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April 28, 2006

UNAUTHORIZED SOFTWARE MODIFICATIONS

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Many businesses invest significant amounts of time and money in implementing software programs to run their business. Along with that investment comes a need to maintain that software. What happens when the developer or vendor is no longer willing or able to support that software? In some cases, the business may feel little choice but to attempt to make the repairs on its own or through another contractor, even in the face of a possible lawsuit for copyright infringement or breach of contract. This article discusses the circumstances under which the law may permit such modifications.

Overview of the Issue

Section 106 of the Copyright Act sets forth the six fundamental rights that are exclusive to the copyright owner of a particular work. Among them are the exclusive rights to copy and to create derivative works of the work. Any modification of a software application will entail the exercise of one or both of those exclusive rights. Therefore, those modifications infringe the copyrights in the work, unless an affirmative defense is available. Furthermore, in many cases, the license or services agreement concerning the work also prohibits or limits, either expressly or impliedly, a party's rights to make such modifications.

In this article, I will discuss one possible affirmative defense, namely, Section 117 of the Copyright Act concerning limitations of the exclusive rights concerning computer programs. Under some circumstances, fair use may also provide a defense, but that is beyond the scope of this article. I will also briefly address the issue of federal copyright preemption in circumstances where a contract appears to prohibit modifications or reverse engineering. Lastly, I will offer some practice considerations based on the analyses of the various courts to interpret these issues.

Section 117 of the Copyright Act

Section 117 addresses unauthorized copying or modifying in two circumstances. Generally, Section 117(a) permits the owner of a copy to make another copy or adaptation either for archival purposes or as an essential step in using that program. For purposes of this article, we will only consider the first part of that subsection concerning copies or adaptations as an



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essential step in use. Section 117(c) addresses copying in connection with repairing machines. Section 117(b), which is not discussed here, addresses the transfer of copies or modifications made pursuant to the other parts of Section 117. The full text of Section 117 is attached as Appendix 1.

Section 117 is chock full of interesting and difficult interpretational issues. Perhaps the most significant is the one that applies to both circumstances: for either (a) or (c) to apply, the party claiming the benefit of the statute must be the “owner of a copy.” As will be evident later, courts have struggled to determine exactly who is an “owner of a copy.” In Section 117(a), courts have also been faced with questions concerning the meaning of “essential step in the utilization,” “in conjunction with a machine,” and “used in no other manner.” In Section 117(c), courts have considered the meaning of “solely by virtue of the activation of a machine” and “necessary for that machine to be activated” and “destroyed immediately after the maintenance or repair is completed.”

Owner of a Copy

Ownership would appear to be a straightforward concept, but courts have struggled with it in the context of Section 117. In *DSC Communications Corp. v. Pulse Communications, Inc.*, 170 F.3d 1354 (Fed. Cir. 1999), the plaintiff, DSC, made and sold digital loop carrier systems called Litespan to enable telephone companies to connect analog and digital signals. For “plain old telephone service” (POTS), DSC supplied an interface card that downloaded a copy of DSC’s proprietary POTS-DI software each time the card was powered on. Pulsecom, a competitor of DSC, began manufacturing and selling its own POTS card, which was also designed to download DSC’s POTS-DI software each time the card was powered on by the telephone company. As part of its research and development, Pulsecom purchased its own DSC Litespan system on the open market, and used that system to design its POTS card. DSC sued Pulsecom for, among other claims, direct and contributory copyright infringement.

With respect to the contributory infringement claim, Pulsecom asserted that the copying by the telephone companies was permissible under Section 117(a), and the district court agreed, finding that the telephone copies were “owners of a copy” because they acquired the program from DSC for a single payment and were entitled to use it for an unlimited period of time.

The Federal Circuit disagreed. Looking at the statutory history, the Federal Circuit noted one significant change between the language proposed by the final report of Congress’ National Commission on New Technological Uses of Copyrighted Works in 1978 (the “CONTU Report”). The CONTU Report used “*rightful possessor of a copy*” as opposed to “*owner of a copy*” (emphasis added). The Federal Circuit reasoned from that change that Congress intended the phrase “owner of a copy” to mean something more than just rightful possession.



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The court then looked to the 9th Circuit's opinion in *MAI Sys. Corp. v. Peak Computer, Inc.*, 991 F.2d 511 (1995) for guidance. Although the Federal Circuit rejected *Peak's* contention that a licensee of a software program could never be the owner of a copy, the court did find *Peak* instructive. The *Peak* court based its conclusion in that case in part on the fact that the licensee was subject to severe contractual restrictions that were inconsistent with the rights of an owner of a copy subject only to the copyrights. Applying that approach to the contracts between DSC and the telephone companies, the Federal Circuit held that the telephone companies were not "owners of a copy" of DSC's software. In particular, the court noted that the agreements (1) expressly reserved to DSC all rights other than a license, (2) prohibited the transfer of the copies, (3) prohibited disclosure of the copies to third parties, (3) prohibited use of the software on non-DSC hardware, and (4) provided for the return of the copies to DSC in the event of termination of the license.

On the issue of direct infringement, the court reached a somewhat different result. Pulsecom purchased its Litespan system on the open market with no contractual restrictions. Therefore, the court concluded, Pulsecom was an "owner of a copy" of the system software for purposes of Section 117(a), and was entitled to make copies in connection with its use of the system.

A more recent case from the 2nd Circuit reached a different result, but with some key differences in the facts. In *Krause v. Titleserv, Inc.*, 402 F.3d 119 (2005), Krause worked for ten years as an independent contractor developing and maintaining a number of software programs for Titleserv, but with no written agreement. In 1996, the parties began negotiating an assignment of the copyrights in the programs, but, before any agreement could be reached, Krause terminated the relationship. He left object code versions of the programs on the Titleserv file servers, but locked them with a command to prevent their being decompiled by a popular decompiler program. He also informed Titleserv that they were free to continue using the object code versions, but that Titleserv had no right to modify the source code. This placed Titleserv in a bind, because, by design, many basic functions, such as adding or modifying customer information, required modification of the source code. Titleserv proceeded to unlock the programs, decompile them, and make a number of modifications, including (1) bug corrections, (2) adding and correcting customer information, (3) adapting for a new operating system, and (4) adding new features. Thereafter, Titleserv shared the adapted version with some of its subsidiaries, and granted dial-up access to two of its client banks. Krause sued for copyright infringement, and the district court granted summary judgment in favor of Titleserv based on Section 117(a).

On appeal, the 2nd Circuit examined different aspects of Section 117(a): (1) whether Titleserv was an "owner of a copy" of the programs, (2) whether the various modifications made by Titleserv were an "essential step in the utilization" of the programs, and (3) whether the programs were used for the essential step and "in no other manner."



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Addressing the issue of whether Titleserv was an “owner of a copy,” the court rejected Krause’s contention that the change in the language of the CONTU Report from “rightful possessor” to “owner” meant that 117 only applies to legal title ownership. While agreeing that “rightful possessor” is broader than “owner,” the court noted the “rightful possessor” was broad enough to encompass such parties as a messenger delivering a copy of the program, a bailee, or others rightfully in temporary possession. The change in language could easily have been intended to address that scope, while not necessarily restricting the language only to owners of legal title. The court also found the requirement of legal title unlikely, since legal title is a matter of state law, and would have the effect potentially of undermining the uniformity of the Copyright Act. For those reasons, the court held that the appropriate inquiry was whether the party exercises “sufficient incidents of ownership over a copy to be sensibly considered the owner.”

Applying that test to the case at hand, the court ruled that Titleserv owned copies of the programs for purposes of Section 117 for a number of reasons. Titleserv paid Krause substantial sums of money to develop the programs for its sole benefit. Krause customized the programs for Titleserv’s business. The copies were stored on a server owned by Titleserv. Krause never reserved a right to repossess the copies used by Titleserv, and even acknowledged that Titleserv had the right to continue using the programs forever.

Other Issues Under Section 117(a)

Essential Step

The court next turned to the question of whether the modifications made by Titleserv were an “essential step in the utilization” of the programs. The court addressed each of Titleserv’s types of modification separately. With respect to bug fixes and changes to add or correct customer information, the court stated that it “could not be seriously disputed” that these modifications were essential. With respect to adapting the programs to a new operating system, the court again ruled that these modifications were essential without much analysis.

The court deemed only the fourth type of modification, Titleserv’s addition of new features, worthy of “additional analysis.” The court indulged in a lengthy analysis of the dictionary definitions and statutory history behind “essential” and “utilization.” The court first noted that “essential” is not synonymous with “necessary.” The court further noted that, no matter how narrowly you construe “essential,” it is necessarily dependent on the meaning of “utilization.” “Utilization” could be read broadly as “making the program useful” to the owner of the copy. Thus, the central ambiguity in the statute is really the question of for what purpose the modifications must be essential.



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Looking at the CONTU Report, the court concluded that Congress intended a broad meaning of utilization that would permit addition of features so that a program better suits the needs of the customer for which it was created. For that reason, the court held that Titleserv's modifications were "essential." However, the court did add one caveat: the CONTU Report states that the rights under 117(a) could "only be exercised so long as they did not harm the interests of the copyright proprietor." Thus, the court stated that the outcome might have been different if Titleserv's alterations somehow interfered with Krause's ability to exploit the copyrights in his work.

In No Other Manner

Lastly, the court addressed Krause's argument that Titleserv failed to satisfy the requirement that the adaptations be used "in no other manner" other than the "essential step." The court rejected Krause's contention that 117(a) is limited to internal use. Instead, the appropriate test is a relative one; namely, how does the questioned use compare to the use envisioned by the creation of the program?

In the instant case, the court stated that the use by the subsidiaries was a continuation of the kinds of use for which the programs were intended. They were stored on Titleserv's file servers, which were accessible to the subsidiaries. With respect to access by the bank clients, the court again rejected Krause's arguments, again focusing on the issue of intent. The programs were intended to facilitate Titleserv's transactions with its customers. Providing access to the bank clients furthered that goal; the court suggested that providing access for use independent of Titleserv transactions might have led to a different result.

Other Issues Under Section 117(c)

Section 117(c) was added relatively recently as part of the Digital Millennium Copyright Act. According to the Copyright Office Summary of the DMCA, 117(c) is intended to allow the owner of a computer to make copies of computer programs in the course of repairing the computer. The full text is set forth in Appendix 1. Generally, the key issues are whether the copy is made "solely by virtue of the activation of a machine," whether the program is "necessary for that machine to be activated," and whether the copies are "destroyed immediately after the maintenance or repair is completed."

A recent Federal Circuit case addressed several of those issues in a case of first impression. In *Storage Technology Corporation v. Custom Hardware Engineering & Consulting, Inc.*, 431 F.3d 1374 (2005), StorageTek, a manufacturer of computer tape storage library systems, sued Custom Hardware Engineering ("CHE"), who provided repair services for StorageTek systems. The facts are complicated, but critically important to understanding the court's analysis and the application of Section 117(c).



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Each individual StorageTek library has its own robotic arm for retrieving and storing tapes. Each arm requires control software that is loaded into memory each time the system is powered up, and deleted on shutdown. Each library and its arm are further controlled by a central library management unit, which has its own master control software, which is also loaded into memory each time the system is powered up, and deleted on shutdown. The master control software contains two components, the functional code and the maintenance code, both of which are part of the same, intertwined code base (an important fact as you will see). The maintenance code is intended only for StorageTek's diagnostic purposes, and it is expressly excluded from the user license. However, because it is intertwined with the functional code, the maintenance code is (and must be) loaded into memory when the system is powered up, although it could subsequently be disabled with no effect on the operation of the system.

When a malfunction occurs in one of the libraries, that library's control software sends fault codes to the master control software. The maintenance code can then be activated to access those fault codes in order to diagnose the malfunction. However, in addition to the license exclusions, StorageTek also protected access to the fault codes with a password scheme.

In order to provide services to users of StorageTek library systems, CHE developed two similar devices that are designed to intercept the fault codes from the StorageTek devices. To install the devices, CHE shut down the system, connected the device between the library units and the management unit, and then rebooted the system. At that point, the devices would circumvent StorageTek's password scheme and "trick" the library units into sending fault codes to the devices. The devices would remain in place and active for the duration of the maintenance services provided by CHE.

StorageTek sued CHE for copyright infringement. The district court determined that StorageTek was likely to prevail on the merits, and therefore issued a preliminary injunction against CHE.

On appeal, the circuit court overruled the district court. It first considered the question of whether CHE complied with the requirement to destroy the copy after the maintenance or repair is completed. The resolution of this question turned on the scope of the term "maintenance." According to the statutory history of 117(c), "maintenance" can mean "checking the proper functioning" of a machine. The court concluded, therefore, that "maintenance" has a broad temporal connotation. CHE placed the devices and caused the copying of the software (on startup) solely for the purpose of allowing the "proper functioning" of the system to be continuously monitored. After CHE's contract with the customer expired, CHE removed its devices and rebooted the system, thereby destroying the copies that were made, and complying with the requirements of the statute.

There was no real dispute on the question of whether the copy of the maintenance code was made "solely by virtue of activation" of the machine. Clearly, because the maintenance code



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was intertwined with the functional code, and both were automatically loaded into memory on startup, this requirement was satisfied. However, the statute draws a key distinction between *copying* a program “solely by virtue of activation” and *using* a program that is “not necessary for the machine to be activated.” The statute permits any copying that occurs by virtue of activation, but prohibits the use of any of those copies if they are copies of programs that were not necessary for the activation to occur. Interpreting the facts of this case in light of that distinction is at the heart of the case, and is at the heart of the disagreement between the majority and the dissent.

The majority essentially takes the position that the maintenance code and the functional code are really just two different parts of the same program. That program is, and must be, copied into memory in order to activate the machine. Therefore, the program, as a whole, is “necessary for the machine to be activated,” and, therefore, CHE was free to make use of it as part of its maintenance and repair services. In other words, differing functionality, and the fact that StorageTek could have, but chose not to, separate the maintenance and functional codes, are entirely irrelevant.

The dissent strongly disagreed with this interpretation. The dissent noted that CHE conceded that the maintenance code could be disabled after startup without any effect on the operation of the system. Therefore, notwithstanding the fact that the two were compiled together, the maintenance code’s loading at startup was incidental, and not indispensable. The dissent also argued that the first step in CHE’s setup process, namely rebooting the system, was intended solely to manipulate the maintenance code, and was not for purposes of maintenance and repair. Furthermore, the ongoing monitoring of the system by CHE’s devices was not maintenance or repair, because the purpose of the device was to determine whether maintenance and repair was needed, not to actually perform the maintenance or repair.

Copyright Preemption¹

Copyright licensors often try to use state contract laws to gain protections that are not afforded by the Copyright Act. For instance, prohibitions on reverse engineering and unauthorized modifications are commonplace. However, Section 301 of the Copyright Act expressly preempts any state laws “equivalent to any of the exclusive rights within the general scope of copyright as specified by [section 106](#) in works of authorship that are fixed in a tangible medium of expression and come within the subject matter of copyright as specified by [sections 102](#) and [103](#).” In what circumstances, then, are contractual license restrictions preempted?

¹ For a much more in-depth treatment of this subject, see *Preserving the Copyright Balance: Statutory and Constitutional Preemption of Contract-Based Claims* (2006) by Lawrence Eribaum Associates, Inc. and Kathleen Olson, available at 11 Comm. L. & Pol’y 83.



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The starting point of the analysis is to determine whether the work in question is “within the subject matter of copyright.” Courts have consistently held that this standard is broader than just those works that are *protected* by federal copyright. As noted in the famous case of *ProCD, Incorporated v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996), which is usually cited for enforceability of shrink wrap agreements but also addresses preemption, Section 301 is intended to prevent states from giving special treatment to works that Congress decided should be in the public domain. Therefore, Section 301 applies to any type of work that is of a type that could be copyrightable, even if the Copyright Act does not actually provide protection for it.

The stickier question is whether a particular state law is “equivalent to any of the exclusive rights within the general scope of copyright.” Courts generally assess whether there is an “extra element” that makes the action “qualitatively different” from a copyright infringement claim. In this context, courts have struggled with contract claims. Some courts have taken the position that preemption addresses state regulatory schemes and should have no bearing on most private contracts. Because contracts require an offer, acceptance, and consideration, none of which are required by copyright law, a claim for breach of contract has the requisite “extra elements” to avoid preemption. Put another way, copyright law gives the author rights against the world, whereas contract law has no effect on persons who are strangers to the author.

On the other hand, other courts have taken a broader view of preemption, evaluating contract claims in light of whether they conflict with the policies underlying the federal copyright law. These courts address the question of whether a particular contract claim “touches upon an area” of copyright law.

Practice Considerations

What do we take away from all this? That, in part, depends on which side you are on. Licensors should establish clearly in their agreements that their licensees are not “owners” of a copy. In addition to plainly stating that in the agreement, the agreement should also limit other “incidents of ownership” by, for example, requiring that any copies be destroyed or returned to the licensor upon expiration or termination. This would seem to be the clearest and strongest case, because it seems to clearly establish that the licensee does not own a copy, and it is highly unlikely that such a contractual obligation would be preempted.

For the licensee, evaluate the agreement carefully in light of the expected needs both during and after the expiration or termination of the agreement. Licensees help themselves the most by anticipating as broadly as possible what they might need out of the software and the licensor, and bargaining to have those rights clearly established in the written agreement.

Lastly, although it should go without saying, it cannot be said enough: **MAKE SURE THERE IS A CLEAR WRITTEN AGREEMENT.** Most problems arise (as they did in *Krause*) when the



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parties expend large sums of time, energy, and money towards a project without ever putting in writing their understanding of the rights that will come out of it. Frequently, the parties assume they are “on the same page,” only to learn, at the worst possible moment, that, in fact, there is a material dispute. A little time and effort sorting these issues out on the front end will often save that time and effort hundreds of times over on the back end.



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APPENDIX 1

SECTION 117 OF THE COPYRIGHT ACT

§ 117. Limitations on exclusive rights: Computer programs

(a) Making of Additional Copy or Adaptation by Owner of Copy. — Notwithstanding the provisions of [section 106](#), it is not an infringement for the owner of a copy of a computer program to make or authorize the making of another copy or adaptation of that computer program provided:

(1) that such a new copy or adaptation is created as an essential step in the utilization of the computer program in conjunction with a machine and that it is used in no other manner, or

(2) that such new copy or adaptation is for archival purposes only and that all archival copies are destroyed in the event that continued possession of the computer program should cease to be rightful.

(b) Lease, Sale, or Other Transfer of Additional Copy or Adaptation. — Any exact copies prepared in accordance with the provisions of this section may be leased, sold, or otherwise transferred, along with the copy from which such copies were prepared, only as part of the lease, sale, or other transfer of all rights in the program. Adaptations so prepared may be transferred only with the authorization of the copyright owner.

(c) Machine Maintenance or Repair. — Notwithstanding the provisions of [section 106](#), it is not an infringement for the owner or lessee of a machine to make or authorize the making of a copy of a computer program if such copy is made solely by virtue of the activation of a machine that lawfully contains an authorized copy of the computer program, for purposes only of maintenance or repair of that machine, if —

(1) such new copy is used in no other manner and is destroyed immediately after the maintenance or repair is completed; and

(2) with respect to any computer program or part thereof that is not necessary for that machine to be activated, such program or part thereof is not accessed or used other than to make such new copy by virtue of the activation of the machine.



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(d) Definitions. — For purposes of this section —

(1) the “maintenance” of a machine is the servicing of the machine in order to make it work in accordance with its original specifications and any changes to those specifications authorized for that machine; and

(2) the “repair” of a machine is the restoring of the machine to the state of working in accordance with its original specifications and any changes to those specifications authorized for that machine.