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Handling Complex Media

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Emulating the Simulate City: SimCityClassic

Video and computer games are a universal American pastime for those growing up in the late 20th century—if you were a human being born after 1975 in the US, you more than likely have played a video game at least once in your life. There are many terms that can be used interchangeably for this type of moving image media; however, this paper shall refer to them as “digital games”, as there are many game titles that existed not only as a “video game”, but also as a “computer game”, and now perhaps as an “iPhone app”.

One such digital game was “SimCity”. SimCity was created by Will Wright and was inspired in part by the video game THE RAID OF BUNGELING BAY. Initially he built it for Commodore 64 in 1985, but it did not get published until 1987. Wright started a company called Maxis with Jeff Braun, and under this company SimCity was published for Macintosh and Amiga by Broderbund, then quickly followed by a version for PCs and the original version for Commodore 64.¹

As it has spurred several sequels and spin-off computer games, it is now also known as SimCity Classic. It was such a success that its first sequel, SimCity2000, was released in 1994. SimCity2000 became the highest-selling game for a year and a

¹ *Inside Scoop: SimCity.com*. Electronic Arts, Inc. 2010
[http://simcity.ea.com/about/inside_scoop/sc_retrospective.php].

half.² The other sequels in the SimCity line were SimCity3000, SimCity4, SimCity DS, SimCity Societies, SimCity Creator, and SimCity DS 2.³ There were many versions of SimCity on many different platforms:

Amiga platform: V1.0 (1989); V1.1 (late 1989); V1.2, V1.3 (both 1990).

Atari ST platform: Version 1.0 released in North America in 1989

Commodore 64 platform: Version 1.0 released in North America in 1989

Macintosh platform: Version 1.0 released in North America in 1989

IBM PC platform: MS DOS version released in North America in 1989; CD-ROM version released in North America in 1994; Windows version released in North America in 1992

Super NES platform: Released in Japan in April 1991, North America in August of 1991, and in Europe in 1992⁴

These seem to be the oldest and most important versions of the digital game SimCity released in the United States, so this paper will focus on them. The reason why this paper focuses on the United States is due to the fact that more than likely any collecting institution in the US would only collect and preserve these versions. It should be noted, however, that there are other many SimCity versions: a Japanese version for the Fujitsu FM Towns computer, one for the Archimedes/RiscOS, European versions for Amstrad CPC, BBC Micro, Acorn Electron, and ZX Spectrum platforms, a version for Unix/X-Windows, OS/2, Amiga CDTV, Amiga CD-32, Psion,

² *Inside Scoop: SimCity.com*. Electronic Arts, Inc. 2010
[http://simcity.ea.com/about/inside_scoop/sc_retrospective.php].

³ *SimCity*. Wikipedia. Last modified March 14, 2010 [<http://en.wikipedia.org/wiki/SimCity>].

⁴ *Gamespot- SIMply Divine*. CBS Interactive, Inc. 2010
[<http://www.gamespot.com/features/maxis/index.html>].

PalmOS, and an iPhone application.^{5 6} The game has also been released as an online version called “SimCity Classic”, and can only be played on Windows 95/98 or Windows NT with either Microsoft Internet Explorer 3.0 or higher or Netscape Communicator/Navigator 4.0 or higher.⁷

ANATOMY AND BEHAVIOR OF WORK

SimCity was a commercial computer game intended for entertainment purposes, but it was also used in the classroom.⁸ It is a “system simulation” digital game, which are games that are based in the “real world”. It simulates various scenarios and objectives that require critical thinking, with a balance of reward and conflict that the player must interact with.⁹ As opposed to most computer games existing at the time it was created (including the game that inspired Will Wright), SimCity did not involve violence and had no set winner or loser. It was focused around the concept of city planning and building, with the user being designated the Mayor of his/her respective city.¹⁰

The main objective is to create and successfully maintain a city. The user, or Mayor of the city, decides where to put commercial, residential, and industrial zones, along with setting tax rates, building power plants and public transportation,

⁵ *SimCity iPhone App Review - AppVee.com*. Youtube. Posted December 17, 2008 [<http://www.youtube.com/watch?v=qLBGPeVgX0w>].

⁶ *SimCity (1989)*. Astoria Theodor Lauppert’s Homepage. Last modified June 24, 2008 [<http://members.chello.at/theodor.lauppert/games/simcity.htm>].

⁷ *Classic Live: SimCity.com*. Electronic Arts, Inc. 2010 [http://simcity.ea.com/play/simcity_classic.php].

⁸ *Inside Scoop: SimCity.com*. Electronic Arts, Inc. 2010 [http://simcity.ea.com/about/inside_scoop/sc_retrospective.php].

⁹ *Analytics: The Science of Logical Analysis*. Blogger. January 1, 2008 [<http://www.amit-deshpande.com/2008/01/simulation-games-1-definition.html>].

¹⁰ *Inside Scoop: SimCity.com*. Electronic Arts, Inc. 2010 [http://simcity.ea.com/about/inside_scoop/sc_retrospective.php].

and many other things. They also have to deal with natural disasters, monsters attacking their city, and other randomly generated events.¹¹ Typically all SimCity games began with one player only, and one of the first mayoral actions is generally to build a power plant, followed by roads and other means of transportation, zones of industry, commerce, and residential areas; then the tax rate for the city is established. Depending on the player's strategy, the city develops negatively or positively due to traffic, pollution and land value. To build anything costs money, and the player only has a specific allotment.¹² Each version had its own unique behaviors that generate the responses to decisions by the Mayor as well as to the randomly generated events.

The software and hardware needed to play the game are dependent upon the chosen game version and platform. If one were trying to preserve all of the personal home computer platform versions, one would need a computer running on the appropriate operating system, a mouse, keyboard, and the physical CD-ROM or floppy disc software of the game. However for the Super NES version, one would need the Super NES console, a television monitor, Nintendo AV cables, and an input device such as a Super NES controller. It is important to know about the computers technical specifications when preserving digital games. The following are the SimCity versions:

Amiga OCS (Original Chip Set)¹³

¹¹Gamespot- *SIMply Divine*. CBS Interactive, Inc. 2010

[<http://www.gamespot.com/features/maxis/index.html>].

¹² *SimCity Amiga*. Hall of Light Database. 1998-2010[<http://hol.abime.net/1928>].

¹³ *Amiga SimCity*. Youtube. Posted November 4, 2007

[http://www.youtube.com/watch?v=lzHVcvZw_7Q&feature=Playlist&p=68E003BE433AD889&playnext=1&playnext_from=PL&index=75].

- Amiga OCS made by Commodore in 1985
- Computer specs -- resolution: 320 x 256 x 32 colors, 640 x 512 x 16 colors 12 bit palette memory: 0.5Mb CHIP CPU: 68000 minimum GFX: MOS 8362R6 'Denise', graphic coprocessor 'Agnus' sound: MOS 8364R4 'Paula' 4 channels 8bit stereo¹⁴
- Game came on 3.5" Floppy Disc; first released in 1989¹⁵

Atari ST ¹⁶

- Game released in 1990
- Used GEM interface
- ST stands for 16/32 bits
- TOS operating system
- Display 320x200 pixels, 50/60Hz, 16 colors from palette of 512 (4096 on (Mega)STe/TT030)
- Game came on 3.5" Floppy Disc

Commodore 64 ¹⁷

- Will Wright's original version
- Game came on 3.5" Floppy Disc
- Computer released in 1982

¹⁴ *Amiga OCS*. UVL Games.1998-2010 [<http://www.uvlist.net/platforms/detail/1-Amiga>].

¹⁵ *SimCity Amiga*. Hall of Light Database. 1998-2010 [<http://hol.abime.net/1928>].

¹⁶ *Atari ST TT Falcon*. Atari Mania. 2003-2009 [<http://www.atarimania.com/atari-st-tt-falcon.html>].
SimCity (1989). Astoria Theodor Lauppert's Homepage. Last modified June 24, 2008 [<http://members.chello.at/theodor.lauppert/games/simcity.htm>].

¹⁷ *Commodore 64 Computer System Review*. Youtube. Posted October 16, 2009 [<http://www.youtube.com/watch?v=cP4zuV2szYU>].

SimCity (1989). Astoria Theodor Lauppert's Homepage. Last modified June 24, 2008 [<http://members.chello.at/theodor.lauppert/games/simcity.htm>]

- 64 kilobytes (65 536 bytes) of memory with sound and graphics that many considered the best of its period

Macintosh¹⁸

- First Mac computer released in 1984
- First personal computer to have a mouse and graphical user interface
- Game came on 3.5" Floppy Disc

IBM PC

MS DOS¹⁹

- Operating system for x86 computers
- MS DOS released in 1981
- Game came on 3.5" Floppy Disc

CD-ROM for DOS²⁰

- Game came on a compact disc
- Data CD-ROM for digital games is called "enhanced CD"

¹⁸ *History of Mac Games*. Youtube. Posted June 20, 2009 [<http://www.youtube.com/watch?v=Na-i8kipFmc>].

SimCity (1989). Astoria Theodor Lauppert's Homepage. Last modified June 24, 2008 [<http://members.chello.at/theodor.lauppert/games/simcity.htm>].

¹⁹ *SimCity DOS Gameplay*. Youtube. Posted June 6, 2009 [<http://www.youtube.com/watch?v=FKZ75uZqoMA&feature=related>].

SimCity (1989). Astoria Theodor Lauppert's Homepage. Last modified June 24, 2008 [<http://members.chello.at/theodor.lauppert/games/simcity.htm>].

The Unusual History of Microsoft Windows. About.com.

2010 [<http://inventors.about.com/od/mstartinventions/a/Windows.htm?rd=1>].

²⁰ *SimCity Enhanced CD-ROM*. Ebay. 1999-2010 [<http://www.mobygames.com/game/simcity-enhanced-cd-rom>].

SimCity Action News. Youtube. Posted April 12, 2007

[<http://www.youtube.com/watch?v=Fo0L3QqLAK0>].

SimCity Action News Disco Fire. Youtube. Posted April 12, 2007

[http://www.youtube.com/watch?v=6_jaC20wtYs&NR=1].

SimCity Civilians Peek-Bored. Youtube. Posted on April 6, 2008

[<http://www.youtube.com/watch?v=Q16ak0zktWI>].

SimCity (1989). Astoria Theodor Lauppert's Homepage. Last modified June 24, 2008

[<http://members.chello.at/theodor.lauppert/games/simcity.htm>].

- Released in 1985

*Windows*²¹

- Operating systems by Microsoft
- Released in 1985 as an add-on to MS-DOS for a better graphical user interface
- Game came on 3.5" Floppy Disc

Super NES²²

- Nintendo's 16-bit video game console
- Game came on ROM cartridge

SIGNIFICANCE

This was one of the first “system simulation” computer games, also known as the genre of “god games”.²³ SimCity has been included on several lists as one of the most important and favorite digital games of all time. It is listed as one of the best by German gaming journalists,²⁴ IGN reviewers,²⁵ and is on the SIG Digital Game

²¹ *SimCity for Windows*. Computer Archive. February 1993
[http://www.atarimagazines.com/compute/issue149/112_SimCity_for_Windows.php].

SimCity (1989). Astoria Theodor Lauppert's Homepage. Last modified June 24, 2008
[<http://members.chello.at/theodor.lauppert/games/simcity.htm>].

²² *SimCity*. SNES Guide Gameplay Archive. 2006-2010 [a href="http://super.nesguide.com/games/simcity/">http://super.nesguide.com/games/simcity/].

²³ *Classic Live: SimCity.com*. Electronic Arts, Inc. 2010
[http://simcity.ea.com/about/inside_scoop/sc_retrospective.php].

²⁴ *German Journos Pick Their Most Important Games of All Time*. Kotaku. August 27, 2007
[<http://kotaku.com/gaming/notag/german-journos-pick-their-most-important-games-of-all-time-293565.php>].

²⁵ Top 25 PC Games of All Time. IGN. August 6, 2009
[<http://pc.ign.com/articles/101/1011624p1.html>].

Canon.²⁶ In 1998, the Guinness Book of World records named SimCity the best-selling computer game of all time.²⁷

COMMUNITY

In 2008 the original source code of SimCity was released to the public under the GNU General Public Library (GPL). Due to rights restrictions, the source code does not refer to “SimCity” at all, but to its original name, “Micropolis”.²⁸ The Internet Archive uses the migration approach of creating videos of playing digital games and then posting these online to allow downloading and user-added metadata and tags, but there are no videos of SimCity.²⁹ However there are several such videos on Youtube, including many that have been used in researching this paper.³⁰ The copyright owner, Electronic Arts, has created a website for all of the SimCity gamers to come together and share their cities, both old and new, however it mostly deals with SimCity 3000.³¹

²⁶ *Game Preservation SIG/Digital Game Canon*. IGDA Wiki. Modified January 2010

[http://www.wiki.igda.org/Game_Preservation_SIG/Digital_Game_Canon/].

²⁷ *SimCity Review*. Atari Legend. July 21, 2002

[http://www.atarilegend.com/reviews/reviews_games.php?game_id=442&review_id=28&PHPSESSID=695ab9347d751771f68e89e269db4cb6].

²⁸ *SimCity Source Code Released*. Fear and Loathing weblog. January 10, 2008

[<http://weblogs.asp.net/bsimser/archive/2008/01/10/simcity-source-code-released-to-the-wild-let-the-ports-begin.aspx>].

²⁹ Search results for “SimCity”. Internet Archive [<http://www.archive.org/search.php?query=SimCity+AND+collection%3Agamevideos>].

³⁰ Search results for “SimCity Classic”. Youtube.

[http://www.youtube.com/results?search_query=SimCity+Classic&search_type=&aq=f].

³¹ *SimCity*. Electronic Arts. 2010

[<http://simcity3000unlimited.ea.com/us/simexchange/index.phtml>].

There are many emulators available for SimCity on the Internet.³² Emulators can be contained in software, hardware, or a combination of both.³³ There are also many game reviews from the time of SimCity's release and videos on the Internet of game play for each version: these items will help in the evaluation of SimCity emulators.

IMPORTANCE OF COMPONENTS

The components of any digital games are important, and SimCity is no exception. There is a unique relationship between the interaction of the user, the software, the hardware, the design, and the culture and society from the time period in which the game was made.³⁴ In order to play SimCity as it was in 1990, it is important to reproduce as many of these components as possible, and as authentically as possible. Complete reproduction is not possible, but remains a good goal to have.

RIGHTS AND AUTHENTICITY

Thanks to the Digital Copyright Millennium Act, archives can make copies of digital games when the formats that are required to play them have become obsolete, and when a library or archive is copying the games only for preservation purposes.³⁵

³² Search results for "SimCity classic emulators".

Google[<http://www.google.com/search?client=firefox-a&rls=org.mozilla%3Aen-US%3Aofficial&channel=s&hl=en&source=hp&q=simCity+classic+emulators&btnG=Google+Search>].

³³ *The History of Emulation*. Zophar's Domain. 1999[http://www.zophar.net/articles/art_14-3.html].

³⁴ Gooding, Paul and Melissa Terras. "Grand Theft Archive: A Quantitative Analysis of the State of Computer Game Preservation." *The International Journal of Digital Curation*. Issue 2, Vol. 3. 2008. 22.

³⁵ "Grand Theft Archive". 21.

SimCity is owned by Electronic Arts.³⁶ There is a free source code version available, but several things have been changed: it is called Micropolis due to rights issues with Electronic Arts, and a scenario where a plane crashes into a building has been removed due to the real world terrorist attacks in New York City on September 11, 2001.³⁷ This is obviously not an authentic version of the original SimCity game and should not be preserved as such.

PRESERVATION

Video games such as SimCity are in great danger of disappearing. There needs to be more of a focus on trying to convince game producers that they need to help in the preservation efforts or else they will lose the historical evolution of their intellectual property.³⁸ Some of the issues that can cause video games to disappear are bit rot, obsolescence, physical contamination, and lack of industry and copyright law support.³⁹

Bit rot is the decay of digital information over time, something which magnetic storage devices and optical discs are prone to. Floppy discs are especially vulnerable: studies have shown that floppy discs as young as ten years old have already become unreadable.⁴⁰ Obsolescence occurs when newer formats for video games replace the old ones, and there is no longer financial or technical support for

³⁶ *SimCity Societies: Home*. Electronic Arts. 2010 [<http://simcitysocieties.ea.com/index.php>].

³⁷ *SimCity Source Code Released*. Fear and Loathing weblog. January 10, 2008 [<http://weblogs.asp.net/bsimser/archive/2008/01/10/simcity-source-code-released-to-the-wild-let-the-ports-begin.aspx>].

³⁸ *Before It's Too Late: A Digital Game Preservation White Paper*. Game Preservation Special Interest Group, International Game Developers Association. March 2009, 1.

³⁹ *Before It's Too Late*, 2-6.

⁴⁰ *Before It's Too Late*, 3.

these old formats. Physical contamination includes scratches, dirt, and chemical deterioration (for example, when a CD's dyes fade).⁴¹ Lastly, the lack of industry support is vital because currently the most accurate ways to preserve video games, through migration and emulation, are illegal due to copyright and intellectual property right laws. Digital Rights Management (DRM) that may be included in the games' structure to prevent piracy also prevents copying for preservation purposes. If an archive wanted to preserve SimCity, they would have to illegally override the DRM on most of the versions in order to emulate or migrate the content.⁴²

Any preservation focus should be initially on the versions of SimCity on the Macintosh and Amiga platforms as they were the first to be published and released. Then the Commodore 64 version should be targeted as this was how it was initially built, and finally the PC versions, as they were the latest developed.

Emulators are the best way to preserve the visuals, sounds, and interactivity of SimCity. For video game consoles, only one emulator has to be written for all the games on it to play: therefore the Super NES SimCity version only needs a Super NES emulator to play it.⁴³ However, studies have found that emulators dedicated to specific software preserve the game content and characteristics better. Tests should be undertaken for the different versions of SimCity and whichever emulator preserves the digital game content best should be preserved. Despite its lack of

⁴¹ *Before It's Too Late*, 2-6.

⁴² *Before It's Too Late*, 6-7.

⁴³ Becker, Christoph and Mark Guttenbrunner, Carmen Kehberg, and Andreas Rauber. "Evaluating Strategies for the Preservation of Console Video Games." Vienna University of Technology [<http://www.ifs.tuwien.ac.at/dp>], 3-7.

interactivity, videos should be created of game play, and these and others already created should also be preserved as a back-up approach.

The original SimCity is a classic digital game; its several iterations should be preserved by a collecting institution. Such a project would be a huge undertaking, but it is possible through documentation, acquisition of primary resources, and emulation. Although digital game archiving is in its infancy, there are several moving image archiving best practices that can be followed to great benefit. It should not just be left to gamers to preserve such games for their own interest or nostalgia's sake; important aspects and characteristics of significant digital games may be lost forever if defined archiving and preservation processes are not the standard for preserving this cultural phenomenon.