

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: 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.

Class 14(b) – Video Games – Preservation

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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.

ITEM C. OVERVIEW

Each year, school children from across the United States visit the National Archives in Washington, D.C. to see original copies of the Declaration of Independence, the Constitution, and the Bill of Rights.² They visit to peer at centuries-old handwriting, marveling over the wobbles of quills from America’s founders, preserved for the ages by the National Archives and Records Administration (NARA). NARA is the “nation’s record keeper,” preserving not only priceless founding documents, but also “hold[ing] in trust for the public the records of ordinary citizens...military records of the brave men and women who have fought for our country, naturalization records of the immigrants whose dreams have shaped our nation, and even the canceled check from the purchase of Alaska.”³ These records belong to the American people, helping us “claim our rights and entitlements, hold our elected officials accountable for their actions, and document our history as a nation.”⁴

In the 21st century, though, the information that NARA carefully preserves no longer comes written in ink on yellowed parchment. Instead, NARA is part of the effort to shift to a fully electronic government.⁵ The Archives’ strategic plan, unveiled in 2018, states that by December 31, 2022 NARA will no longer accept any records in paper form.⁶ NARA, which has run an electronic records program for more than 50 years, leads the efforts to help all Federal agencies transition to electronic recordkeeping, and aims to digitize 500 million pages of their existing physical collections.⁷ By providing improved access to the public and improving archival workflow, NARA hopes to create a transparent, accessible resource for the American people.⁸

² See *D.C. Student Visits*, NAT’L ARCHIVES, <https://www.archives.gov/education/student-visits/dc> (last visited Nov. 27, 2020), archived at <https://perma.cc/3PEU-VPG5>.

³ *About the National Archives of the United States*, NAT’L ARCHIVES, <https://www.archives.gov/publications/general-info-leaflets/1-about-archives.html> (last visited Nov. 27, 2020), archived at <https://perma.cc/N5F8-TY7E>.

⁴ *Id.*

⁵ Kerri Lawrence, *Leaders Share National Archives’ Vision for a Digital Future*, NAT’L ARCHIVES (Aug. 23, 2018), <https://www.archives.gov/news/articles/leaders-share-national-archives-vision-for-a-digital-future>, archived at <https://perma.cc/6SKC-JDPX>.

⁶ *Id.*

⁷ *Id.*

⁸ *Id.*

Despite NARA's efforts, future researchers and eager students hoping to learn about their own history might one day find these files harder to read than Thomas Jefferson's spindly cursive. Section 1201 stands in the way. In 2018, the Copyright Office and the Library of Congress recognized the need to preserve computer programs and video games and granted Section 1201 exemptions for the circumvention of technological protection measures (TPMs) required by archival preservation and research activities.⁹ 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 growing user demand for remote access to virtual libraries. The on-site limitations on born-digital files inhibit preservation, research, and teaching, slowing the race to protect vital digital history.

In the digital age, electronic collections held by cultural heritage institutions are the best hope of preserving software and software-dependent materials. A significant number of archival institutions, libraries, and museums have created special collections dedicated solely to the preservation of digital materials including software, software-dependent materials, and video games.¹⁰ The Software Preservation Network and other cultural heritage groups have recognized that the value of preserved software and games lies not in the mere storage of resources, but rather in providing access to collections in usable formats to researchers, scholars, and educators.¹¹ As reliance on software as a vehicle for production of creative and functional works has increased, so has the proportion of the cultural record that consists of software and software-dependent materials. Researchers, teachers, students, and scholars require remote access to use these materials in their work, now more than ever. Operating systems that once seemed ubiquitous, like Microsoft XP, and all-too-recent software, like Forza Motorsport 5 (released in 2013 and declared end-of-life in 2017) are no longer supported by their creators.¹² Without the diligent work of libraries, museums, and archival institutions, files that must be accessed with this obsolete software, or historically valuable software itself, will be lost to the tides of time and degradation.

⁹ Exemptions to prohibition against circumvention, 37 C.F.R. § 201.40, 13(i) (2018), 37 C.F.R. § 201.40, 12(i)(B) (2018).

¹⁰ See, e.g., HARVARD COLLEGE LIBRARY COLLECTIONS DIGITIZATION PROGRAM, http://hcl.harvard.edu/collections/digital_collections/digitization_program.cfm (last visited Nov. 27, 2020), archived at <https://perma.cc/9BBZ-P9WV>. Universities have also invested in shared digital preservation infrastructure like the Academic Preservation Trust, <http://aptrust.org/>, and the Digital Preservation Network, <http://dpn.org/>.

¹¹ Trevor Owens, *Life-Saving: The National Software Reference Library*, LIBR. CONG. (May 4, 2012) <https://blogs.loc.gov/thesignal/2012/05/life-saving-the-national-software-reference-library/>, archived at <https://perma.cc/Z597-3NQ8>.

¹² Survey Response by Phil Salvador, American University; Philip Kollar, *Forza Motorsport 5 in the works for Xbox One*, POLYGON (May 21, 2013) <https://www.polygon.com/2013/5/21/4344008/forza-motorsport-5-in-the-works-for-xbox-one>, accessible at <https://perma.cc/XP3Y-TRCY>; *Microsoft has Delisted Forza Motorsport 5 and its DLC from the Xbox Store*, AR12GAMING (Oct. 7, 2017) <https://ar12gaming.com/articles/forza-motorsport-5-delisted>, accessible at <https://perma.cc/9BGZ-C5HK>. Forza Motorsport 5 was once so popular that, as of 2014, half of all Xbox One users had played the full version of the game. Luke Reilly, *Half of all Xbox One Gamers Have Played Forza Motorsport 5*, IGN (June 16, 2014) <https://www.ign.com/articles/2014/06/17/half-of-all-xbox-one-owners-have-played-forza-motorsport-5-ign-first>, accessible at <https://perma.cc/4XM2-LQTX>.

Remote access encourages the use of digital materials in research and teaching by knocking down financial and logistical barriers associated with onsite access.¹³ User demand for offsite access has only grown in the past three years as preservationists, researchers, and scholars increasingly expect prompt access to digital collections materials online.¹⁴ Confronted with access difficulties, researchers and educators modify their projects to focus on locally available software and digital collections rather than expend grant funds and other resources to travel and interact with materials only accessible onsite at remote institutions.¹⁵ If preservationists cannot provide users remote access to preserved software, archival traffic and patronage will languish at low levels despite potentially strong research and teaching interest. Software collecting institutions will in turn receive artificially low funding for software preservation, because funding often depends on the value signaled by traffic to a resource or service. Reduced software preservation activities would result in the loss of software and software-dependent cultural artifacts, with both long- and short-term adverse effects on the cultural record itself. In short, remote access is already the most common mode of access to digital collections for most researchers, teachers, and students, so without an appropriately scoped exemption, Section 1201 will render DRM-protected software a second-class category of works that is less likely to be preserved in an era of limited budgets.

This comment proposes modification of the current exemption to remove premises limitations and permit authorized users to access digital materials remotely. The flexibility of remote access would only extend to resources used for non-infringing purposes, without any purpose of direct or indirect commercial advantage. This modification would grant memory institutions the ability to determine optimal methods for encouraging responsible use of their respective collections. To aid the Copyright Office's understanding of the merits of the proposed modification, this comment focuses on the legal bases and regulatory gaps that support modifying the exemption. This comment will: (1) identify the adverse effects of barring remote access to preserved software; (2) discuss how the uses proposed under the exemption are fair use and/or otherwise non-infringing; (3) detail how this exemption follows the spirit of the existing regulatory scheme for remote access to digitized materials used for nonprofit, educational use. We refer the Copyright Office to our 2018 comment for a detailed description of technological protection measures, circumvention techniques, and avenues of access.¹⁶

ITEM E. ASSERTED ADVERSE EFFECTS ON NON-INFRINGEMENT USES

(1) Adverse Effects of Prohibiting Remote Access to Preserved Software

¹³ Survey Response by Catherine Addington, University of Virginia; Survey Response by Phil Salvador, American University.

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

¹⁵ Survey Response by Catherine Addington, University of Virginia.

¹⁶ Cyberlaw Clinic at the Berkman Klein Center for Internet and Society, Comment Letter regarding a Proposed Exemption Under 17 U.S.C. §1201 (2018), <https://cdn.loc.gov/copyright/1201/2018/comments-121817/class9/class-09-initialcomments-spn-lca.pdf>.

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 at the library or archival institution. The on-site requirement poses a significant barrier to preservation, research, and teaching.

Libraries face constantly-increasing demand for offsite use of materials. Library Journal’s annual nationwide circulation survey found that raw numbers of circulated materials increased nineteen out of twenty years from 1998 to 2018.²³ In recent years, patron demand for off-site digital

¹⁷ Margaret Hedstrom, *Digital Preservation: A Time Bomb for Digital Libraries*, 31 COMP. & HUMANS.189, 191 (1997).

¹⁸ *Id.* See also Peter Sandborn, *Software Obsolescence – Complicating the Part and Technology Obsolescence Management Problem*, 30 IEE TRANS. ON COMPONENTS AND PACKAGING TECH. 886, 886 (2007).

¹⁹ Hedstrom *supra* note 17 at 191.

²⁰ For instance, newer software requires that registration be completed through online activation. But when a software creator’s online activation services are no longer supported, that software cannot be activated. Survey Response by Euan Cochrane, Yale University. Legitimate copies of Windows XP, the most current operating system that supports older software and consequently used by many researchers, can be easily purchased online. However, Microsoft disabled their Windows XP activation services in or around 2017, rendering unactivated copies of Windows XP unusable via TPM. Survey Response by Phil Salvador, American University.

²¹ *E.g.* Conversation with Euan Cochrane, Yale University on November 10, 2020 (describing Yale University’s digital preservation efforts).

²² Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 83 Fed. Reg. 54,010, 54,023 (Oct. 26, 2018) (to be codified at 37 C.F.R. pt. 201).

²³ See *supra* note 14.

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 institution to directly engage with its community, showing how its programs meet their needs, in order to obtain funding.³¹ Libraries and archival institutions structure their resource allocation to meet public demands, and receive funding on the basis of successfully meeting that demand,³² regardless of the source of their financial support. These values are also

²⁴ *Id.*

²⁵ *Id.*

²⁶ 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)

²⁷ *Id.* (“As ‘on-demand’ access becomes more universal, the introduction of time lags in materials delivery, particularly for those users who are not frequenters of special collections, can lead to what one respondent described. . . as ‘public relations issues.’”).

²⁸ 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).

²⁹ J.W. MURISON, *THE PUBLIC LIBRARY: ITS ORIGINS, PURPOSE, AND SIGNIFICANCE* 5 (3d ed. 1988).

³⁰ JOHN M. BUDD, *THE ACADEMIC LIBRARY: ITS CONTEXT, ITS PURPOSE, AND ITS OPERATION* 4 (1998).

³¹ The Institute of Museum and Library Services (IMLS), which manages the largest source of federal funding for America’s public libraries, runs grant programs like the Community Catalyst Initiative which requires institutions to collaborate with local communities, adopting their practices and developing services based on “their community’s visions and plans[.]” *Grant Programs*, INST. MUSEUM AND LIBR. SERVS., <https://www.imls.gov/grants/grant-programs> (last visited Nov. 27, 2020), archived at <https://perma.cc/U6PM-TA2Z>; *Community Catalyst Initiative*, INST. MUSEUM AND LIBR. SERVS., <https://www.imls.gov/our-work/community-catalyst-initiative> (last visited Nov. 27, 2020), archived at <https://perma.cc/SKE9-NA47>. Other IMLS grant categories include funds for museums that serve as “Community Anchors,” *Museums for America*, INST. MUSEUM AND LIBR. SERVS., <https://www.imls.gov/grants/available/museums-america> (last visited Nov. 27, 2020), archived at <https://perma.cc/K3X3-P8FE>, and improve community support services offered by small or rural libraries, *Accelerating Promising Practices for Small Libraries*, Inst. Museum and Libr. Servs., <https://www.imls.gov/grants/available/accelerating-promising-practices-small-libraries> (last visited Nov. 27, 2020), archived at <https://perma.cc/M5HV-AVWM>. Likewise, the Arcadia Fund, a major charitable fund promoting digital preservation work, operates on the principle of open community access to knowledge, *Promoting Open Access*, ARCADIA FUND <https://www.arcadiafund.org.uk/promoting-open-access> (last visited Nov. 27, 2020), archived at <https://perma.cc/F5R3-JHHK>.

³² The Council on Library and Information Resources (CLIR) advises applicants for its *Digitizing Hidden Collections* grant program that, “Openness is a core value of the *Digitizing Hidden Special Collections and Archives* program, and the program’s review panelists prioritize proposals that minimize restrictions on access and re-use....

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 materials that are essential for research and learning without requiring users to obtain antique hardware, operating systems, drivers, and other supporting materials. Nevertheless, installing and running emulation tools can be a challenge for most users.

Any practices outside those justified by legal or ethical reasoning that reduce accessibility, obscure content, and prevent the fair use of content for innovative research purposes are viewed unfavorably by reviewers.” *Digitizing Hidden Special Collections & Archives 2020 Application Guidelines & Template*, https://www.clir.org/wp-content/uploads/sites/6/2016/09/2020-CLIR-DHC_Application-Guidelines-and-Template_v4.pdf (last visited Dec. 4, 2020), archived at <https://perma.cc/7SLA-WS5G>.

³³ *SAA Core Values Statement and Code of Ethics*, SOC’Y AM. ARCHIVISTS, https://www2.archivists.org/statements/saa-core-values-statement-and-code-of-ethics#core_values (last visited Nov. 27, 2020), archived at <https://perma.cc/J2LR-FV2X>; *Core Values of Librarianship*, AM. LIBR. ASS’N, <http://www.ala.org/advocacy/intfreedom/corevalues> (last visited Nov. 27, 2020), archived at <https://perma.cc/F88C-AAAS>.

³⁴ Euan Cochrane, *Adding Emulation Functionality to Existing Digital Preservation Infrastructure*, 6 J. DIGITAL MEDIA MGMT., 255, 255 (2017), accessible at <https://ipres2017.jp/wp-content/uploads/45Euan-Cochrane.pdf>.

³⁵ 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/>, archived at <https://perma.cc/37TD-FXVZ>.

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, Euan Cochrane reported that Yale attempted to set up an exhibit at their architecture school which required images created with CAD software as part of the display.³⁸ A piece of software necessary for the exhibit, purchased on eBay, arrived lacking a hardware dongle.³⁹ The missing dongle and inability to circumvent the TPMs prevented access to examples meant to be shown in the exhibit.⁴⁰ Users expect access, copyright law permits it, and preservationists would like to provide it. Even when software is lawfully acquired, an inability to access circumvented software off-site where TPMs have been lost or degraded over time can stymie institutional programming. In contrast, patrons describe those institutions that do provide off-site access to their users as “benefit[ting their] research tremendously” because their resources can be used for prolonged research in a researcher's home institution (or in their home).⁴¹ The on-premises restriction also forces libraries and archival institutions to divert their technological resources, in order to provide machines for users to access the software. Dianne Dietrich described Cornell's process for user access as “a laptop with a software collection” where, when a user wants to access an individual piece of software, Dietrich “literally cop[ies] the disk image onto that laptop.”⁴² Similarly, Robert Cartolano described Columbia University's practice of using laptops with epoxy in their

³⁶ Butch Lazorchak, *The Foundations of Emulation as a Service: An Interview with Dirk von Suchodoletz, Part Two*, SIGNAL BLOG (Dec. 11, 2012), <https://blogs.loc.gov/thesignal/2012/12/the-foundations-of-emulation-as-a-service-an-interview-with-dirk-von-suchodoletz-part-two/>, archived at <https://perma.cc/B3FP-3NPY>.

³⁷ Survey Response from Lauren Work, University of Virginia.

³⁸ Survey Response from Euan Cochran, Yale University.

³⁹ *Id.*

⁴⁰ *Id.*

⁴¹ Survey Response from Kevin Driscoll, University of Virginia.

⁴² Conversation with Dianne Dietrich, Cornell University on November 10, 2020.

internet ports, so that computers in special collections access only certain materials.⁴³ Libraries and archival institutions have limited numbers of computers and limited resources for technology; requiring that some library computers be reserved for access whenever a user might (unpredictably) request to use a piece of preserved software is difficult and interrupts the institution's normal workflow, requiring extra back-end management. Because emulation allows users to simulate obsolete computer systems and environments within their own web browsers, EaaS software access would allow libraries and archival institutions to use their physical resources more effectively.

Beyond merely causing institutions to divert resources when providing user access to circumvented materials, the on-site limitation hinders preservation by preventing remote work. Preservationists can conduct their work from home and may be required to by institutional community health management plans or local regulations as the COVID pandemic is ongoing.⁴⁴ As it currently stands, however, they cannot access any circumvented materials outside of their institution's physical premises. If preservationists can access circumvented materials remotely, they could catalogue or describe the materials, facilitating their work while enabling social distancing measures. Institutions have employed some workarounds, including mailing CD sets to their staff, who then determine the content of the discs at a user's request, a cumbersome process that potentially exposes software to damage in transit.⁴⁵ With emulated software, workarounds that expose software to damage and degradation would be unnecessary. Allowing off site access for preservation purposes would streamline the preservation workflow, while simultaneously advancing public health objectives.

If the on-site restrictions were removed, software emulation could fulfill its potential as a practice that "will likely transform the culture, practice, and access experiences to digital cultural heritage as well as best practices for digital preservation professionals."⁴⁶ Preservationists characterize emulation services, like EaaS, as a developing tool that captures the "functional and performative aspects of the software experience," which, although currently underutilized, could flourish with sustained support and capacity building.⁴⁷ Preservationists engage in emulation practices "with archival access points and future users of those archives in mind" building their practices around their organizational structures, institutions' access mandates, and [own] visions of access.⁴⁸ To the extent that they can use emulation to meet users' demonstrated off-premises demand, preservationists will do so.

⁴³ Conversation with Robert Cartolano, Columbia University on November 10, 2020.

⁴⁴ See, e.g., *Harvard Library's Smart Restart for Research*, HARVARD UNIV. (June 17, 2020) <https://library.harvard.edu/smart-restart-for-research#:~:text=Harvard%20Library's%20Smart%20Restart%20for%20Research%20provides%20guidance%20for%20Harvard,protocols%20across%20our%20University%20community> (outlining Harvard Library's COVID management plan), archived at <https://perma.cc/4AJ5-45TQ>.

⁴⁵ Interview with Michael Olson, Stanford University on October 18, 2020.

⁴⁶ Amelia Acker, *Emulation Encounters: Software Preservation in Libraries, Archives, and Museums*, 51 PROCEEDINGS ASS'N INFO. SCI. & TECH. 1, 2 (2020).

⁴⁷ *Id.* at 3.

⁴⁸ *Id.* at 10.

(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 by this exemption tends to be obsolete and very rare, a software work necessary to an individual’s research may be held by only one or two collecting institutions. Professor Fenwick McKelvey, for instance, times his software research for his sabbatical, describing travelling to archives as “incredibly expensive” and the on-site restrictions as “a challenge” requiring years of planning and careful funding efforts.⁵¹ Professor McKelvey has attempted to acquire his own copies of software, but materials are seldom available.⁵² Due to COVID travel restrictions, he has postponed the research he was supposed to carry out this year.⁵³ Likewise, Kyle K. Courtney at Harvard Libraries reports that researchers have been unable to access their work materials under pandemic conditions.⁵⁴

Even prior to the pandemic, the on-site limitation caused institutional difficulties. The Computer History Museum (CHM), for instance, provides preserved software access to patrons, the majority of whom are out-of-state and international researchers.⁵⁵ Scholars request obsolete materials, like old versions of Microsoft Word, AutoCAD, Apple games, and Microsoft Developer Network Disks, for research use (primarily geared at rebuilding vintage machines or understanding how specific software items ran and were used).⁵⁶ The on-premises requirement prevents CHM from providing copies of software items to these researchers, or permitting them to access CHM’s copies via online emulation.⁵⁷ CHM’s reading room is “not easy to get to” and

⁴⁹ Survey Response from Kevin Driscoll, University of Virginia.

⁵⁰ See Survey Response by Kevin Driscoll, University of Virginia; Interview with Michael Olson, Stanford University on October 18, 2020.

⁵¹ Interview with Fenwick McKelvey, University of Concordia on October 14, 2020.

⁵² *Id.*

⁵³ *Id.*

⁵⁴ Conversation with Kyle K. Courtney, Harvard University on November 19, 2020.

⁵⁵ Survey Response from Elena Colon-Marrero, Computer History Museum.

⁵⁶ *Id.*

⁵⁷ *Id.*

“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 flourishing of preservation, research, and remote teaching,

If researchers face access difficulties, rather than expend financial resources to access materials, they often will narrow the scope of their research or change topics entirely.⁶¹ Phil Salvador, who researches and writes about underplayed video games, reports that 52% of the titles he has collected are not held by the Strong Museum of Play, one of the major cultural institutions for video games and software, highlighting how difficult the software can be to track down.⁶² He also reports that, given the time it takes to play the games, analyze their contents, and capture media from them, it is impractical for him to travel to a video game museum each time he needs to play a game.⁶³ The on-site restrictions favor well-funded projects over smaller, less-funded projects that cannot allocate funds to extensive travel.

To facilitate offsite access and research, institutions are currently mailing rare software, exposing it to potential damage in transit,⁶⁴ including mailing software to preservationists at user request so the preservationists can run the disks on emulated environments to determine their contents.⁶⁵ Interlibrary loans involving physical transmission of materials are limited, slow, and often expensive.⁶⁶ The on-site restrictions impose time and cost burdens on researchers that chill desirable projects. Even when institutions have found workarounds, like sending software through the mail, those workarounds could lead to loss or damage of rare, irreplaceable materials. EaaS is usually preferable to sending researchers copies of digital resources because libraries and archival institutions can calibrate the environments to ensure software will run

⁵⁸ *Id.*

⁵⁹ *Id.*

⁶⁰ *Id.*

⁶¹ Survey Response by Catherine Addington, University of Virginia.

⁶² Survey Response by Phil Salvador, American University.

⁶³ *Id.*

⁶⁴ Interview with Fenwick McKelvey, Concordia University on October 14, 2020.

⁶⁵ Interview with Michael Olson, Stanford University on October 18, 2020.

⁶⁶ See Wright State University Libraries, *The Hidden Cost of Interlibrary Loan*, LIBR. NEWS (Aug. 30, 2018), <https://www.libraries.wright.edu/community/blog/2018/08/30/the-hidden-cost-of-interlibrary-loan/>, archived at <https://perma.cc/VJ6D-FLPQ>.

properly, require user authentication, authorization, and access revocation for unauthorized uses to protect copyright and privacy for restricted software.⁶⁷

In practice, the on-site limitation restricts the sources that researchers can access to only those most commonly available pieces of software. As Phil Salvador describes the state of video game history, “Games and software are still a young medium. . . [the] historical canon for games . . . tends to be the canon of popular consumer product brands – like Space Invaders, Nintendo and Sega games, and so forth. Many of those games are still widely available because of their publishers' continued commercial investment. . . [b]ut focusing just on the most successful, well-known titles doesn't paint a complete, honest portrait of the history of games. The less successful, less stand-out games are equally part of the story of video games. They can speak to changing trends and booming genres. More importantly, they contain ideas and perspectives that are left out of the more conventional, sanded-down version of game history that's being resold to us. This is why I research these lesser-known games, because they can speak to the richness of game history in a way that's too easily ignored or forgotten.”⁶⁸ Allowing access to these games remotely would not detract from the modern market for them, because no market for those games exists. But allowing those games to be accessed off-site would enable dedicated researchers to explore the way that they influenced the development of contemporary popular culture, before the history of this “young medium” is lost forever through software degradation. The on-site limitation encourages repeated study of the same works, or requires researchers to consider alternative, legally risky methods of access.

Absent a modified exemption, video game researchers will be unable to study many out-of-commerce games that are only available on the second-hand market, or available as “abandonware” due to the scarcity of physical copies. Phil Salvador has experienced immense difficulties with backward compatibility, and often must resort to emulation, modification, custom video API wrappers, and access to vintage hardware or adapters.⁶⁹ Much of this work depends on innovation by the gaming community, so much so that cultural institutions themselves often apply techniques pioneered by gamers.⁷⁰ This dynamic increases the need to provide off-site access to appropriate institutional users. Allowing researchers to access software through their institutions will ensure that research occurs through legitimate channels.

(C) Adverse Effects of On-Site Limitation on Educators

The on-site access requirement also limits the extent to which out-of-commerce software can be used to teach students about digital history and the development of digital works over time. Not all institutions have the ability to teach classes on the premises of their libraries or archival

⁶⁷ Lazorchak *supra* note 35. However, in some cases a researcher may need a copy of preserved software (e.g., to run on their own vintage hardware), and providing one would be a fair use for the reasons explained below. EaaS is one way to provide lawful remote access, but a well-formed exemption should not prescribe how access is provided.

⁶⁸ *Id.*

⁶⁹ Survey response by Phil Salvador, American University.

⁷⁰ Interview with Fenwick McKelvey, Concordia University on October 14, 2020.

institutions. Columbia University, for instance, does not have classrooms on the physical premises of its library.⁷¹ It is simply not possible to teach a class using out-of-commerce software with the TPM circumvented on the premises of the library where software collections are held at Columbia. The on-premises requirement also poses a unique challenge to professors teaching online classes. Because they are offsite, those professors and their students are unable to access preserved software. This is true despite the fact that emulation models have proven success; educators already use emulation software to teach subjects like the history of computer media. Kevin Driscoll at the University of Virginia uses emulators in his course on media history, including having students run programs on an Apple II emulator that can interpret their written code.⁷² In the context of remote learning, teachers may be able to identify works in their institutional collections, but on-site restrictions and technological limitations prevent them from using them in the virtual classroom.⁷³ If libraries and archival institutions were permitted to allow authorized users to access their materials, out-of-commerce software could help the next generation of computer programmers and computer historians learn about the origins of their disciplines.

(D) Off-Site Need is Elevated by the COVID-19 Pandemic

Finally, the coronavirus pandemic has only highlighted and elevated the pressing need for this off-site exemption. Major libraries and archival institutions across the country have closed their doors, relying on digital access for preservationists, researchers, teachers, and students.⁷⁴ Cornell University's digital library services, for instance, increased four-fold during the initial weeks of the pandemic.⁷⁵ Since mid-March, entire industries – especially those information-heavy careers like academia and teaching – have moved to working from home.⁷⁶ This shift is likely to persist, even after the pandemic concludes, now that industries have experimented with large-scale remote work.⁷⁷ But with the duration of the pandemic as-yet unknown, demand for remote access to preserved materials is greater than ever. Software, unlike physical materials, does not naturally exist on-site – it is meant to be accessed at home, from a user's computer.⁷⁸ Remote access enables academic work to continue while following social distancing measures, as well as reducing needless transaction and travel costs. During the pandemic, HathiTrust has enabled

⁷¹ Conversation with Robert Cartolano, Columbia University on November 10, 2020.

⁷² Survey Response by Kevin Driscoll, University of Virginia.

⁷³ Survey Response by Kevin Driscoll, University of Virginia. *See also* Interview with Michael Olson, Stanford University on October 18, 2020.

⁷⁴ See, e.g., Harvard Library Communications Office, *Library Spaces Closed Circulation Suspended due to Coronavirus*, HARVARD UNIV. (Mar. 16, 2020) <https://library.harvard.edu/about/news/2020-03-16/library-spaces-closed-print-circulation-suspended-due-coronavirus> (announcing the closure of Harvard's library spaces and circulation services), *archived at* <https://perma.cc/U LR3-CEWN>.

⁷⁵ Daniel Aloï, *Library expands remote services for Cornell community*, CORNELL CHRON. (Mar. 19, 2020) news.cornell.edu/stories/2020/03/library-expands-remote-services-cornell-community, *archived at* <https://perma.cc/CRS8-MCYM>.

⁷⁶ Amit Kramer & Karen Kramer, *The potential impact of the Covid-19 pandemic on occupational status, work from home, and occupational mobility*, 119 J. VOCATIONAL BEHAV. 1, 1 (2020).

⁷⁷ *Id.*

⁷⁸ Survey Response by Phil Salvador, American University; Conversation with Robert Cartolano, Columbia University on November 10, 2020.

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. Programs that could be run virtually, such as the artist residency series at CU Boulder’s Media Archaeology Lab, have been unable to provide their resources off-site.⁸⁰ The move to remote work during the COVID-19 pandemic starkly illustrated the utility of remote access in the preservation, teaching, and research contexts. Providing access to this software via EaaS would promote desirable public health objectives.

(2) Non-infringing Uses

The activities covered by this proposed modification are non-infringing, as required by 17 U.S.C. § 1201(a)(1)(C). Specifically, the creation of temporary copies on the user’s computer and the display and performance of preserved works in a user’s browser as part of EaaS for preservation, teaching, and research, as well as the copying and distribution of preserved software to facilitate teaching and research by remote users using their own hardware, are protected by the fair use doctrine, and in some cases may also be protected by 17 U.S.C. §§ 108 and 117.

(A) Fair Use

Originally judicial doctrine, Congress provided statutory guidance for finding fair use according to the following factors:

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- (2) the nature of the copyrighted work;
- (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- (4) the effect of the use upon the potential market for or value of the copyrighted work.⁸¹

Although the factors weigh heavily in judicial decision-making, the list is not exhaustive, and no one factor is decisive.⁸² Rather, each factor is to be considered and weighed together, “in light of the purposes of copyright.”⁸³ The law recognizes that copyright is “not an inevitable, divine, or

⁷⁹ See *HathiTrust Response to Covid-19*, HATHITRUST DIGITAL LIBR. (May 20, 2020), <https://www.hathitrust.org/covid-19-response>, archived at <https://perma.cc/6CBE-VZQA>.

⁸⁰ Survey Response by Lori Emerson, University of Colorado Boulder.

⁸¹ 17 U.S.C. § 107.

⁸² See *Castle Rock Entm’t, Inc. v. Carol Publ’g Grp., Inc.*, 150 F.3d 132, 145 (2d Cir. 1998); see also H.R. Rep. No. 94-1476, at 65 (1976).

⁸³ *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 578 (1994).

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 is prototypically fair, as it promotes the “progress of Science and the useful Arts.”⁸⁶ Uses that “benefit[] the broader public interest” are more likely to be fair,⁸⁷ as are non-profit or non-commercial uses.⁸⁸ The Acting Register has previously acknowledged that preservation, research, and teaching⁸⁹ are activities favored under the fair use analysis.⁹⁰ Accessible digital sources serve the public interest by facilitating public access to information, particularly where populations intrinsically lack access.⁹¹ Similarly, this exemption would provide access to those individuals with significant logistical and financial limitations, including those with disabilities that prevent travel, those in remote locations that cannot afford travel,⁹² those affected by U.S. travel restrictions,⁹³ and

⁸⁴ Pierre N. Leval, *Toward a Fair Use Standard*, 103 HARV. L. REV. 1105, 1107 (1990).

⁸⁵ *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 349-350 (1991).

⁸⁶ *Campbell*, 510 U.S. at 575. (quoting U.S. Const. art. I, § 8, cl. 8.).

⁸⁷ See *Blanch v. Koons*, 467 F.3d 244, 253 (2d Cir. 2006).

⁸⁸ See *Sony Corp. of Am. v. Universal City Studios, Inc.*, 464 U.S. 417, 451 (1984).

⁸⁹ The TEACH Act addresses similar harms to those faced by educators who incorporate vintage software in their lessons, and serves a similar purpose to the proposed rule. Educators – like the libraries, researchers, and preservationists covered in this proposed exemption – found that obtaining licenses or finding appropriate copyright holders for each work prohibitively difficult. Kristine H. Hutchinson, *The Teach Act: Copyright Law and Online Education*, 78 N.Y.U. L. REV. 2204, 2114–15 (2003). Prior to the TEACH Act, educators conducted similar teaching activities under fair use. *Id.* at 2216. The TEACH Act represented an explicit Congressional protection in conjunction with, but not superseding, those legitimate teaching practices. The proposed exemption would likewise authorize uses already permissible under the fair use doctrine.

⁹⁰ See Section 1201 Rulemaking: Seventh Triennial Proceeding, 242(2018) .

https://cdn.loc.gov/copyright/1201/2018/2018_Section_1201_Acting_Registers_Recommendation.pdf

The Acting Register recommended the TEACH exemption because a “number of [desired] uses are likely noninfringing” under fair use doctrine and educators required high-quality media clips to facilitate online learning. *Id.* at 84-85. This exemption demonstrates existing approval of offsite access to circumvented, obsolete software to advance educational goals, the same types of use encompassed in this comment. 37 C.F.R. § 201.40(b).

⁹¹ See *Authors Guild, Inc. v. HathiTrust*, 755 F.3d 87, 101 (2d Cir. 2014) (holding that accessible digital sources providing access to persons with print disabilities serves a public interest); *Sony Corp. of Am.*, 464 U.S. at 455 n. 40 (remarking that “making a copy of a copyrighted work for the convenience of a blind person is expressly identified by the House Committee Report as an example of fair use, with no suggestion that anything more than a purpose to entertain or inform need motivate the copying.”).

⁹² Survey Response by Phil Salvador, American University.

⁹³ Conversation with Kyle K. Courtney, Harvard University on November 19, 2020.

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 purpose from the original.”⁹⁵ Transformative uses build upon pre-existing works and contribute value in the form of critique, comment, or new insight.⁹⁶ These uses further the goals of copyright by providing new meaning or creation to the broader culture.⁹⁷ Courts have recognized that the presentation of copyrighted material as historical artifacts is a transformative use relative to its original expressive purpose.⁹⁸ Providing remote access to preserved software is a transformative use because it presents software (and software-dependent digital materials) as historical artifacts for research and teaching purposes. Consulting digital cultural heritage as part of the historic record is a fundamentally different purpose relative to the original consumer and commercial purposes of software. Researchers and teachers do not use software for its original informative, aesthetic, or entertainment functions; rather, they examine elements of the work for purposes of comment, criticism, or education. The physical location of the user does not have any impact on the transformative nature of the proposed uses.

Furthermore, the intermediate technical steps necessary to provide remote access (e.g., the creation of temporary copies on the user’s machine to facilitate software access in the browser) are lawful because they are necessary steps in the workflow of transformative research and teaching. Providing researchers remote access to collections for study constitutes a transformative use that serves a new purpose, and collecting institutions add value in the form of “reviewing, selecting, converting, coding, linking, and identifying” materials to make them discoverable and comprehensible in a research context.⁹⁹ Intermediate copying to facilitate this

⁹⁴ Survey Response by Phil Salvador, American University; Conversation with Kyle K. Courtney, Harvard University on November 19, 2020.

⁹⁵ *Campbell*, 510 U.S. at 579 (citing classroom distribution as an obvious example of non-transformative fair use). See, e.g., *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146, 1165 (9th Cir. 2007) (concluding that Google’s copying of copyrighted images in order to create a thumbnail search index was “highly transformative” even though the images themselves were not altered, because the use served a different function than the images served); *Wall Data Inc. v. L.A. Cty. Sheriff’s Dep’t*, 447 F.3d 769, 778 (9th Cir. 2006) (indicating that uses are transformative when defendants use plaintiffs’ copyrighted works “in a different context such that the plaintiff’s work is transformed into a new creation”); *Mattel, Inc. v. Walking Mountain Prods.*, 353 F.3d 792, 800-01 (9th Cir. 2003).

⁹⁶ Pamela Samuelson, *Unbundling Fair Use*, 77 *FORDHAM L. REV.* 2537, 2548-49 (2009).

⁹⁷ See, e.g., *Blanch v. Koons*, 467 F.3d 244, 254-255 (2d Cir. 2006) (holding satirical use of portion of photo in collage qualified as fair use because it contributed commentary on social and aesthetic consequences of mass media); *Castle Rock Entm’t, Inc. v. Carol Pub. Grp., Inc.*, 150 F.3d 132, 142 (2d Cir. 1998); *Campbell* 510 U.S. at 579.

⁹⁸ See *Bill Graham Archives v. Dorling Kindersley Ltd.*, 448 F.3d 605, 615 (2d Cir. 2006); *Warren Pub. Co. v. Spurlock*, 645 F. Supp. 2d 402 (E.D. Pa. 2009); *Arica Institute, Inc. v. Palmer*, 970 F.2d 1067, 1077-78 (2d Cir. 1992) (characterizing one researcher’s reuse of a predecessor’s work as fair use because the defendant “builds upon [the predecessor’s] work to further develop our store of knowledge in this area” by providing historical and theoretical contributions).

⁹⁹ *White v. W. Pub. Corp.*, 29 F. Supp. 3d 396, 399 (S.D.N.Y. 2014).

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 new software that allowed video games to be played on PCs rather than exclusively on the PlayStation, constituted a transformative use of the software.¹⁰³ The intermediate copying was transformative because the end-product constituted a transformative use.¹⁰⁴ Like reverse engineering, the intermediate copies involved in providing remote access to preserved software serve a transformative purpose.

Off-site access for video game preservation, teaching, and research is also critical because video games are more prone to obsolescence than other media.¹⁰⁵ The obsolescence rate is attributable to the difficulty of transferring video games and their audiovisual components to new generations of hardware and software.¹⁰⁶ The Register of Copyrights has previously noted that “the purpose and character of the use – the preservation of a video game in playable form for research and study – are favored purposes under section 107.”¹⁰⁷ The purposes served by offsite access to preserved software are also favored,¹⁰⁸ and they are transformative relative to the original commercial gaming uses of entertainment or job training purposes.¹⁰⁹ Uses that appropriate elements of the work for purposes of comment or criticism “reflect[] transformative value because it ‘can provide social benefit, by shedding light on an earlier work, and, in the

¹⁰⁰ See, e.g., *Authors Guild v. Google, Inc.*, 804 F.3d 202, 219 (2d Cir. 2015) (noting that creation of database of full-text of millions of books “was essential to permit searchers to identify and locate the books in which words or phrases of interest to them appeared.”).

¹⁰¹ Clark D. Asay, *Software’s Copyright Anticommons*, 66 EMORY L.J. 265, 279 (2017). See also Samuelson, *supra* note 96 at 2608-09.

¹⁰² *Lewis Galoob Toys, Inc. v. Nintendo of Am., Inc.*, 964 F.2d 965, 971 (9th Cir. 1992), as amended (Aug. 5, 1992). See *Atari Games Corp. v. Nintendo of Am. Inc.*, 975 F.2d 832, 843-44 (Fed. Cir. 1992); *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510, 1422 (9th Cir. 1992).

¹⁰³ See *Sony Computer Entm’t, Inc. v. Connectix Corp.*, 203 F.3d 596, 606 (9th Cir. 2000)

¹⁰⁴ See *id.* at 607. Subsequent cases have affirmed this analysis. See, e.g., *DSC Commc’ns Corp. v. DGI Techs., Inc.*, 81 F.3d 597, 601 (5th Cir. 1996); *Bateman v. Mnemonics, Inc.*, 79 F.3d 1532, 1539 (11th Cir. 1996). See also *Atari Games Corp. v. Nintendo of Am. Inc.*, 975 F.2d 832, 843-44 (Fed. Cir. 1992); *Evolution, Inc. v. Suntrust Bank*, 342 F. Supp. 2d 943, 955-56 (D. Kan. 2004) (intermediate copying for purposes of extracting information to develop non-infringing interoperable products held to be fair use).

¹⁰⁵ See Simon Parkin, *Video Games and the Curse of Retro*, THE NEW YORKER (Jan. 11, 2015), <https://www.newyorker.com/tech/annals-of-technology/video-games-curse-retro>, archived at <https://perma.cc/GD62-SMC6>.

¹⁰⁶ *Id.*

¹⁰⁷ Section 1201 Rulemaking: Sixth Triennial Proceeding, 343 (2015) <https://cdn.loc.gov/copyright/1201/2015/registers-recommendation.pdf>.

¹⁰⁸ 17 U.S.C. § 107 (recognizing fair use “for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research.”). It is also noteworthy that the Register’s opinion acknowledges that preservation is “for research and study,” i.e., it is done in anticipation of valuable use, not for its own sake.

¹⁰⁹ See Phil Salvador, *When SimCity got serious: the story of Maxis Business Simulations and SimRefinery*, OBSCURITORY (May 19, 2020), <https://obscuritory.com/sim/when-simcity-got-serious/>, archived at <https://perma.cc/VJU2-ZT2C>.

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]he law generally recognizes a greater need to disseminate factual works than works of fiction or fantasy.”¹¹³ Therefore, the “scope of fair use is greater with respect to factual than nonfactual works.”¹¹⁴ This factor is not dispositive, however, and courts often give little weight to this factor, especially when a use is transformative.¹¹⁵ Much of the software that museums, libraries, and archives seek to preserve and study consists of factual or utilitarian works used for transformative purposes, therefore this factor should weigh in favor of fair use.

Video games are more likely to contain creative or expressive content than software generally, but some video games blur the line between fact and fiction, as they contain both functional and expressive elements.¹¹⁶ This is especially true of some obsolete games developed in the 20th century. Companies attempted to follow the model of the successful SimCity series, for instance, and create tools for urban planning, job training, environmental impact study, or conceptual illustration of oil refinery operations.¹¹⁷ Moreover, preservation often focuses on the functional aspects of the game to maintain its playable form, including the game client and server elements that support game operability. While video games often feature creative aspects, the importance of this factor is discounted where the work is used for a transformative purpose.¹¹⁸ Additionally, the research and educational purposes use video games as a tool of study, not to merely enjoy the

¹¹⁰ See *Suntrust Bank v. Houghton Mifflin Co.*, 268 F.3d 1257, 1271 (11th Cir. 2001) (quoting *Campbell*, 510 U.S. at 579).

¹¹¹ See Survey Response by Phil Salvador, American University.

¹¹² *Worldwide Church of God v. Phila. Church of God, Inc.*, 227 F.3d 1110, 1118 (9th Cir. 2000).

¹¹³ *Harper & Row Publishers, Inc. v. Nation Enters.*, 471 U.S. 539, 563 (1985).

¹¹⁴ *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 925 (2d Cir. 1994). See also *Campbell*, 510 U.S. at 586 (collecting cases where lesser protection was extended to factual works).

¹¹⁵ See, e.g., *Kane v. Comedy Partners*, 2003 WL 22383387, at *5 (S.D.N.Y. Oct. 16, 2003) (stating that because the use was transformative, the nature of the work is less significant); *Blanch v. Koons*, 467 F.3d 244, 254-255 (2d Cir. 2006) (giving this factor limited weight despite the creative nature of the work because the new use was transformative); *Warren Publ’g Co. v. Spurlock*, 645 F. Supp. 2d 402, 423 (E.D. Pa. 2009) (finding that although factor two disfavored fair use, its impact in the overall fair use calculus was limited because the use was transformative); See *Bill Graham Archives*, 448 F.3d at 612 (giving this factor limited weight because the use was transformative); *Campbell* 510 U.S. at 586 (finding that the creative nature of the original work was “not much help” in the fair use analysis because the work was transformative); *Leibovitz v. Paramount Pictures Corp.*, 137 F.3d 109, 115 (2d Cir. 1998) (citing *Campbell*, 510 U.S. at 586).

¹¹⁶ See *Sony Computer Entm’t, Inc.*, 203 F.3d at 599 (“Copyrighted software ordinarily contains both copyrighted and unprotected or functional elements.”).

¹¹⁷ See Salvador, *supra* note 109; see also Interview with Fenwick McKelvey, Concordia University on October 14, 2020.

¹¹⁸ See *Campbell*, 510 U.S. at 586 (noting that the creative nature of a work is of little help in transformative parody cases); *Warren Publ’g Co. v. Spurlock*, 645 F. Supp. 2d at 423; *Leibovitz v. Paramount Pictures Corp.*, 137 F.3d at 115.

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

Computer programs have “both functional and expressive components,” but copyright does not typically protect the functional elements of software.¹²¹ Accessing functional components of software is often necessary to preserve access to software dependent material for archival, research and teaching purposes. For example, functional components that support software access include operating systems, planner programs, word-processing software, and data management tools, like architectural CAD asset management programs.¹²²

III. 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.”¹²³ This factor can favor fair use when entire works are used because “copying the entirety of a work is sometimes necessary to make a fair use.”¹²⁴ Similarly, courts have discounted the impact of the third factor when the use of a copyrighted work is transformative.¹²⁵ Providing remote access to preserved software may, in some cases, be impossible without using the entire work. Emulation often requires the entire codebase to run functional software. Additionally, research uses often require access to the entire work to support complete examination of its elements. Given the nature of these uses, the amount users may access is reasonable in relation to the purpose of copying, and this factor favors fair use.

IV. 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. The copyright system is designed “[n]ot primarily for the

¹¹⁹ Survey Response by Phil Salvador, American University.

¹²⁰ *See id.*

¹²¹ *Oracle Am., Inc. v. Google Inc.*, 750 F.3d 1339, 1375 (Fed. Cir. 2014); *see Sony Computer Entm’t, Inc. v. Connectix Corp.*, 203 F.3d 596, 603 (9th Cir. 2000) (citing *Sega Enters. v. Accolade, Inc.*, 977 F.2d 1510 (1992)).

¹²² *See* Survey Response by Euan Cochrane, Yale University.

¹²³ *Campbell*, 510 U.S. at 586.

¹²⁴ *See* Section 1201 Rulemaking: Seventh Triennial Proceeding, 243 (2018)

https://cdn.loc.gov/copyright/1201/2018/2018_Section_1201_Acting_Registers_Recommendation.pdf; *Bill Graham Archives*, 448 F.3d at 613; *A.V. ex rel. Vanderhye*, 562 F.3d at 642, 645 (finding copying of an entire work to be fair use); *Sony Corp. of Am.*, 464 US at 476 (same); *Swatch Grp. Mgmt. Servs. Ltd. v. Bloomberg L.P.*, 756 F.3d 73, 90 (2d Cir. 2014) (same).

¹²⁵ *See, e.g., 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); *Gaylord v. United States*, 85 Fed. Cl. 59, 70 (2008) (implying that factor three’s weight in the overall analysis was less because the use was transformative); *Campbell*, 510 U.S. at 586–88 (finding that transformative uses often require the most important parts of well-known works to achieve their transformative purposes); *Leibovitz*, 137 F.3d at 116 (finding that the third factor carries little weight where the first and fourth factors are transformative and weigh in favor of fair use).

benefit of the author, but primarily for the benefit of the public.”¹²⁶ This purpose is especially salient where uses are transformative and the uses have no substitutional impact on traditional markets.¹²⁷ This factor also favors fair use when the work being used is no longer sold or available for license from the copyright holder.¹²⁸ Where the public stands to benefit substantially from a transformative use that poses no threat whatsoever to the commercial prerogatives of the copyright holder, this factor should strongly favor fair use.

Transformative uses do not have a cognizable impact on the work’s traditional market because they serve a different purpose.¹²⁹ In *Bill Graham Archives*, the Second Circuit held that the reproduction of Grateful Dead band posters in a biographical book was transformative because the book used the posters as historical artifacts to illustrate the band’s career.¹³⁰ This historical documentation served a different purpose than the posters’ original expressive uses.¹³¹ Because the historical purposes were transformative, the court held that these uses did not cause any market harm. Similarly, remote access to digital artifacts facilitates preservation, research, and teaching, which are different purposes than the original consumer or commercial uses of software and video games. Because preserving and studying software serves a transformative purpose, software’s traditional markets are unaffected and the copyright holder’s commercial prerogatives remain intact.

Transformative uses do not have any impact on traditional markets when they are intended to reach different audiences. In *deFontbrune*, the court held that *The Picasso Project*, a book that reproduced copyright-protected photos of Pablo Picasso’s art, had no market impact on the original collection of photographs because the two compilations reached entirely different markets.¹³² *The Picasso Project* was intended to provide libraries, academic institutions, and art institutions with affordable, alternative access to the scholarly catalog of Picasso’s work because the original collection was out-of-print and only available on the second-hand market for \$20,000.¹³³ While some software applications or games may be obtained on secondhand markets, their primary markets will be unaffected by allowing off-site access to preserved software for preservation, teaching, and research.

Furthermore, remote access to preserved software does not cause market harm where the copyright owner has ceased exploiting the work commercially. The proposed uses do not have any “impact on potential licensing revenues for traditional, reasonable, or likely to be developed markets” because there is literally no market for the software.¹³⁴ Definitionally, this out-of-

¹²⁶ H.R. REP NO. 60-2222, at 2227 (1909).

¹²⁷ *Campbell* 510 U.S. at 590-594. See *A.V. ex rel. Vanderhuy*, 562 F.3d at 638; *Bill Graham Archives*, 448 F.3d at 615; *Swatch Grp. Mgmt. Servs. Ltd. v. Bloomberg L.P.*, 756 F.3d 73, 91-92 (2d Cir. 2014).

¹²⁸ *Warren Publ’g Co.*, 645 F. Supp. 2d at 426.

¹²⁹ *Campbell* 510 U.S. at 590-594. See *Swatch Grp. Mgmt. Servs. Ltd.*, 756 F.3d at 91-92; *Bill Graham Archives*, 448 F.3d at 614; *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 930-31 (2d Cir. 1994).

¹³⁰ See *Bill Graham Archives*, 448 F.3d at 611-612.

¹³¹ *Id.*

¹³² See *deFontbrune v. Wolfsy*, 409 F.Supp.3d 823, 843 (N.D. Cal. 2019).

¹³³ *Id.*

¹³⁴ *Am. Geophysical Union v. Texaco Inc.*, 60 F.3d 913, 930-31 (2d Cir. 1994).

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 or to other business entirely. Out-of-print works are accorded more leeway for fair use,¹³⁵ and Congress has expressed the view that a finding of fair use should be more likely if a work is out of print.¹³⁶ As such, this factor should weigh in favor of fair use.

Providing remote access to preserved out-of-commerce software for preservation, teaching, and research is not a purpose that copyright holders have abstained from licensing out of a strategic choice in hopes of increasing the value of the uses they do license or saving the revenue source for the future.¹³⁷ Preservation functions to prevent software and other digital artifacts from becoming lost forever, long after a copyright owner has lost interest in utilizing the copyright.¹³⁸ Software preservation in libraries and archives is critical precisely because academic interest in software will endure for much longer than its commercial life.

Software titles are routinely removed from commercial channels as they are superseded by updated versions and the copyright holder focuses on exploiting the market for the new version.¹³⁹ In the video game industry, superseded titles are rarely available on digital marketplaces through the current rightsholder because games require continued support from the developer to work with new platforms.¹⁴⁰ Again, courts have acknowledged that where the copyright holder has declined to continue exploiting a work commercially, there is no market

¹³⁵ *Warren Publ'g Co.*, 645 F. Supp. 2d at 426 (where a copyright owner has exhibited “virtually no interest at all” in utilizing copyrights, it “def[ies] logic” to prohibit transformative uses because they do not cause cognizable market harm).

¹³⁶ S. REP NO. 94-473, at 64 (1975) (“If the work is ‘out of print’ and unavailable for purchase through normal channels, the user may have more justification for reproducing it than in the ordinary case.”); H.R. REP NO. 94-1476, at 67 (1976). *See also Maxtone-Graham v. Burtchell*, 803 F.2d 1253, 1264 n.8 (2d Cir. 1986) (stating that “[a] key, though not necessarily determinative, factor in fair use is whether or not the work is available to the potential user” and citing the Senate Report).

¹³⁷ *Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1277 (11th Cir. 2014) (“Put simply, absent evidence to the contrary, if a copyright holder has not made a license available to use a particular work in a particular manner, the inference is that the author or publisher did not think that there would be enough such use to bother making a license available. In such a case, there is little damage to the publisher’s market when someone makes use of the work in that way without obtaining a license, and hence the fourth factor should generally weigh in favor of fair use.”).

¹³⁸ Fenwick McKelvey of Concordia University reports, for instance, working with VisiCalc, the first spreadsheet program for personal computers. Despite its important historical role, this software cannot be purchased or licensed from any copyright owner. Interview with Fenwick McKelvey, Concordia University on October 14, 2020. According to Fenwick and Phil Salvador of American University, in many cases, scholars must choose between travelling to distant archives (where local COVID travel restrictions permit), obtaining potentially unusable software that still carries copying protections from a resale site like eBay, or obtaining DRM-circumvented software through extra-legal markets. Interview with Fenwick McKelvey, Concordia University on October 14, 2020; Survey Response by Phil Salvador, American University.

¹³⁹ *See* Mark Lemley, *Disappearing Content*, STANFORD LAW SCHOOL, Oct. 19, 2020, at 22, 27-28 *available at* SSRN: <https://ssrn.com/abstract=3715133> or <http://dx.doi.org/10.2139/ssrn.3715133>. *See also* Parkin, *supra* note 105.

¹⁴⁰ *See* Lemley, *supra* note 139 at 27-28; *see also* Parkin, *supra* note 105.

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 considering whether a particular use should be favored by fair use, and in particular in weighing the first factor, courts

¹⁴¹ See *Peter Letterese & Assocs., Inc. v. World Inst. of Scientology Enters., Int'l.*, 533 F.3d 1287, 1313 (11th Cir. 2008); see also *Cambridge Univ. Press v. Patton*, 769 F.3d 1232, 1277 (11th Cir. 2014).

¹⁴² *Online Service Updates*, ELECTRONIC ARTS <https://www.ea.com/service-updates> (last visited Nov. 17, 2020) (“As games are replaced with newer titles, the number of players still enjoying the games that have been live for some time dwindles to a level – typically fewer than 1% of all peak online players across all EA titles – where it’s no longer feasible to continue the behind-the-scenes work involved with keeping the online services for these games up and running.”)

¹⁴³ Adam Hadhazy, *Here’s the truth about the ‘planned obsolescence’ of tech*, BBC FUTURE (June 12, 2016), <https://www.bbc.com/future/article/20160612-heres-the-truth-about-the-planned-obsolescence-of-tech>. Lemley *supra* note 139 at 8, 15. See *Games at Risk of Removal Watchlist*, STEAM <https://store.steampowered.com/curator/31857481-Games-at-risk-of-removal/list/35810/> (last visited Nov. 6, 2020), archived at <https://perma.cc/68ML-SKX2>. See generally Electronic Frontier Foundation, Comment Letter in the Matter of Exemption to Prohibition on Circumvention of Copyright Protection Systems for Access Control Technologies, 2-4 (July 2014), https://cdn.loc.gov/copyright/1201/2015/comments-020615/InitialComments_longform_EFF_Class23.pdf (providing several examples of developers ending multiplayer support or taking servers offline).

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 appropriateness of offsite use of library materials. 17 U.S.C. §§108(c) and 108(h), discussed in the 2018 Comment, are also relevant for this proposed exemption.

I. The exemption advances the goals of 17 U.S.C. §108

The uses at issue in this exemption serve the underlying purposes of 17 U.S.C. §108. That portion of the code provides a statutory exemption to copyright law for libraries and archival institutions that provide researchers with access to works, or portions thereof, which can be used by a researcher for academic purposes beyond the physical premises of the institution itself.¹⁴⁵ Some uses fall specifically within the ambit of §108, while others advance the objectives that this portion of the code sought to protect. The relevance of 17 U.S.C. §108 does not preclude the applicability of the fair use doctrine.¹⁴⁶ Rather, it underscores the propriety of the proposed use in light of the statutory copyright scheme.

17 U.S.C. §108 addresses both the copyright holder’s need to protect the market for copyrighted works and the traditional scholarly practice of copying works from a collection for research use.¹⁴⁷ Throughout the §108 drafting process, Congress sought to balance these two approaches – maintaining libraries’ ability to preserve and create copies of their works against potential market harms of such copying.

In 17 U.S.C. §108(a), Congress has clarified that nonprofit copying of unpublished works for preservation or inter-institutional research work “without any purpose of direct or indirect commercial advantage” “is not an infringement of copyright.”¹⁴⁸ Congress enacted this provision to maintain libraries’ traditional ability to copy works, whether for preservation or offsite access, where such copying would not make them *de facto* publishers. Library copying is permissible under §108 precisely because the institutions have no financial interest in their copies and are not in competition with copyright holders.¹⁴⁹ This exemption does not generate any of the harms that Congress sought to avoid when creating §108 but advances its objectives.

¹⁴⁴ See, e.g., *Authors Guild v. HathiTrust* 755 F.3d at 101–02 (surveying provisions in the Copyright Act and in federal law generally favoring access for the blind and print-disabled as part of the first factor inquiry).

¹⁴⁵ 17 U.S.C. §108.

¹⁴⁶ 17 U.S.C. §108(f)(4). See, e.g., *Authors Guild v. HathiTrust* 755 F.3d at 94 n. 4.

¹⁴⁷ MARY RASENBERGER & CHRIS WESTON, OVERVIEW OF THE LIBRARIES AND ARCHIVES EXCEPTION IN THE COPYRIGHT ACT: BACKGROUND, HISTORY AND MEANING 1–2 (2005) [http://www.section108.gov/docs/108BACKGROUNDPAPEr\(final\).pdf](http://www.section108.gov/docs/108BACKGROUNDPAPEr(final).pdf), archived at <https://perma.cc/YEK3-LHHE>.

¹⁴⁸ Rasenberger & Weston *supra* note 147 at 14; 17 U.S.C. §108(a).

¹⁴⁹ Kyle K. Courtney, *Covid, Copyright and Library Superpowers Part II*, KYLE COURTNEY (Mar. 16, 2020), <https://kylecourtney.com/2020/03/16/covid-19-copyright-and-library-superpowers-part-ii/>, archived at <https://perma.cc/F22W-YPKW>.

In the context of preservation, Section 108(c) permits libraries and archives to make up to three copies of out-of-commerce software within their collections. This analysis was discussed at length in SPN and LCA’s 2018 Comment.¹⁵⁰ Limitations in Section 108(c) were motivated by concern that “unlimited access to digital copies from any location” could harm the copyright owner’s market interests.¹⁵¹ In a context where no market demand exists, however, and where there is no indication that the user has any intention other than personal research and study, that risk is attenuated at best, and outweighed by the research and teaching value of access. It is also noteworthy that even in the context of 108(c), access is not limited to an institution’s physical premises, but may include distribution via a digital network allowing access to a library’s holdings, or an institutional intranet.¹⁵²

Section 108 allows for additional copying by library or archival institutions for an individual user’s convenience. 17 U.S.C. §108(d) allows libraries to copy articles or small portions of works upon a user’s request. This exemption sought to permit the circulation and copying of articles and book chapters, for individual use or through interlibrary loan, without permitting so much copying that libraries or archival institutions would copy one another’s works rather than acquiring a subscription or purchasing a copy themselves.¹⁵³ Similarly, §108(e) permits reproduction and distribution of an entire work where the work is no longer commercially available. This provision aimed to allow scholars to retain their traditional right to copying works where copying would not harm the creator’s position in the market.¹⁵⁴ Such copies circulate beyond the premises of the library or archives; indeed, they “become[] the property” of the requestor. Although audiovisual works are exempted from these provisions by 17 U.S.C. §108(i), providing off-site access to out-of-commerce software to users through emulation software serves the customary purposes advanced by sections 108(d) and (e), namely to facilitate personal research uses that require consulting library resources at a distance. This is especially true where software is used as a tool to facilitate access to born-digital documents. As the Committee Report explains, “Although subsection [(i)] generally removes musical, graphic, and audiovisual works from the specific exemptions of section 108, it is important to recognize that the doctrine

¹⁵⁰ Cyberlaw Clinic at the Berkman Klein Center for Internet and Society, Comment Letter regarding a Proposed Exemption Under 17 U.S.C. §1201 (2018), <https://cdn.loc.gov/copyright/1201/2018/comments-121817/class9/class-09-initialcomments-spn-lca.pdf>.

¹⁵¹ S. REP. 105-190 at 27 (1998) (explaining that the limitation of access to the premises of the library or archives for digital copies was meant to “guard[] against the potential harm to the copyright owner’s market from patrons obtaining unlimited access to digital copies from any location.”).

¹⁵² United States Copyright Office, Section 108 of Title 17: A Discussion Document of the Register of Copyrights 27 (2017) <https://www.copyright.gov/policy/section108/discussion-document.pdf> (“‘Premises’ may be conceptualized in a variety of ways. For example, for a local library that only allows access to its collections within its building, ‘premises’ may mean the physical premises of the library. For a university with a network of libraries serving students across campus and a campus-wide intranet that grants access to the libraries’ digital holdings, ‘premises’ may be thought of as the boundaries of the entire campus rather than as each individual library building. For a public library with extensive digital holdings accessible by anyone with a library-granted log-in, ‘premises’ may mean the digital network through which the collections may be accessed.”).

¹⁵³ Mary Rasenberger & Christopher Weston, *Overview of the Libraries and Archives Exception in the Copyright Act: Background, History, and Meaning* 104–05, in Section 108 Study Group, *The Section 108 Study Group Report* app. K. K165–K171 (2008).

¹⁵⁴ *Id.*

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 *any* price (nor can it even be run on modern equipment), because it is obsolete. In a context where there is no legitimate market to harm and the institution has a legitimate interest in providing a copy to a researcher, off-site access allows this research to continue through channels managed by a reputable institution. This process is precisely the structure envisioned by §108, with libraries and archival institutions stepping in to fill a researcher’s need to access materials otherwise unavailable. Staff at stakeholder institutions, including Stanford Libraries, expressed strong interest in lending obsolete software via emulation,¹⁵⁶ and the Copyright Office recognized the desirability of off-premises access in its 108 Discussion Document.¹⁵⁷ Emulated copies of software following the model of §108(d) and §108(e) would permit this traditional off-site use.

Section 108(g) gives additional insight into the overall intended effect of Section 108. While it protects copyright holders by placing limits on “systematic” activity, Section 108(g) also includes an important proviso, at Section 108(g)(2), to enable interlibrary lending and related cooperative efforts. The established purpose of interlibrary arrangements, in turn, was “to make available for research and serious study library materials not in a given library.”¹⁵⁸ Interlibrary loan provides a convenient and efficient alternative to visiting the premises of other libraries to obtain access to their unique collections.

If libraries and archives are unable to make out-of-commerce software available for use to access their born-digital files, the traditional rights of users represented by §108(e) and §108(d) will become a dead letter with respect to 20th and 21st century digital archives. Allowing users their traditional right to access preserved works in the context of born-digital files means providing access to archival software alongside the files themselves. The on-premises limitation applied to born digital-files chills research by imposing an additional burden on access.

¹⁵⁵ H.R. REP. 94-1476 at 78–79 (1976).

¹⁵⁶ Survey response by Michael Olson, Stanford Libraries.

¹⁵⁷ COPYRIGHT OFFICE, SECTION 108 OF TITLE 17 (2017) at 18 (“[T]he Copyright Office...feels that to require that libraries, archives, and museums must operate from physical premises would unduly handicap section 108.”) and 27 (while proposing Model Statutory Language, “For a university with a network of libraries...and a campus-wide intranet... ‘premises’ may be...the boundaries of the entire campus...For a public library with extensive digital holdings... ‘premises’ may mean the digital network through which the collections may be accessed.”).

¹⁵⁸ AM. LIBR. ASS’N., GENERAL INTERLIBRARY LOAN CODE 2 (1952), *available at* <https://hdl.handle.net/2027/mdp.39015028136045>.

The uses anticipated in this comment fall within the spirit of 108 even if they aren't protected by its letter. Fair use exists precisely to fill such gaps.¹⁵⁹

II. The TEACH Act

The Technology, Education and Copyright Harmonization Act (“TEACH Act”) and 17 U.S.C. §112(f) both provide remote access to digitized materials, especially out-of-commerce materials like the software discussed in this Comment. These pieces of legislation indicate congressional intent to facilitate asynchronous learning and non-profit use of out-of-commerce digital works, underscoring the legitimacy of the proposed exemption.

The TEACH Act offers a copyright carveout for traditional classroom-style teaching that occurs remotely. Under the act, an accredited, non-profit educational institution may provide materials to students enrolled in a specific class for use in mediated instructional activities.¹⁶⁰ The TEACH Act establishes broad transmission permissions for synchronous or asynchronous learning, allowing enrolled students to engage with the works on their own time.¹⁶¹ The House Conference Report describes the TEACH Act as “remov[ing] the concept of the physical classroom while maintaining the requirement of mediated instructional activity and limiting the availability to 'accredited' non-profit institutions.”¹⁶² The TEACH Act has been described as “a clear signal that Congress recognizes the importance of distance education.”¹⁶³ With such a signal, the 1201 exemption should not disadvantage distance learners.

III. Music Modernization Act

Although this comment pertains to off-site software usage rather than music streaming, the recent Music Modernization Act (“MMA”) offers a significant indicium of congressional approval of noncommercial use of copyrighted materials. The MMA was introduced to allow the law on musical licensing and rights to “ke[ep] pace with the music industry to reflect changes in consumer preferences and technological developments.”¹⁶⁴ It created a blanket licensing system for digital music providers, partially incorporated pre-1972 sound recordings into the federal copyright scheme, and allowed music industry members to receive royalties for uses of

¹⁵⁹ See 17 U.S.C. 108(f)(4) (“Nothing in this section—in any way affects the right of fair use as provided by Section 107); H.R. REP. 94-1476 at 78–79 (1976) (“Nothing in section 108 impairs the applicability of the fair use doctrine to a wide variety of situations involving photocopying or other reproduction by a library of copyrighted material in its collections, where the user requests the reproduction for legitimate scholarly or research purposes.”).

¹⁶⁰ *The TEACH Act*, COPYRIGHT CLEARANCE CENTER (2011), <https://www.copyright.com/wp-content/uploads/2015/04/CR-Teach-Act.pdf>.

¹⁶¹ *Id.*

¹⁶² H.R. CONF. REP. 107-685 at 226 (2002).

¹⁶³ *Copyright: Distance Education and the TEACH Act*, AM. LIBR. ASS'N. <http://www.ala.org/advocacy/copyright/teachact/distanceeducation#context> (last visited Nov. 27, 2020), *archived at* <https://perma.cc/WJ6F-3LKU>.

¹⁶⁴ S. REP. 155-339 at 1 (2018), https://www.copyright.gov/legislation/mma_conference_report.pdf.

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 influence market demand. In part, these provisions were put into place to enable uses of “older recordings where it may not be clear...how to contact the rights owner to ask for permission.”¹⁷⁰ Per the Judiciary Committee Conference Report, “the concept of noncommercial use should be understood in the same way as under other provision of title 17, such as section 107, and includes uses such as teaching, scholarship, and research.”¹⁷¹ These provisions, in conjunction with the broad extension of §108(h) rights to libraries and archival institutions, support remote access of copyrighted works for noncommercial or scholarly purposes, where the works are not otherwise available. Like the songs that nonprofit institutions may stream under the MMA framework, the uses proposed in this comment involve out-of-commerce works, whose owners may be impossible to locate. Their provision causes no market harm because the software itself is obsolete. Finally, the objectives of teaching, scholarship, and research explicitly referenced by the judiciary committee underscore the importance of the preservation, research, and teaching facilitated by this exemption. The Act’s unanimous passage demonstrates broad consensus support for this comment’s objectives.

(C) Statutory Factors Support Granting an Exemption for Software Preservation

I. Software and Software-Dependent Material will be Unavailable without an Exemption

¹⁶⁵ *The Music Modernization Act*, COPYRIGHT OFFICE, <https://www.copyright.gov/music-modernization/> (last visited Nov. 6, 2020).

¹⁶⁶ *Id.*

¹⁶⁷ 17 U.S.C. §1401(f)(1)(A).

¹⁶⁸ 17 U.S.C. §1401(f)(1)(B).

¹⁶⁹ Andrew Flanagan, *A Music Industry Peace Treaty Passes Unanimously Through Congress*, NPR (Sept. 19, 2018) <https://www.npr.org/2018/09/19/649611777/a-music-industry-peace-treaty-passes-unanimously-through-congress>, archived at <https://perma.cc/JB5C-JPZJ>.

¹⁷⁰ S. REP. 155-339 at 25,

¹⁷¹ *Id.*

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 preservationists and libraries structure their services to meet the needs of their user base, the current exemption disincentivizes preservation work. If preservationists cannot meet the off-site access needs of their institutional patrons, they will not invest the time and resources to protect and maintain their software libraries. In a field where unique items can be lost in a matter of years, this incentive structure will lead to immense, irreversible loss of historically significant items.

For many researchers, their research with preserved materials is effectively untenable without an offsite exemption. With a handful of copies of some out-of-commerce titles existing globally, and those materials tied to a particular on-premise location if a TPM is circumvented, researchers often abandon projects or base their projects on widely-available software, resulting in duplicative research. In the context of the COVID-19 pandemic, preserved software has become unavailable to researchers *regardless* of whether their home institution has a copy of the materials. Because researchers cannot access their institutional libraries and use the materials on-site, their projects and teaching cannot move forward. Without an off-site exemption, software and software dependent-material will be lost, and valuable research will never be carried out.

II. The Exemption is Necessary and Targeted towards Increasing Availability for Archival, Preservation, and Educational Purposes.

The core purpose of this exemption is to allow preservationists to preserve, maintain, and increase availability of digital resources for research and educational purposes. As sharing of information has become increasingly dependent on software or digitized formats, it has become increasingly important for libraries, museums, and other archival institutions to provide offsite materials. Offsite access would untether preservationists from seeking out-of-commerce hardware to facilitate software preservation and allow them to use modern technologies, including emulation, designed to facilitate offsite access for preservation, research, and education activities.

Allowing preservationists to furnish these resources offsite will enable a flourishing of research and scholarship. Researchers will not be limited to the few collections that they can physically access and this media will be shared in the way it was intended – digitally, over the internet, with only the restrictions appropriate to the particular piece of media. Enabling researchers and scholars to access a wider range of materials will allow for a greater depth of cultural and scientific study of software materials rather than providing redundant research on the few digital materials that are widely accessible.

III. Prohibiting Circumvention for Software Preservation Impedes Criticism, Research, Teaching and Scholarship.

¹⁷² See *The 'Bit List' of Digitally Endangered Species*, DIGITAL PRESERVATION COALITION, <http://dpconline.org/ourwork/bit-list>, archived at <https://perma.cc/8MYV-AE6M>.

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 the vast majority of research institutions do not maintain robust software collections. Expecting researchers to travel to consult resources in person will artificially circumscribe their research agendas and limit the topics they investigate.¹⁷³ Frequently, if researchers face access difficulties, rather than expend financial resources to access materials, they will narrow the scope of their research or change topics entirely.¹⁷⁴ These restrictions favor well-funded projects over smaller, less-funded projects that cannot allocate funds to extensive travel and lead to limited scholarship studying different facets of the same works.

Education in the digital age increasingly relies on access to digital resources. On-campus education would benefit from remote access to materials because many libraries do not host classrooms where students could permissibly access software collections.¹⁷⁵ Additionally, in recent years, online learning has emerged as a viable affordable and flexible option for education. Millions of students enroll in online learning courses each year, and enrollment has grown since the COVID-19 pandemic shutdown many in-person classes. In 2017, 5.5 million undergraduate students enrolled in some form of distance education or online learning courses.¹⁷⁶ Graduate schools are increasingly embracing new technology and the flexibility online learning provides.¹⁷⁷ Given the online nature of the courses, distance learning requires greater access to digital learning resources. Kevin Driscoll, an educator at the University of Virginia has described that his classes have benefitted “tremendously” from institutions and organizations that provide remote access to software.¹⁷⁸ Without remote access to born-digital materials, students will be unable to access various educational tools or learn about the significant cultural and historical contributions of software artifacts.

IV. Circumvention of DRM in Software for Research, Teaching, and Preservation Purposes would have Limited, if any, Impact on the Market Value of the Software.

In previous rulemakings, rightsholders expressed concerns that users would use the exemption to avoid buying new software. But, as discussed in the 2018 comment, those concerns do not apply to out-of-commerce software. Preservationists, researchers, and educators are interested in

¹⁷³ Survey Response by Catherine Addington, University of Virginia.

¹⁷⁴ Survey Response by Catherine Addington, University of Virginia. See Survey Response by Phil Salvador, American University.

¹⁷⁵ Conversation with Robert Cartolano, Columbia University on November 10, 2020.

¹⁷⁶ Education Data Research, *Online Education Statistics*, <https://educationdata.org/online-education-statistics> (last visited Nov. 27, 2020), archived at <https://perma.cc/P6W2-AU6R>.

¹⁷⁷ See Yvonne M. Dutton et. al., *Assessing Online Learning in Law Schools; Students Say Online Classes Deliver* 96 DENVER U. L. REV. 494, 494 (2019) (providing several models of graduate school online curricula).

¹⁷⁸ Survey Response by Kevin Driscoll, University of Virginia.

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.¹⁸¹

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-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/> (last visited Nov. 27, 2020), archived at <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).

¹⁸¹ 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>, archived at <https://perma.cc/97E8-H62W>.

¹⁸² See NEW/MODE, https://info.gartnerdigitalmarkets.com/newmode-gdm-lp/?category=Political-Campaign&utm_source=capterra (last visited Nov. 27, 2020), archived at <https://perma.cc/5QWM-4HHC>.