



Inadvertent Filesharing Revisited: Assessing LimeWire's Responses to the Committee on Oversight and Government Reform

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Background

On March 5, 2007, the United States Patent and Trademark Office released a report on inadvertent filesharing entitled *Filesharing Programs and "Technological Features to Induce Users to Share"* (the "USPTO Report").¹ Based on public data, the USPTO Report concluded that (1) distributors of popular filesharing programs had deployed at least five features that were known would cause users to share files inadvertently, and (2) these features may have been intended to cause inadvertent sharing because (a) they became more prevalent and more aggressive after they were known to cause inadvertent sharing, and (b) they were deployed in waves—new "features" appeared as users learned to disable those previously deployed. In the summer of 2007, the House Committee on Oversight and Government Reform gave the distributors of LimeWire two chances to respond to these concerns.

On June 19, 2007, the House Committee on Oversight and Government Reform sent a letter, (the "Committee's Letter"), to LimeWire LLC. It asked LimeWire to respond to nine questions and to the USPTO Report. On July 5, 2007, LimeWire gave the Committee a 47-page response consisting of cover letter, a response to the nine questions, an Appendix on the USPTO Report, and a "Walkthrough" of inadvertent sharing precautions in LimeWire (collectively, the "Response"). On October 17, 2007, the Chairman, Ranking Member, and 17 other members of the Committee sent a public letter to the Federal Trade Commission that called for an investigation of inadvertent filesharing and attached LimeWire's Response.

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¹ Thomas D. Sydnor II, John Knight, Lee A. Hollaar, *Filesharing Programs and "Technological Features to Induce Users to Share"* (USPTO, 2006)

(http://www.uspto.gov/web/offices/dcom/olia/copyright/oir_report_on_inadvertent_sharing_v1012.pdf).

While the authors of this analysis also authored the USPTO Report, the opinions and conclusions presented here are those of the authors, not USPTO.

Next, on July 24, 2007, the Committee invited Mark Gorton, CEO of LimeWire LLC, to testify at its hearing, “*Inadvertent Filesharing over Peer-to-Peer Networks*.”² Mr. Gorton was shocked by the extent and consequences of inadvertent sharing: “I had no idea that there was the amount of classified information out there or that there were people who are actively looking for that and looking for credit card information.” *Transcript*, at 19. “I think I’ve always felt that it was inexperienced users who didn’t know what they were doing. However, when you see documents coming from people who specialize in computer security about, you know, military documents, it really makes you think twice.” *Id.* at 20. Mr. Gorton also said that—now that he understood the prevalence and consequences of inadvertent sharing—LimeWire would remediate it: “I absolutely want to do everything in my power to fight inadvertent file-sharing. And I am sorry to say that I didn’t realize the scope of the problem....” *Id.* at 22.

To assist further investigatory efforts by the Committee, the FTC, and other law-enforcement agencies, we analyzed LimeWire’s Response to the Committee’s letter and its response to the Committee’s hearing in order to answer two questions.

- *First*, does data provided in LimeWire’s Response to the Committee’s letter show that it did not deploy the five problematic “features” discussed in the USPTO report or reveal credible, good-faith explanations for why it did deploy such features?
- *Second*, during the three months since the Committee’s hearing, has LimeWire done “everything in [its] power” to implement changes to its program that would significantly reduce or eliminate inadvertent sharing?

We conclude that the answer to each question is “No.” LimeWire’s Response to the Committee’s Letter identifies no material defects in the USPTO Report’s analysis or conclusions. Nor are the changes that LimeWire made after the hearing likely to significantly reduce or eliminate inadvertent sharing: Once again, LimeWire has “improved” its program in ways that *perpetuate* inadvertent sharing.

LimeWire's Response to the Committee's Letter and the USPTO Report

LimeWire’s Response includes answers to the Committee’s questions, an Appendix, and a “Walkthrough” that overlap significantly. Consequently, a point-by-point analysis of each of its claims would bury and disperse information about the five problematic features discussed in the USPTO Report. This analysis will thus focus on those features, and discuss them in the order presented in the USPTO Report. It will focus, in particular, on the most disturbing features deployed in LimeWire: Share-folder and search-wizard features like those condemned in the 2002 study *Usability and*

² A video of the hearing and copies of the witnesses written statements are available on the Committee’s web site at <http://oversight.house.gov/story.asp?ID=1424>. A transcript is also available. See Federal News Service, *Hearing of the House Oversight and Government Reform Committee, Inadvertent File-Sharing over Peer-to-Peer Networks* (July 24, 2007) [hereinafter Transcript at ___].

Privacy and the Committee's May 15, 2003 hearing.³ These features can cause catastrophic inadvertent sharing that results in emptied bank accounts, lost jobs, and a copyright-infringement lawsuit. Moreover, their risks were detailed in *Usability and Privacy* and the 2003 congressional hearings that led LimeWire to adopt the *Code of Conduct* that should have precluded their use.

1. LimeWire's Redistribution Feature.

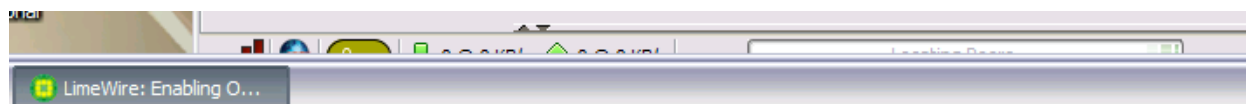
The USPTO Report (pp. 14-15) criticized LimeWire for replacing its once-useful main-interface display of the number of files a user was sharing, "Sharing 42 files" with a cryptic number, "42." LimeWire's Response (p. 9, Fig. 8 & p. A8, FigA7) claims that a user hovering a mouse pointer over the number will see a tooltip explaining its meaning, "You are sharing 42 files."

This claim surprised us: We had never seen a floating (or clickable) tooltip in LimeWire 4.10.9. Then we re-examined Figure 8 in the Response. In Windows, programs can run in full-screen mode or in "windowed mode," (in a smaller window occupying only part of the screen). Figure 8 shows LimeWire running in windowed mode, and the tooltip appears *below* the window running LimeWire.

Because newer users are likely to do so, we ran LimeWire in full-screen mode. This made the tooltip *invisible*: It "appeared" behind the Windows "Start" menu. This is what we saw when "hovering" a mouse over the cryptic number:



On another computer, we could get the tooltip to appear on-screen, but on this computer, LimeWire looked like this in windowed mode:

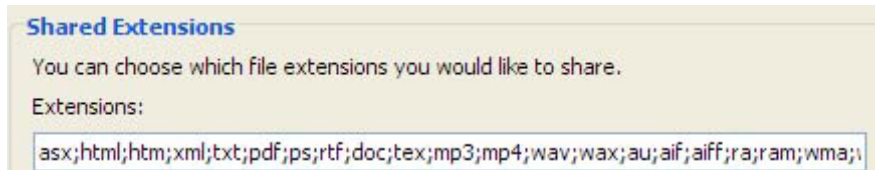


In any case, these screenshots, and Figure 8 of the Response, undermine LimeWire's claim, (p.A7), that the clarifying information in the tooltip was removed from the main screen, "with screen real-estate constraints in mind." In the horizontal bar in which the cryptic number appears, "screen real estate" is available, and unused.

Moreover, while we have not scrutinized them all, other screenshots in the Response also showed the Committee information hidden from most LimeWire users.

³ See Nathaniel S. Good & Aaron Krekelberg, *Usability and Privacy: A Study of KaZaA P2P File-Sharing* (2002) reprinted in PROC. OF THE SIGCHI CONF. ON HUM. FACTORS IN COMPUTING SYSTEMS, vol. 5, iss. 1, 137-144 [hereinafter, *Usability*, at ___]; *Overexposed: The Threat to Privacy and Security on Filesharing Networks: Hearing Before the United States House of Representatives Comm. on Gov't Reform*, 108th Cong. *passim* (May 15, 2003) [hereinafter, *Overexposed*, at ___]

For example, the “Shared Extensions” window in Figure 6 of the Response, (p. 8), indicates that users opening LimeWire’s “Sharing” menu will see that “.doc” and “.pdf” files will be shared by default:



But this is wrong. When important data cannot be completely displayed on-screen, programs usually warn users, as shown by the ellipses, (...), in Figures 4 and 9 of the Response, (pp.6, 10). But the “Shared Extensions” window in Figure 6 *does not* warn that it displays only 16% of the file types LimeWire shares by default. Worse yet, if users guess this, click into the window, and try to see if other file types are shared, most will scroll to the *right* because they read information from left-to-right. Doing so will indicate that “Shared Extensions” window displays all file types shared by default. Only if LimeWire users scroll to the *left*, (for about 15 seconds), will they learn that LimeWire shares “.doc” and “.pdf” files by default.

2. LimeWire’s Share-Folder Features.

The Committee’s Letter asked LimeWire to “explain why warnings which were included in previous versions of LimeWire, which seem to have been intended to help users avoid inadvertent sharing, have been removed in more recent versions.” The pop-up warnings referenced were displayed in the “Saving” menu of LimeWire 2.0.4, as shown in the USPTO Report (p.27, Fig. 10). These warnings, while imperfect, (*see id.* at p. 28 & n.35), did distinguish the “Save Directory” in LimeWire 2.0.4 from the KaZaA share-folder feature criticized by *Usability and Privacy* and the Committee because they (1) warned that a folder storing downloaded files would be shared; (2) let the user chose *not* to share this folder; and (3) warned that this folder, if shared, would be shared *recursively*, (all of its subfolders would also be shared).

LimeWire’s Response, (p.11), claims that these warnings were never removed: “[C]urrent versions do include a warning.... We are not aware of a time when warnings were not included; if these warnings were ever omitted from a released version, the exclusion was due to a bug that was quickly fixed.” These claims reflect “the recollection of the developers,” (p.A10).⁴

The USPTO Report, (p. 23-26 & Figs. 8-10), shows that the share-folder feature in 4.0.7, a 2004 version of LimeWire displayed no such warnings. LimeWire thus seems to claim that it does not “recall” that the share-folder feature in LimeWire 4.0.7 lacked pop-up warnings, but if so, this was “due to a bug that was quickly fixed.”

⁴ LimeWire later claims, (Response, p.A4), that one of these developers cannot correctly describe the behavior of 2006 versions of LimeWire.

LimeWire's recollections appear to be wrong. Public data indicates that the pop-up warnings displayed in LimeWire 2.0.4 were removed from LimeWire in June of 2003. For the next two years, its share-folder feature displayed *no* pop-up warnings. Nor have the LimeWire 2.0.4 warnings *ever* reappeared. *Different pop-up warnings* did appear in LimeWire 4.9.0 and later. But these warnings can mislead users about LimeWire's most dangerous behavior: Its recursive sharing of all subfolders of a shared folder.

- a. **From June of 2003 to June of 2005, LimeWire's share-folder feature did not warn users that a "Save Directory" would be shared, or shared recursively.**

The USPTO Report (pp. 23, 25; Figs. 6, 8-9), displayed the share-folder feature in LimeWire 4.0.7 because it behaved like other studied versions of LimeWire released from June of 2003 to June of 2005. Because LimeWire does not "recall" that these versions behaved like 4.0.7, we re-verified our analysis using available public data.

As LimeWire CEO Mark Gorton noted in a recent interview with *IEEE Spectrum*, many versions of LimeWire are available on the Web—collections are housed at sites like www.oldversion.com. We thus were thus able to download and run copies of the following versions of LimeWire: 3.0.2; 3.4.4; 3.6.15; 3.8.6; 4.0.7; 4.4.5. We also re-checked screenshots of the share-folder feature in 4.8.0.⁵

No pop-up warnings appeared in any copy of any of these versions of LimeWire. Consequently, we again conclude that available public data indicates that *no version* of LimeWire released from June of 2003 to June of 2005 displayed *any* warning when a user activated its share-folder feature. The behavior of LimeWire 4.0.7 appears to be neither atypical nor "due to a bug that was quickly fixed."

- b. **Since June of 2005, one of LimeWire's share-folder features and its "Sharing" menu displayed potentially misleading warnings.**

LimeWire, (p.2), cites several "newly added" warnings that it claims prevent inadvertent sharing. But these warnings were "added" two years ago. This raises a question: Why does LimeWire keep causing catastrophic inadvertent sharing? Two factors may explain why these recent warnings fail to prevent inadvertent sharing.

First, the USPTO Report, (p.33), criticized LimeWire for implementing anti-inadvertent-sharing measures in ways that denied their benefits to users upgrading from the past versions of the program that had necessitated such measures. Consequently, the vast majority of LimeWire users who had once used pre-4.9.0 versions of LimeWire would not benefit from more recent changes in the program: Their sharing settings were not be rechecked or reset, so they would never see the warnings—even if they are

⁵ Because LimeWire is an open-source program, we should have been able to cross-check public data by compiling executable copies of older versions of LimeWire from the code stored in LimeWire's Concurrent Versioning System (CVS) depository. Unfortunately, the data needed to compile versions of LimeWire prior to 4.13.1 appears to have been removed from LimeWire's public CVS depository.

sharing a “sensitive” folder like “Documents and Settings.”

Second, the more recent warnings LimeWire cites differ from the warnings in LimeWire 2.0.4 in two ways: (1) they do not disclose that sharing a given folder will recursively share all shareable files in all of its subfolders, and (2) most indicate that sharing *will not be recursive*—that the user will share only “this folder,” the one selected through a share-folder feature or displayed in a pop-up sensitive-folder warning.

We will address below LimeWire’s unsubstantiated claim that “[r]ecursive sharing is the behavior that most experienced computer users expect.” For now, even were this claim relevant and accurate, recursive sharing would still cause inadvertent sharing if a program that shares folders recursively indicates that it does not.

(1) The share-folder feature in LimeWire’s setup process indicates that sharing will *not* be recursive.

Since June of 2003, LimeWire has deployed a share-folder feature in its setup process. This share-folder feature will be encountered mostly by new users installing LimeWire for the first time—by those who are least likely to understand LimeWire and its capabilities. It is shown in LimeWire’s Walkthrough (p. 9, Fig. 10).

It displays the default “Shared” folder and lets the user choose to store downloaded files in a different folder. Unlike the share-folder feature and “Sharing” menu within LimeWire, this share-folder feature displays *no* pop-up warnings: Users cannot avoid sharing a selected folder, and they will not be warned if they select a “sensitive” folder.

Worse yet, while the feature does disclose that a folder selected as the download folder will be shared, it also indicates—wrongly—that sharing will *not* be recursive: “*This folder will also be shared....*” (emphasis added). This wording is inexcusable: *Usability and Privacy* warned, five years ago, “The word “folder” is singular, implying one folder, and does not hint that all folders below it will be recursively shared with others.” *Usability*, at 140.

(2) The pop-up warning in LimeWire’s internal share-folder feature fails to disclose recursive sharing.

LimeWire’s Response, (p. 6), claims that its internal share-folder feature will display a pop-up “recursive-sharing warning.” This claim is facially wrong: When LimeWire disclosed recursive sharing, it did so as follows: “Subfolders of shared folders will also be shared.” USPTO Report p. 28, Fig. 11. It used similar language in its 2.0.4 pop-up warnings. *Id.* at 27, Fig.10. The Response, (p.6, Fig. 4), shows that no similar language appears in more recent pop-up warnings.

It thus appears that LimeWire claims that LimeWire 4.12.15’s share-folder feature discloses recursive sharing because its warning refers to “your new save folders.” That

“s,” LimeWire seems to claim, informs even young or inexperienced users that storing downloaded files in a “Documents and Settings” folder that contains no existing files will recursively share the data files of all users of that computer.

The Response, (p.6, Fig. 4), reveals the flaw in this claim. LimeWire has altered its share-folder feature so users can select *multiple* “download locations” for different types of files: Users can now store downloaded audio files in “My Music,” documents in “My Documents,” and image files in “My Pictures.” As a result, the share-folder feature that used to recursive share only *one* folder per use can now recursively share up to *six* folders per use. Indeed, the Response (Fig. 4) shows a user being asked whether they want to share *two* “new save folders” as a result of one use of the share-folder feature.

Users could thus reasonably conclude that the “s” in “new shared folders” reflects this new multiple-folder-sharing capability, not that shared folders would be shared recursively. In any case, LimeWire’s Response cannot reasonably claim that recursive sharing can be effectively disclosed through warnings more opaque than those given in the search-wizard feature that it eliminated because it had “the potential to be misused by inexperienced users,” (p.5).

(3) The sensitive-folder warning in LimeWire’s “Sharing” menu indicates that sharing will not be recursive.

LimeWire’s Response, (p. 2, 9), repeatedly touts pop-up “sensitive-folder” warnings that will appear if someone using LimeWire 4.12.15’s “Sharing” menu tries to share a folder likely to contain sensitive data. While such warnings could be helpful, the Response overlooks three factors that, collectively, may make these sensitive-folder warnings misleading.

First, sensitive-folder warnings could mislead w they provided inconsistently. The list of “sensitive” folders in the Response, (p.2), contains two obvious omissions:

- “My Music”: Most media players save files ripped from CDs in subfolders of “My Music.” Sharing “My Music” would thus cause many or most users to share thousands of infringing audio files and become targets for lawsuits.
- “My Pictures”: Many digital cameras will store photographs in subfolders of “My Pictures,” and many scanners or multifunction printers will also store scanned documents, (like bank statements or tax records), in subfolders of “My Pictures.”

Second, four interfaces in LimeWire 4.12.15 will share folders: (1) the “Sharing” submenu of its Options menu; (2) the “Saving” submenu of its Options menu; (3) its “Library” interface; and (4) the share-folder feature in its setup process. The sensitive-folder warnings appear *only* if folders are shared through the “Sharing” submenu: In the Library, a user receives no warning if he shares “Documents and Settings,” (and thus recursively shares the “My Documents” folders of all users of that computer).

Third, the sensitive-folder warning does not disclose that a “sensitive” folder will be

shared recursively. Indeed, the warning indicates, (p.9, Fig.7), that sharing *will not be recursive*: “You are attempting to share a folder that is likely to contain sensitive information... Share *this* folder?” (emphasis added). This could easily mislead users. For example, *recursive* sharing of a “Documents and Settings” folder will be disastrous, but users who think that sharing is non-recursive could examine their “Documents and Settings” folder and find that “this folder” contains no sensitive files.

For all of the above reasons, LimeWire 4.12.15 appears to be neither the version most compliant with LimeWire’s *Code of Conduct* nor the version least likely to cause inadvertent sharing. This seems attributable to LimeWire’s instance that recursive sharing, (p.12), “is the behavior that most experienced computer users expect.” No supporting evidence is cited, but the Response seems to claim, (p.6), that because selecting a folder in Windows Explorer will recursively select its subfolders, then “most experienced computer users” will expect filesharing programs to share folders recursively. For several reasons, this claim is both irrelevant and wrong.

LimeWire’s claim is irrelevant because many or most users of filesharing are not experienced computer users. Many are teenagers or pre-teen children who may be neither experienced nor safety-conscious. As the USPTO Report notes, (p.8), LimeWire itself has referred to users of filesharing programs as “the Munchkins” and “the little guys.”

LimeWire’s claim also appears to be wrong. As the Response notes, (p.A5), users of filesharing programs may not expect them to behave like computer operating systems or any “other class of software.” The consequences of selecting folders in Windows differ profoundly from those of “sharing” whole trees of folders and files with thousands of anonymous strangers. Users need not—and should not—expect the latter act to be no more difficult than the former.

Moreover, five years ago, *Usability and Privacy* warned that filesharing programs should *not* share folders recursively: Recursive sharing—even if disclosed—imposes upon users a burden that too many will be unable to bear: Even if users *do know* that sharing will be recursive, they can assess its implications only if they have “detailed knowledge” of (1) what types of files a given program will share, (2) the structure of their folder hierarchy and (3) the contents, locations, and sensitivity of all files it contains. See *Usability*, at 140. If most users possessed this detailed structural and substantive knowledge, Windows would not contain a file/folder search system—and filesharing programs would not have contained search-wizard features.

During the five years since *Usability and Privacy* was published, LimeWire has been testing its contrary theories about the obviousness of recursive sharing on the public. The results of its experiments spoke for themselves during the Committee’s hearing.

3. LimeWire’s Search-Wizard Feature.

LimeWire’s Response to the Committee’s question about its search-wizard feature is unhelpfully vague. The Response admits, (pp. 5, 14, A8), that LimeWire did

deploy—but has “recently” stopped deploying—a search-wizard feature. It does not disclose when it was first deployed or when it was removed.

We have thus reviewed public data to provide more information. We first found a search wizard in LimeWire 3.8.6, released in February of 2004. We found it in each subsequent studied version through 4.12.12, which was available in June of 2007. LimeWire thus deployed a search wizard for about 3½ years. In all studied versions, the search wizard tended to “recommend” recursive sharing of the user’s “My Documents” folder and all of its subfolders—the user’s “principle data repository.”

This search-wizard feature did not differ materially from the KaZaA search-wizard features condemned by *Usability and Privacy* and the Committee. In some ways, it was slightly worse: Unlike the KaZaA wizard, it would be triggered by default during setup, and the LimeWire wizard told users that it would search for “media files”—the Response now admits, (p.A8), that this was wrong. In other ways, it was slightly better: It did disclose that selected folders would be shared recursively—but as the Response concedes, (p.5), this failed to eliminate its “potential to be misused by inexperienced users.” In the end, LimeWire had to do what KaZaA did in 2003: Remove the search wizard from its program.

LimeWire states, (p.5), that the *Code of Conduct* it drafted, published, and promoted in 2003 imposed “common-sense” obligations. While we agree, those obligations also responded to two specific problems—share-folder and search-wizard features—identified in *Usability and Privacy* and the Committee’s 2003 hearing. Nevertheless, LimeWire’s Response, (p.2), claims “strict adherence” to the *Code* while the search wizard was deployed.

We disagree. LimeWire’s *Code* required that its program be designed “to reasonably prevent the inadvertent [sharing] of the contents of the user’s ... principle data repository.” For about 3½ years, LimeWire tended to recommend that new and inexperienced users recursively share their “My Documents” folders. A program does not “reasonably prevent” sharing of a “principle data repository” by recommending that users share it. Nor does a “reasonably designed” program make “recommendations” that would be unreasonable for almost any user to accept.

Nor can we understand why any distributor of a filesharing program would keep deploying a search wizard three years *after* identifying it as a cause of catastrophic inadvertent sharing. In August of 2004, a reporter asked LimeWire’s Chief Operating Officer why users of LimeWire were inadvertently sharing classified military documents. In response, he cited the search wizard: “One possible weakness in LimeWire is a feature that automatically scans the user’s hard drive, looking for files to be shared over the network. [LimeWire’s COO] said this feature can make it easy to expose private information by mistake.”⁶ Nevertheless, LimeWire kept deploying the search wizard for nearly three more years.

⁶ Hiawatha Bray, File-Sharing Imperils US Secrets, *The Boston Globe* (Aug. 4, 2004) (http://www.boston.com/business/technology/articles/2004/08/05/file_sharing_imperils_us_secrets/).

4. LimeWire's Partial-Uninstall Feature.

LimeWire's Response provides an incomplete and potentially misleading answer to the Committee's question, "How can users completely uninstall the LimeWire program without leaving behind files that might affect subsequently installed versions of its program?" The instructions given, (p.12), will not work for users of *most* versions of LimeWire and they omit a key detail that makes them useless to users of the most recent versions of LimeWire. These instructions are flawed because they do not disclose a critical change in LimeWire's partial-uninstall feature.

In studied versions of LimeWire from mid-2003 through mid-2006, the datafile used by the partial-uninstall feature was stored in a *visible* folder called ".limewire" located in C:\Documents and Settings\[username]. Deleting this folder would disable the partial-uninstall feature.

Recently, LimeWire *relocated* the relevant datafile. LimeWire 4.12.15 stored it in a subfolder within the user's "Application Data" folder. By default, the "Application Data" folder is a *hidden folder*. Users can neither see that it exists nor delete any of its subfolders. In short, LimeWire recently changed its partial-uninstall feature in a way that prevents even users who *once* knew how to disable it from doing so again.

The rest of LimeWire's explanations for its partial-uninstall feature are not credible. First, it argues that this is an "industry standard" (p.12). But "others were doing it" is no answer—particularly in an industry that pledged to provide "a method by which [its] software may readily be uninstalled."

Second, it argues that saving user-defined settings can make it easier for users to upgrade to new versions of a program (pp. 12, A11). No one disputes that user-defined settings can be retained when a *presently installed* version of a program is upgraded to a new version.⁷ Nor does anyone assert that all programs must delete all user-defined settings when uninstalled. Problems like those caused by partial-uninstall features arise only if (1) non-deleted user-defined settings could have potentially dangerous consequences, and (2) a program was specially designed to re-use—rather than overwrite—any non-deleted datafiles containing those potentially dangerous user-defined settings.

If a program does this, then no one can predict the consequences of installing it on a computer. LimeWire's Response states (p.6): "No files are marked for sharing unless the user has explicitly chosen that file, a folder containing that file, or a folder containing a parent folder of that file...; or the user has initiated a download of the file." At the hearing, Mr. Gorton said, "[T]he defaults are secure. So if you hit enter, enter,

⁷ The Report notes, however, that if a distributor alters its program because potentially dangerous or misleading features deployed in previous versions caused inadvertent sharing, then user-defined settings *should be* reset or re-confirmed. If this is not done, the "improved" program will perpetuate the effects of previous errors. USPTO Report at 33. LimeWire's Response did not dispute this point.

enter using LimeWire, you don't share any files and—there is no information that would be on your computer that would be made public to anybody.” *Transcript*, at 19. LimeWire's partial-uninstall feature makes such statements dangerously wrong.

Finally, LimeWire's Response claims (pp. A10-A11) that while its partial-uninstall feature could reinstate settings *more* dangerous than the usual defaults, it might also perpetuate settings *less* dangerous than the defaults: “[I]f the previous user had wanted complete privacy and prevented all sharing, then LimeWire would automatically perpetuate that privacy and continue not sharing.” Wrong again: As discussed below, LimeWire's “Individually Shared Files” feature ensures that any lucky user who unwittingly inherits settings that *once* “prevented all sharing,” will begin sharing as soon as they begin downloading.

5. LimeWire's “Individually-Shared-Files” Feature.

LimeWire's Response, (pp. 12, A3), repeatedly denies that its Individually-Shared Files (ISF) feature is a coerced-sharing feature. But its alternative explanation for this feature cannot explain its behavior. LimeWire claims, (p.A11), “ISF was added along with the ‘Download As’ feature, to allow a user to save a download to an arbitrary location.” But LimeWire will tag downloaded files as “Individually Shared Files” even if they were *not* downloaded using its “Download As” feature. LimeWire has thus failed to offer any credible alternative to the explanation proposed in the USPTO Report (pp. 35-36, 44-45): ISF is a form of coerced-sharing feature implemented because too many LimeWire users had learned how to stop sharing files.

6. Other Issues.

Only one other issue in LimeWire's Response bears note: It persistently reveals a troubling attitude toward LimeWire users and the problem of inadvertent sharing. In 2003, distributors of filesharing programs that had caused inadvertent sharing acknowledged their duty to protect their users. One told the Committee, “I firmly believe that it is the responsibility of peer-to-peer file-sharing companies to proactively protect the privacy and security of the users of their software application.” *Overexposed* at 59.

LimeWire's Response, (A10), displays a different attitude toward users and their safety: “LimeWire recognizes that a file-sharing program's purpose is to share files, and has stated that it found it odd when people complain about files being shared by such programs.” Similar statements litter the Response, (pp. 1, 13, A5, A6). LimeWire thus portrays inadvertent sharing as a stupid-user problem to be blamed on “ill informed,” “careless,” “inexperienced,” “negligent,” users who “drive[] software developers crazy” (pp. 1, 5, 13, A9).

For example, the USPTO Report, (pp. 25-26), showed why a user who had inadvertently shared thousands of legally acquired audio files via the share-folder feature in LimeWire 4.0.7 might think that the sharing caused by that feature could be cured by clicking the provided “Use Default” button that *seems* to restore its default setting. LimeWire's Response, (p.A8), belittles the user who fails to realize that in

LimeWire, sharing caused by one menu must be corrected in a different menu: “[T]his is an example of precisely the sort of user who drives software developers crazy.... In this case the user navigates to an option titled “Saving” instead of the option titled “Sharing” when that user wishes to change what is being shared.”

But the problem illustrated resides in the *program*, not the user. Ordinarily, no one would think that a “Saving” menu dedicated to the saving of files would affect the sharing of folders. In LimeWire, it does. When “saving” causes “sharing,” it is reasonable to expect a user who discovers this—and thus realizes that she has shared sensitive *folders* by changing the default setting for *saving* files—to return to the menu that caused the problem and click its “Use Default” button to restore its default setting.

Unfortunately, this attitude that pervades LimeWire’s Response is still evident in its program: Today, users of LimeWire 4.14.10 who try to halt inadvertent sharing of recursively-shared “Save Directories” by using its share-folder feature’s “Use default” button will receive the same potentially misleading feedback that users of LimeWire 4.0.7 received in 2004.

LimeWire's Response to the Committee's Hearing

Because LimeWire’s CEO testified under oath at the Committee’s hearing that he would “do everything in my power to fight inadvertent sharing,” *Transcript*, at 22, LimeWire could hardly fail to make some improvements during the next three months. The critical question is thus whether LimeWire has made *meaningful* changes that will significantly reduce inadvertent sharing.

As of this writing, the current version of LimeWire Basic is 4.14.10. To determine how it has changed, we compared its behavior to that of LimeWire Basic 4.12.15, the last version that we downloaded before the Committee’s hearing.

One change in 4.14.10 could have been meaningful: When users share folders through its “Saving,” “Sharing” and “Library” interfaces, they will see a pop-up warning that displays a graphic representation of the folders and some of the subfolders that will be shared and they can alter or cancel their actions.⁸ While imperfect, these graphic pop-up warnings could have prevented some inadvertent sharing: But *not* if they were implemented in a way that tended to deny their benefits to users upgrading from previous versions of LimeWire *and* to users installing LimeWire for the first time.

Regrettably, that is how they were implemented.

The new pop-up warnings will help few users of prior versions of LimeWire because LimeWire has again “improved” its program by *perpetuating* most inadvertent

⁸ Unfortunately, these new warnings can also provide misleading feedback. If a user “deselects” a folder that would be shared, the warning will provide feedback indicating that it will not be shared. But if the user then selects one of its subfolders, the program will re-select for sharing all files stored in the parent folder that the user just chose not to share.

sharing caused by prior versions. LimeWire's popularity ensures that the vast majority of 4.14.10 users will be upgrading from past versions of LimeWire that caused inadvertent sharing. These users will not benefit from the "improvements" in 4.14.10. For example, if a user of LimeWire 4.12.3 recursively sharing her "Documents and Settings," "My Documents" or "My Music" folder, then that "preference" will be perpetuated when she upgrades to LimeWire 4.14.10: Her file-sharing preferences will not be re-checked or reset; nor will she see its new graphic pop-up warnings.

A section of the USPTO Report, (pp. 33-35), criticized distributors—like LimeWire—that had denied the benefits of new anti-inadvertent-sharing features to users upgrading from prior versions that caused the inadvertent sharing that necessitated such features. LimeWire's Response did not dispute this criticism, which was intended to ensure that no distributor could credibly "play dumb" if it repeated such conduct. This appear-to-improve-but-perpetuate tactic is shopworn: In 2003, the distributors of KaZaA did get away with perpetuating the effects of their search-wizard and share-folder features when they "improved" their program. Today, this tactic should not be overlooked—or excused—yet again.

LimeWire 4.14.10's new warnings are also unlikely to help new users installing LimeWire for the first time. These warnings *do not appear* in LimeWire's most dangerous interface: The undisclosed, recursive-sharing share-folder feature that LimeWire's setup process displays to new users—the one that falsely suggests that sharing will *not* be recursive. The USPTO Report, (25 & n.31), repeatedly criticized this feature. So have others. After the Committee's hearing, the pro-filesharing web site Slyck tried to defend LimeWire by publishing *Sharing for Dummies*, a guide to avoiding inadvertent sharing.⁹ It identified the setup-process share-folder feature as the place "where people **get themselves and their organizations in trouble.**" Slyck then highlighted some of its defects by annotating screenshots of it with large text balloons that display critical information that the feature itself does not. LimeWire has thus incorporated its graphic pop-up warnings into *some* sharing-related interfaces, but not into the one most dangerous to new or inexperienced users. That is inexcusable.

Finally, not only have LimeWire's graphic pop-up warnings been implemented in a way that will not benefit many new or existing users, LimeWire has also failed to take other obvious steps "to fight inadvertent sharing."¹⁰ The following illustrate some of the problematic behaviors still present in LimeWire 4.14.10:

- All its sharing-related interfaces recursively share subfolders of selected folders.
- Its partial-uninstall feature still makes its default behavior so unpredictable that neither LimeWire's Response nor its CEO can correctly describe it.

⁹ Thomas Mennecke, *Sharing for Dummies*, SLYCK.COM (July 25, 2007) (http://www.slyck.com/story1550_Sharing_for_Dummies)

¹⁰ LimeWire has made another long-overdue change: It no longer allows recursive sharing of the root directory "C:\." Programs like BearShare implemented a similar precaution about four years ago.

- Its Individually-Shared-Files (ISF) feature still tags all downloaded files as ISFs, forcing users who want to stop sharing downloaded files to complete a complex, multi-step process across multiple interfaces.
- It no longer displays the “Sensitive Folder” warnings repeatedly cited in LimeWire’s Response.
- Its “content filter” is still optional, and disabled by default.
- The “Use Default” button on its “Saving” interface still provides potentially misleading feedback.
- By default, it still shares downloaded files, partially downloaded files, and torrent files not licensed for distribution over the Gnutella network.
- The interface that lets users view and change the types of files that LimeWire shares is now even more difficult to find.
- Its main interface displays only a cryptic number to disclose the number of files shared, and the clarifying tooltip still displays off-screen on some computers.

In summary, LimeWire’s Response to the Committee’s letter and its response to the Committee’s hearing have failed either to redress the concerns expressed in the USPTO Report or to show significant progress in reducing or eliminating inadvertent sharing. As a result, the critical conclusion expressed in the USPTO Report, (47-48), stands: Law-enforcement agencies should investigate to determine whether distributors of popular file-sharing programs intended to blunt the deterrent effects of copyright-enforcement actions by duping users of their programs into sharing files inadvertently.

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