

# NetFront™ Living Connect v2.3



Market-Leading DLNA Technology Component™ Solution for Multi-Screen Media Sharing on Consumer Electronics and Home Networks

## Product Data Sheet

NetFront™ Living Connect is a market-leading Digital Living Network Alliance (DLNA) Technology Component™ solution that enables device manufacturers to quickly and efficiently implement services that support DLNA standards on consumer electronic devices including mobile phones, digital cameras, printers, DVD players, game consoles, digital TVs, set-top boxes, network attached storage (NAS) boxes and more. NetFront Living Connect is optimized for embedded devices and features high portability and a flexible modularity that allow it to function with any OS or CPU while also providing for easy customization.

### Specifications

#### Delivery Package

- Binary or Source Code Software Development Kit (SDK)
- Platform Independent Code
- Sample Applications
- Porting Layer Source Code

#### DLNA Device Classes

- Digital Media Server (DMS/M-DMS)
- Digital Media Player (DMP/M-DMP)
- Digital Media Controller (DMC/M-DMC)
- Digital Media Renderer (DMR)
- Mobile Digital Media Uploader (M-DMU)
- Mobile Digital Media Downloader (M-DMD)
- Digital Media Printer (DMP)

#### DLNA Device Capability

- Push Controller (+PU+)
- Upload Controller (+UP+)
- Download Controller (+DN+)
- Upload Sync Controller (+UPSYNC+)
- Download Sync Controller (+DNSYNC+)
- Printing Controller (+PR1+), (+PR2+)
- Remote User Interface (+RUIPL+)
- Remote User Interface (+RUISRC+)

#### Other Functions

- UPnP AV Stack
- SOAP, SSDP, HTTP (DLNA supported), Parser
- DLNA QoS
- Thumbnail Generation (Video and Pictures)
- Subtitle Support
- Auto Playlist Generation
- Meta Data extension via External Server (e.g. Album cover)
- Geolocation Support
- Ready for Windows® 7 logo program certification for NetMedia Server
- Compliant to Xbox® Media Player
- "All Server" Content Aggregation

#### Optional Modules

- DTCP-IP Link Layer security
- Smart Media Manager
- Content Synchronization Module
- Remote User Interface Module (Bundle possible with NetFront Browser)
- Scheduled Recording Service

#### Open Source modules (Platform requirement or provided by ACCESS)

- SQLite Library
- XML Parser (Open Source Expat)
- FFmpeg (LGPL) Media Format Extension (Optional)
- IJGJPEG Library

#### Documents

- Outline Manual
- Porting Manual & Peer API Specification
- Sample Application API Specification
- Device Classes API Specification

#### Smart Media Manager (SMM)

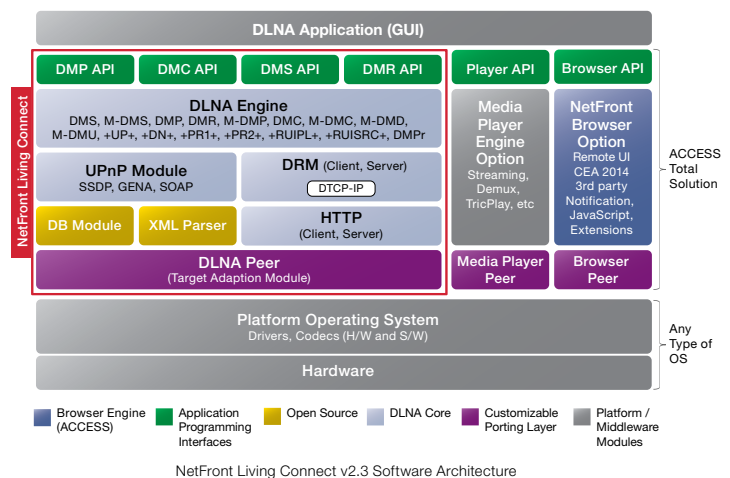
- Fast File Indexing
- SQL Database
- Meta Data Enhancements
- Integrated WEB UI
- Security Features (Parental Control)
- File/Folder Sharing Settings

#### Media Processing Engine (MPE)

- 120+ Media Formats
- Video and Picture Thumbnails
- Embedded Subtitle Support
- Geolocation Support

#### Playlist support

- .m3u
- .pls
- m3u8
- wpl



### Flash ROM Memory Requirements (Example for Linux® OS)

The application footprint is dependent on the target platform and compile options. The figures below can be taken as an example for a Linux build. Figures include SQLite library, EXPAT, ijgjpeg lib, FFmpeg dynamically linked\* (DMP, DMR, DMC command-line application without MediaPlayer).

BINARY	DMS Standard	DMS Media Center*	DMP cmdline	DMR cmdline	DMC	Icon + HTML
Executable size	1.6 MB	2.0 MB	1.2 MB	1.1 MB	1007 kB	60 kB
Compressed LZMA Flash ROM size	709 kB	805 kB	508 kB	467 kB	416 kB	46 kB

\* Typically the flash requirement for FFmpeg is 2.0 MB. The actual size depends on the compile options. (A 30% variance is possible.)

#### DMS Standard Features

- Mandatory DLNA 1.5 Profiles
- Normal Subtitle Support
- Full DLNA Search
- Image Thumbnails

#### DMS Media Center Features

- DMS Standard Features
- New File Formats and DLNA profiles
- MPE (Media Processing Engine)
- All Image and Video Thumbnails
- MPE Time Seek
- Normal + Embedded Subtitles
- Auto Playlist Generation
- Upload/Download Capability
- Parental Guidance
- Web UI

#### RAM Memory Requirements (Example for Linux OS)

- SRAM is configurable
- Recommended Starting Point 16MB

#### Smart Media Manager Memory Options:

- SQLite Interface Memory Consumption
- Video Thumbnail Creation Swapping
- Picture Thumbnail Creation Swapping Buffer
- Enable/disable Formats and Codecs\*

\* Certain codecs require additional license agreements with IP owners (e.g. ac3, divx)

#### Multi Language and Embedded\* Subtitles Support (Not specified by DLNA)

- .aqt, .ass, .gsub, .idx, .jss, .mkv, .pjs, .psb, .rt, .smi, .srt, .ssa, .ssf, .sub, .txt, .usf

\* Only part of NetFront Living Connect 2.3 Media Center

### DMS Major Media Types Supported

NetFront Living Connect is offered in both a Standard and a Media Center configuration.

File Extension	Type	Description	NFLC 2.3 Standard	NFLC 2.3 Media Center
.264	File format	RAW H264		●
.3g2	Container format	3GPP V2 format		●
.3gp	Container format	3GPP format	●	●
.3gp2	Container format	3GPP V2 format		●
.3gpp	Container format	3GPP format		●
.aa3	Container format	OpenMG encrypted ATRAC	●	●
.aac	File format	Raw AAC stream	●	●
.ac3	File format	AC3 / DTS	●	●
.act	File format	Audio type		●
.adts	File format	MpegTS	●	●
.aifc	Container format	Audio Interchange File Format		●
.aiff	Container format	Audio Interchange File Format		●
.amr	File format	Adaptive Multirate Audio		●
.asf	Container format	Windows Media Advanced Streaming Format	●	●
.asx	Container format	Audio Format		●
.at3	File format	Atrac3 file		●
.at3p	File format	Audio Format		●
.au	File format	Au file format		●
.avi	Container format	Audio/Video Interleaved	●	●
.bmp	File format	Bitmap	●	●
.cif	File format	Digital video		●
.divx	Container format	Audio/Video Interleaved		●
.dpx	File format	Image Digital Picture exchange		●
.dts	File format	DTS padded		●
.dv	File format	Digital video		●
.f4a, .f4b, .f4p, .f4v	Container format	Adobe Flash Video		●
.flac	File format	Free lossless audio codec		●
.flv	Container format	Adobe Flash Video		●
.flv	Container format	Adobe Flash Video	●	●
.gif	File format	Graphics Interchange Format	●	●
.h263	File format	RAW H263		●
.h264	File format	RAW H264		●
.hdmov	Container format	Quick Time		●
.ico	File format	Icon image format		●
.jpeg	File format	JPEG image	●	●
.lpcm	File format	LPCM Audio	●	●
.m1v	Container format	MPEG-1 Video		●
.m2p, .m2t	Container format	MPEG-2 Video		●
.m2ts	Container format	MPEG-2 Video Transport Stream		●
.m2v	Container format	MPEG-2 Video		●
.m4a	Container format	MPEG 4 Audio	●	●
.m4b	Container format	MP4 Audio Book		●
.m4p	Container format	MP4 w FairPlay DRM	●	●
.m4r	Container format	MP4 Ring tone		●
.m4v	Container format	MP4 visual	●	●
.mid	File format	MIDI sound		●
.mj2	Container format	Motion JPEG 2000		●
.mjpg, .mjpeg	File format	Motion Jpeg		●
.mka	Container format	Matroska MM Container Audio		●
.mks	Container format	Matroska MM Container Subtitle		●
.mkv	Container format	Matroska MM Container Video		●

File Extension	Type	Description	NFLC 2.3 Standard	NFLC 2.3 Media Center
.mlp	File format	Meridian Lossless Packaging (Dolby TrueHD)		●
.mod	Container format	MPEG-2 Video		●
.mov	Container format	Quick Time	●	●
.mp1	File format	MPEG-1 Audio Layer 1		●
.mp2	File format	MPEG-1 Audio Layer 2		●
.mp3	File format	MPEG-1 Audio Layer 3	●	●
.mp4	Container format	Mpeg 4 Part 14	●	●
.mp4v	Container format	Mpeg 4 Visual		●
.mp2p, .mp2t	File format	MPEG-2 Video		●
.mpe	Container format	MPEG-2 Video		●
.mpeg	Container format	MPEG-1 Video	●	●
.mpeg2	Container format	MPEG-2 Video	●	●
.mpegts	Container format	MPEG-2 Video Transport Stream		●
.mpg	Container format	MPEG-1 Video	●	●
.mpv2	Container format	MPEG-2 Video		●
.mpv4	Container format	Mpeg 4 Visual		●
.mts	Container format	MPEG-2 Video Transport Stream		●
.mxf	Container format	Material eXchange Format		●
.oga	Container format	Xiph.Org Foundation Container		●
.ogg	Container format	Xiph.Org Foundation Container	●	●
.ogm	Container format	Xiph.Org Foundation Container		●
.ogv, .ogx	Container format	Xiph.Org Foundation Container		●
.pcm	File format	PCM audio		●
.pcx	File format	Zsoft Image		●
.png	File format	Portable Network Graphics	●	●
.ppm	File format	Jpeg lossless		●
.ps	File format	MPEG-2 Program Stream		●
.qt	Container format	Quick Time	●	●
.ra	Container format	Real Media Audio		●
.ram	File format	Real Audio Media Format		●
.rm	Container format	Real Media		●
.rma	Container format	Real Media Audio		●
.rmi	File format	Audio Format		●
.rmv	Container format	Real Media Video		●
.rmvb	Container format	Real Media Variable bitrate		●
.roq	File format	Id Soft RoQ Video		●
.rv	Container format	Real Media Video		●
.snd	File format	Au file format		●
.spx	Container format	Xiph.Org Foundation Container		●
.swf	Container format	Adobe Flash Video		●
.targa, .tga	File format	TrueVision Targa Image		●
.tif, .tiff	File format	Tagged Image File Format	●	●
.tp	Container format	MPEG-2 Video		●
.tpr	Container format	MPEG-2 Video		●
.ts	Container format	MPEG-2 Transport Stream	●	●
.tts	Container format	Time Stamp Transport Stream	●	●
.vc1	File format	Microsoft VC-1		●
.vob	Container format	MPEG-2 Video		●
.voc	File format	Creative Voice file		●
.wav	Container format	Waveform Audio File Format	●	●
.webm	File format	WebM VP8		●
.wma, .wmv	Container format	Windows Media Advanced Streaming Format	●	●



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