

# Preserving and Emulating Australian Made Videogames of the 1990s

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## **ABSTRACT**

In this presentation, we detail the successes, difficulties and limitations we have encountered in preserving and emulating a curated selection of 50 game titles.

## **Keywords**

Videogames, Emulation-as-a-Service Infrastructure, EaaS, software preservation, emulation, disk imaging, Australia

## **INTRODUCTION**

This presentation reflects on our experience disk imaging and emulating a selection of Australian videogames in the “Play It Again: Preserving Australian video game history of the 1990s” project. This three-year project was funded by the Australian Research Council as a Linkage Project, in recognition of the fact that games have been a neglected area of screen history and that retaining continuing access to historic games requires concerted digital preservation efforts. The project is a collaboration with two Partner Organisations, ACMI (the Australian Centre for the Moving Image) and AARNet (Australia’s Academic and Research Network). In the project, we have sought to document, preserve, and exhibit the history of Australian made videogames of the 1990s. The preservation aspect of the project has two major parts. The first part is to create digital images from the physical media carrying the game software. The second part is using Emulation-as-a-Service Infrastructure (EaaS) and other open-source emulators to make the games playable again. In this presentation, we detail the successes, difficulties, and limitations we have encountered in preserving and emulating the curated selection of 50 game titles.

The selected games were for several platforms – DOS, Windows 3.11, and Windows 98 PCs; Amiga; Nintendo Game Boy, Nintendo Entertainment System, and Super Nintendo; and Sega Saturn. The software was carried on 3.5-inch floppy disks, CDROMs, and cartridges – each requiring their own special tools to be digitized.

The Digital Heritage Lab at Swinburne University of Technology has gathered a variety of tools for making disk images, many of which are hobbyist creations. As such, though they work well, their availability and support are tenuous. Various troubles occur such as the hobbyist loses interest or electronic parts are no longer available to build more of the original disk imaging tools, forcing a redesign.

Using these images in emulators is the next step. Our project committed to using and evaluating Emulation-as-a-Service Infrastructure (EaaSI), a project originating in Freiburg Germany, and developed by the Software Preservation Network and Yale University in the United States (SPN 2020). The project has played a significant role in testing and developing the potential of a local infrastructure, The Australian Emulation Network (Swalwell.2022). Among other things, the implementation of an Australian EaaSI makes it possible to share configured environments of playable software with our partner, ACMI, and to make games playable in a browser on the open web (rights permitting) or in a museum intranet setting (Rechert et al. 2017).

There are currently some limitations to the EaaSI platform. Currently, EaaSI has DOS and Windows emulators, as well as one for the Nintendo Game Boy. It does not yet have emulators for the other consoles in our project. It also does not have an Amiga emulator yet. So we have turned to the lively world of hobbyist emulators to render the remaining titles. This, however, makes it more difficult to share these configured environments with our partners. The difficulty makes evident the great advantage of EaaSI, which skips over the complicated parts of choosing, installing, and learning how to use individual emulators, which carries a large learning curve. The addition of further emulators to EaaSI should resolve this problem in the future.

The final difficulty with emulating videogames of the 90s is the same problem PC gamers faced back then. Each game has different requirements for the configuration and performance of the PC, particularly sound cards and graphics cards, which now also require their own emulators. Not every graphic card is emulated yet, and it shows in the poor performance of particularly driving games. Other games were difficult to configure, such as the DOS game “The Dame Was Loaded” (1996), which has a lot of live action video. Troubleshooting using DOSBox and other emulators, as well as working vintage hardware has helped with comparing and optimizing emulators performance.

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**Proceedings of DiGRA 2023**

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