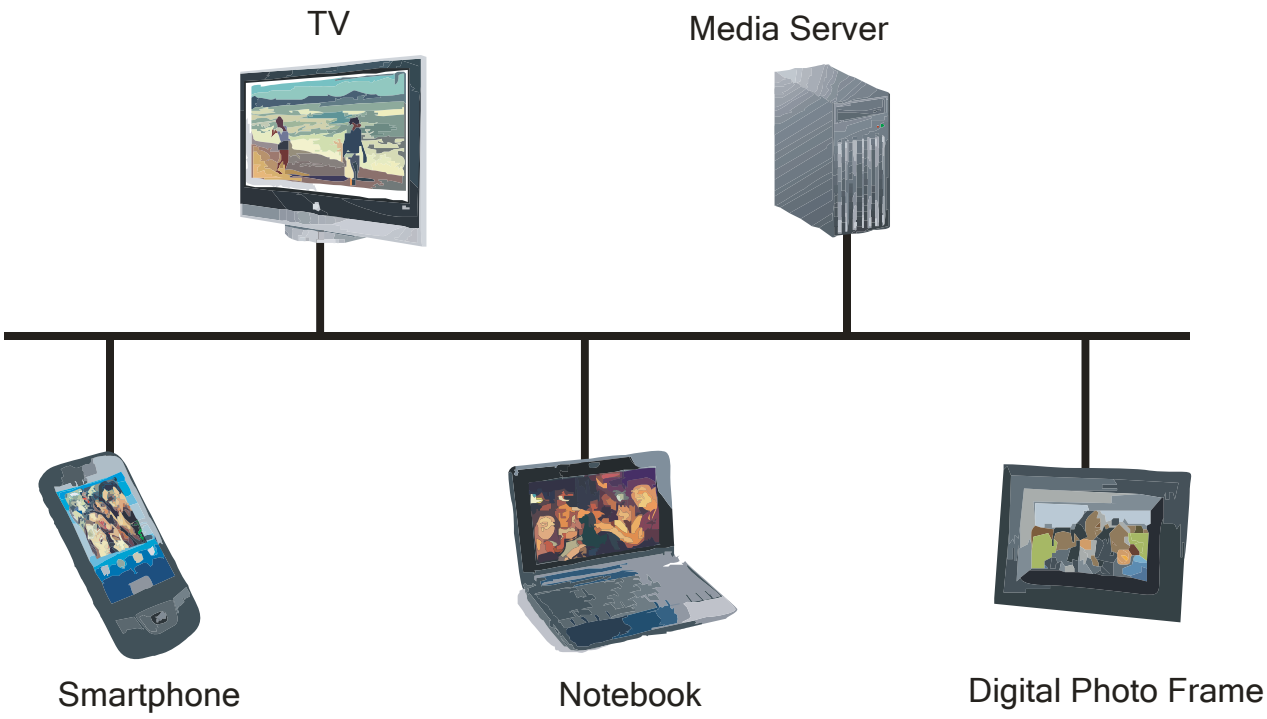
UPnP SDK for OEM

UPnP A/V (DLNA) capability for OEM



An easy to integrate UPnP SDK solution that provides Audio/ Video UPnP functionality for devices with networking capability. Add value for the end-user by letting your device provide UPnP functionality.

UPnP allows a device with Wi-Fi/ LAN network connection to control Media content on other devices, or have it's Media content controlled/played by the other devices, on itself or another device.

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UPnP SDK for OEM

UPnP STACK

Complete UPnP and UPnP AV DCP stack solutions

UPnP AV Digital Media Renderer, Digital Media Server and Digital Media Controller libraries with powerful API or as turnkey solution.

Highly scalable and customizable. Configurable layered and modular architecture.

Highly portable thin base port layer for as and networking interfaces, easy portability to embedded and real-time operating systems with socket support, reference ports on Symbian, Linux and Win32 platforms .

Small footprint, optimized memory and system resource management. Targeted for embedded consumer devices

High quality. Portable fully automated test suite, 100% statement coverage, system remains stable in exceptional cases.

Fast and easy customer UPnP application and service development. Simple and comprehensive ANSI-C APIs and documentation, automatic service API and stub generation from XML service descriptors.

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UPnP SDK for OEM

UPnP STACK

Porting Layer
- Customer implementation of the highly portable OS and networking APIs that the UPnP stack code uses
- OS interface: threads, mutexes, events, timers, thread pool, dynamic memory, debug
- BSD socket like networking interface
- ANSI-C standard library: types, file system, strings, rand, time

HTTP Stack
- HTTP connection management
- HTTP message parser
- Small HTTP server including dynamic content handlers

UPnP Stack
- Device and control point support (configurable)
- Complete SSDP, GENA, and SOAP implementations
- Optional device cache component
- Customer own XML/DOM components can be attached to the stack components if desired

Service framework
- Optional component to considerably ease development of customer UPnP™ applications
- Hides completely SOAP messaging and UPnP communication complexity from control point and device application developers
- Based on automatically created control point side C-APIs and device side stubs from UPnP™ service descriptions

AV Stack
- Optional component for easy implementation of UPnP™ Media Server and Media Renderer devices and AV control points
- Platform independent device side CD and CM implementations and APIs
- Reference implementation of device side AV player control on Windows and Linux PCs and Symbian mobiles
- Easy high-level control point C-API to hide complexities of UPnP AV architecture

Operating Systems
- Intel x86, ARM, MIPS, Porting to other major processors like PowerPC possible

System Requirements
- TCP/UDP/IP stack support. The stack is also ported to run on lwIP IP-stack (light-weight implementation of the TCP/IP protocol suite) on systems that do not have a native IP stack support.

Memory Requirements
- Simple stand-alone UPnP: ~130 KB + *RAM (static and heap w/o stacks) usage ~30 KB*
- UPnP AV MediaServer/MediaRenderer/ControlPoint combo with UI: ~250KB+ ^*RAM (static and heap w/o stacks) usage ~60 KB*
- A Stack size of minimum 32 KB per thread is recommended
- Static threads (Device Side): 2
- Static threads (Control Point): 1
- Dynamic threads (Typical Control Point): 1
- Reference Implementation pool and timer threads: 3+

MediaServer
- Any media types. The web server itself is indifferent to media content type.
- Metadata (reference implementation):
    - MPEG-1, MPEG-2 (.mpeg): duration
    - MP4 container (.mp4): duration
    - JPEG, GIF, TIFF, PNG: resolution
    - MP3: duration, ID3v1 metadata
    - AMR: duration
    - PCM audio: duration and the size of media for all types.
    - File type specific metadata support can easily be enhanced without touching the core stack code itself.
    - The customer specific callbacks allow any meta data to be added to ContentDirectory objects.

Winwap Technologies

Mobile Internet Browsing and Multimedia Messaging

Winwap Technologies is specialized in software technology for networked devices. The products include Browser, Multimedia Messaging, Email, UPnP A/V, USB Modem Drivers and services for integrating and customizing to meet customer requirements. Customers can be found on all continents and the software is embedded into various products on global markets.

Winwap Technologies is privately owned and was founded in 1995 by Mikael Krogius, who continues to run the company today. Since the first days of operation the company has been involved in telecommunications. In 1999 the world's first Mobile Internet WAP Browser for Windows was released and paved the way for the strong focus on wireless software technologies for embedded platforms of today.

At Winwap Technologies we are right at home with projects that have multi-year lifecycles and making sure our technology maintains value for customers during that time. It is further important to us to maintain our flexibility towards customers and ability to adapt to the ever changing mobile climate to continue to provide value to our customers in the long term.

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Head office

Winwap Technologies Oy
Melkonkatu 16 B
FIN 00210 Helsinki
Finland

Phone: +358-207-661868
Fax: +358-9-6822187
Email: winwap@winwap.com

Asia Pacific

Winwap Technologies
Finland Trade Center
Technology Center, Embassy of Finland
Kerry Centre, South Tower, Level 14
Guanghua Road, Chaoyang District
Beijing 100020
China

Tel: +86-10-60870079
Fax: +86-10-87754479
Email: china@winwap.com

All Winwap products are available for hardware or software manufacturers that want to include the products as part of their own solutions and products.

The products can be tailored and built for specific platforms, including desktop computers, notebooks, kiosks, handheld devices and smart phones.