

Vittorio Corbo

CS 3001, Spring 2023

Term Paper

The Preservation of Retro Video Games via Emulation

Introduction:

As video game hardware ages, its reliability and functionality can cease without external intervention and preservation. Moreover, deterioration is further accelerated video games dependence on the constant interaction with the console. In the case of the NES and SNES, games with saving functionality rely on physical batteries within the game cartridges. However, these batteries, as of 2023, are reaching their end of life. Therefore without external intervention, via the replacement of batteries, saving functionality cannot be had (Hill, 2021).

A solution to this has been the development of Emulators. Video games, unlike other mediums, are artifacts whose functionality is dependent on the hardware for which they were created. Movies can be ported from one medium to another, for example from film to digital, and consequently be reproduced without any additional external effort. Similarly, a video game can be ported onto a digital format through the use of a cartridge dumper. However, a game cannot then be run on the new hardware unless an emulation environment is developed to do so. Even though emulators are seen as imperfect copies of the original experience. They nonetheless provide *significant properties*, that is they provide a sufficiently similar experience, compared to the original hardware, that despite imperfections the gameplay experience is virtually the same

(Winget, 2011). Henceforth, similarly to how a photocopier is an acceptable way to preserve pictures, emulators have been adopted as a viable means of game preservation, especially when video games are no longer accessible (Newman, 2012).

Thus this paper aims to discuss the challenges of preservation through Emulation from both a technological and legal level, primarily concerning consoles from the first to sixth generation of consoles. As well as explaining why this kind of preservation is paramount to both culture and society. Finally, providing theoretical new ways video games can be emulated in the modern technological environment.

The Legality of Emulation:

In *Sony. v. Connectix*, the legal precedent was set for the legality of Emulation. The court saw Sony suing Connectix for the creation and the selling of the: Connectix Virtual Game Station. A piece of software that allowed Sony Playstation games to be played within the PC. The court case saw Connectix winning. The court saw that the reverse engineering required to develop the Emulator was protected by fair use under 17 U.S.C. §107. Moreover, the Emulator was deemed legal on the basis that its functionality was transformative, and thus offering a competing product for which Sony games could be played (Harvard, 2000). In conclusion, from this legal precedent, the creation and distribution of any type of Emulator is legal.

The Legality of ROM's:

A ROM file (Read Only Memory), pertains to the physical files that are contained within a video game cartridge or disk, or any type of storage, that a console or equivalent reads from to run the game. In other words, the ROM are the games files. While the legality of Emulation has a clear precedent, ROM's have two legal issues: the acquisition of ROM's and the distribution of ROM's.

Firstly, section 17 U.S.C. §117 of US copyright states that a user can make an additional copy for personal use (Cornell, 2023). This follows the precedent from *Sony v. Universal Studios* (1984), which states that a user can record a film, despite its length, for later use (Supreme Court, 2023). Thus it is legal to create a device to make such migration, moreover the act of migration is also legal. It must be noted that for the subject of video games, this transition is called: dumping. Despite this legal stance, in *NINTENDO VS BUNG ENTERPRISES*, Nintendo won the suit after BUNG created the Xchanger, a device that would dump Game Boy files to PC, by connecting a cable to the console (Staff, 2012). Nintendo won the suit in accounts that BUNG broke Digital Rights Management (DRM) measures, and moreover, violated 17 U.S.C. §106, in accounts that the owner of copyright has the exclusive rights to authorize the reproduction of copyrighted work (FindLaw.com, 2018). Thus the creation of the Xchanger was shown to be illegal (Fandom.com, 2023). Consequently, there are legal contradictions on whether video games can be dumped onto new formats. In the end, this puts cartridge dumpers inside a moral grey ground, where legally they are both legal and illegal at the same time, depending on the legal precedent used.

Secondly, the distribution of ROM's in the legal system is otherwise unambiguous. While it is legal to create copies of a user's owned media for personal use as previously shown. An owner cannot create further copies and distribute it to others, as that original copy is only for personal use. An example of this can be seen in Nintendo's repeated suits and takedown of ROM sites, whose creators distribute copies of ROM's illegally (Usaid, 2021). However, in 2001 a company called Console Classix offered an online service that works within this legality. Console Classix, allowed users to rent out ROM's online on an individual basis, similar to a service like Blockbuster. The owners would dump copies of cartridges, for example 3 copies of Super Mario Bros, and from there they would only share those 3 copies at a time until one user returned theirs, freeing up one slot for someone else to rent (Kyle Orland - Aug 21, 2018). Part of the design made it so the games would only be stored within the RAM of the user, thus the user would never actually have a physical copy they could store for later use. This service was found to be legal, after Nintendo backed off from pressing charges, after Connectix proved their legality via previous consultation with an expert. Overall, showing that the distribution of ROM's is only legal on the grounds that the sharing of copies can only happen within a one to one basis.

Arguments for Emulation:

The main argument for Emulation of Video Games relies on the role that these artifacts have to society and culture as a whole. Thus the preservation of games is seen as a preservation of human culture (Smith, 2022). For example video games are included within the Library of Congress. Video games thus serve as both a historic and academic record (Winget, 2011). However, games do not only serve as artifacts, but they also serve to create modern culture. For

example, the creation of Tool Assistant Speedrunning (TAS) is possible and existent because of Emulation (Newman, 2012). Moreover, many game developers have traced their origins developing games through the use of emulators and the modding tools. Hence, the removal of video game classics from distribution consists of a removal of cultural heritage (Harkai, 2022). As a whole Emulation exists as the main avenue to preserve culture in a world where video game hardware keeps forever aging.

Arguments against Emulation:

Despite third party Emulation considered to be legal. Due to the unclear legality surrounding the acquisition of ROM's, which is required to enable emulation, it therefore means that there is no clear legal way for which to constitute emulation. Consequently, the result of this can be seen with Nintendo's actions against ROM distribution sites (Usaid, 2021). Because the distribution of these ROM's does not only constitute a violation to copyright according to 17 U.S.C. § 106 but it also means that Nintendo is losing important business through such bad actors. Which can be seen through Nintendo's repeated winning of trials throughout the years. Nintendo as a rightsholder holds the rights to the production of copies regardless if the product is off the market. In addition to this, the modern video game market has created a business model built on the creation of remakes and remasters of old products. If a game were to be distributed beforehand it creates competition with the updated product (Newman, 2012). Therefore, the absence of a game from an emulation service can be a legitimate strategy from the rights holder to increase value to their new updated offering. Thus emulators, to rights holders, serve as unfair competition to their offering products. All in all, for a rightsholder the dumping and distribution

of ROMS constitutes a break in copyright and infringement of DRM; and thus emulation, due to relying on ROM's for functioning, constitute a transgression to these rights and protections.

Possible course of Actions for Video Game preservation

The rest of this paper constitutes the personal opinion of the Author, and entails possible solutions via the use of current laws.

Clarifying the Law

It must be prefaced that for preservation efforts to be possible the current ruling surrounding video game preservation must be amended. From my research I have found a plethora of articles all showing the struggles of video game preservation. Because the active ruling of the current legality is gravely hurting gaming preservation efforts (Smith, 2022). As moreover, in discourse people who are trying to emulate games are being constituted as pirates (Newman, 2012). Lastly, if things such as the grey areas surrounding the dumping of ROM's is clarified, then large scale efforts can be mounted within these set guidelines, to create standardized legal Emulation which should for all means exist.

Google ROM'S

A possible solution would be to adopt a similar stance as was found in Authors Guild v. Google. In the court case, Google offered a service in which people could view books online for free. However, Google was sued on accounts that they did not have the rights to certain books in their catalogue. This was done in the cases where the book was no longer available or the author could not be reached. Lastly, Google would only show snippets of these books. The court case

came out showing Google was victorious on all four articles of fair use: the work was transformative, the works were primarily non-fiction, snippets of books were used, sales were not impacted (Borghi & Karapapa, 2011).

From here we can see a possible solution emerge. Similar to Console Classix, a site could see Google being able to distribute ROM's and allow players to play snippets of games, similar to the DEMO modes found in Super Smash Bros games. Thus allowing games that are no longer available to be played, in spite of the service. It must be said that the intersection between the legality of both services is very unclear. It could be said that Google might not need to rent out games on a one to one basis. Because in the case of Google Books copies were created voiding copyright law. Moreover, such a service would only be allowed to rent out games in this fashion when the original game is out of production or access. In addition, it must be said that the second article for fair use would be voided by Google ROM's as the articles are fiction, thus the full legality of such a system is still dubious.

Another thing that must be brought about such a service is that it would finally allow games to be played, due to the myriad of complications and licensing agreements that videogames are subject to (Lee, 2018). For example, games like GoldenEye were barred from re-release due to the complex holdings rights of games, not due to limited popularity. Thus such a service would be further transformative thanks to its use for preservation.

Lastly, this would allow games that would have never seen the light of day to get a chance in the spotlight. Because video games as a medium have grown exponentially since its

early days (Winget, 2011). Hence it is unfair that due to its limited scope for games to be barred to those few who could own them back in the day. Consequently, such a service would allow all modern game audiences to have access to video game history where nowadays it is only a select few who can legally do so. Nonetheless, this is why despite complications, such a service like Google ROM's could theoretically work within modern copyright law. Especially given the previous legal precedent from this analysis.

Conclusion:

Overall, as video games keep aging and their prevalence in society keeps increasing with their rapid mass adoption, measures must be created to enable game history to be preserved and be available to society at large through emulation. This must be done albeit by balancing the rights of copyrights holders, as otherwise it would stifle innovation and creativity in the industry. Finally, allowing the pervasive use of Emulators, and all its constituent parts, in a legal manner, for preservation.

References

- Winget, M. A. (2011). Videogame Preservation and massively multiplayer online role-playing games: A review of the literature. *Journal of the American Society for Information Science and Technology*, 62(10), 1869–1883. <https://doi.org/10.1002/asi.21530>
- Newman, J. (2012). Illegal deposit. *Convergence: The International Journal of Research into New Media Technologies*, 19(1), 45–61. <https://doi.org/10.1177/1354856512456790>
- Lee, Y. H. (2018). Making videogame history: Videogame preservation and copyright law. *Interactive Entertainment Law Review*, 1(2), 103–108. <https://doi.org/10.4337/ielr.2018.02.03>
- Borghi, M., & Karapapa, S. (2011). Non-display uses of copyright works: Google books and beyond. *Queen Mary Journal of Intellectual Property*, 1(1), 21–52. <https://doi.org/10.4337/qmjip.2011.01.02>
- Kyle Orland - Aug 21, 2018 4:30 pm U. T. C. (2018, August 21). *Rom sites are falling, but a legal loophole could save game emulation*. Ars Technica. Retrieved March 31, 2023, from <https://arstechnica.com/gaming/2018/08/can-a-digital-lending-library-solve-classic-gaming-s-piracy-problem/>

FindLaw.com - 17 U.S.C. § 106 - U.S. Code - Unannotated Title 17. Copyrights § 106.

Exclusive rights in copyrighted works - last updated January 01, 2018 |

<https://codes.findlaw.com/us/title-17-copyrights/17-usc-sect-106/>

Smith, N. (2022, January 14). *Academics want to preserve video games. copyright laws make it complicated.* The Washington Post. Retrieved March 31, 2023, from

<https://www.washingtonpost.com/video-games/2022/01/12/video-game-preservation-emulation/>

Harkai, I. (2022). Preservation of video games and their role as Cultural Heritage. *Journal of Intellectual Property Law & Practice*, 17(10), 844–856.

<https://doi.org/10.1093/jiplp/jpac090>

Hill, A. (2021, June 16). *SNES battery replacement for games that won't save.* Howchoo.

Retrieved April 13, 2023, from

<https://howchoo.com/nintendo/snes-cartridge-game-save-battery-replacement>

Harvard. (n.d.). *Sony Computer Entertainment, inc. v. Connectix Corporation.* cyber

harvard edu. Retrieved April 13, 2023, from

<https://cyber.harvard.edu/people/tfisher/IP/2000%20Sony%20Abridged.pdf>

Supreme Court. (n.d.). *Sony Corp. of America V. Universal City Studios, Inc., 464 U.S. 417 (1984).* Justia Law. Retrieved April 13, 2023, from

<https://supreme.justia.com/cases/federal/us/464/417/>

Staff, I. G. N. (2012, June 18). *Nintendo Beats Copy device.* IGN. Retrieved April 13,

2023, from <https://www.ign.com/articles/1999/12/24/nintendo-beats-copy-device>

Nintendo of America v. bung enterprises. The IT Law Wiki. (n.d.). Retrieved April 13, 2023, from https://itlaw.fandom.com/wiki/Nintendo_of_America_v._Bung_Enterprises

fandom.com. (2023). *Nintendo of America v. bung enterprises*. The IT Law Wiki.

Retrieved April 13, 2023, from

https://itlaw.fandom.com/wiki/Nintendo_of_America_v._Bung_Enterprises

Usaid. (2021, August 17). *Nintendo permanently shuts down a ROM site after heated legal disputes*. GamingBolt. Retrieved April 13, 2023, from

<https://gamingbolt.com/nintendo-permanently-shuts-down-a-rom-site-after-heated-legal-disputes#:~:text=As%20reported%20by%20VGC%2C%20a,and%20distributing%20Nintendo's%20copyrighted%20properties.>