diagnose problems that arise during development, and to fix those problems so that applications are reliable, efficient, and fully functional.”¹² Developers cannot create high-quality software for devices to which they cannot gain full administrative privileges.

Stock versions of Android allow the user to install any third-party application, even if they do not have root access to their phone. However, device manufacturers—perhaps compelled by contractual obligations with carriers—often build non-stock versions of Android that restrict users who lack root access.¹³ These restrictions can take many forms, but among them is the ability to prevent users from installing any application not obtained through a whitelisted app market. Gaining root access to the Android operating system allows a user to bypass these manufacturer-imposed restrictions.

Moreover, manufacturers and carriers sometimes place additional restrictions on Android smartphones and tablets that keep the user from obtaining full administrative access to the device. For example, HTC locks the bootloaders on its Android devices by default, which prevents users from installing the operating system of their choice (*e.g.*, a customized version of the Android operating system such as CyanogenMod).¹⁴ HTC announced last year that it would permit users to unlock bootloaders on 2011 models moving forward.¹⁵ Even so, the recently released HTC One X, which operates on the AT&T network, does not have any official unlock capability—reportedly due to carrier restrictions.¹⁶

¹² Comments of Harvey Anderson, Vice President & General Counsel, Mozilla Corporation at 3, http://www.copyright.gov/1201/2012/comments/Harvey_Anderson.pdf. *See also* Technical Demonstration of Brad Lassey, Software Engineer, Mozilla Corporation.

¹³ Mike Isaac, *AT&T Removes Android Restrictions—Thanks, Amazon*, WIRED.COM, May 18, 2011, <http://www.wired.com/gadgetlab/2011/05/att-sideload-android-amazon/> (last visited July 2, 2012).

¹⁴ CyanogenMod, <http://www.cyanogenmod.com/> (last visited July 2, 2012).

¹⁵ HTCDev, *Unlock Bootloader*, <http://htcdev.com/bootloader> (last visited July 2, 2012).

¹⁶ Dieter Bohn, *AT&T HTC Cone X bootloader denied official unlock solution due to ‘restrictions’*, THE VERGE, May 4, 2012, <http://www.theverge.com/2012/5/4/3000175/at-t-htc-one-x-bootloader-official-unlock>; Bams Sadewo, *No official bootloader unlocking for AT&T’s HTC One X*, ANDROID AUTHORITY, May 6, 2012, <http://www.androidauthority.com/no-official-bootloader-unlocking-for-atts-htc-one-x-82757/>; Liam Spradlin, *AT&T’s One X Left Our of Bootloader Unlock Program—HTC Cites ‘Restrictions’ as Reason For Cold Shoulder*, ANDROID POLICE, May 4, 2012, <http://www.androidpolice.com/2012/05/04/atts-one-x-left-out-of-bootloader-unlock-program-htc-cites-restrictions-as-reason-for-cold-shoulder/>.

2. **At the May 17 hearing, the Office raised questions concerning the scope of the proposed class of works, specifically whether there is any evidence that there is a need for, or evidence in support of, jailbreaking e-readers, such as the Kindle and the Nook. Please provide evidence supporting the inclusion of these devices, including those versions of the Kindle and Nook that serve solely or primarily as ebook readers, in the proposed class of works.**

E-readers should be included in the proposed class of works because individuals also jailbreak and root these devices to customize their user experience. Indeed, there is a homebrew community devoted to developing independent software for devices that are solely or primarily marketed as e-readers, such as the Kindle Touch and Nook Color.¹⁷ Users who root their e-readers have the capability to modify their devices in order to:

- Install custom screensaver images.¹⁸
- Create a basic tablet by installing an email program, preferred browser, media player, timer, currency converter, or other programs that are not pre-installed on the device.¹⁹ This may be particularly desirable where the e-reader is smaller, lighter, and has longer battery life than a standard tablet.²⁰
- Install homebrew games.²¹

¹⁷ Kindle Developer's Corner, <http://www.mobilerread.com/forums/forumdisplay.php?f=150> (last visited July 2, 2012); Nook Devs, <http://nookdevs.com/> (last visited July 2, 2012).

¹⁸ Alex Long, *How to Add Your Own Custom Screensaver Images to Your Kindle*, WONDERHOWTO, <http://null-byte.wonderhowto.com/how-to/add-your-own-custom-screensaver-images-your-kindle-lock-screen-0132704/> (last visited July 2, 2012); *How to Use a Simple Jailbreak to Customize Kindle Screensavers*, GHACKS.NET, July 18, 2011, <http://www.ghacks.net/2011/07/18/how-to-use-a-simple-jailbreak-to-customize-kindle-screensavers/>; *Jailbreak Your Kindle for Dead Simple Screensaver Customization*, HOW-TO GEEK, Apr. 11, 2011, <http://www.howtogeek.com/howto/37424/jailbreak-your-kindle-for-dead-simple-screensaver-customization/>.

¹⁹ E.g., nookBrowser, <http://nookdevs.com/NookBrowser> (last visited July 2, 2012); nookMedia, <http://nookdevs.com/NookMedia> (last visited July 2, 2012); Currency converter, http://nookdevs.com/Currency_converter (last visited July 2, 2012); Timer, <http://nookdevs.com/Timer> (last visited July 2, 2012); Alan Henry, *Turn a \$99 Nook into a Full Fledged Android Tablet in Four Easy Steps*, LIFEHACKER, Feb. 29, 2012, <http://lifehacker.com/5889158/turn-a-99-nook-into-a-fully-fledged-android-tablet-in-four-easy-steps>.

²⁰ See Nicole Martinelli, *Can a Jailbroken \$200 Nook Replace an iPad?*, CULT OF MAC, March 11, 2011, <http://www.cultofmac.com/85419/can-a-jailbroken-200-nook-replace-an-ipad/>; Henry, *Turn a \$99 Nook into a Full Fledged Android Tablet*, *supra* note 19.

²¹ KIF: an infocom text adventure interpreter for the kindle, <http://adq.livejournal.com/108011.html> (last visited July 2, 2012); Bill Ray, *Kindle Users Get Zorked Out*, THE REGISTER, Oct. 8, 2010, http://www.theregister.co.uk/2010/10/08/kindle_zork/; nook Crossword, <http://nookdevs.com/NookCrossword> (last visited July 2, 2012); nook Mines, <http://nookdevs.com/NookMines> (last visited July 2, 2012).

- Install input methods for other alphabets.²²
 - Customize the device's interface, *e.g.*, to control the device more easily with one hand, or install an application launcher with custom icons.²³
 - Make new, innovative uses of device hardware. For example, the Kindle Touch reportedly comes with a built-in accelerometer and proximity sensor, neither of which is used by any pre-installed software program.²⁴
- 3. At the June 5 hearing, the Business Software Alliance alleged that jailbreaking mobile devices leads to/results in piracy of copyrighted applications. Please discuss the relationship between jailbreaking and piracy, and whether this is relevant to this class of works. In this context, please discuss the accuracy and reliability of the articles and links previously submitted to the Office discussing apps and piracy.**

There is a vibrant community of users who jailbreak and root their devices for purely non-infringing purposes.

As the record in this rulemaking amply shows, there are many legitimate, non-infringing reasons why a user might choose to jailbreak or root a device. These reasons range from installing non-infringing applications that happen to be unapproved by the device's vendor, to customizing a device's appearance, to transforming a phone into a flashlight.²⁵

Jailbreaking and rooting are activities completely distinct from installing and running pirated software programs. Indeed, as one of the articles cited in Mr. Metalitz's May 31, 2012 letter to the Copyright Office reports, a development team is launching a marketplace specifically intended to offer apps for jailbroken devices, and it blocks the

²² NookZhuyingIME, <http://nookdevs.com/NookZhuyingIME> (last visited July 2, 2012) (Chinese characters).

²³ *E.g.*, Kevin Fogarty, *Incredibly Simple Jailbreak Makes Amazon Kindle Touch a Fuller-Function Tablet*, IT WORLD, Dec. 12, 2011, <http://www.itworld.com/mobile-wireless/232437/incredibly-simple-jailbreak-makes-amazon-kindle-touch-fuller-function-tablet>; nookLauncher, <http://nookdevs.com/Nooklauncher> (last visited July 2, 2012); Mynook.ru Launcher, http://nookdevs.com/Mynook.ru_Launcher (last visited July 2, 2012). *See also* Jason Hiner, *How to Hack the \$250 Nook Color Into a Full Android Tablet*, TECH REPUBLIC, Feb. 3, 2011, <http://www.techrepublic.com/blog/hiner/how-to-hack-the-250-nook-color-into-a-full-android-tablet/7630>.

²⁴ Fogarty, *Incredibly Simple Jailbreak*, *supra* note 23.

²⁵ *Supra* at 1-2, 4-5; Comments of the Electronic Frontier Foundation 8-10; Comments of Tom Van Norstrand, http://www.copyright.gov/1201/2012/comments/Tom_Van_Nostrand.pdf; Mike Keller, *Lima: The Piracy-Free App Store for Jailbroken Phones*, PC WORLD, May 3, 2011, https://www.pcworld.com/article/227026/lima_the_piracyfree_app_store_for_jailbroken_iphones.html ("There are plenty of interface hacks and tweaks that are only available to a hacked iOS device. If you don't think four icons is quite enough in your multi-tasking dock—or the Linux-user in you really wants a CLI and root access to the iOS file system—jailbreaking may right up your alley.")

distribution of pirated apps.²⁶ This shows that there is a substantial market for software for jailbroken devices that has nothing to do with piracy whatsoever.

Nothing in the articles cited by the opponents suggests that jailbreaking itself is an undesirable activity that should be illegal. Indeed, that result would cause serious harm to the mobile industry because it would hamper developers' ability to create and test high-quality software in the first place.²⁷ Rather, the articles suggest the mobile industry is developing ways to limit the impact of piracy and continue making profits by adopting new business models and taking advantage of existing legal remedies to crack down on infringing activity.²⁸

Six of the eleven articles cited by Mr. Metalitz are based on a survey study on Android app piracy performed by the research firm Yankee Group.²⁹ The actual study has not been introduced into the record by opponents, nor is it available online.³⁰ However, EFF

²⁶ Keller, *Lima: The Piracy-Free App Store for Jailbroken Phones*, *supra* note 25.

²⁷ See Mozilla Comments at 3, *supra* note 12.

²⁸ For instance, one story cited by Mr. Metalitz discusses how app developers are moving toward business practices, such as generating revenue through in-app purchases or advertisements, to make infringement a less costly problem. One developer interviewed for the story describes an app that is required to communicate with a central server, which helps identify pirated copies and shut off access to them. As a result, the developer explained, piracy "didn't hit us in the pocketbook." An executive at another software company noted that his business had taken "an approach that circumvents [app piracy] entirely." Roger Cheng, *How Piracy Ruins It For Paid Apps (Inside Apps)*, CNET, Sept. 19, 2011, http://news.cnet.com/8301-1035_3-20107572-94/how-piracy-ruins-it-for-paid-apps-inside-apps/.

Another article shows that Apple actively using existing legal remedies to crack down on distribution of pirated apps. Jake Smith, *Apple Sends Take Down Notices to Cracked iOS Apps Creator AppTrackr*, 9 TO 5 MAC, Dec. 30, 2011, <http://9to5mac.com/2011/12/30/apple-begins-sending-take-down-notice-to-the-creators-of-apptrackr-cracked-ios-applications/>.

²⁹ Cheng, *How Piracy Ruins It For Paid Apps*, *supra* note 29; Mike Jennings, *Android Fans: Pay For Your Apps, Please*, PC PRO, Apr. 27, 2012, <http://www.pcpro.co.uk/blogs/2012/04/27/android-fans-pay-for-your-apps-please/>; Thomas Claburn, *Android Survey Highlights Piracy Problem*, INFORMATION WEEK, Sept. 8, 2011, <https://www.informationweek.com/news/security/app-security/231601064>; Oliver Haslam, *Android Apps Make Less Money Than App Store Apps, Piracy to Blame*, IDOWNLOAD BLOG, Sept. 10, 2011, <http://www.idownloadblog.com/2011/09/10/android-apps-less-money-piracy/>; Fahmida Y. Rashid, *Android App Piracy Hurting Developers, Consumers: Survey*, EWEEK.COM, Sept. 12, 2011, <http://www.eweek.com/c/a/Security/Android-App-Piracy-Hurting-Developers-Consumers-Survey-535495/>; Carl Howe, *Android Piracy: How Republished Apps Steal Revenue and Increase Costs*, Yankee Group, Sept. 7, 2011, <http://www.yankeegroup.com/ResearchDocument.do?id=57254>.

³⁰ EFF asked Yankee Group if we could review a copy of this study, and were told that purchasing the subscription needed to access the research would cost "thousands of dollars."

has obtained a slide presentation that sheds more light on the study's methodology and findings, which we attach here.³¹

The survey's conclusions appear to be based solely on subjective opinions and beliefs of Android developers expressed in an online survey.³² The survey sample is relatively small, and the number of survey respondents varies widely from question to question.³³

The presentation slides do not suggest that rooting leads to Android app piracy. Indeed, they propose several ways that Google might take steps to reduce piracy that do not require denying users root access to their devices.³⁴ The presentation also proposes that app developers can head off piracy by adopting different business models, as discussed above.³⁵ The study's authors explain, "None of these steps will significantly reduce developer freedom, but they will at least make piracy a little more difficult than cutting and pasting code."³⁶

Piracy is irrelevant to this rulemaking because EFF's proposed exemption would not apply to users who jailbreak or root their devices for purposes of infringement.

By its very terms, the proposed exemption does not apply to users who jailbreak or root for infringing purposes. Proposed class 5 is narrowly drawn to allow users to install and run programs of their choice for very specific purposes on their own lawfully purchased smartphones and tablets. Therefore, EFF's proposed exemption would not simply not apply to users who jailbreak or root their devices for purposes of infringement.

As a practical matter, jailbreaking or rooting for unlawful purposes is likely to continue whether or not this exemption is granted, because the exemption is simply irrelevant to that activity. If this exemption is not granted, however, it will chill those who wish to jailbreak or root their devices for *lawful* purposes, *i.e.*, to make them interoperable with legitimate, legally acquired software. The Copyright Office should recommend this proposed class to ensure that those legitimate, socially beneficial uses continue.

³¹ Carl Howe and Maggie Taylor, *Android Ecosystem Awash With Pirates* (Sept. 2011), available at <http://blogs.yankeegroup.com/2011/09/29/webinar-android-ecosystem-awash-with-pirates/> (last accessed June 29, 2012).

³² *Id.* at 6.

³³ *Id.* at 9-12. For example, 130 respondents answered the question "What is the primary source of app piracy?" while only 11 respondents answered the question "Have your anti-piracy mechanisms ever locked legitimate users out of your app?"

³⁴ *Id.* at 14-16.

³⁵ *Id.* at 18.

³⁶ Cheng, *How Piracy Ruins It For Paid Apps*, *supra* note 28.

July 2, 2012
Page 8 of 8

Please do not hesitate to let us know if you have further questions or concerns.

Thank you.

Sincerely,

A handwritten signature in blue ink that reads "Marcia Hofmann". The signature is written in a cursive style with a long horizontal flourish at the end.

Marcia Hofmann
Senior Staff Attorney

cc:
Steven J. Metalitz, Esq.
Jesse Feder, Esq.
Art Neill, Esq.
Jishnu Menon, Esq.
Brad Lassey

Encs.