# DVDSubEdit User Manual.
Version 1.4 and above

1. Getting started: Viewing subpictures

1.1   Opening vob files.

This is very easy. You can either drag/drop vob files, or use the File menu. DVDSubEdit will start scanning the file(s) for subpicture packs in the background. As more subpicture units (SPUs) are found, the display is updated but you can start looking at the subpics before the scanning is entirely done.

- **Full title set:** To look at the subpictures for an entire video title set, select all the VOBs of the title domain (for example vts_01_1.vob vts_01_2.vob vts_01_3.vob) and drag/drop them on the DVDSubEdit window.
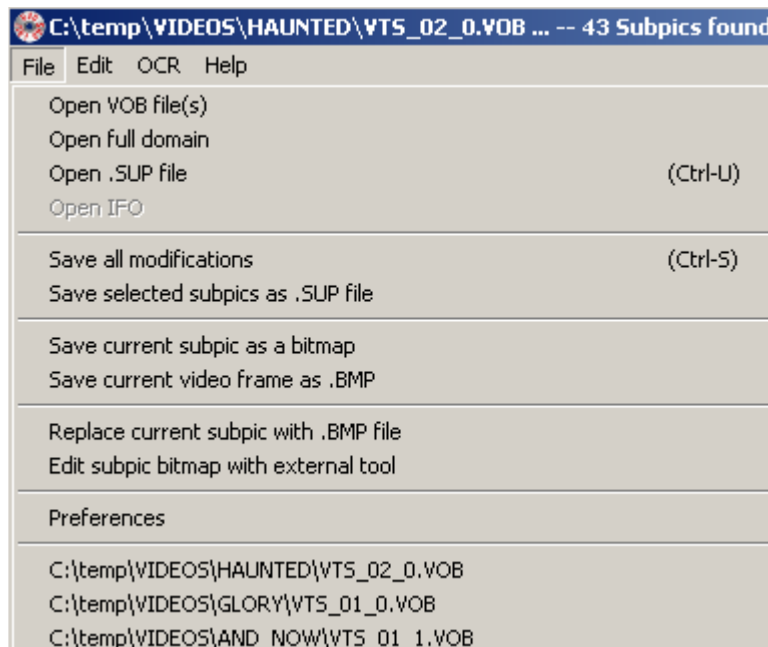
Alternately you can use **"Open full domain"** in the File menu to open all the files belonging to the same domain as the selected file. For example, selecting vts_01_2.vob will open the entire first video titleset.

- **Single or multiple vobs:** You can look at selected vob files if you prefer (for example, dragging/dropping vts_01_2.vob) but it's possible that the first subpicture unit will not be detected properly (because part of it is located in

the previous vob file). You can also use **"Open file"** in the File menu and select one or multiple vob files. Note that all the vob files have to belong to the same titleset (VTS) and to the same domain (i.e., menu domain or title domain).

- **Menus:** You can also look at menus by dragging/dropping or opening a menu vob file, for example vts_01_0.vob or video_ts.vob. This will show you button highlights etc. However, because most button highlights are transparent by default (until a button is selected or activated), you probably will only see the background video and the button rectangles. To see the highlights, you can click the "Ignore Transparencies" check box in the Subpic Color/Transparency area.

- **Fast Reload of previously opened vob(s):** You can also use the MRU (most recently used) list at the bottom of the File menu to reload one of the last vobs (or set of vobs) you loaded. DVDSubEdit keeps temporary files that include all the information about spus for the 8 last loaded files (or set of files), so when this option is used the vob files do not need to be scanned and the operation is very quick. Note however, that re-timing is not enabled when a fast reload is used. If you plan on using the re-timing feature, you need to scan the full domain from scratch.

1.2   Selecting subtitles to visualize or modify.

By default, DVDSubEdit shows you all the subpicture units that it finds. But you can filter them by stream ID (i.e., by language) or by the video cell (i.e., "chapter") they belong to. To do that, use the stream and VCID drop down selectors.
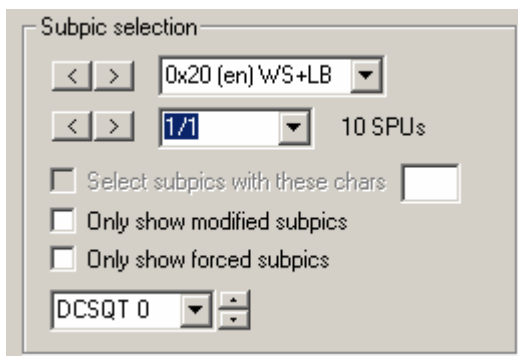

In this example, only the subpictures of stream 0x20 (which corresponds to the english subtitles according to the IFO files, for the widescreen or letterboxed display modes) are displayed, and only those that belong to the video cell 1/1 (i.e., with the VID 1 and CELLID 1).
The option 1/* can be used to select all the subpictures belonging to video cells with a VID 1 (in other words, regardless of the CELLID).

By clicking "Only show modified subpics" you can only show those subpictures that you have modified one way or another. If you haven't modified any, no subpicture will be displayed. "Only show forced subpics" is useful to see which subpictures have a forced-start command. The other options are explained further down in this manual.
Once you have selected which subpictures to look at, you can use the slider to quickly move through them or the arrow buttons to go from one to the next or previous one.

You can also quickly go to a specific subpicture using the "**Goto subpic**" field.
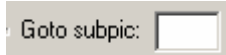
If you've selected a specific stream, then entering 22 in that field would take you to subpicture 22 in that stream. If you've selected All Streams, then entering 22 in that field would take you to the 22nd subpicture regardless of stream.

Normally the background video is displayed along with the subtitles but you can disable that by unchecking "**Show video frame**". This can be useful if the subpicture is difficult to see against a "busy" background. The "Show video frame" is only available for MPEG2 video (it is disabled for DVDs encoded as MPEG1). The "No zoom window" dropdown allows you to view an enlarged version of the subpicture, and will pop a small window which displays the subpicture bitmap with a 1:1 (no scaling) or a 1:2 (twice as big) ratio. The subpicture background is cropped to only show the "interesting" part of the bitmap:


If you're opening a menu vob and buttons are present, DVDSubEdit will display button rectangles as in this example. However, you probably won't see any button highlight unless the "Ignore transparency" check box is selected, because most button highlights are transparent by default, until a button is selected/activated.

1.3   Selecting the display mode

Movies that are coded with a 16:9 aspect ratio can be played in three different ways: original 16:9 (for displays that support this aspect ratio), letterboxed and Pan&Scan (for 4:3 displays). Some DVDs have separate subtitle streams for each of these display modes. This info is stored in the IFO files, and DVDSubEdit shows the target display mode(s) for each subpicture stream in the stream selector (WS for widescreen, LB for letterbox and PS for Pan&Scan). Note that it is common to have only 1 subtitle stream for all aspect ratios. DVDSubEdit allows you to visualize the background video in the way it will be shown on your display, for all three display modes.

You select a specific display mode by using the drop down selector. This will display the video as it will appear on the actual device, according to the selected mode.
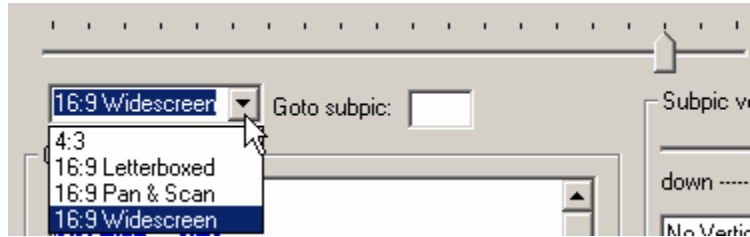
The subpicture is also shown as it will be on your display. This can be quite useful to check that subpictures do line up with the background video, particularly for menus. Menus that are encoded in 16:9 almost always have two highlight streams, one for 16:9 displays, and one for Pan&Scan (menus are almost never shown in letterboxed format!). DVDSubEdit lets you check that the stream intended for 16:9 does indeed line up with the video in that mode, and likewise for the PS stream.

In the preference panel, you can check the option "Adapt display mode to subpic stream", which makes DVDSubEdit switch display mode when you change the selected subpicture stream if the current display mode is not compatible with the stream's display mode(s).
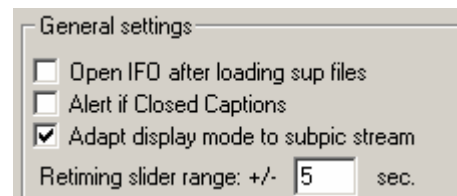
## 1.4 Understanding subtitle info

Subpicture information is mainly displayed in the left part of the display:

- In this example, we're looking at subpicture pack (spu) number 3, which is the first subpic in the 0x22 stream.
- The **stream ID** is 0x20 (hexadecimal for stream 32).
- **LBA** (logical block address) tells you where the first sector of the first subpicture pack is for this spu.
- **V/CID** indicates which vob cell this spu belongs to, in this case vobid 1 and cellid 1.
- **PTS** indicates the presentation time in system clock units (90kHz clock).
- The **duration** shows that the second set of commands (DCSQT) which holds the Stop command is delayed by 3.52 seconds.
- The **TimeCode** indicates the start and end times (hh:mm:ss:1/1000s) of the subpicture.
- The **DCSQTs** are the sets of
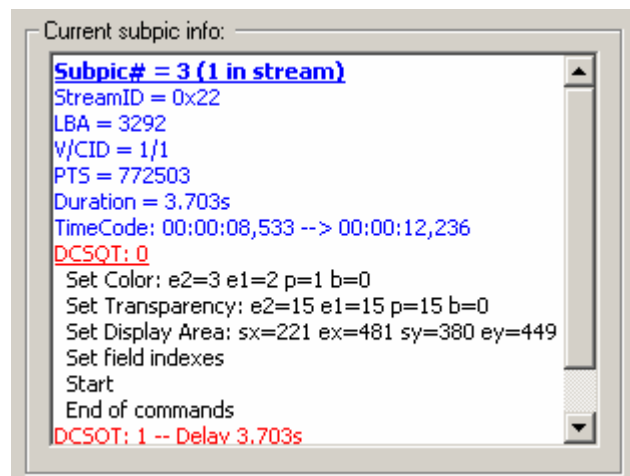
commands for the spu. The first one has no delay, and comprises 6 commands: Set Color, Set Contrast, Set Display Area, Set Field Index, Start and End of commands.

In addition, the selection drop down list indicates the **language of the subtitles** (English in this example). Note that the language is defined in the IFO files, and it can change from PGC to PGC. For example, the stream ID 0x20 might be declared as an English subtitle in one PGC, then as another language in another PGC. Finally, the target display mode(s) is displayed (Widescreen and Letterboxed in this case).
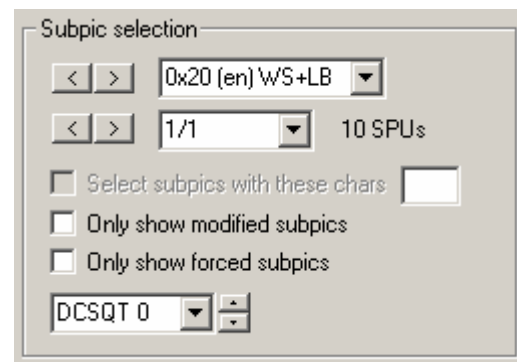
1.5   The Color Lookup Table (CLUT)

Subtitles colors are defined by the color lookup table (**CLUT**) used in the PGC in which the cell containing the subpicture pack is referenced. DVDSubEdit shows the 4 colors assigned to each pixel types ('b' for background, 'p' for pattern, 'e1' for emphasis 1, and 'e2' for emphasis 2).

The CLUT is normally read from the IFO file, and specifically from the first PGC that references the VCID cell the subpicture belongs to. Of course, this can change from cell to cell, so it's possible to see the CLUT change when you move the subpicture selection slider. SUP files don't include any CLUT info, so if you load a SUP file, you have to also load the corresponding IFO to be able to visualize the real colors.

- Selecting "Use **IFO CLUT**" makes DVDSubEdit use the colors found in the CLUT of the PGC that references the cell the subpicture belongs to. This option is only available if DVDSubEdit found an IFO associated with the VOB files you loaded, or if you loaded an IFO along with a SUP file.

- Checking **"Use Automatic CLUT"** makes DVDSubEdit use different colors for "text", background, outline and antialias pixels. Text pixels are the pixels used for the body of the subtitle characters, outline and antialias pixels are used around the text pixels to avoid aliasing problems that could result for the low resolution used in subpictures. The various types of pixels are identified from the subpicture itself, and might change from DVD to DVD (some DVDs use the 'p' pixel type for the body of the characters, while others might use the 'e1' type). This option is very useful when you don't have the IFO that corresponds to the VOB files, or when you're loading a .sup file. You can click on the tiles to change the default colors.

1.6   Viewing individual pixels

You can temporarily visualize individual pixels by pressing the corresponding pixel button. For example, pressing the "e1" button will only show the e1 pixels, with a fully opaque transparency, hiding all the other pixels. This is very useful to visualize which individual pixel types are used, or to visualize the size of the subpicture background. The normal display resumes as soon as you release the button.

1.7   Multiple sets of commands

If your subpicture data has multiple sets of commands (DCSQTs), you can select which one to visualize (and later modify) using the DSCQT drop-down selector. This will update the supicture display to reflect the commands and parameters used in the DCSQT.

Multiple sets of commands are sometimes used to create fade-in and fade-out effects (although that's fairly rare, but DVDSubEdit can add fade-in effects). For example, a fade-out is created by having each DCSQT contain a set transparency command with a gradually less opaque value. To remove such a fade-out, you would select "All DCSQTs" (last item in the drop-down selector) then move the transparency slider to full opaque. When you select "All DCSQTs", the transparency slider and the color tiles show the values corresponding to the first DCSQT until you move the slider (or change the colors) at which point all DCSQTs take on the same values. An easier way would be do click the **"Del. Fade"** button which is explained later.

NOTE: DVDSubEdit currently *only uses the first DCSQT* to position the subpicture. In other words, if one of the subsequent DCSQT has commands to move the subpicture, these commands will not be reflected in the subpicture display. Similarly, if you move the subpicture, only the first DCSQT parameters will be modified.

1.8 Video playback

DVDSubEdit allows you to play your video and check the appearance and timing of the subpictures without having to save your work and load in a DVD player.

The drop-down selector lets you chose which audio stream to play. The streams are defined in the IFO file, specifically for the first PGC that uses the video cell the selected subpicture belongs to.
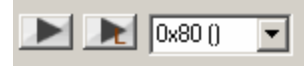
The left button simply plays the video, while the right button loops over the currently selected subpicture. Note that if you haven't selected a specific subpicture stream, the stream that the current subpicture belongs to is selected automatically. This is to avoid watching subtitles in various languages in succession! When looping the video, playback starts a few hundreds of ms before the start of the current subpicture, and loops back after a few hundreds of ms after the end of the current subpicture.

If the video playback does not work well for you, for example if the audio breaks up, your computer may not be powerful enough for a full frame-rate preview. Even though normal software players might very well be able to display the movie with any glitch, DVDSubEdit uses a different mechanism than most software players to display the video, and typically uses a lot more CPU power. One solution is to make the DVDSubEdit window smaller. If that does not help you can also select a lower frame-rate in the preferences. Lowering the frame-rate makes the video less smooth, but uses less CPU, and usually helps avoid audio breakups.

The automatic mode attempts to play the video at the full frame rate, but lowers the frame rate by a factor 2 if the machine isn't powerful enough. Note that it does not lower the frame rate by more than 2, so if you still get audio glitches, you might want to lower the frame rate by a factor 3 or 4.

2. Modifying subpictures

2.1   General: modifying 1 or many subpictures

Modifying an individual subpicture:
When you move a slider to modify your subtitles, only the subpicture currently displayed is modified. All other ones are left alone. Typically, when you're satisfied with your modifications, you can apply them to the rest of the subtitles by clicking the "**Apply to all selected**" button Apply to all selected .

Modifying a group of subpictures:
When you click "**Apply to all selected**", all the currently selected subtitles are modified in the same way the currently visible one was modified.
For example, if you have selected stream 0x20, belonging to VCID 1/3, only these subpictures will be modified. This makes it easy to modify only a given language (by selecting the appropriate stream) or a given chapter (by selecting the appropriate VCID). For example, to change the start command of all English subtitles, you would select the stream corresponding to the English language, then change the start command of one of the subtitles, then click the "**Apply to all selected**" button.
A small pop-up dialog then appears where you can select which of the modifications you have made to the current subpicture you would like to apply to the rest of them.
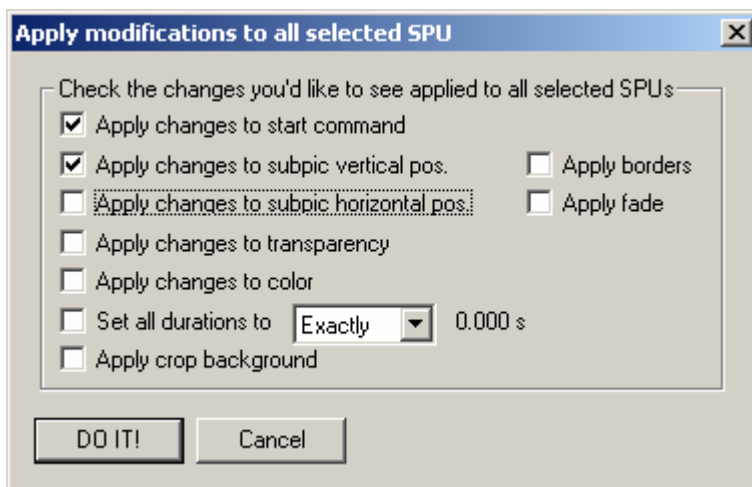
For example, if you've modified the start command and you've moved the subtitle, you can decide to only apply the change to the start command by only clicking that box.

Copying changes to another subpicture:

You can also modify the current subpicture then apply the same modifications to another subpicture by selecting "**Apply last modifs**" in the Edit menu (or using the Ctrl-V shortcut). Using the left and right keyboard arrows and the Ctrl-V shortcut is a good way to quickly modify a group of subtitles.
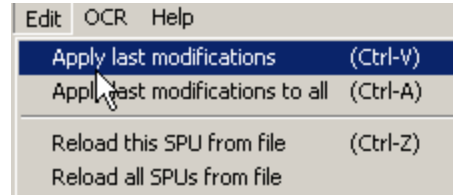
Undoing changes:
You can select "Reload this spu from file" in the Edit menu (or use the Ctrl-Z shortcut) to reload the currently viewed subpicture from the file, or "Reload all spus from file" to undo all your changes. At this point, DVDSubEdit does not have multiple undos.

Saving your changes:
Once you're satisfied with your modifications, you can select "Save all modifs" (or use the Ctrl-S shortcut) in the File menu to save all your changes back into the vob files. *Note that there is **no undo** in that case!* Once the changes are saved to the vob files, there is no way to go back to the originals, unless you have kept a copy of the files in another directory. If you opened a .sup file, the changes are saved back into the original .sup file.
If you modified any of the Color Lookup Tables (CLUTs), the IFO files will also be saved.

## 2.2 Changing the transparency
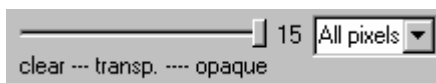
Changing the transparency of your subtitles can easily be done using the transparency slider. You must first choose which of the 4 pixel types you want this to be applied to.
Choosing 'b', 'p', 'e1' or 'e2' will select the background, pattern, emphasis 1 or 2 pixels for modification. The slider will then only change the transparency of the selected pixels.
You can choose "All pixels" to modify the transparency of all but the "true background" pixels. The pixels used for the background are left alone so the background video can still be seen by transparency.
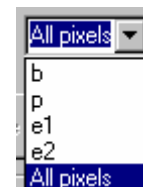
To ignore all transparency values, you can check the "Ignore transparency" option:
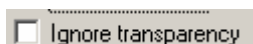
This is useful to reveal subpictures that are initially transparent, such as button highlights in menus. DVDSubEdit tries to be smart about identifying truly

background pixels: Assuming that the 'b' pixels are indeed used for the background is a bad idea as this is certainly not mandatory and in many cases, they're not. DVDSubEdit assumes that the top left pixel in the subpicture is of the type used for the background.
Once you've changed the transparency of your selected pixel(s), you can apply the same modifications to all the selected subpictures using the Ctrl-A (Apply to all) shortcut.

2.3   Hiding subpictures

To hide subpictures you can click the "Hide subpic" button, which simply sets all transparencies to 0. You can also use the Ctrl-H shortcut to do that.

2.4   Changing the colors indexes into the CLUT

Simply click on one of the tiles to select which color of the current CLUT will be used for a given pixel type. To adjust the "e1" pixel type, click on the e1 tile.

A dialog will pop up, allowing you to choose the color among the 16 offered by the CLUT. For your convenience, the dialog indicates which LU (if looking at a menu vob) and which PGC the CLUT is defined in.
NOTE: If you want to apply the color changes to the rest of the selected subpictures, you can apply the changes you made to all the pixels in one shot using Ctrl-A.

2.5   Changing the CLUT colors

If you want to change the color coded in the CLUT itself, you can **Shift-Click** any of the 16 tiles in the "Pick color" dialog, and a color selection dialog will pop-up, allowing you to change the color stored in the color-lookup table in the IFO file for that specific tile. This does not modify the IFO file until you save all your changes. This is available only if an IFO file was loaded with your subpictures: if you open a .sup file and you don't open an IFO file to provide a CLUT, this option will not be available.

2.6   Modifying the "start" command

A drop-down list is available to select the subpicture start command. Subtitles normally use a **"Normal Start"** command, in which case the subtitles are only displayed if the corresponding subtitle stream is selected and the subtitles are turned on in the player.

A **"Forced Start"** command can be used instead, in which case the subtitles are displayed even if the subtitles are turned off in the player. *During playback forced subtitles are only shown if the stream is selected.* In other words, if no stream is selected, the forced subtitles will not be shown. If the stream is selected but turned off, then only forced subtitles will be shown in that stream. If the stream is selected and turned on, all subtitles will be shown. **Forced subtitles** are often used when a character is speaking in a tongue that is foreign to the main language used in the movie, for example aliens in a sci-fi movie.
Note that DVDSubEdit can't be used to select a given stream in the DVD, or to turn subtitles on or off. This is done via PGC commands, and can be easily accomplished with PGCEdit.
Menu highlights always use a forced start command. Note that you can choose to only show subtitles having a start command using the check box in the subpic selection area.

2.7   Modifying the subtitle vertical positions by hand

Use the slider or the entry box to move the subpicture by the desired number of pixels.
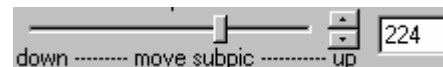
DVDSubEdit limits the amount you can move subpictures so none of the "useful"pixels will disappear from the video frame. Once again, this applies to all but non "truly background" pixels (i.e. pixels that DVDSubEdit has determined are used as background). If you're using borders (see below) DVDSubEdit makes sure none of the useful pixels disappear from inside the selected borders.
**You can also use the mouse**: Click on the subpicture in the video display and move it to the desired location… If you press Alt or Ctrl while dragging the subpicture, you can constrain vertical or horizontal motions.

2.8   Modifying the subtitle vertical positions using the borders

It is often easier and faster to define borders in which you want your subtitles to fall. This can be done using the border slider and the border selector.

Using the border slider:
The border slider can be used to adjust bottom and top borders (shown in red in the video display) which define an area where subtitles will be confined.
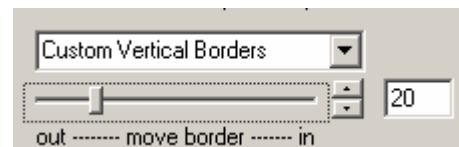
The currently viewed subtitle is moved up or down until it fits entirely inside the "safe" area defined by the two red lines. This can be very useful to automatically move all the subtitles within a given area of the screen: adjust the borders to the

appropriate position, then click "Apply to All Selected" to apply the modification to all selected subtitltes.

Using pre-selected borders:
The drop-down list lets you pick from pre-selected borders:
- **4:3 safe area** cuts about 16% of the total image height (8% at the top and 8% at the bottom) to account for the television overscan.
- **16:9 already letterboxed** is useful for widescreen movies that are authored as 4:3 letterboxed DVDs (i.e. 4:3 movies with the top and bottom black bars). Selecting this ensure the subtitles fall within the actual widescreen video (and not in the black bars). This can be useful if you intend to zoom to get rid of the black bars during playback.
- **16:9 already letterboxed safe** adds a safe area to make sure your television overscan does not cut into the subtitles.
- **1.85:1 in 16:9 frame** is useful to see the limits of a original 1.85:1 aspect ratio, when placed in a 16:9 frame.
- **2.39:1 in 16:9 frame** is useful to see the limits of a original 2.39:1 aspect ratio, when placed in a 16:9 frame

The pre-selected borders can be adjusted by editing the DVDSubEdit.ini file (see appendices to see where to find it). If you find that certain values are better for your particular display, you can change the pre-selected borders to match your preferred choice.

NOTE: **The border option is disabled if the subpicture corresponds to a menu** (more specifically, if the VOBU the spu falls within has buttons and the subpicture has a forced-start command). In addition, when you click "Apply to all selected", subpics containing button highlights will not be moved. This prevents inadvertently moving button highlights in button-over-video situations (e.g. the rabbit in the matrix movies).

2.9   Changing the subtitle horizontal position

Use the slider to change the horizontal position of your subpics. This is only possible, however, if the subpicture background does not occupy the entire screen.
If the slider is not enabled, your subpicture background is the size of the entire screen and DVDSubEdit cannot move the subpicture unless the background is cropped.


This can be done by clicking the "**Crop subpic background**" button. DVDSubEdit then decodes the subpicture data, crops the background to the minimum size that still encloses the useful part of the subpicture (the text), and then re-encodes the data. Once this is done, the slider is enabled. To crop all selected subpictures, simply press Ctrl-A (or select "Apply last modifs to all" in the Edit menu).
You can also use the mouse to move the subtitle horizontallly: Click on the subpic in the video display and move it to the desired location...
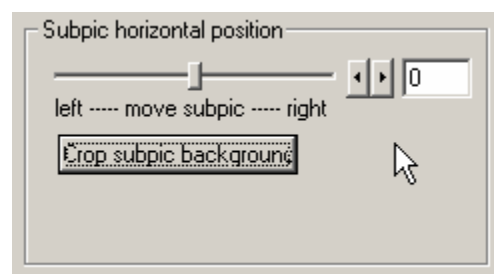
2.10   Changing the subtitle duration

Use the slider or the entry box to change the
length of time during which the subpicture is
displayed.
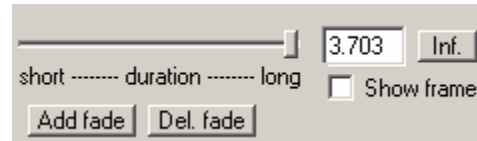
The slider will only allow valid durations: for example, you cannot display a
subpicture past the start time of the next subpicture (in the same stream).
Similarly, you cannot set the duration to 0 (because two DCSQT normally can't have
the same delay value).
If you check the "**Show frame**" checkbox, the I-frame right after the end of the
subtitle will be displayed instead of the one corresponding to its start. This is
helpful to adjust the end of a subtitle to match a specific frame. Note however that
DVDSubEdit *cannot show the exact last frame that will have the subtitle* (because
it can only show I-frames), so this will be somewhat approximate.
The slider simply alters the delay value of the last DCSQT (which normally holds the
"stop" command). You cannot change the delay of an individual DCSQT (yet).
Clicking the "**Inf.**" button will remove the last DCSQT which holds the stop
command, thereby making the subpicture of "infinite" duration (in reality, it will
be displayed until the next subpicture starts). Conversely, if a subpicture does not
have a delayed DCSQT with a stop command, clicking the slider will pop a dialog
offering to add a DCSQT with a stop command:
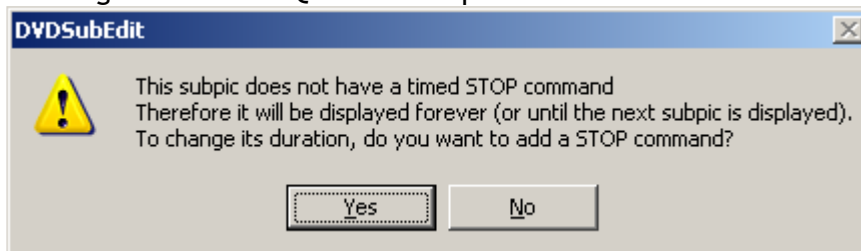
This will allow you to set an arbitrary duration to the subpicture.
When you chose Apply To All, you will have a choice to apply this exact duration to
all selected subpics, or to make sure they last at least that long, or at most that
long.
In the example below, the durations are adjusted to be at least 1.167 seconds
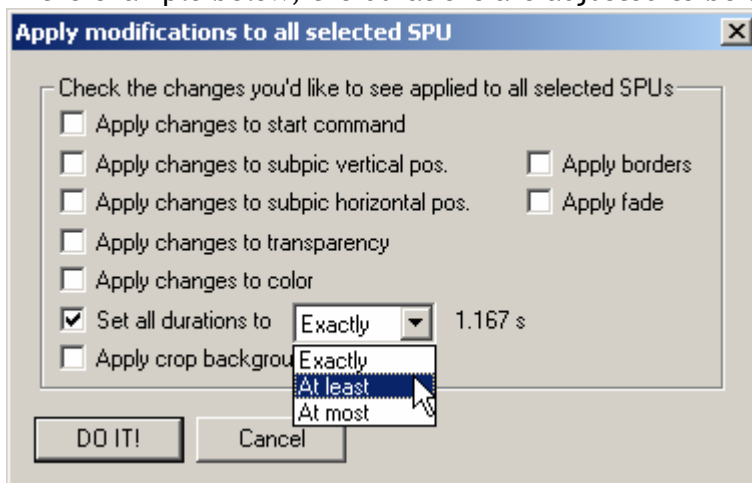
Clicking the "**Add fade**" button will add a fade-in, obtained by using a series of DCSQT with increasing transparencies. The fade-in lasts 1/8th of the subpic duration (this is not currently adjustable), with a fully transparent subpicture at the start, and a final transparency equal to the original transparency (the transparency before Add fade was used). In some cases, it's not possible to add a fade-in because there isn't enough room in the subpicture packs for the required additional DCSQTs. Clicking the "**Del. fade**" button will remove any fade-in present in the subpicture, assigning a fixed transparency equal to the final transparency in the original fade-in.

2.11 If you have multiple sets of commands

If you have multiple sets of commands (DCSQTs) use the drop-down selector to choose which one to modify before you apply any modification. At this point, the only data you can modify in DCSQTs other than the first one is the transparency and the color assignment. If you move the subpicture, only the first DCSQT is modified. If you choose "All DCSQTs" in the drop-down selector, your modifications (transparency or color) will be applied to all the DCSQTs that have corresponding commands. If you then use Apply to All, your modification will be applied to all DCSQTs of all selected subpictures.

3. Re-timing subtitles

3.1 Changing the timing of a single subtitle

In some rare cases, you need to move a subtitle from one location to another one, because this specific subtitle is out of sync with the video.
To do that, *make sure that you load the full title* domain (by opening the files with the "Open Full Domain" menu, or making sure you're dropping all the VOB files of the VTS in question – but excluding the menu of course, for example vts_01_0.vob). DVDSubEdit will refuse to re-time subpictures if you're in the menu domain, or if you omitted one of the vob files. Then click the "Retime this SPU" button. A small dialog will popup allowing you to specify either an absolute PTS (presentation time) where the subtitle should be displayed, or a value by which to move the subtitle. The PTS values are in seconds. In practice, it's best to search for the target location of your subtitle using the preview before applying the move. Note the PTS of the image you'd like the subtitle to be synchronous with, and use this new PTS when you use the re-timing function.
Because of the way DVDSubEdit works, if you need to move the subtitle by more than 3 to 5 seconds, it's a good idea to do it in two steps, moving it first to an intermediate location then to the accurate target location. It's also a good idea to check with a software player that the subtitle is displayed at the right time, and readjust if needed.

Note that *there is no undo for this operation*. The vob files are modified as the operation completes, along with the corresponding IFO file. There is no need to subsequently save the subpictures (they've already been saved).

3.2   Re-timing all the subtitles

In some cases, the entire subtitle track is out of sync with the video, either appearing too early or too late. DVDSubEdit lets you resynchronize the subtitles by moving them as a whole by a fixed positive or negative delay. Again, make sure you load the full domain and click the "Retime selected SPUs" button. A small dialog will popup where you can specify by how much the selected subtitles should be moved. Positive values (for example +1s) will make the subtitles appear later than they currently do. Negative values will make them appear before they currently do. Since this is a lengthy operation (requiring the modification of many packs in the vob files), it's best to have a fairly good idea of how much the subtitles should be moved by.
The operation takes more time when moving by a larger amount. Adding or subtracting a small delay (less than 1 second) is relatively fast, but moving by more than 3-4 seconds can become quite lengthy.
Note that *there is no undo for this operation*. The vob files are modified as the operation completes, along with the corresponding IFO file. There is no need to subsequently save the subpics (they've already been saved).
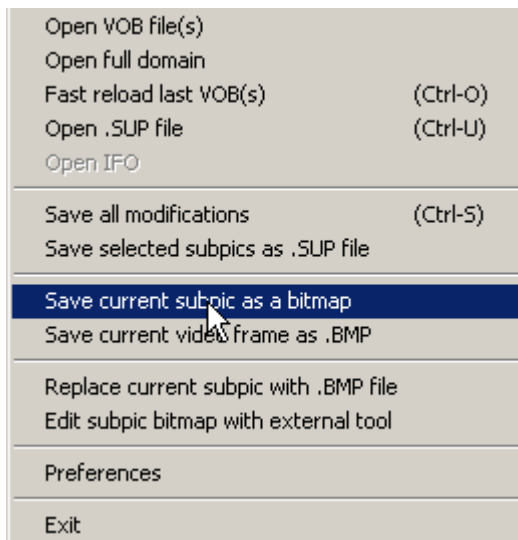
3.3   Re-timing issues

Re-timing subtitles in place (i.e. directly inside the vob file, without demuxing/remuxing) is tricky. DVDSubEdit tries to do the best job it can, but you can still run into problems.

- *Subpicture collisions* happen when one of the subpics you're re-timing will end up in the same vobu as another one belonging to the same stream. While this isn't illegal, it poses additional problems or subpicture ordering. For this reason, DVDSubEdit currently refuses to re-time a subtitle if it will collide with another one. You can run into that problem when re-timing an individual subtitle, and this is an indication that there's already a subtitle that will be displayed around the same PTS. The solution is to make sure you're not trying to display two subtitles at the same time. Sometimes, you will run into the problem when trying to move an entire subpicture track (for example if the track has a large number of subpics, close to each other, as in Spiderman R1 for example).
- *Angles*: Re-timing subtitles in multi-angle movies poses additional problems that DVDSubEdit isn't currently able to handle. As a result, re-timing subtitles is forbidden in such cases.

4. Working with the subpicture bitmap

4.1 Exporting and importing the bitmap

Open VOB file(s)
Open full domain
Fast reload last VOB(s)   (Ctrl-O)
Open .SUP file   (Ctrl-U)
Open IFO

Save all modifications   (Ctrl-S)
Save selected subpics as .SUP file

Save current subpic as a bitmap
Save current video frame as .BMP

Replace current subpic with .BMP file
Edit subpic bitmap with external tool

Preferences

Exit

DVDSubEdit lets you export the subpicture as a bitmap in the .bmp or .ppm format. Select **"Save current subpic as a bitmap"** in the File menu. The dialog that lets you select the name of the file to save to also lets you select the format:

- 4-bit bitmap file (the bitmap includes a 16-color lookup table).
- 24—bit bitmap file.
- ppm file.

A few notes:
- The bitmap does not use transparency and all the pixels are rendered as fully opaque. As a result, it's quite possible that the saved bitmap looks slightly different than the subpicture shown in DVDSubEdit or seen during playback.
- The bitmap's size is the size of the video frame: 720x480 for NTSC, 720x576 for PAL, and the subpicture is placed exactly where it would be shown by a DVD player.

It is also possible to save the current video frame as a 24-bit bitmap file. This can be useful to align menu highlights with the background video. Use **"Save current video frame as .BMP"** in the File menu.

Importing a bitmap can be done using **"Replace current subpic with .bmp file"** in the File menu. Only bitmap files (.bmp) can be used for that, but they can either be 4-bit (using a 16-color lookup table included in the bitmap) or 24-bit. More information on that subject is given below (4.2).

4.2 Editing the bitmap with an external tool

DVDSubEdit allows you to edit the subpicture bitmap using any external bitmap editing tool (such as PhotoShop, Gimp, or even mspaint). This is a very powerful feature, because it allows you to make changes to the bitmap **without having to demux, edit, then remux the entire VOB file** (which would be a lengthy process). You can achieve this by saving the subpicture as a bitmap (as described above), opening the saved bitmap with the tool of your choice, editing and saving it, then going back to DVDSubEdit to re-import it into the subpicture (using **"Replace current subpic with .bmp file"** in the File menu). But that's doing it the hard way!

The same thing can be done in one shot using **"Edit subpic bitmap with external tool"** in the File menu. This automatically saves the subpicture in a temporary bitmap file, opens it with you choice bitmap editing program, waits for you to be done editing the file, then re-imports it into the subpicture.
Before you can use this feature, you have to select the tool you'll be using, in the Preferences.
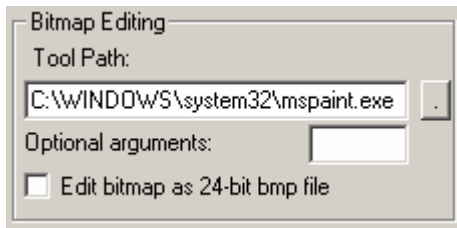
The path should point to you bitmap editing tool (mspaint.exe in this example). You can also indicate additional command line parameters to pass to the program when it is launched, which can be useful to specify your favorite program options.

You can also select whether the bitmap will be saved as a 24-bit or a 4-bit bitmap. More on that subject below.

When editing the bitmap with an external tool, restrictions apply:

- It's not always possible to re-import the modified bitmap into the subpicture, because the encoded bitmap has to fit in the number of subpicture packs used by the original bitmap (DVDSubEdit cannot insert packs in the VOB file – that would be a very lengthy operation). To help with that, DVDSubEdit crops the modified bitmap as it imports it, and attempts to move commands and data in the subpicture packs to maximize the amount of space available for the modified bitmap. In general, small modifications don't pose a problem, but if you add too much to the bitmap it is likely that it won't fit into the original space. In that case, DVDSubEdit issues an error message, and restores the original bitmap.
- DVD subpictures use 4-color bitmaps (or more precisely, 4 types of pixels). The exported bitmap will only show 4 different colors, corresponding to each of the 'b', 'p', 'e1' and 'e2' pixel types. However, bitmap editing tools might not be able to save the modified bitmap using only 4 colors and when the modified bitmap is re-imported into the subpicture, DVDSubEdit has to re-assign colors to pixel types. This is especially true when the tool uses anti-aliasing (around text for example), which usually requires more than 4 colors (although DVD subpictures can do it with 4, but not very well). In such cases, DVDSubEdit does its best to map the colors found to the four available pixels.
- Selecting the right CLUT: The saved bitmap will show the colors found in the selected CLUT (see section 1.5   for info on selecting the CLUT). If you're using the IFO CLUT, the bitmap is saved with the colors found in the IFO CLUT. If you're using the automatic CLUT, the bitmap is saved with the colors assigned by the automatic CLUT.
  A problem with using the IFO CLUT is that the 4 original colors might be hard to distinguish, and hard to select in the bitmap editing tool. Sometimes, the same color is assigned to two different pixel types, which means they become indistinguishable in the bitmap. If that's the case DVDSubEdit will open an alert message, and switch to the automatic CLUT.

By contrast, the automatic CLUT assigns different colors to each pixel types, and the default colors are chosen to makes editing the bitmap easy. By default, the text pixels are white, the background pixels are black, and the outline or anti-alias pixels are two different shades of gray. This makes it easy to select the right color when editing the bitmap. Furthermore, if the bitmap editing tool adds anti-aliasing between the characters and the background, it will most likely use shades of gray, which DVDSubEdit will easily map to the outline and anti-alias pixels.

- Save as a 4-bit or as a 24-bit bitmap? Whether you should save the bitmap as a 4-bit or a 24-bit bitmap depends on your bitmap editing tool. Many tools can't edit 4-bit (16 color) bitmaps, although some do a good job at it. All the tools can edit 24-bit bitmaps. Editing a 24-bit bitmap allows the tool to use any arbitrary color, which can be problematic when the bitmap is imported back into the subpicture.

- Recall that in the bitmap, the subpicture is placed exactly where it would appear in the video display. If you move some text while editing the bitmap, the text will appear where you moved it in the modified subpicture after the bitmap is re-imported.
  This allows you to manage difficult cases. For example if parts of a subtitle appear at the top, and parts of it appear at the bottom, and you want to realign everything at the bottom, you can use the external editing feature to achieve that.

- This should be obvious, but is still worth underlining: You cannot add or change your subpicture colors using the external tool. DVD Subpictures only use 4 pixel types, which translate into only 4 different colors, and the colors are defined in the IFO CLUTs. Changing the colors is done by either assigning a different CLUT color to a given pixel type, or by changing the CLUT color altogether. This is explained in section 2.4 and 2.5 .

5. OCR (Optical Character Recognition)

DVDSubEdit includes the GOCR code by Joerg Schulenburg (with many improvements added to it), which works quite well on most subtitles (but not on all, unfortunately). OCR allows you to search subtitles for a specific word, or to filter your selection to only select subtitles that include one or several specific characters. OCR also allows you to handle hearing-impaired text such as [footsteps], as explained below.

5.1 OCR preferences

Select the "Preferences" item in the File menu to open the setup panel:
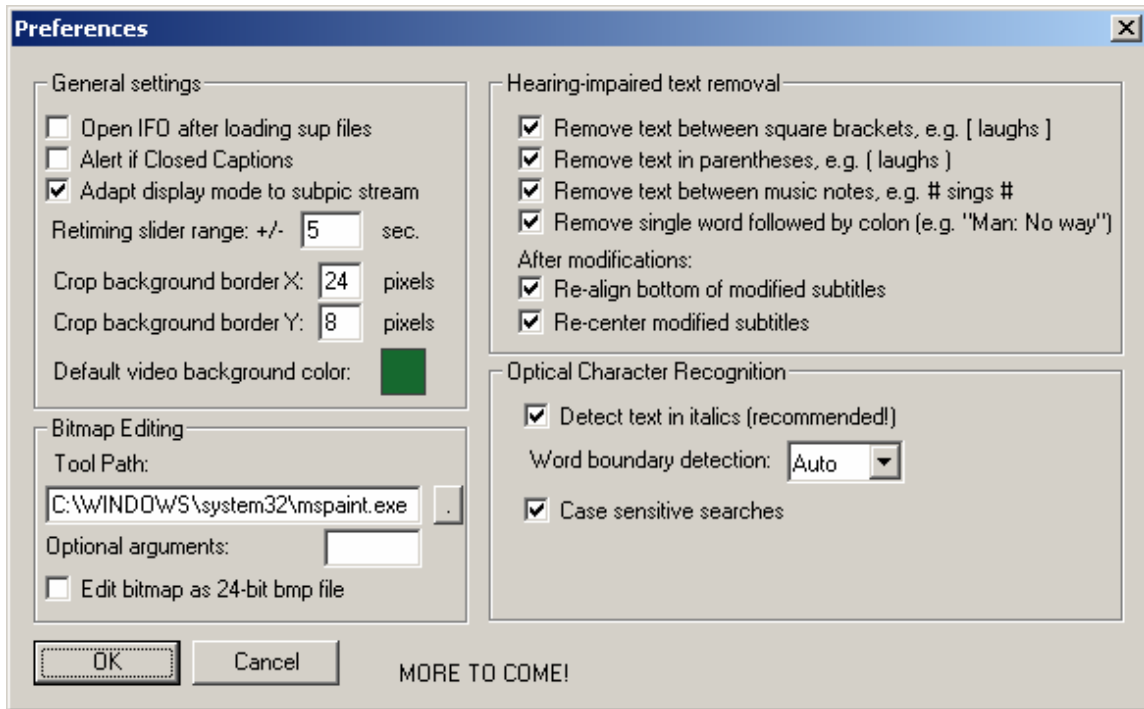
In the Optical Character Recognition area, the following options are available:

- **Detect italicized text** should always be on, otherwise GOCR might make many errors when subtitles are in italics.
- **Case sensitive searches** allows you to chose which type of search you prefer in the OCR output panel.
- **Word boundary detection** can be used if you find that word boundaries seem to be poorly detected. Selecting a low number will tend to find more words, while a large number will tend to cluster words together.

5.2 Running the OCR, finding characters or strings

To enable OCR-based functions, you'll need to first run the OCR on the selected subpics by clicking the "Run OCR" button.
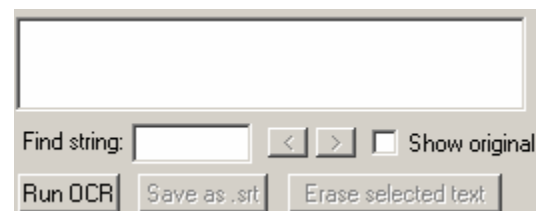
This will run the OCR in the background. When that's done, you can use the search box to find occurrences of a word in the selected subpictures. You can select case-sensitive or insensitive searches in the Preferences panel.

The GOCR code works quite well on many subtitles, and does not require any preliminary "training". However, it sometimes has problems with italicized text, especially when italics are mixed with non-italics.

Also note that DVDSubEdit does not try to run OCR on subpics that seem to contain button highlights (i.e., subpictures located in VOBUs where buttons are defined, and which are turned on by a forced start).

In the Subpicture Selection area, you can type a set of characters ('[' in the example on the right) and DVDSubEdit will only show subtitles that include any of these characters (case insensitive).
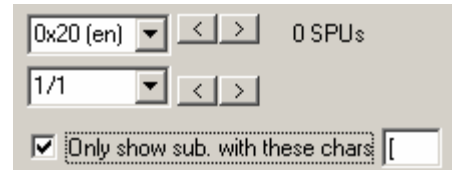
This feature is useful for example to **remove subtitles for the hearing impaired**, which are usually enclosed between brackets "[" or parentheses "(". You can prune such subtitles using the OCR function, and quickly hide them if you don't want them to appear in the final DVD. Or you can use the automatic removal provided by the application. More about that below.

5.3   Exporting text data

You can also export the output of the OCR as a .srt file by clicking the "Save as .srt" button. This will save the subtitle text for each subtitle in the .srt format which can then be used by SubtitleCreator or other programs. Note that you should select a stream before you use this function so you don't mix various languages in your .srt file.

5.4   Removing hearing-impaired subtitles

This function allows you to remove entire subtitles, or parts of subtitles that are intended for hearing-impaired viewers. Hearing-impaired subtitles are usually bracketed between square brackets, for example [laughing], or between parentheses (laughing). DVDSubEdit can detect such occurrences and automatically remove the text and the brackets, leaving the useful part of the subtitle intact.
In the OCR setup panel, a few options are available to fine-tune this process:

- **Remove text between square brackets**. Checking this option will instruct DVDSubEdit to remove any text located between square brackets.
- **Remove text in parentheses**. Checking this option will cause text between parentheses to be erased.
- **Remove text between music notes**. GOCR can recognize (most) music notes, which are indicated in the output as '#'. This option allows the removal of any text bracketed by music notes.
- **Remove single word followed by colon (e.g. "Man: No way").** This allows you to automatically remove the parts of the subtitles that indicate which person is speaking.
- **Realign bottom of modified subtitles**. If your subtitle has two lines, and the bottom one is erased, the top one will be moved down in its place if this option is checked. Note that if the subtitle has three lines and you remove the middle one, the top line will not move down to replace it.
- **Re-center modified subtitles**. Some subtitles are centered in the frame, some are left-aligned (the left side of each line are aligned for multi-line subtitles). By default, the remaining text in a line is left aligned if a portion of the line is erased. With this option, the entire line is re-centered so its

middle falls exactly where the middle of the original line fell before the erasing.

To run the hearing-impaired removal tool on a single subtitle, you can use the Ctrl-W shortcut or use the OCR menu. If the current subtitle hasn't been OCR'ed yet, the OCR function is first run, and the current subtitle is then "cleaned-up" of all hearing-impaired text. To run the tool on all selected subtitles, use "Hide hearing impaired text in selected subpics" in the OCR menu.

Finally, DVDSubEdit allows you to selectively remove parts of the subtitles by selecting undesirable words or characters in the OCR output and pressing the Del key.
For example, here's an original subtitle:

After running the OCR on this subtitle (Ctrl-T) the two words "putting him" are selected in the OCR output window. Pressing Delete (or Backspace) will erase these two words from the OCR output window and from the subtitle.
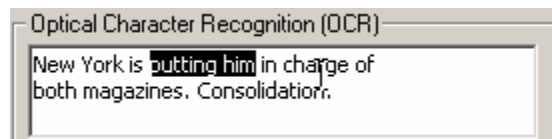
The result is:

You can also place the cursor at any point in the OCR output and press Del to erase the character left of the cursor. This very powerful tool is very convenient to fine-tune the hearing-impaired removal.

You can check the "Show original" check box to display the text in the original subtitle (i.e., before any modification). This is quite useful to check that the hearing-impaired removal tool did the right thing.
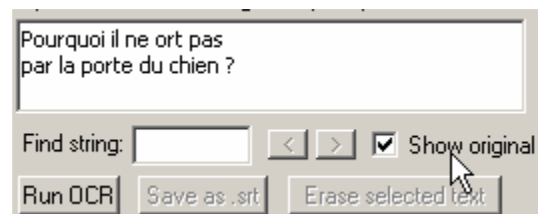
For more detailed instructions, check out CoNS's cool guide to remove text for the hearing-impaired…

IMPORTANT NOTE: You **cannot** add text to or change the text of an existing subtitle with DVDSubEdit, unless you use the export/import function and edit your bitmap with an external tool. The OCR function above can help you remove text, but it's useless if you're trying to add or change text.

6. Working with sup files and other topics

DVDSubEdit lets you open and save .sup files. Sup files are created for example by VobEdit, or PgcDemux, and can be remuxed for example by using muxman.

Loading: You can load a .sup file, either by drag/dropping it on the main dialog, or by using "Open .sup file" in the File menu. When working on a .sup file, no video is available (of course), and the CLUT is not available, unless you load an IFO file to be used with your subpictures. If you don't load an IFO file, you will have to adjust the default CLUT so it looks good on your subpics, or check the "Auto CLUT" check box so the subpicture colors are adjusted to show the text (white for the character body, and black for all other pixels). In addition, you won't be able to re-time subpics. All other modifications are available.
Saving: Whether you opened a VOB file or a sup file, you can save the selected spus as a .sup file, using the "Save selected spus as .sup file" in the "File" menu. Note that you must have selected a specific stream for this to work. The output file can then be used to remux the subpics into a new VOB, for example using the equally excellent freeware "muxman". Note that DVDSubEdit does not keep track of discontinuous PTS. If the PTS resets at one point in the vob, the PTS associated with the spus after the reset point will also reset in the .sup file.

7. Preferences

Select the "Preferences" item in the File menu to open the setup panel:
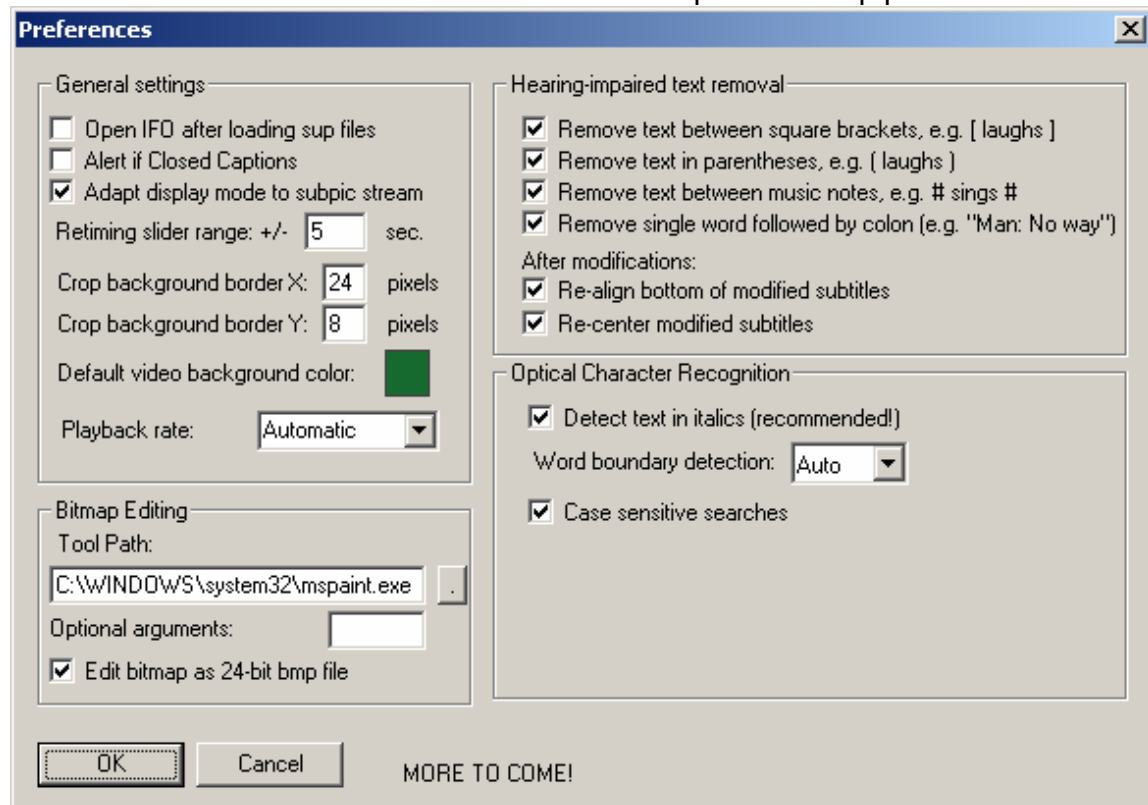
The options in the Optical Character Recognition and Hearing-impaired areas are described above. The general settings are as follows:

- **Open IFO after loading sup files** will instruct DVDSubEdit to automatically display an open-IFO dialog so you can load an IFO file to go with your .sup file. The open-IFO panel by default opens in the same directory as your .sup is located.
- **Alert if Closed Captions** will cause DVDSubEdit to pop an alert panel when a scanned VOB file contains Closed-Captions. Closed-Captions are encoded in the mpeg video stream. DVDSubEdit is not capable of decoding or saving Closed Captions yet.
- **Adapt display mode to subpic stream** causes the display mode (for 16:9 movies) to change automatically when you select a subpicture stream whose display mode(s) does not match the current display mode. For example if the current display mode is widescreen and you select a subpicture stream that is intended for letterboxed, the display mode will change automatically to letterboxed.
- **Retiming Slider Range** allows you to select how many seconds the retiming slider will span. This can be useful to carefully adjust the timing of a subpicture.
- **Crop background border X and Y** let you adjust the size in pixel of the background when cropping the bitmap. This is useful if you want to be able to keep a certain amount of background pixels left, right, above and below the useful part of the subpicture, during a crop operation.
- **Playback rate** allows you to lower the video frame-rate when previewing the video with subtitles. This is useful if your computer isn't powerful enough to visualize the video at the normal full frame-rate. The normal setting is automatic, and you can select 1x, ½, 1/3 or ¼ of the original frame rate.

Finally you can select the default background color which is used when no video is shown (either because you loaded a .sup file or you unchecked the "Show Video Frame" option).

8. Appendices

8.1   Keyboard shortcuts, command-line arguments

- **Ctrl-0**   Fast-reloads the last opened set of vobs.
- **Ctrl-S**   Saves modifications back to the vob files.
- **Ctrl-V**   Applies previous modifications to the current subpicture.
- **Ctrl-Z**   Reloads the current subpicture from file (undo changes)
- **Ctrl-A**   Applies previous modifications to all selected subpictures.
- **Ctrl-E**   Crop background of this subpicture.
- **Ctrl-H**   Hide the current subpicture (make it transparent).
- **Ctrl-T**   Runs the OCR on the currently viewed subtitle.
- **Ctrl-Shift-T**   Runs the OCR on the all selected subtitles.

- **Ctrl-W**   Hides hearing-impaired text in currently viewed subtitle.
- **Ctrl-Shift-W**   Hides hearing-impaired text in all selected subtitles.
- **Ctrl-U**   Open a .sup file.

Command line arguments:
DVDSubEdit can be launched with command line arguments:
DVDSubEdit.exe VTS_01_1.VOB launches the program and opens the VOB file.
DVDSubEdit.exe –F VTS_01_1.VOB launches the program, and opens the full VTS 1 domain.
DVDSubEdit.exe VTS_01_1.VOB VTS_01_2.VOB VTS_01_3.VOB … opens the set of files passed as arguments.
DVDSubEdit.exe VIDEO_TS.IFO opens the largest full domain VTS. This is useful to open the main movie automatically.

8.2   Known problems and limitations

- You can't change subpicture positions in DCSQTs other than the first one.
- You can't change the delay of an individual DCSQT
- The video display only shows I-Frames, and therefore, the frame displayed is not necessarily the exact frame at which the subpicture will start displaying (because subpictures can start displaying at any frame). The same applies for displaying the end of the subpicture.
- The OCR code sometimes has problems with italics, and can fail to detect spaces between words.

8.3   Setup, file location, and troubleshooting

DVDSubEdit saves its settings in a .ini file located in the application data directory, typically:
   C:\Documents and Settings\YOURNAME\Application Data\ DVDSubEdit.ini
where "YOURNAME"is the user name. Some settings can only be adjusted by editing this .ini file, for example the values used for the border presets.

DVDSubEdit maintains a log file located in
   C:\Documents and Settings\YOURNAME\Local Settings\Temp\DVDSubEdit.log
The log file can provide more information if you run into problems.

If you run into problems at startup (for example the app starts but the window is invisible), quit the app, remove the .ini file and start the app again.

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