GeeXboX: An Introduction to Enna Media Center

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GeeXboX is major Live-CD multimedia distribution since 2003.

Turns your computer into full-featured Set-Top-Box:
- Play any kind of multimedia content (audio, video, photos …)
- From various locations: HDD, NFS, Samba, UPnP/DLNA …
- Supports CDDA, DVD, Analog TV and DVB playback.
- Fully controllable through LIRC-compatible remote.

- Originally created by a few MPlayer developers.
- GUI based on MPlayer OSD interface (i.e. limited).
- Downloaded by 2000+ users a day.
Willingness to split GUI from Media Player.

GeeXboX's MPlayer introduced many enhanced features:
  - DVDNAV, enhanced OSD menu, TV control, LCD display output, RTSP streaming …
  - Users requested these to be usable on regular distros.
  - Were merged to upstream project over the years.

GUI had to be portable, configurable and extensible.
  - Must support both Framebuffer and X11.
  - Had to be a standalone application, not GeeXboX-specific.
  - Should be able to control various media players.
Enna is a Media Center application for your Home Theatre PC.

Designed to be GUI for GeeXboX v2 release.

Meant to run on low-resources and embedded computers (250 kB binary only + theme).

GUI relies on Enlightenment Foundation Libraries (EFL).

Multimedia playback capabilities and metadata information retrieval rely on GeeXboX libplayer and libvalhalla projects.
• Built on EFL and GeeXboX multimedia libraries (*libplayer* and *libvalhalla*).

• Provides many abstraction layers.
libplayer is a multimedia A/V abstraction layer framework.

Provides a generic API to control various multimedia players:
- MPlayer, through FIFO-based slave-mode.
- Xine
- VLC (experimental)
- GStreamer (experimental)

Fully thread-safe.

Player controls and notification are offloaded to frontend.

Supports most of currently available A/V renderers:
- **Audio**: ALSA, OSS
- **Video**: Framebuffer, OpenGL, SDL, VDPAU, X11, XVideo
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libplayer Architecture

libplayer.geexbox.org

Blue: Event Handler Thread
Yellow: Supervisor Thread
Green: MPlayer Parser Thread or Asynchronous Callback
Orange: Multi-Thread Safe API
Violet: MPlayer or External Library
Gray: Reentrant Functions

Asynchronous events

Event Callback Internal

Event Handler

Event

Supervisor

* Control
  - Player
  - MRL

* Sync
  - Event handler

Player Internal

Playlist

MRL Internal

Wrapper Callback

Wrapper

MPlayer, Xine, VLC, GStreamer

Controls queue

no wait

Results

sync

recatch

sync
libvalhalla is a tiny media scanner library:

- High-performances multi-threaded implementation.
- Supports both background and on-demand operations.
- Stores information in SQLite database.
- Parses A/V stream properties through FFmpeg.
- Features many on-line grabbers for automatic retrieval of covers, lyrics, synopsis, list of actors …

Currently supported grabbers:

- Offline: EXIF, FFmpeg and NFO.
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libvalhalla Architecture

Valhalla internals
2009.12.24

Front-end

OnDemand

Scanner

DBManager

Dispatcher

Parser(s)

Grabber(s)

Downloader

FFmpeg

libxml2

Events GL

Events OD/MD

Newfile to check

Insert, Update or End

Needs parsing...

Step parsing

Step grabbing

Step downloading

Step ending

Database

SQLite

Images, ...

"Grabber" and "Downloader" threads are optional at the compilation. Libvalhalla can be used with only two steps on the dispatcher: PARSING and ENDING, if the grabber support is not complied.
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Enna (1/2)

- Designed with embedded considerations in mind (low footprint).
- Meant to be user convenient and plug-and-play.
- Module based and skinnable.
- Main modules:
  - Music Player
  - Movies & TV Shows Player
  - Photos Viewer
  - Weather forecast
  - Online eBook Reader from various content providers.
Supported Media Browsers: *Local disks, CDDA, DVD, Database, SHOUTcast, Podcasts and UPnP/DLNA.*

Dynamic media detection through UDEV library.

Controllable through keyboard, mouse, touchscreen and remote.

Mid/Long-term expected features:

- Port to Windows and OSX.
- TV support through VDR skin.
- YouTube browsing.
- Netflix VOD Partnership.
- Instant Messaging (*Telepathy*).
- VoIP Telephony.
- Video Conference and TelePresence ...
Young: first release (0.4.0) was made on 2th January 2010.
Next one is due by Spring with many feature enhancements.
First users feedback was quite impressive.
Will be key part of GeeXboX 2.0 release (so long waited for).
Still many competitors: XBMC / Boxee, Meedio, Win MCE …
Will support dedicated hardware: Beagleboard, N900 … (looking for sponsor and partnership).
Enna development is really cool: feel free to join :-) 
More details on:
- **Enna**: [http://enna.geexbox.org/](http://enna.geexbox.org/)
- **GeeXboX**: [http://www.geexbox.org/](http://www.geexbox.org/)
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That's all folks ...

http://enna.geexbox.org/

Thanks

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