MMPlayer Manual

(MMPlayer v 0.2.14)

Table of contents

1 Revision history

Revision	Date	Changes	Author
0.1	2004-01-10	Initial revision	Magnus Berg
0.2	2004-04-04	Updated for MMPlayer 0.2.10	Magnus Berg
0.3	2004-05-02	Updated for MMPlayer 0.2.11	Magnus Berg
0.4	2004-07-16	Updated for MMPlayer 0.2.12. Added some common issues to the troubleshooting guide.	Magnus Berg
0.5	2004-10-30	Added some new features in 0.2.14.	Magnus Berg

2 Introduction

MMPlayer™ is a media player capable of playing many types of files on your PalmOS handheld. Supported formats include, but are not limited to, MP3, OGG, MID, MP2, WAV, AVI, MPG and MOV. MMPlayer™ offers many unique features. One key feature is MMPlayer™'s ability to play standard file types such as avi and mpeg. This feature lets you play the same media file on your PC that you play on your PalmOS device (assuming your PalmOS device is powerful enough). In addition, the MMPlayer™'s standards based media file size is usually a lot smaller than the proprietary encoded formats used by other media players. This means you can save a media file with a lot less memory and still play it using the MMPlayer™ media player. In short, the MMPlayer™ media player gives you the ability to use the same file on your PalmOS device and your PC and it also lets you use a lot less memory than some of the other PalmOS based media players.

3 Installation

The MMPlayer media player is installed like any other Palm program. Just unpack the zip-file and double click on the files that should be installed. These files will be transferred to your Palm at the next Hotsync.

Note that you must install at least one of the skins (in the Skins directory of the zip file). If you want MMPlayer to look like the pictures in the manual, you should install the Gray skin.

3.1 Required files

The following files must always be installed:

- MMPlayerGUI.prc
- MMPlayerLib.prc

3.2 Optional files

For certain features described below, additional files are needed. Also please read chapter 4 for more information about files that need to be installed on your particular type of device.

3.2.1 MIDI

If you want to play MIDI files (with the extension .mid), you must also install the file MMMidiInstr.pdb.

3.2.2 Skins

If you want MMPlayer to look more fancy than the built-in skin does, you can install one or more of the skins in the Skins directory. Please see chapter 11 Skins for more info.

3.3 Upgrading from a previous version

When upgrading MMPlayer from an older version, the best solution is to install the new version over the old version without first removing the old. If you remove the old version, all settings and the registration key will also be removed and you need to install the key again plus change the settings to desired values.

4 Compatibility

Since media decoding is a complicated process, it requires a powerful processor such as the ARM processors found in Palm OS 5 devices. MMPlayer will not run on older devices. As of this writing, MMPlayer have been successfully tested on:

- Palm Tungsten | T
- Palm Tungsten | T2
- Palm Tungsten | T3
- Palm Tungsten | T5
- Palm Tungsten | C
- Palm Tungsten | E
- Palm Zire 71
- Palm Zire 72
- Handspring Treo 600
- Garmin iQue 3600
- Sony UX 40/50
- Sony Clie TG/NX/NZ
- Tapwave Zodiac

This list will grow in the future. Check the MMPlayer home page at http://mmplayer.com regularly for an up-to-date list of compatible devices.

4.1 Device specific setup

MMPlayer requires some additional steps for certain devices. Review the section for special instructions for your device.

4.1.1 Palm Tungsten | T3

Install the additional files in the TungstenT3 support directory. These files are official patch files from PalmOne enabling third party software like MMPlayer to use the virtual grafitti area. These files may already be installed, but there is no harm in doing it again.

4.1.2 Handspring Treo 600

Before release 0.2.11, a special skin for the Treo 600 was needed because of the smaller screen of that device. But as of 0.2.11, this step is no longer required since the skin system has been enhanced.

You can now use any of the skins on the Treo 600. However, only the Plain and Black skins are adapted to the smaller screen, so those will look better on a Treo 600.

4.1.3 Sony Clie (TG/NX/NZ)

These devices use a non-standard audio API. MMPlayer has not been able to use that API until version 0.2.10. So if you use an MMPlayer version lower than 0.2.10, the audio is limited to 8 kHz mono on these devices.

The built-in support for Sony's non-standard audio API was then removed in version 0.2.12, so only the versions 0.2.10 and 0.2.11 have that support. For other versions, please use the 3rd party program called MCA2 to enable Hi-Fi audio on these Clie models. See http://www.aibohack.com/clie/modclieaud.htm to download MCA2. Note that the MCA2 web page states that MMPlayer should be set to "off" in the MCA settings. But since MMPlayer removed the built-in support for MCA in 0.2.12, the MCA setting must be set to "on".

5 Playable media types

MMPlayer is very powerful and supports many types of media. It can play both music and video; it can play a variety of formats e.g. avi; and it can play files encoded in many standard codecs. However, it is not always obvious what can and cannot be played. This chapter covers formats, codecs, and protocols in an attempt to explain this in greater detail so you can get the most out of your PalmOS device.

5.1 Formats, Codecs, and Protocols

Three things determine if a media file can be played by a media player. Support for the format, support for the codec, and support for the protocols.

5.2 File formats

A common misunderstanding about file formats is to think that once a player supports a particular file format, any file using that format can be played. This is not true.

File formats are like chapter headings. Once the media player knows the file format, which can often be done by looking at the extension (e.g. mp3 or avi), it can then attempt to read the contents of the information within the paragraphs of the file.

Considering a couple of example may help. As a first example consider an mp3-file. An mp3-file can only contain one audio stream. Knowing this the reader can expect that it will be required to play an audio file. However, this still does not tell the reader how the audio is written. As a second example consider an avi-file. An avi-file can contain one audio stream and one video stream. Knowing this format is not sufficient for a media player to know how to play the contents contained in the audio or video stream.

In summary, being able to read a file format is like being able to discern the chapter layout of a book. The reader can see where each chapter starts and ends, but if the language of the chapters is unknown to him, he can't read the book anyway; so he needs to be able the read the language also. File formats assist a media player to read a file; however, by itself it's not enough to insure that the media player will be able to read the file contents.

5.3 Codecs

Here's where the codec comes into play. The codec is the language with which the audio and video packets are written. The word "codec" is short for coder-decoder. Codecs are used to both encode media into a stream of ones and zeroes, and decode that stream back to the original media. There is an advantage of coding content using codecs instead of file formats. A file format can contain a mix of codecs. For example, you can use the DivX codec for the video stream and the mp3 codec for the audio stream. Both streams are kept in an avi-file format; hence,

the file that contains these two streams would have a “.avi” extension. If a better audio codec appears, you can simply re-encode the audio stream using the new audio codec and stick with the old video codec. Once again the file format would remain as an avi media file format.

5.4 Protocols

Lastly, the protocol defines how the content of the file is transferred from storage to MMPlayer. For example, the 'ext' protocol reads files from a memory card , the 'int' protocol reads files from internal memory and the ‘http’ protocol reads files from the internet.

6 MMPlayer controls

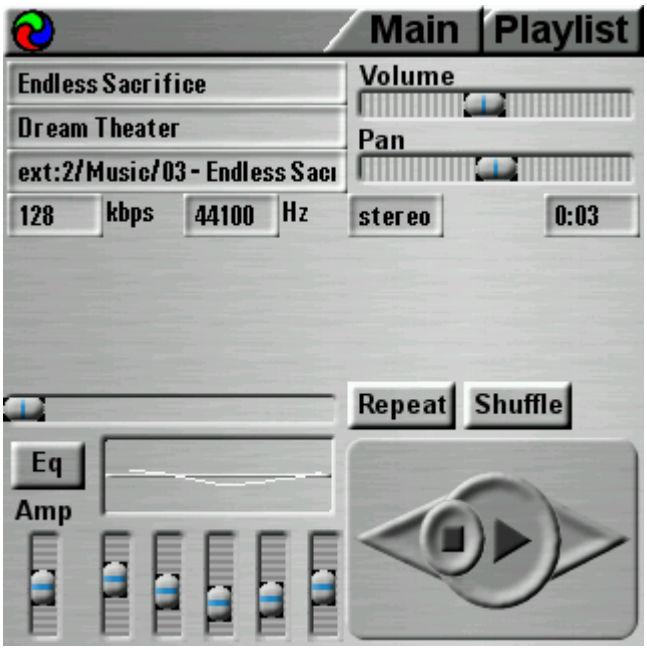
This chapter lists the various controls and settings of MMPlayer. Since MMPlayer is “skinnable,” it is impossible to describe exactly where each button and other controls are placed for all skins. This chapter describes the skin called “Gray” and how to find the controls on that skin. For example, the Gray skin uses two separate forms for the main and playlist controls whereas other skins shows the playlist (or preferences) as a extensions of the main form. As a new user, you should use the Gray skin. Once you become familiar with MMPlayer, you can select the skin you prefer.

Note that the skin system in MMPlayer is very flexible and allows the skin designer to have any number of forms and put any number of buttons and controls on those forms. For the end user, this means that when searching for a button or control, you may have to look through all available forms before you find it, or you might find it on more than one form.

6.1 The main form

The Gray skin has two forms. The main form (below) has two different layouts depending on what type of media is being played. If audio is currently played, the MMPlayer looks like the left picture below. If video is played, the MMPlayer looks like the right picture.

Note: some controls (brightness and contrast) are only available when playing video because those controls are not in use when playing audio only.



Main form: Audio layout

Main form: Video layout

6.1.1 Play button

The play button starts playing the currently active file.

6.1.2 Stop button

The stop button stops the currently playing file.

6.1.3 Back button

The back button (left arrow) steps back one file in the playlist. However, if the currently playing file has bookmarks, it starts playing at the nearest bookmark before the current position.

6.1.4 Next button

The next button (right arrow) steps forward one file in the playlist. However, if the currently playing file has bookmarks, it starts playing at the nearest bookmark after the current position, or if there's no more bookmarks after the current position it steps forward to the next file in the playlist.

6.1.5 Volume slider

The volume slider controls the volume of the audio.

6.1.6 Pan slider

The pan slider controls the left-right balance of the audio.

6.1.7 Brightness slider

The brightness slider controls the brightness of the video. This slider is only available when playing a video file.

6.1.8 Contrast slider

The contrast slider controls the contrast of the video. This slider is only available when playing a video file.

6.1.9 Repeat button

The repeat button controls whether the playlist should start over from the beginning again when the last file has been played.

6.1.10 Shuffle button

The shuffle button controls whether the files in the playlist should be played in random order or from start to end.

6.1.11 Position slider

The position slider shows where in the currently playing file MMPlayer is playing at the moment. It's also possible to grab the position slider and move it to a new position to seek within a file.

6.1.12 Eq button

The eq button controls whether the equalizer is active or not. Note that an audio equalizer is a fairly complex process and will consume a certain amount of CPU time. If performance is crucial, you may get a better viewing experience with the equalizer turned off.

6.1.13 Eq band sliders

Use the eq band sliders to adjust the 5 bands of the equalizer as needed.

6.1.14 Amp slider

The amp slider amplifies the audio. Some Palm devices have a bit weak audio output gain. This amplifier slider can be used to give such devices an additional volume boost. Note that the highest setting is very LOUD and you'll probably never need to nudge it very much. In fact, it's so powerful that the slider has a built-in safety catch, prohibiting a user from increasing it more than a little at a time.

6.1.15 Fullscreen toggle

There's one last control that doesn't have an ordinary button. The whole video area is also a fullscreen toggle, just tap it and MMPlayer will expand the currently playing video onto the whole screen.

Some devices, notably those with a 480x320 screen, have a status bar with a button for collapsing the virtual grafitti area. When this button is used, MMPlayer will not go to fullscreen but will remain in window mode, although with a larger window. Some skins will use this larger window to make the video area larger or in other ways make better use of the increased space.

6.2 The playlist form

The playlist form is shown below and is used to add and remove files to the playlist.

6.2.1 Play button

The play button does exactly the same thing as it does on the main form.

6.2.2 Add button

The add button opens a file selection dialog. The add button lets you select one or more files for inclusion in the playlist.

If you have a hard time reading the text in the file selection dialog, you should consider changing the font settings, see 10.4.

Note! that if you used the standard Palm install tool to copy the file to a memory card, the file will probably be copied into the /DCIM directory. See 17.2 for more info.

6.2.3 Remove button

The remove button removes the currently selected file from the playlist.

6.2.4 Move up button

The move up button moves the currently selected file up one step in the playlist.

6.2.5 Move down button

The move down button moves the currently selected file down one step in the playlist.

7 Playing mail attachments

MMPlayer registers with the Exchange Manager in the Palm OS. Doing so enables other applications to use MMPlayer as an external viewer for the registered media types. The most common application that uses other applications as viewers are mail clients that wants to view mail attachments, but there could also be many other types of applications that can use viewer applications.

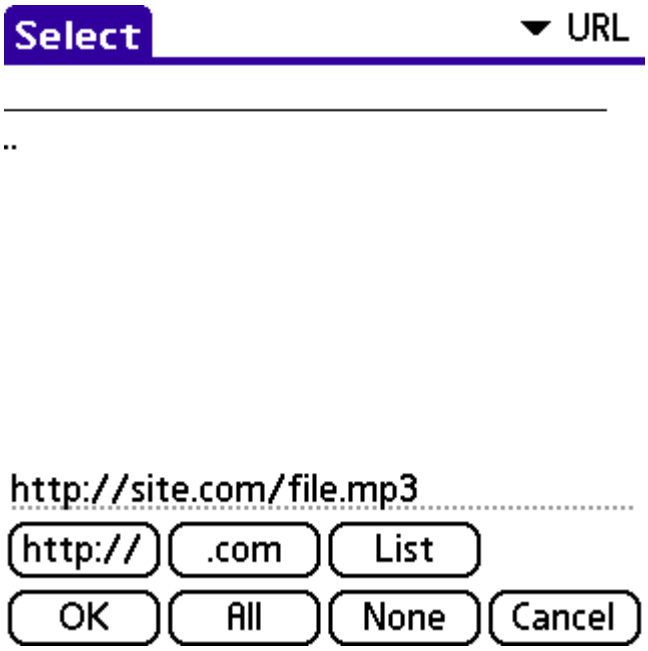
The only thing you need to do is to start MMPlayer once. If it hasn't yet registered with the Exchange Manager, it will do so. From then on, you will be able to use MMPlayer as a viewer application for your mail application.

Note that all mail clients may not take advantage of viewer applications, but the Palm OS 5 standard mail application "VersaMail" does.

8 Streaming via HTTP

MMPlayer can also play streaming media directly from a server on the internet. To stream media, you first need to make sure your PalmOS device is connected to the internet. There are many possible ways this can be done. Please refer to your PalmOS device manual for instructions on connecting to the internet.

When your Palm has a usable network connection, you need to add a file with the prefix http://. This will indicate that the file should be fetched from the address specified. To do that, add a file as explained in 6.2.2 and then select URL in the top-right list. When URL is selected, a few extra buttons and a line will be displayed. The line is used to type the location of the file.



8.1 http://

The http:// button simply adds that text to the line. Most URLs on the internet starts with http:// and the buttons simplifies entering that text.

8.2 .com

This button adds the text .com to the line.

8.3 List

The List button lists the content of the directory written on the dotted line. This is very useful if you have lots of files on a file server and want to list the content and browse around as if it were a memory card.

8.4 .m3u

MMPlayer can also read .m3u playlists. So if you have an .m3u playlist, simply select that file and all included files will be added to your current MMPlayer playlist.

9 Hardware buttons

Many controls and settings on the MMPlayer are also accessible using the PalmOS hardware device buttons. This chapter describes the buttons as they appear on a Tungsten | T3. The buttons on your PalmOS device may be different. However, all controls most likely will be available on your device also. Explore your device. You should be able to find the right button.

9.1 The D-pad

The D-pad on Tungsten models is used to control playback. The key mapping is pretty logical:

Select: Play/pause

Left: Step back to previous file in playlist

Right: Skip to next file in playlist

Up: Increase volume

Down: Decrease volume

9.2 Hard buttons

Most Palm handhelds have 4 hard buttons that are usually used to launch the 4 PIM applications (Calendar, Contacts, Tasks and Memos). These 4 buttons can be used to control various settings of MMPlayer and are particularly useful when viewing a video in fullscreen (which means that no buttons are visible on the screen).

To be able to use the hard buttons enable the “Use Buttons”, see 10.1.4 for details.

9.2.1 Zooming

These two buttons are used to change the zoom mode. There are 6 zoom modes:

1/2x zoom: Halves the video size, (320x320->160x160)

1x zoom: No zoom applied

2/3x zoom: Zooms by a factor of 3/2 (214x214->320x320)

3/4x zoom: Zooms by a factor of 4/3 (240x240->320x320)

2x zoom: Doubles the video size

Best fit: This mode selects the mode that best fills up available video area.

The Calendar buttons steps up in this list and the Contacts button steps down. This means that generally, Calendar zooms down and Contacts zooms up.

Tech talk

In most situations, the mode with no zoom applied (1x), would be the fastest of the available zoom modes. This is not the case in MMPlayer however. For various reasons, the zooming is applied by a function that needs to be executed for every frame. So, the limiting factor is actually the number of bytes that needs to be read from memory and then written to the screen buffer. Given this limiting factor, the fastest of the modes is actually the 2x zoom mode because that mode only reads ¼ as many bytes as the 1x mode.

To summarize, if high frame rates are desired, you may decrease the video resolution when encoding the video and use a suitable zoom mode to increase it to fullscreen when playing.

9.2.2 Rotation

There are four rotation modes:

- Follow GUI
- No rotation
- Rotation left
- Rotation right

The Tasks button toggles between these four rotation modes. Some Palms, notably those with a 480x320 screen, have a rotation setting in the status bar that is used to rotate the view. If MMPlayer's rotation mode is "Follow GUI", it will follow the rotation of the currently selected OS rotation. If it is any other rotation mode, the MMPlayer will not care about the OS setting.

Note that MMPlayer's rotation mode only affects how the video in the video area is rotated. It does not affect the rotation of the rest of the GUI.

Tech talk

When viewing a landscape (widescreen) video on a Palm with a 320x480 screen, it's often desirable to rotate the video (and the Palm) to make better use of available screen area. This rotation can be done either when encoding the video or by MMPlayer when playing the video. If MMPlayer is rotating, it will degrade performance somewhat, but not much. A penalty of about 4% can be expected but not more.

If the rotation is done when encoding, it means that the video is explicitly encoded for viewing on a 320x480 device only. If played on any other device, it must be de-rotated by the player. Another, more subtle effect is that the rotation *may* make the video harder to decode and it may actually play slower than if the video wasn't rotated at encoding time but rotated by MMPlayer at play time.

Conclusion: Don't pre-rotate unless you really need to and if you're certain MMPlayer will actually perform better.

9.2.3 OSD settings

Besides being able to change zoom and rotation modes while playing, there are also a set of other settings that can be changed without leaving fullscreen mode. They are called On Screen Display or "OSD".

The following OSD settings are available:

- Volume
- Pan
- Brightness
- Contrast
- A/V Sync
- Video position

The last of the hard button (Memos) is used to browse through this list of OSD settings. When "Memos" is pressed, the next settings name and current value is displayed for a second. Use the "up/down" buttons of the D-pad to change the setting. If the current OSD setting is "Video position", the left/right buttons of the D-pad can also be used to move the video position left or right.

The A/V sync settings can be used to compensate for bad audio/video synchronization. If you notice that the sound effect is generally heard before (or after) the corresponding video effect, you may use the A/V sync setting to compensate for this difference.

10 Settings

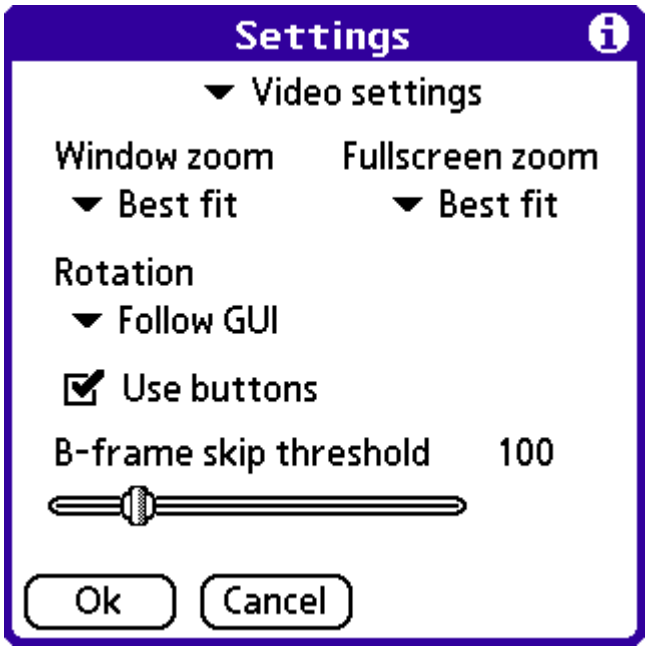
This chapter describes the settings dialog, or rather dialogs since it's divided into six sub dialogs.

Enter the settings dialog by selecting the menu "Options->Settings…".

At the top of the settings dialog, there's a dropdown list with the six different sub dialogs. Select any of them to show the corresponding sub dialog.

10.1 Video settings

The video settings sub dialog lets you set various video related parameters.



10.1.1 Window zoom

The window mode zoom factor is used when viewing video in a video area in a window. See 9.2.1 Zooming for more info about zoom modes.

10.1.2 Fullscreen zoom

The fullscreen zoom factor is used when viewing video in fullscreen mode. See 9.2.1 Zooming for more info about zoom modes.

10.1.3 Rotation

Use the rotation setting to select rotation mode. See 9.2.2 Rotation for more info about rotation modes.

10.1.4 Use buttons

This checkbox must be checked to be able to use the hard buttons as described in 9.2 Hard buttons.

10.1.5 B-frame skip threshold

The B-frame skip threshold setting is for advanced users and can be left at the default setting (100) for most situations.

When MMPlayer is playing a video clip, the video may sometimes lag behind the audio causing the audio and video to get out of sync. When this happens, MMPlayer skips certain frames (B-frames) to be able to catch up with the audio. The B-frame skip threshold setting is used to decide when MMPlayer will start skipping B-frames. When the setting is set to 100, it will start skipping B-frames when the video is 100ms behind the audio.

10.2 Audio settings

The audio settings sub dialog lets you shut off audio if needed.

10.2.1 Play audio

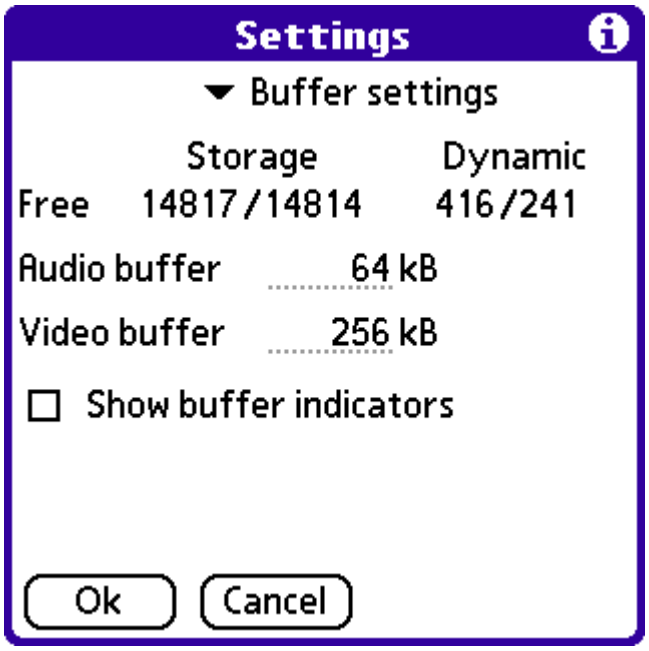
This box lets you control if audio should be played when playing a video. Under normal circumstances, the audio should be enabled, but some videos might have unsupported audio tracks. In those cases, try to shut off the audio and try playing the video again.

10.2.2 Benchmark audio

From MMPlayer version 0.2.12, the audio track is also played when playing in benchmark mode. But if you want to play the video as fast as possible without audio, uncheck this box.

10.3 Buffer settings

The buffer settings sub dialog contains settings for the audio and video buffers used when decoding audio and video.



10.3.1 Free memory display

Above the audio buffer setting line, some information about available memory are displayed. In Palm OS, there are two distinct kinds of memory; storage memory and dynamic memory.

Storage memory can be thought of as the hard disk of a computer. Programs and data can be stored there but to be able to process the data, it must be read from this area and stored in internal memory.

Dynamic memory is like a computer's internal RAM. Every program needs an area where temporary computations are made. In the case of MMPlayer, temporary computations means video decoding, and this in turn means that lots of memory is

needed -- much more than the average Palm OS program. If you have difficulties playing a file, it may be caused by too little free dynamic memory. The only way to fix this is to remove some programs or other data from your Palm.

The available amount of memory is represented by two numbers. The first is the total number of kB available and the second is the largest available chunk (also in kB). So a reading of:

14817/14814 416/241

means that there are 14817 kB of storage memory available and the largest storage memory chunk is 14814 kB. There are also 416 kB of dynamic memory available and the largest dynamic chunk is 241 kB.

The largest chunk is displayed to show the largest possible buffer size that can be set. The audio and video buffers use one chunk of storage memory each, so in the case above no buffer can be larger than 14814 kB.

10.3.2 Audio buffer

The audio buffer is used to store undecoded audio data that has been read from the file, but has not yet been decoded. In some circumstances, this buffer needs to be increased from the default 64 kB

10.3.3 Video buffer

The video buffer is used to store undecoded video data that has been read from the file, but has not yet been decoded. A large video buffer makes it possible to play a file that may otherwise be impossible to play. However, as the video buffer is filling up, it means that the video channel is lagging behind and this will probably be noticeable as a temporary unsynchronized audio and video.

There are also some codecs, like mjpeg which is often used by small digi-cams, that sometimes needs a quite large video buffer.

The default video buffer is 256kB.

10.3.4 Show buffer indicators

If this box is checked, three small dots will be visible while playing a video. The upper represents the audio buffer usage, the middle represents the video buffer usage and the lower represents the Frames Per Second (FPS) regulator.

Audio buffer usage indicator

This indicator shows how much of the audio buffer is currently used. If the indicator is all the way to the left, it means that the audio buffer is empty resulting in a possible audio buffer underflow. This can cause the audio to stutter. If it’s all the way to the right, it means that the buffer is full and may cause dropped audio packets. This may be heard as corrupted audio.

Video buffer usage indicator

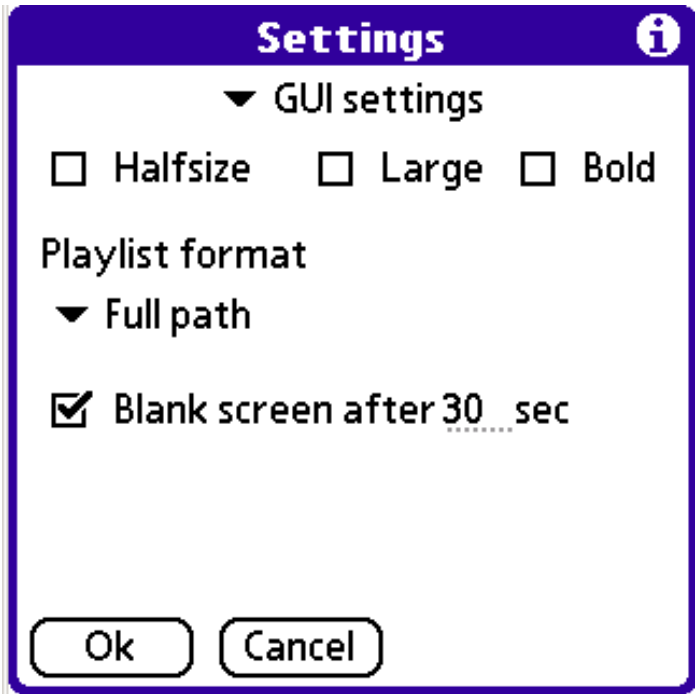
This indicator shows how much of the video buffer is currently used. If the indicator is all the way to the left, it means that the video buffer is empty, (which is of no concern). If it's all the way to the right, it means that the video buffer is full and may cause dropped video packets resulting in video artifacts.

FPS regulator indicator

The FPS regulator tries to keep the video in sync with the audio by regulating the FPS (Frames Per Second). If this indicator is in the middle, everything is fine. If it's to the left of the middle, the video is slowing down to let the audio catch up and if it's to the right of the middle, the video is speeding up to catch up with the audio.

10.4 GUI settings

The GUI settings include some controls to affect the GUI.



10.4.1 Halfsize

If this is checked, a font that is half the size of the standard system font will be used. (A personal favorite is to check all three font checkboxes. It gives a good mix of readability and overview.)

10.4.2 Large

If this is checked, the large system font will be used.

10.4.3 Bold

If this is checked, the font will be bold.

10.4.4 Playlist format

This setting lets you select the format of the playlist. “Filename only” displays only the filename part of the file and “Full path” displays the full path to the file including the protocol name (ext:, int:, http: etc.).

10.4.5 Screen blanking

To conserve battery while playing music, you can activate the screen blanking feature by checking this box. When checked, a numeric field is displayed, letting you select the time before the screen is blanked.

10.5 Performance warnings

When MMPlayer detects that the file being played is too complex for the currently used device, it may display a performance warning with a hint to the user about how to make the file play better. The performance warning checkboxes can be used to prohibit certain warnings to be displayed, see below.

Note that MMPlayer can usually diagnose why a file doesn’t play well. However, it’s not perfect. MMPlayer uses a couple of rules and makes a guess based on them. So do not take the warnings too literally.

10.5.1 Too small audio buffer

This warning is given when the audio buffer is too small for the video being played. Increase the audio buffer and try again.

10.5.2 Too small video buffer

This warning is given when the video buffer is too small for the video being played. Increase the video buffer and try again.

10.5.3 Too large video resolution

This warning means that the video played has too large a video resolution to be played in real time on the currently used device. You need to either re-encode the video using a smaller video resolution or play it on a faster device.

10.5.4 Too high audio interleave

This warning means that the audio interleave used when encoding the video was set too high. This causes the video buffer to fill up and may also cause a little jumpy video.

10.5.5 Too high video bitrate

This means that the video bitrate used when encoding the video was set too high for the currently used device. You need to either re-encode the video using a lower video bitrate or play the video on a faster device.

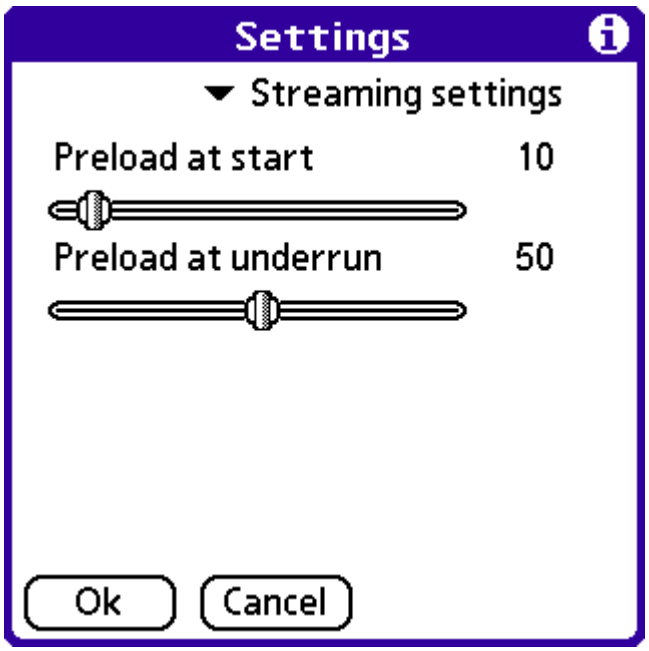
10.5.6 Non-standard audio frequencies

When this is checked, MMPlayer will warn if you try to play a file with a non-standard audio frequency. Normally, the PalmOS should warn if an unsupported audio frequency is used. However, some devices try to play any frequency which will (most often) result in a crash.

If you experience instant crashes (fatal alert) when playing a certain file, try to enable this warning (if it was disabled) and play the file again. It will probably warn about a non-standard audio frequency and you can play the video without audio.

10.6 Streaming settings

When MMPlayer is streaming files from the internet, it preloads a certain amount of data before playing. You can set how much data to preload with the streaming settings.



10.6.1 Preload at start

This setting decides how much data to preload before starting to play a file. The setting is presented in percent of the buffer size (see 10.3). So if the buffer size is set to 1000kB and this setting is set to 10, 100kB will be preloaded before MMPlayer starts to play the file. MMPlayer uses a full-first rule to start playing. If the audio buffer is filled first, then MMPlayer will start playing. If the video buffer if filled first, then MMPlayer will start playing.

10.6.2 Preload at underrun

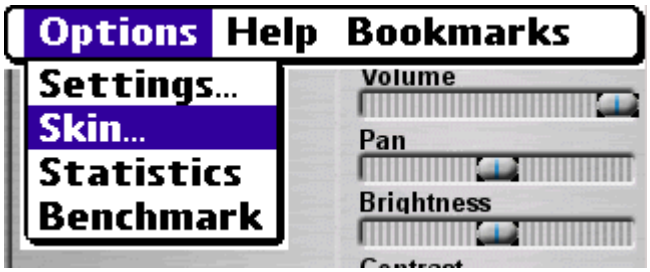
If MMPlayer cannot fill the buffers at the rate they're being used up, i.e. if the total bitrate of the file is larger than the internet connection bandwidth, then the buffers will eventually become empty. This setting is used to set how much data to preload when that happens.

11 Skins

Skins are alternative looks that can be changed by the user. Several skins are shipped with the MMPlayer distribution. Additional skins can be found on http://mmplayer.com/skins.php

11.1 Changing skin

To change the current skin, select the Options->Skin menu.



Then select the new skin from the list of installed skins and tap Ok. After a few seconds, the new skin should be visible.

If the skin you want to use is installed on a memory card, select the memory card where it's installed using the upper right dropdown list and then browse to the skin file using the file selector.

11.2 Installing skins

Skins come in two file formats. Either as a Palm database, i.e. a PDB file, or as a XML file. Usually, a skin should be distributed in both these formats to give the user more flexibility.

If the skin you want to install is a PDB file, just install it as usual using Hotsync. Such skins will be visible in the internal memory section of the skin selection dialog, i.e. you don't have to select the memory card to see it.

If the skin you want to install is a XML file, you need to install it on a memory card before use. If you use the standard installation application, the file will probably be installed in the /PALM/Launcher directory of the card. This means you need to browse to that location when you're about to select the skin for use in MMPlayer.

11.3 Creating skins

To create a new skin, you basically just need a paint program you're comfortable with. It helps if the paint program has support for layers; this makes the process of moving buttons and other controls around much easier.

When you're done painting your new skin, you need to save every button, control and other piece of graphics as gif or jpg files and then you need to use a special

tool to collect all these files into one XML file. Last, you need to write the specifications for each form that the skin should have.

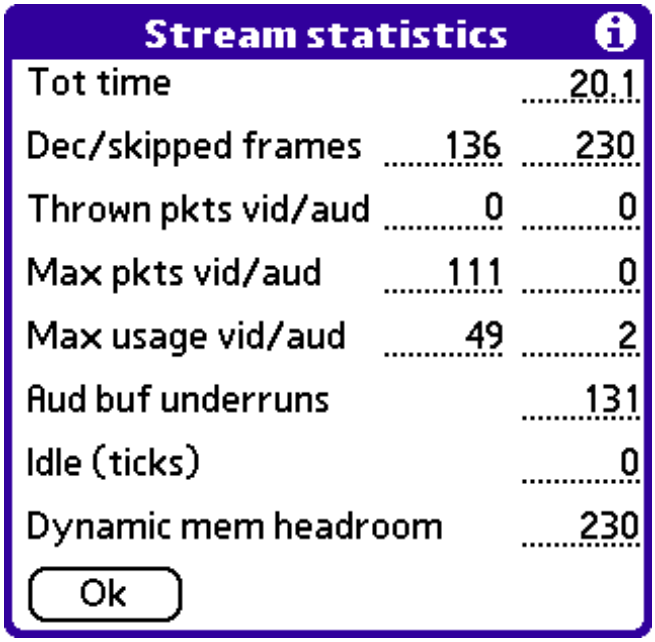
This process is described further in the skin developer SDK that can be downloaded from http://mmplayer.com/skins.php. It's not very complicated and if you need help, don't hesitate to drop us a mail at support@mmplayer.com and we will assist you in your efforts.

12 Statistics

MMPlayer collects various statistics while playing. These statistics can be used to see how hard the file was to play and if it needs to be encoded at lower settings.

When a file has been played, or when it has been paused, the statistics values can be viewed by selecting the Options->Statistics menu.

The following form is then displayed:



Tot time

Displays the total time the file has been played.

Dec/Skipped frames

Displays the number of decoded and skipped frames. MMPlayer may skip some frames when playing a video if the CPU is too slow to display all frames.

Thrown pkts vid/aud

Displays the number of thrown video and audio packets. Packets may get thrown away if the corresponding buffer is full when the packet is read. If this value is non zero, then the buffer should be increased, at least when playing the current file.

Max pkts vid/aud

Displays the max number of video and audio packets in the buffer. If the max number of video packets is large, it means that this video was hard to decode and the video track was lagging behind some of the time.

Max usage vid/aud

Displays the max number of used kilobytes of the video and audio buffers. These values can be used to estimate how to set the video and audio buffer sizes.

Aud buf underruns

Displays the number of audio buffer underruns. An audio buffer underrun is a bad thing and means that the audio stuttered during play. (The example above had 131 audio buffer underruns and needs to be encoded with much lower settings to play well.)

Idle (ticks)

Displays the number of idle ticks during play. This is a coarse value indicating how much free time the CPU had when playing the file.

Dynamic mem headroom

Displays the amount of free dynamic memory while playing the file. If the number is positive, enough dynamic memory was available to play the file at maximum performance. But if the number is negative, it means that so called storage memory had to be used, resulting in a somewhat slower playback. Note that the video track will advance at the normal speed, but it will probably skip more frames if enough dynamic memory wasn’t available.

13 Benchmark mode

The benchmark mode can be used to see how fast MMPlayer can play a video on the current device. This is useful if you want to maximize playback quality while still being able to play it on your device.

The benchmark mode is started by selecting the Options->Benchmark menu.

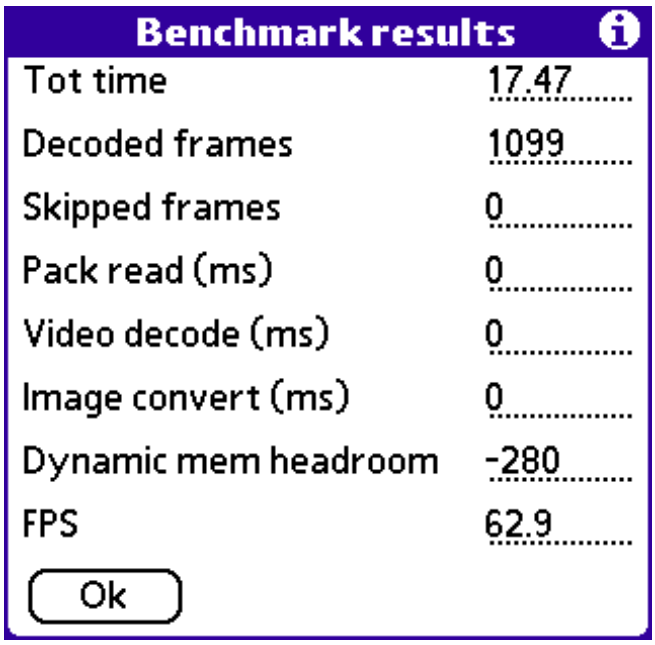
The currently selected video will start playing as fast as possible. This process cannot be interrupted, so do not start a benchmark for a very long video, unless you are prepared to wait. The playback is done in fullscreen mode and the currently set rotation and zoom modes are used when playing.

You can use the “Benchmark audio” setting in the audio settings dialog, (see 10.2.2), to select whether the file should be played with or without audio. If playing with audio, all audio packets will be decoded. However, if the video can be played faster than real-time, some audio will be skipped, but if the video is played slower than real-time, the audio will sometimes get silent resulting in audible clicks.

If the file is played without audio, the audio packets are still read from the file but not decoded.

Doing the benchmark with audio is of course more accurate and will result in a better measurment of the device since both video and audio decoding are tested. The benchmark mode without audio is mostly useful when comparing against older MMPlayer versions that can only play benchmarks without audio.

When finished playing the file, statistics values are displayed.



These values are not the same as described in the statistics chapter. In fact, many of the values aren't even collected anymore. They were used when profiling various stages of the decoding process and can be enabled again if needed. But they are mostly there for the developers of MMPlayer, not the end user. Below is a list of statistics which are still collected.

Tot time

The time it took to play the video.

Decoded frames

The number of decoded frames during play. Note that in benchmark mode, no frames are skipped. Frames are skipped during normal play to keep the video in sync with the audio, but since there's no audio track playing in benchmark mode, there no need to skip frames.

Dynamic mem headroom

Displays the amount of free dynamic memory while playing the file. See chapter 12 Statistics for more info.

FPS

Frames Per Second for the video just played. This is the most important value on this form and shows how fast the video can be played on this particular device. Note that since the video is played without audio in benchmark mode, it will play a bit slower when played with audio. Exactly how much slower depends on the audio encoding settings.

13.1 Benchmark all

The “Benchmark all” function can be used to run a benchmark for all files in the playlist. The result of each file will not be displayed in a statistics form like the other benchmark function, but will be written to a file on a memory card. The file is called MMPlayerStats.txt and contains the statistics values for all files played.

An error dialog will be displayed if MMPlayer is unable to write the file to the memory card. This may, for example, happen if there’s no card inserted.

14 Bookmarks

Bookmarks can be used to mark chapters or other places you want to be able to skip to in a video.

14.1 Setting a bookmark

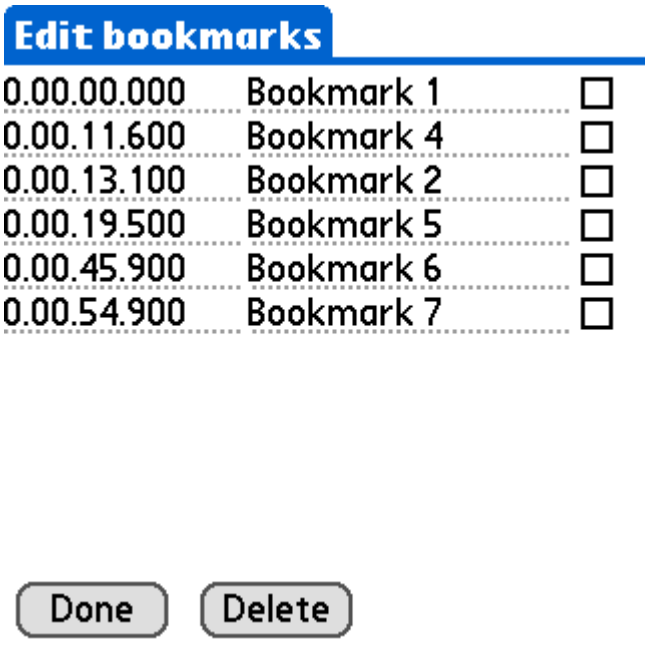
When playing a video, pause it and select the Bookmarks->Mark here menu.

A bookmark will be added at this point and you will later be able to skip to it.

14.2 Editing bookmarks

If you need to edit the bookmarks after setting them, you may open the bookmark editing form by selecting the Bookmarks->Edit menu.

The following form is displayed:



This form can be used to delete bookmarks, change the time of a bookmark and change the name of a bookmark.

Tech talk

Bookmarks are stored in files that are named as the video file but with the extension .bkm. The syntax of those .bkm files are not documented here but they are very easily edited by hand if needed.

15 Registration

An unregistered copy of MMPlayer will display a text asking you to register after about 1 minute of playing a file. It will also start to decrease the volume (and contrast if playing video).

If you decide to register MMPlayer, please visit http://mmplayer.com/buy.php and select your preferred online merchant. The registration process is now optimized and most buyers are able to download a key within 5-10 minutes.

If something goes wrong and you haven't received a notification mail within 30 minutes of purchase, please notify us on support@mmplayer.com and we will investigate what went wrong.

Note that the notification mail doesn't contain any useful info if you already started the process on the buy page. It will merely ask you to visit that page to download a key.

To download the actual key that will unlock your copy of MMPlayer, you must fill in the web form on the buy page with your mail and your MMPlayer ID. The MMPlayer ID is unique for each device and can be found by selecting the Help->Register menu of MMPlayer.

When your registration key has been downloaded and installed, your copy of MMPlayer will continue to play as usual after the first minute.

16 Quick start

Here's a guide for the impatient who quickly wants to start playing media with MMPlayer. (This guide assumes you're using the Gray skin. If you don't, some of the steps will be a bit inaccurate but will still be possible to perform using the corresponding button on the skin you're using).

1. Install MMPlayer

2. Copy your media file(s) to your Palm's memory card using the standard install application by dropping the media file onto the install application's window.

3. Hotsync. This will transfer the media file to the memory card. The tricky part is to know in which directory the file will end up. In Palm OS, it's possible to map file extensions to default directories on memory cards, so depending on this mapping, different file types will be copied into different directories. An educated guess is that music files will be copied into /AUDIO and video files into /DCIM, but this may not be the case for your particular setup, so you might have to browse around a while to find the file.

4. Start MMPlayer.

5. Tap the Playlist tab.

6. Press the 'Add' button.

7. In the file selection dialog, browse to the directory where the file was installed; select the file and press 'Ok'. (If you can't browse to another directory or if you can't find the files you have installed, see chapter 19 Troubleshooting guide.)

8. Select the file in the playlist.

9. Tap the 'Main' tab.

10. Press the 'Play' button.

Now, the file should start playing. If it doesn't, please check that the format and codecs of the files are included in the list of currently supported formats and codecs.

If the file is audio only, you should see a few lines of data about the file. But if the file contains video, the video should be displayed in the video area. To expand the video into the whole available screen, just tap the video area.

17 Getting media to (and from) your Palm

MMPlayer can play media either from internal memory or from an external memory card. The easiest way is to install the files to an external memory card to avoid unnecessary conversions. But for users without memory card, the internal option is available.

17.1 Internal memory

To install media to internal memory, the media file must first be converted to a PDB file. You can do this by downloading the par utility from this location:

http://www.djw.org/product/palm/par/

Par is a DOS command line program and you must consequently open a DOS window in order to use it. To convert a media file to a PDB file, type the following command: (with par in the path)

```
par c -a stream song.pdb "name of the song.mp3" MMPA MMPL song.mp3
```

(If your media file is some other type than mp3, then you should of course use that file extension instead of mp3 in the command line above. The file extension is important, because MMPlayer sometimes need it to determine the format of the file.)

Once the PDB is made, install it to the Palm using the Palm Desktop installation program. MMPlayer will then be able to use the PDB file as a media source.

To add that file to the playlist, select “internal” in the file selection dialog and then select the file from the list, (the file should show up as “name of the song.mp3” if the above example was used to convert the file.)

17.2 Memory card

There are quite a few ways to transfer a media file to a memory card, here's some:

- Use a card reader. This is actually the only long-term solution. They are not expensive. Transferring a 100 – 200MB movie with a card reader takes less than 2-3 minutes. Contrast this with the 20-60 minutes required by using the standard install method.
- Use Card Export from Softick (http://www.softick.com). Card Export requires Windows 2000/XP. It can be used to view the memory card (inserted in your PalmOS device) as a disk under Windows. A new version called Card Export II has recently been released and requires no special software on the PC side. It’s also much faster (on most devices) than the older version.
- Use Pilot Install (http://envicon.com/e/pinstall/). Pilot install is free for non-commercial use and lets you install files to your Palm's memory or to the memory card without having to complete the whole hotsync procedure.

- Use the standard Palm Desktop install tool. Start the install tool and drop the files you want to install in its window. Different types of files will be copied to different directories on the card depending on the current file type mapping of the PalmOS device. Some programs change this mapping to make certain file types end up in certain directories. As a general rule of thumb, audio files are copied into /AUDIO and images and videos are copied into /DCIM. Some programs (such as Kinoma producer) integrate with the standard install tool and try to convert certain file types instead of simply installing them. This will cause the file to be unusable for MMPlayer. The standard Install tool can also be really slow and error prone for large files. I would suggest one of the other alternatives.

17.3 Removing media

MMPlayer doesn't manage files, it's a media player. Think of it as a media player on a computer. Such media players can't remove files, you need to use the explorer or a similar program to do that. The scenario is similar on a Palm with MMPlayer, except there's no standard file manager in PalmOS. However, there are plenty of 3rd part file managers for PalmOS, both free and commercial. Some of them are listed below. Of course, if you have a card reader or Card Export, you can remove media files from memory card like any other file.

FileZ is a free alternative. It is a full featured file management utility. It can be downloaded from http://nosleep.net

McFile costs $12 (on Handango). It can do all the things FileZ can. It can also act as a simple backup program and beam files directly to and from memory cards.

18 Encoding videos

In theory, MMPlayer should be able to play any DivX (or mpeg) movie you care to throw at it. The problem is that most DivX movies are made for viewing on a much larger screen than the 320x320 screen MMPlayer currently runs on. And even if MMPlayer was able to scale the video size to the 320x320 area, it would still lack the CPU power to decode large video sizes. To be able to play videos smoothly with MMPlayer, you must therefore either:

- Find the video you want to view in a suitable size.
- Re-encode the video to a suitable size.

The latter option may seem daunting for the beginner, but it's actually not that hard. Once you get the hang of the different processes involved, it's mostly just fun. And if you get uncertain about what's the "best" setting along the way, you just need to try one setting now and then try another later. You will need to encode some 5-10 videos before you get a feeling for how different settings affect the end result. Here's a little guide on how to encode videos using VirtualDub (a free tool).

18.1 Software

First, you should download and install the software you need:

1. VirtualDub (http://www.virtualdub.org). This is a freeware program that lets you encode a video (and audio) into the .avi format using any codec you have installed.

2. DivX codec (http://www.divx.com). The DivX codec is used to encode the video stream of the .avi file.

3. MP3 codec (Visit http://www.afterdawn.com/software and search for “Lame”) The Lame mp3 codec is used to encode the audio stream of the .avi file.

18.2 Encoding

When you have installed all the software listed above, start VirtualDub and load your video file you wish to convert with File->Open video file; where File->Open means click the File menu and under the File menu select Open.

18.2.1 Video

Then you must tell VirtualDub how to encode the video:

4. Select Video->Full processing mode

5. Select Video->Filters... This opens up the filter dialog where you can add all sorts of filters to be applied to the video before encoding. We want to resize the video so press Add... and select the resize filter. Enter the desired size and optionally a filter mode and press Ok. (Different filter modes results in

different grades of smoothness of the resized picture. Just try them and see which one you prefer). If you want to cut the left and right borders to convert the movie from widescreen, you can select Cropping... and use the cropping dialog to crop the input video.

6. Select Video->Frame Rate... MMPlayer may skip frames in order to keep up with the audio stream if the video size is too large. On a slower device, MMPlayer generally does not skip frames at 160x160, but it skips B-frames for larger video sizes. So, when you encode a video, you can either encode the video using B-frames or you may set the frame rate by yourself using this dialog. If you choose to change the frame rate, the best way to do it is to use the Frame rate decimation (decimate by 2) because this doesn't affect audio/video synchronization. We recommend using B-frames instead of changing the frame rate. This option will let you play the video on more powerful devices without skipping.

7. Select Video->Compression to select the video codec. All codecs installed will be listed here. Select the DivX codec and press Configure. The DivX codec dialog has quite a few settings and I won't explain them all, just the most important ones.

    - Bitrate mode: Quality based - it tries to enforce a constant quality throughout the video, 1-pass - it limits the bitrate at a specified value, 2-pass (or multipass) - it uses several passes to distribute high bitrates to fast moving sections and lower bitrates to slower moving sections. Multipass encoding requires more than one Save (see below). The first save is done using 1st pass, consecutive saves are done using 2nd pass (or nth pass).

    - Encoding bitrate: Sets the bitrate, if the bitrate mode is bitrate based.

    - Quantizer: Sets the quality, if the bitrate mode is quality based.

    - Use Bidirectional encoding (Profiles tab): This enables B-frames. You must at least select the Portable profile to be able to check this box. This setting is only available in DivX Pro.

18.2.2 Audio

Now it's time to configure the audio stream:

1. Select Audio->Full processing mode

2. Select Audio->Interleaving. In this dialog, the most important thing is to keep the interleave low, otherwise MMPlayer might have to throw away video packets when playing. (You will notice this as choppy blocks, i.e. artifacts, when playing). Set the audio interleave to 1 frame.

3. Select Audio->Compression. This is the audio version of the codec selection dialog and lists all codecs currently installed. Select MP3 (or MPEG Layer-3) and select a suitable format in the list to the right. Don't overdo it. A very high

audio bitrate will take too much CPU to decode and may degrade performance notably. I have good results with ~16-22kHz mono and bitrates around 16-32 kBit/s. It's also important to choose a frequency that the target device can play. For example, the T|T can't play 24kHz audio, but most other common frequencies, see 4)

4. If you need to change the audio frequency, this can be done using the Audio->Conversion dialog. It's straight-forward. Just select what you want and press Ok.

18.2.3 Do it

Not it's time to encode the AVI file. If you want to make short sample, you can select Video->Select Range and set the length of the video. Then select File->Save as AVI. Set a file name and press Ok.

18.3 Alternative software

There are of course other ways to encode videos, here's a few pointers.

18.3.1 Dr. DivX

If you think all this sounds too complicated, there are solutions for the really green beginner. One of them is called Dr. DivX (http://www.divx.com/divx/drdivx/) and is very easy to use. The downside is that you can't do everything you can do with VirtualDub. Be aware of that if you plan to buy it, you pay for ease-of-use, not powerful functions.

18.3.2 JobMaker

Another good alternative for beginners is the MMPlayerJobMaker tool (http://www.mmplayerjobmaker.tk/). It's a tool made by an MMPlayer user that can be used to make scripts for VirtualDub. The JobMaker does away with many of the tedious and hard-to-master setting jungle of VirtualDub.

18.3.3 Pocket DVD Studio

Pocket DVD Studio is a one-click encoding solution to convert your DVDs to AVI files suitable for MMPlayer. See http://pqdvd.com/ for more info.

18.3.4 PocketDivXEncoder

PocketDivXEncoder is a free program (GPL licence) to encode videos for PDAs and is a good alternative to use when encoding videos for MMPlayer. It can't do DVD ripping though, only the conversion step. So it's optimal if you have a large video that you want to re-encode for MMPlayer. See http://divx.ppccool.com/ for more info.

18.4 Additional info

If you have more questions about encoding videos for MMPlayer, please visit the encoding section of the MMPlayer forum pages (http://mmplayer.com/forums/). There, you will find other users who had similar problems you're having, and you'll probably also find a few solutions.

19 Troubleshooting guide

19.1 Playing

Symptom	Cause	Solution
The audio and video are not synchronized.	MMPlayer sometimes fails to keep audio and video in sync.	Compensate using the A/V Sync OSD setting, see 9.2.3 OSD settings.
The audio volume is very low.	The amp slider has been decreased.	Increase the amp slider. (Note that some skins don't have an amp slider. You may have to change to the default skin to see it.)
The hard buttons don't work	The "Use buttons" checkbox in not checked.	Check the "Use buttons" checkbox on the video settings form.
MMPlayer crashes frequently.	Some users have problems with MMPlayer when some hacks are installed with TealMaster.	Disable all hacks, or one at a time, and try again.
MMPlayer crashes when playing a certain file.	Some files need a larger video (or audio) buffer.	Increase the video (or audio) buffer and try again. If it still crashes when the buffers are several MB each, feel free to send a short clip to support@mmplayer.com and we'll try to see what's wrong.
MMPlayer displays a fatal alert "DmWriteCheck failed".	MMPlayer failed to allocate sufficient memory to play the file.	Free some memory by removing some applications or data from internal memory
When I press "Add" in the playlist, there's no files to select.	MMPlayer doesn't list all files on the card but only those in the current directory.	Browse to the correct directory to see the files you have installed on the card. The file selection dialog behaves just like a file selection dialog on a computer.
When I press "Add" in the playlist, I only see audio files, no video files.	The standard Palm Install tool usually installs audio and video files in different directories. Audio files goes to /AUDIO and video/picture files goes to /DCIM.	See 17.2 for more info.
There's no way to browse to any other directory than the default /AUDIO	You're probably using the old version 0.1.0. This version is audio only and doesn't allow browsing.	Upgrade to the latest version. See http://mmplayer.com
I *am* using the latest version of MMPlayer and I still can't browse to another directory.	Perhaps you need to use another font? If you use the half-size font but not bold nor large, it's quite small and you might not	Change to a bigger font, see 10.4 GUI settings.

	see the two dots representing the parent directory.	
When I use the slider to move to a certain position in a clip, it just starts over from the beginning.	MMPlayer uses the index at the end of AVI files when seeking. If MMPlayer fails to read that index, seeking is not possible.	Use a program called DivFix to rebuild the index. See http://divfix.maxeline.com/. Pocket DVD Studio sometimes write the index incorrectly, but this has been fixed in the latest release.
I tried rebuilding the index as described above but seeking is still not possible.	Long videos have a large index requiring much memory. MMPlayer might run out of memory while reading the index causing seeking to be disabled.	Free some memory or split the movie into smaller parts.
I have lots of memory available but seeking still doesn't work.	MMPlayer may run out of audio buffer while seeking for the next keyframe.	Increase the audio buffer. See 10.3 Buffer settings.

19.2 Registration

Symptom	Cause	Solution
The key.pdb file has been installed but the registration form doesn't say it's registered.	The registration form doesn't change. The only change is that there's no nag text after playing for ~1 minute.	Play a file for a minute and make sure there's no nag text.
My MMPlayer is suddenly unregistered again.	You have changed device or Hotsync ID. This will cause the MMPlayer ID to change and your key will not be able to unlock MMPlayer.	Contact support@mmplayer.com and describe why you need a new key.
I have paid for MMPlayer. When will the key arrive?	We don't send the key via mail, we only send instructions to visit http://mmplayer.com/buy and download a key from there	Please see chapter 15 Registration for more info.
I have paid for MMPlayer but the notification mail hasn't arrived.	Some users, most commonly Hotmail users, have their spam settings too tight which causes our notification mail to be	Try to download a key from http://mmplayer.com/buy anyway. See chapter 15 Registration for more info.

	discarded.	
When I press “Get key” on the buy page, I get an error saying something about unrecognized file type.	Some browsers, Netscape 7.0 is one of them, doesn’t handle php correctly.	Try another browser, like Mozilla or Internet Explorer. You may also try to save the php file to disk, and then remove the .php suffix so that the file is called “key.pdb”. Then you can double-click on the key and install it.
When I try to download a key, I get a message that my mail address isn’t recognized.	This can have two causes. Either, you have entered a different mail address than the one you used for the purchase, or your purchase notification hasn’t reached us yet.	Double-check that you used the same mail address you used when registering. I.e. check your account at PalmGear, Handango, PayPal etc.