Raiders of the Lost Duke:
Video Game Source Discs at the LOC

David Gibson
MBRS, Library of Congress
Digital Preservation 2014
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Some facts about the collection…

- MBRS custodial division since 2006
- ~ 2500 video games
- ~ 1600 strategy guides
- ~ 1100 periodicals
- 13 gaming platforms
- Source code excerpts
- DVDs and VHS of gameplay
Some background on *Duke Nukem: Critical Mass*

- Developed by Apogee Software
- Scheduled for release in 2009 as the first part of a trilogy
- PSP and Nintendo DS versions – different narrative and mechanics
- PSP version never released, DS version released in June 2011
What we received:
Duke Nukem: Critical Mass (PSP)

Type of Work: Computer File
Registration Number / Date: PAu003496314 / 2010-11-08
Application Title: Duke Nukem: Critical Mass (PSP)
Title: Duke Nukem: Critical Mass (PSP)
Description: Videodisc (DVD+R)
Copyright Claimant: Apogee Entertainment, LLC d.b.a. Apogee Software. Address: 5702 Highgate Lane, Rowlett, TX, 75088, United States.
Date of Creation: 2010

Authorship: Entire video game; computer code; artwork; and music.

Rights and Permissions: Dan Lutter, 5702 Highgate Lane, Rowlett, TX, 75088, United States, (847) 816-7552, danl@apogeesoftware.com
Copyright Note: C.O. correspondence.

Names: Apogee Entertainment, LLC
Apogee Software
When I put the disc in my computer, I found:

I WAS STOKED!

especially about this

I WAS STOKED!
A quick look at the file directory…

PSP_GAME
|--SYSDIR
| |--Update
| |--BOOT
| | |--boot.bin (holds compiled binaries and ASCII text)
| |--EBOOT (nothing)
| |--OPNSSMP (nothing)
|--USRDIR
| |--data
| | |--cutscenes
| | | |--cut_##
| | | | |--models (.gmo files) - ojbdefault.gmo
| | | | |--pictures (.gim files)
| | |--fonts
| | |--levels
| | |--music (full of .at3 files)
| | |--SD (title screen logos and music)
| | |--selector
| | | |--shared_data
| | | |--shared_models (lots of .gmo files - 3d models - animated gifs come from here)
| | | | |--shared_pictures (lots of .gim files - texture files / jpegs come from here)
| | | | |--sounds
| |--ICON0
| |--PARAM.SFO
• 1,968 files
• 28 different file formats – many proprietary

.at3 .phy .gmo .bin .nps
.gso .mpb .mpd .pmf .gss
.drs .bbs .sfo .fss
.pss .lay .mpt .ind .mpl
.cus .gim .pus .chr
So, now what…

• Met with Packard Campus software developer, Matt Derby
• Pulled files off of DVD submission
• Found asset files in PSP_GAME folder in USRDIR subdirectory
• Standard folder structure for UMD authoring
• How to get access to proprietary files?
HOMEBOREW!!!

The Señor is dead.

Casaroja is no longer. Noesis may still be on Rich's personal site.

Just one problem...
Working with Noesis gave us access to the .gim and .gmo files....

.gim files include textures and still images – specific to PSP
.gmo files include 3D models

Duke & his jetpack
Rat
Sniper Pig
Used mediacoder to convert .at3s to MP4, and VLC to convert MP4 to MP3.

mediacoder provided technical metadata for .at3 files:

- Atrac3
- 128 Kbps
- 44.1 kHz
- 2 channel

and .vag files:

- spdifaac encoded in AAC container
- 758 Kbps
- 48 kHz
- 2 channel
Used hex editor to open boot.bin in order to see ASCII text for the game

Folder contains compiled binaries and ASCII text of code, credits, and dialogue from the game
Obstacles moving forward

- Reliance on homebrew community to get access to proprietary files
- No infrastructure in place for researcher access
- Difficulties in cataloging unpublished software
- Reluctance on the part of game companies to send in source discs/code
But it’s not all bad…

• Ability to preserve an unreleased game in its pre-compiled state
• Opportunity to provide researchers access to game mechanics/layers of game design
• Source discs for unreleased or digitally distributed software titles
• Fits in with the recommended format specifications
Thanks to Matt Derby, Packard Campus Software Developer, for his assistance with this presentation.
For more info on video games @ the LOC, contact:

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