Stradis®

SMPEGDEC

Stradis MPEG-2 Decoder Application for Windows

User Guide

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Using the Stradis MPEG-2 Decoder Application for Windows

The Stradis MPEG-2 File Player Application (SMPEGDEC.EXE) is provided for testing and evaluation purposes only.
If your Stradis decoder is part of a third-party system, follow the instructions provided by your system provider.

Control Panel Buttons:

Stop. Stop playing the current file or Play List. See Play List, page 23.

Pause. Pause the current MPEG file. Pressing or selecting Pause again will step the file to the next frame of video. Press or select Play to continue playing the file from the point where it was paused.

Play. Begin playing the open MPEG file or the Play List.

Loop. Repeatedly play the open MPEG file or the Play List.

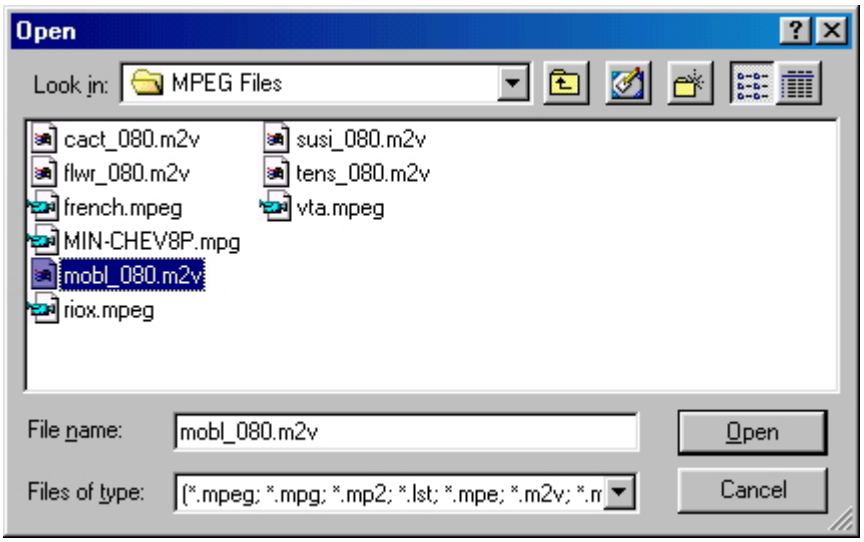
Fast. Play the video in fast motion. Since the decoder card does this by playing only I-frames, the fast play speed will be determined by the file's IBP structure and bit-rate. In general, lower bit-rate files will play faster than higher bit-rate files.

Menu Commands:

File

Open…

Opens the "Open" dialog box.



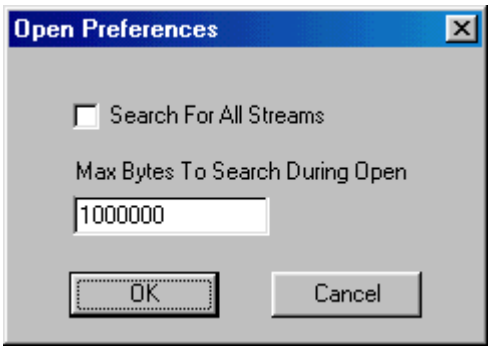
Also can open a Play List. See Play List, page 23.

Close

Closes the MPEG file that is currently open, but does not exit the application.

Open Preferences

Opens the "Open Preferences" dialog box.



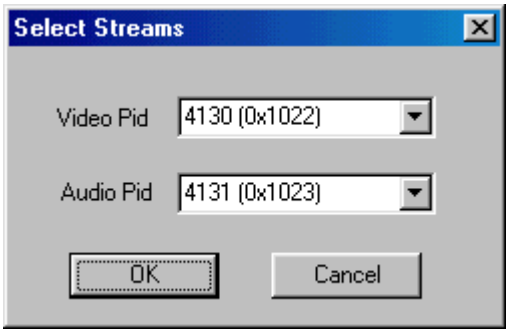
When the "Search For All Streams" box is checked, the MPEG file will be searched for Video and Audio Pids or IDs during File Open. "Max Bytes To Search During Open" (defaults to 1000000) specifies how far into the MPEG file to search.

Select Stream

Opens the "Select Stream" or the “Program Select” dialog box.

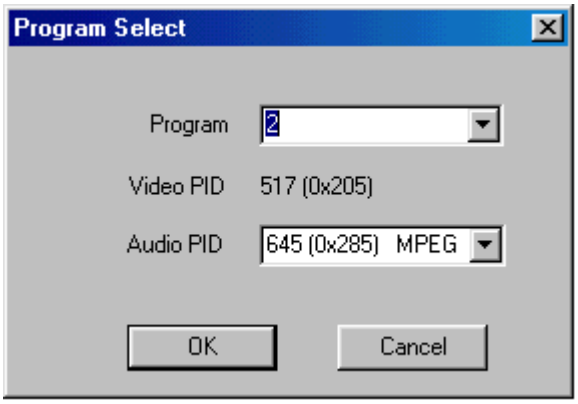
When the "Search For All Streams" check box in the "Open Preferences" dialog box is checked and the MPEG file contains multiple video or audio streams, the specific audio and video stream to be played may be selected.

The Pids contained in the file (in the case of a Transport Stream) or the Stream IDs (in the case of a Program or System Stream) will be displayed in the "Select Stream" dialog box. The specific audio and video stream may be selected. If no stream is selected, the first audio



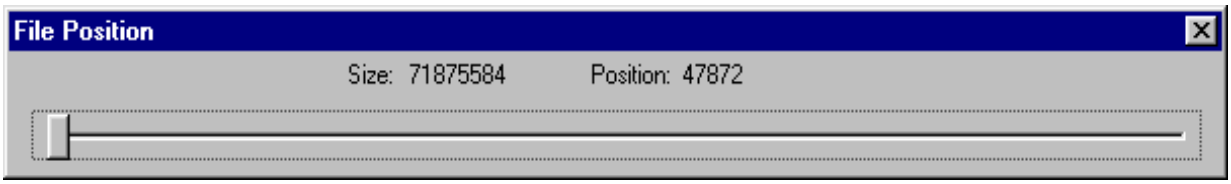
and video stream encountered in the file will be played.

When the "Search For All Streams" check box in the "Open Preferences" dialog box is checked and the MPEG is a transport stream containing a “Program Association Table,” the “Program Select” dialog box will open. A “program” may then be selected.



Position Dialog

Opens the "File Position" dialog box with Seek Bar.



Size is file size in bytes. Position indicates the approximate location, in bytes, currently being decoded.

When an individual file is being played, you can seek to specific place in the file by dragging the progress indicator on the Seek bar. You can move backward or forward in the file. If the file was playing when the progress indicator is dragged, it will continue playing when the progress indicator is released. If the file was paused when the progress indicator is dragged, it will remain paused when the progress indicator is released. This feature is not available when playing files from a Play List.

Next File

When using a Play List, stop playing the current file and immediately skip to the next file on the Play List. Only active when there is a "next file" available.

Play [Ctrl-P]

Same as the Play button. Begin playing the open MPEG file or the Play List.

Loop

Same as the Loop button. Repeatedly play the open MPEG file or the Play List.

Slow Motion

Play the opened file in slow motion. Video may be played at 1/2, 1/3, 1/4, 1/5, 1/6, 1/7 or 1/8 actual speed.

Fast Forward

Same as the Fast Forward button. Play the video in fast motion. Since the decoder card does this by playing I-frames only, the fast play speed will be determined by the file’s IBP structure and bit-rate. In general, lower bit-rate files will play faster than higher bit-rate files.

Still/Step [Ctrl-S]

Same as the Pause button. Pause the current MPEG file. Pressing or selecting Pause again will step the file to the next frame of video. Press or select Play to continue playing the file from the point where it was paused.

Stop & Rewind

Same as the Stop button. Stops playing the current file and “rewinds” it to the beginning. However, if the current file is a File List, skip to the next item on the list.

Reset

Reset the MPEG audio and video decoders. Only active when the decoder is stopped. Primarily used for testing, this command is not normally needed.

Exit [Alt-F4]

Close all files and closes the application.

View

VGA On

Turn on or off the display of the decoder output on the VGA monitor.

Use Overlay Mode

Places the VGA card in overlay mode. If the VGA does not support overlay mode, the warning box, “VGA card does not support overlay mode!” is displayed.

Keep Aspect Ratio

Checking this keeps the computer’s display in 4:3 height to width aspect ratio when manually resizing the window. When unchecked the window can be manually sized into non-standard aspect ratios.

Window Size

Full Screen [Ctrl-F

Scales the video to display full screen on the computer display. Does not affect the video output. Only available when overlay mode is selected and available.

200%

Display video on the computer display twice full-size. Does not affect the video output. Only available when overlay mode is selected and available.

100%

Display video on the computer display full-size. Displays both fields of an interlaced frame. Does not affect the video output.

50%

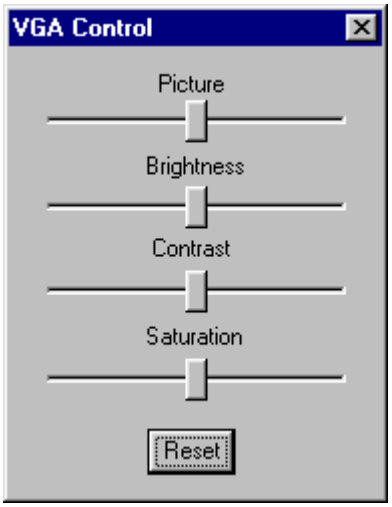
Display video one-half actual size. Does not affect video output.

25%

Display video one-quarter actual size. Does not affect video output.

VGA Control…

Opens the "VGA Control" dialog box. Controls the brightness, contrast, and saturation of the VGA video overlay on the computer monitor only. It has no affect on SMPTE 259M, S-Video, or composite video outputs.



View Stream Info

Displays information about the file, including Video and Audio PIDs, Stream IDs, Bit Rates, Aspect Ratio and more. Note that some of this information is extracted from data encoded in the stream header. If the data was incorrectly encoded, it will be displayed as encoded, but will not affect playback.

View SMPTE Code

Displays SMPTE Time Code. A time-code is encoded in each I-frame, typically at the beginning of each GOP. During playback, the time code is extracted from each I-frame. The time code is interpolated between I-frames.

View STC

Displays the System Time Clock.

Options

Video Standard (Active only when no file is open.)

Auto

The decoder will automatically select NTSC or PAL (B, D, G, H, I) based on the detected frame-rate.

NTSC

Only NTSC files will play. Attempting to play files in any other standard will generating a message box with "Warning: Selected Video Standard Incompatible with File."

PAL (B, D, G, H, I)

Only PAL (B, D, G, H, I) files will play. Attempting to play files in any other standard will generating a message box with "Warning: Selected Video Standard Incompatible with File."

PAL (M)

Only PAL (M) or NTSC files will play. Attempting to play files in any other standard will generating a message box with "Warning: Selected Video Standard Incompatible with File."

PAL (N)

Only PAL (N) files will play. Attempting to play files in any other standard will generating a message box with "Warning: Selected Video Standard Incompatible with File."

PAL (Combination N)

Only PAL (Combination N) files will play. Attempting to play files in any other standard will generating a message box with "Warning: Selected Video Standard Incompatible with File."

Monitor Type (Active only when no file is open.)

4:3

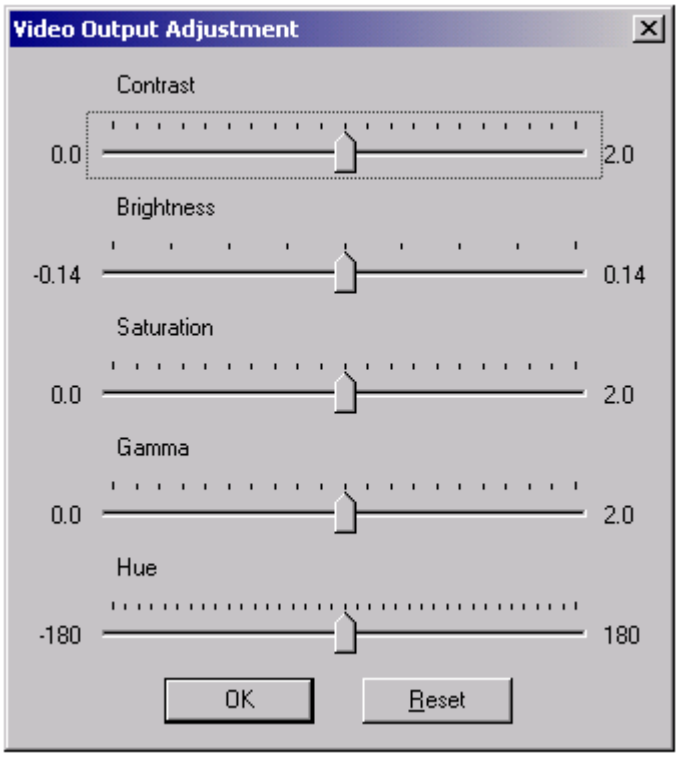
When 4:3 is selected and a stream coded as 4:3 is displayed, no action is taken.

When 4:3 is selected and a stream coded as 16:9 is displayed, a 4:3 image in the proper aspect ratio is displayed using pan and scan information, if available. If no pan and scan information is in the stream, the left-most portion of the 16:9 image is displayed.

16:9

When 16:9 is selected, no action is taken regardless of the stream type.

Video Calibration

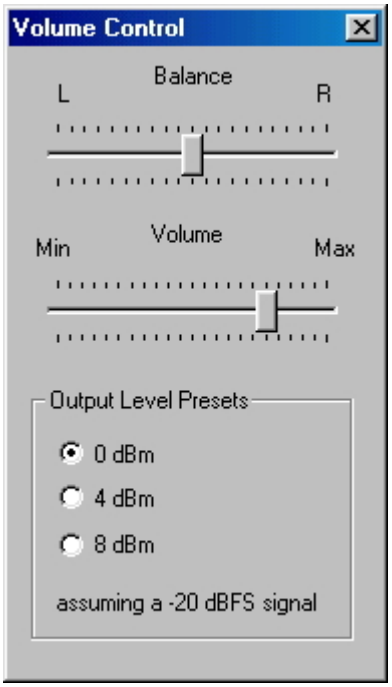


Used to control contrast, brightness, saturation, gamma, and hue of the video output.

Controls both the SMPTE 259M (SDI) digital video output and the analog composite video output.

Volume Control…

Opens the "Volume Control" dialog box. Controls the decoded audio output only. The volume and balance settings are written into the Windows registry and are remembered from session to session.



"Output Level Presets" select standard values of 0dBm, 4dBm or 8 dBm output levels, based on a -20 dBFS signal.

Digital Audio (Active only when no file is open.) (SDM280 & SDM290 only)

Consumer PCM

Places the uncompressed digital audio output stream in “Consumer Format.”

Professional PCM

Places the uncompressed digital audio output stream in “Professional Format.”

IEC 61937 Compressed

Mutes analog output and places the compressed digital audio output stream in “Consumer Format.” Used for outputting compressed AC-3 audio to an external consumer AC-3 decoder.

SMPTE 337M Compressed

Mutes analog output and places the compressed digital audio output stream in “Professional Format.” Used for outputting compressed AC-3 audio to an external professional AC-3 decoder.

Offset Time Code

Displays the System Time Clock.

GenLock

Checking this locks the output video sync to the incoming video sync.

Sync Mode (Active only when no file is open.)

System Clock

Uses the Presentation Time Stamps to synchronize video and audio. The audio decoder compares the audio PTS, when encountered, with the STC, and corrects the audio if the difference between the two is more than five milliseconds. The correction duplicates or skips samples periodically until the audio PTS is within the five-millisecond window.

Software

Audio and video are started within a half frame. No further synchronization is performed. However the audio and video clocks are locked together.

Single Field In Pause

When toggled on, the Pause command displays only a single field. Using this option will eliminate interlace artifacts when paused or in Slow Motion.

Closed Caption

Enable Pass Through

Closed Captions are decoded assuming that they were placed in the stream sequentially without regard to the actual frame with which they were originally associated. In this mode, the decoder simply passes the Closed Caption data as it is received and does not re-ordering them.

Enable Re-order

Closed Captions are decoded assuming that they were placed in the stream attached to the frame from which they were originally decoded. This causes the Closed Caption bytes to arrive at the decoder out of sequence (same as video frames). In this mode, the decoder must reorder the bytes to get them back into time sequence.

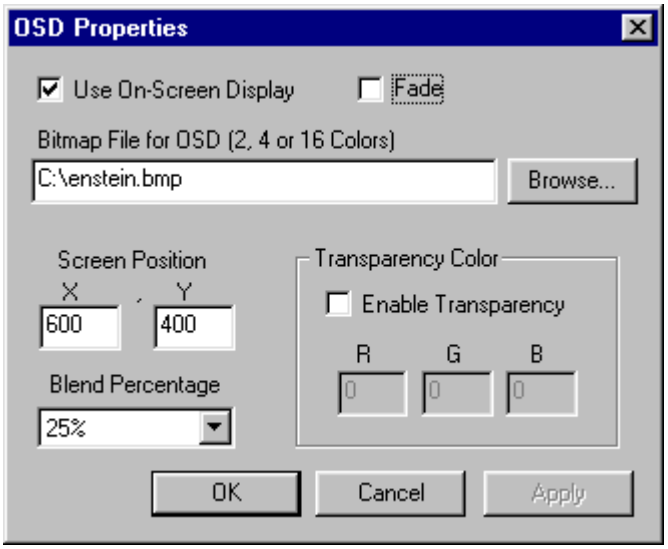
VITC Enabled

Places the SMPTE Time Code in the vertical interval in accordance with SMPTE 12M-1999. As outlined in SMPTE RP 164, VITC is placed on lines 14 and 16 when in NTSC and lines 19 and 21 when in PAL.

On-Screen Display…

Opens the "OSD Properties" dialog box, used to superimpose a Windows bit-map over video. Entering the X & Y coordinates of the upper left corner controls the position of the graphic on the screen. Note that undesirable results may occur if the X & Y coordinates entered position the graphic beyond the normal picture area (720 x 480 pixels in NTSC or 720 x 576 pixels in PAL).

“Fade” turns the fade option on. When fade is on, images fades in or out at the rate of 1/16th of full transparency per frame, up to the amount set in the "Blend Percentage" box.



"Blend Percentage" controls the amount of video that shows through the OSD graphic. A Blend Percentage of 0% means that no video will show through. A blend percentage of 93.75% (15/16) allows the maximum blending.

The "Transparency Color" group sets a color to be transparent by using the Windows standard .bmp values of 0-255 for R, G, and B. All OSD graphic pixels with a matching RGB value will become transparent, that is that video behind will be displayed, not the OSD graphic. Note that Blending and Transparency operate independently.

The .bmp file must be a 2-, 4- or 16-color file and should have a width that is devisable by 8 (16-color) or 16 (2- and 4-color) and height that is devisable by 2. If the width or height is not divisible by the appropriate amount, the image will be cropped on the right and/or top/bottom (depending on the .bmp file) to fit into the appropriately divisible size.

Note: When creating .bmp files for OSD usage it is important to realize that NTSC and PAL monitors have rectangular pixels whereas computer monitors typically have square pixels. For NTSC, the width of the image should be about 10% (1.1x) wider when displayed on a square pixel monitor. For PAL, the image should be about 8% (.92x) narrower.

Test Pattern (Active only when no file is open.)

100% SMPTE Color Bars

Displays NTSC 100% Color Bars or 100% amplitude, 100% saturation PAL color bars depending on video standard selected by the Options -Video Standard command. If Auto is selected, the last video standard usedused.

75% SMPTE Color Bars

Displays NTSC 75% Color Bars or 100% amplitude, 75% saturation PAL color bars depending on video standard selected by the Options -Video Standard command. If Auto is selected, the last format played is used.

Luminance Ramp

Displays an NTSC or PAL linear luminance ramp depending on video standard selected by the Options -Video Standard command. If Auto is selected, the last format played is used.

Display from File …

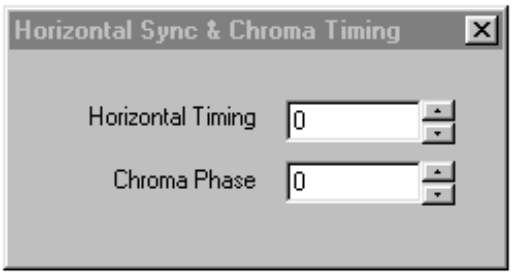
Display a stored image file.

The stored image can be either a standard Windows® BMP 24 bit RGB color image or a Stradis proprietary YUV format that is 720 x 480 pixels (when NTSC is selected) or 720 x 576 pixels (when PAL is selected). Images that are up to 1024 pixels wide can be used, but will be cropped to 720 pixels. Stradis provides a utility program (MakeYUV.exe) for converting BMP file into YUV files as part of the software distribution. The advantage to the YUV format is that it loads much faster than the BMP format.

Note: When creating .bmp files it is important to realize that NTSC or PAL video monitors have rectangular pixels whereas computer monitors typically have square pixels. For NTSC, the width of the image should be about 10% (1.1x) wider when displayed on a square pixel monitor. For PAL, the image should be about 8% (.92x) narrower when displayed on a square pixel monitor.

Video Timing Dialog

Opens the "Horizontal Sync & Chroma Timing" dialog box, used to control the horizontal sync offset and chroma phase when the board is in GenLock mode. The sync offset can be varied increments of 37ns and the chroma phase in increments of 360/256 (1.40625) degrees.



Note that the Video Timing Dialog is disabled when Video Standard = Auto. To use the Video Timing Dialog, a specific video standard must be selected.

Help

About the Stradis Professional Decoder

Display the software revision number and copyright information.

Multiple Decoders in a Single Computer

To use multiple Stradis Professional MPEG-2 Decoders simultaneously in one computer, multiple instances of the decoder application (Smpegdec.exe) must be run. This can be done by adding the program argument -X where X is the decoder board number (1 through N).

Example: From the DOS command line enter the following commands to get two decoder applications running simultaneously,

Smpegdec -1
Smpegdec -2

You can also set up a Windows shortcut that has the -X as the program parameter where X is the board number (1 through N).

Play List

A Play List is a list of files to be played in a preprogrammed sequence. The list may be played once or it may be played continuously using the Loop button or command. A Play List must have the file extension *.lst*. All files in a Play List must be the same video format (PAL or NTSC).

Format:

[d:][path]*filename*
.
.
.

Example:

```
transport\riox.mpeg
MPEG2-8Mbit\susi_080.m2v
transport\french.m2t
MPEG2-8Mbit\flwr_080.m2v
transport\vta10.mpg
MPEG2-8Mbit\mobl_080.m2v
mpeg1\weezer.mpg
bike.m2v
mpeg1\broadcas.mpg
mb15.m2v
mpeg1\goodtime.mpg
```