

SANCTUARY

DVD Demo Design Document



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This document is a design specification for a re-mixable film prototype developed by MOD Films and partners. It assumes some familiarity with standard film and interactive entertainment terminology. Where a term implies different things to different industries (e.g. "development"), console game industry definitions are assumed.

NOTE: Throughout the document, the acronym "CD" refers to the film character, not to "Compact Disc", unless otherwise stated. "Sanctuary" refers to the interactive software product, not the traditional (cinematic) version.

NOTE: The Sanctuary Wiki¹ is the definitive reference for project developers.

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¹ <http://modfilms.com/twiki/bin/view/Sanctuary/WebHome>

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1 Overview

1.1 In one sentence

Sanctuary is a “**re-mixable film**”, a home theatre software product that plays a particular film but also arbitrary games and other programmatic experiences downloaded from an online “**film world**”, or digital asset library.

1.2 Intro

A re-mixable film is a film that is wider than long. It can be messed with by audiences, creatively and technically, without breaking the law. A library of film assets and subsequent modifications to the original film (MODs) form a rudimentary *persistent world* that is accessed via a software client on the film DVD. Audience contributions are encouraged, like fan fiction

Sanctuary is our prototype re-mixable film - a live action comic book that introduces a hero that breaks the law and messes with virtual worlds run by “The State”.

Casual users play with pre-installed MODs or use their Internet connection to access the most popular new MODs like channel-surfing interactive TV. More active users can contribute content and help run the film world itself.

Under the hood, *Sanctuary* is a media player (a client application) that accepts plugins and upgrades from an online media server local store of digital film assets. Arbitrary modes of use can be created alongside three default ones.

- Cinema Mode (“just watch the film”)
- Browser Mode (“explore the bits and bobs that make up the film”)
- Feeder Mode (“download and install a popular MOD”).

Regular film viewers can enjoy this new paradigm without effort. By default, the title runs in Cinema Mode. This is an interactive title that you don't have to interact with. Film MODs can be loaded (“fed”) into *Sanctuary* without specialist knowledge.

Sanctuary is not a game but it can be used to launch games, if they are packaged and published to the community as MODs.

MODs can be passive (e.g. a re-edit of the film) or interactive (e.g. a game based on the film). The film-maker throws the gauntlet down to anyone who wants to mess with the passive experience provided by Cinema Mode.

This design enables a successful film world to be gradually expanded as MMOG architecture (e.g. World of Warcraft) over time in response to interest in the original work of whichever scale. It provides a way for film and game companies to experiment with new experiences around their IP.

1.3 Design goals

- Facilitate access to new and derived content - “viewer is king”
- Employ simple navigation - “channel surfing”
- Support multiple plug-in architectures - “flexible film framework”

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- Support scripting – “mash-up narratives”
- Encourage competition – “create the #1 MOD”

1.4 Genre

Sanctuary is a "Lifestyle Entertainment" title that encourages fun casual use.

1.5 MOD Films Glossary

Terminology as used on this project. More general computing terminology is covered by [FOLDOC](#).

<u>Term</u>	<u>Definition</u>
AGENT	Software that functions autonomously to perform functions on behalf of a person.
ASSET	Digital media files used within a real-time re-mixable film environment
CMS	Content Management System
CODE	Software
CREATIVE COMMONS	Online resource developing an intellectual commons in the form of new licenses that make it easier to build on other people's existing work and develop new ways to collaborate
CUT	Another word for linear Sequence. Film Jargon to refer to a specific edit of a film. As in "Final Cut". Used in DemoTask2 and DemoTask3
ELEMENT	Media files used within the original film production. Assets are derived from Elements (e.g. MPEG2 file from 35mm celluloid film)
ENGINE	As in 3D engine. Code which plays the film in real-time from a library of assets.
FEEDER	Online input/output module for the RIG
Film MOD	A MOD that supplies a cut description and also, optionally, media.
Film World	The online persistent world component to a film. A cross between "official film site" and MMORPG.
FLIC	Flexible light interactive content or just a new kind of flick, depending on how you're wired. Shorthand for RE-MIXABLE FILM, implies interactive possibilities and Internet-aware design.
Game MOD	A MOD that introduces one or more direct goals into the experience. E.g. Groover.
GROOVER	Rhythm game MOD that requires the player to match the beat of CD.
HFC	Horses for Courses (web3d film by MichelaLedwidge , 2001). English expression originating from the practice of picking race-horses deemed the most suitable for any given terrain and conditions.
IPR	Intellectual Property Rights
MACHINIMA	Films created using real-time 3D engines (e.g. game technology). Sometimes referred to as machine cinema or virtual reality film-making.
MMOG	Massively Multiplayer Online Game. Members of a re-mixable film community can treat the experience as a MMOG and compete to create the #1 rated MOD.
MMORPG	Massively Multiplayer Online Role-Playing Game. e.g. Worlds of Warcraft

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MOD	Re-mixed content packaged so it can be downloaded into the experience.
Re-Mixable Film	Film DVDs that you can treat like games
MODFILMS	The company and the activity it seeks to promote, the manipulation of films by the audience.
OSS	Open Source Software. Open source means conforming to a license specifying certain criteria including access to source code, free distribution, no restrictions on other software, and technical neutrality.
P2P	Peer-to-peer. P2P is a class of applications (like the Kazaa) that takes advantage of resources -- storage, cycles, content, human presence -- available at the edges of the Internet. Because accessing these decentralized resources means operating in an environment of unstable connectivity and unpredictable IP addresses, P2P nodes must operate outside the DNS system and have significant or total autonomy from central servers.
RIG	Reactive Interface Grid. a) Mind-machine interface technology in the story. b) Re-mixable film User Interface on the DVD.
RDF	Resource Description Framework. Technical language for describing semantic properties of any object.
RSS	Really Simple Syndication. A de-facto XML standard for making headlines available.
SANCTUARY	MOD Film's first production and re-mixable film prototype
SEQUENCE	The technical description of the film experience created as an XML file in a format like SMIL. Also called MIX.
SHOT	The unit by which a film scene is subdivided, with its own particular framing and camera angle. A re-mixable shot may be composed from multiple real-time assets.
SMIL	Synchronised Multimedia Integration Language. Technical language for describing timing and playback information of audio-visual assets
SWITCH	Performance (DJ/VJ) module of the RIG
TEN WEEKS IN THE HEAD BIN	The interactive film script (written 1997) on which SANCTUARY is based. Also known as "10weeks" or "headbin".
Utility MOD	A MOD that provides program data and also optionally media.
XML	Extensible Markup Language. Technical language for describing any arbitrary markup language in machine-readable terms
X3D	Extensive 3D Markup Language. Technical language for describing 3D geometry and animation.

1.6 Platform, Minimum Specs

Sanctuary will run on Windows 2K/XP

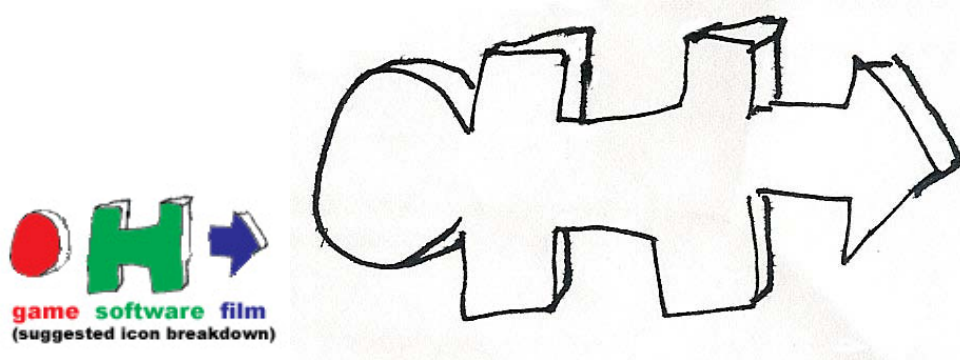
Minimum Specs:

- Windows 2K/XP
- Pentium 1Gz, 512 MB RAM
- DirectX 9 or later

1.7 Target Demographic

Sanctuary is a unisex title that appeals to 14 – 30 year olds who like films and regularly use the Internet.

The generic re-mixable film product, typically referred to as “the RIG” is targeted at screen producers of all ages who have IP that is exploitable as both computer game and film material.



1.8 Creative Commons vs. Retail

Sanctuary is a short film released to festivals and a software demo of a new kind of home theatre experience.

The product is intended for subsequent release, on DVD, as a proprietary retail product which contains a library of flexible digital assets.

These digital assets, film art and media files included on the DVD, are to be individually licensed under Creative Commons licenses – *Attribution – Non-Commercial-ShareAlike*. <http://creativecommons.org/licenses/by-nc-sa/2.0/>

Additional film assets, as well as sample MODs, are available for download via subscription to the MOD Films community (i.e. modfilms.net).

1.9 Demo Functionality

The initial demo will be packaged from several stand-alone components which together constitute a re-mixable film experience around *Sanctuary* IP.

The subsequent “Advanced Demo Functionality” section defines how these components are to be more seamlessly integrated into one software application (the RIG product) at a latest stage.

1.9.1 DVD-Video player

”Normal” playback as if traditional DVD product.

1.9.2 The RIG “Reactive Interface Grid” client

This application is derived from existing Demo Milestone 1 software². It implements all modes described in the subsequent “Advanced Demo Functionality” section but within a lightweight 2D framework.

² <http://modfilms.com/twiki/bin/view/Sanctuary/DemoMilestone1>

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The focus of this demo is rapid prototyping without the expense of manipulating film quality visuals. Certain media types are supported to aid comprehension.

- PNG (still image)
- MP3 (audio)

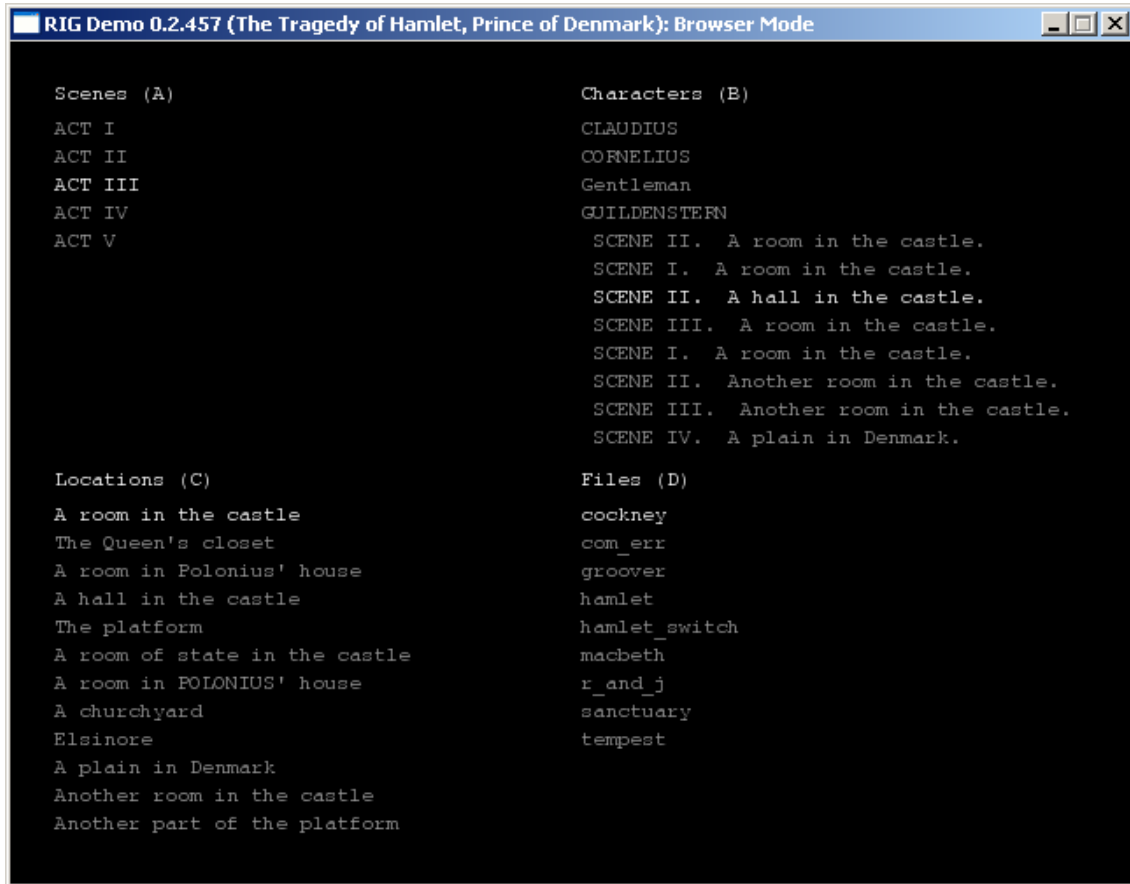


Diagram. Hamlet in Browser mode .

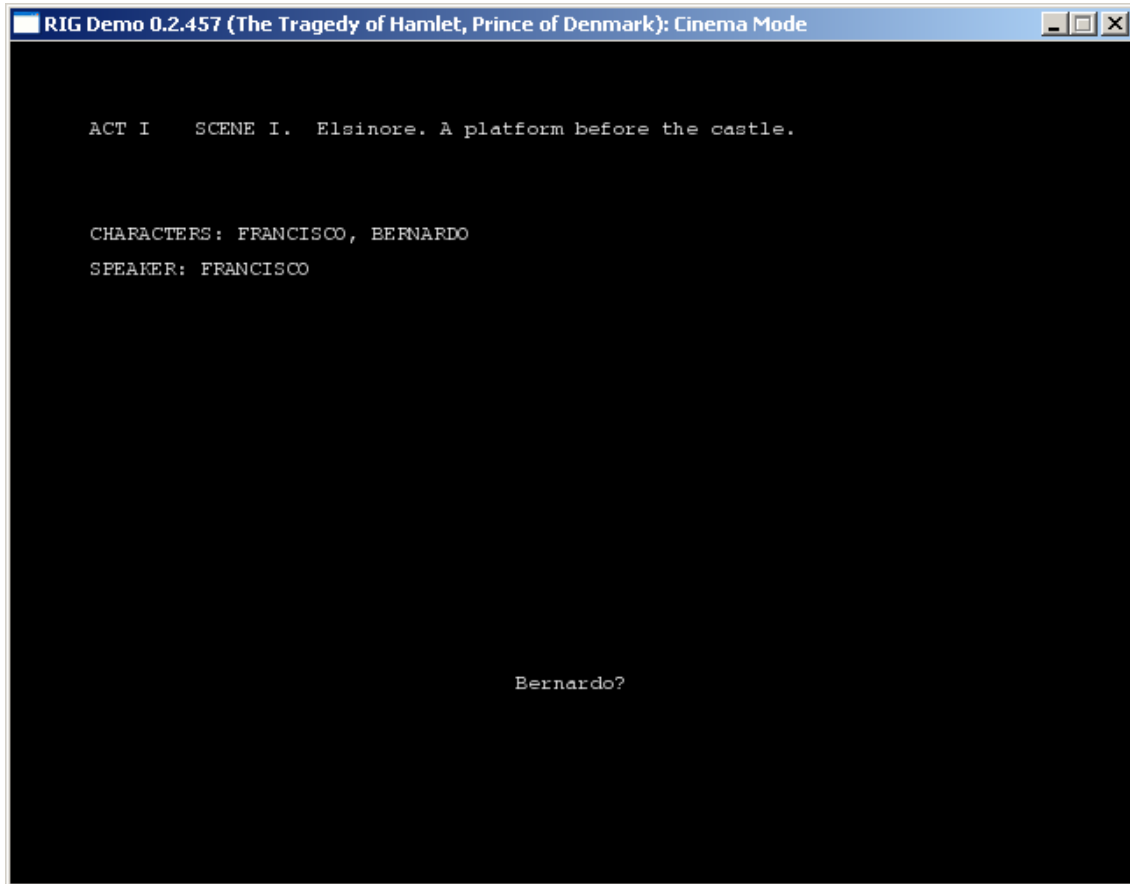


Diagram: Hamlet in Cinema mode

1.9.3 Film world graphical client demo

This application is derived from existing Demo Milestone 7 software³ running on the CrystalSpace real-time 3D engine. Visuals can be modified on-the-fly using open source VJ plugins written to the Freeframe API.

The focus of this demo is to illustrate how film-playback within an interactive 3D world can be affected by 3rd party software with the inclusion of de-facto standard APIs like Freeframe.

³ <http://modfilms.com/twiki/bin/view/Sanctuary/DemoMilestone7>

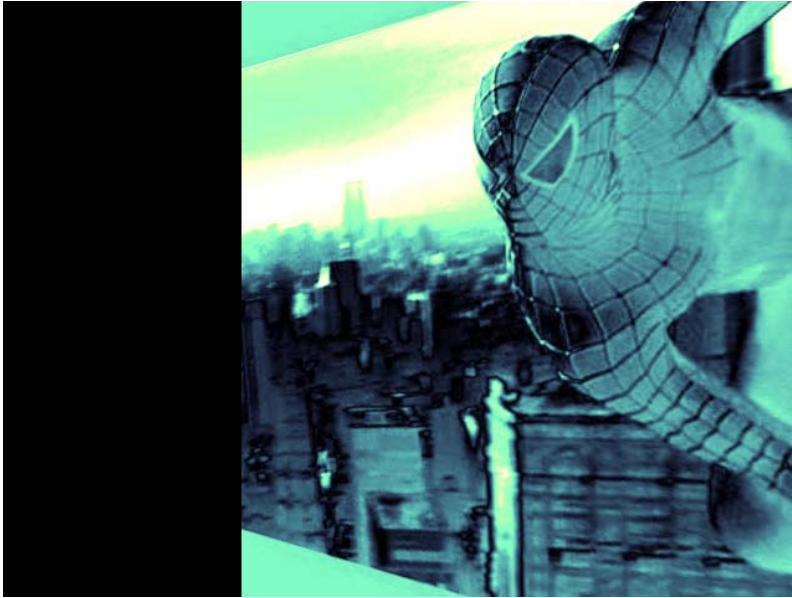


Diagram: Re-mixing *Spiderman* in 3D space using Fug's Motion Matte – a free open source software plugin.

1.9.4 Mobile mixer

This online demo⁴ shows how visuals from a film or film trailer can be re-mixed and customized in a simple tool. This tool relies on a mechanism to retrieve individual frames from a film asset library and a mobile e-commerce path (e.g. for reverse SMS billing).

⁴ <http://thequality.com/flics/10weeks/mix/mobilemix.swf>

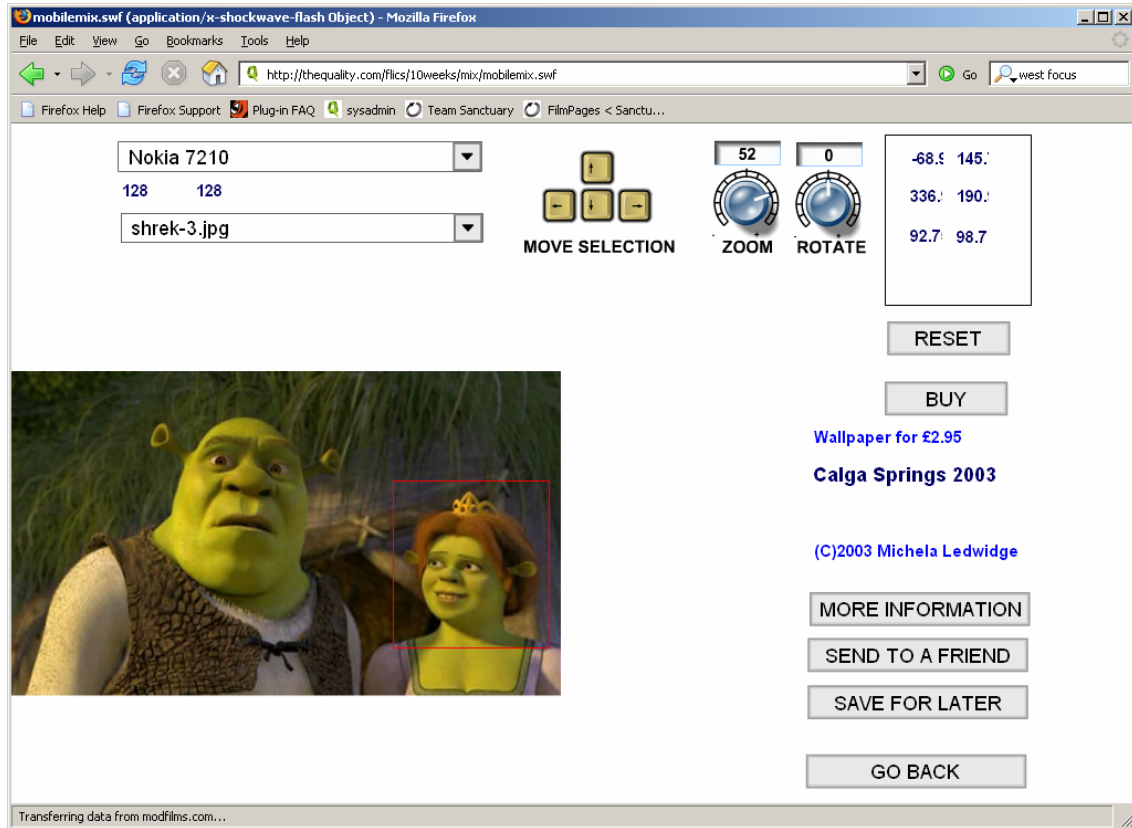


Diagram: Creating custom wallpaper from a chosen film frame for a chosen mobile device.

1.9.5 Online community system

Sanctuary relies on the existence of a lightweight online community system (modfilms.net) that tracks contributions to the film world, maintains a “Top Ten” list of MODs and allows MODs to be downloaded. For demo purposes, modfilms.net only hosts the *meta-data*, not the MODs themselves. A downloadable “MOD packager” tool enables a MOD to be created offline.

The system relies on a peer-review mechanism which allows the most active trusted members of the community to take control over time. For the purposes of the demo, the key actions are to do with publishing, approving and rating new member contributions which include MODs.

modfilms.net is based on community portal sites for news (e.g. Slashdot⁵) and file-sharing (e.g. Demonoid⁶). The system will allow free memberships that are limited in terms of sample MODs and publishing privileges as an incentive to upgrade to full (paid) membership.

The key actions supported by the community system are:

- Register – join the community
- Login – authenticate yourself as a member
- Browse – move between web pages via hyperlinks

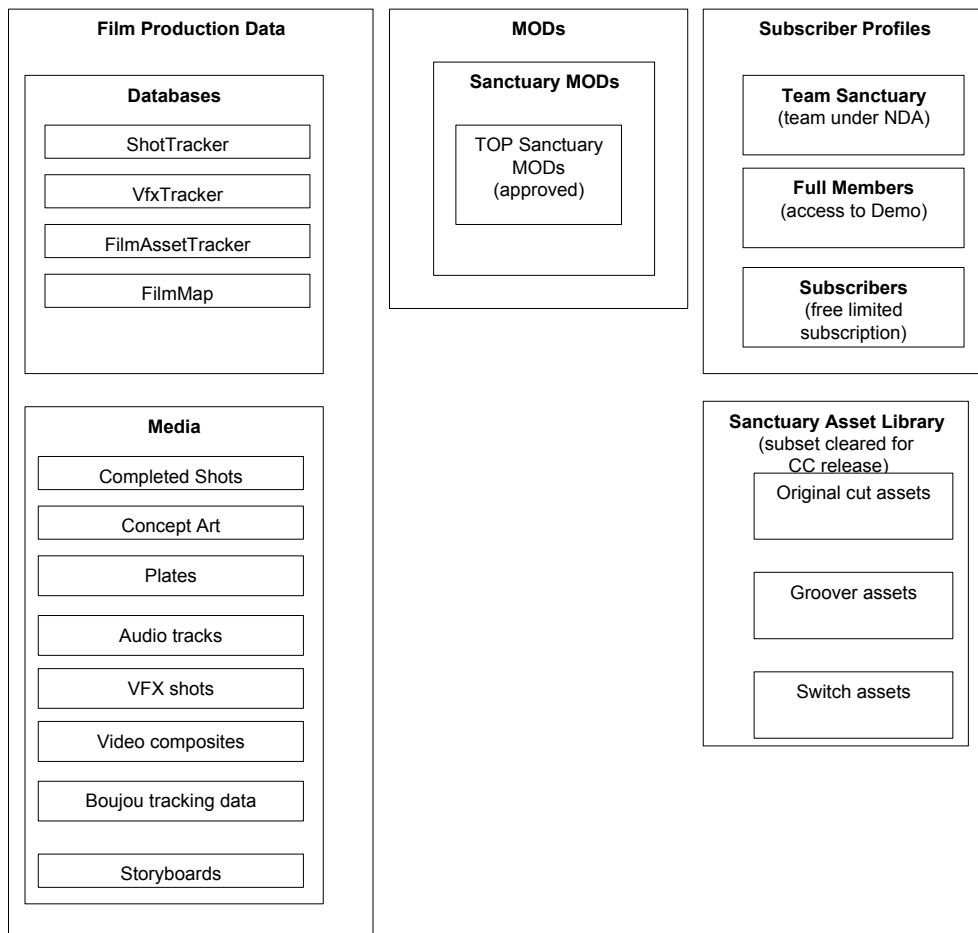
⁵ <http://www.slashdot.org>

⁶ <http://www.demonoid.org>

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- Search – enter keywords to find specific content
- View – look at web page, certain pages require free membership
- Approve – certain actions like Promote and Demote will require approval from more than one trusted member to avoid misuse
- Deny – content that does not pass site guidelines will never appear in Top Ten
- Rate – vote for particular files or MODs (packaged files)
- Package – create a new MOD (this is done offline using a separate tool)
- Publish – add content to community, which could be an URL to a single file hosted elsewhere or a complete MOD
- Edit – modify existing content
- Promote – grant additional privileges (e.g. moderator permissions) to a member
- Demote – remove privileges (e.g. moderator permissions)
- Post – add content to new topic on discussion forum
- Reply – add content to existing topic on discussion forum

modfilms.net information architecture



modfilms.com homepage

HEADER	DOWNLOAD BANNER ADVERTISEMENT
HOME DOWNLOAD FILMS COMMUNITY STORE COMPANY HELP	

Hi Simon! Forgot password
NEWS HEADLINES

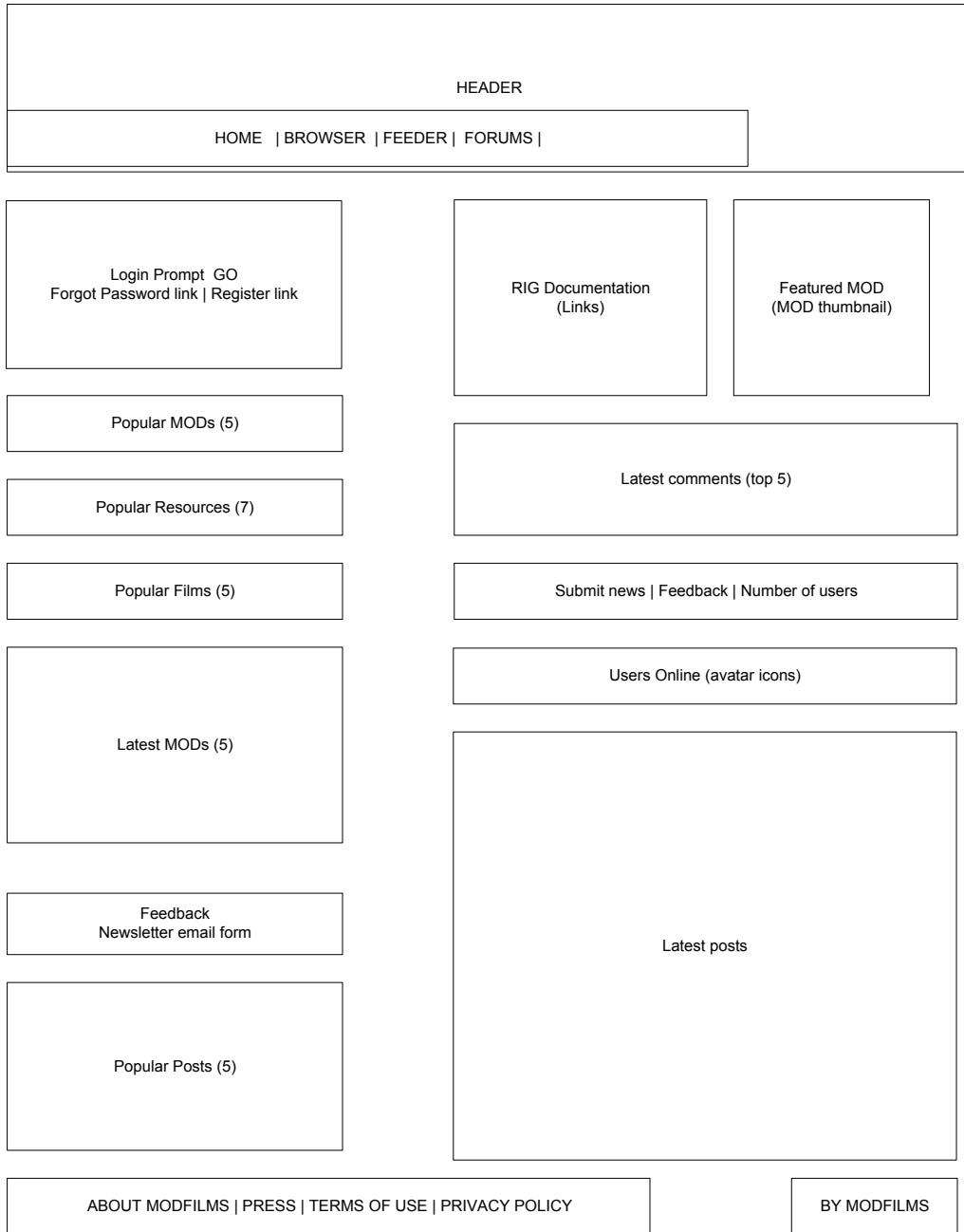
RIG SCREEN SHOT DISPLAYING SANCTUARY

FILM STILLs

KEY FEATURES ADVERTISEMENT
* FEEDER
* SWITCH
* BROWSER

ABOUT MODFILMS PRESS TERMS OF USE PRIVACY POLICY
--

modfilms.net homepage



E-commerce purchase path components will not be implemented for the demo.

View MOD page (without login)

HEADER

HOME | BROWSER | FEEDER | FORUMS |

Login Prompt GO
Forgot Password link | Register link

FEEDER info banner

MOD THUMBNAIL | TITLE |

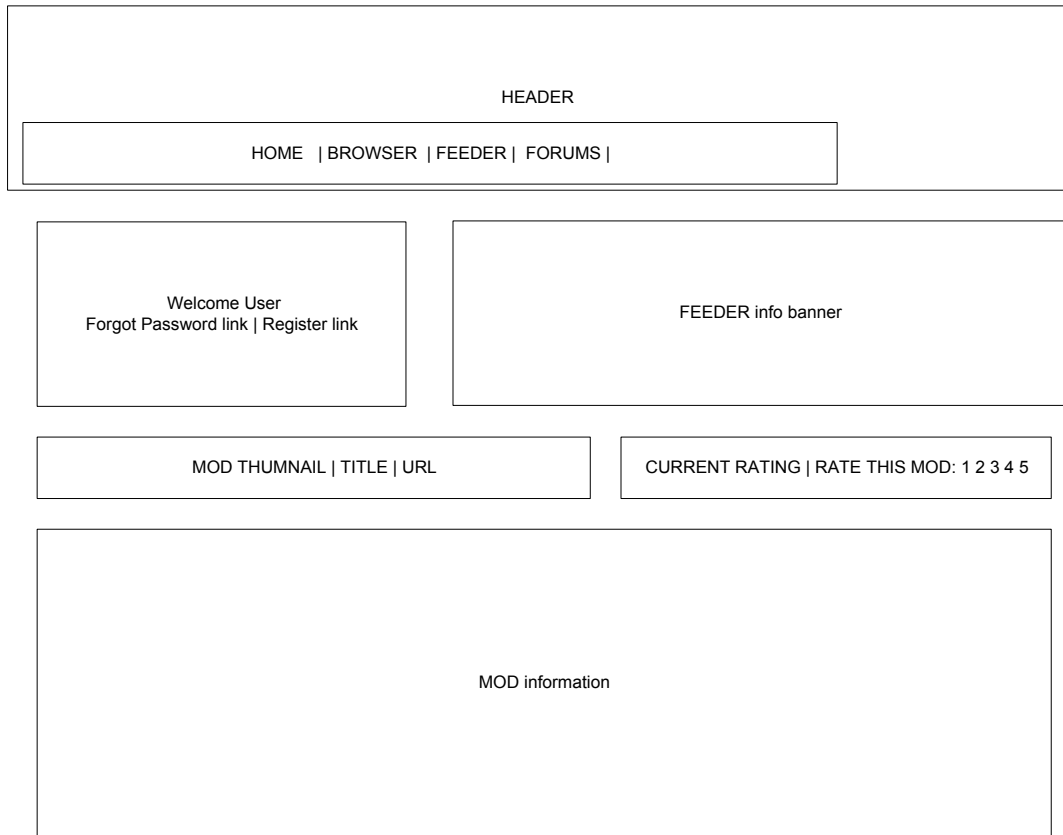
CURRENT RATING | RATE THIS MOD: 1 2 3 4 5

THIS SITE IS ONLY FOR SUBSCRIBERS.
LOGIN TO CONTINUE. BASIC REGISTRATION IS FREE

ABOUT MODFILMS | PRESS | TERMS OF USE | PRIVACY POLICY

BY MODFILMS

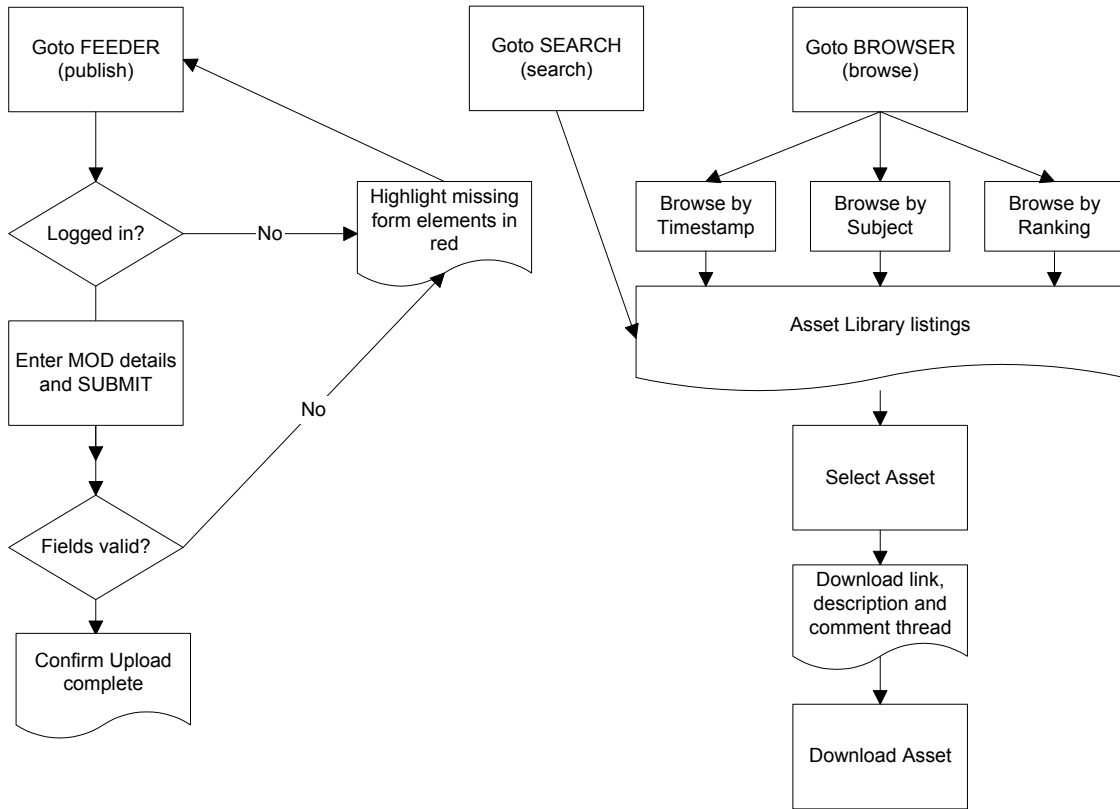
View MOD page (after login)



ABOUT MODFILMS | PRESS | TERMS OF USE | PRIVACY POLICY

BY MODFILMS

Publish MOD workflow



1.9.6 Asset library

The asset library is the film broken down into a directory structure of folders and files which can be accessed individually or via one of the other components.

The file formats chosen need to be finalized after the film is complete as many deliverables will come from post production.

RDF-compliant meta data files will accompany the files as originally defined. XMP metadata will be encoded within the media files themselves where possible (e.g. JPEG still images).

1.10 Advanced Product Functionality

Due to the nature of the project, there is ongoing debates as to whether the initial DVD release should include advanced functionality. The key to the experience is a well organized high quality media asset library and the There iEach of the following core components exposes a set of functions that called by MODs.

1.10.1 Real-time rendering engine

The *Sanctuary* product aims to play a real-time version of the original film that is indistinguishable from DVD-Video. The original film's aesthetic is created with real-time visuals to help this along. In practice the proof-of-concept demo can work with a more limited set of assets – a 25 frame a/v comic.

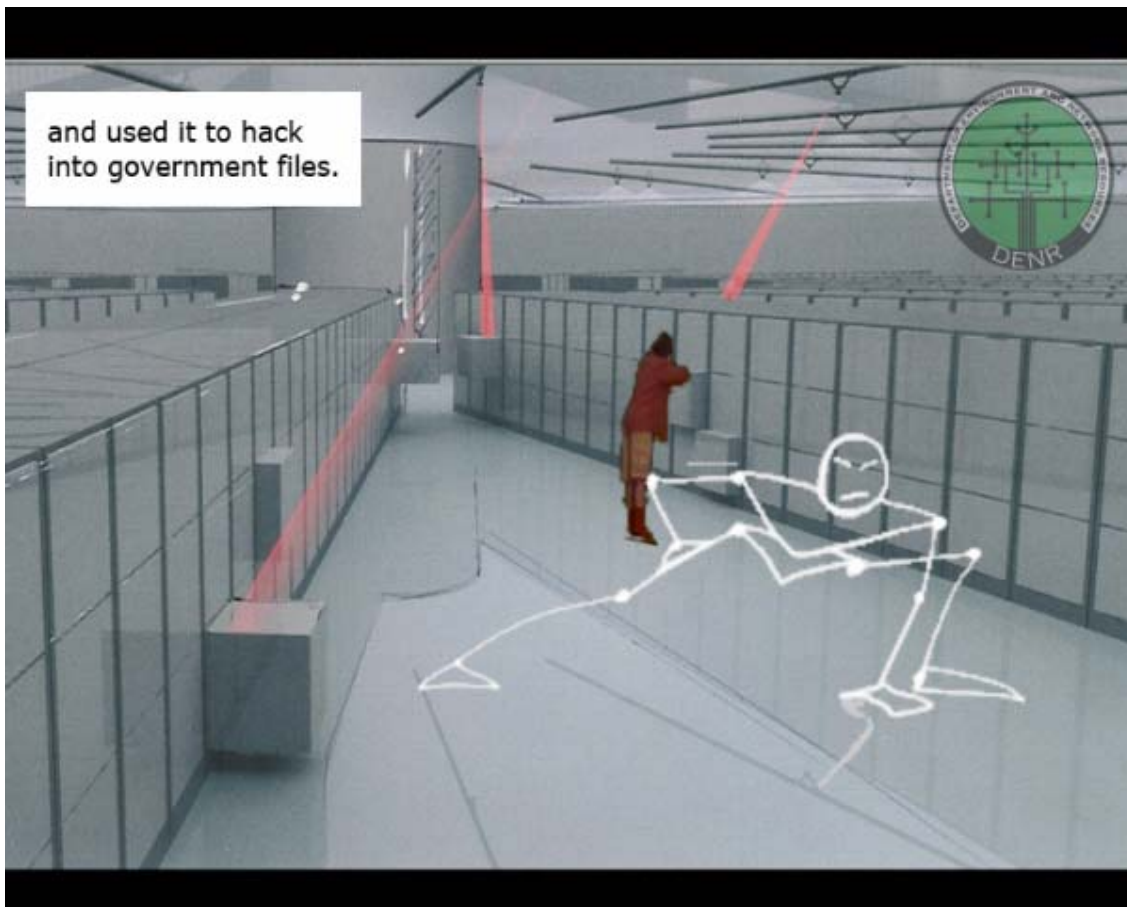


Diagram: a frame from the comic version in development

Note: The film production drives the choice of engine, not the other way round. No final decisions on an engine will be made until the original assets are art (i.e. the film is complete) at which time the real-time asset library will be created, working within the constraints of the engine. By maintaining, in parallel, an online library of all the original assets, there will remain an opportunity to revise the library via MODs.

Real-time visuals assets are intended to be malleable in different contexts:

- **Interactive 3D** – control over real-time 3D geometry and animation
- **Interactive 2D** – control over 2D user interface elements and text overlays
- **Cinema** – real-time control of pre-existing A/V sequences and layers (e.g. film sampling)

For the proof-of-concept demo, the engine must be capable of:

-

For the interactive 3D context, the engine needs to be capable of:

- Full-screen display of 30 fps
- Simultaneous rendering of full-screen video, real-time 3D characters (e.g. CD, Nano-bat) and text
- Real-time rendering of 2D user interface
- Real-time video sample compositing (a minimum 3 layers)
- Real-time visual effects processing (e.g. colour correction, strobing)
- Real-time audio sample mixing (e.g. a minimum 4 layers)
- Real-time audio processing (e.g. pitch shifting)
- Seamless joining of video and audio samples
- Seamless looping of video and audio samples
- Alpha channel support for video and stills

1.10.2 Audio/visual sequencer

Sanctuary can function as an instrument, like *Abelton Live* or *Arkaos VJ*. Media assets and real-time effects can be triggered by:

- Playing pre-recorded multi-track sequences
- Interpreting live user input
- Interpreting live input from another software application

The final cut of the film (the sequence that plays in Cinema mode) is assembled on-the-fly from data and media on disc. New sequences (data to describe new cuts) can be loaded and played using the Switch MOD.

The composition of the default (film) sequence will depend on the performance of the chosen engine as well as the composition of the final cut.

1.10.3 The RIG (Reactive Interface Grid)

Sanctuary's core experience is provided by a flexible film framework called *the RIG* (or Reactive Interface Grid). Its function is to manage a arbitrarily large virtual collection of passive and interactive experiences around a given film property.

The RIG uses a simple spatial navigation system to provide a sense of movement between the film "screen" (Cinema mode) and other experiences that are available nearby. The RIG is a virtual construct that resembles a 3D DVD-Video menu. Positioned around the film are various floating panels which each contain a passive or interactive experience *called a mode*. Each MOD typically implements a new mode or extend the functionality of an existing one.

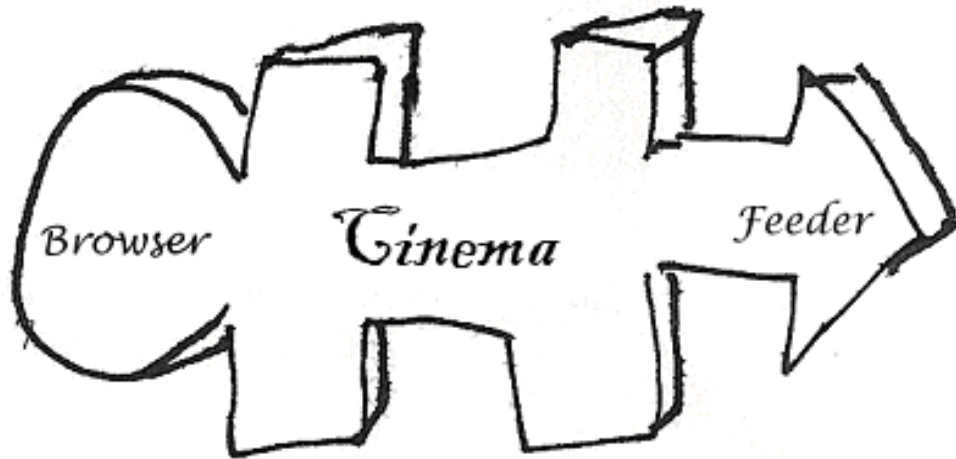


Diagram. The default experiences offered by the RIG

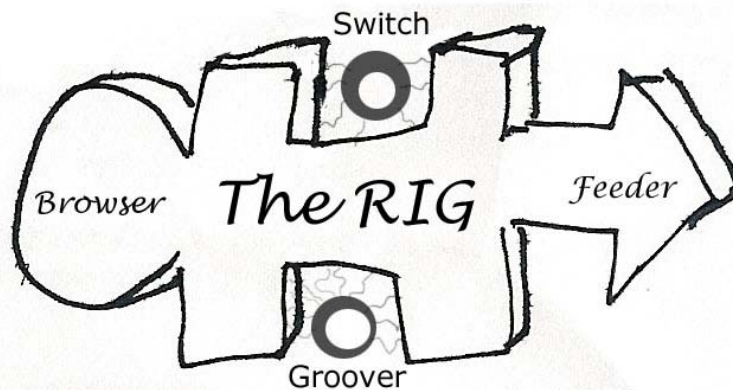
The RIG has two generic slots into which inter-changeable MODs can be installed via Feeder mode. A MOD may introduce new data (e.g. new media files) and/or new code. New code may provide a totally new experience (mode) or one that simply extends an existing mode, through calls to the public code libraries.

It is not possible for a MOD to overwrite default modes. Cinema, Browser, and Feeder modes remain accessible but it is possible for a MOD to enhance an existing mode with new functionality.

e.g. Switch is a MOD that extends Cinema mode into a performance-friendly "Switch mode" through providing a separate configuration panel. This mode allows real-time A/V events to be triggered manually while the film plays.

The RIG provides an interface that can be used for navigating any film (and related interactive titles), regardless of subject matter. Two sample MODs, Switch and Groover MOD test and illustrate how re-usable a film's assets are in practice.

The RIG framework could have any number of MOD slots to allow any number of modes subject to hardware constraints. However the demo provides four. "Above" and "below" the film at all times are two MOD slots.



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Diagram. The RIG with two MODs (Switch and Groover) installed .

The title begins in Cinema mode. Moving in any one of four directions causes an arrow to briefly appear in that direction, and the user gets a sense of there being a new mode available in that direction. Continuing to move in that direction will begin a transition to a new mode. During this transition it is possible to back out, by stopping movement in that direction, which will automatically reverse the sense of movement.

The RIG is controlled using the four directional buttons (UP, DOWN, LEFT, RIGHT) and the right analogue joystick (RIGHT STICK). Pressing and holding one of these controllers commences the transition.

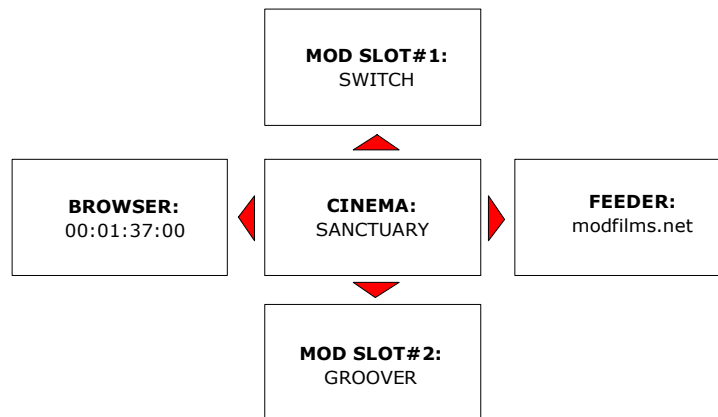


Diagram. RIG navigation.

Moving to a new mode either moves the user's POV in that direction (i.e. away from the Cinema panel) or leaves the user's POV remains fixed (i.e. the new mode slides over the Cinema panel as an overlay).

e.g. Browser sits alongside Cinema whereas Groover slides over Cinema as an overlay.

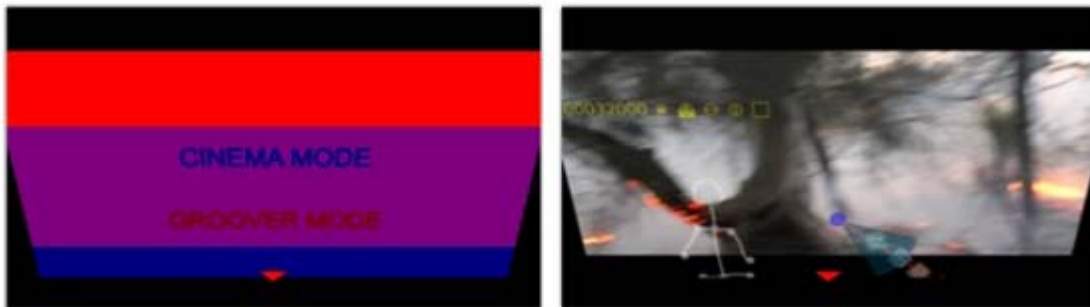


Diagram. Cinema mode to Groover mode

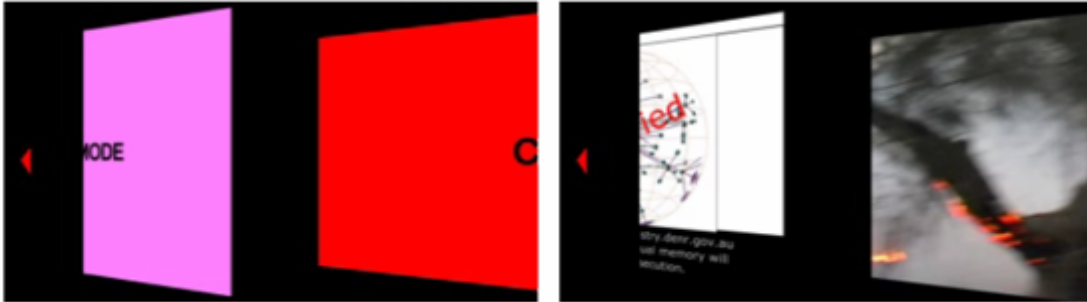


Diagram. Cinema mode to Browser mode

By default, moving out of Cinema mode into another mode will pause the film, requiring the user to press SELECT to continue watching the film on returning.

When the user's POV moves between modes, the camera's orientation tilts slightly to emphasize that movement is taking place within 3D space.

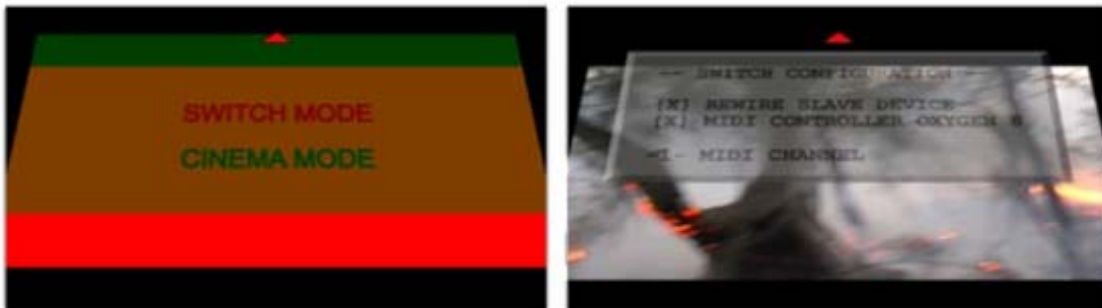


Diagram. RIG tilts as it goes from Cinema mode to Switch mode

By default, the layout of modes hooked up to the RIG is consistent with the interactive TV paradigm for next-generation consoles being explored by Microsoft.

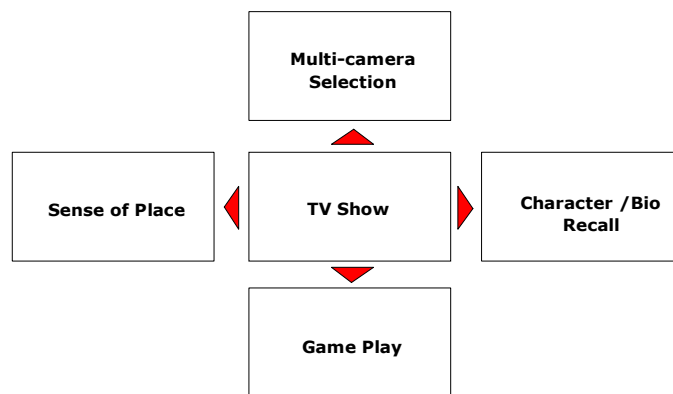


Diagram 2. *Battlestar Galactica* iTV/XBox2 prototype layout (Vivendi Universal)

1.10.3.1 Input controller

The input controller is a core component that handles input from a range of devices in a uniform fashion.

Device handlers are available for:

- Keyboard
- Sony PS2 controller (via Lik-Sang Super Dual Box USB adaptor)

Future handlers on wishlist include:

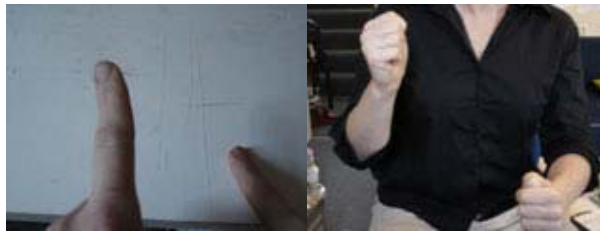
- USB MIDI controller (e.g. MIDIMan Oxygen-8 keyboard)
- USB webcam (e.g. Sony Eye-toy)

The default control paradigm used by *Sanctuary* (and referred to throughout this document) is the Sony PS2 game-pad. All devices map onto this set of controls, or a subset of controls if the particular device cannot support as many actions.

e.g. mouse movement is mapped onto RIGHT STICK.

Modes may adapt to device constraints.

A webcam can be used as a simple input device (if selected through Switch) to trigger events in Cinema mode and in Groover mode. Abruptly halted motion in the left or right half of the screen is registered as a "beat". By default, the webcam video does not appear onscreen. Unlike the eyetoy, the webcam can be positioned to point at anything, as long as left movement is distinguishable from right.



Using a webcam to control *Sanctuary* with beats.

If Groover is played with a webcam, game-play is simplified (only two data codes) as discussed below.

1.10.3.2 Mode navigation

Modes can provide their own navigation system which can override directional control over the RIG (i.e. movement between panels with RIGHT STICK). However, consistency with the RIG default modes is encouraged.

1.10.4 Asset manager

Re-mixable film asset management relies on the Film (broken into Scenes, Shots, and Elements) being re-assembled into a structure of real-time Sequences and Media Assets. This component tracks what is available, as a library, and provides functions to act upon them.

Many film assets will not be able to be re-mixed in real-time. Pre-installed assets reflect the constraints of the chosen engine. However the availability of a source library on modfilms.net (with all the film elements) means that there will always be the facility to revise library assets.

Sanctuary Re-mixable Film Design Document

Assets are stored as to encourage re-use.

e.g. each block of dialogue is accessible as an individual sample.

Each film element is to be thought of in terms of three criteria when constructed the library:

- a) showcase value – potential interest via Browser mode and its narrative context
- b) replacement value – likelihood of being over-ridden by a MOD
- c) re-use value – external to *Sanctuary*, creative and commercial

An element can be stored alongside a redundant set of assets (which make up it) if the added flexibility is warranted through the above criteria.

e.g. store shots with and without CG elements composited in, with and without alpha channels

To facilitate audience members being able to swap in their own footage, video assets in particular must be stored in small chunks. Opportunities for amateur content to be "slotted in" for comic effect are provided

e.g.

- masks for superimposing faces in static camera shots (i.e. carnival photo booths with holes for faces)
- separation of background and foreground elements
- replace-able CG animation
- replace-able text
- replace-able dialogue
- replace-able soundtrack
- replace-able textures in classroom, bedroom and State Registry



Diagram. Video element stored as eight seamless looping chunks.

1.10.4.1

Asset mapping

Sanctuary maintains an *asset map*, which reflects their availability within and context to the original film.

Sanctuary Re-mixable Film Design Document

The map uses a *flic script* (see *Information Architecture appendix*), a machine-readable transcript of the film, to correlate assets to logical scenes (e.g. DVD chapters), dialogue transcripts and character files (State records). This script is available as a file of meta-data in the library.

These forms of look-up are possible:

- 1) Given this asset, at what points is it used in the film?
- 2) Given this asset, at what points is it used in the script?
- 3) Given this point in the film, what assets being used?
- 4) Given this scene in the film, what assets are being used?

Assets are always referenced through the asset map (not the file system). This allows MODs to reference new content in place of old files change experiences. Browser mode exposes the asset map through the RIG as a 3D visualization, dressed up as if this was part of the State Registry environment from the film.

The asset map is used for:

A/V references	e.g. for the rendering engine to use
Chapter traversal	e.g. move back and forward through the film like a DVD
Sequence links	e.g. identifying what content needs to be sequenced together in Cinema mode
Switch mapping	e.g. choosing assets to be triggered manually
Shot search	e.g. locating assets by character or script dialogue
Asset search	e.g. display of malleable elements for a given scene
Business development	e.g. the asset map is exported to an online catalogue advertising the film's use as a sample library

At run-time, and whenever a new MOD is loaded, the map is updated to take account of files in the cache and contextual links to both the film and the script are re-created based on the naming conventions followed by the MOD Installer..

Original assets cached locally are never deleted but new MODs may render them obsolete at run-time by replacing references to them.

The sequence data comprising the original film (as a real-time display) references hundreds of files in many different formats:

- Video samples
- Audio samples
- 3D models
- 3D animation routines
- 2D images
- 2D masks
- 2D sprites
- 2D vector animation
- Visual effect plug-ins
- Audio effect plug-ins

Each file has a unique identifier.

1.10.4.2 Local data

Sanctuary requires a local hard disk.

- During installation, assets are written to disk to optimize playback

- During installation, configuration files are copied to disk so they can be modified
- At run-time, new MODs are unpacked to disk
- At run-time, configuration files are read from disk

1.10.4.3 Customization

Disguised as a mass-market interface, the RIG displays few opportunities for customization. Configuration screens are created as MODs, as and when required and "fed" into the RIG on demand. The Switch MOD contains a sample of how to do this.

Advanced users can also control application parameters directly by modifying run-time data files on disk.

Throughout this document there are references to default behavior (e.g. "By default"). This convention is used to indicate what parameters should changeable through configuration files, allowing for flexibility.

1.10.4.4 MOD installer

This component downloads plug-in MODs to disk, unpacks them, verifies their contents, copies them to a cache and updates the asset map.

The RIG functions as a Read-Only device (e.g. a DVD-Video player) apart from a local cache facility. New code libraries (downloaded in MODs) should assume access via a published API. MODs for the PC demo must be subject to a peer-review process (and Demo usage subject to a Disclaimer) to avoid damage from unruly code.

MODs are compressed files, with a .mod extension, which unpack into a directory structure containing at least two files.

An index file (*index.rdf*) must be included with machine-readable meta-data on the MOD and individual files. See Appendix "MOD Resource Description".

There will be one or more files in the collection, corresponding to one of the following types:

- **Data** – compressed or plaintext data used at run-time by the application.
- **Media** – art or audio assets
- **Code** - dynamic code libraries (e.g. DLLs)

The smallest MOD contains no media files, only a small amount of data, and can be installed quickly on impulse.

e.g. re-mix sequence data for Cinema mode, rhythm sequence data for Groover mode

The MOD installer looks at each file in turn and determines whether this is a replacement asset. This is determined according to whether the asset's name and position within the downloaded directory tree matches an existing asset.

Once all the new files have been examined in this way, the asset map is updated.

2 Modes of functionality

2.1.1 Film mode ("Cinema")

Sanctuary Re-mixable Film Design Document

Sanctuary commences by zooming into Cinema mode, displaying all four directional arrows to indicate that this is not a regular movie player. Once the film fills the screen, a single link is available ("Play"). Pressing SELECT will play/pause (toggle) a full-screen real-time cinematic experience.

By default Cinema mode is a passive experience. The Switch MOD is an interactive extension of Cinema mode, described below.



Diagram. Zooming into Cinema mode.

An arrow appears in the relevant direction if directional controls are used. Holding any of these down begins the transition to the relevant mode, pausing the film.

2.1.2 Install mode ("Feeder")

Moving RIGHT from Cinema mode goes into Feeder mode. This enables new MODs to be selected and loaded into the film through a web interface.

Feeder performs rudimentary checks on MOD packages being downloaded but does not certify or validate the content. The MOD Installer (described above) performs sanity checks to ensure that content is fully downloaded but does no certification.

Feeder points at a webpage "Sanctuary - Top 10 MODs" page, served from the online community site (modfilms.net).

By default, the first link, to the most popular MOD, is selected so that installation of this content can occur within the least amount of clicks.

The user can:

- Move UP and DOWN to highlight another link for
 - Another MOD
 - Sanctuary MODs page on modfilms.net (and then subsequent pages)
- Move RIGHT to select a link, moving to a new web page or choosing a MOD to download
- Move LEFT to go back to Cinema mode, or the previous web page

The user can choose a MOD to download from other modfilms.com pages but users are encouraged to use the Top 10 page. MODs are peer-reviewed and classified into Types before they can appear on this listing.

Appendix "MOD Types" lists suggestions for MODs and MOD types.

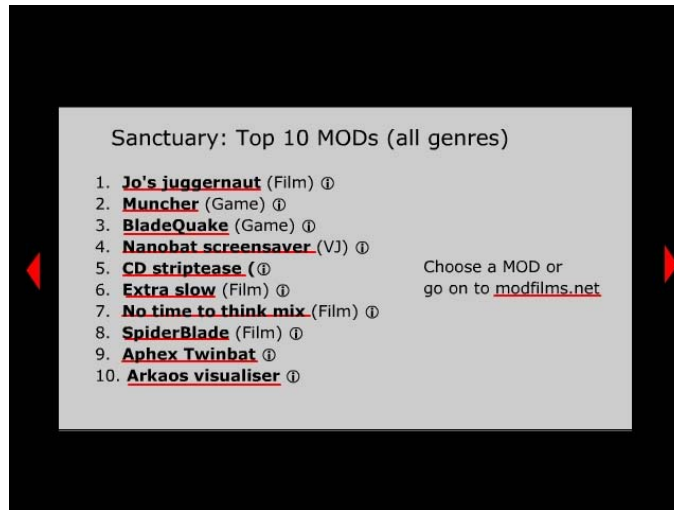


Diagram. modfilms.net – Top 10 MODs page

If a link is selected to a MOD (identified by a new experimental MIME type and .mod file extension) then a confirmation screen is displayed. This screen enables the user to determine which slot the MOD is installed into.

Confirming installation will commence a download and installation of the new MOD. Any problems with the installation will result in an error message being displayed and two options.

- Back to previous page (on modfilms.net)
- Exit to film (Cinema mode)

Feeder imposes a limit on the size of MODs that can be downloaded at run-time. If a MOD is too large then the user is given the option to commence a separate downloading process using BitTorrent (used to download files of any size via a P2P network).



Diagram. MOD download confirmation screen

2.1.3 Asset library visualization mode ("Browser")

Moving LEFT from Cinema mode goes into Browser mode. This displays a browse-able view of the asset library as

- a) Text
- b) 3D visualization of the entire asset library as a texthyperbolic tree diagram.

The data used to generate this view is summarized in Appendix "Information Architecture".

The tree, by default, is orientated (centred) around a node corresponding to the current chunk (section of the film cut being played), linked to the assets used by that chunk. A cursor appears to allow the user to select nodes of the diagram.

The following controls apply:

<LEFT STICK>	Moving off-screen to right starts transition to Cinema mod
<SELECT> AND <LEFT STICK>	Drag tree from selected node
<SELECT> OR <CROSS>	Re-orient display of tree around selected node
<SQUARE>	Open information panel on selected node
<LEFT>	Move selection to parent node. Re-orient display to centre this node.

Individual assets can be selected, causing them to be played in a pop-up panel over the tree. If a scene node is opened, the RIG slides back into Cinema mode and plays that scene. This mode can be used to jump to any asset or sequence available to *Sanctuary*.

The following information on the highlighted node will appear onscreen.

- Name
- Asset type

Browser mode is skinned to appear as part of the story universe (i.e. State *virtual memory*). It exposes the data underlying the film and facilitates non-linear access to any film asset.

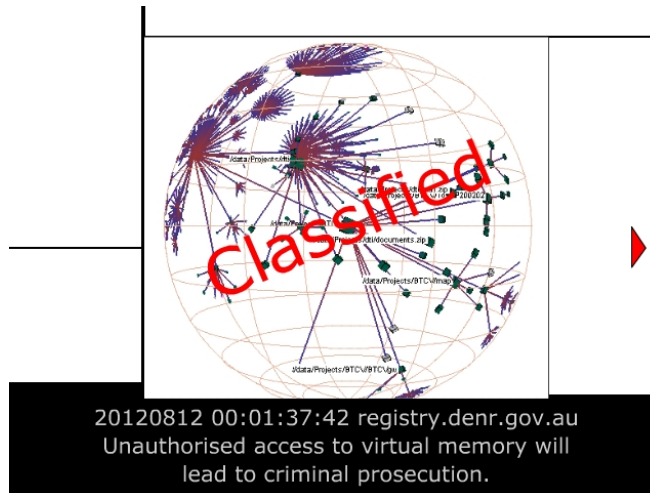


Diagram. Browser mode – splash screen

Moving right moves the RIG back into Cinema mode.

2.1.4 Sample MOD - Rhythm game mode ("Groover")

Rhythm game mode is provided by the Groover MOD (pre-installed in slot #2). A 2D user interface slides over the film and the film is re-started as a game narrated by the CD character.

It reads a configuration file that defines a set of rhythms. An interface of moving symbols is displayed on top of the film. The player must match the symbols to button presses to progress the film. The configuration file also determines what additional real-time events are to be triggered as pay-off to the player. Certain assets are triggered automatically as a result of being in this mode (e.g. help and CD's commentary).

Moving UP moves the RIG back into Cinema mode, sliding the Groover interface down.



Diagram. Groover mode – with an incoming squirt

2.1.5 Sample MOD - Instrument mode ("Switch")

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Moving UP from Cinema mode enters Switch(board) mode, provided by the pre-installed Switch MOD. Its function is to configure and extend Cinema mode so that the user can treat the film as an instrument or media server (depending on how you think of it). The user triggers real-time events as the film plays.

The Switch provides a rudimentary control set for triggering sample assets but its main function is to enable 3rd party A/V software and external input devices to control non-linear playback of the film via standard protocols.

By default, the Switch provides a control set for each device type that maps input to *switch* objects.

The Switch also provides a control set that maps key film assets to rudimentary gestures (i.e. rhythm patterns) that can be recognized by a webcam.

None of the mappings are changeable within the application. Updated mappings need to be packaged as MODs or manually installed outside the program. All that the Switch allows you to do is switch (surprise!) between available devices and control sets.

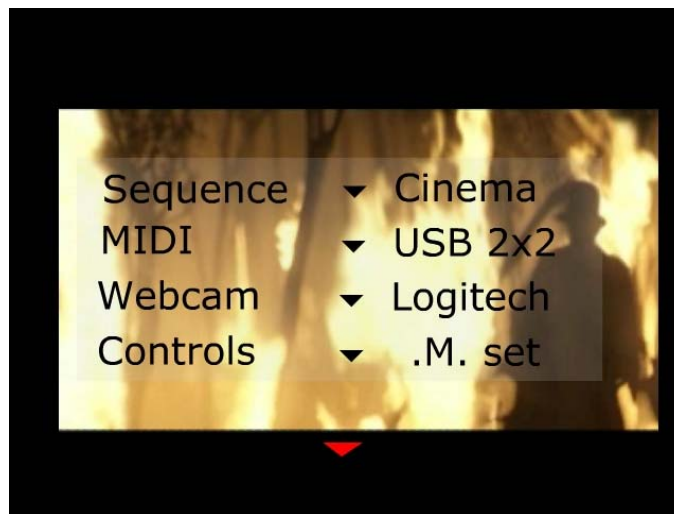


Diagram. Switch mode - configuration panel

A switch object can be any one of the following:

1. a reference to a gamepad control (e.g. X button)
2. a media asset (e.g. video, 3D model, audio sample)
3. a data-driven effect (e.g. visual strobing, audio distortion, 3D animation)
4. a grouping of one media file and one effect

Effects can be parameterised to enable additional controls (e.g. control strobe delay with a separate MIDI controller).

Switch mode is demonstrable using 3rd party technology (Ableton Live and Arkaos VJ) over the ReWire protocol.

Moving DOWN moves the RIG back into Cinema mode.

3 "Groover MOD Game Design

Sanctuary Re-mixable Film Design Document

Sanctuary is a platform for open-ended play. The meta-game, the aim of the title, is for audience members to create content based on the film, ideally producing material that is more popular than the original film.

The sample game MOD, *Groover*, demonstrates the flexibility and potential of *Sanctuary's* re-mixable film assets.

Groover is a sample music rhythm game that showcases the real-time sequencing capability of the film. Additional and variable sound and visual layers are triggered by the player if they get the rhythm right. The goal in *Groover* is to obtain the highest score by playing increasingly difficult rhythm patterns. The film is structured as a loop so high scorers can "clock" the film and keep playing.

The back story to the game is as follows:

This is the future where everything is record-able and the man-machine interface is direct to the mind. You have accessed the State's "virtual memory" digging up files related to an incident that took place in Wirrimbirra Sanctuary in 2012.

You fly through digital archives of augmented reality using an illegal hacking tool known as CD, the "Customised Dude" software agent. In order to unlock the story you must to attune yourself to this quirky personal interface.

CD's capabilities are unlocked by your internal rhythms. Blame his programmer. Either you are that person browsing down memory lane, or you are an intruder. The interface will decide.

Virtual memory, in the context of the film, refers to augmented reality views of the present and digital recordings of the past accessed through a computer system.

Groover can be played using external controllers (e.g. webcam) if *Switch* has been configured.

3.1 Modes Of Play

3.1.1 Attack Run

Groover's game-play is based on the Koei title, *Gitaroo Man* (2001). The player rotates a fan-shaped *scanner* in the center of the screen to point in the direction of incoming symbols, *data*, arranged in phrases. Each phrase constitutes a rhythm pattern, a *squirt*. Accurate matching of the symbols to the right button allows the film to continue.

By consistently and correctly scanning incoming squirts of data, the player advances through the film.

The game is structured into two levels of multiple attack runs.

3.1.2 Bonus OPS

The second mode is in-between attack runs. The player gains OPS (Operator Privileges) which give additional control over the film as it plays.

For each set of OPS that the player has been awarded, new controls become available which allow the player to jam with the film as in *Switch* by triggering film assets like a VJ. A new control may be multiple buttons (e.g. L1, L2, R1, R2) or a combo-move where a particular sequence of buttons must be pressed in order.

Sanctuary Re-mixable Film Design Document

OPS have no influence on game-play until the second time through the film at which point, OPS data codes are added to squirts. The main function of OPS is to introduce gamers to idea of the Switch – film as instrument. OPS are increasingly fun to reward the best players.

The choice of OPS and which film assets they control will be made at the second design phase based on the asset library composition and the available engine.

e.g.

KEY	NAME	DESCRIPTION
C	Disruptor key	a form of disruption to the film like scratching an LP
I	Info toggle	control to break up the screen into panels
Y	Face Plant key	cut to webcam or different sequence
U	Viral Beat keys	puppet controls for CD
F	Nano-bat controls	flight controls for nano-bat

The first set of OPS is relatively easy to acquire (i.e. average accuracy was not MISS) but gaining them gets consecutively harder.

The most recently acquired OPS are lost at the end of each attack run if the required precision was not maintained.

3.2 Scoring

The player scores points depending on how accurately s/he matches *data codes* (the rhythm symbols). The player's accuracy in matching each data code to the rhythm is categorized in terms of GREAT, GOOD, OK and MISS.

At the end of each attack run, new OPS are awarded based on a calculation of overall precision (e.g. all GREAT or GOOD).

3.2.1 Scanning data

The score for *scanning* (i.e. matching) a data symbol is based on how accurately the player matches the rhythm with the right button. Failing to scan a data symbol results in haptic feedback (a buzz) if the control device supports it.

The scanner has to be pointed in the direction of incoming data (i.e. the data has to be inside the cone) for matches to be registered. The only exception is if a webcam has been configured for use. In this case the scanner does not appear and data code patterns are restricted to two buttons (LEFT/RIGHT mapped onto CROSS/CIRCLE)

Three levels of accuracy when matching a data code contribute to the score as follows:

GREAT =	1000
GOOD =	100
OK =	10

3.2.2 Level bonus

The level bonus is:

(level) x (# OPS retained) x 1000

3.3 Game Flow

ATTRACT -> INTRO → PLAY → GAMEOVER

3.3.1 Splash Sequence

There is a short splash sequence wherein CD appears, does something silly and establishes his relationship to the interface by becoming it.

3.3.2 Attract Mode

When not in play, Sanctuary runs in Cinema Mode. The player can move into Groover mode at any time.

3.3.3 Play Mode

This is the main game-play mode, as described above.






The player must have at least one set of OPS to advance through checkpoints, otherwise the game ends. Checkpoints occur roughly every minute of the game.

3.3.4 Gameover Mode

When the game ends, the display appears to mal-function and grinds to a halt. Te effect is like an LP slowing down. A RE-PLAY button is displayed.

If the player has a high score, a panel over the mal-function enables the score to be entered in first before the re-play option appears. A cache of high scores from modfilms.net is part of the save action. Any new eligible score is sent to modfilms.net at this time.

3.4 Gameplay Elements

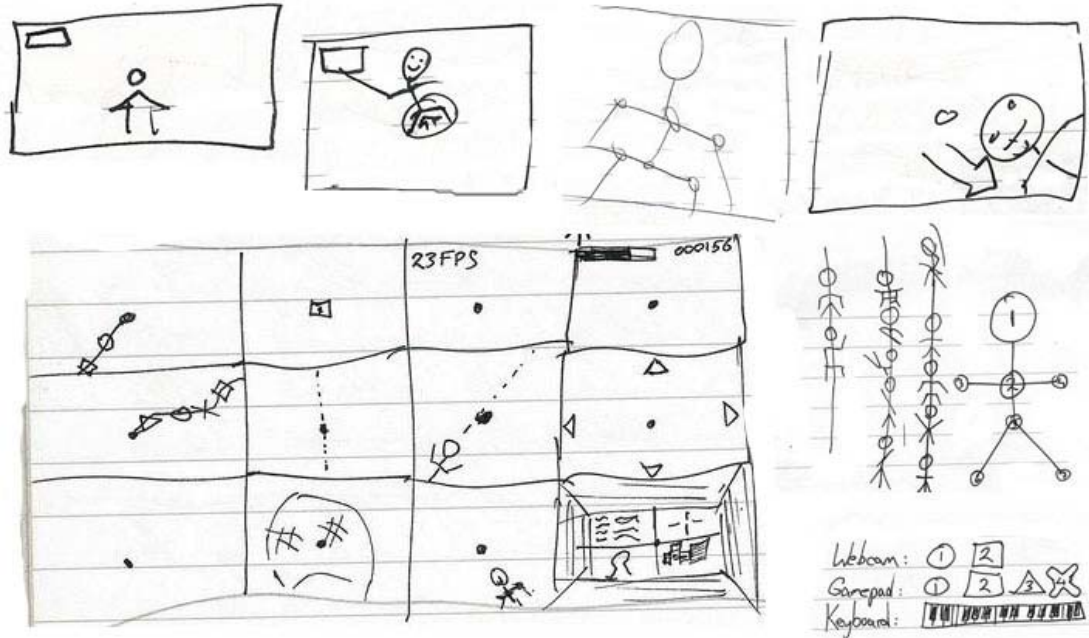
	CD
	Player/ Scanner
	Single data code
	Multiple data codes (squirt)
	Score + OPS

3.4.1 Player

The player is represented by the scanner in the middle of the screen. This can be rotated 360 degrees to point in any direction.

3.4.2 CD

CD, the 'Customised Dude' narrates the game and becomes part of the interface during attack runs. His body stretches out to become the line on which squirts of data are laid out.



3.4.3 Data code

Data codes are like notes. If the player correctly hits the correct button when the data code is in the middle of the screen (either GREAT, GOOD or OK accuracy) then a corresponding asset is played.

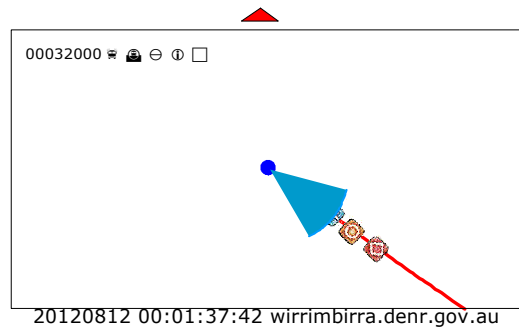
If not (i.e. MISS) there will be a discernable gap in the soundtrack on a particular layer.

Where possible, real-time visuals will be used in addition to audio.

3.5 AI Features

Groover sports no real AI. CD's commentary is based on the player's proficiency, shifting from negative to positive as OPS are acquired. The logic exhibited is that if the player is unable to master the interface then s/he is obviously not Blake (CD's creator), and worthy of disdain.

3.6 Game Screen



Score is shown at top left.

Scanner is in the center of the screen, only visible as a blue dot unless the player is moving. The player moves the scanner using the left analogue controller.

Pushing the scanner up results in the RIG arrow appearing and a rude reminder from CD that you are abandoning him and the game. If the player continues to push upwards for more than three seconds, the RIG returns to Cinema mode.

The player matches rhythm by hitting the button that corresponds to each button icon as it reaches the middle of the screen.

Additional buttons for OPS (TBC) will be determined later.

By default, the UI is configured for game-pad. Using a webcam configuration removes the need for the scanner to be rotated.

4 Media

4.1 Art

4.1.1 Overall Goals

Sanctuary plays off three distinct and recognizable aesthetics corresponding to different personalities in the film. These personalities are reflected in computer systems and character costumes. MODs align themselves to one or more personality by re-using art elements.

- State – overblown, 3D, corporate (think Minority Report)
- Activist – minimalist 2D (think Linux)
- CD (as in 'Customised Dude') – quick 'n dirty digital, graffiti, messy collage of borrowed influences

Browser mode is styled to the State aesthetic to give users the sense of browsing *virtual memory* in a narrative context (i.e. browsing the State Registry).

The RIG is styled according to the Indy aesthetic, as are Switch and Feeder modes.

Groover is styled according to CD's aesthetic.

4.1.2 Groover Game Art

- Sprites
 1. Center dot
 2. Scanner
 3. Data code icons x 4
 4. OPS buttons x 6 (TBC)
 5. Successful data scan glow
 6. CD as button x 8
- CD Animation routines
 1. Introduction
 2. Leaving game warning
 3. Negative Reinforcement x 10
 4. Positive Reinforcement x 10
 5. End of game
 6. High score

4.1.3 Marketing and Package Art

Marketing will be coordinated through the modfilms.net community and partner sites. *Sanctuary* will be marketed at people already familiar with sampling culture such as amateur film-makers, game MOD developers, DJs and VJs (live visual artists). The aim is to generate content and spread the buzz via sampling communities.

Package Art for Sanctuary should be minimal, imitating CD's source disc as seen in the film – "a disc with a hand-drawn image of CD on it".

4.2 Sound and Music

4.2.1 Overall Goals

The music and sound for Sanctuary, the film, should build tension and a sense of foreboding ahead of the "bush bash" sequence where all hell breaks loose. We always know things are going to end badly.

The goal of the interactive experience is to add another dimension to the film, the perspective of the voyeur in virtual space.

The film establishes look 'n feel and soundscapes for each of the three different aesthetics.

4.2.2 Additional dialogue

Groover uses the character CD ("the Customised Dude") as both the user interface, the help system, and cheeky comic relief with attitude.

- 5 CD introductory
- Leaving game warning
- 15-20 positive re-enforcement
- 15 - 20 non-committal remarks (cynical, cheeky, apathetic, aggressive, tired)
- 15-20 negative re-enforcements
- Gameover
- High Score!

4.2.3 Sound Effects

The RIG provides subtle audio feedback between moving between modes. MODs may call these library sounds or install new sounds that override them.

- In motion between nodes (ambient wild sound)
- Mode engaged (metallic click)
- Mode disengaged (metallic click)
- Mode navigation tone (short)
- Error tone (dodgy system)
- Select/Success tone (warm echo)

Groover mode uses the following additional sounds.

- Mode engaged (old fashioned mechanical)
- Mode disengaged
- Squirt complete
- End of level

4.2.4 Music

The default rhythm track for Groover is composed from a mixture of beats, melody and sound FX derived from the film's original score. Each data code corresponds to an audio sample that either comes out of the existing soundtrack or new sounds layered on top of the original soundtrack.

- Introduction
- Level 1 additional track
- Level 2 additional track
- High Score!

5 Appendix – MOD resource description

Key fields in the MOD resource description file are listed below. Fields marked with an asterix are compulsory. Not all of these fields have been implemented to-date.

Name*

The name of the MOD

Description*

Simple text description of the MOD

Size*

The size of the MOD

Type*

Categorisation as Film, Game or Utility

Version*

Version number of the MOD

URL*

Persistent URL to the location of the MOD online

Media_Library

List of full paths to art and audio asset files

UI_Library

List of full paths to code libraries for user interface functionality

Game_Simulation_Library

List of full paths to code libraries for game simulation code

Physical_Simulation_Library

List of full paths to code libraries for physical simulation code

6 Appendix– MOD Types

The following MOD types are a starting point for the community.

- **Film** – passive MODs
- **Game** – interactive entertainment MODs where the user is given a goal
- **Utility** – all other interactive MODs

Example MODs (type in brackets):

- **Reset** (Utility)
Resets *Sanctuary's* configuration files and MODs back to their default settings.
- **Flic2Flic** (utility)
Add P2P client capability to Cinema mode so you can exchange conversation and files with friends as you watch the film.
- **Jo's juggernaut** (Film)
Jo's "Gone in 60 seconds" one minute re-mix of the film
- **Nanobot screensaver** (Utility)
Screen art utility which puts the nano-bat 3D model on a random flight path through the virtual bush.
- **CD striptease** (Film)
Short re-mix sequence using new animation that has CD performing cheeky dance moves.
- **No time to think mix** (Film)
Sensory overload mix using more real-time VJ effects and banging techno through-out.
- **ShakesBlade** (Film)
Geddit? Copyright violation where the dialogue is somewhat antiquated.
- **VJ_RIG**
Container MOD that allows control sets to be edited in popular VJ software (e.g. Arkaos kos files) and used directly.

7 Appendix– Information architecture for asset library



Diagram. A simplified view of information contained within the asset map.

The top left fields are from the flic script (successor to the shooting script) and act as a transcript of what is in the final cut.

The middle fields contain a breakdown of what effects and editing was used to create the final cut, to the extent to which these can be reversed back out of the film as real-time assets.

The bottom fields show how the real-time film environment stores data.

The machine-readable information architecture for *Sanctuary* is stored in XML files.

All current film (original production) elements and (real-time demo) assets is being entered as RDF tuples and recorded in a relational database (MySQL) using Ontolog (an RDF authoring tool).

The following existing schemas have been used

- IMDB (generic movie database)
- Dublin Core Element Set 1.1

The following new schemas have been created for the project

- MOD Films – Film World Elements Set 0.1
- MOD Films - Story Elements Set 0.1

The following RDF datafiles are maintained

- MOD Films Remixable Film (production information)
- Sanctuary (story information)

This collection of information provides an unprecedented amount of contextual information about *Sanctuary* to be automatically derived by using Semantic Web search technologies⁷.

⁷ e.g. TAP Project - <http://sp04.stanford.edu/>