



Digital Music, Photo, and Video Collections



MPV Music Profile Specification

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Working Draft**

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This document is available at <http://www.osta.org/mpv/mpvmbrrs/specs/MPVMusicProf-Spec-0.40WD.PDF>

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ABSTRACT

The Music Profile specification defines metadata and practices for processing and playback of collections of digital music collections stored on an optical disc and other storage media such as memory cards and computer harddrives or exchanged via internet protocols.

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Chapter 1: Introduction

TODO items:

- official MIME types and PC/Mac file extensions for ATRAC3 and AAC.
- Look into Mood, Situation, Tempo standard values

1.1 Executive Summary

MPV (Music/Photo/Video) is an open specification that makes easier the representation, exchange, processing and playback of collections of digital media content, including music, still images, stills with audio, still sequences, video clips, and bare audio clips.

Applications and devices and users that use MPV benefit even when they only interact with music and audio in basic ways; such as personal music collections that can be burned on CDs by many software applications.

MPV uses a simple text-based format that is easily understood and also easy to produce and consume programmatically in firmware or computer software. MPV does *not* tackle a large number of problems at once – instead, it focuses on a few key problems that it solves with simple but robust approaches. Where possible and practical, it supports use of established specifications and standards.

The development and promotion of MPV is sponsored by the Optical Storage Technology Association (OSTA). The specification development and promotion process is open to all members; all organizations and individuals are welcomed as members. The association includes over 50 member companies from all over the world that produce products that collectively represent a majority marketshare in mainstream recordable optical storage categories.

MPV is not only a specification. It also includes a compliance test suite and processes, compliance testing materials, a logo program for compliant products, and a website. These materials and procedures are made available and administered by OSTA at a modest cost. OSTA charges no royalty for use of the specification or logo. In addition, sample open-source code implementations of key steps in processing MPV content may be contributed by interested parties.

The specification is being developed in phases and results in "profiles". Each profile in MPV defines only those formats and practices that are necessary for the key tasks targeted by the profile. A number of candidate profiles for development have been identified, including:

- **Basic Profile:** key tasks: defining content collections, renditions, identifiers, and access to other metadata
- **Presentation Profile:** two key tasks: viewing a slideshow and interactively browsing content collections
- **Photo/Video Profile:** two key tasks: viewing a slideshow and interactively browsing content collections
- **Music Profile:** key tasks: listening to a music collection and interactively browsing content collections

- **Internet Profile:** key task: interacting with and sending collections of photo-video content over the web and email
- **Disc Archive Profile:** key task: interoperability of photo archives on recordable optical discs
- **Editing Profile:** key task: modifying existing collections of photo-video content.
- **Printing Profile:** key task: printing collections of photo-video content
- **Container Profile:** key task: storing photo-video content collections in containers

Underlying all profiles is the “Core”, which defines the overall framework of all MPV profiles. The Basic and Presentation Profiles, for example, build on the Core and, when implemented in consumer electronics devices like DVD players or in application software, can provide compelling playback of photo-video slideshows and interactive browsing of photo-video content. It can also facilitate interchange of photo-video content between applications.

MPV technology has three central components: Collections, Metadata, and Identification. Each of these make reference in various ways to data files containing the photo-video content. This information may be augmented by information from various profiles. For example, the Presentation profile provides information that may be used by player applications and devices to provide an attractive playback user experience.

1.2 Terms of Use

This section of the specification is descriptive and not intended to be complete nor definitive. Please refer to the definitive statement of licensing terms at the beginning of the MPV specification document for a precise and legal description.

The MPV specification is developed using an open process. The resulting specification is available from OSTA. No royalty is charged by OSTA for use of the specification. The overall desire is to develop a specification that is not subject to separate licensing requirements or royalty. During the development process, the expectation is that all participants contribute their efforts and intellectual property without any expectation or requirement for compensation. However, OSTA does not warrant that the specification is not or will not be subject to such claims by other parties.

MPV is not only a specification. It also includes a compliance test suite and processes, compliance testing materials, a logo program for compliant products, and a website. These materials and procedures are made available and administered by OSTA at a modest cost. OSTA charges no royalty for use of the specification. In addition, some sample open-source code implementations of key steps in processing MPV content may be contributed by interested parties.

Chapter 2: MPV Music Profile 1.0

The MPV Music Profile builds on the existing MPV Core specification and Basic and Presentation Profiles for creating collections of music and organizing them into albums / playlists. The MPV Music Profile augments this framework with additional metadata specific to music.

The Music Profile provides a basic set of metadata which represents data and conventions used by software applications that create and play compressed audio music on PCs or consumer electronics devices and music publishers of music CDs. The MultiAudio specification, already developed by OSTA [**MultiAudio**], is an earlier generation of technology; implementers are encouraged to adopt MPV.

2.1 MPV Music Profile Introduction

The MPV Music Profile 1.0 supports the following key tasks: defining collections of music, organizing music into albums and playlists, listening sequentially or shuffled to an album / playlist, and interactively browsing single or multiple album / playlists of music.

The music metadata that may be represented using the MPV Music Profile includes the following:

Music Asset (“Song”, “Track”): Asset Location, Title, Principal artist, Album title, Genre, Playing time, Year recorded, Original order, Artwork, Videos, Performed by, Music by, Lyrics by, Arranged by, More info, Average encoded bitrate, Lyrics, Rights, Identifier, Description, Format,

The MPV Music Profile can also organize music content in useful and novel ways. For example, a music asset may have multiple representations, such as multiple bitrate encodings, multiple format encodings (which may enhance compatibility with devices), and multiple representations, such as audio-only, video-with-audio, and song artwork.

Album (“Playlist”) of Music: Title, Principal Artist, Description, Identifier, Artwork, Music Entries

The capabilities of the MPV Music Profile allows discs to be produced that have variable user experiences depending on the type of device used to play them. For example, a low-cost CD player could just play MP3 music and display information on a 4 line LCD display. A capable DVD player could play music videos and display music information on a multi-line graphical display along with artwork and lyrics.

MPV also allows music to be organized into hierarchical playlists, allowing users to navigate among playlists that may be both pre-generated or created on-the-fly by the playback application.

2.2 Formalities For Use of the MPV Music Profile

The mechanism that MPV uses to add capabilities to the Core specification is the Profile. MPV has specific formalities a MPV Profile is used -- an MPV file must declare which profiles it implements and it must declare the namespaces of the profiles. This allows a processing application to quickly determine whether a given MPV file meets its expectations for processing.

PROFILE COMPONENTS

The MPV Music Profile 1.0 consists of the following modules and practices, which are specified in detail separately in this document.

- MPV Core Specification 1.0
- MPV Presentation Profile Specification 1.0
- MPV Music Profile Specification 1.0

The MPV Music Profile 1.0 includes the schema and practices detailed by this document.

COMPATIBILITY

The MPV Music Profile 1.0 is an extension of the MPV Core Specification 1.0 and is fully compatible with the MPV framework it establishes.

The MPV Music Profile should be supported by MPV-aware applications and devices that represent and present collections of music to users. However, the full range of devices and applications that just understand basic MPV content can be compatible with the Music Profile because it builds on existing MPV framework in a compatible way.

SCHEMA NAMESPACE

This information must be present in the namespace declarations in the MPV Manifest.

Schema	Namespace Identifier	Schema Location	Conventional Namespace Prefix
Music Profile	http://ns.osta.org/mpv/music/1.0/	lax/profiles/music/profile.xsd	mpvm:

PROFILE IDENTIFIER

This information must be present in the Profile section of the MPV Manifest.

Music Profile Name	http://ns.osta.org/mpv/music/1.0/
--------------------	---

EXAMPLE

```
<?xml version="1.0" encoding="UTF-8"?>
<file:Manifest
  xmlns:file="http://ns.osta.org/manifest/1.0/"
  xmlns:mpv="http://ns.osta.org/mpv/1.0/"
  xmlns:mpvp="http://ns.osta.org/mpv/presentation/1.0/"
  xmlns:mpvm="http://ns.osta.org/mpv/music/1.0/"
```



```
xmlns:nmf="http://ns.osta.org/nmf/1.0/" >
<nmf:Metadata>
  <ManifestProperties xmlns="http://ns.osta.org/manifest/1.0/">
    <ProfileBag>
      <Profile>http://ns.osta.org/mpv/basic/1.0/</Profile>
      <Profile>http://ns.osta.org/mpv/presentation/1.0/</Profile>
      <Profile>http://ns.osta.org/mpv/music/1.0/</Profile>
    </ProfileBag>
  </ManifestProperties>
</nmf:Metadata>

...

</file:Manifest>
```

Chapter 3: MPV Music Schema Introduction

3.1 Introduction

The MPV Music Profile makes use of the existing MPV Core specification and Basic and Presentation Profiles for creating collections of music and organizing them into albums / playlists. The MPV Music Profile augments this framework with additional metadata and practices specific to music.

The Music Profile provides a basic set of metadata which represents data and conventions used by software applications that create and play audio music on PCs or consumer electronics devices and music publishers of music CDs. The MultiAudio specification, already developed by OSTA [**MultiAudio**], is an earlier generation of technology; implementers are encouraged to utilize MPV. The music metadata that may be represented using the MPV Music Profile includes the following:

Music Asset (“Song”, “Track”): Asset Filename, Title, Principal artist, Album title, Genre, Playing time, Year recorded, Original order, Artwork, Music video, Performed by, Music by, Lyrics by, Arranged by, More info, Average encoded bitrate, Lyrics, Rights, Identifier, Description, Format,

Album (“Playlist”) of Music: Title, Principal Artist, Description, Identifier, Artwork, Music Entries

3.2 Examples

MPV Music playlists can range from simple to sophisticated, depending on the amount of available information and the ability of the creating application.

3.2.1 Namespaces and Profiles

All MPV files begin with a preamble that declares the XML namespaces and profiles used by the file. The `xmlns:xyz="namespace identifier"` sequence assigns a shortcut prefix (xyz) to represent the unique namespace identifier within the file. Use of namespaces allows the same element name to be used from different schema without ambiguity. For example, `foo:Element` and `bar:Element` are different if the namespace identifiers are different.

```
<?xml version="1.0" encoding="UTF-8"?>
<file:Manifest xmlns:file="http://ns.osta.org/manifest/1.0/"
  xmlns:mpv="http://ns.osta.org/mpv/1.0/"
  xmlns:mpvp="http://ns.osta.org/mpv/presentation/1.0/"
```

```

xmlns:mpvm="http://ns.osta.org/mpv/music/1.0/" xmlns:dc="http://ns.osta.org/nmf/1.0/dc/"
xmlns:nmf="http://ns.osta.org/nmf/1.0/">
<nmf:Metadata>
  <ManifestProperties xmlns="http://ns.osta.org/manifest/1.0/">
    <ProfileBag>
      <Profile>http://ns.osta.org/mpv/basic/1.0/</Profile>
      <Profile>http://ns.osta.org/mpv/music/1.0/</Profile>
    </ProfileBag>
  </ManifestProperties>
</nmf:Metadata>

```

3.2.2 Simple Example

This example of a MPV Music Profile file has 6 songs with only file location info for each item. There is no separate mpvp:Album playlist, so the sequence is the order of appearance in the mpv:AssetList. This example is the simplest form of using MPV for music playlists. Note that the file location of each song is provided in the two filesystems that typically occur on a CD, which are Joliet and ISO9660-1.

Even with this very simple usage, this MPV playlist adds value to the user's playback experience because the order of music playback is specified explicitly and is different from the sort order of the music by filename or file date.

```

<?xml version="1.0" encoding="UTF-8"?>
<file:Manifest xmlns:file="http://ns.osta.org/manifest/1.0/"
xmlns:mpv="http://ns.osta.org/mpv/1.0/"
xmlns:mpvp="http://ns.osta.org/mpv/presentation/1.0/"
xmlns:mpvm="http://ns.osta.org/mpv/music/1.0/" xmlns:dc="http://ns.osta.org/nmf/1.0/dc/"
xmlns:nmf="http://ns.osta.org/nmf/1.0/">
<nmf:Metadata>
  <ManifestProperties xmlns="http://ns.osta.org/manifest/1.0/">
    <ProfileBag>
      <Profile>http://ns.osta.org/mpv/basic/1.0/</Profile>
      <Profile>http://ns.osta.org/mpv/music/1.0/</Profile>
    </ProfileBag>
  </ManifestProperties>
</nmf:Metadata>
<mpv:AssetList>
  <mpv:Audio mpv:id="01-GREAT-SWING-CLASSICS.MP3-20021202031833-a">
    <mpv:LastURL mpv:filesystem="Joliet">Great Swing Classics in HI-FI/Benny Goodman
And His Orchestra - Jumpin' At The Woodside.mp3</mpv:LastURL>
    <mpv:LastURL mpv:filesystem="ISO9660-1">GREAT_SW/BENNY_GO.MP3</mpv:LastURL>
  </mpv:Audio>
  <mpv:Audio mpv:id="02-GREAT-SWING-CLASSICS.MP3-20021202031833-a">
    <mpv:LastURL mpv:filesystem="Joliet">Great Swing Classics in HI-FI/Duke Ellington
And His Orchestra - Harlem Air Shaft.mp3</mpv:LastURL>
    <mpv:LastURL mpv:filesystem="ISO9660-1">GREAT_SW/DUKE_ELL.MP3</mpv:LastURL>
  </mpv:Audio>
  <mpv:Audio mpv:id="03-GREAT-SWING-CLASSICS.MP3-20021202031833-a">
    <mpv:LastURL mpv:filesystem="Joliet">Great Swing Classics in HI-FI/Stan Kenton And
His Orchestra - Intermission Riff.mp3</mpv:LastURL>
    <mpv:LastURL mpv:filesystem="ISO9660-1">GREAT_SW/STAN_KEN.MP3</mpv:LastURL>
  </mpv:Audio>
  <mpv:Audio mpv:id="04-GREAT-SWING-CLASSICS.MP3-20021202031833-a">
    <mpv:LastURL mpv:filesystem="Joliet">Great Swing Classics in HI-FI/Harry James And
His Orchestra - I'm Beginning To See The Lig.mp3</mpv:LastURL>
    <mpv:LastURL mpv:filesystem="ISO9660-1">GREAT_SW/HARRY_J2.MP3</mpv:LastURL>
  </mpv:Audio>
  <mpv:Audio mpv:id="05-GREAT-SWING-CLASSICS.MP3-20021202031833-a">

```

```

    <mpv:LastURL mpv:filesystem="Joliet">Great Swing Classics in HI-FI/Glen Gray And
The Casa Loma Orchestra - Just An Old Manuscri.mp3</mpv:LastURL>
    <mpv:LastURL mpv:filesystem="ISO9660-1">GREAT_SW/GLEN_GR2.MP3</mpv:LastURL>
  </mpv:Audio>
  <mpv:Audio mpv:id="06-GREAT-SWING-CLASSICS.MP3-20021202031833-a">
    <mpv:LastURL mpv:filesystem="Joliet">Great Swing Classics in HI-FI/Les Brown And
His Orchestra - A Good Man Is Hard To Find.mp3</mpv:LastURL>
    <mpv:LastURL mpv:filesystem="ISO9660-1">GREAT_SW/LES_BROW.MP3</mpv:LastURL>
  </mpv:Audio>
</mpv:AssetList>
</file:Manifest>

```

3.2.3 Rich Example

In contrast to the previous example, this example of a MPV Music Profile file has much more information. In this case, two songs are specified along with a lot of information about the music including album artwork and music videos for the first song, and also a playlist (“mpvp:Album”) is provided that specified album/playlist-level information.

Careful reading of the contents of the mpv:AssetList in this example will show that not only the music songs but also still image and video assets are listed plus statements that relate the assets to each other. Not all these assets are considered “primary”, in other words, the user doesn’t want to interact with all assets equally. Primary assets are the ones that match the user’s idea of what the primary content is, such as a set of music songs. The mpvp:Album element is used to identify the primary assets, the sequence in which they should be presented, and other presentation information.

This example also illustrates how MPV Music Profile can be applied to a “hybrid” disc, such as a disc with that is both a DVD-Video disc and also contains MPV Music playlists and MP3 music of the songs. When played in a DVD-Video player, the user may enjoy watching the DVD-Video content, such as a music performance. In this case, no MPV Music information is used, just DVD-Video content. However, when played in a car stereo, only the MPV Music information is used and the player plays the MP3 music tracks that are also on the disc.

Some players will support both DVD-Video and MPV Music-based playback. In that case, for example, the MPV Music playback application may choose to allow the user to playback the associated music video for a track. The music video specified in the MPV playlist is actually the same music video played in DVD-Video mode, but it is accessed in a different way.

```

<?xml version="1.0" encoding="UTF-8"?>
<file:Manifest xmlns:file="http://ns.osta.org/manifest/1.0/"
  xmlns:mpv="http://ns.osta.org/mpv/1.0/"
  xmlns:mpvp="http://ns.osta.org/mpv/presentation/1.0/"
  xmlns:mpvm="http://ns.osta.org/mpv/music/1.0/"
  xmlns:dc="http://ns.osta.org/nmf/1.0/dc/"
  xmlns:nmf="http://ns.osta.org/nmf/1.0/">
  <nmf:Metadata>
    <ManifestProperties xmlns="http://ns.osta.org/manifest/1.0/">
      <ProfileBag>
        <Profile>http://ns.osta.org/mpv/basic/1.0/</Profile>
        <Profile>http://ns.osta.org/mpv/presentation/1.0/</Profile>
        <Profile>http://ns.osta.org/mpv/music/1.0/</Profile>
      </ProfileBag>
    </ManifestProperties>
  </nmf:Metadata>

  <mpvp:Album> <!-- This defines an album / playlist presentation of the assets -->

```

```

<nmf:Metadata> <!-- Album / playlist-level information -->
  <dc:Properties>
    <dc:description>14 swing classics re-recorded in the '50s by the original artists
for great sound with all the integrity and excitement of the original
performances.</dc:description>
    <dc:identifier>7243 5 21223 2 5 Capitol Jazz</dc:identifier>
    <dc:rights>(P) and (C) 1999 Capitol Records, Inc. All rights
reserved.</dc:rights>
    <dc:title>Music by Album and Track</dc:title>
  </dc:Properties>
  <mpvm:MusicProperties>
    <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
    <mpvm:Genre>Jazz</mpvm:Genre>
    <mpvm:MoreInfoURL>www.bluenote.com</mpvm:MoreInfoURL>
  </mpvm:MusicProperties>
</nmf:Metadata>
<mpvp:Foreground> <!-- music playback sequence -->
  <mpv:AudioRef mpv:idRef="01-GREAT-SWING-CLASSICS.MP3-20021202031833-a"/>
  <mpv:AudioRef mpv:idRef="02-GREAT-SWING-CLASSICS.MP3-20021202031833-a"/>
</mpvp:Foreground>
</mpvp:Album>

<mpv:AssetList> <!-- This is the per-asset info -->
  <mpv:Audio mpv:id="01-GREAT-SWING-CLASSICS.MP3-20021202031833-a">
    <nmf:Metadata>
      <dc:Properties>
        <dc:creator>Benny Goodman and his Orchestra</dc:creator>
        <dc:description/>
        <dc:format>audio/mpeg</dc:format>
        <dc:identifier/>
        <dc:title>Jumpin' At The Woodside</dc:title>
      </dc:Properties>
      <mpvm:MusicProperties>
        <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
        <mpvm:ArrangedBy>Count Basie;Jimmy Mundy</mpvm:ArrangedBy>
        <mpvm:Genre>Jazz</mpvm:Genre>
        <mpvm:MusicBy>Count Basie</mpvm:MusicBy>
        <mpvm:OrigIndex>1</mpvm:OrigIndex>
        <mpvm:PlayingTime>00:03:28</mpvm:PlayingTime>
        <mpvm:PrincipalArtist>Benny Goodman</mpvm:PrincipalArtist>
        <mpvm:Recorded>1954-11-09</mpvm:Recorded>
      </mpvm:MusicProperties>
    </nmf:Metadata>
    <mpv:LastURL mpv:filesystem="Joliet">Benny Goodman And His Orchestra - Jumpin' At The
Woodside.mp3</mpv:LastURL>
    <mpv:LastURL mpv:filesystem="ISO9660-1">BENNY_GO.MP3</mpv:LastURL>
    <mpv:Related mpv:relationship="urn:osta-org:mpv:music:artwork">
      <mpv:StillRef mpv:idRef="01-GREAT-SWING-CLASSICS.MP3-20021202031833-b"/>
    </mpv:Related>
    <mpv:Related mpv:relationship="urn:osta-org:mpv:music:video">
      <mpv:VideoRef mpv:idRef="01-GREAT-SWING-CLASSICS.MP3-20021202031833-c"/>
    </mpv:Related>
  </mpv:Audio>

  <!-- artwork for the first song -->
  <mpv:Still mpv:id="01-GREAT-SWING-CLASSICS.MP3-20021202031833-b">
    <nmf:Metadata>
      <dc:Properties>

```

```

        <dc:format>image/jpeg</dc:format>
      </dc:Properties>
    </nmf:Metadata>
    <mpv:LastURL>ARTWORK/BENNY_GO.JPG</mpv:LastURL>
  </mpv:Still>

  <!-- music video for the first song -->
  <mpv:Video mpv:id="01-GREAT-SWING-CLASSICS.MP3-20021202031833-c">
    <nmf:Metadata>
      <dc:Properties>
        <dc:format>video/mpeg</dc:format>
      </dc:Properties>
    </nmf:Metadata>
    <!-- note use of a video segment of a DVD-Video disc. This won't play on a PC unless
it is unencrypted -->
    <mpv:LastURL>VIDEO_TS/VTS_01_0.VOB</mpv:LastURL>
  </mpv:Video>

  <mpv:Audio mpv:id="02-GREAT-SWING-CLASSICS.MP3-20021202031833-a">
    <nmf:Metadata>
      <dc:Properties>
        <dc:creator>Duke Ellington and his Orchestra</dc:creator>
        <dc:description/>
        <dc:format>audio/mpeg</dc:format>
        <dc:identifier/>
        <dc:title>Harlem Air Shaft</dc:title>
      </dc:Properties>
      <mpvm:MusicProperties>
        <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
        <mpvm:PrincipalArtist>Duke Ellington</mpvm:PrincipalArtist>
        <mpvm:MusicBy>Duke Ellington</mpvm:MusicBy>
        <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
        <mpvm:Recorded>1955-11-17</mpvm:Recorded>
        <mpvm:Genre>Jazz</mpvm:Genre>
        <mpvm:OrigIndex>2</mpvm:OrigIndex>
        <mpvm:PlayingTime>00:03:54</mpvm:PlayingTime>
      </mpvm:MusicProperties>
    </nmf:Metadata>
    <mpv:LastURL mpv:filesystem="Joliet">Duke Ellington And His Orchestra - Harlem Air
Shaft.mp3</mpv:LastURL>
    <mpv:LastURL mpv:filesystem="ISO9660-1">DUKE_ELL.MP3</mpv:LastURL>
  </mpv:Audio>
</mpv:AssetList>
</file:Manifest>

```

3.3 Schema Information

The MPV presentation module uses the following schemas:

Schema group	Namespace Identifier	Conventional Namespace Prefix
Music	http://ns.osta.org/mpv/music/1.0/	mpvm:

3.4 Use of Existing MPV Specifications

The MPV Music Profile uses MPV in a manner consistent with these the existing MPV Core specification and the MPV Basic Profile and Presentation Profile specifications. For metadata, it incorporates the MPV Dublin Core NMF specification for those properties that can be represented in that manner.

3.5 Music Media Types

MPV is an open format that can support an expandable set of defined formats. Formats are identified using MIME media types, as is well-established practice for internet-era standards.

The [MPV-Core] specification defines the following music audio formats.

MEDIA TYPES FOR MPV:AUDIO FROM [MPV-CORE]

<u>MIME Media Type</u>	<u>Mac File Type</u>	<u>PC File Suffixes</u>	<u>Description</u>
audio/basic	ULAW	au, snd	8K, mono audio
audio/midi	MIDI	mid, midi	Musical Instrument Digital Interface sound file
audio/mpeg	MPEG	mp1, mp2, mp3	MPEG1 audio layers 1, 2, and 3
audio/wav	WAVE	wav	WAVE file
audio/x-aiff	AIFF	aif, aiff	Audio interchange file format
audio/x-ms-wma		wma	Windows Media Audio

This MPV Music Profile specification defines the following additional music audio formats.

ADDITIONAL MEDIA TYPES FOR MPV:AUDIO

<u>MIME Media Type</u>	<u>Mac File Type</u>	<u>PC File Suffixes</u>	<u>Description</u>
audio/ac3		.ac3	Dolby Digital 5.1 audio used widely for DVD-Video
audio/MP4A-LATM		.aac	Audio using MPEG4 audio encoding.
		.omg	Sony's ATRAC3 format

3.6 MPV Music Profile Metadata Introduction

The MPV Core specification already supports an mpv:Audio asset type. The MPV Presentation Profile specification describes how to create playlists ("mpvp:Album") of assets, such as music and images. To this framework, the MPV Music Profile adds extensive metadata specifically about music; the existing framework continues to be used in a manner fully consistent with existing specifications.

<i>Metadata</i>	<i>MPV Music Profile</i>	<i>Discussion</i>
Music Asset ("Song",	Subelements of the mpv:Audio asset	

“Track”)		
Pathname	mpv:LastURL	one or more pathnames that should resolve to the music file
Title	nmf:Metadata dc:Properties dc:title	the music “title”
Genre	nmf:Metadata mpvm:MusicProperties mpvm:Genre	Predefined set of genres can be extended simply by using a new name.
Principal artist	nmf:Metadata mpvm:MusicProperties mpvm:PrincipalArtist	
Album Title	nmf:Metadata mpvm:MusicProperties mpvm:AlbumTitle	
Date Recorded	nmf:Metadata dcterms:Properties dcterms:created	recorded date-time, e.g. 2002-10-03T21:07:00Z
Identifier	nmf:Metadata dc:Properties dc:identifier	Catalog number, UPC, etc. A text string, not classified in any way and not guaranteed unique.
Description	nmf:Metadata dc:Properties dc:description	Commentary, message, description
Format	nmf:Metadata dc:Properties dc:format	use MPV-provided list of well-known MIME types or vendor-specific extended types
Rendition with another encoding or bitrate	mpv:Rendition mpv:renditionType=”subsampled” mpv:AudioRef	Refers to another encoding of the asset, e.g. in a new filetype or different bitrate.
Asset artwork	mpv:Related mpv:relationship=”urn:osta-org:mpv:music:artwork” mpv:StillRef	Refers to an image or other content that is artwork related to the asset. The referenced asset does not have to be a Still, it can be any asset type. The “dc:title” of the related asset can be used to describe the artwork.
Music video	mpv:Related mpv:relationship=”urn:osta-org:mpv:music:video” mpv:VideoRef	Refers to a video that is of the same music as the primary music track.
Performed by	nmf:Metadata dc:Properties dc:creator	Performer names in text
Music by	nmf:Metadata mpvm:MusicProperties mpvm:MusicBy	ComposerName
Lyrics by	nmf:Metadata mpvm:MusicProperties mpvm:LyricsBy	SongwriterName
Arranged by	nmf:Metadata mpvm:MusicProperties mpvm:ArrangedBy	ArrangerName
Online Info	nmf:Metadata mpvm:MusicProperties mpvm:MoreInfoURL	URL to follow to get more info about the music.
Playing Time	nmf:Metadata mpvm:MusicProperties mpvm:PlayingTime	in seconds, duration

Track Order	nmf:Metadata mpvm:MusicProperties mpvm:OrigIndex	sequence order of the audio track on the original media, such as an audio CD. Starts with 1, not 0.
Average Encoded Bitrate	nmf:Metadata mpvm:MusicProperties mpvm:AvgEncodedBitrate	
Lyrics	nmf:Metadata mpvm:MusicProperties mpvm:Lyrics	Time offset, text, language??
Extra Data	nmf:Metadata and mpv:Metadata	Any metadata that an application which to create can go into these containers.
Key-Value Pairs	nmf:Metadata mpvm:Properties mpvm:KeyValue mpvmkv:Key nmf:Metadata mpvm:Properties mpvm:KeyValue mpvmkv:Value	Arbitrary key-value pairs
Mood	nmf:Metadata mpvm:MusicProperties mpvm:Mood	What mood is this music? (e.g. mellow, wild)
Tempo	nmf:Metadata mpvm:MusicProperties mpvm:Tempo	What tempo is this music? (e.g. fast, slow)
Situation	nmf:Metadata mpvm:MusicProperties mpvm:Situation	What situation is this music for? (e.g dance, dinner)

Album (“Playlist”) of Music	mpvp:Album	
Number of Entries	(implicit)	
Title	nmf:Metadata dc:Properties dc:title	
Performed By	nmf:Metadata dc:Properties dc:creator	Performer names
Principal Artist	nmf:Metadata mpvm:MusicProperties mpvm:PrincipalArtist	Principal artist’s name
Description	nmf:Metadata dc:Properties dc:description	
Identifier	nmf:Metadata dc:Properties dc:identifier	catalog number, IDC
Album Artwork	mpvp:Album mpv:Related mpv:relationship=”urn:osta-org:mpv:music:artwork” mpv:StillRef	
Music Playlist Items	mpvp:Album mpvp:Foreground	This content is played as the principal content of the music playlist.
Playlist accompaniment	mpvp:Album mpvp:Background	This content is played as background to the music content in the foreground. For example, it could specify images.
Extra Data	mpv:Metadata and nmf:Metadata anywhere	

3.7 Use of Dublin Core Metadata

To promote interoperability, MPV makes use of the Dublin Core metadata [DC-NMF] to represent essential metadata across all types of assets. Thus, the dc:title element specifies the title of a music asset just the same as an image or video asset.

In the previous section, the Dublin Core metadata elements were mixed into the overall set of music metadata properties and assets. To clarify usage of the DC metadata, this section extracts just the Dublin Core elements from the previous section and groups them together for convenience.

Music Asset (“Song”, “Track”)	mpv:Audio subelements	
Performed by	nmf:Metadata dc:Properties dc:creator	Performer Names
Description	nmf:Metadata dc:Properties dc:description	Commentary, message, description
Format	nmf:Metadata dc:Properties dc:format	use MPV-provided list of well-known MIME types
Identifier	nmf:Metadata dc:Properties dc:identifier	Catalog number, UPC, etc. A text string, not classified in any way and not guaranteed unique.
Title	nmf:Metadata dc:Properties dc:title	Free-form plain text
Created Date	nmf:Metadata dcterms:Properties dcterms:created	date-time music performed or recorded

Album (“Playlist”) of Music	mpvp:Album subelements	
Performed By	nmf:Metadata dc:Properties dc:creator	
Description	nmf:Metadata dc:Properties dc:description	
Identifier	nmf:Metadata dc:Properties dc:identifier	catalog number, IDC
Title	nmf:Metadata dc:Properties dc:title	

Chapter 4: MPV Music Profile Usage of the Existing MPV Framework

4.1 Music Playlists

MPV playlists are a central concept in MPV that provide for user-friendly organization and navigation of the music, photo, and video (and other) content on a storage media. A MPV playlist identifies the primary assets to be presented to the user, such as a set of music songs. The playlist also specifies the sequence in which assets should be presented and other presentation characteristics.

MPV playlists are implemented according to the MPV Presentation Profile specification [MPV-Pres]. This MPV Music Profile document specifies the details of this usage. The basic structure of an MPV playlist uses the `<mpvp:Album>` element, which may contain metadata, foreground and background content, and related and rendition assets.

```
...
<mpvp:Album>
  <mpv:Metadata> ... </mpv:Metadata>
  <nmf:Metadata> ... </nmf:Metadata>
  <mpvp:Foreground> ... </mpvp:Foreground>
  <mpvp:Background> ... </mpvp:Background>
  <mpv:Rendition> ... </mpv:Rendition>
  <mpv:Related> ... </mpv:Related>
</mpvp:Album>
...
```

The MPV music playlist should contain a foreground list of music assets identified using the `<mpv:AudioRef>` element. This defines the set of primary music items in the playlist and their sequence. In addition to the referenced audio assets, the `mpv:AssetList` in the MPV file may also contain still image, video, and other kinds of assets. Without the `<mpvp:Album>` to identify which assets are primary, the application

The MPV Music Profile MUST contain only a single `<mpvp:Album>` element be present in the MPV file. Thus the entire MPV file represents a single playlist. In most cases, the MPV file SHOULD contain in the `<mpv:AssetList>` the assets that are referenced by the `<mpvp:Album>`'s contents. While the asset references have the ability to reference MPV assets located in another MPV manifest file, this usage is not recommended by the MPV Music Profile because it requires special handling by the MPV reader.

MPV is focused on interoperability of content produced and consumed on both PCs and consumer electronics devices. Unlike CE-focused solutions, it is expected that users will organize media files into folders/directories of their own choosing and give files long filenames. This means that it isn't possible to specify content location and

playback order simply by requiring specific directory and filenames. Instead, MPV provides an approach that allows the content to be located anywhere and with any name.

In addition, many related media assets may go onto a storage media such as CD that are used to enhance access and playback performance and to provide enhanced playback and printing experiences. How is all this content to be managed while presenting the user a simple high-level interaction with their content.

4.2 *Linked Playlists*

4.3

Chapter 5: MPV Music Schemas In Detail

5.1 Artwork for an Asset

The MPV Music Profile allows rich types of artwork for an asset to be specified. A generating application can specify multiple kinds of artwork with any given music asset. The generating application has a choice: it can use the generic “relationship” string of “urn:osta-org:mpv:music:artwork”, or if available, a more specific relationship may be specified.

A processing application that doesn’t care about specific types of artwork can string match against the more generic “urn:osta-org:mpv:music:artwork” relationship, while more specific needs can also be matched. Note also that multiple related assets can be identified that refer to the same physical asset. For example, the cover artwork may also be artwork of a performance.

<i>Relationship type on an asset</i>	<i>Meaning</i>
urn:osta-org:mpv:music:artwork	Unspecified artwork.
urn:osta-org:mpv:music:artwork:coverFront	Front cover artwork of the media case containing this music asset
urn:osta-org:mpv:music:artwork:coverBack	Back cover artwork of the media case containing this music asset
urn:osta-org:mpv:music:artwork:leaflet	Front cover artwork of the media case containing this music asset
urn:osta-org:mpv:music:artwork:media	Artwork on the media containing this music asset
urn:osta-org:mpv:music:artwork:artist	Artwork depicting one or more artists of the music.
urn:osta-org:mpv:music:artwork:ensemble	Artwork depicting the performing ensemble, e.g. a band or orchestra.
urn:osta-org:mpv:music:artwork:conductor	
urn:osta-org:mpv:music:artwork:performedBy	
urn:osta-org:mpv:music:artwork:musicBy	
urn:osta-org:mpv:music:artwork:lyricsBy	
urn:osta-org:mpv:music:artwork:recordingLocation	
urn:osta-org:mpv:music:artwork:recordingSession	
urn:osta-org:mpv:music:artwork:performance	
urn:osta-org:mpv:music:artwork:screenCapture	
urn:osta-org:mpv:music:artwork:illustration	
urn:osta-org:mpv:music:artwork:artistLogo	
urn:osta-org:mpv:music:artwork:publisherLogo	
urn:osta-org:mpv:music:artwork:thumbnail	32x32, GIF or PNG
urn:osta-org:mpv:music:manuscript	either Still, StillMultishotSequence, or Document

EXAMPLE

In this example, a JPEG file is related to a MP3 file and identified as an image of a performance of the music asset.

```

...
<mpv:AssetList>
  <!-- This is the per-asset info -->
  <mpv:Audio mpv:id="01-GREAT-SWING-CLASSICS.MP3-20021202031833-a">
    <nmf:Metadata>
      <dc:Properties>
        <dc:creator>Benny Goodman and his Orchestra</dc:creator>
        <dc:format>audio/mpeg</dc:format>
        <dc:title>Jumpin' At The Woodside</dc:title>
      </dc:Properties>
      <mpvm:MusicProperties>
        <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
        <mpvm:ArrangedBy>Count Basie;Jimmy Mundy</mpvm:ArrangedBy>
        <mpvm:Genre>Jazz</mpvm:Genre>
        <mpvm:MusicBy>Count Basie</mpvm:MusicBy>
        <mpvm:OrigIndex>1</mpvm:OrigIndex>
        <mpvm:PlayingTime>00:03:28</mpvm:PlayingTime>
        <mpvm:PrincipalArtist>Benny Goodman</mpvm:PrincipalArtist>
        <mpvm:Recorded>1954-11-09</mpvm:Recorded>
      </mpvm:MusicProperties>
    </nmf:Metadata>
    <mpv:LastURL>01 Great Swing Classics.mp3</mpv:LastURL>
    <mpv:Related mpv:relationship="urn:osta-org:mpv:music:artwork:coverFront">
      <mpv:StillRef mpv:idRef="01-GREAT-SWING-CLASSICS.MP3-20021202031833-R1"/>
    </mpv:Related>
    <mpv:Related mpv:relationship="urn:osta-org:mpv:music:artwork:performance">
      <mpv:StillRef mpv:idRef="01-GREAT-SWING-CLASSICS.MP3-20021202031833-R1"/>
    </mpv:Related>
  </mpv:Audio>
  <mpv:Still mpv:id="01-GREAT-SWING-CLASSICS.MP3-20021202031833-R1">
    <nmf:Metadata>
      <dc:Properties>
        <dc:format>image/jpeg</dc:format>
        <dc:title>Benny Goodman in concert</dc:title>
      </dc:Properties>
    </nmf:Metadata>
    <mpv:LastURL>01 Great Swing Classics.jpg</mpv:LastURL>
  </mpv:Still>
  ...
</mpv:AssetList>

```

5.2 Multiple Renditions of a Music Asset

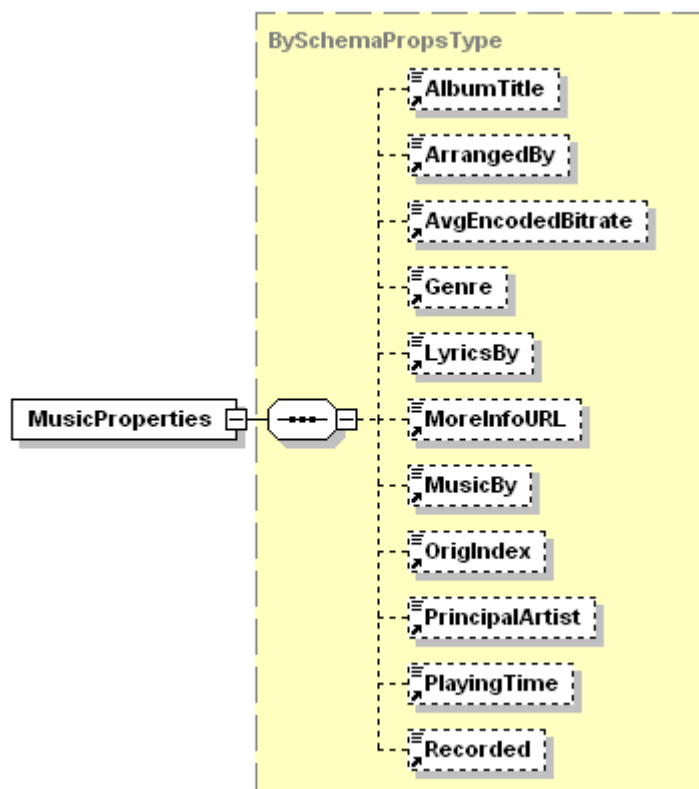
It may be useful to specify multiple renditions of a music asset. For example, if space is available on the storage media, multiple encodings of the same music asset can be specified, increasing the compatibility of the music disc with multiple players that may have different supported codecs.

These renditions are specified using the <mpv:Rendition> tag and appropriate mpv:renditionUsage attribute values.

RenditionUsage	Description
----------------	-------------

5.3 Music-specific Metadata

MPVM:MUSICPROPERTIES



```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="http://ns.osta.org/mpv/music/1.0/"
xmlns="http://ns.osta.org/mpv/music/1.0/" xmlns:nmf="http://ns.osta.org/nmf/1.0/tools/"
xmlns:xs="http://www.w3.org/2001/XMLSchema" xmlns:nmf="http://ns.osta.org/nmf/1.0/"
xmlns:mpvmLyric="http://ns.osta.org/mpv/music/1.0/lyric/" elementFormDefault="qualified"
attributeFormDefault="qualified">
  <xs:import namespace="http://ns.osta.org/nmf/1.0/" schemaLocation="../../imports/nmf/base.xsd"/>
  <xs:annotation>
    <xs:documentation>The MPV Music Properties schema</xs:documentation>
  </xs:annotation>
  <!--
    name for BySchemaProperties element
  -->
```

```

<xs:element name="MusicProperties" type="BySchemaPropsType"
substitutionGroup="nmf:BySchemaPropsBase"/>
<!--
  top-level schema element type
-->
<xs:complexType name="BySchemaPropsType">
  <xs:complexContent>
    <xs:extension base="nmf:BySchemaPropsType">
      <xs:sequence>
        <xs:element ref="AlbumTitle" minOccurs="0"/>
        <xs:element ref="ArrangedBy" minOccurs="0"/>
        <xs:element ref="AvgEncodedBitrate" minOccurs="0"/>
        <xs:element ref="Genre" minOccurs="0"/>
        <xs:element ref="LyricsBy" minOccurs="0"/>
        <xs:element ref="MoreInfoURL" minOccurs="0"/>
        <xs:element ref="MusicBy" minOccurs="0"/>
        <xs:element ref="OrigIndex" minOccurs="0"/>
        <xs:element ref="PrincipalArtist" minOccurs="0"/>
        <xs:element ref="PlayingTime" minOccurs="0"/>
        <xs:element ref="Recorded" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

<xs:element name="AlbumTitle" type="AlbumTitleType"/>
<xs:complexType name="AlbumTitleType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>

<xs:element name="ArrangedBy" type="ArrangedByType"/>
<xs:complexType name="ArrangedByType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>

<xs:element name="AvgEncodedBitrate" type="AvgEncodedBitrateType"/>
<xs:complexType name="AvgEncodedBitrateType">
  <xs:simpleContent>
    <xs:extension base="xs:int"/>
  </xs:simpleContent>
</xs:complexType>

<xs:element name="Genre" type="GenreType"/>
<xs:simpleType name="GenreType">
  <xs:union memberTypes="GenreBaseType xs:anyURI"/>
</xs:simpleType>
<xs:simpleType name="GenreBaseType">
  <xs:restriction base="xs:string">
    <xs:enumeration value="Acid"/>
    <xs:enumeration value="Acid Jazz"/>
    <xs:enumeration value="Acid Punk"/>
    <xs:enumeration value="AlternRock"/>
  </xs:restriction>
</xs:simpleType>

```



```
<xs:enumeration value="Alternative"/>
<xs:enumeration value="Ambient"/>
<xs:enumeration value="Bass"/>
<xs:enumeration value="Blues"/>
<xs:enumeration value="Cabaret"/>
<xs:enumeration value="Christian Rap"/>
<xs:enumeration value="Classic Rock"/>
<xs:enumeration value="Classical"/>
<xs:enumeration value="Comedy"/>
<xs:enumeration value="Country"/>
<xs:enumeration value="Cult"/>
<xs:enumeration value="Dance"/>
<xs:enumeration value="Darkwave"/>
<xs:enumeration value="Death Metal"/>
<xs:enumeration value="Disco"/>
<xs:enumeration value="Dream"/>
<xs:enumeration value="Electronic"/>
<xs:enumeration value="Ethnic"/>
<xs:enumeration value="Euro-Techno"/>
<xs:enumeration value="Eurodance"/>
<xs:enumeration value="Funk"/>
<xs:enumeration value="Fusion"/>
<xs:enumeration value="Game"/>
<xs:enumeration value="Gangsta"/>
<xs:enumeration value="Gospel"/>
<xs:enumeration value="Gothic"/>
<xs:enumeration value="Grunge"/>
<xs:enumeration value="Hard Rock"/>
<xs:enumeration value="Hip-Hop"/>
<xs:enumeration value="House"/>
<xs:enumeration value="Industrial"/>
<xs:enumeration value="Instrumental"/>
<xs:enumeration value="Instrumental Pop"/>
<xs:enumeration value="Instrumental Rock"/>
<xs:enumeration value="Jazz"/>
<xs:enumeration value="Jazz+Funk"/>
<xs:enumeration value="Jungle"/>
<xs:enumeration value="Lo-Fi"/>
<xs:enumeration value="Meditative"/>
<xs:enumeration value="Metal"/>
<xs:enumeration value="Musical"/>
<xs:enumeration value="Native American"/>
<xs:enumeration value="New Age"/>
<xs:enumeration value="New Wave"/>
<xs:enumeration value="Noise"/>
<xs:enumeration value="Oldies"/>
<xs:enumeration value="Other"/>
<xs:enumeration value="Polka"/>
<xs:enumeration value="Pop"/>
<xs:enumeration value="Pop-Folk"/>
<xs:enumeration value="Pop/Funk"/>
<xs:enumeration value="Pranks"/>
<xs:enumeration value="Psychadelic"/>
<xs:enumeration value="Punk"/>
<xs:enumeration value="R and B"/>
<xs:enumeration value="Rap"/>
```

```

    <xs:enumeration value="Rave"/>
    <xs:enumeration value="Reggae"/>
    <xs:enumeration value="Retro"/>
    <xs:enumeration value="Rock"/>
    <xs:enumeration value="Rock and Roll"/>
    <xs:enumeration value="Showtunes"/>
    <xs:enumeration value="Ska"/>
    <xs:enumeration value="Soul"/>
    <xs:enumeration value="Sound Clip"/>
    <xs:enumeration value="Soundtrack"/>
    <xs:enumeration value="Southern Rock"/>
    <xs:enumeration value="Space"/>
    <xs:enumeration value="Techno"/>
    <xs:enumeration value="Techno-Industrial"/>
    <xs:enumeration value="Top 40"/>
    <xs:enumeration value="Trailer"/>
    <xs:enumeration value="Trance"/>
    <xs:enumeration value="Tribal"/>
    <xs:enumeration value="Trip-Hop"/>
    <xs:enumeration value="Vocal"/>
  </xs:restriction>
</xs:simpleType>

<xs:element name="LyricsBy" type="LyricsByType"/>
<xs:complexType name="LyricsByType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>

<xs:element name="MoreInfoURL" type="MoreInfoURLType"/>
<xs:complexType name="MoreInfoURLType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>

<xs:element name="MusicBy" type="MusicByType"/>
<xs:complexType name="MusicByType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>
</xs:complexType>

<xs:element name="OrigIndex" type="OrigIndexType"/>
<xs:complexType name="OrigIndexType">
  <xs:simpleContent>
    <xs:extension base="xs:int"/>
  </xs:simpleContent>
</xs:complexType>

<xs:element name="PrincipalArtist" type="PrincipalArtistType"/>
<xs:complexType name="PrincipalArtistType">
  <xs:simpleContent>
    <xs:extension base="xs:string"/>
  </xs:simpleContent>

```

```

</xs:complexType>

<xs:element name="PlayingTime" type="PlayingTimeType"/>
<xs:complexType name="PlayingTimeType">
  <xs:simpleContent>
    <xs:extension base="xs:time"/>
  </xs:simpleContent>
</xs:complexType>

<xs:element name="Recorded" type="RecordedType"/>
<xs:complexType name="RecordedType">
  <xs:simpleContent>
    <xs:extension base="xs:date"/>
  </xs:simpleContent>
</xs:complexType>
</xs:schema>

```

5.4 Album/Playlist-level <mpvm:MusicProperties> Music Metadata

The Music Profile defines a schema for music properties. This schema can be used on all audio assets by specifying the root element of the mpvm schema as the only child of the nmf:Metadata element.

The guiding practice for applications and devices that process and present MPV music content based on this schema is that music properties on an mpvp:Album apply also to the tracks contained by that album.

5.5 MPV Music Profile Example

```

<?xml version="1.0" encoding="UTF-8"?>
<file:Manifest xmlns:file="http://ns.osta.org/manifest/1.0/"
  xmlns:mpv="http://ns.osta.org/mpv/1.0/"
  xmlns:mpvp="http://ns.osta.org/mpv/presentation/1.0/"
  xmlns:mpvm="http://ns.osta.org/mpv/music/1.0/" xmlns:dc="http://ns.osta.org/nmf/1.0/dc/"
  xmlns:nmf="http://ns.osta.org/nmf/1.0/">
  <nmf:Metadata>
    <ManifestProperties xmlns="http://ns.osta.org/manifest/1.0/">
      <ProfileBag>
        <Profile>http://ns.osta.org/mpv/basic/1.0/</Profile>
        <Profile>http://ns.osta.org/mpv/presentation/1.0/</Profile>
        <Profile>http://ns.osta.org/mpv/music/1.0/</Profile>
      </ProfileBag>
    </ManifestProperties>
  </nmf:Metadata>
  <mpvp:Album>
    <nmf:Metadata>
      <dc:Properties>

```

```

    <dc:description>14 swing classics re-recorded in the '50s by th original artists
for great sound with all the integrity and excitement of the original
performances.</dc:description>
    <dc:identifier>7243 5 21223 2 5 Capitol Jazz</dc:identifier>
    <dc:rights>(P) and (C) 1999 Capitol Records, Inc. All rights
reserved.</dc:rights>
    <dc:title/>
  </dc:Properties>
  <mpvm:MusicProperties>
    <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
    <mpvm:Genre>Jazz</mpvm:Genre>
    <mpvm:MoreInfoURL>www.bluenote.com</mpvm:MoreInfoURL>
  </mpvm:MusicProperties>
</nmf:Metadata>
<mpvp:Foreground>
  <mpv:AudioRef mpv:idRef="01-GREAT-SWING-CLASSICS.WMA-20021202031833-a"/>
  <mpv:AudioRef mpv:idRef="02-GREAT-SWING-CLASSICS.WMA-20021202031833-a"/>
</mpvp:Foreground>
</mpvp:Album>
<mpv:AssetList>
<mpv:Audio mpv:id="01-GREAT-SWING-CLASSICS.WMA-20021202031833-a">
  <nmf:Metadata>
    <dc:Properties>
      <dc:creator>Benny Goodman and his Orchestra</dc:creator>
      <dc:description/>
      <dc:format>audio/x-ms-wma</dc:format>
      <dc:identifier/>
      <dc:title>Jumpin' At The Woodside</dc:title>
    </dc:Properties>
    <mpvm:MusicProperties>
      <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
      <mpvm:PrincipalArtist>Benny Goodman</mpvm:PrincipalArtist>
      <mpvm:MusicBy>Count Basie</mpvm:MusicBy>
      <mpvm:ArrangedBy>Count Basie;Jimmy Mundy</mpvm:ArrangedBy>
      <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
      <mpvm:Recorded>1954-11-09</mpvm:Recorded>
      <mpvm:Genre>Jazz</mpvm:Genre>
      <mpvm:OrigIndex>1</mpvm:OrigIndex>
      <mpvm:PlayingTime>00:03:28</mpvm:PlayingTime>
    </mpvm:MusicProperties>
  </nmf:Metadata>
  <mpv:LastURL>01 Great Swing Classics.wma</mpv:LastURL>
</mpv:Audio>
<mpv:Audio mpv:id="02-GREAT-SWING-CLASSICS.WMA-20021202031833-a">
  <nmf:Metadata>
    <dc:Properties>
      <dc:creator>Duke Ellington and his Orchestra</dc:creator>
      <dc:description/>
      <dc:format>audio/x-ms-wma</dc:format>
      <dc:identifier/>
      <dc:title>Harlem Air Shaft</dc:title>
    </dc:Properties>
    <mpvm:MusicProperties>
      <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
      <mpvm:PrincipalArtist>Duke Ellington</mpvm:PrincipalArtist>
      <mpvm:MusicBy>Duke Ellington</mpvm:MusicBy>
      <mpvm:AlbumTitle>Great SWING CLASSICS in HI-FI</mpvm:AlbumTitle>
      <mpvm:Recorded>1955-11-17</mpvm:Recorded>

```

```
<mpvm:Genre>Jazz</mpvm:Genre>  
<mpvm:OrigIndex>2</mpvm:OrigIndex>  
<mpvm:PlayingTime>00:03:54</mpvm:PlayingTime>  
</mpvm:MusicProperties>  
</nmf:Metadata>  
<mpv:LastURL>02 Great Swing Classics.wma</mpv:LastURL>  
</mpv:Audio>  
</mpv:AssetList>  
</file:Manifest>
```

Chapter 6: MPV Music Profile Mapping To Other Music Metadata Formats

6.1 ID3 and OSTA MPV Music Profile

The ID3 specifications are popular metadata representations for music. The OSTA MPV Music Profile specification provides similar capabilities within the context of the XML-based MPV specification framework.

The following mapping table can be used to associate ID3V1.0 and V1.1 terms and concepts with MPV Music Profile terms and concepts. ID3V2.0 provides much more extensive metadata and is not supported with the MPV Music Profile 1.0.

<i>ID3</i>	<i>MPV Music Profile</i>	<i>Discussion</i>
ID3V1	All specified under mpv:Audio nmf:Metadata	
Song title	dc:title	
Artist	dc:creator	mpvm:MusicProperties:PrincipalArtist can also be used.
Album	mpvm:MusicProperties:AlbumTitle	
Year	mpvm:MusicProperties:Recorded	
Comment	dc:description	
Genre	mpvm:MusicProperties:Genre	
ID3V1.1	All specified under mpv:Audio nmf:Metadata	
Song title	dc:title	
Artist	dc:creator	mpvm:MusicProperties:PrincipalArtist can also be used.
Album	mpvm:MusicProperties:AlbumTitle	
Year	mpvm:MusicProperties:Recorded	
Comment	dc:description	
Album Track	mpvm:MusicProperties:OrigIndex	
Genre	mpvm:MusicProperties:Genre	

6.2 WinAMP M3U and OSTA MPV Music Profile

The WinAMP M3U playlist is commonly encountered. The following illustrates mapping M3U playlist to the MPV Music Profile.

<i>M3U Playlist</i>	<i>MPV Music Profile</i>	<i>Discussion</i>
Song title	mpv:Audio nmf:Metadata dc:title	
Filename	mpv:Audio mpv:LastURL	
Duration	mpvm:MusicProperties:PlayingTime	

6.3 OSTA MultiAudio and OSTA MPV Music Profile

The OSTA MultiAudio specification provides a CD or DVD table of contents and playlist representation for compressed audio content on data discs. This binary format is suitable for implementation in very resource-constrained devices.

The OSTA MPV Music Profile specification provides similar capabilities within the context of the XML-based MPV specification framework. This allows a single consistent multimedia album format to span music, photo, and video content. For consumer electronics devices able to provide an implementation of the MPV framework, the MPV Music Profile offers a means to support all multimedia content within a constant framework and single firmware implementation.

The following mapping table can be used to associate MultiAudio terms and concepts with MPV Music Profile terms and concepts:

<i>MultiAudio</i>	<i>MPV Music Profile</i>	<i>Discussion</i>
TrackEntry	mpv:Audio asset	
Pathname	mpv:Audio mpv:LastURL	
Track Name	dc:title	
Performer Name	dc:creator	mpvm:MusicProperties:PrincipalArtist can also be used to refine dc:creator.
Composer Name	mpvm:MusicProperties:MusicBy	
Songwriter Name	mpvm:MusicProperties:LyricsBy	
ArrangerName	mpvm:MusicProperties:ArrangedBy	
AlbumName	mpvm:MusicProperties:AlbumTitle	
Genre	mpvm:MusicProperties:Genre	
Playing Time	mpvm:MusicProperties:PlayingTime	
Year Recorded	mpvm:MusicProperties:Recorded	
Track Order	mpvm:MusicProperties:OrigIndex	
Number of Channels		
Average Encoded Bitrate	mpvm:MusicProperties:AvgEncodedBitrate	
Maximum Bitrate		
Sample Rate		
Extra Data	mpv:Metadata and nmf:Metadata	
Playlist	mpvp:Album	
Number of Tracks	-- (implicit)	

Playlist Name	dc:title	
Playlist Description	dc:description	
Track Indexes	mpvp:Album:Foreground contents	
Extra Data	mpv:Metadata and nmf:Metadata	
Playlist Directory	mpvp:Album	
Name	dc:title	
Description	dc:description	
Tracklist Pathnames	mpvp:AlbumRef or mpv:ManifestLinkRef in the mpvp:Album:Foreground	
Playlist Indexes	mpvp:AlbumRef or mpv:ManifestLinkRef in the mpvp:Album:Foreground	
Extra Data	mpv:Metadata and nmf:Metadata	
TOC_Header	file:Manifest nmf:Metadata	
Version Number	encoded into profile and namespace identifiers	
UUID	mpvId:InstanceID	
Volume Name	dc:title	
Data Preparer Identifier		
Publisher Identifier	dc:publisher	
Copyright	dc:rights	
Creation Date and Time	dcterms:created	
Modification Date and Time	dcterms:modified	
Effective Date and Time	dcterms:issued	
Expiration Date and Time		
Number of Playlist Directories	implicit	
Number of Tracks	implicit	
Number of Playlists	implicit	
Extra Data	mpv:Metadata and nmf:Metadata	

Chapter 7: MPV Music Profile Practices

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7.1 Best Practices for Linking Manifests and Albums

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7.2 Best Practices for Presenting a Manifest

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7.3 Best Practices for Playing

...

7.4 Best Practices for Browsing

...

7.5 Best Practices for Supported Formats

...

7.6 Examples

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