Circumventing Technical Protection Measures – Is It Legal?

When Apple Inc. released the iPhone in mid-2007, much of the attention focused on the fact that Apple offered the iPhone only through Cingular Wireless (now AT&T). The iPhone is programmed at the factory to work only with the AT&T network (which uses GSM, as opposed to CDMA, used by Sprint Nextel and Verizon Wireless).

Apple finds such exclusive co-marketing arrangements highly desirable, even though legal limits on such deals have delayed the release of the iPhone in some countries. For example, French law requires that cellular telephones be sold in a way that lets the consumer select their service provider. To comply with French law, Orange (the French cellular provider with which Apple has partnered) also offers unlocked versions of the iPhone (albeit at a higher price).

The Apple-Hacker "War" Begins

Despite Apple locking the iPhone in the United States, it didn't take long until hackers figured out how to unlock the iPhone.

I have heard that there are now approximately 1,000,000 iPhones in the United States that lack service plans with AT&T. There is also an active secondary market for unlocked iPhones, which command a significant premium over the locked version of the iPhone.

Let me state that I take no position regarding the morality of these activities: I am merely reporting the facts.

This first effort to unlock the iPhone was only the first shot in the war. Since then, Apple and the hackers have engaged in a back-and-forth battle for "control" over the iPhone: Apple releases patches that address the vulnerabilities exploited by the hackers, and the hackers respond by finding some new vulnerability. In many respects, this "war" mirrors the constant struggle most of us experience in keeping viruses, worms, and other exploits off of our personal computers. I doubt a victory in the "war" over the iPhone can be declared until one side or the other throws in the towel.

But are the actions of the hackers legal?

After all, if Apple doesn't want to sell an unlocked phone, doesn't it have that right?

So Is It a Crime?

The Digital Millennium Copyright Act (DMCA) made it a crime to circumvent technical protection measures – techniques used by manufacturers to protect their products and content. In context, this is not limited to hardware technical protection measures: software can be used to protect content. For example, the DMCA discusses reverse engineering of software as a way of circumventing a technical protection measure.

Exceptions to the DMCA

Reverse Engineering. The DMCA describes how reverse engineering can be an exception to the limits on circumventing technical protection measures. But the DMCA limits this exception to "the sole purpose of identifying and analyzing those elements of the program that are necessary to achieve interoperability of an independently created computer program with other programs" (*see* 17 U.S.C. 1201). This exception would enable someone to study, for example, how a word processor interacted with an operating system to allow that party to create their own program which could also interact with the operating system. But it would not excuse, say, an educational project to study how compiled code executes.

Research & Testing. The DMCA also excuses "encryption research" and "security testing" (*see* [17 U.S.C. 1201](#)). These sections permit, respectively, "activities necessary to identify and analyze flaws and vulnerabilities of encryption technologies applied to copyrighted works, if these activities are conducted to advance the state of knowledge in the field of encryption technology or to assist in the development of encryption products" and "accessing a computer, computer system, or computer network, solely for the purpose of good faith testing, investigating, or correcting, a security flaw or vulnerability, with the authorization of the owner or operator of such computer, computer system, or computer network".

Hacking the iPhone does not fall under any of these three exclusions.

The iPhone was not unlocked to discover how to permit other applications to interoperate with other programs, nor was it to identify flaws in encryption technology or test for security flaws. OK, I guess an argument could be made that unlocking the iPhone showed that there were flaws with the iPhone software; but the exceptions for encryption research and security testing are about discovering flaws to correct them, not to exploit them.

So does this mean the people who develop and distribute the techniques to unlock the iPhone are in violation of the DMCA?

Maybe not.

The Loophole…

There is another loophole in the DMCA that lets the Registrar of Copyrights recommend whether certain people will be adversely affected by the prohibition against circumventing copyright protection systems. The Librarian of Congress takes these recommendations and can issue rules accordingly.

In 2006, the Library of Congress issued such a [set of rules](#). One of the rules permits circumventing software to permit a wireless telephone to lawfully connect to a wireless telephone communication network.

But, of course, there's a catch.

These rules are effective for three years; in 2009, the Librarian of Congress can choose to remove the exception. Further, as far as I know, there have been no cases testing this exception to the DMCA. So we don't even know how a court would interpret the rules as they exist.

Still, this is cause to rejoice! Maybe Apple doesn't want to sell an unlocked iPhone, but we can all buy the iPhone and unlock it ourselves. We should spread the word: everyone should know how to unlock the iPhone, shouldn't they?

Maybe not…

Are You Willing to Take a Chance?

You may remember back in 1999, there was a lot of noise about the fact that manufacturers of DVD drives for computers did not release drivers for Linux operating systems. Because DVDs are protected by the Content Scrambling System (CSS), owners of DVDs couldn't put the DVD in their Linux operating system-based machines and access the data. Jon Johansen was one of three programmers who wrote DeCSS, which decrypted the content of DVDs, enabling a user to access the content directly. Johansen was eventually tried in Norway and was acquitted because his work was consistent with achieving interoperability. So Johansen's work would appear to fall squarely into the exception for reverse engineering: no problem there.

When 2600 Magazine distributed links from which copies of the DeCSS program could be downloaded, however, DVD manufacturers sued 2600 Magazine in the United States for this act. The district court ultimately held that the defendants' primary purpose was to promote redistributing of DVDs and not for a purpose permitted under the DMCA exceptions, and found them liable for their actions. The Court of Appeals for the Second Circuit eventually affirmed the district court decision.

So, at least for the time being, unlocking a wireless telephone is legal, although it is questionable how legal it is to teach others how to accomplish this lawful objective. An interesting dilemma for those technical enough to understand a problem but not able to solve it themselves, and for those who want to help others solve the problem. It would seem, "never the twain shall meet" (with apologies to Rudyard Kipling).

Thoughts, anyone?

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