



Long Comment Regarding a Proposed Exemption Under 17 U.S.C. § 1201

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ITEM A. COMMENTER INFORMATION

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On behalf of

Software Preservation Network (SPN)

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The Software Preservation Network coordinates software preservation efforts to ensure long term access to software. It connects and engages the legal, public policy, social science, natural science, information & communication technology, and cultural heritage preservation communities that create and use software. SPN consists of archivists, librarians, scholars, technologists, and legal experts committed to establishing and retaining access to software which would become inaccessible without careful and conscientious stewardship.

Library Copyright Alliance (LCA)

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The Library Copyright Alliance consists of two major library associations (the American Library Association and the Association of Research Libraries) and was established in order to safeguard the interests of librarians and archivists in the realm of copyright law. These two associations collectively represent over 300,000 information professionals and thousands of libraries of all kinds throughout the United States and Canada.

ITEM B. PROPOSED CLASS ADDRESSED

Class 14(a) – Computer Programs – Preservation

A proposed expansion of the software preservation exemption (37 C.F.R. § 201.40(b)(18)) to eliminate the requirement that the program not be distributed or made available to multiple users simultaneously outside of the physical premises of an eligible institution.

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Privacy Act Advisory Statement: Required by the Privacy Act of 1974 (P.L. 93-579)

The authority for requesting this information is 17 U.S.C. §§ 1201(a)(1) and 705. Furnishing the requested information is voluntary. The principal use of the requested information is publication on the Copyright Office website and use by Copyright Office staff for purposes of the rulemaking proceeding conducted under 17 U.S.C. § 1201(a)(1). NOTE: No other advisory statement will be given in connection with this submission. Please keep this statement and refer to it if we communicate with you regarding this submission.

Proposed Exemption:

Computer programs, except video games, that have been lawfully acquired and that are no longer reasonably available in the commercial marketplace, solely for the purpose of lawful preservation of a computer program, or of digital materials dependent upon a computer program as a condition of access, by an eligible library, archives, or museum, where such activities are carried out without any purpose of direct or indirect commercial advantage.

Any electronic distribution, display, or performance made outside of the physical premises of an eligible library, archives, or museum of works preserved under this paragraph may be made only for a limited time and only where the library, archives, or museum has no notice that the copy would be used for any purpose other than private study, scholarship, or research.

ITEM C. OVERVIEW

If an engineer is hired to design an airplane, she will probably use AutoCAD at some point in the process. AutoCAD, a general drafting and design software, lets users efficiently draw and edit two-dimensional and three-dimensional designs. These technical drawings can be scaled up or down as the user requires and can generate incredibly detailed renderings of structural ideas before they are manually constructed. To use the latest version of AutoCAD—AutoCAD 2024—users can purchase a monthly subscription that gives them access to the software.¹ The process is fast, simple, and thousands of engineers can simultaneously use AutoCAD 2024 for their jobs, whether they work remotely or in-person.

But what if a scholar wanted to access an older version of AutoCAD held at another institution's library, for example, to review archival files that use that version or to study how the program had changed over time? For AutoCAD 2005, an obsolete version of AutoCAD, the Software Preservation Network could only confirm the existence of one copy.² Under the current rules, only one individual can remotely access this software through library and archival collections at a time. So when students from Carnegie Mellon University wanted to access legacy CAD applications to study the evolution of interface design over time, preservationists were unable to provide access.³

AutoCAD 2005 is not unique in this respect. If a researcher wants to remotely access part of the Balmori Associates collection, the archives of an urban and landscape design firm, they would need a library or archives' copy of ArcGIS 9, an out-of-commerce software program that was used to make maps and analyze data.⁴ Unfortunately, they would be out of luck if another individual is already remotely accessing this software, as requests to institutions within SPN's

¹ See *Download AutoCAD 2024*, AUTOCAD, <https://www.autodesk.com/products/autocad/free-trial> [<https://perma.cc/4NQU-WR6V>].

² In order to determine how many copies of software might be available for access, proponents asked SPN members if their institution held copies of these particular pieces of software, via questions distributed to an email list. In addition, a team member searched WorldCat, a catalog that combines records from thousands of libraries across the United States and the world for the particular version of software, and then contacted any institutions that claimed to have a copy to inquire whether the information was accurate. This set of methods, although not producing a perfect record, is aligned with the steps that a preservationist might use to find copies of software in the general case.

³ Email from Ethan Gates to Kendra Albert (Dec. 13, 2023).

⁴ *Balmori Associates Records*, ARCHIVES AT YALE, <https://archives.yale.edu/repositories/12/resources/4861> [<https://perma.cc/3WC2-2MX8>].

network turned up only one copy.⁵ And these are more positive examples. If a scholar wished to access *Mad Men* screenplays produced by Matthew Weiner in their original format, they would likely want Final Draft 7.0, another out-of-commerce software program that helped authors write and format screenplays.⁶ Unfortunately, it is unclear where they would get a copy, and even if they found one, only one user could access it at a time unless they made the trip to use the software in person.

These may seem like obscure programs, unlikely to have users clamoring for widespread access. But the same problem exists for operating systems, which are required to emulate environments for software that originally ran on them. Under the current rules, it is possible that only one person at a time could remotely access any collection or material requiring AutoCAD 2005 in the entire United States, and that the total number of simultaneous Windows XP emulation environments ever available for researchers could be determined by how many copies of the operating system preservation institutions managed to acquire before it was no longer distributed. Thus, section 1201 still creates a significant barrier to preserving and providing access to out-of-commerce software for scholarship and research.

In 2021, the Copyright Office and the Library of Congress recognized the need to allow researchers to remotely access obsolete software and granted Section 1201 exemptions for remote access by one user at a time.⁷ This triennial rulemaking cycle, SPN and LCA seek an exemption that naturally extends the digital preservation efforts that the Copyright Office and the Librarian previously recognized to meet research demand for remote access to obsolete software and software-dependent materials. The Register explained in her 2021 recommendation that the user access restriction gave “additional assurance that the [access] will be...for research and educational purposes.”⁸ At the time, it may not have been clear to the Register that this limitation comes at a high price to research and education itself, given the small number of copies of many forms of functional software.

Proponents propose modification of the current exemption to remove simultaneous user limitations⁹ on off-premises software use in order to permit multiple users to access digital

⁵ *Id.*

⁶ See *Mad Men: An Inventory of the Collection at the Harry Ransom Center*, HARRY RANSOM CENTER, <https://norman.hrc.utexas.edu/fasearch/findingAid.cfm?eadid=01160>.

⁷ See U.S. COPYRIGHT OFFICE, SECTION 1201 RULEMAKING: EIGHTH TRIENNIAL PROCEEDING TO DETERMINE EXEMPTIONS TO THE PROHIBITION ON CIRCUMVENTION, RECOMMENDATION OF THE REGISTER OF COPYRIGHTS 13 (2021) [hereinafter 2021 RECOMMENDATION]; Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 86 Fed. Reg. 59627, 59635 (Oct. 28, 2021).

⁸ 2021 RECOMMENDATION at 273.

⁹ The text of the rule states: “Computer programs... that have been lawfully acquired and that are no longer reasonably available in the commercial marketplace, solely for the purpose of lawful preservation of a computer program... by an eligible library, archives, or museum, where such activities are carried out without any purpose of... commercial advantage. Any [remote] electronic distribution, display, or performance... *may be made to only one user at a time*[.]” (emphasis added). 37 C.F.R. § 201.40(b)(18)(i). This rule can be interpreted two ways. The first interpretation is that libraries and archival institutions can allow a piece of software to be accessed by as many individuals as there are circumvented copies owned. In other words, if a library has three copies of Windows 98, they may allow three researchers to access Windows 98—one for each copy. The second interpretation is that libraries and archival institutions can only loan out one piece of circumvented software at a time, regardless of how many circumvented copies they may own. Our proposed exemption eliminates this uncertainty, in addition to eliminating the harm of the user limitations.

materials remotely at a given time. Like the original exemption, simultaneous remote access would only extend to out-of-commerce programs used for non-infringing purposes, without any purpose of direct or indirect commercial advantage. Below we lay out the basis for our proposal, including the adverse effects of the status quo caused by Section 1201, the non-infringing basis, and the statutory factors.

ITEM D. TECHNOLOGICAL PROTECTION MEASURES AND METHODS OF CIRCUMVENTION

We refer the Copyright Office to proponents' comment in the 2018 rulemaking for a detailed description of technological protection measures and circumvention techniques.¹⁰

ITEM E. ASSERTED ADVERSE EFFECTS ON NON-INFRINGEMENT USES

Preserving software and software-dependent materials is difficult—to put it mildly—because these materials become obsolete so rapidly. Margaret Hedstrom has described digital preservation as a “time bomb” with new media “vulnerable to deterioration and catastrophic loss and... short lived relative to traditional storage media... making the time frame for... actions to prevent loss a matter of years, not decades.”¹¹ Market pressures lead software and software-dependent materials to become obsolete on a three-to-five-year cycle.¹² Preservation is onerous for two main reasons: individual pieces of software degrade as time passes and the rapid pace of hardware development means that widely used software can quickly become inaccessible, as representation, coding, and retrieval techniques quickly develop without back-compatibility.¹³ Planned obsolescence only further contributes to this crisis—as the market moves forward, historically valuable software is left behind.

Nevertheless, libraries and archival institutions painstakingly preserve software and software-dependent materials, enabling access to them despite hardware obsolescence and preventing a massive loss of historically significant material. Preservation does not happen merely for its own sake, however. While libraries, archives, museums, and cultural heritage institutions aspire to preserve and maintain materials based purely on their inherent cultural value, scarce resources are more likely to be allocated to preserving materials when doing so will enable scholars, teachers, and other patrons to access them.

To aid the Copyright Office's understanding of the merits of the proposed modification, this comment focuses on the legal bases and practical considerations that support modifying the exemption. This comment will identify the adverse effects of barring simultaneous remote access to preserved software; discuss how the uses proposed under the exemption are fair use; and detail how the statutory factors favor the expansion of the exemption.

¹⁰ Software Preservation Network and Library Copyright Alliance, *Long Comment Regarding a Proposed Exemption Under 17 U.S.C. § 1201 5-6* (2017).

¹¹ Margaret Hedstrom, *Digital Preservation: A Time Bomb for Digital Libraries*, 31 *COMP. & HUMANS*. 189, 191 (1997).

¹² *Id.* See also Peter Sandborn, *Software Obsolescence – Complicating the Part and Technology Obsolescence Management Problem*, 30 *IEEE TRANS. ON COMPONENTS AND PACKAGING TECH.* 886, 886 (2007).

¹³ Hedstrom, *supra* note 11 at 191.

1. Section 1201 Restrictions Have Adverse Effects on Software Preservation and Availability for Use

Since 2018, libraries, archives, and museums have been permitted to circumvent technological protection measures (TPMs) on lawfully acquired software to preserve software and software-dependent materials.¹⁴ And, as it currently stands, software where a TPM has been circumvented may be accessed remotely. This form of access is crucial for patrons in the internet era, who expect online access to institutional collections.¹⁵ Libraries face constantly increasing demand for remote use of materials. Library Journal's most recent annual nationwide circulation survey found that, between 2020 and 2021, libraries had large increases in spending for digital materials.¹⁶ A prior survey also found that raw numbers of circulated materials increased nineteen out of twenty years from 1998 to 2018.¹⁷ Aligned with these trends, modern researchers typically access subscription databases remotely through institutional library homepages or use reputable search engines rather than poring over printed tomes in a dedicated reading room.¹⁸ However, remotely accessing materials can be challenging for patrons (due to the inevitable challenges associated with accessing software outside of its original environment, such as compatibility issues) and providing remote access can be challenging for institutions, whose staff must expend valuable time and resources to maintain this infrastructure.

Enter emulation-as-a-service, a model that provides one of the best ways to meet community demand for remote access to preserved software.¹⁹ An emulator is a hardware or software tool that allows one computer system to behave like another computer system. An authorized user with a modern web browser can use an emulator to remotely access preserved software securely stored on institutional servers, including complex operating system environments and software-dependent digital files. Emulators can simulate obsolete computer systems and environments on newer computers to run legacy software that is incompatible with current computer systems.²⁰ This enables users to render, view, and interact with digital artifacts in their original environment, without needing to change the file's format and risk losing some of the artifact's

¹⁴ Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 83 Fed. Reg. 54010, 54023 (Oct. 26, 2018).

¹⁵ See Charlotte Priddle & Laura McCann, *Off-Site Storage and Special Collections; A Study in Use and Impact in ARL Libraries in the United States*, 76 COLL. & RSCH. LIBRS. 652, 661 (2015).

¹⁶ Neal Wyatt, *Collection Rebalance | 2022 Materials Survey*, LIBR. J. (Jul. 11, 2022), <https://www.libraryjournal.com/story/Collection-Rebalance-2022-Materials-Survey> [<https://perma.cc/2R8Y-EMCY>].

¹⁷ Barbara Hoffert, *Circ Shift*, LIBR. J. (Mar. 14, 2019), <https://www.libraryjournal.com/?detailStory=Circ-Shift> [<https://perma.cc/R3L4-8VXM>].

¹⁸ See Aditi Bandyopadhyay & Mary Kate Boyd-Byrnes, *Is the Need for Mediated Reference Service in Academic Libraries Fading Away in the Digital Environment?* 44 REFERENCE SERVS. R. 596, 597 (2016).

¹⁹ Our comment discusses both the Emulation-as-a-Service platform and tools provided by the Emulation-as-a-Service Infrastructure project at Yale, a project that SPN works closely with, as well as the model in a more general sense. We use the capitalized term "Emulation-as-a-Service" to refer to the specific project, and the lower-case term "emulation-as-a-service" to refer to a method.

²⁰ Euan Cochrane, *Adding Emulation Functionality to Existing Digital Preservation Infrastructure*, 6 J. DIGITAL MEDIA MGMT., 255, 255 (2017), <https://www-archive.cseas.kyoto-u.ac.jp/ipres2017.jp/wp-content/uploads/45Euan-Cochrane.pdf> [<https://perma.cc/B7WM-L4TH>].

original properties.²¹ However, installing and running emulation tools can be challenging for most users.

This problem is one that the Emulation-as-a-Service Infrastructure (EaaS) was meant to solve. EaaS makes emulated software environments much easier for researchers to access and use by providing a menu of pre-configured emulated environments (a combination of emulated hardware, an operating system, and particular software) located on the collecting institution's servers, which can be launched and viewed in the user's web browser. The user can interact with the software and any digital files in their browser; when they leave the site, their access ends and the emulated environment can be returned to its preconfigured state. EaaS's technology is available as open-source packages, allowing individual libraries and archival institutions to create browser-based emulated environments. And with the off-site use exemption from 2021, these institutions can use emulation-as-a-service to provide access to obsolete materials for research purposes even when TPMs would otherwise prevent access. Emulation-as-a-service models also allow for institutions to time limit access to copyrighted works, or otherwise implement security measures that are appropriate for particular pieces of software.

As it currently stands, however, any software where a TPM has been circumvented can only be remotely accessed by one user at a time. The off-premises user restriction poses a significant barrier to research and learning. Moreover, libraries and archival institutions choose what to preserve based on user preferences and behavior, so restricting access also reduces the incentive for preservation. Consequently, software collections and software preservation efforts will receive less funding, prioritization, and attention. In a field where a few years can make the difference between permanent obsolescence and usability, those incentives will inevitably lead to the destruction or loss of academically rich materials.

a. Adverse Effects on the Availability of Preserved Software for all Scholarly Use

Restricting remote software access to one user at a time creates significant restrictions on the functional availability of software for scholarly purposes. As Ethan Gates—software preservation analyst at Yale University and user support lead for the EaaS project—has explained, the challenge for researchers studying digital cultural heritage is the “software-dependent material trickle-down effect.”²² Digital files cannot be perceived or interpreted directly; they are encoded in 1s and 0s and require a combination of hardware and software tools to render them into a form perceptible to humans. There are various kinds of “supporting” software that are required to render digital materials, including software itself (which typically requires an operating system, among other things). Supporting software programs are not necessarily objects of research in and of themselves, but often serve as a dependency for the software or materials that many researchers are interested in.²³ In other words, these works are utilitarian instruments: operating systems, plug-ins, and other infrastructure that supports the use and access of other digital materials.

²¹ Butch Lazorchak, *The Foundations of Emulation as a Service: An Interview with Dirk von Suchodoletz, Part One*, SIGNAL BLOG (Dec. 10, 2012), <https://blogs.loc.gov/thesignal/2012/12/the-foundations-of-emulation-as-a-service-an-interview-with-dirk-von-suchodoletz-part-one/> [<https://perma.cc/37TD-FXVZ>].

²² Interview with Ethan Gates, Yale University on September 29, 2023.

²³ *Id.*

Take Windows 98, an obsolete operating system. If researchers do not have Windows 98, it is incredibly difficult to access the software and digital content that was created to run on Windows 98, which is a massive amount of material.²⁴ Adobe Acrobat 3.0, an obsolete desktop publishing tool used for creating and reading PDF files, is another example. If researchers acquire a copy of Adobe Acrobat 3.0 but can only run one instance of that software at a time, “then that is not just a limitation on researching and accessing Acrobat 3.0. That is a restriction on how many collection items can be accessed simultaneously, which is a huge burden on digital access to the collection in general.”²⁵ Moreover, researchers and educators often cannot use alternative supporting software to access desired software or software-dependent materials. If a PDF needs Adobe Acrobat 3.0 to be opened, a researcher trying to access the PDF with Adobe Acrobat 5.0 may find that the file renders incorrectly or is otherwise inoperable.

It is not possible to just purchase additional copies to ensure that more users can get access. The paucity of sources for procuring obsolete software is another challenge in building library software collections. For example, some academic institutions and organizations won’t procure software from eBay or other secondary markets. Ethan Gates explained that, when he worked as a lab technician at a previous academic institution, he “had to work from a list of two to three approved vendors” when he wanted a piece of equipment, and popular secondary market websites were not on the list.²⁶ Constraints like this have led to a dearth of software in library and archival collections. Wendy Hagenmaier, former digital curation archivist at Georgia Tech, attempted to ensure that her institution retained any piece of software that her program received as part of a donation: “if someone offered us software, I just took it...because we might *need* to own this.”²⁷

Providing access to out-of-commerce software will get significantly harder over time, as technological protection measures for obsolete software may rely on external activation servers that have shut down. For example, after many extensions, Microsoft no longer provides regular activation processes for Windows XP.²⁸ Even if an eligible institution has a lawfully acquired copy of the software and wishes to install it in a new setting (such as an emulation environment), preservationists might find it difficult or impossible to activate the software without circumventing a TPM. Under the current rule, once a TPM has been circumvented, then that copy of Windows XP can only be used by one person at a time—limiting the total number of potential simultaneous uses of all software that requires Windows XP to the number of copies of the operating system currently in the possession of memory institutions.

Beyond operating systems, there are many collections that depend on access to particular pieces of software where circumvention is necessary for preservation. Members of the Software

²⁴ *Id.*

²⁵ *Id.*

²⁶ Interview with Ethan Gates, Yale University on September 29, 2023.

²⁷ Interview with Wendy Hagenmaier, Yale University on September 29, 2023.

²⁸ Users report mixed results on using suggested activation tools. *Compare How to Activate Windows XP WinXP in 2023 After Servers and Phonetines Are Shut Down ?*, MICROSOFT ANSWERS (Feb. 7, 2023), <https://answers.microsoft.com/en-us/windows/forum/all/how-to-activate-windows-xp-winxp-in-2023-after/f3015022-c195-4f3e-919f-4a325cfc3358> [<https://perma.cc/7ME3-DRKN>] with *How to Activate Windows XP Guide!*, MICROSOFT ANSWERS (Dec. 22, 2022), <https://answers.microsoft.com/en-us/windows/forum/all/how-to-activate-windows-xp-guide/7eb00ad4-1d2a-4ab3-b52a-1f4e7e9129af?LastReply=true#LastReply> [<https://perma.cc/633L-KZSJ>].

Preservation Network have documented collections that require access to historical versions of Pro Tools.²⁹ WordStar 2000 is needed to access the papers of Vladimir Nabokov as they were originally written.³⁰ And the need for historical versions of AutoCAD and other CAD software has been widely documented.³¹

The scarcity of obsolete software in library collections combined with restrictions on software procurement make it exceedingly challenging for researchers to find and remotely access software. Entire sub-fields of research may depend on a single copy of a software program. And absent removal of the limit on simultaneous access, organizations that do have a copy must implement significant controls to be able to allow others to use their software remotely or face potential legal risks.

b. Adverse Effects of Remote User Limitation on Researchers

When obsolete supporting software preserved by a library or archive is already being accessed by another researcher or educator, researchers will have two options available to them: (1) seek out alternative software copies that are not in current use by other researchers or (2) travel to the library or archive to access the software on the premises. For most researchers, neither option is feasible. As a result, researchers will abandon research projects or shift their scope.

First, seeking out alternative copies of software can be difficult—or even impossible—for researchers. Because the software covered by this exemption is not in commerce and the number of institutions that preserve software is relatively small, software necessary for an individual’s research may be held by only one or two collecting institutions. Even when a researcher tentatively identifies an institution with a piece of software they are interested in, they often have no way of knowing if the institution maintains the hardware or environments necessary to run the software. And records showing that an institution contains a particular piece of software are often outdated and incorrect, further misleading researchers and educators.³²

Second, traveling to a library or archives to access software on the premises is typically onerous. As discussed in proponents’ 2021 comment, most researchers would have to travel long distances to reach the library or archive that holds their desired software. Many computer programs are held by only one or two institutions, which may be located hundreds of miles from an interested researcher. These trips fall outside the time and budgetary constraints of most researchers, and researchers may have to dedicate many hours or days of work time to travel to distant institutions, purchasing costly plane tickets to get there. Ultimately, difficulties with access and cost may cause researchers to work on something else, further impoverishing the historical record.

²⁹ See *FCoP Collections and Software Inventory Worksheet- University of Illinois* (August-September 2018) https://www.softwarepreservationnetwork.org/wp-content/uploads/2020/06/UI_FCoP-Software-Collection-Inventory-Worksheet.pdf [<https://perma.cc/2YTP-5X8U>] (describing three different music collections that require access to Pro Tools, as well as the physical authentication mechanism for the Pro Tools software).

³⁰ See *Vladimir Nabokov Family Papers / V. Digital and Audiovisual Materials, 1986-2006*, HOUGHTON LIBRARY, https://hollisarchives.lib.harvard.edu/repositories/24/archival_objects/2720742 [<https://perma.cc/AHW9-8XWM>].

³¹ See Aliza Leventhal and Jody Thompson, *Preserving Born-Digital Design and Construction Records*, DIGITAL PRESERVATION COALITION (December 2021), <http://doi.org/10.7207/twr21-01>.

³² As an example, three libraries were listed in WorldCat as having copies of WordStar 2000. Contacting them revealed that none of them actually had copies.

In practice, the single-user limitation restricts the software and software-dependent materials that researchers can access. Restricting access to obsolete software and obsolete software-dependent material is generally harmful to research, as less-common works contain designs, functionalities, and information that may be left out of more conventional materials. And very little software is commonly held; almost all obsolete software programs are “rare” in library collections, even if they were ubiquitous during their commercial life. Allowing multiple researchers to simultaneously access these software programs and other materials will ensure that they can be preserved and made available to those that need them.

c. Adverse Effects of Remote User Limitation on Students

The user limitation on off-site software access also limits the extent to which out-of-commerce software can be used by students of digital history. If professors want to encourage students to consult out-of-commerce software to help the next generation of computer programmers and computer historians learn about the origins of their disciplines, they may find themselves out of luck. For example, with a remote user limitation, it is impossible to have a class of remote students working with a collection of materials that require the same piece of TPM-circumvented software.

This challenge has plagued Jon Ippolito, Professor of New Media and Director of the Digital Curation program at the University of Maine. Professor Ippolito teaches graduate students in an online digital curation program, encouraging the students to experiment with antiquated software using a non-traditional environment, such as through emulation.³³ This experimentation can be tedious with the current remote user limitation: “Interpersonal sessions with numerous students can be a nightmare because one person demonstrates the software and everybody else watches—but no one wants to watch someone else use interactive software.”³⁴ The limitation is an even greater impediment to learning when students want to explore a software program requiring collaborative, interpersonal engagement in real-time—like a chat client. Without simultaneous remote access, a student researching chat client software will be alone in the chat room, unable to explore the software’s functionality.³⁵

Furthermore, when classes of students are working on a tight deadline, it is inevitable that some students will need remote access to the same piece of software or software-dependent archival material simultaneously—the night before an exam or assignment is due, for example. If they are unable to do so, teachers will be forced to change the scope of a project or scrap it entirely. While this problem could theoretically be overcome by requiring students to visit special collections in-person to consult these materials for their research, not all schools can accommodate multiple student researchers on the premises of their libraries or archival institutions.

2. Simultaneous Remote Access to Preserved Software by Multiple Users is Fair.

The activities covered by this proposed modification are non-infringing, as required by 17 U.S.C. § 1201(a)(1)(C). Specifically, the simultaneous creation of and access to temporary copies on user computers and the simultaneous display of preserved works in user browsers for

³³ Interview with Jon Ippolito, University of Maine on November 9, 2023.

³⁴ *Id.*

³⁵ *Id.*

preservation, teaching, and research, as well as the simultaneous copying and distribution of preserved software to facilitate research by remote users using their own hardware, are protected by the fair use doctrine.³⁶

During the 2021 exemption cycle, the Copyright Office found that the use at issue here was fair: “[b]alancing the four fair use factors, the Register finds that proponents have met their burden of showing that the proposed off-premises uses are likely to be fair with respect to software.”³⁷ Because this exemption argues for the removal of the simultaneous user access limitation for out-of-commerce software, we will focus on why the fair use analysis does not change in this context, as well as highlighting new case law that favors access to software for research.

Congress codified the judicial doctrine of fair use in the Copyright Act of 1976, outlining four factors for courts to consider:

- i. the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- ii. the nature of the copyrighted work;
- iii. the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- iv. the effect of the use upon the potential market for or value of the copyrighted work.³⁸

Although the factors weigh heavily in judicial decision-making, the list is not exhaustive and different factors may prove more important in different contexts.³⁹ Each factor must be considered and weighed together “in light of the purposes of copyright.”⁴⁰ As the Third Circuit explained in 2011, “fair use places important limitations on a copyright owner’s right to control the use of its work, so that the statute does not ‘stifle the very creativity which that law is designed to foster’ by preventing further uses of the work which enrich our culture and do not significantly diminish the value of the original.”⁴¹

As the Supreme Court recently highlighted in *Google v. Oracle*,⁴² fair use is particularly important in the software context. The Court noted that fair use can “help to distinguish among technologies... distinguish between expressive and functional features of computer code... [and] focus on the legitimate need to provide incentives to produce copyrighted material while examining the extent to which yet further protection creates unrelated or illegitimate harms in other markets...”⁴³ Fair use in software “can carry out its basic purpose of providing a context-

³⁶ In some cases, as discussed in previous comments from SPN and LCA, the described uses may also be protected by 17 U.S.C. §§ 108 and 118, or the works might be in the public domain and therefore a use cannot be infringing. See Software Preservation Network and Library Copyright Alliance, *Long Comment Regarding a Proposed Exemption Under 17 U.S.C. § 1201* 13-18 (2017). We focus on fair use here, however, as it is the most relevant legal basis for non-infringing use pertaining to the proposed expansion of the exemption.

³⁷ See 2021 RECOMMENDATION at 276.

³⁸ 17 U.S.C. § 107.

³⁹ See *Google LLC v. Oracle Am., Inc.*, 141 S. Ct. 1183, 1186 (2021).

⁴⁰ *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 578 (1994).

⁴¹ *Murphy v. Millennium Radio Group LLC*, 650 F.3d 295, 306 (3d Cir. 2011) (quoting *Campbell*, 510 U.S. at 577).

⁴² 141 S. Ct. 1183 (2021).

⁴³ *Id.* at 1198.

based check that can help to keep a copyright monopoly within its lawful bounds.”⁴⁴ These principles are especially useful to courts when evaluating an individual’s use of software, like the obsolete software at issue here.

As the Register noted in the last exemption cycle, single-user remote access to preserved software is likely to be fair use.⁴⁵ Extending that logic by allowing multiple users to simultaneously access out-of-commerce software similarly serves the purposes of copyright because there are substantial public benefits and no countervailing effect on the software market.

a. Purpose and Character of the Use

In the previous exemption cycle, the Register stated that the purpose and character of allowing researchers, preservationists, and educators to remotely access computer software “weighs in favor of fair use” because “the works will be made available for research and educational purposes.”⁴⁶ The Copyright Office also explained that “the proposed use of the software...is intended to facilitate preservation, teaching, and research.”⁴⁷

Whether software is accessed by one researcher at a time or by multiple researchers simultaneously, the purpose and character of each use will be the same. This is because the first factor inquiry asks what kind of use was made, not how many users there were. Simultaneous researcher access to obsolete software still promotes the “progress of Science and the useful Arts”⁴⁸ and still advances the broader public interest by facilitating public access to useful information. In fact, allowing multiple researchers to simultaneously access a piece of software provides *more* public benefit than limiting access to one researcher at a time, since it will be easier for researchers and educators to successfully study and analyze software and software-dependent materials.

The noncommercial nature of the use also plays a role in this factor’s analysis, as a noncommercial purpose weighs in favor of fair use.⁴⁹ Allowing researchers, educators, and preservationists to access obsolete software is noncommercial in nature, since they are not using the software to obtain monetary income directly or indirectly. The use remains noncommercial regardless of how many researchers or educators access a piece of software at the same time—this is because, as the Register confirmed in 2021, no one offering or accessing the software stands to profit from the use.⁵⁰

Recent case law, decided since the Register’s recommendation in 2021, provides additional support for the finding that the proposed uses are non-infringing. In *Apple Inc. v. Corellium, Inc.*,⁵¹ Apple sued Corellium for copyright infringement after Corellium created virtualization software that allowed security researchers to analyze Apple’s iOS software running on a server

⁴⁴ *Id.*

⁴⁵ See 2021 RECOMMENDATION at 276.

⁴⁶ *Id.* at 272.

⁴⁷ *Id.* at 270.

⁴⁸ *Campbell*, 510 U.S. at 575 (quoting U.S. Const. art I, § 8, cl. 8).

⁴⁹ See *Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1263 (11th Cir. 2014).

⁵⁰ See 2021 RECOMMENDATION at 270 (“[T]he proposed exemption is restricted to activities ‘carried out without any purpose of direct or indirect commercial advantage,’ which excludes any users who might engage in commercially motivated acts.”).

⁵¹ No. 21-12835, 2023 WL 3295671 (11th Cir. May 8, 2023).

rather than on Apple phone and tablet hardware. In analyzing the first fair use factor, the Eleventh Circuit found Corellium’s software to be transformative for three reasons, each of which applies equally well to the uses enabled by proponents’ proposed rule.

First, the Corellium software altered iOS by adding features that aren’t ordinarily available on the iOS operating system.⁵² Similarly, a researcher using emulation to access software can do things that a consumer could not do. For example, Emulation-as-a-Service “centralizes functionality and compatibility. Rather than needing a dozen computer hardware setups on-hand, researchers and educators can move from one point in computing history to another seamlessly.”⁵³ Moreover, emulation-as-a-service models have improved search and description capabilities for research and education, presenting researchers and teachers with instructions, tutorials, and other useful information alongside their emulated software environment.⁵⁴ Emulation also lets individuals save derivative versions of computing environments customized for particular research tasks, which can then be reused and shared with others.⁵⁵

Second, the Eleventh Circuit found that accessing the iOS software in a virtual research environment served a different purpose than using iOS on an iPhone: it gave researchers the ability to understand and examine iOS and iOS applications in new ways.⁵⁶ Similarly, researchers using software in an emulated environment are using the software for a different purpose than what it was intended to be used for when it was created. Just as the software in Corellium gave “researchers the ability to examine and understand...iOS itself and iOS-based applications in advanced new ways” and thereby “provide[d] social benefit, by shedding light on an earlier work,”⁵⁷ emulation provides researchers and teachers with new ways to examine and understand out-of-commerce software and software-dependent materials, producing social benefits in the process. Many researchers do not engage with software for its original informative, aesthetic, or entertainment functions; rather, they examine elements of the work for purposes of comment, criticism, or education.

To be sure, a researcher or educator studying obsolete software may, for research or education purposes, run the software similarly to how it was run by users at the time of its release. But the Supreme Court has addressed this directly, saying “...since virtually any unauthorized use of a copyrighted computer program (say, *for teaching or research*) would do the same, to stop here would severely limit the scope of fair use in the functional context of computer programs.”⁵⁸ Thus, multiple scholars simultaneously using AutoCAD 1.3 to *learn about* electronic design automation might be using the program in the same way it was once used, but with a completely different purpose and character.

⁵² See *id.* at *6.

⁵³ Interview with Ethan Gates, Yale University on September 29, 2023.

⁵⁴ *Id.* See also Klaus Rechert et al., *bwFLA – A Functional Approach to Digital Preservation*, 35 PIK - PRAXIS DER INFORMATIONSVARBEITUNG UND KOMMUNIKATION 259, 265 (2012), available at <https://www.degruyter.com/document/doi/10.1515/pik-2012-0044/html>.

⁵⁵ See Thomas Liebetaut et al., *Emulation-as-a-Service - The Past in the Cloud*, 2014 IEEE 7TH INTERNATIONAL CONFERENCE ON CLOUD COMPUTING 906, 910 (2014), available at <https://ieeexplore.ieee.org/document/6973830/>.

⁵⁶ *Corellium*, 2023 WL 3295671 at *6.

⁵⁷ *Id.*

⁵⁸ *Oracle*, 141 S. Ct. at 1203 (emphasis added).

Finally, the Eleventh Circuit noted that Corellium’s use did not supersede the use of iOS on an iPhone or iPad, because it “can’t be used to make phone calls, send texts, take photos...or download apps.”⁵⁹ The non-superseding nature of remote access for research is discussed in the fourth factor analysis, below.

Because simultaneously accessing out-of-commerce software for research and teaching purposes benefits the public, is a transformative use, and is noncommercial in nature, this factor should weigh in favor of fair use.

b. Nature of the Copyrighted Work

The nature of the work often “turns on whether the work is informational or creative,”⁶⁰ because “[t]he law generally recognizes a greater need to disseminate factual works than works of fiction or fantasy.”⁶¹ As a result, “the more informational or functional the plaintiff’s work, the broader should be the scope of the fair use defense.”⁶² Nearly all of the obsolete computer programs preserved by museums, libraries, and archives for research and education purposes consist of factual or utilitarian works used for transformative purposes; therefore, this factor should weigh in favor of fair use. The Register has agreed, previously noting that “[the nature of the work] favors fair use in the context of software other than video games.”⁶³

The Eleventh Circuit opinion in *Corellium* is consistent with this analysis. The court explained that iOS is primarily a “functional program meant to run consumer electronic devices,” despite “embod[ying] a great deal of creativity.”⁶⁴ For those reasons, the court concluded that iOS is “further...from the core of copyright” than protected works like paintings, movies, and books,⁶⁵ and the second statutory factor therefore “favors fair use.”⁶⁶ Similarly, most—if not all—out-of-commerce computer programs are like iOS in that the programs are “utilitarian articles...that accomplish tasks.”⁶⁷ For example, AutoCAD 1.3 was used to create and modify geometric models, ArcGIS 9 was used to make maps and analyze data, and Final Draft Pro 7.0 was used to write and format screenplays. These computer programs “contain many logical, structural, and visual display elements that are dictated by the function to be performed, by considerations of efficiency, or by external factors such as compatibility requirements.”⁶⁸ They are thus more available for fair use than works with a more creative nature.

Of course, a piece of software has the same “nature” regardless of how many researchers or educators are accessing it at a given time. This is because the second fair use factor draws on “the value of the material used,”⁶⁹ rather than who is using the material. Therefore, the second factor favors fair use even with the removal of the limitation on simultaneous users.

⁵⁹ *Corellium*, 2023 WL 3295671 at *7.

⁶⁰ *Worldwide Church of God v. Phila. Church of God, Inc.*, 227 F.3d 1110, 1118 (9th Cir. 2000).

⁶¹ *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 563 (1985).

⁶² *Corellium*, 2023 WL 3295671 at *9 (quoting NIMMER ON COPYRIGHT § 13.05(A)(2)(a)).

⁶³ 2021 RECOMMENDATION at 273.

⁶⁴ *Corellium*, 2023 WL 3295671 at *10.

⁶⁵ *Id.* (quoting *Oracle*, 141 S. Ct. at 1202).

⁶⁶ *Id.*

⁶⁷ *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1524 (9th Cir. 1992).

⁶⁸ *Id.*

⁶⁹ *Campbell*, 510 U.S. at 586 (quoting *Folsom v. Marsh*, 9 F. Cas. 342 (C.C.D. Mass. 1841)).

c. *Amount and Substantiality of the Portion Used*

The third fair use factor focuses on whether “the amount and substantiality of the portion used in relation to the copyrighted work as a whole [is] reasonable in relation to the purpose of the copying.”⁷⁰ This factor can favor fair use even when entire works are used because, as the Register has already explained, “it may be necessary to copy an entire work to provide researchers with access to the work for educational or research purposes.”⁷¹ Similarly, courts have discounted the impact of the third factor when the use of a copyrighted work is transformative.⁷²

The Eleventh Circuit in *Corellium* found that “Corellium’s use of iOS wasn’t just tethered to its transformative purpose; it was necessary to achieving that purpose.”⁷³ This is because, “if you’re going to run a virtualization environment, realistically you cannot do so without the entire operating system available.”⁷⁴ Consequently, the court noted that the third factor favors fair use. Precisely the same reasoning applies here. It is typically impossible to emulate only a portion of a software program.⁷⁵

One might argue that individual researchers and educators may not need each emulated computer program in its entirety—indeed, very few researchers will explore every nook and cranny of every program they run—so their use must be overbroad. However, *Corellium* addressed and rejected this reasoning. The court likened it to arguing that in the Google Books case, fair use should require Google to only search through a subset of the millions of digitized books based on what each particular searcher was interested in, rather than searching all of the books and providing snippets.⁷⁶ Fair use doesn’t require users to “‘follow the least efficient solution’ or engage in ‘wasted effort[s]’ simply to avoid liability.”⁷⁷

The shift to remove the limitation on simultaneous users does not change the analysis under factor three. When the purpose of a use is favored by the Copyright Act, and there is no effect of the use on the market for the work, courts do not focus the factor three analysis on how many copies might be made.⁷⁸ As the Eleventh Circuit explains “the question here is not...whether there was a large amount of copying. Instead, the question (at this stage) is whether the ‘copying was tethered to a valid, and transformative, purpose.’”⁷⁹

⁷⁰ *Id.*

⁷¹ 2021 RECOMMENDATION at 274.

⁷² *See, e.g., Campbell*, 510 U.S. at 586-88 (describing how transformative uses often require the most important parts of well-known works to achieve their transformative purposes); *Perfect 10, Inc. v. Google, Inc.*, 2010 WL 9479060 at *12–13 (C.D. Cal. July 30, 2010) (finding the third factor to be neutral, despite the fact that Google copied the entirety of the work, because Google’s critical and research purposes were considered to be transformative); *Leibovitz v. Paramount Pictures Corp.*, 137 F.3d 109, 116 (2d Cir. 1998) (explaining that the third factor carries little weight where the first and fourth factors are transformative and weigh in favor of fair use).

⁷³ *Corellium*, 2023 WL 3295671 at *10.

⁷⁴ *Id.*

⁷⁵ *See id.* at *11.

⁷⁶ *Id.*

⁷⁷ *Id.* (quoting *Sony Computer Ent., Inc. v. Connectix Corp.*, 203 F.3d 596, 605 (9th Cir. 2000)).

⁷⁸ *See Sundeman v. Seajay Soc’y, Inc.*, 142 F.3d 194, 202 (4th Cir. 1998) (finding copying of entire work to aid scholar’s commentary and criticism of it to be transformative and not discussing number of copies made in reference to the third factor).

⁷⁹ *Corellium*, 2023 WL 3295671 at *10 (quoting *Oracle*, 141 S. Ct. at 1202).

Given the nature of emulated software access, the amount users may access is reasonable in relation to the purpose of copying, and this factor favors fair use.

d. The Effect of the Use on the Market for the Work

Remote preservation, research, and teaching uses do not negatively impact the market for, or value of, out-of-commerce software—regardless of how many users simultaneously access a piece of software. The Register in 2021 agreed, explaining that because there is no “evidence of a market for legacy software...there is a low risk of market harm based on the software use cases described in Class 14(a).”⁸⁰ The fourth fair use factor “requires courts to consider not only the extent of market harm caused by the particular actions of the alleged infringer, but also whether unrestricted and widespread conduct of the sort engaged in by the defendant would result in a *substantially* adverse impact on the potential market for the original.”⁸¹ Where, as here, the use poses no threat whatsoever (let alone a substantial one) to the commercial prerogatives of the copyright holder, this factor should strongly favor fair use.

In analyzing this factor, courts also look to whether a use is transformative. Transformative uses do not have a cognizable impact on the work’s traditional market because they serve a different purpose.⁸² Because preserved software serves a transformative purpose, software’s traditional markets are unaffected, and the copyright holder’s commercial prerogatives remain intact. There is particularly no threat of market substitution for the original software or its derivatives since emulating out-of-market software is a patently inferior substitute for modern software in use cases beyond preserved works.

Using emulation-as-a-service to provide access to out-of-market software does not supersede current, in-market software. Ethan Gates explains that out-of-market software has been obsoleted by software companies for a reason: the companies intentionally release new software that has “new and better features” and greater “convenience” for users.⁸³ Additionally, Emulation-as-a-Service can control user access to the internet, ensuring that researchers and educators have limited—not unfettered—software access.⁸⁴ Thus, just as *Corellium*’s software lacks “crucial features that lead ordinary consumers to purchase an iPhone equipped with iOS,”⁸⁵ the software at issue here lacks features that current software consumers are seeking; as a result, consumers aiming to use software for its original purpose will purchase new, modern software rather than emulating obsolete software.

Furthermore, even wider remote access to preserved software will not cause market harm where the copyright owner has ceased exploiting the work commercially.⁸⁶ The proposed uses do not

⁸⁰ 2021 RECOMMENDATION at 275.

⁸¹ *Campbell*, 510 U.S. at 590 (emphasis added).

⁸² See *Campbell*, 510 U.S. at 590-594; *Swatch Grp. Mgmt. Servs. Ltd. v. Bloomberg L.P.*, 756 F.3d 73, 91-92 (2d Cir. 2014); *Bill Graham Archives v. Dorling Kindersley Ltd.*, 448 F.3d 605, 614 (2d Cir. 2006); *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 930-31 (2d Cir. 1994).

⁸³ Interview with Ethan Gates, Yale University on September 29, 2023.

⁸⁴ *Id.*

⁸⁵ *Corellium*, 2023 WL 3295671 at *12.

⁸⁶ The out-of-commerce nature of the works at issue in this exemption distinguish them from the works in *Hachette v. Internet Archive*, see No. 20-CV-4160 (JGK), 2023 WL 2623787 at *13 (S.D.N.Y. Mar. 24, 2023) (discussing the licensing market for ebooks), as does the transformative and non-substitutional nature of the purposes it permits, see *id.* at *14-15.

have any “impact on potential licensing revenues for traditional, reasonable, or likely to be developed markets” because there is literally no market for the out-of-commerce versions of the software.⁸⁷ This analysis does not change even if more than one user can access it simultaneously. Indeed, even in *Corellium*, where there was a market for the software and the use was commercial, the Eleventh Circuit found no issue with multiple security researchers using Corellium’s software to simultaneously emulate iOS operating software.

While one could theorize that the market may be impacted if users emulate older versions of software to avoid paying fees to use current versions of the same software, experts on software preservation believe that this concern has “no basis in reality.”⁸⁸ Just as Corellium’s software does not cause substantial harm to iOS’s market because it “lacks crucial features that lead consumers to buy iPhones running iOS,”⁸⁹ emulation of out-of-market software will not harm the market for commercially available software because it is less convenient to use and lacks important features of modern software; in other words, a consumer trying to emulate out-of-commerce software for the uses the software was originally contemplated for will find themselves pursuing objectively worse access.⁹⁰ Due to the rapid pace of software development, out-of-commerce programs are typically significantly less effective than any software available on the market.⁹¹ Obsolete software cannot take advantage of the capabilities of modern hardware, such as faster graphics processing units and cameras. Emulation-as-a-service can be configured to further limit the functionality of software—removing internet access or printing ability, for example. Old software is also susceptible to bugs, security flaws, and user limitations that make it undesirable to a modern user who has access to contemporary software programs.⁹² And, even if a small handful of users do emulate obsolete software to avoid buying newer software, this would certainly not cause a *substantial* economic harm to the software market such that it would materially impair companies’ incentive to innovate.

As an additional point of reassurance, libraries and archival institutions are well-positioned to prevent uses for purposes other than research by applying reasonable access management systems. Indeed, they are required to do so under the exemption.⁹³ Ethan Gates notes that “archivists and librarians have a strong interest in being careful about how content is accessed, because the content itself might have copyright restrictions or donor-imposed restrictions on it...there is a very robust culture of care regarding how widely that software-dependent content is made available.”⁹⁴

⁸⁷ *Am. Geophysical Union*, 60 F.3d at 930-31.

⁸⁸ Interview with Ethan Gates, Yale University on September 29, 2023.

⁸⁹ *Corellium*, 2023 WL 3295671 at *12.

⁹⁰ See Interview with Ethan Gates, Yale University on September 29, 2023.

⁹¹ See, e.g., *What is Benefits of Software Upgrade?* SAMSUNG, <https://www.samsung.com/levant/support/fota/> [<https://perma.cc/BPM9-J8HW>] (explaining the benefits of upgrading to the latest Samsung mobile software including performance improvements, bug resolution, and expanded features); *macOS Big Sur*, APPLE, <https://www.apple.com/macos/big-sur/> [<https://perma.cc/48U2-HP7S>] (describing macOS Big Sur as incorporating “a refined new design” with features including a “customizable start page,” automatic internet privacy reports, and more updated functionality for maps and messages).

⁹² See Matt Blaze, *Stop Ignoring Those ‘Update Your Device’ Messages*, NEW YORK TIMES (Mar. 27, 2019), <https://www.nytimes.com/2019/03/27/opinion/asus-malware-hack.html> [<https://perma.cc/97E8-H62W>].

⁹³ 37 C.F.R. § 201.40(b)(18)(ii)(E).

⁹⁴ Interview with Ethan Gates, Yale University on September 29, 2023.

In sum, the fact that multiple users may simultaneously access a piece of out-of-commerce software has no greater impact on the software market than if only one user could access the software at a time. The purpose of the use remains transformative (for research, education, or preservation purposes) regardless of how many uses simultaneously occur, and since there is no market for the software, there is no commercial effect on the market whether one or ten researchers were to access a piece of software at the same time. Finally, the limited capabilities of obsolete software and of the emulation environment ensure that users will not use them as a substitute for buying modern software tools, even if multiple users can access it.

3. The Statutory Factors Favor the Expanded Exemption.

In determining whether certain non-infringing uses should be granted an exemption under §1201 of the Digital Millennium Copyright Act, the Librarian of Congress is also directed to examine four specific factors:

- i. the availability for use of copyrighted works;
- ii. the availability for use of works for nonprofit archival, preservation, and educational purposes;
- iii. the impact that the prohibition on the circumvention of technological measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research; [and]
- iv. the effect of circumvention of technological measures on the market for or value of copyrighted works.⁹⁵

In applying these factors, the Register balances “the harm identified by a proponent of an exemption...with the harm that would result from an exemption.”⁹⁶ In the last exemption cycle, the Register found that all four factors favored the requested exemption. She explained that the first three statutory factors “favor the requested exemption [because] proponents provided evidence that granting the exemption would benefit preservation, research, and education by making software available to researchers and teachers who would not be able to access these works without an exemption.”⁹⁷ Furthermore, “[w]ith respect to the fourth statutory factor...the Register finds no evidence has been presented that the proposed use would affect the market for software.”⁹⁸ As in 2021, all four factors support the expanded exemption.

a. Availability for Use of the Copyrighted Works Generally

The first statutory factor directs the Register to consider “the availability for use of copyrighted works.”⁹⁹ Out-of-market software is completely inaccessible to most people under the current version of the exemption. Removing the user limitation on remote access will increase the availability of obsolete software for lawful uses. Consequently, as in the previous cycle, the first statutory factor favors the proposed exemption.

⁹⁵ 17 U.S.C. § 1201(a)(1)(C).

⁹⁶ 2021 RECOMMENDATION at 12.

⁹⁷ *Id.* at 277.

⁹⁸ *Id.*

⁹⁹ 17 U.S.C. § 1201(a)(1)(C)(i).

b. Availability for Use of the Copyrighted Works for Archival, Preservation, and Educational Purposes

The second statutory factor directs the Register to consider “the availability for use of works for nonprofit archival, preservation, and educational purposes.”¹⁰⁰ Currently, researchers have very limited access to software, and even more limited access to software-dependent materials. Huge swaths of digital archival materials are dependent on obsolete software programs, and these programs are relatively rare in library and archival collections. As a result, limiting remote access to software to one user at a time creates a bottleneck on access to both software and digital collections materials. As in 2021, this statutory factor favors the proposed exemption.¹⁰¹

c. Impact on Criticism, Teaching, and Scholarship

The third statutory factor directs the Register to consider “the impact that the prohibition on the circumvention of technological measures applied to copyrighted works has on criticism, comment, news reporting, teaching, scholarship, or research.”¹⁰² As in 2021, this factor plainly favors the exemption. Under the current exemption, one software program may be a dependency for access to a wide variety of digital documents in a library’s digital archives. Scholars in fields as divergent as computer science, architecture, and art history may find that they need Windows 98 as part of their digital research environment, and all but one will walk away disappointed. Given the relationship between software and software-dependent digital materials, the user restriction is less like only lending one copy of a title at a time and more like only lending one format at a time—requiring an institution to lend only one hardcover book, only one DVD, or only one audiobook. The impact on availability of digital materials for criticism and scholarship is thus substantial.

Teaching also relies on access to obsolete software for students to learn from digital archives. Multiple students working on research projects about digital design, coding, web development, app development, or digital curation may need access to the same piece of archival software in a condensed period of time—for example, as deadlines or exams approach. If students can’t reliably access archival software or software-dependent materials for research projects, professors will have to redesign research assignments to avoid reliance on these materials, a choice that harms the faculty member, her students, and the archives. Faculty teaching online and hybrid courses will similarly avoid assigning projects that require students to be present in a library or archives to do their research.

d. Effect of Circumvention on the Market for Copyrighted Works

The fourth statutory factor directs the Register to consider “the effect of circumvention of technological measures on the market for or value of copyrighted works.”¹⁰³ The proposed exemption applies to remote access to computer programs that are no longer reasonably available in the marketplace. This is precisely why the Register in 2021 found that the fourth factor favored the proposed exemption: there was no evidence that this proposed use affects the

¹⁰⁰ 17 U.S.C. § 1201(a)(1)(C)(ii).

¹⁰¹ 2021 RECOMMENDATION at 277.

¹⁰² 17 U.S.C. § 1201(a)(1)(C)(iii).

¹⁰³ 17 U.S.C. § 1201(a)(1)(C)(iv).

software market.¹⁰⁴ This is not surprising, as obsolete programs are a poor substitute for software currently available on the market, for reasons described at length above. The availability of these works to more than one user simultaneously will not change this finding.

4. The Software Preservation Exemption Should Be Expanded to Allow for Simultaneous Remote Access.

Without an exemption allowing remote, simultaneous access to out-of-commerce software held in libraries and archival institutions, the software that institutions strive to preserve will not fulfill its scholarly potential. The prohibition of simultaneous remote access will have long-term adverse effects, preventing valuable research and learning from taking place in the future. There will be short-term adverse effects as well—without an expanded exemption, for example, researchers in the immediate future may find it difficult to gain access to Windows XP and engage with software and software-dependent materials.

As demonstrated by this comment, the ban on simultaneous access limits the utility of collections dependent on commercial software, prevents researchers from studying obsolete software, and may force them to tediously pursue other copies or change the object of their research. The current exemption's limitations also artificially constrain educators who are actively trying to teach students about the digital world. Moreover, the uses envisioned in this exemption fall under the umbrella of fair use and would not be infringing. Removing the user limitations on off-site access would not precipitate any market harm; without such a change, however, countless research and education projects may never be possible. The Library of Congress, by granting this exemption, will allow these projects to be carried out for the benefit of curious researchers, eager students, and the public at-large.

¹⁰⁴ 2021 RECOMMENDATION at 273.