

eXtensible Music Format

Open Standard Audio for 3G Mobile Devices

What is XMF?

XMF is an open container format in which multiple audio file types can be packaged and delivered. This universal standard enables simultaneous mixing of MIDI music and digitally recorded PCM audio while providing an open architecture for including optional file security.

Consistent Playback

A primary objective of the XMF specification is to ensure a consistent playback experience across all mobile platforms. The format has been designed to be platform agnostic, and supports the widely-accepted DLS synthesis standard.

Downloadable Sounds (DLS)

The XMF standard supports DLS instrumentation and synthesis. DLS offers extensive flexibility to create high quality synthesized instruments and soundbanks. More importantly, the DLS specification provides great detail to ensure that instrumentation and quality is consistent despite the playback environment. With XMF and DLS both globally adopted standards, XMF content is positioned to become the de facto audio standard for mobile devices.

MIDI Compression

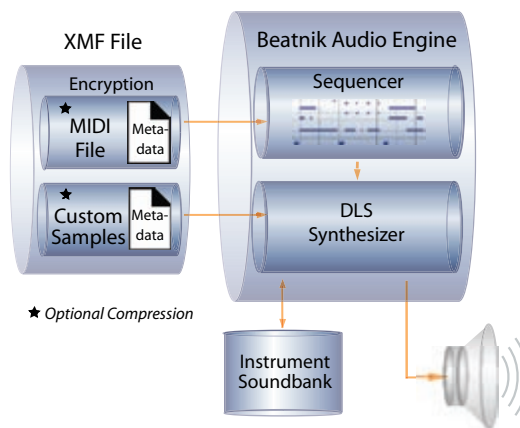
XMF can compress standard MIDI files up to 5:1 depending upon the complexity of the file. This is of particular benefit for mass market, resource-constrained devices

that require polyphonic ringtone playback. High-quality polyphonic XMF files can be smaller than 10 KB.

Security Support

The XMF specification also provides a facility for applying security without burdening content

XMF Playback With Beatnik



distributors with a complicated architecture. To accomplish this, XMF provides a structure that allows total flexibility when integrating an encryption solution, but can also be implemented without security if so desired.

At a most basic level, XMF supports the inclusion of file metadata containing information such as composer name, publisher name, copyright, and licensing details. This provides a basic tracking mechanism for composers, publishers and content distributors. XMF metadata can also contain unique identifiers to lock playback of a file to a

specific device or user account, giving distributors the option to restrict the transfer of content from one device to another.

Additionally, the XMF specification supports the inclusion of encryption technology. For content distributors who desire a higher level of security, encryption can be easily integrated with XMF.

XMF and MMS

Because XMF is an open container, not a specific content file type, its support for media playback is extremely flexible. Although the focus of the initial XMF specification is music, the format can be extended to support virtually any media type, including audio, text, and images. As MMS services continue their global rollout, XMF will provide a simple solution for transmitting multimedia messages wirelessly in a single package.

XMF Evangelism

Beatnik doesn't just support the XMF standard, we helped write it. The Beatnik Audio Engine technology and content creation tools have been designed with XMF in mind. Beatnik's Mobile Sound Builder includes an XMF creation utility and the mobileBAE engine has integrated support for XMF playback.

History of XMF Standard

The eXtensible Music Format specification was standardized by the MIDI Manufacturers Association (MMA) and its Japanese sister organization, the Association of Musical Electronics Industry (AMEI) in 2001 as an open format for mobile device audio. Since that time, Beatnik has teamed with a group of wireless industry leaders with the common goal of having XMF included in version 6 of the 3GPP specification. All this standardization progress has made XMF an influential audio standard for the mobile industry.

More Information

For more information about XMF, DLS, or the Beatnik Audio Engine, please visit www.beatnik.com.

FEATURES	BENEFITS
Standards-Based MMA & AMEI standard. Next target - 3GPP.	Positioned for wide proliferation of content with consistent playback on any platform
High Quality Sound High quality digital audio playback	End users get the highest quality experience from their wireless device
Tiny File Size MIDI compression up to 5:1	Memory and storage space required in device is minimal
Mixes Multiple Audio Types Combines recorded audio and MIDI in a single file	Rich audio experience with more options for mixing multiple audio types
Metadata Each XMF file contains metadata fields	Gives composers and publishers a way to tie authoring and copyright data to each file
Encryption Flexibility to add custom encryption schemes	Content creators and distributors can implement their encryption scheme of choice to protect content