ITEM A. COMMENTER INFORMATION

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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.

The Library Copyright Alliance consists of three major library associations in the United States: the American Library Association, the Association of College and Research Libraries, and the Association of Research Libraries. These associations represent over 100,000 libraries in the United States employing more than 300,000 librarians and other personnel. An estimated 200 million Americans use these libraries over two billion times each year. These libraries spend over $4 billion annually acquiring books and other copyrighted material.

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)(13)), to eliminate the requirement that the program not be distributed or made available outside of the physical premises of an eligible institution.

Proposed Exemption

A proposed expansion of the video game preservation exemption (37 C.F.R. § 201.40(b)(12)) to eliminate the requirement that the program not be distributed or made available outside of the physical premises of an eligible institution.

Proposed Exemption: Video games in the form of computer programs embodied in physical or downloaded formats that have been lawfully acquired as complete games, that do not require access to an external computer server for gameplay, and that are no longer reasonably available in the commercial marketplace, solely for the purpose of preservation of the game in a playable form by an eligible library, archives, or museum, where such activities are carried out without any purpose of direct or indirect commercial advantage.

If access to preserved software continues to be limited to the premises of the collecting institution, significant amounts of software and software-dependent materials could be lost as preservation efforts stall, research projects are unable to come to fruition, and remote access for teaching purposes is curtailed. Software and software-dependent materials face intense obsolescence issues that hinder preservation efforts. Margaret Hedstrom has described digital preservation as a "time bomb" with new media "vulnerable to deterioration and catastrophic loss...short lived relative to traditional storage media...making the time frame for...actions to prevent loss a matter of years, not decades."[17] Market pressures lead to hardware, software, and methods of computing becoming obsolete on a three-to-five-year cycle.[18] Tech preservation presents an archivist's nightmare: not only do individual pieces of software degrade over time, but the rapid pace of hardware development means that widely used software can quickly become inaccessible, as coding, representation, and retrieval techniques develop over time without back-compatibility.[19] Planned obsolescence further contributes to this crisis, and as the market moves on to newer software, historically valuable items get left behind.[20]

Enter libraries and archival institutions. Libraries and archives across the country prevent massive loss of historically significant software by painstakingly preserving these materials and enabling access to them despite hardware obsolescence.[21] Since 2018, software preservationists have had an additional tool in their fight against degradation and obsolescence: the §1201 exemption permitting TPM circumvention for legitimate preservation activities. As a result of that rulemaking, libraries, archives, museums, and other cultural heritage institutions can circumvent TPMs on lawfully acquired software to preserve software and software dependent materials.[22] But, as it currently stands, any software where a TPM has been circumvented can only be accessed on-site

access skyrocketed.[24] One librarian described “a significant shift from physical to digital...our entire customer base is undergoing a change in their expectations[.]”[25] Patrons of modern libraries and archival institutions expect near-instantaneous access to institutional collections.[26] When libraries fail to deliver, patrons become disaffected.[27] Simply put, patrons are accustomed to accessing their library’s content from their home or on their personal computer. The same can be said of research libraries – the modern-day researcher rarely pores over printed tomes in a dedicated reading room, but rather accesses subscription databases remotely through institutional library homepages, or uses a free, reputable search engine like Google Scholar.[28]

Moreover, preservation is a function of demand for materials. Libraries, archives, museums, and cultural heritage institutions exist to serve the needs of the public. Libraries have been described as “part and parcel of the communit[ies they] serv[e]” responsive to those communities’ needs and curating their collections accordingly.[29] The same has been said of academic libraries – “the community defines the college or university and the library.”[30] In fact, patrons’ use patterns directly drive preservation and its funding. Both private and publicly funded grant programs require an institutionct3 1 Tf -2 (e)( ) -10e 9 0 0 50 19868 cm BT 50 0 0 50.24 50 1 4 76 655 d 2 (m) -2 (uni) v

enshrined in their organizational culture. Two of the foremost professional groups in the archive and library science sectors – the Society of American Archivists and the American Library Association – include patron service in their core value statements.[33] Libraries and archives exist to meet the needs of their users and shape their services accordingly, and those users expect offsite access.

Libraries and archival institutions choose what they want to preserve based on user preferences and behavior, and restricting access devalues software collections for users accustomed to remote access. Correspondingly, software collections and software preservation efforts will receive reduced prioritization, funding, and attention. In a field where a handful of years can make the difference between permanent obsolescence and usability, those incentives will lead to the destruction and loss of academically rich materials.

Emulation as a Service (EaaS) provides one of the most promising ways to meet demonstrated community demand for access to preserved software. Free, open-source tools make it possible to provide any authorized user with a modern web browser remote access to preserved software securely stored on institutional servers, including complex operating system environments, as well as software-dependent digital files (files that can only be rendered, or rendered accurately and authentically, in a particular software environment). An emulator is a hardware or software tool that enables one computer system to behave like another computer system. Emulated environments simulate obsolete computer systems and environments on newer computers to run legacy software that is incompatible with current computer systems.[34] This enables users to view, render, and interact with digital artifacts in their original environments, without changing the format of the file to make it work with newer hardware or software, which would risk losing some of the artifact's original properties.[35] Emulators allow controlled access to obsolete

EaaS makes emulated software environments much easier for ordinary 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, but when they leave the site, their access ends, and the emulated environment they accessed can be returned to its preconfigured state. EaaS technology is available as open-source packages, allowing individual libraries and archival institutions to create their own browser-based emulated environments.[36]An off-site use exemption would enable institutions to use EaaS to provide access to out-of-commerce materials for research purposes.

(A) Adverse Effects of On-Site Limitation on Preservationists and Librarians

Off-site access difficulties already drive the priorities of preservationists and librarians. Lauren Work at the University of Virginia, for instance, reports difficulties facilitating offsite access to a collection of locally significant architecture designs donated by the architect, because the files can only be opened with a discontinued version of the Vectorworks software. Work explained that "providing access off site to the collection that uses the software to render digital objects [is] part of our long-term preservation and access goals."[37] Likewise,

(B) Adverse Effects of On-Site Limitation on Researchers

The on-site restriction also poses a particular burden to software researchers. As discussed in the 2018 comment, out-of-commerce software requires obsolete hardware or software to run, unless the software is accessed through emulation. Researchers describe archives with old PCs on site to read floppy disks and tapes from their collections.[49] When a researcher does identify 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.[50] Some institutions can provide access to a researcher's desired software on-site, but most cannot. No single organization can support every possible environment required to access the contents of existing software collections.

Researchers at institutions *without* extensive software libraries cannot rely on an interlibrary loan system to carry out their research projects, as they could with physical materials. Instead, they must either contend with the time and cost burdens of travelling to an institution that carries the rare software they seek, or abandon a research project. Because the software covered

"requires extensive travel for our researchers."[58] The Museum does not have sufficient staff or physical resources to provide on-site emulation, though experienced researchers have expressed willingness to help the Museum create off-site emulation services.[59] CHM's limited resources have left them at "a stand-still for providing access to historic software with DRM protections" and the onsite limitation "fundamentally changed the way [they] are able to provide access to [their] historic software collection."[60] In practice, this limitation poses a substantial difficulty for researchers attempting to carry out long-term projects on out-of-commerce software, since precious few copies of the software may remain, accessible only at a distant institution, which a researcher may not be able to access within the time and budgetary constraints of their work. Removing the limitations on the use of EaaS would render world-class software collections accessible to researchers without regard to their location or their ability to travel, allowing for a

member institutions to connect researchers to digital surrogates for their physical holdings to facilitate research while physical collections are inaccessible.[79] Archives and libraries should be able to provide the same services to software researchers that they can provide to historians and academics who work with traditional print materials. As it stands, they cannot, at least for titles encumbered with TPMs. Pr

natural right that confers on authors the absolute ownership of their creations. It is designed rather to stimulate activity and progress in the arts for the intellectual enrichment of the public."[84] Furthermore, copyright "encourages others to build freely upon the ideas and information conveyed by a work."[85] Preservation, research, and teaching purposes build upon out-of-market software to promote scholarship and education. Providing off-site access via EaaS and other distribution channels to facilitate preservation, research, and teaching serves the purposes of copyright because the potential for social benefit is clear and substantial and the uses will have no effect on the market.

I. Purpose and Character of Use

Providing remote access to preserved out-of-commerce software

individuals whose institutions either do not maintain software collections, or have very limited collections.[94]

In addition to the public benefits of a use, courts typically consider whether a use is "transformative," or whether it uses copyrighted material "in a different manner or for a different

transformative end is also transformative.[100] It is commonplace for third parties to reuse or reverse engineer functional programs to create new products and enable interoperability between software and hardware devices.[101] Copying software to access its functional elements for software development is fair use that furthers the purposes of copyright law.[102] In *Connectix*, the Ninth Circuit held that Connectix's copying of Sony's software with the end-goal of creating

process, creating a new one.’”[110] Off-site access is necessary for researchers studying obscure computer games because they struggle to access or find time to play on premises, and the more obscure software researchers examine is not typically collected by museums.[111]

II. Nature of the Work

The nature of the work “often turns on whether the work is informational or creative,”[112] because “[t]

game for its aesthetic and commercial entertainment purposes.[119] Rather, scholars examine and critique them for transformative research and learning purposes.[120]

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commerce software is not available for purchase or license from any copyright holder. The copyright holders of these works may be bankrupt, dissolved, or deceased. Alternatively, the software may no longer be sold or supported because new versions of the software have been released or the publisher has pivoted to selling new software titles

harm "as presumably it was lack of demand for the work that led to its demise...."[141] Video games are less likely to be maintained if the game is not lucrative or has few users and low demand.[142] This is particularly true when game developers purposefully stop supporting older games or remove them from the marketplace entirely to encourage players to purchase new versions of the game.[143] Archival and academic uses do not supersede the market when the copyright holder has removed the program from the marketplace. Remote access to preserved copies of these out-of-market applications will have no impact on the market, thus, this factor should weigh in favor of fair use.

(B) An Off-Premises Exemption Would Be Consistent with the Approach of Existing Copyright Law Exemptions, including 17 U.S.C. §108, the TEACH Act, and the Music Modernization Act

Several statutory provisions facilitate off-premises access to copyrighted works, especially out-of-commerce works used for research and teaching, demonstrating a general federal policy of enabling remote access for these purposes. Copying for individual use under 17 U.S.C. §108(d) and (e), transmission of materials for remote learning under 17 U.S.C. §110(2) (the TEACH Act), and permissions for library, archives, and non-profit use of out-of-commerce works in the Music Modernization Act demonstrate that, outside the narrow confines of Section 108(b) and (c), providing off-premises access to copyrighted material is encouraged by federal policy. This is particularly true in cases where access does not impact the market for such works, where access is controlled by legitimate institutions, and where the use advances desirable research and educational objectives. All three conditions are met here.

The Copyright Office requested elaboration in its Noticed of Proposed Rulemaking on the distinction between preservation uses and lending uses under the proposed rule, as well as legal arguments not presented in the 2018 Rulemaking that support the grant of this proposal. The primary legal argument favoring remote access to preserved software for research and teaching is that it is protected by fair use, as we have shown in Section A. In consider-2 (d4 (m) - -10 (c) 4 (o380) -2 (As) 9(

look to other parts of the Copyright Act, and to other federal policies, for evidence showing a particular use advances the goals of copyright or of federal policy more generally.[144]

Providing access to preserved software off-site serves the purposes of §108. Portions of §108 not discussed in the 2018 Rulemaking, namely 17 U.S.C. §§108(e) and 108(d), shed light on the

of fair use under section 107 remains fully applicable to the photocopying or other reproduction of such works."[155]

The provision of remote access to preserved software through EaaS follows the spirit of this limitation because it concerns software that has no market, the library or archival institution will not retain an additional copy of the work, and the library or archival institution can display copyright warnings in the emulation service to ensure patrons understand copyright governs their uses. Many affected researchers and students conduct research with software that cannot be obtained at

sound recordings.[165] Subsection (c) permits noncommercial use of pre-1972 recordings "not being commercially exploited" if the noncommercial user makes a good faith, reasonable search for the recording in Copyright Office Schedules or music sale/streaming services.[166] The Act specifically preserves the fair use limitations on owners' rights, as well as the library, archive, and educational institutional protections, established in 17 U.S.C. §§107, 108, 109, 110, and 112(f) limitations on owners' rights.[167] Finally, the MMA establishes a special rule of construction for library and archival institution's §108(h) rights, extending those rights to out-of-commerce sound recordings fixed before 1972, regardless of their precise date of creation.[168] The Act passed both houses of Congress unanimously.[169]

In concert, these components of the MMA demonstrate clear congressional approval for off-premises digital access to creative works via nonprofit institutions where access does not

As discussed in the 2018 comment, due to the rapid degradation of software materials and orphan software problems, software is uniquely susceptible to permanent loss.[172] Because

The digital age is reframing how researchers access information, and remote access in the browser, already the norm for other digital collections, is a natural approach to providing access to software and software-dependent materials. Restricted access particularly burdens research purposes as legacy software often requires obsolete hardware or software environments to run. The vast majority of researchers do not have meaningful access to software because it is very unevenly distributed, as

exploring under-appreciated software that is inaccessible through conventional market channels.[179] Because of the rapid pace of software development, out-of-commerce programs are orders of magnitude less effective than any software available on the market.[180] Old software is also susceptible to bugs, security flaws, and user limitations that make it extremely undesirable to a modern user, who has access to contemporary software programs.

Off-site access does not create any market competition because this software's only value is historical and educational – no user market exists. No user would run a contemporary political campaign on the 1984 software campaign manager, for instance, when scores of superior programs exist with tools like integrated social media management.[182] To the extent that rightsholders are concerned about downstream distribution of materials, libraries and archival institutions are well-positioned to prevent such distribution, applying their own existing access management systems.

Conclusion

Without remote access to the digital materials held in libraries and archival institutions, the software that institutions strove to preserve will never fulfill its scholarly potential. The prohibition of off-site access will have long-term and short-term adverse effects over the next three years, preventing software preservation, valuable research, and online learning. During the ongoing COVID-19 pandemic, institutions found their work completely chilled, unable to allow in-person software use. Outside pandemic conditions, in-person access is often prohibitively expensive or difficult. The uses envisioned in this comment fall under the umbrella of fair use, and would not be infringing. Moreover, individual libraries and archival institutions have the means to prevent downstream abuse of software, following the structure laid out by Congress in preexisting copyright exemptions, such as the TEACH Act. Removing the limitations on off-site use would not precipitate any market harm, but without such a change, countless projects have stopped in their tracks. The Library of Congress, by granting this exemption, will allow these projects to begin again.

[179] *See* Survey Response by Phil Salvador, American University; Survey Response by Kevin Driscoll, University of Virginia; Interview with Fenwick McKelvey, Concordia University on October 14, 2020.
[180] *See e.g., What is benefits of software upgrade?* SAMSUNG, https://www.samsung.com/levant/support/fota/ (last visited Nov. 27, 2020), *archived at* https://perma.cc/BPM9