Serif

Software with Imagination

MoviePlus 4

Digital Video Editing
Made Easy

COMPANION

MoviePlus 4.0 Companion

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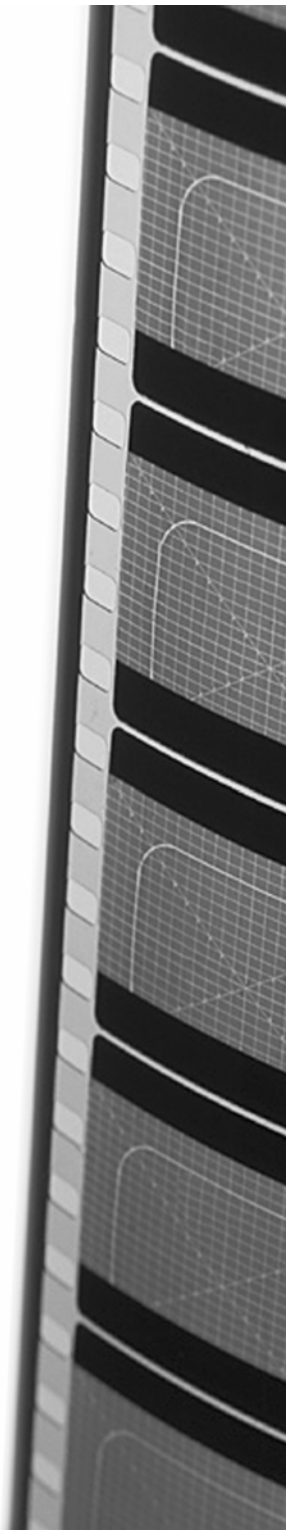
1. Introduction



Welcome to Serif MoviePlus 4.0

What is MoviePlus?

Serif MoviePlus 4 is a powerful video-editing program for Windows®-based PCs, offering easy and flexible ways to capture and edit your movies, add and blend audio tracks, apply video transitions and cool special effects along the way, and to export your creations in a number of possible video formats for sharing. MoviePlus 4 is a major leap forward for Serif's video-editing capabilities with every aspect of the program reviewed and rewritten since its last incarnation, allowing for impressive new features and unprecedented core technology improvements.

What you'll find in MoviePlus 4...

- **Quick Sourcing of Video, Audio, Image Content**
  MoviePlus makes it easy to gather content for your digital desktop studio! Capture video and audio directly from sources like a DV (digital video) camera, video capture card, mobile phone, even audio CD. Use the convenient Explorer tab to browse and preview video, audio, and image files from your hard drive and decide which clips to use.

- **Scene Detection**
  Any movie captured from your video camera or sourced from your hard drive can benefit from scene detection. A simple slider allows adjustment of scene detection sensitivity, so individual clips can be used in your project in place of entire movie files—and the original file is left intact, not split into pieces by the process.

- **Convenient Multi-Track Timeline Editing**
  MoviePlus's powerful Timeline approach lets you build your movie by arranging elements along an unlimited number of chronological tracks, using simple drag-and-drop, cut-and-paste techniques. It's easy to trim in- and out-points of your clips, adjust playback speed and direction, fade audio up or down, split a long clip into separate scenes, repeat individual clips or switch them on or off... and that's just for starters! It's easy to preview your movie-in-progress at any time—MoviePlus's amazing core processing means your movie is previewed in real-time with no pre-rendering of transitions or effects!

- **Cool Transitions**
  Automatic Transitions between two video clips makes MoviePlus a breeze. MoviePlus offers dozens of built-in, customizable transitions... enjoy standards like wipes and cross-fades through to stretches, pushes, and pixellation.

- **Video Effects**
  Drag and drop from the Effects tab to enhance your movies with a wide range of customizable video-image correction filters and special effects. Choices include basic brightness, contrast, and gamma adjustments... blur and sharpen... Chroma key, and greyscale... colourization... and many more! Mixback allows you to blend your effected video with the original, so in addition to adjusting the strength of the effect settings you can also control the overall blended strength of your effect in the mix! The powerful core video processing power of MoviePlus 4 allows you to apply multiple effects simultaneously and control the order in which they are applied.

- **Key Frame Controls**
  Transitions, effects, video motion, opacity, plus audio volume and stereo panning are now all "key-framable". You can specify changes over time and all the in-between steps are calculated for you. The changes themselves can also adopt different speeds or accelerations by changing the Key Frame properties. And all this can happen right in the Timeline!

- **Video in Motion**
  Now your videos can move around on screen and have custom zoom effects... simply set start and end points by resizing or moving the video in the Preview window and MoviePlus calculates all the in-between animation steps. The same feature allows you to rotate, skew, and add perspective transforms to your clips!

- **Multiple Picture-in-Picture**
  Create professional picture-in-picture effects easily using video clips or still frames... Easily edit the size and position of your video in the Preview window. Perfect for showing supplemental visuals without detracting from the main movie, or tiling multiple videos together for a dynamic scene.

- **Animated Titles**
  Create your own titles by using a series of customizable title presets... Transparent backgrounds mean titles "float" over your video. Even add optional animation by changing size and position over time. Use any font on your system and apply a full range of character formatting.

- Transparent Overlays including Support for Serif ImpactPlus Scenes
  All of MoviePlus 4's video tracks support video transparency to superimpose not just titles but any 32-bit transparent image (or video) over your movie's action. Make portions of existing video transparent by adding a Mask (as you might in a bitmap-editing program like Serif PhotoPlus) or by picking a solid colour to become transparent. Use popular Blend Modes to adjust how your layered videos' pixels interact with each other. Add static or animated scenes you've created with Serif's ImpactPlus 4.1 or higher, for impressive special effects, 3D text, logos, credits, and intros.

- **Versatile Movie Export**
  When you're done assembling your movie on the Timeline, let MoviePlus integrate all the elements and export the finished product! Save your enhanced movies to one of the many file formats or write to a DV camera. Use an export template based on your project settings, or tweak the output options and save custom templates for later use. Since your original media files are intact, producing another version with a different "spec" is as simple as changing a few settings.

- **Flexible User Interface**
  Major enhancements in the new MoviePlus have allowed for a rethink of the user interface. You can now choose whether individual resizable windows (or panes)—such as Video Preview, Explorer, Properties, Effects, Transitions—are floating or docked, share the same screen area, operate in a split pane view, or even use a multi-monitor system... and combinations thereof. Even move the entire Timeline to the top or bottom of the interface to suit your preference.

- **Serif Ease-of-Use**
  From convenient media browsing to straightforward Timeline assembly to instant movie previews, with instant updates of mid-preview edits, MoviePlus makes it easy to get started with digital video editing. Snapping simplifies aligning Timeline clips with each other... linking related events lets you move, repeat, or split them as a unit... the Properties window facilitates precise settings for all Timeline events. A sensible list of presets for capture and export keeps things simple. But there's plenty of power in reserve, too... even if things get complicated (say you need to apply some unusual combination of effects and settings), you'll appreciate how MoviePlus puts all the options right at your fingertips!

Registration, Upgrades and Support

If you see the Registration Wizard when you launch MoviePlus, please take a moment to complete the registration process. Just call Serif toll-free and provide the installation number and code shown. We'll give you a personalized registration number in return. Remember, if you need technical support please contact us. We aim to provide fast, friendly service and knowledgeable help.

Installation

System Requirements

Minimum, recommended, and ideal PC specifications

MoviePlus 4 is engineered to work on a wide variety of Microsoft Windows-based PCs, but due to the nature of digital video files and digital video editing, some weighty demands are inevitably placed on your PC hardware. MoviePlus is speed-optimised for modern PC processors and takes advantage of MMX, SSE and SSE2 processor instructions, plus Hyper-Threaded and multi-processor systems. Please note the required system specifications listed below.

"Minimum" requirements are those necessary for MoviePlus to work. MoviePlus and its features will all function but not at optimal speed. Meeting the "recommended" requirements will mean that you will enjoy smoother performance for typical MoviePlus projects. Fulfilling the "ideal PC" specification will allow you to achieve higher levels of performance with MoviePlus, achieving more fluid editing of complex projects and speedy movie exports.

Minimum

- Intel® Pentium® III or AMD Athlon™ XP processor (if other processor it must support the SSE processor instruction set[1])
- 128MB RAM
- 400MB hard drive space (2-5 GB of free space may be required during the composition and export of video projects)
- Graphics card and monitor capable of 800x600 display size and 24 bit colour depth
- Windows-compatible sound controller

- DVD-ROM drive
- Microsoft Windows® 98 SE, Me, 2000, XP
- Microsoft DirectX 9.0b device drivers (included with MoviePlus 4 install)
- Microsoft Windows Media Video support files (included with MoviePlus 4 install)

[1] To find out whether your processor supports the instruction sets MoviePlus is optimised for, download and run a CPU identification utility such as the freeware CPU-Z from **www.cpuid.com**. Although the MoviePlus 4 system requirements stipulate a Pentium III or Athlon processor, some budget chips—like Intel's Celeron—have also adopted SSE support: in the case of Celeron chips, models designated 533A or higher (based on the Pentium III) do support SSE while speeds of 533 or lower, based on the Pentium II, do not. There are similar thresholds for the introduction of other processor technologies in budget and full-feature processors, so be sure to take a virtual look at your processor specification with a CPU utility.

Recommended (beyond the items in the minimum specification)

- Intel® Pentium® 4 Hyper-Threaded processor
- 512MB RAM
- Fast hard disk (7200rpm drive with dedicated ATA133 connection or better)
- Modern graphics card and monitor capable of 1024x768 display size

Ideal (beyond the items in the minimum specification)

- Multi-processor modern system architecture
- 1GB or more RAM
- IDE, S-ATA or SCSI striped RAID (RAID 0) hard disk array for improved disk performance
- Multi-monitor display capable of 1280x1024 display size on primary screen

In addition to the typical processing, disk, and graphics requirements, there are some optional hardware items that may enhance your use of MoviePlus.

Optional hardware

- FireWire (IEEE1394) support for connecting DV cameras
- Video capture card for digitising and editing analogue video sources

Optimizing Performance

If your hardware meets the requirements shown here but you are experiencing stuttering playback of your project during preview, or are experiencing dropped frames during video capture, please read the **Performance Notes** on p. 167 for advice.

First-time install

To install MoviePlus 4.0, simply insert the Program CD-ROM into your CD-ROM drive. The AutoRun feature automatically starts the Setup process and all you need to do is answer the on-screen questions. If the AutoRun does not start the install, use the manual install instructions below.

If you've also obtained the MoviePlus 4.0 Studio Effects CD-ROM (see below), install it now following the same procedure you used for the Program CD.

Manual install/re-install

To re-install the software or to change any part of the installation at a later date, select **Control Panel** from the Windows **Start** menu (via the **Settings** item for pre-XP systems) and then double-click the **Add/Remove Programs** icon. Make sure the correct CD-ROM is inserted into your CD-ROM drive, choose **Serif MoviePlus 4.0**, and click the **Install...** button. You'll have the choice of removing or adding components, re-installing components, or removing all components.

Other MoviePlus Resources

MoviePlus Projects Guide

This book provides an insight into the creation of movies using MoviePlus. Sketches, hints, tips and filming techniques are brought together from 10 diverse movie projects to help you understand the processes needed for stunning movie production. The book is also supplied with an accompanying DVD packed full of the MoviePlus project files themselves and the finished movies—experiment with any project file to turn yourself into a Movie Maker.

Please contact the Serif Software Centre (see How to Contact Us at the start of this companion) if you would like to purchase this item.

MoviePlus Studio Effects DVD

The **Studio Effects** DVD, containing royalty-free audio and video samples, can be used to support you as you begin your first attempts at making your own movies. Think of your DVD as a digital gallery which you can call on to select source material for your MoviePlus project. Use your samples to fuel your imagination!

Please contact the Serif Software Centre (see How to Contact Us at the start of this companion) if you would like to purchase this item.

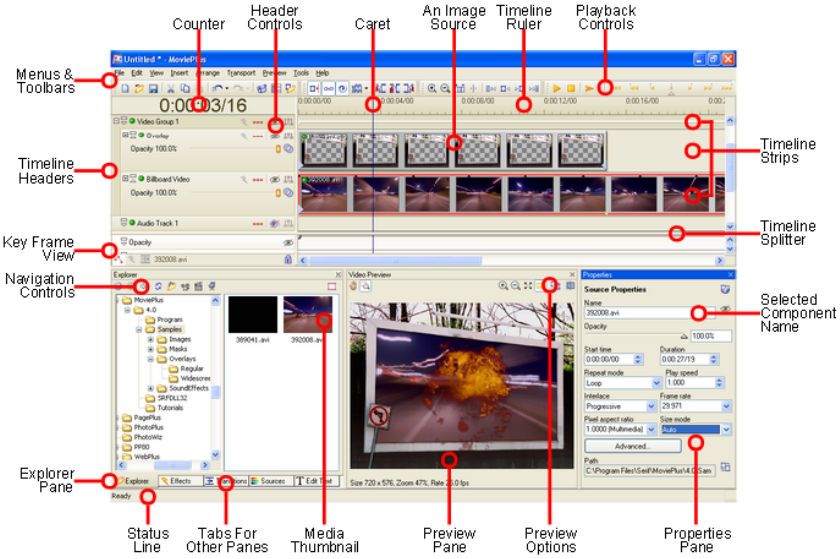
Online Help and Tutorials

MoviePlus contains a comprehensive online help system and an easy-to-follow set of tutorials. Once installed, go to the **Help** menu of MoviePlus and find out more about the program.

Visual Reference: A Guide to the Interface

This section offers an introduction and links to in-depth explanation of each area of the MoviePlus interface.

If you are new to movie editing or have not encountered an interface as rich as MoviePlus 4's, read on for an introduction to each element of the MoviePlus interface.



Menus

The Menu bar in MoviePlus offers a typical range of drop-down menu commands; some are standard to most programs, such as File>New, File>Open, File>Save, Edit>Undo and so on, and some commands are of course specific to MoviePlus functionality, such as Insert>Video Track or Tools>Capture.

Toolbars

The MoviePlus 4 tool buttons are organized on four separate toolbars—Standard, Editing, Playback, and Seeking. Each of the toolbar's buttons offer ToolTips—a popup reminder of the tool's name when you hover the mouse over the button.

The toolbars can be dragged to reorder them, or to new locations—they can be free floating, or docked at the top, bottom, left or right of the MoviePlus window.

Status Line

Check the readout in the Status Line to see the time of your current editing operation or a hint about your currently selected tool.

The Timeline

MoviePlus's Timeline is a versatile tool and the crucial component of all your movie projects! From left to right it represents the flow of your movie from start to finish. From top to bottom it represents stacked layers of video, images, titles and other sources. It is a flexible area of the interface with which you can add and combine video and audio sources in a project, edit effects and transitions in conjunction with the Properties pane, and "scrub" the mouse along the top of the Timeline to play your project in the Preview window at a speed of your choosing.

The Headers section at the left of the Timeline shows what each kind of track or strip is, plus it offers buttons to access a track's properties, effects and visibility status. It also presents simple sliders to control track opacity (in the case of video) or volume and balance (in the case of audio). You can drag the Headers up or down around within this area to organize your tracks in a more useful order.

The Key Frame View below the Timeline is active when you click on any of the Show/Hide Envelopes/Effects/Transitions buttons below the headers. It allows you to add and edit properties for source/track/groups and their envelopes/effects/transitions. The Key Frame View and Headers regions can be "resized" using the Timeline splitters; note the double-headed cursor when you hover over a splitter.

The Caret

The caret can be considered as your "editing marker". It allows you to set a precise position for splits and trims, allows sources to be dragged to a specific point, and can be used along the Timeline Ruler to play back a preview of your project. The caret's position can be frame-accurate using Seeking toolbar controls.

The Explorer Pane

The Explorer pane is a window to your hard drive, CD/DVD drives, or network. It allows you to browse for, select, and incorporate video, image, and audio files into your movie project.

You can browse your network or drives using the tree-view in the left hand side of the Explorer pane as you would when using Windows Explorer itself, and supported content found in the selected folder will be displayed as thumbnails in the right hand side of the Explorer pane. From here you can drag and drop source objects onto your Timeline. Across the top of the Explorer pane you'll also find some quick shortcut buttons to help navigate to frequently-used locations and to access scene detection features.

The Properties Pane

This pane is another crucial component of the MoviePlus interface, which is used very frequently. The contents of the Properties pane will change depending on what you have selected or what you are doing with your Timeline. This versatile pane allows you to name the source objects used on your Timeline, to adjust source object attributes (such as the start and end times, video in and out trim points, play speed, the repeat mode and resizing behaviour), to adjust effect and transition properties, and to control key frame settings when adjusting effect, transition, opacity, or volume strength on your Timeline.

The Effects Pane

This area of the MoviePlus interface offers categorised previews of the video effects available for use in your projects. To apply an effect, drag and drop it from the right-side of the Effects pane onto a source object, track header, or group of tracks. Once the effect is applied, you can alter its setting using the Properties pane.

See **Applying Effects** on p. 123 for more information.

The Transitions Pane

Like the Effects pane, this tab shows easy-to-use previews—this time of transitions. A simple drag and drop of a preset from the Transitions pane onto an area where two sources overlap will apply the transition to that part of your project. A transition can be selected with a click on its blue bar on the Timeline, so its settings can be modified using the Properties pane.

See **Applying Transitions** on p. 131 for more information.

The Sources Pane

This window pane offers ready-made computer-generated sources that you can drag and drop onto your Timeline. They include solid colours and text objects. They are always generated at the highest possible quality for all your project exports. Once you've dragged and dropped your Procedural Source onto a video track in the Timeline, you can use the Properties pane to edit it.

The Preview Pane

The Preview pane in MoviePlus is more than just a way to preview your project! First and foremost, this is the place where you will see your project being previewed when you click the Play button on your Playback toolbar. You can change the speed and direction of playback using the controls on the Playback toolbar or by "scrubbing" the Timeline caret.

The Preview pane has another important function too—it's the place for adjustments to a video track's Transform Envelope, because you get to directly see the changes to the position or size of your selected source, track, or group as you use the Transform tool. When you click the **Show / Hide Envelopes** button on the track header, a Motion envelope becomes visible in the Key Frame View below the Timeline's tracks. You can add Key Frames to the envelope, and can apply specific settings to each key frame using the Properties pane.

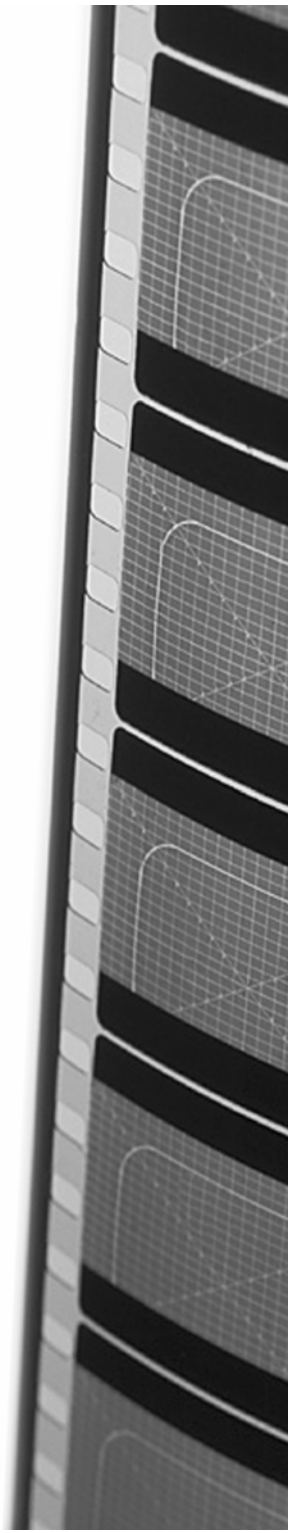
The Edit Text Pane

This pane allows you to edit a selected Text source (which you can add to your Timeline from the Sources pane). The text controls are typical of a simple word processor, lines of text can be created by typing then pressing Return, plus of course you can select text using drags of your mouse in order to change the font, colour, text alignment or size using the toolbar at the top of the pane.

Changing the MoviePlus Screen Layout

With all the video-editing possibilities MoviePlus offers, its interface needs to offer a great deal of content and control. The interface itself is customizable to suit your preferred method of working. You can grab and move the separators between panes, drag tabs out of groups of panes to make them free floating, or dock them against a side of the main window or into new groups with other panes. You can also split a pane region into two by dragging a tab to the edge of an existing pane.

2. Getting Started



Before You Start

Movie editing can be both a serious business and a great deal of fun, depending on the nature of your project and whether you have deadlines to face or other critical requirements to meet... in any event you can help yourself before embarking on your projects by considering the following:

Prepare your video, audio, and image sources

Most projects are started with some intent—you are likely to already have a good idea of what video and audio footage you would like to edit and make into a movie. It will be worthwhile gathering the source components you'll think you'll need into a convenient location on a suitable hard drive, although this is not necessary it is merely a good idea. If you are to capture footage from a camera or other video device, read both **Capturing From a Video Source** and **Performance Notes** on p. 21 and 167, respectively, to achieve the best possible results.

If you are yet to create your video footage, prepare a shooting plan before you start; this can save a great deal of time and effort and is likely to have a very positive impact on your results.

Give your computer a performance check

There are several performance checks you can perform to help optimise your computer for video editing. These will help overall speed, but in particular will help with data-intensive operations like composing and exporting a movie with MoviePlus! For more information, including Anti-Virus security and disk defragmentation advice, see the **Performance Notes** on p. 167.

Lastly, don't worry—dive in and enjoy yourself!

You can get help with all of MoviePlus's features in the Help system, so don't be daunted. Whether you are new to video editing or just new to MoviePlus, its richness will be unearthed as you use the program and the possibilities available to you will be revealed. All of the terminology, buttons, cursors and more are all described so that you will learn how to edit your movies like a professional...

...and of course there is always the **Undo** button (also available by pressing **Control+Z**) so you can tweak and experiment without limit. MoviePlus's editing functions do not damage the source media that your project uses so you can feel free to try a range of trims, stretches, loops, transitions, effects and more, safe in the knowledge that you can undo your experimental operations with the click of a button and start again. Remember to share your results by exporting your movie and distributing it to friends, family, colleagues, or the rest of the world via the Internet!

Starting a New Project

The Startup Wizard

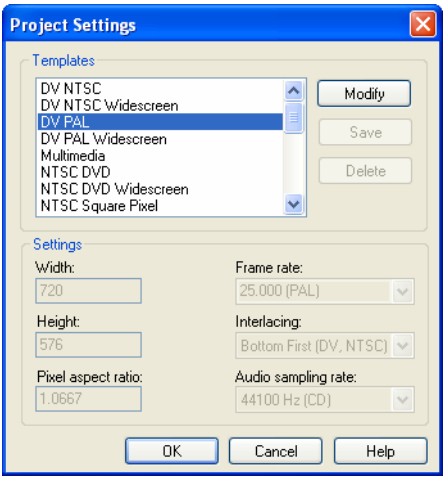
The MoviePlus Startup Wizard offers easy access to the most common starting tasks after you launch MoviePlus (or when you click **File > New**). You can start from scratch (which will launch the Project Settings dialog shown below), open a project (browse your PC for saved MoviePlus 4 .MVP files), view tutorials (see tutorials aimed to get you started using MoviePlus) or view samples (open sample projects created in MoviePlus).

The **Use the startup wizard next time** button gives you the option of either using the startup wizard the next time MoviePlus is launched or displaying the user interface directly. The startup wizard can also be switched on or off in **Tools > Options > General** at any time.

Click the **cancel** button or press **Escape** on your keyboard to bypass the Startup Wizard and launch MoviePlus with an empty project. The type of project will match the last project you selected.

MoviePlus Projects...

MoviePlus bases its movie compositions around "projects". You can save and reopen your projects at any time for ongoing editing. A MoviePlus project file is a collection of project settings (the video size and shape, audio properties etc.) plus information about how all your video, audio, image, title and colour sources are arranged and edited on the Timeline. It's worthwhile choosing a project type before you embark on your movie creation, amongst other things the project settings will determine how your video looks when it is previewed.



Because the makeup of your project will determine the look of your video during the editing phase, take a moment out before you get started to define your **project settings**. You can access the **Project Settings dialog** via the Startup Wizard's **Create new project** link, the **Project Settings** button on the Standard toolbar, or the **File > Project Settings** menu item.

The Project Settings dialog shows that there is a list of preset projects to choose from, encompassing all of the most popular types of movie production—DV presets for maintaining DV film quality, DVD presets for projects intended for ultimately writing to DVD disc for display on a TV, plus VCD and SVCD preset formats. Each of these major formats also offers NTSC/PAL choices for you to choose depending on your local standard, and a Widescreen variant in each case. The specific settings for each of these formats is fixed in order to maintain correct technical compatibility with the formats specified, but you can also edit the presets list for customised projects.

As an example of choosing a project: if you live in the UK and have used a typical British digital video camera to record your movie, you could choose either a **DV PAL** or **DV PAL Widescreen** project in MoviePlus in order to edit your DV footage and maintain it in the DV format for writing back to your DV camera, or if you know it is destined for a DVD to be shared with friends and family, you should choose a **PAL DVD** or **PAL DVD Widescreen** project to complement this export format. You can export your project in a different format from those offered in your Project Settings dialog if you wish, but choosing a suitable project from the outset will make your previews look as intended. When your project settings match your intended output format, your previews will be closer to your intended output—and the preview is offered in real-time with no pre-rendering of effects and transitions.

Choosing Project Settings

If you are concerned that you have not picked the correct project template or other project settings don't worry. MoviePlus is very flexible and will allow you to alter these settings by selecting **File>Project Settings** at any time.

In addition, if you want to change your project settings to match the settings of a video source in your project, click the source on the Timeline, right-click and choose **Set Project Video to Match**.

NTSC or PAL?

NTSC is the broadcast and recording standard used mainly in North and South American continents, plus parts of eastern Asia including Japan and South Korea. If you wish to export your project in a format suitable for sharing in these areas, your project and export settings should be an NTSC preset.

PAL is used widely throughout Europe, Africa, the Middle East, Asia, and Oceania. If you wish to export your project in a format suitable for sharing in these areas, your project and export settings should be a PAL preset.

What next?

Now that you've started a new project and defined its settings, you will be presented with an empty Timeline ready for you to begin composing your movie project.

Adding and Capturing Media

MoviePlus projects are your own compilations of video footage—trimmed or otherwise edited—perhaps with transitions between clips, video effects and picture adjustments, and of course accompanied by your choice of audio tracks. The Timeline at the heart of MoviePlus's interface is the heart of its editing power, so it and your projects would be totally worthless and empty if they did not have any media sources in them!

For this reason MoviePlus makes it easy to capture your own video footage from DV cameras or analogue video sources, to store it on your PC, and to locate and add captured video or other media files to your Timeline. MoviePlus supports a range of media files including various types of **video**, **audio**, and **image** files, all browsable using the **Explorer** pane.

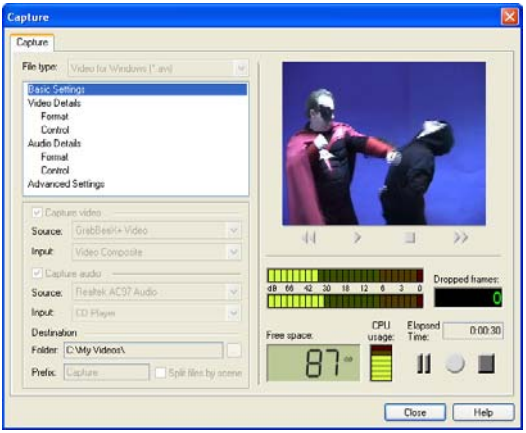
Further information is provided in **General Capture information** on p. 155.

Capturing From a Video Source

MoviePlus includes a Capture module that can "import" video footage and associated audio from DV and Mini DV cameras, USB Web cams, and analogue video sources via a capture card and to save it to a hard drive for use in MoviePlus or other video projects.

 To open the Capture module, choose **Capture** from the Tools menu, or click the **Capture** button.

The Capture dialog



This screenshot shows in-progress capture of digital video footage with associated audio from a DV camera (connected by FireWire). The capture settings are greyed out in this case, unavailable because capturing from a DV camera always uses the fixed DV standard format (and no settings can be changed *during* capture).

The procedure to follow:

Connect your camera or other video source

If your camera is properly connected and supported (and is set to playback mode rather than record mode if appropriate), you should see a video preview in the window shown above when your video source is playing. Controls under the preview window allow you to play and pause the tape in your camera to find the footage you wish to capture—these controls are only applicable to DV and Mini DV cameras; for other sources you will need to control the device yourself, a remote control may be handy here.

If you are using an alternate video source, ensure that it is connected to your video capture card (or a USB socket in the case of a Web cam).

Choose an appropriate capture format

If your source footage is on a DV camera, MoviePlus will automatically capture using the DV format so you will not be need to adjust the video and audio capture settings.

If your source footage is being captured via a video capture card or USB Web cam, you can choose a file format suited to your video type. For general information about video file formats, please see **File Export – File Types** on p 141.

It is recommended that you capture at a resolution and quality as high as possible to achieve high-quality results—it is best to aim as high as the source footage resolution and quality. Even when you ultimately aim for your resulting video to be very compact, for instance to make it suitable for download from the Internet, you can defer the file-size-smashing resizing and compression operations to final export time, don't compromise your captured quality!

Set a suitable file storage location

Captured video footage can occupy a large amount of hard drive space when it is transferred to your PC, so it is important to choose a drive location with lots of room when capturing video. The standard DV format occupies approximately 3.5MB per second of footage—that's approximately 200MB per minute, or 12GB per hour. DV camera footage is always captured as DV; analogue video sources allow you to choose a different format. We recommend you choose "none" in the Codec setting in the **Video Details > Format** section of the dialog if you are capturing your video to an AVI file. As an example of the size of raw captured full resolution video, if you choose to capture your video footage at DV or DVD resolution (720x576 pixels) and store it as a full quality uncompressed AVI, the file size would increase to 1.75GB per minute; 105GB per hour.

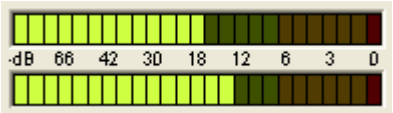
Your chosen hard drive location for storing captured video should have plenty of space to accommodate your chosen footage; preferably it should also be a fast drive to handle the large amount of data being transferred in a short amount of time. If you would like some advice about improving system performance, please read the **Performance Notes** on p. 167.

When MoviePlus captures your video or audio footage, it will automatically name and number your files if you do not specify a particular filename.

Preview and cue your video footage

If you have connected a DV or Mini DV camera to your PC via FireWire you will be able to cue your tape to the point at which you would like capture to start. Cue to a suitable start point for your capture by using the "tape transport" controls underneath the preview, or by using manual controls on your video device. You should capture additional footage either side of the specific sections you wish to capture so you can trim accurately once the capture is complete—it's better to capture too much footage and trim it later rather than have too little.

Ensure that both **Capture audio** and **Capture video** checkboxes are checked if you want to capture both audio and video.



If your audio level metre (shown above) regularly reaches level “0” during your preview, reduce the **Volume** level in the **Audio Details > Control** section of this dialog. Audio captured at this levels will quite likely sound distorted.

Choose whether to capture scenes to separate files

The **Split files by scene** checkbox at the bottom of the Capture dialog offers the chance for all your scenes to be saved as separate video files as part of the capture process. For DV, the default is for the box to be checked so that scenes are split by timestamp; for non-DV capture, the default unchecked box means that scene detection and sensitivity adjustment should be made via the Explorer pane (see **Scene Detection** on p. 31).

Record

Play your video source from at least a couple of seconds before the point at which you'd like capture to start (to allow the video device to begin playing smoothly) then click the **Record** button in this dialog to begin the capture. If there is a section of your tape that you would like to skip during capture, pause the process by clicking the **Pause** button, cue the tape to the point you would like to proceed from, then click **Pause** again to resume the capture. Again, it's better to capture too much footage rather than too little, it can always be trimmed later, so don't worry too much about exactly how much is captured if you are uncertain.

When you are happy that the required footage has been captured, click the **Stop** button. You can begin recording to capture subsequent files, MoviePlus will name each captured file with an incremented number suffix.

Watch for dropped frames, maximum CPU usage, and peak audio levels during capture

During the capture process it is recommended that you keep an eye on the **CPU usage** metre and **Dropped frames** count. You should aim for zero dropped frames for perfect capture. If your CPU (system processor) reaches maximum usage, it is likely that frames of video will be dropped (meaning that capture of your video footage is incomplete as some frames were not transferred to the PC quickly enough during the video playback and capture). You should also watch for peak audio levels and if they reach into the red then you can consider recapturing your source footage after adjusting the **Volume** level in the **Audio Details** > **Control** section of this dialog.

Capturing Audio from CD

Capturing Audio from CD is fully described on p. 157.

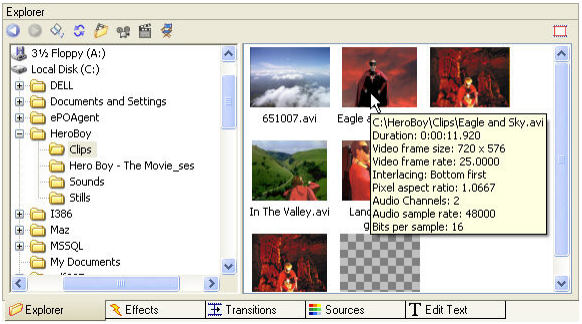
Browsing for and Adding Media Files

Composing your own MoviePlus projects involves combining (or editing) existing video, audio and image files; your MoviePlus projects would be utterly bleak if you weren't able to add a selection of media files to them!

The files you use for your project could have been obtained by **Capturing From a Video Source** (see p. 21), download from the Internet, digital camera, CD, hard drive, or network drive. Whatever method is used to derive your project input you will always have to select your files via the Explorer pane—let's take a look.

The Explorer Pane

The Explorer pane is the key to being able to add media to your project—even media you capture from a camera yourself is stored on your hard drive and is "accessed" via the Explorer pane as shown below.



Adding media to the Timeline

Click the **Explorer** tab in your interface to display the contents of the Explorer pane. If your Explorer pane is not visible, you can enable it using the **View > Panes** menu flyout or by pressing **Control + Alt + E**.

Browse the tree structure in the left side of the Explorer pane to switch between drives and folders to locate your media files. Adding media to your projects involves the simple task of clicking on your chosen media file in the right-hand side of the Explorer pane, holding the mouse button down and dragging the media file onto your Timeline. Release the mouse button when you are happy with the outlined "drop target". You can add video and images to video tracks and of course you can add audio files to audio tracks.

If the video you add to your Timeline already has an audio of its own the audio will be added to an audio track at the same time. The audio and video that originate from the same source will have a pink selection outline in the upper-left corner to indicate that these sources are linked. When you move, trim, or extend a linked source, other sources linked to it will also be edited.

Choosing a drop target

Where you drop your sources on the Timeline is up to you, the area is "freeform"; video and image sources must be located on video tracks, and of course audio on audio tracks. It is normal to place sources in an empty spot and manoeuvre them to the desired precise spot if necessary afterwards. In general terms remember that further left on the Timeline is closer to the start of your movie and further right is later in the movie project. Being placed on a track higher up the Timeline will mean your source could obscure underlying elements (sources higher up the Timeline are perfect as overlays or picture-in-picture sources) and underlying tracks are perfect as backgrounds behind video, image, or text overlays.

Where sources on the same track overlap, MoviePlus's default behaviour is to add an automatic crossfade transition in the overlap region. You can drag and drop an alternate transition from the Transitions tab into this overlap region to replace the crossfade, or select and delete the blue bar representing the transition region (just hit the Delete key to delete selected components). See **Applying Transitions** on p. 131.

If you hold the **Shift** key on your keyboard when your drop target is on a particular track, MoviePlus will constrain the drop target to that track only until the Shift key is released. This can help you make sure you drop your sources in the right place for multi-track projects. You can hold Shift to locate one of a pair of linked streams (e.g., audio and video from the same media file) on a track of your choice and then move your mouse to the other type of Timeline track to locate the second of your drop targets.

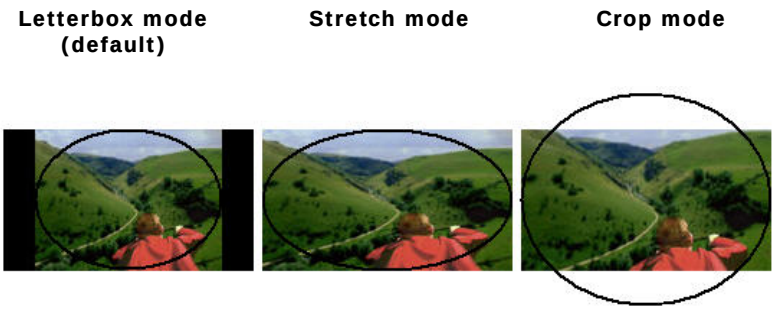
Adding multiple sources at once

It is possible to select multiple source files and drag them all onto the Timeline in one operation. This would typically be useful if you wanted to use some still images as part of your project or you wanted to add all detected movie scenes onto the Timeline. MoviePlus will add your sources in alphanumeric order with a default **overlap** (and an auto transition if this is enabled on the Editing toolbar).

Media with black bars displayed

If your video or image sources are a different size and shape to your project settings, by default MoviePlus will keep your media the same shape and seemingly surround it with black bars (letterboxing/sidebars) to fill the available space. The black letterboxes or sidebars are only visible when there is no other video, colour, or image source underneath your ill-fitting source object. The shape of the video in the Preview pane is determined by your project settings; if your source media properties and your project settings are different, you will need to decide what to do about the variance.

You can leave the media with letterboxes or use the **Size mode** pull-down in the Properties panes to change the way MoviePlus handles the discrepancy. You can change the size mode to Stretch, which will stretch your video or image horizontally or vertically to match the project video size, or choose Crop to stretch the video to match the project size while maintaining the source's current aspect ratio, allowing the taller (or wide) areas to be outside the visible project size.



You can always change your **project settings** to select a different video standard (e.g., switch from DV PAL Widescreen to DVD PAL which has different dimensions) or make the project settings match those of your selected video source (right-click your source to select the Set Project Video to Match option).

Other Explorer pane features

Main buttons

The row of buttons along the top of the Explorer pane allow you to control your project sources. On the left there is:

 Navigate back and forward between different folders you have viewed

 Bookmark your favourite folders or jump to some pre-defined folders on your hard drive.

 **Refresh** your view

The four buttons at the right of the row will fast-track you to:

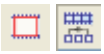
 Your **My Documents** folder

 The MoviePlus **Samples** (sample media) folder

 The default **Capture** folder

 Your current **Projects** folder (where your current .MVP MoviePlus Project file is saved). By storing sources on the same drive as your project file the source paths will be stored in a “relative” path. This makes managing your sources and projects more straightforward.

Scene detection

 The **Show / Hide Scenes** button at the far right of the Explorer pane hides or shows the **Scene** panel within the Explorer pane. Click this button to reveal the scene detection panel now. Any video source, freshly captured or otherwise, can be virtually split into detected scenes by first selecting a source and then clicking the **Detect scenes** button. You can adjust the sensitivity of the scene detection process by moving the slider in this section of the Explorer pane—moving the slider to the right should result in a greater number of scenes. Scenes in the bottom section of the pane can be dragged onto your Timeline just as you would for other sources. See **Scene Detection** on p. 31.

 You can cancel scene detection by clicking the **Cancel** button.

Supported file formats

MoviePlus allows you to add a variety of media files to your PC. Supported import formats include:

Video

ASF	Microsoft's Advanced Streaming Format
AVI	Microsoft Audio Video Interleave [1]
MPG and MPEG	MPEG-1 and MPEG-2 video
STV	Serif Transparent Video (e.g. exported from Serif ImpactPlus) [2]
VOB	DVD video file
WMV	Windows Media Video

Audio

MP3	Compressed MPEG-layer 3 audio
WAV	Windows Waveform audio [1]
WMA	Windows Media Audio

Images

BMP	Uncompressed Windows Bitmap
GIF	Palletised (256- or fewer colours) Compuserve bitmap
JPG, JPE and JPEG	Compressed JPEG bitmap
PNG	Lossless Portable Network Graphic (transparency supported)

A range of less well-known image file formats are also supported.

[1] A note about AVI and WAV files

AVI and **WAV** files can be considered "containers" for all sorts of media stream types. For instance, an AVI file can contain any type of video interleaved with any type of audio, the AVI extension indicates how the streams are "wrapped up" together. Suitable decompressors for the specific video and audio contained in the AVI would need to be available on your PC for MoviePlus to be able to successfully import the video and audio streams. The same can be true of WAV files; they are normally uncompressed audio streams but a WAV file can contain compressed audio which would require a compatible audio decompressor as described for AVI files.

[2] A note about STV files

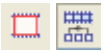
STV files mentioned above are Serif Transparent Videos. If you don't have any STV files to call on, you may wish to consider trying or buying Serif's **ImpactPlus**—an easy-to-use 3D graphics program that can create 3D titles and images along with impressive particle systems like smoke, fire, water etc. for use as overlays in movies.

Extending Explorer pane support for more file extensions

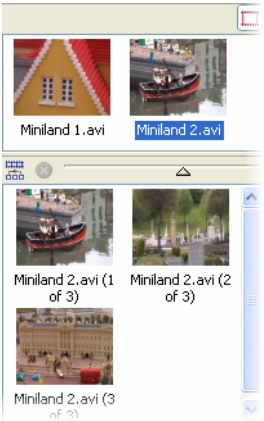
You can modify the list of file types that MoviePlus's Explorer pane will display. You aren't likely to be able to extend the range of supported formats, but you can add to the list if you have some files in a supported format which use a variant of the normal extension e.g. an MP3 file may be unusually named songtitle.mpeg3; you could add **mpeg3** to the list of file extensions and files of that extension name would be displayed in the Explorer pane. You can also remove items from the supported file types list if you do not want them displayed in the Explorer pane. Use the **Tools>Options>File Types** dialog to modify the supported file extensions list.

Scene Detection

How to detect scenes in a video file



MoviePlus can perform scene detection on any video file (including captured files) before you drag your video sources to your Timeline. Click the **Show/hide scenes** button at the top right of the Explorer pane to reveal (or hide) the scene panel. For any selected video source you can click the **Detect Scenes** button to let MoviePlus analyze your video and create a series of smaller clips in the scene panel.



Your original video file is not damaged by this process because the clips generated are "virtual scenes"; they are real clips that you can drag straight on to your Timeline, but they are merely references to the original video file with separately-stored information about where each scene begins and ends. Even if your video file is moved or renamed, once the scenes have been generated MoviePlus will be able to show you the detected scenes for your media.

Scene detection for non-DV video files

For non-DV video files, MoviePlus detects scenes by searching for discontinuity between frames. If one frame is very different from its previous frame (based on changes to their colour histograms) it is likely to be considered to be in a separate scene and a scene break is made.

Scene detection for DV video files

For DV AVI sources, MoviePlus will attempt to use time stamps recorded by the DV camera to detect scenes. Where these DV time stamps exist and are valid, MoviePlus will base the scene detection process on them for crisp and accurate scene breaks.

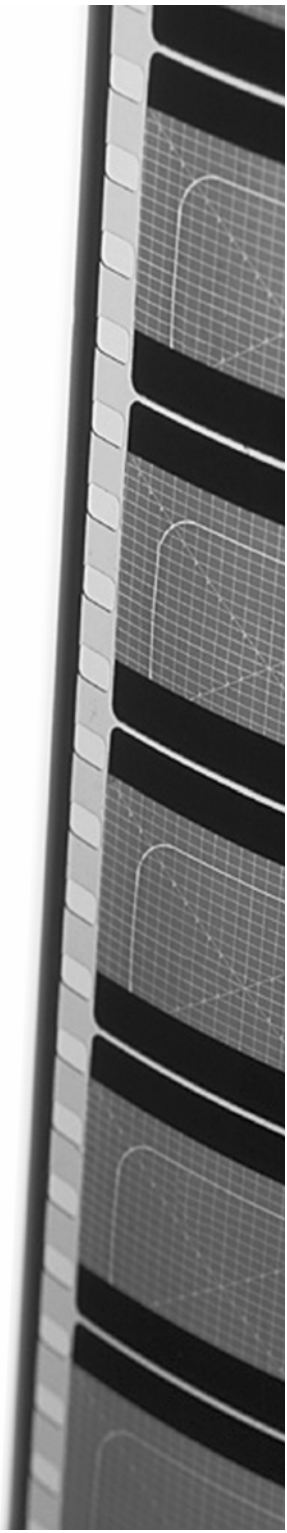
Scene detection sensitivity

 You can adjust the sensitivity of MoviePlus's scene detection simply by adjusting the slider in the scene panel. This is something that should happen in real-time or thereabouts, you do not need to click the **Detect Scenes** button again.

Moving the slider to the left results in fewer scenes, moving to the right results in a greater number of detected scenes. Changing the number of detected scenes will not invalidate previously-detected scenes that you have already used on your Timeline. Each time you regenerate scenes based on new detection sensitivity, your scenes are named accordingly, e.g. **yourmovie.avi (clip 2 of 12)** could be generated initially and used on your Timeline, but if you later redetect scenes at different sensitivity the names would alter to **yourmovie.avi (clip 2 of 20)**.

This dynamic access to scene detection sensitivity is thanks to some information that MoviePlus stores about your media file—the information is not stored directly alongside your video file so it is safe to move video files from one folder to another without losing scene detection data. The scene detection information is compact and does not have any serious impact on the amount of hard drive space MoviePlus requires. As an example of this efficiency, a home-made vector animated music video of 2 minutes 30 seconds in duration with approximately 50 "scene cuts" results in less than 4KB of additional information being stored on your PC after scene detection.

3. Previewing Your Project

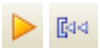


The Preview Pane

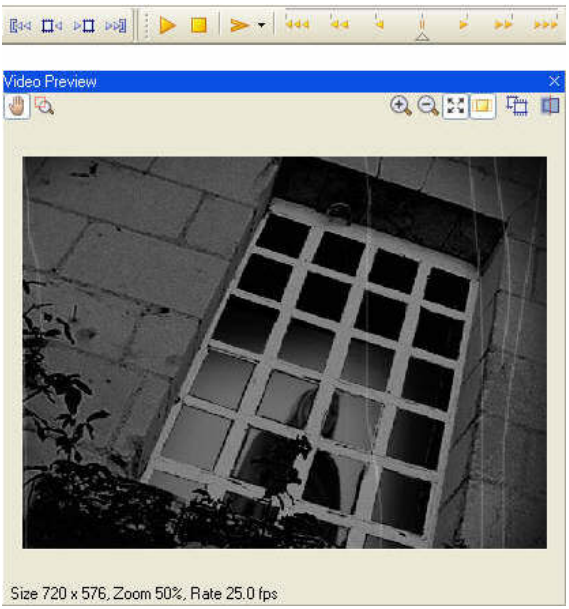
The Preview pane will help you check that your movie editing is going according to plan... you can preview your project at any time; MoviePlus will begin playing your video, will compose a realistic end result from the contents of your all video tracks, and will incorporate all transitions, effects, and other envelopes on the fly.

You can even continue editing your project while the preview is playing as your edits will be incorporated into the preview in realtime.

To preview your project



Simply click the **Play** button on the Playback toolbar (shown below) or press **Space** to preview your project. The preview will begin from your current caret position. The caret is a vertical line which represents your current location on the Timeline (see p.46). To send your caret to the beginning of your project, click the **Go to Start** button on the **Seeking** toolbar (shown below). You can click at any point along your ruler during playback to make the preview continue from a new point.



 The Preview pane itself also offers zoom and pan facilities so you can focus on a particular area of your video. Custom **Pan** and **Zoom** controls are offered at the top left of the Preview pane, **Zoom In** and **Zoom Out** buttons are the first offered at the right of the pane. The Pan button lets you navigate around your “zoomed in” video preview with a hand cursor. This is not to be confused with panning for adjusting audio balance.

 The **AutoFit** button ensures that your preview will fit to the best zoom level within the Preview pane. The pane can be resized and undocked from its default position; it is particularly useful to be able to locate your Preview pane on a secondary screen if you are running a dual monitor setup.

 The next button along at the top of the Preview pane will affect how your preview is generated. Many types of project—VCD, SVCD, DVD and DV all use stretched pixels... the dots of light that make up the image are not square for these types of project, they are rectangular, whether the project is regular or a widescreen variant. The amount of stretching is described in your project's pixel aspect ratio setting, a number greater than one means that the pixels are wider than they are tall. Clicking the **Stretch Pixels** button will ensure that your preview is stretched by the same amount that your project is, according to its pixel aspect ratio setting. This button is recommended to be always left enabled.

 The **Copy Frame** button copies the current frame of your project to your Clipboard. The image can then be pasted into other applications. It may be useful to copy a frame into an imaging program such as Serif PhotoPlus to export it as a still for your MoviePlus project or as part of a cover graphic.

 The final button, **Render Quality**, determines at what quality your movie will be previewed and will determine how hard MoviePlus will work to draw your movie. Quality options range from **Draft** to **Best**—if you are experiencing stuttering playback, especially where transitions or effects are in progress, you can reduce the preview quality to improve playback speed without harming your project. You can still export your end results at high quality even if your preview render quality is set to Draft.

Aside from being able to preview your current project, the Preview pane has another trick up its sleeve, too, as discussed in Transforming Your Video on p. 90.

Seek Controls

Seek controls in the **Seek** toolbar allow you to zoom into areas of your video source or tracks and to navigate around the frames of your video source. For video previewing, the four caret transport buttons on the right of the toolbar are of particular importance.

They allow you to move your caret around your timeline to various positions on your video track.

Moving the caret

You can of course click anywhere along the ruler at the top of your Timeline to set the position of your caret—the vertical line spanning the Timeline. Your caret position determines the point at which your preview will begin playback and the point at which some editing operations such as trimming will occur. The position of your caret is also indicated by the counter at the top left of the Timeline.

 To start your preview from the beginning of your project, click the **Go to Start** button and then click **Play** on the Playback toolbar. The Go to Start operation sends the caret to the start of the Timeline, also useful if you wish to insert additional sources at the beginning of your project.

 For fine tuning the position of the caret, for instance to perform a trim operation at a specific frame of video, you can use the **Previous Frame** and **Next Frame** buttons on the Seek toolbar. Your preview will update any time the caret is moved, so you should always use the preview in conjunction with your editing operations.

 To quickly move your caret to the end of your current sources on the Timeline, click the **Go to End** button. You can then easily move objects and have them snap to the caret position conveniently located directly after your last Timeline source object.

The caret position can also be used as a guide when aligning sources on different tracks of your Timeline, or to align effect or other envelope key frames.

Trick Play and Scrubbing

A "jog shuttle" function can be used during trick play to vary playback speed and direction. In addition, you can manually drag (“scrub”) the caret across the Timeline to preview at a rate of your choosing.

Trick Play

MoviePlus offers a jog shuttle bar that allows you to fine tune the play speed and direction by dragging the control arrow.

Click anywhere along the shuttle bar (at a point matching the speed you'd like to preview your project) and then drag the pointer to change the speed if you wish, or drag to the centre of the slider to pause playback. The further right you click or drag, the faster your preview will play. If you click or drag left of centre the preview will being playing in reverse, increasing in speed the further left you drag.

If your preview was already playing before you used the shuttle bar, it will continue playing when you release your mouse. If your preview was not playing before you used the shuttle bar, the preview will stop when you release your mouse and the caret will stay where the preview stopped.

Scrubbing

Scrubbing might seem an unusual term but it is an extremely useful feature! You may already know that clicking along the Ruler above the Timeline sets your caret position. The caret determines the start point of previews (and the point at which some editing operations will happen). If you click and drag along the ruler, MoviePlus will preview your project at the speed of the drag—as your mouse passes along the Timeline in either direction, the preview will show you the current frame.

This allows you to pass your mouse over an area of the Timeline to preview a specific section without starting and stopping preview playback.

Muting

Any source can be muted at any time during video preview. You may want to temporarily switch off an audio track while you are editing and previewing the same track again and again. Equally, you may want to mute or “black out” a particular video source while testing your project.

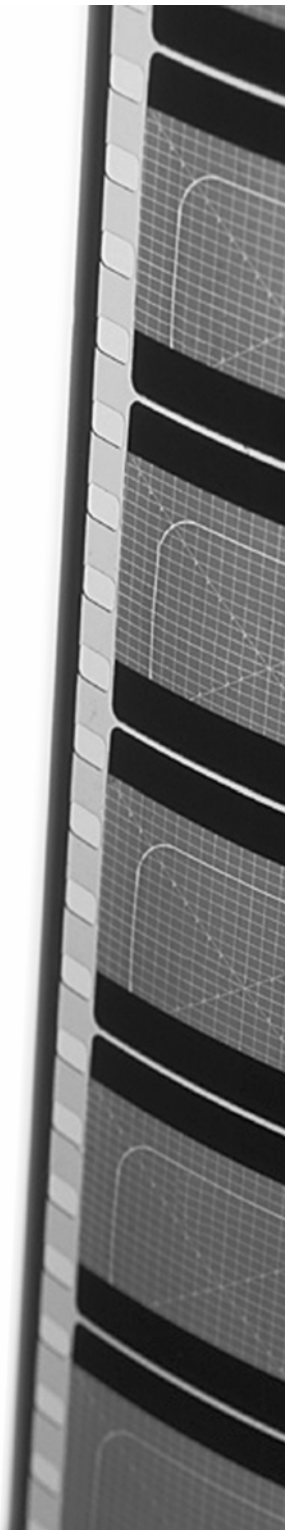
 Muting is possible by switching on or off the **Mute** buttons on a video or audio source, respectively. The buttons are located in track headers are illustrated on p. 46. This can also be applied to tracks and groups.

Audio Preview

 We've seen how video can be previewed in a dedicated Video Preview pane. Audio can equally be previewed at any time but without any dedicated preview pane. Any audio source, track or group can be selected and played using the **Play** button. The Gain (volume) and Pan (audio balance) can be adjusted for the duration of the object's lifetime or can be altered over time.

In terms of playback the audio source is treated as for a video source—seek controls can be used, along with trick play and scrubbing.

4. Editing Video and Audio



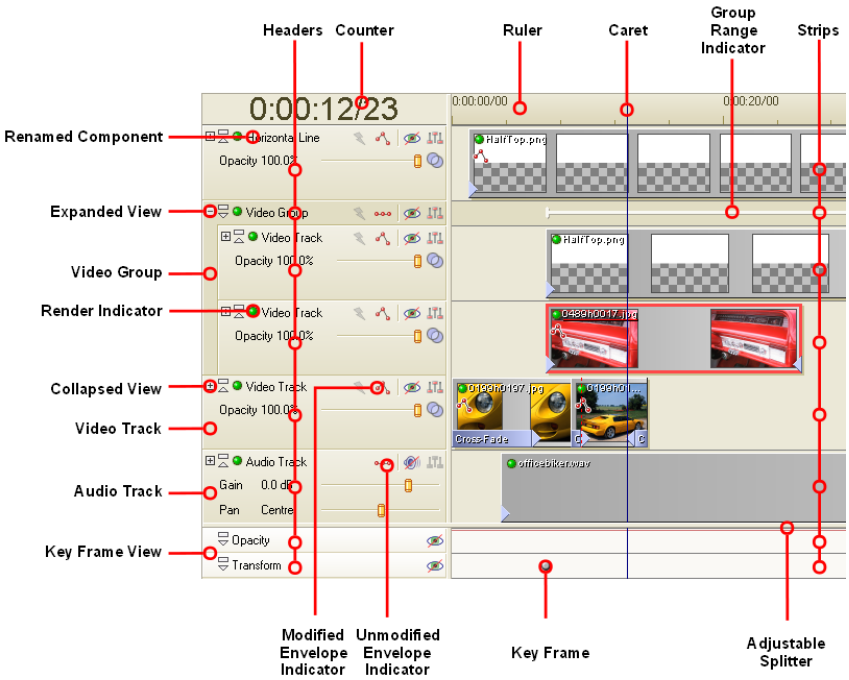
Using The Timeline

The Timeline in MoviePlus can be considered the editing heart of MoviePlus, a place where you can organize all your video and audio footage, trim or otherwise edit your media, sequence clips one after the other, add and edit effects and much more. The Timeline offers the equivalent of all the manual editing operations that regular film editors need to be able to carry out, and it allows for post-production alterations.

The Timeline has two basic dimensions, height and length. Horizontal length relates to the duration of your project... your Timeline has markings along a ruler at the top to indicate the passing of time, starting with zero at the left of the Timeline. Video or other source media added to your Timeline will follow a playback sequence from left to right. You can position the start point for previews (or the point at which you'd like to perform an edit) using a vertical marker called the **caret**. During playback and some editing operations you will also see a scrolling **preview marker** to indicate the frame that is currently being displayed in your project preview. The height of the Timeline is related to the number of video or audio tracks used—simple movie compositions made from a sequential series of video clips or images with straightforward cuts or transitions between them can generally use a single video track; you may only need to introduce more tracks if tackling advanced editing techniques including overlays, masking, blue-screening etc. An empty Timeline may seem as daunting as blank canvas or a blank page, but once you have added some media your project is underway.... if your project only needs to be simple, then your Timeline can be simple too, but when your projects take on a level of complication, MoviePlus's Timeline can rise to the challenge!

Timeline terminology

We'll describe some terminology used for various parts of the Timeline and your project so that understanding Timeline operations becomes clearer.



Timeline elements

Strips

Strips are the horizontal "stripes" running the length of the Timeline (to the right of the headers section) that can store your video/audio/colour/text/image media sources to allow you to edit and arrange them, as well as being a place where you can edit effects, transitions, and envelopes. There are different kinds of strips—master groups, groups, video and audio tracks, and hideable strips for each and every source, envelope, effect, and transition. Each strip is accompanied by a header to its left.

Headers
Headers are like little "control panels" for the strip they are attached to. In the case of tracks and groups, adjustments to the header can affect all the tracks in a group or all the sources on a track (or both). You can adjust sliders (double-click to reset to default values), Mute (and unmute) strips to disable or enable their contents in the project composition, Solo a strip (disables other strips of the same kind), and for video tracks you can adjust the video Blend Mode.

Component
Component is a general term for any part of your composition. It may be a source (video clip, audio clip, or image), track (video or audio), or group. Double-click a component's name in the Header area to rename it.

Source
A source is a media element; an "object" you can place on your Timeline for inclusion in your video project. Sources can include video files, audio files, colours, text, and images. It's important to appreciate the difference between sources, tracks and groups because MoviePlus will allow you to add effects, for instance, to each or all of them with differing results.

Track
A track is just a straightforward combination of a single audio or video strip and its header. You can add multiple clips to a track by dropping a multiple selection from the Explorer pane onto your track header and they will be added to the Timeline in succession with a default overlap. You can apply effects and envelope adjustments (like opacity or a transform) to tracks, which will have a resulting effect on all the clips on that track. MoviePlus supports multiple audio and video tracks so that it is possible to compose more complicated projects with "layers" of video using fades (or other methods of achieving transparency) to reveal underlying layers. Within the header region you can drag a track's upper or lower edge to increase its height for easier editing or to save space on your Timeline.

Group
MoviePlus supports audio groups, video groups and effects groups. They are not only a way of keeping complex compositions tidy, you can also choose for effects—including the partial revealing of video using masks—to be applied to selected tracks only by placing them inside a group. The **View** menu also has an option for showing or hiding Master Groups, a top-level group to allow you to mute, apply effects to, or adjust volume/opacity for all video or all audio at once. See **Using Groups** on p. 60.

Key Frame View

 When you add an effect to a source, track, or group, or when you click a **Show / Hide Envelopes** button, you will automatically be shown the **Key Frame View** at the bottom of the Timeline—the Key Frame View is a collection of one or more strips running across the bottom of the Timeline. Each strip allows you to induce change over time, whether it's a change in an effect, a change in opacity (or audio volume), a transition, or source properties. The points in time that you specify such change are represented on these strips by **Key Frames** (or (darker) when selected).

 You can change whether the Key Frame View is displaying envelopes strips, effects strips or transition strips for a given component by using the selector buttons at the bottom-left of the Key Frame View area.

Key Frames

Key Frames are points along an envelope strip, effects strip, or transition strip that allow you to specify envelope, effect or transition properties. The Key Frame stores your chosen settings for use at a specific point of time along your Timeline. Using more than one Key Frame along a strip, MoviePlus automatically (and gradually) changes from one Key Frame's settings to the next Key Frame's settings as time passes between them. On an opacity envelope strip, for example, a Key Frame at time zero with a setting of 0% opacity followed by another Key Frame two seconds later with a setting of 100% would cause a gradual "fade in" effect over a period of two seconds. The Key Frames can have their properties modified in the Properties pane when selected, they can be moved along the Timeline to different points, and you can alter the rate of change of values between Key Frames (right-click the Key Frame and choose a curve type). See **Opacity Envelopes** on p. 74 where Key Frame are described fully.

Timeline Splitter

The Timeline Splitter is a movable junction between the main body of the Timeline and the Key Frame View (when it is on show). You can drag the splitter up and down to dedicate more screen space to either the main Timeline strips or the Key Frame strips for envelopes, effects, and transitions.

Caret

The caret, the blue vertical line you can see spanning the height of the Timeline and its ruler, is most easily thought of as your editing marker. You can click in the ruler at the top of the Timeline to position your caret in order to perform an edit (such as splitting a source, allowing you to delete portions of your video or audio). Drag the caret along the Timeline to preview your project at the speed of your mouse drag. Click and drag sources to the caret to accurately position them in your project.

Ruler
The ruler runs along the top of the Timeline and shows you the current time range for the visible part of your project. You can zoom in or out of the Timeline using a mouse wheel to display more or less of your project Timeline on screen. Dragging your mouse along the ruler will preview your project at the rate at which you are dragging your mouse; a single-click on the ruler will position the caret marker for editing or playback operations. You can alter your ruler units using the **View** menu's **Ruler Units** flyout. The default setting shows Hours, Minutes, Seconds and Frames (of video).

Counter
The counter sits at the top-left of your Timeline and shows you the current preview position, which is often also the current caret position for editing operations. The default format for the counter is to display Hours, Minutes, Seconds and Frames (of video), but if you modify your Timeline ruler units as described above the counter will follow suit.

Preview Marker (not illustrated)
Like the caret, the preview marker is a vertical indicator of your playback position during playback. During playback, your caret, used for editing functions, remains in place until the playback is paused, while the preview marker scrolls along the Timeline to represent your preview position.

Drop target (not illustrated)
When adding media to your Timeline, the drop target is shown as a hollow grey box. It represents the current position of your media on the Timeline if you were to release the mouse button. You can hold **Shift** on your keyboard when a drop target is on your Timeline to prevent it straying up or down to other tracks.

Selections and indicators

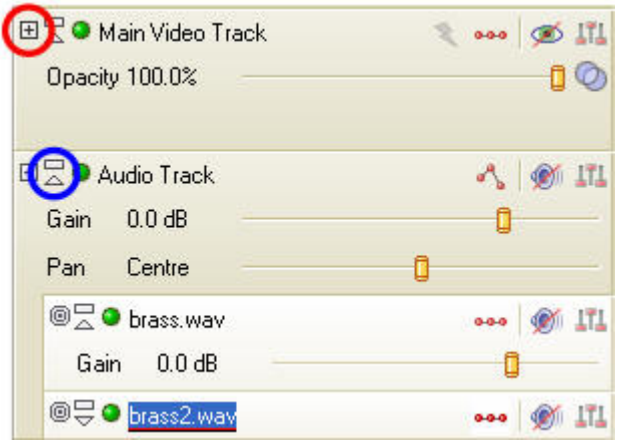
Selections (not illustrated)
MoviePlus naturally draws selected components differently to unselected components, so you know what you are editing when you perform an editing operation! Timeline sources (such as video and audio clips) are drawn with a red outline when selected, tracks and groups get their names highlighted when selected, Key Frames turn red... and while you are working with a component's Key Frames, the component you are modifying remains underlined in red.

Source indicators and handles
Sources have some useful features in addition to the preview-like "poster frames" running along their length. A green (or red) LED in the top-left corner indicates whether a source, track, or group is included in the composition or if it is temporarily disabled (muted). If you mute a track, the track header and each source on that track would show a red LED to indicate that they are not being rendered.

 If you have applied an effect to a source, track, or group, it will display an illuminated lightning bolt.

Sources also have blue triangular handles at each end that can be dragged to introduce an automatic fade (the fade can be replaced with a different transition by dragging and dropping a transition preset onto the source's transition bar).

View controls in headers



The topmost circled control shown above either expands or collapses the contents of a track. As an example, the Main Video Track above is collapsed (click + to expand) and the Audio Track is expanded (click - to collapse); the two sources on the audio track (brass.wav and brass2.wav) now have their own strips and headers on view. You can hide all source strips by collapsing the header. The lower circled control minimises and restores the height of the track, to either allow more room for editing (or bigger poster frame previews along video sources) or to minimise to save space on the Timeline. As an example, all the strips above are standard height except for the brass2.wav source strip, which is minimised.

The same control operations are used on headers for audio or video groups and master groups.

Timeline Zoom and Scroll

When you have sources on your Timeline it is important that you can view you project and sources at a suitable magnification. The Timeline zoom and scroll functions help you do this by button use, mouse scroll or keyboard shortcut.

 To see more detail on your Timeline to make it easier to perform fine edits, click the **Zoom In** button, scroll your mousewheel upwards or select **Control** and **+**.

 To see more of your project in the Timeline area, click the **Zoom Out** button, scroll your mousewheel downwards or select **Control** and **-**.

 There may be times when you would like to see your entire project within the available Timeline area—simply click the **Zoom to All** button.

 If your caret is out of view due to a zoom operation or playback of your project preview, click the **Scroll to Caret** button.

Selecting Objects

When you are editing your movie and have already added a range of media clips to your Timeline, all your editing operations (including moves, trims, properties changes and other adjustments) are carried out on the selected object(s). So, let's cover how you go about selecting objects!

Selecting single sources

The good news is that you can simply click on components to select them. A regular single-click of the mouse! Whether it's a group, track, video source, audio source, image, text item, a click will underline the component's name in red (and outline the object in red if it is a source) to show you that it is selected.

Component or object appearance	Selection status
	Source not selected
	Source object has been clicked and is selected. You can now modify its properties in the Properties pane, and if you click any of the editing function buttons (e.g. Set Start Time, Split etc.) the edit will apply to this selected object.
	The transition for this source object is selected. The underlined object name indicates that this source is associated with the specific item being edited (the transition).
	A Key Frame on an envelope strip, effects strip, transition strip, or colour/text source strip. Selecting a Key Frame will change its colour from grey to red.
	A selected track. Other strip headers (source strip, effects, envelope and transition strip headers) follow the same look for selection; the name is highlighted and underlined.
	This track is having one of its properties modified. It's likely that an opacity or transform Key Frame is actually selected, but you can tell it is this track being modified because its name is underlined.

Selecting multiple sources

You can select multiple sources on your Timeline (to move or otherwise edit multiple source objects at once) by two main methods:

- Hold **Control** on your keyboard and click each source you would like to include in the selection. **Control+click** a source a second time to remove it from the current selection.

- Hold your primary mouse button down and drag a rectangle on your Timeline—anything touching (and also anything inside) the rectangle will become selected.

Multiple selections allow you to link items together for editing unity, or move a few sources earlier or later along the Timeline.

To make your multiple selections a permanent feature of your Timeline for continues easy editing, you can create a link.

Selecting Linked Objects

When any object linked to another object is selected, the linked items adopts a pale red selection highlight. This pale red selection border means the linked objects are not actually selected but edits will affect it. The selected object displays with a red selection border as for selecting a single source, even when part of a link.

Arranging Sources

Just like when you are arranging text and pictures in a printed newsletter design or when creating a Web site, arranging sources on your movie Timeline is crucial to building interesting projects—whether you would like to drag and drop fifty photos onto your Timeline to quickly build a slide show or you would like to create a rich layered project with motion transforms, transparency masks or professional blue-screening, you will need to know something about arranging your sources.

Tips!

Snapping

Snapping is a design aid that helps you achieve neat layouts. When you are moving objects around on the Timeline (or trimming/stretching them), snapping makes your edit jump to the nearest object, to the editing caret, to the beginning of the Timeline, and to a default overlap value.

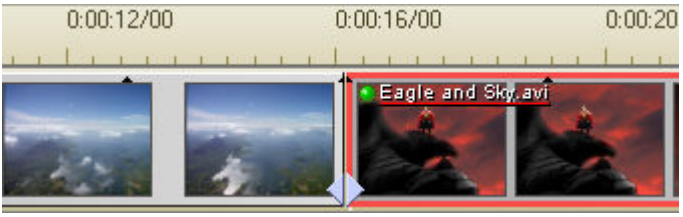
To turn snapping on and off, click the  **Snapping** button on the Editing toolbar. To control which elements do and do not get snapped to, or to adjust snap sensitivity, visit the **Snapping** tab in the **Tools > Options** dialog. Hold down **Alt** during your editing operations to temporarily switch Snapping off (or on, if disabled). Note that when you are moving a multiple selection of sources, only the source dragged will snap to other Timeline elements.

Naming source objects

When you select a source, its name and some other properties are displayed in the **Properties** pane. You can rename any item here; it will only affect your MoviePlus project, not the source media files as found on your hard disk or network. Naming source objects this way in MoviePlus can make it easier to identify components in your composition; you may find this especially useful if working with detected scenes in the Explorer pane, as scene names originally all begin with the name of the file they were detected from.

Simple arrangement—sources following one another

When you want one clip—a video or image—to directly follow on from another clip, they need to butt against each other on the Timeline with no space in between them. When one "scene" follows another in this way, it's often referred to as a "cut" although you don't need to get the scissors out to achieve it with MoviePlus.



Simply drag sources along on the same track so that they are positioned next to each other. When two sources are close together the one you are dragging will snap into place depending on how snapping is set.

Adding multiple sources one after the other

MoviePlus supports the addition of multiple sources to your Timeline in one operation. All the selected sources will be added to one track and will overlap each other by a default amount (normally 1 second). With Auto Transitions enabled (see p. 132), each overlap will include an automatic cross-fade transition. You can drag and drop an alternate transition from the **Transitions** gallery pane to introduce some variety to your show.

To alter the standard overlap value, adjust the setting on the **Tools > Options** dialog's Editing tab.

Making one source appear on top of another

MoviePlus uses multiple tracks in a similar fashion to the way photo-editors (such as Serif's own PhotoPlus) use multiple layers. The question of whether you need to use multiple layers—or tracks in the case of MoviePlus—can be answered in the same way for both types of program... many compositions are perfectly fine with one "layer" but you can introduce some interesting effects by layering your images or videos on top of each other.

MoviePlus composes your video based on Timeline content, working from the top downwards. If you have multiple tracks in your project with a full-size video on the top layer, it could well obscure all underlying tracks because you can't see through it... but if your top-most track (or sources on it) contains text sources, video or images with reduced **opacity**, resized video or images using a **Transform envelope**, video with a **mask** applied or a **Chroma Key** effect, you will be able to see through to underlying tracks.

So, to make one source an overlay appearing on top of other sources, you need to add an additional video track. Use the **Insert** menu to add more tracks to your project. Place the video or image you would like to appear as an overlay on the top track. All tracks support images or video with transparency, and all tracks follow the same Timeline, so components are almost as easy to arrange when using multiple tracks as they are for single-track projects.

Click the **Samples** button in the Explorer pane and select the **Overlays** folder to see a range of images that can be used as overlays in your projects. The MoviePlus **Studio Effects** DVD needs to be installed to see this folder.

Linking sources together

Automatically-linked sources

When you add a video file to your Timeline from the Explorer pane, you will normally find that two sources are added to your Timeline—one video source and one audio source, on a video and audio track respectively. This is because the video file contained both an audio and video stream that MoviePlus has separated for you for editing purposes. Because these two streams came from the same location, MoviePlus automatically links them together. When sources are linked, edits to one of the components will affect other linked components. If you select your video source and perform a Split, for instance, the linked audio source will split in the same place.

Linked items that are on different tracks will still move to new spots on the Timeline providing there is enough space on each track for your sources to relocate to.

Manually-linked sources

You can manually create, edit, and destroy links of your own, too, to make a collection of sources easier to move or otherwise edit. The operations described below as being available in a right-click menu are all also available in MoviePlus's **Edit** menu.

Creating a Link

Select multiple sources as described in **Timeline Zoom and Scroll** on p. 50, right-click over one of your selected sources and choose **Create Link** from the Link flyout.

Adding or removing a source from a Link

Right-click the single source object you would like to remove from the Link (or Control+select multiple items from the link) and choose **Remove from Link** in the right-click menu's Link flyout.

Destroying a Link

To dissolve or destroy a Link, right-click any source object in the link and choose **Destroy Link** in the right-click menu's Link flyout.

Temporarily disabling linking

 There are occasions where you may find the need to temporarily disable Linking, for instance when trying to trim sources that are part of a link where other linked sources start or end outside the range of the source you are editing... in such instances some editing functions are unavailable because they cannot be applied to the entire contents of the Link group. In such instances you would need to switch Linking off using the **Linking** button on the Editing toolbar, perform your edit, then switch linking back on using the same button.

Rippling

 Rippling is a design aid that takes some of the headache out of making room on your Timeline, or taking up slack (empty) space on the Timeline, keeping your sources' relative positions constant when you make edits. Rippling saves you the effort of manoeuvring multiple sources for the sake of what is often a minor edit, perhaps to make room at the start of your project for titles or a new intro or the deletion of a section of video from the middle of a project. You can enable and disable Rippling using either the **Rippling** button on the Editing toolbar, or by using the commands on the **Arrange** menu.

Moving sources

Rippling affects other sources starting at the same time or after the source you are moving; when you move a source, those other sources that start at the same point or later on the Timeline will shuffle left or right to account for your move.

When trimming or extending the end of a source

Rippling only affects other sources that both start after your edited source starts and end after the end of your edited source.

When trimming the start of a source

Rippling affects other sources that start and end after the start of your edited source, and it also moves your edited source to the same "start time" it had before you trimmed its start, shuffling other affected sources at the same time.

Ripple mode

Rippling can be set to work in one of three modes: it can affect the track you are working on, all tracks of the same level (e.g., within a group), or all tracks on the Timeline.

Rippling with complex projects

For complex multi-track projects, you might worry that Rippling won't manage all the necessary moves—don't worry, Rippling works regardless of the number and type of sources or tracks involved. Providing you have selected the appropriate ripple mode, you can move a large number of sources that span multiple tracks by having Rippling enabled. Be sure to select an appropriate Timeline zoom level when selecting and moving your sources—you may wish to use a low zoom level (too see all of your project) to make the move easy, but you might find that using a higher zoom level (seeing just a few small sources) allows you to more easily select and drag the correct source. MoviePlus will automatically scroll the Timeline in the direction of your drag until you centre your mouse to choose a "drop zone", but you could instead type a new start time for your selected source in the Properties pane—Rippling works however a source is moved.

Adding and Arranging Tracks

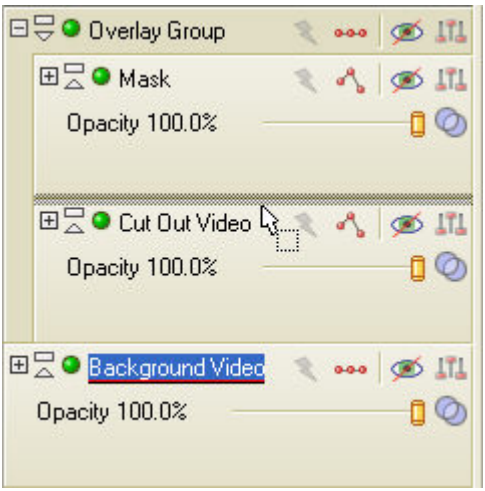
To get started quickly, MoviePlus is supplied with a single video and audio track already present on the Timeline by default. These empty tracks will allow a video source to be dragged onto them from the Explorer Pane.

Adding more tracks

To create new blank tracks in your project to accommodate layered audio, video, titles, or images, choose **Video Track** or **Audio Track** from the **Insert** menu.

Changing the track order

To reorder your tracks to achieve the desired effect, drag the appropriate track header further up or down the stack of headers at the left of the Timeline. You will be shown a grey line where your track will be inserted when you are to release the mouse button.



Modifying the track/strip height

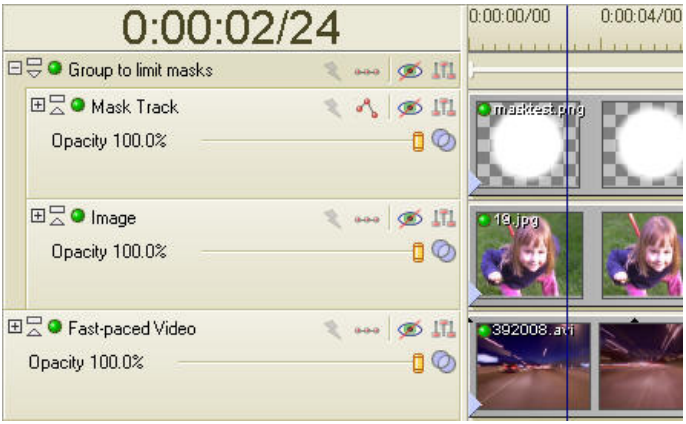
Track headers are accompanied by track strips along the Timeline, each header is next to its track strip. You can alter the height of these strips to either save space in your Timeline view, or to get a bigger view of your sources' poster frame previews along the track. Position the mouse cursor over the bottom edge of a track's header and drag your mouse to resize it. During a resize it will "snap" to its original height for ease of use.

You can also reveal "child" strips for any track by clicking the **Expand** button at the left of the header. In the case of tracks, this will reveal the source strips for each source on the track. Source strips aren't often required but can be useful for modifying source properties using Key Frames in the case of text and colour sources. Similarly you can use the **Collapse** button to hide these strips. There's also a **Collapse** shortcut in the View menu, as well as a shortcut to **Minimize/Restore Tracks** rather than using a manual method to alter track height as described above.

Using Groups

Groups serve a couple of important functions in MoviePlus... firstly they can help keep related tracks—perhaps specific sections your composition—together for easy management. Applying an effect, for instance, to a video group means that all tracks and sources within the group inherit the effect. This is a very quick way to make an entire multi-track portion of your project greyscale or have a dream-like diffuse glow.

The next main function for groups may be even more useful: limiting the range of a transparency effect or mask. **Masks** and the **Chroma Key** effect are both methods of achieving transparency. The Mask blend mode or Chroma Key Effect applied to the top-most track in your project will affect transparency on tracks below it; to limit which tracks are affected, store the track with blend mode or effect applied (and other tracks you want affected) within a group, leaving tracks you do not want affected outside the group, as shown below. Looking at the track names: in the example below, the Fast-paced Video is not subject to the oval clipping that the Mask Track is performing because it is outside the video group—the mask's effect is limited to tracks within its video group.



Only the track containing the image of the girl is in the same group as the mask; here the Image track is masked but the video track outside the group is unaffected.

Adding Video or Audio Groups

Once you have arranged some sources on your tracks and you feel it is time to place them inside a group (either to tidy your composition or set the range of tracks an effect will be applied over), insert a video or audio group by using **Insert>Video Group** or **Insert>Audio Group**.

You then need to drag the appropriate track header into the group at the left of the Timeline.

Hiding and revealing a group's tracks

 You can click the **Collapse** button to hide the contents of the group on the Timeline, saving the equivalent height of two tracks in this case (because the group contains two tracks) to make more visible area for more recent edits. This organizational function does not harm your project, it merely keeps tracks hidden out of harm's way until you would like to reveal them again (by pressing the **Expand** button). Tracks within a group are often called children. Applying an effect to a group as described above, the group being the parent, affects its children.

Applying Effects to Groups

Video effects

You can apply **all** of MoviePlus's video effects to a video group by dragging and dropping an effect thumbnail from the Effects pane onto the group header at the left of the Timeline.

Video opacity

You can adjust the opacity of a group by revealing its **opacity envelope**. This will allow you to fade the result of an affected section of video organized within a group, for instance, or to make a series of still image overlays appear translucent—without having to edit each source or track in an identical way. For more information about revealing and editing an opacity envelope, please see **Opacity Envelopes** on p. 74.

Transforms—perspective, scaling, and motion

You can apply transforms, such as perspective effects, resizing, or animated motion, to video groups. Such an effect would allow for the composite result of a group to be used as an inset video, for instance. To learn how to edit a transform envelope, please see **Transforming Your Video** on p. 90.

Mix back—blending affected video with original unaffected video

Mix back is a term used to describe the blending of video with effects (affected video) back with the unaffected original video. This is extremely useful, as most effects do not offer "opacity" (strength of visibility) of their own. As an example, the Threshold effect on its own has no setting which is "nearly visible"... the effect renders video as black and white only, and the adjustment available (in the Properties pane) determines how much of your video is white and how much is black. To blend such an affected video with the original:

- Use the **Insert** menu to insert an effects group (remember to first select the appropriate (affected) source, track or video group).

- Add the effect and any others you wish included to the effects group by dragging and dropping them in the Key Frame View area, below the Timeline.

- Click to the right of the effects group's header in the Timeline region to add a Key Frame, moving it up or down to affect the level of mix back. For more detail, please see **Applying Effects** on p. 123, covering the use of an opacity envelope on an effects group.

Audio Groups

Audio groups differ slightly in that they do not work with video effects! But you can add audio tracks to audio groups to adjust overall gain (volume) or pan (stereo balance). Click the group's **Show / Hide Envelopes** button to access the Volume and Pan envelopes. Envelopes allow for simple adjustments as well as introducing changing levels over time; please see **Adjusting Volume and Balance** on p. 117 for more information.

Master Groups

Master Groups are an option available in the **View** menu, i.e. they always exist but you can choose whether they are on view in your Timeline header region or not. There are two Master Groups, one for video and one for audio. The Master Groups each encapsulate all the video and audio of your project so you can adjust the master volume, for instance, by adjusting the volume envelope for the master audio group, or apply a final video effect to the entirety of the video in your project by applying it to the master video group.

If there's no need to affect all the audio or all the video in one fell swoop, you should leave the Show Master Groups option unticked in the View menu.

Copying and Pasting

For envelopes, effects or transitions

An envelope, effect or transition can be copied by selecting its header and choosing Copy. When an envelope is copied to the clipboard, it can be pasted to another object to replace the existing envelope of that object, e.g. an opacity envelope from one source will overwrite the opacity envelope of another video source by copy and paste.

If an envelope or effect is copied and pasted from one source to another source further down the Timeline, the associated key frames will be offset so they are relative to the new source. Otherwise they will end up at the same absolute time they were before.

Note that transitions can only be copied and pasted to replace another transition.

Drag and Drop is fully supported in the copy and paste process. Select an envelope or and effect and drag to a new source. In addition, use the Control or Shift key to select multiple envelopes and effects and then drag them to other sources.

For Keyframes

Any selected key frame can be copied to the clipboard. Simply select a single key frame or multiple key frames with the Control key.

When keyframes are on the clipboard, they can be pasted into any envelope, effect strip or transition strip of the same type they came from. They will be pasted at the current caret location.

Copying between Sources, Tracks, Groups

We've looked at copying envelopes and effects between sources. However, the flexibility of MoviePlus allows you to also copy between sources, tracks and groups at any time.

Trimming and Splitting

With audio or video clips, both duration and playback speed come into play. Most often, you'll want to shorten a clip without altering its playback speed—this is usually called **trimming**. For example, source media files seldom begin or end exactly where you'd like; there may be extra frames at the beginning or end, or you may want to use a short section from the middle of the file. The solution is to trim the media file—adjusting its in-point and/or out-point to include just the piece you want.

When you trim a source, it takes up less space on the Timeline, and the movie as a whole gets shorter. You may need to adjust other sources to fill in the gaps this creates.

You can also perform cuts just like a film editor using the **Split** command.

Simple trimming with mouse drag

Trimming the start of a source

 Position your mouse cursor over the left edge of the source object you want to trim so that it changes to the **Set Start Time** cursor, then click and hold your primary mouse button. Drag the mouse to the right to trim away the start of your source.

Trimming the end of a source

 Position your mouse cur sor over the right edge of the source object you want to trim so that it changes to the **Set End Time** cursor, then click and hold your primary mouse button. Drag the mouse to the left to trim away the end of your source.

Note about dragging to trim

If you drag the start of a source to the left, or the end of a source to the right, you are *increasing* its duration on the Timeline. By default MoviePlus will maintain the original play speed and loop the source (if it is a video), making playback loop from the original start or end time. This stretching of video, as opposed to trimming, is covered in **Stretching and Speeding Up** on p. 69.

Trimming to a specific frame

If you would like to perform an accurate trim while dragging, position your caret at the exact position you want to trim to, then drag the edge of your source to the caret—as you approach the caret the source will snap to it (unless **Snapping** is disabled). Trimming occurs before the visible frame, so if you want to trim at a scene break, ensure you position the caret so that the first frame of the new scene is visible.

Fine tuning trimmed video in and out points

Once a video is trimmed it has artificial start and end points because they are different to the original source media. To see your trimmed video as a fraction of your original video it helps to view the trimmed and original sources alongside each other. You can achieve this by revealing the source strip as discussed in **Looping** on p. 66.

Trimming to a specific frame

Accurately trimming the start of a source

 Select a source, position your caret at the point you want to trim to and click the **Set Start Point** button (or press **I** on your keyboard, representing "in-point").

Accurately trimming the end of a source

 Select a source, position your caret at the point you want to trim to and click the **Set End Point** button (or press **O** on your keyboard, representing "out-point").

Splitting a source

 Select the source you would like to split, use the ruler and/or **seek controls** to position the caret at the point you would like to make the split, then click the **Split** button or press **S** on your keyboard. You can perform multiple splits to create distinct sections of your sources for deletion.

Extending and Temporal Effects

Looping

When you are manipulating sources on your Timeline, it is extremely easy to make video and audio sources loop or repeat themselves. Like trimming, you will most probably find that looping, freeze-frames (static extensions), or the speeding up or slowing down of video and audio are common tasks. Other kinds of sources, such as text, colour and images can all have their duration changed but do not loop or repeat.

Looping a video or audio source

To make your video or audio sources begin repeating, select your source and change the **Repeat Mode** to Loop in Source properties. To set the number of loops, simply grab one end of the source on the Timeline using your mouse and drag it outwards, making the source object longer. If dragging the right-edge, the source will begin "playing" again after its original end point. If dragging the left-edge, the source will end and restart at its original start point.

As your source is extended, you will see small yellow markers along the bottom of the source object; these indicate the repetitions or loops. The black triangles along the top of the source merely indicate the position of the "poster frame" previews. In the sample below, we've stretched the right edge of a source video until it is looped and will play fully five times. Note the "trim" cursor shown during this operation; we are effectively "untrimming" the video.

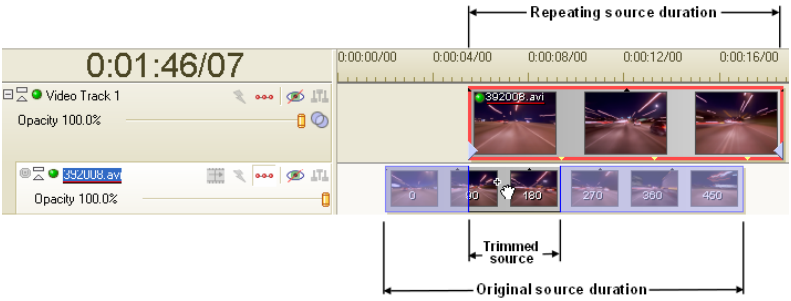
Looping a trimmed source

You may be asking yourself that if looping is effectively untrimming, won't a straightforward drag as described above actually untrim your trimmed sources, instead of making the shorter, trimmed source loop? Yes, a straightforward drag as described above would untrim your trimmed sources. It can be overcome so that trimmed sources can also easily repeat.

To make trimmed sources loop, repeating the remaining video or audio only, hold **Shift** while dragging the edge of your source.

Seeing the whole picture using the source strip

To gain a direct appreciation of the length of your source media files, the length of the source as it appears on the Timeline, and what is being repeated, you can reveal the source strip. Double-click on any source to display it in a strip of its own underneath the track it appears on.



In the example above, the displayed **source strip** allows for some fine editing. A 15 second video clip has been trimmed to approximately 4 seconds in length by dragging both the left and right edges inwards (see **Trimming and Splitting** on p. 63 for more details). The section labelled "Trimmed source" represents the duration of the trimmed media—the shaded regions left and right of the trim region represent original video we could reintroduce by "untrimming" our clip. The right-edge of the trimmed source was then dragged to the right while holding **Shift**, otherwise we would indeed have untrimmed the trimmed clip; holding Shift while dragging to the right maintained the trim region, increased the duration, and kept the play speed normal.

You do not need to reveal the source strip to be able to perform the loop operation, but it may help you see which section of a trimmed source is being repeated when working with trimmed video sources.

Time shifting

 You can change which section of your original video source is being played within the trimmed region, without altering the position of your trimmed source on the Timeline, by clicking where the special cursor is and dragging left or right. You can imagine that the trimmed region is a small window that can only "see" a small region of the landscape of your video. The drag we've described means you can move the landscape left or right to change your view, leaving the window where it is; this has the effect of shifting the trimmed video's in- and out-points relative to the original video source.

Static Extensions

Also called freeze-frame, a static extension is a useful way to begin or end a clip. A static extension of the first frame could allow for a fade in or other transition, a zoom to give the subject emphasis, or a background against which titles can be overlaid. A static extension at the end of a clip similarly allows time for a transition, a background for credits etc.

Some special editing effects may also call for a static extension, to allow you to freeze the action while overlaying a cool particle system special effect made with Serif's **ImpactPlus**, for example.

Applying a static extension to your sources

To make your video or audio sources extend, select your source and change the **Repeat Mode** to Static in Source properties. To freeze either the first or last frame, simply grab one end of the source on the Timeline using your mouse and drag it outwards, making the source object longer. If dragging the right-edge, the source will "freeze" the final frame. If dragging the left-edge, the source will freeze the first frame.

As your source is extended, you will see a small yellow marker indicating the original start or end point of your source before your static extension was applied. The black triangles along the top of the source merely indicate the position of the "poster frame" previews. In the sample below, we've stretched the right edge of a source video until it is extended by 50%. Note the "trim" cursor shown during this operation; we are effectively "untrimming" the video.

Because extensions like this (and looping/repeating) are like "untrimming" video, what happens when the video has already been trimmed, how do we stop the extension from untrimming the source?

Extending a trimmed source

To make trimmed sources extend, rather than untrim, when their edges are dragged, hold **Shift** during the mouse drag. Release the mouse button before releasing Shift to extend your trimmed clips.

Stretching and Speeding Up

As with **looping / repeating** and "freeze frame" **static extensions**, simple drag operations on the Timeline can perform intricate editing operations. Being able to speed up or slow down the rate of play of your video and audio sources is another powerful editing function that MoviePlus is able to offer.

When a video plays faster or slower, it has a shorter or longer duration, respectively. This means less space on your Timeline when played faster and vice versa.

To increase or decrease the play rate, hold the **Control** key down and drag an edge of your video source inwards or outwards, respectively, i.e.

You can also use the Properties pane to adjust the **Play speed**, though this will affect the length of your source on the Timeline.

Fade and Transparency

Transparency & Opacity

Transparency and opacity are intrinsically linked, like different sides of the same coin. Opacity means a state of being opaque, you cannot see through a video or other source to those underneath it if it is totally opaque. By contrast of course, you can see through video that is partially or wholly transparent, or has regions that are partially or wholly transparent, with no opacity. MoviePlus generally refers to opacity rather than transparency, but you should keep both concepts in mind during your editing to help understand various features such as **Chroma Key** (blue screening) and **masks**.

Let's firstly take a look at different ways in which opacity can be used on whole sources, tracks, groups and effects in MoviePlus. A general level of opacity can be applied to:

- allow you to "fade" video or images in and out of vision over other video sources. This uses an **opacity envelope**.
- a whole video track, to make a collection of sources more or less visible, using an **opacity slider**.
- a group of tracks, so that the composite result of a collection of grouped tracks can be made less or more visible as part of the overall composition. This uses an **opacity slider** in a video group header.
- video effects (i.e., **mix back** to blend original with affected video). This uses an **opacity slider** in an effects group header.

A specific region of transparency or opacity can be created for:

- Removing a solid-coloured background (also called matting, blue-screening or colour keying). This is achieved using a **Chroma Key** effect.
- Creating a cut-out region, using a **mask**.
- Creating a limited region for an effect to be applied over, e.g. only applying a mosaic effect to a subject's face rather than the whole video, also using a **mask**.
- Cropping using a **mask**.

For a preface to the concepts involved in removing a specific region of video, see **Removing Backgrounds and Creating Cut-outs** on p. 77.

For more information on **Opacity Envelopes** and **Chroma Key (Matting/Blue Screening)** see p. 74 and 85, respectively.

Fading

Fading your video out to a background colour is a popular method of ending a scene or even the movie. Of course the same operation with the fade in the other direction—fading in—is also extremely popular way to start a movie or a scene. It's a simple and understated effect that doesn't go out of fashion!

Fading in or out uses cross-fade transitions, as used to fade between two adjacent video sources (see **Applying Transitions** on p. 131). However, for fading in or out, a Cross-Fade transition, by default, is applied to the start or end of your video source, respectively.

Simple fading from or to black

On the lowest video track

Where your project is simple in its composition, i.e. not composed from a large number of video tracks/groups, there is a very simple way to fade your video in or out from a solid black background.

To illustrate a fade-in, the video source (above left) shows a triangular **transition handle** on the left-hand side of the source. This handle can be dragged to the right to create the fade in. The extent to which you drag the transition will set the fade-in duration.

Conversely, if you wanted to fade out to black, drag a transition handle at the end of your video source to the left.

These simple methods take advantage of existing transition functionality present in MoviePlus. In addition, we also use MoviePlus's default black background to full effect.

A fade from or to black by this method will only work on the bottom video track in your Timeline composition.

On other video tracks

To fade to black on other video tracks, use one of the methods described below.

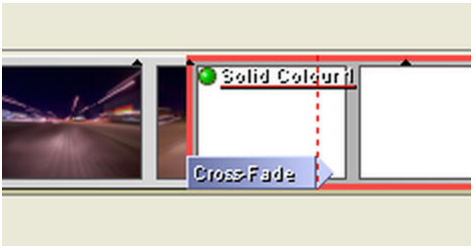
Fading to a colour

To either fade to black on other video tracks or to fade to a different colour, use a **Solid Colour Source**.

Adding a colour source to your Timeline

- Click the **Sources** tab to display the Sources pane and select **Solid Colour** from the list at the left of the pane. From the right-hand side of the pane, drag a colour of your choosing onto your Timeline. Don't worry if the colour you want is not amongst the presets, it's very easy to change the colour of a colour source later.

- Using a fade out as an example, drop the colour source adjacent to the video you want to fade out from then drag the colour source over the end of your video source to create an automatic cross-fade transition.



The dashed line at the right end of the transition marks the point at which the video source ends, so you can see the extent of the overlap.

To increase or decrease the duration of the transition, adjust the amount of overlap by dragging either end of the colour source, altering its duration and the extent of the overlap.

Conversely, to fade in to your video from a solid colour, place the colour source to the left of a video source and drag it to the right to overlap your video source's left-hand end.

If the source you want to fade in to is already at the left edge of your Timeline, leaving no room for a new colour source at the beginning of the Timeline, you should move your video source to the right on the Timeline, creating some room at the start of your project. If you have already created a complex composition with multiple sources and tracks—so moving the first video source would disrupt the rest of your project—MoviePlus can move all of your later sources at the same time when a source is dragged. This automatic moving of sources is called **Rippling** (see p. 57 for more infomation).

To extend the length of time the colour source is displayed before your video starts fading in, drag its left edge further to the left.

Changing the colour of a colour source

Click the colour source on your Timeline to select it. Its properties will be displayed in the Properties pane.

Either...

Click the Colour sample in the Properties pane to open the Colour Picker and select a colour from the colour wheel. Select a specific tone from the square inside the colour wheel and click OK...

or...

Click and drag the colour pickup pipette to the right of the Colour sample in the Properties pane. Move the pipette cursor over any part of the screen to select a colour, releasing the mouse button when you've located the colour you would like to use.

Saving a colour for future use

 When you have altered a colour source to meet your needs, you can save it amongst the presets in the Sources pane for future use by clicking the **Add to Gallery** button in the Properties pane.

Right-click your new colour source in the Sources pane and choose Rename from the popup menu, type in a new name for your source and press **Enter**. You can now reuse this colour source by dragging and dropping it onto your Timeline.

Opacity Envelopes

Envelopes in this context are not an item of stationery, they are a method of applying change to an object's properties over time. Imagine an envelope as a hidden "track" that runs along with each source, track, and group in your project and at specific times you determine how it changes via the properties. Between the specific times you specify envelope settings, MoviePlus calculates smooth changes to the properties.

There are different types of envelopes that all work in very similar ways for controlling video opacity, video motion and resizing (transforms), audio volume, audio stereo pan, video effects and video transitions. Once you learn how to display and modify an envelope, you can apply the same principle to each and every different envelope.

Displaying opacity envelopes

To display an opacity envelope, choose from the options below:

Sources

 or  Click on a video, image, or colour source on your Timeline to select it. The button's appearance will be different depending on whether the envelope has been modified previously (straight if unmodified). If you cannot see the Key Frame View—thin strips along the bottom of the Timeline below a splitter bar—click the **Show / Hide Envelopes** button at the bottom-left of the Timeline. There are two types of envelope now shown in the **Key Frame View** below the Timeline splitter—opacity and transform envelopes.

Video Tracks and Groups

 or  Click the **Show / Hide Envelopes** button in the header section of a track or group. Either button type will reveal the opacity and transform envelopes for the track or group you clicked on. Adjustments to the opacity envelope, discussed below, will result in opacity changes to any source on the track or group.

Adjustments to a video group's opacity envelope will result in opacity changes to the composite result of the group's contents. For example, if your group contains four tracks each with a transform envelope that makes each track fill just one quarter of the visible area, all four videos would simultaneously have their opacity adjusted when you modify their group's opacity envelope. Groups are also used when cropping or masking video, so you may want to adjust the group's opacity—rather than individual tracks or sources.

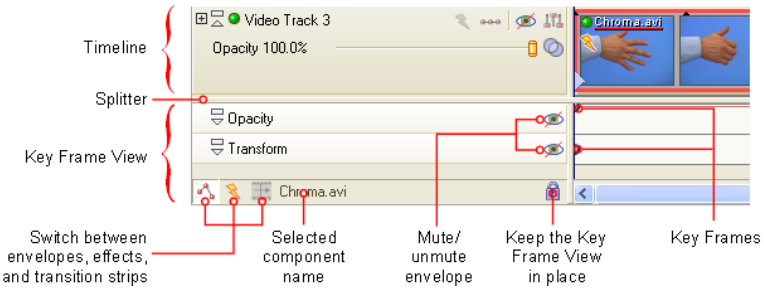
Effects groups

Please see **Applying Effects** on p. 123.

Editing opacity envelopes

The instructions above show how to enable the Key Frame View, displaying the opacity and transform envelopes for a selected component.

The Key Frame View



Once the Key Frame View is enabled, you will be able to edit envelopes, causing change over time.

What are Key Frames?

Key Frames are the small grey circles that appear on the envelope strips. For tracks and groups there is a default Key Frame at the start of the Timeline, for selected sources the default Key Frame is at the same time as the start of the source, so when you move your source its envelope changes also move in synchronization.

Key Frames store information about the property you are editing—opacity in this case. Because opacity is such a simple property, MoviePlus is able to draw a line along the length of the envelope to describe whether the current opacity value is high, low, or any stage in between. It is possible to select and drag this line to move it up and down, although adding and editing Key Frames is often an easier way to work because this method is in common with other envelope-style changes to effects, transforms, and transitions.

Modifying the default Key Frame value

To modify opacity for a selected Key Frame you can move it up and down within the envelope strip or just click the Key Frame to select it (it will turn red) then adjust the **Opacity** slider in the Properties pane. You can move Key Frames left and right along the envelope strip which has the effect of moving them earlier or later along the project Timeline. You can also set a selected Key Frame's time position in the Properties pane.

Tip: To increase the size of the envelope strip to make moving a Key Frame easier, click the **Minimize/Restore** button. Click it a second time to reduce the size of the envelope so it takes up less display space.

Adding more Key Frames to cause change over time

Clicking at additional points along an envelope's red line will add new Key Frames. You can then use the methods above—dragging the Key Frame up or down, or adjusting the Properties pane's values—to modify the opacity at the new point in time. MoviePlus will draw the rate of change of opacity as a line between the Key Frames. The illustration below shows a default (100% opacity) Key Frame at the start of the selected source and a second (0% opacity) Key Frame a second later. MoviePlus will adjust opacity from 100% to 0% at an even (linear) rate between these two Key Frames.

Altering the rate of change between Key Frame values

In the example above, a right-click on the first Key Frame will allow you to adjust the rate of change of opacity towards the second value. The options are described as mathematical functions with useful illustrative curve types in the right-click menu. The curves between Key Frames allow the opacity change to start and end quickly, or more usefully to start and end slowly, but there are other variants.

Placing Key Frames at specific time points

A click along your envelope will allow you to add Key Frames at any time along your Timeline, but if you want to position your Key Frame at a specific moment, perhaps a specific frame, you should first position your caret using the Preview and Seek controls, then click and drag your Key Frame to the caret. A single-click on an existing Key Frame will make the caret jump to your Key Frame time, so you can see the result of your imminent edit in the Preview pane.

Other ways of adjusting opacity

If you want to make a simple adjustment to opacity without affecting change over time, you can use the opacity slider in the Timeline's header section for a track, video group, or effects group.

There's also simpler ways of performing straightforward fading of video fully in and out of vision than using an opacity envelope—please see **Fading** on p. 71.

Removing Backgrounds and Creating Cut-outs

There are a number of reasons you might want to "remove" a region of your video:

- To isolate a foreground subject in order to place them against a different background, e.g. blue-screening such as used for movie special effects and daily favourites like weather presenting.
- To cut out a hole in a video, e.g. a billboard advertising area or sports stadium big screen, in order to place a video of your own in the cut out region.
- To limit the extent of an effect, e.g. to just mosaic someone's face to respect their privacy but leave the remainder of the video unaffected.
- To crop your movie, e.g. leave just a rectangular or other-shaped portion of your video and discard the remainder, perhaps leaving room for other cropped videos on screen to sit alongside to form a montage, popularised by comic book hero movies.

There are also a number of reasons why video cut-outs might be used in MoviePlus, i.e.

- The cutting out of regular shapes and cropping of video for **masking**.

- The removal of a solid-coloured background by using a **Chroma Key** effect, also called blue-screening/green-screening, matting, colour keying and colour separation overlays.

Masking

Masks are a way of using an image (or simple video) to "cut out" a shape from a video, leaving transparency around the subject, effectively removing a background to give focus to a foreground element. You can also use masks for irregular cropping, cropping with soft edges, animated cropping, and multiple picture-in-picture effects (popularised by comic-book superhero movies). Cropping using masks leaves a rectangular or other-shaped portion of the video on screen and discards the rest. Masks can remove a foreground element to reveal another video or image source through the cut-out region (e.g., you can create a mask which cuts a hole in a picture, perhaps in the shape of a sports stadium big-screen, so your image or video would display where the screen-shaped cut out is).

Masks as used in MoviePlus are best created as transparent images with a white region to indicate the shape of underlying video to keep; the white region is like the inside shape of a cookie cutter, the transparent region is discarded like the outlying pastry around your cutter. You can use images that contain a mixture of different colours and transparent regions for advanced masking, more information will be included below. You may use video rather than an image as a mask if it has suitable dark and light regions to act as transparent and opaque areas. If you have a solid region of colour that you wish to "cut out", you can remove it using the Chroma Key effect (commonly known as blue-screening), which itself builds a black and white video mask based on the detection of a solid-coloured background in your video source... the detected evenly-coloured region becomes transparent, whereas all other colours become white in the mask, opaque in the resulting video.

Masks are very versatile tool for modifying the look of your video—having two copies of a video source, for instance, can allow for one copy to have an effect and mask applied, to limit the region over which the effect applies. The two tracks containing the affected copy and mask can be placed in a video group above the unaffected copy to compose the following:

Original video or image

Mask applied to copy of original video or image, with an effect applied (mosaic in this example)

Resulting composition only has a specific (mask-shaped) region affected by the mosaic effect

Masks and video groups

Before you go ahead and add a mask to your Timeline, it's useful to know in advance how masks and the organization of your video tracks work hand in hand. Masks need to occupy a track of their own and they have an affect on underlying video compositions... the masks' white regions determine which regions of underlying video sources you see—the mask sits on top of other video and acts as a virtual cookie cutter. To restrict the depth to which the cookie cutter actually cuts (i.e., to restrict how many tracks below the mask are affected by it), you need to include the mask and the video source in a video group. If your mask and underlying tracks to gain transparency are not within a group, the cutting effect of the mask will extend through all underlying tracks.

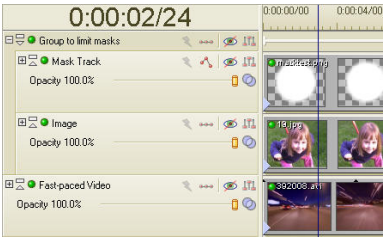
Here's an illustration of the effect of using a video group to manage a mask. Each example uses the same video and image sources, the same number of tracks (even with the same names), but the first example has no track organization; the second places the mask and the underlying image in a group:

Timeline organization; upper track set to Mask blend mode

All the video tracks are at the same level, so all lower tracks are affected by the mask.

Resulting video composition

The mask cuts out the image of the little girl as well as the video of the city street, leaving a standard black background behind all the video and image sources. Both tracks are masked.



Only the track containing the image of the girl is in the same group as the mask;
here the Image track is masked but tracks outside the group are unaffected.

This time the mask only cuts out content from the image of the little girl. The underlying video, outside of the video group, is unaffected by the masking operation!

Adding a mask to your video

Some masks are included with your MoviePlus installation, for custom requirements you can create your own mask images using a bitmap (photo) editing program such as Serif **PhotoPlus**, although some illustration programs like Serif's **DrawPlus** would also be useful.

Ready-made masks in MoviePlus

These images are generally white and transparent in order to create regions of visibility and transparency, (and translucency) in your video.

To add a ready-made mask to your project:

- Create a new video track to accommodate your mask image and move the new track above the other existing video tracks you would like to affect. Masks work in a special track mode so they should not be on the same video track as other types of sources. Tracks containing masks should be placed within a video group if you would like to limit the extent of their masking power.

- Select the Explorer tab and click the  Samples button. This will display the available sample media files included with your MoviePlus install (normally found in C:\Program Files\Serif\MoviePlus\4.0\Samples\).

- Select the Masks folder in the folder view (MoviePlus **Studio Effects** DVD needs to be installed) at the left and choose either the Regular or Widescreen folder to suit the kind of project you are working with. If you're not sure which to choose, click the Regular folder to see the collection of masks. From the range available at the right side of the pane, drag and drop a mask on to the new video track you created in your Timeline. Remember that the white shape in the mask will represent a visible region of video.

- Click the  Blend Mode button on your new video track containing the black and white mask image and select Mask from the list of video blend modes.

Video tracks containing sources below the mask will now have an area of visible video as created by the white regions of the mask image. The transparent region will draw as black unless your mask track is within a video group and you have additional video sources below the group.

Masks of your own

You can create and use images of your own to cut away regions of your video and image sources. Your own masks do not need to be just regions of white and transparency as the mask presets are, you can also use regions of colour to mix a mask and overlay within a single image.

To add your own masks to your project, browse to their saved location using the Explorer pane, drag your mask image onto a track of its own, positioned above the video you would like to crop, and set that track's blend mode to **Mask**.

Creating a mask

To create a mask it is recommended you use a bitmap (photo) editing program that fully supports transparency, such as Serif's **PhotoPlus**. You should aim to use white to create the region you wish to maintain in your video, and transparency for the areas you wish to cut away. Partial transparency is supported, so you can create regions of translucency as well as using a mask to create solid regions of opacity and transparency in your video.

Remember to create your masks at a suitable size for your project, taking pixel aspect ratio into account. For the majority of output formats, MoviePlus creates non-square (rectangular) pixels at export time: your DVD video in PAL regions, for instance, is created at 720 pixels wide, but after pixel stretching (as carried out by DVD players and the MoviePlus Preview pane) the video is stretched to the equivalent of 787 pixel wide, 655 pixels wide in the case of NTSC. The pixel aspect ratio for DVD PAL is 1.0926 and this is the factor by which the video is affected by stretching (mask images need to be wider than the project size by the same factor). To know how much your project will be stretched, in order to know how much wider (or narrower) to make your mask images, please see Advanced Export settings in the MoviePlus Online Help system. Once your masks are ready for use in MoviePlus you can always adjust their size and position using a Transform envelope, see below.

Using colour in your masks

Incorporating a colour other than white in your mask will mean your mask image performs two functions—the white and transparent regions will continue to create regions of opacity and transparency in underlying video, and any other colours will act like celluloid filters, colourising the underlying video. You can also achieve some interesting mask effects by choosing which luminance or colour component elements of an image will affect transparency, for instance selecting to isolate just the red components of an image to mask out underlying video.

Adding your masks to your MoviePlus project

When you have created and saved/exported your mask using a suitable photo-editing or illustration program, you can navigate to the folder containing the mask image using MoviePlus's Explorer pane. You can then drag your mask image onto a track in your Timeline. As with the preset masks, your own masks still need to occupy a track of their own, and that track must be set to use the Mask blend mode. Tracks underneath the mask will be affected by it within the constraints of a video group.

Moving and resizing your mask

Where your mask does not quite match the area of video that you would like to make transparent, you can move or resize it for better results. You can also animate a mask so that it moves to match movement of a subject in an underlying video source, for instance to mosaic a face that moves slightly within the frame.

Selecting the mask to modify its properties

 Select the mask object on the Timeline with a single click and then click the **Show / Hide Envelopes** button at the bottom left of the Timeline area. This will open the Key Frame View if it is not already active and will display the **Opacity** and **Transform** envelopes for the selected source. The name of the object you are modifying is displayed at the bottom of the Key Frame View.

Select the Key Frame at the left of the Transform envelope, just to the right of its Timeline header—it will turn red when selected and you will be able to see properties for this Key Frame in the Properties pane.

Resizing a mask

Hold **Shift** on your keyboard and, using a corner handle in the Preview pane, click and drag a handle to resize your mask. Do not hold Shift if you would like freeform adjustment of height and width; keep holding Shift until after you've released your mouse button if you would like your mask to maintain its original shape.

Moving a mask

While the Transform envelope's Key Frame is selected, click inside the video preview area of the Preview pane and drag your mouse to alter the mask's position.

Animating a mask

To animate a mask you will need more than one Key Frame in the Transform envelope. MoviePlus will automatically move the mask between the positions defined by Key Frames, so in an extended clip that requires some movement of a mask you may only need to define a few important positions at certain points along the Timeline, allowing MoviePlus to calculate the in-between steps.

Adding and modifying Transform Key Frames

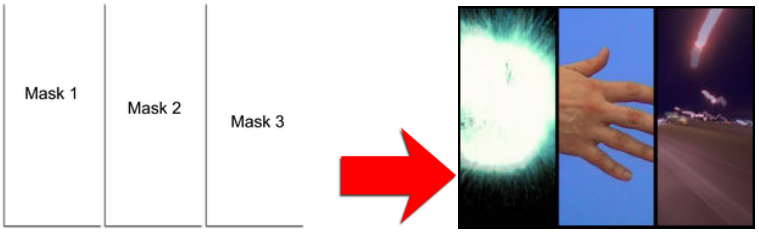
While your mask is selected and the Key Frame View is active, click at a point along the Timeline on the Transform envelope's strip where you would like to add another Key Frame. Modify the Key Frame's properties using either the Properties pane or by moving/resizing the selected object, using the Transform control now available in the Preview pane. Corner handles resize, side handles stretch or compress, clicking and dragging within the handles performs a move operation, clicking and dragging outside of the handles results in rotation. See **Transforming Your Video** on p. 90 for more detailed information.

Cropping video and creating cropped picture-in-picture effects

Cropping video in MoviePlus involves using a simple image overlay to describe which areas of your video should remain visible and which areas should become transparent. This is achieved using **masks** as described above.

As white and transparent masks will retain some video and discard the rest, you can use such images to help create picture-in-picture effects or just to crop your video for other reasons.

As an example, you can use a series of masks to create multiple picture-in-picture video montages as shown below, or use masks in isolation for a single crop effect. In the sample below, three masks (each one on a track of its own in a video group with a second video track containing a video source) creates a simple and effective three-way screen split playing three concurrent videos. Of course you should try not to overuse such an effect as it may detract from the point you are trying to get across rather than help it.



Chroma Key (Matting/Blue Screening)

Introduction

This process enjoys a few names including colour keying, matting, blue-screening, green-screening, and a colour separation overlay. It is a method of removing a colour (or a colour range) from one video or image to reveal another video or image behind it. The "removed" colour becomes transparent. MoviePlus achieves this transparency by using colour-detection routines to convert your video into a hidden black and white **mask**, used in behind-the-scenes processing, where white remains opaque but the selected colour range shows as black, which represents the transparent region.

This process is commonly used for weather broadcasts and of course in many movie blockbusters. To start with, the foreground subject—a weather presenter for instance—is filmed against a solid-coloured and evenly-illuminated backdrop. Using MoviePlus (or expensive studio wizardry in the case of live TV weather slots), the solid coloured region of this video can be made transparent using a Chroma Key effect, revealing an underlying video. In the case of some weather presenting, the video "behind" the presenter shows a computer-generated weather map with animated symbols or weather systems. While Hollywood blockbusters are more usually associated with "blue screening", weather presenting's everyday appearance shows how widespread and useful the effect is!

Applying the Chroma Key effect

Effects in MoviePlus can be applied to individual video sources, whole tracks, or groups of tracks. While Chroma Key can also be applied to all three hierarchies, it is most commonly used with individual video sources in MoviePlus, as it is not usual for there to be multiple sources with the same background colour to be made transparent.

Applying to a video source:

Select the **Effects** pane, click the **Chroma Key** entry in the list at the left, then drag and drop the Chroma Key effect thumbnail from the right-hand side of the pane onto a video source on your Timeline. The video source will show an orange lightning bolt at its left to denote that one or more effects have been applied to the source and the Key Frame View below the Timeline will show you the Chroma Key effect strip (and any other effects you also have applied to that video source).

Applying to a whole track:

Select the **Effects** pane, click the **Chroma Key** entry in the list at the left, then drag and drop the Chroma Key effect thumbnail from the right-hand side of the pane onto a track header at the left of your Timeline. The video track will show an orange lightning bolt at the left of the row of icons to denote that one or more effects have been applied to the track.

Note that applying the Chroma Key effect to a track means that MoviePlus will try to "remove" a coloured region from every video source on that track. If you would just like to remove the background from a single video source, drag and drop the effect on to the source object, as described above.

Applying to the composite result of a group of tracks:

If you have organized some video tracks into a video group and wish to apply the Chroma Key effect to the result of your composition, select the **Effects** pane, click the **Chroma Key** entry in the list at the left, then drag and drop the Chroma Key effect thumbnail from the right-hand side of the pane onto a video group header at the left of your Timeline. The video group will show an orange lightning bolt at the left of the row of icons to denote that one or more effects have been applied to the group.

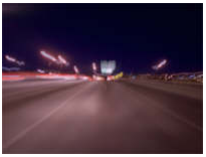
Note that applying the Chroma Key effect to a group means that MoviePlus will try to "remove" a coloured region from the result of the arrangement of all video sources and tracks within the group. If you would just like to remove the background from a single video source, drag and drop the effect on to the source object, as described above.

Changing Chroma Key Colour

The Chroma Key effect automatically tries to remove blue from your video; if you would like to select a different colour it is recommended that you first **Mute** the Chroma Key effect by clicking the **Mute** button in the effect's header at the left of the Timeline, use the draggable colour picker pipette in the Properties pane to select a new colour value from your preview, then un-mute the effect to see the results. The rest of your Timeline composition should now be visible through the transparent region of the Chroma Keyed source.

Chroma Key in action

Simple blue-screen filming of a hand against a solid-coloured background, a wooden frame with blue cloth stretched over it.



Background video, placed on the track below the blue-screen footage on the Timeline.

The upper video source on the Timeline, the blue-screen footage, has had a Chroma Key effect applied to it. Properties sliders were adjusted to remove all the blue.

Settings in the Properties pane

You are likely to have to fine-tune the Chroma Key effect to help the colour-detection processes figure out which bits of your video to make transparent.

Show Mask

Once you have applied the effect and selected a colour value to become transparent by using the colour picker pipette in the Properties pane, it's recommended that you check the **Show Mask** checkbox (also in the Properties pane). This will show you a black and white view of the transparent and opaque regions of your video effect. This behind-the-scenes "mask" is created by the Chroma Key effect, the "removal of a solid colour" that the Chroma Key performs is carried out by making a black and white image for every frame of your video, the colour you are trying to remove becomes a black region in the mask while regions of other colour will be white in the mask. When the Show Mask box is checked, white areas denote opaque regions (not transparent) and black areas denote transparency (these regions are "removed" from the video). Viewing the mask will give you a definite idea of how well Adjust the Low, High and Blur sliders until you achieve the required transparent region.

Low:
The Low slider determines a lower threshold for colour detection. Anything in the video with brightness below this setting becomes transparent; when this slider is moved to the right, a wider range of darker tones will be included in the Chroma Key colour detection.

High:
The High slider determines the upper threshold for colour detection. Anything in the video with brightness values above this setting become opaque; when this slider is moved to the right, a wider range of bright tones will be included in the Chroma Key colour detection.

Blur:
This blurs the shape of the transparent region generated by the Chroma Key effect (see the Show Mask section above), blurring the edge of the video against its background.

Suppress Background:

This option alters colour in the opaque regions of your Chroma Keyed video. Suppress Background would remove some colour elements from the foreground (unaffected) video. In the case of the most popular kind of Chroma Keying, blue screening, this option would remove blue tints from the foreground subject (e.g., blue tinges to hair, blue reflections on shiny skin etc).

Changing the Chroma Key effect over time

You can adjust the Chroma Key settings so that they change over time, perhaps to account for a change in lighting conditions that affects the colour you're trying to remove. Your Chroma Key effect can start by removing pale blue and slowly change to removing a stronger blue, for instance.

To introduce change to your Chroma Key settings over time, reveal the Key Frame View for your source, track or group (depending what you've applied the effect to) by clicking the orange lightning bolt on the source/track/group. This will display the effects strips below the Timeline. You can then click at a point along the Chroma Key strip on the Timeline to add additional Key Frames, which can each have modified settings. MoviePlus will gradually blend from one Key Frame's settings to the next as your video is played. You can also affect the rate of change between Key Frames; for more information see **Editing opacity envelopes** on p. 75 where key frames are explained in more detail.

Other considerations

If your blue-screen (or other background colour) footage is not perfect for keying the solid colour out, you may also need to use a mask or some other effects.

The sample above shows that some heroic blue-screen footage used in the (optional purchase) MoviePlus **Projects Guide DVD** is not perfect, some of the background has not been easy to remove because of uneven background lighting. In this case the sample was finished by adding a mask to a track above the “Chroma Keyed” footage to cut out more of the video. The mask was a simple white and transparent image with a hero-shaped white area at the left side and transparency everywhere else, enough to cut out the regions that the Chroma Key could not.

You can also consider using **colour-correction effects** prior to applying the Chroma Key in order to improve the quality of your solid-coloured background. Using multiple effects and choosing the order in which they are applied is discussed in **Combining Effects** on p. 127.

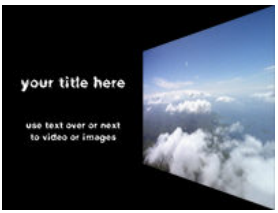
Transforms

Transforming Your Video

Transforms allow you to resize your video sources within the overall project size (which helps achieve picture-in-picture or picture-and-picture effects), to add perspective, to scroll video, images, colour sources, and text in any direction, and to zoom and pan.

The possibilities are almost endless, because not only can you transform individual video, image, colour and text sources, you can also transform entire video tracks and even collections of video tracks in video groups.

The following examples of transforms show the application of perspective and “picture-in-picture” transforms, respectively.



Using Transforms to produce Perspective

Using Transforms to produce “picture-in-picture” effects.

The use of the transforms, scaling and motion, is illustrated in the MoviePlus Online Help system.

Scaling (Resizing) and Rotating

Being able to resize your video and images is an extremely handy feature! The impact of this is that you'll be able to zoom in or out, perhaps see around the resized video, image, or colour to what lies beneath, so this is often something performed on layered (multi-track) projects.

If you notice black bars appearing in your video preview, see **Media with black bars displayed** on p. 28.

Resizing your images, colours and video

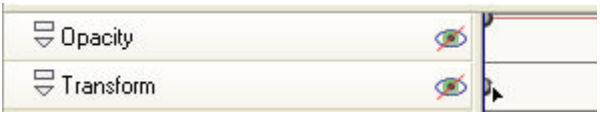
Resizing is a function of MoviePlus's **transform envelope** . If you've adjusted an opacity envelope, or introduced change to an effect or transition using Key Frames, you'll be familiar with some of the concepts involved. If not we'll introduce the key concepts here.

Selecting the transform envelope

When you are trying to transform a video/image/colour source, or a video track with multiple sources on it, or a video group containing multiple tracks, you will need to enable the **Key Frame View** to display envelopes.

 Select a video, image or colour source, or a video track or group, with a single click of your mouse then click the **Show / Hide Envelopes** button at the bottom-left of the Timeline. This will enable the Key Frame View.

Select the grey Key Frame in the Transform envelope as shown below; it will turn red when selected.



Transforming using the mouse

When a transform Key Frame is selected, you will notice transform handles in your Preview pane:

The tool highlighted at the top of the Preview pane indicates that you are currently performing a transform, and the "handles" around the outside of the video/text/colour/image, like the handle highlighted in the top-left corner of the preview, allow you to transform your source.

Click and drag a corner handle to resize the video or image, holding **Shift** on the keyboard if you would like to maintain the aspect ratio (the rectangular shape) of your source during the resize. Drag inwards to reduce the video or image size; drag outwards to increase it. Hold **Alt** on your keyboard while dragging to resize your video component about its own centre.

Click and drag inside the transform region to reposition your resized video—avoid clicking the small handle in the centre, it has a special purpose to do with rotation, discussed below. If your resized video/image is above other video or image sources, you will have just created a **picture-in-picture** effect!

Transforming using accurate values

Rather than dragging the transform corner handles with your mouse to resize your video or image, while the transform Key Frame is selected you can adjust its properties in the Properties pane. You can, for instance, set the video/image size to be 25% of your project size as illustrated above by making the video 50% of its original width and 50% of its original height (set X Scale and Y Scale to 50%).

Achieving Picture-in-Picture effects

Making a video source (or a collection of sources on a track or in a group) smaller than the original size means that you can see underneath that part of your project to any underlying sources. The illustration above has a black background because there is no video, image, or colour source on a track below the transformed source. To achieve picture-in-picture effects, you need a multi-track project with layered video or image sources.

Zooming in or out

To achieve a zoom effect using a transform envelope, you will need to use multiple Key Frames—two is enough for basic zooms, each Key Frame set at a different time with a different set of transform properties. MoviePlus will smoothly calculate all the steps between the two Key Frames to achieve smooth zooming.

Rotating your images, colours, and video

Select a source, track or group then a Key Frame on its transform envelope. Within your Preview pane, position your mouse cursor outside the transform handles (still within the Preview pane). Note that the cursor will change to:

Click and drag in a gentle circle to rotate your video or image. Hold **Shift** on your keyboard to constrain rotation to 15° jumps.

To introduce a "spin" to your transform, you will need to add multiple Key Frames to your transform envelope, each with different rotation property settings. You can of course set these values using the Properties pane as is possible for resize operations.

Centre of rotation

By default your rotation will make the source object spin about its own centre. You can move the centre of rotation to create an arc movement by clicking and dragging the central transform "handle".

Working with sources, tracks and groups

Sources

You should select an individual source to apply a transform to if you want just one video or image to be resized/rotated/moved/skewed. You can copy and paste Key Frames from one source to another if you wish to use an identical transform for multiple sources, but bear in mind that if you have a collection of transformed sources you can still apply group transforms by modifying a video group's transform envelope.

Tracks

Apply a transform to a track if you want to affect all the image or video sources on that track. As each source is located at a different point in time along the project Timeline, a transform applied to the whole track is often only useful if the transform itself does not change over time, i.e. it has just one Key Frame.

Groups

In general terms you should use groups where you want multiple sources and tracks treated as one video element. You can transform sources to make them of reduced size, then place their video tracks in a video group and apply additional transforms.

Need more room in your Preview pane to carry out transforms?

 If you are increasing the size of your video or rotating it using a transform, you might find that space becomes a bit tight in your Preview pane. Just click the **Zoom out** button in the Preview pane, making the preview and transform smaller. This applies to any kind of transform you are performing.

Source, Track, and Group Motion

Like other envelopes, you can apply change over time—which in the case of transforms means video motion—by utilising more than one Key Frame along your transform envelope strip.

Introducing change over time

The key to **motion**, as opposed to manipulating sources with a fixed transform (size/rotation/skew), is for there to be some change in the transform settings over time. For there to be change between transform envelope Key Frame values, we need more than one transform envelope Key Frame!

Adding Key Frames

Clicking at additional points along an envelope's strip will add new Key Frames. Each Key Frame stores its own settings. You can use your mouse to transform your source(s), modifying the selected Key Frame's value using the transform handles in the Preview pane, or alter values directly (or accurately) using the Properties pane. MoviePlus will calculate all the step-by-step values between the transform envelope Key Frames to display a change in position or size over time! The further apart your Key Frames are, the slower the change between settings will occur.

Selecting Key Frames

You can modify Key Frame properties when a Key Frame is selected—single click a grey (deselected) Key Frame and it will turn red (selected).

Altering the rate of change between Key Frames!

By default, where you have two Key Frames with different values, MoviePlus will gradually step from one range of settings to the next in a smooth manner—this is known as Linear interpolation. MoviePlus is interpolating (calculating) values between the Key Frames and the change is linear, i.e. half way between the values you will have encountered half the required amount of change.

To alter the rate of change between Key Frames, select the first Key Frame (looking at altering the rate of change between a pair of Key Frames means one Key Frame will be first and another will be second), and choose a preset from the **Interpolation** drop-down in the Properties pane. You can also right-click on a Key Frame to alter the interpolation (or "curve type"), which also offers handy previews of the rates of change as curved or straight lines, like a graph or chart.

It's handy to be able to alter the rate of change, as in video production it's usually a good idea to aim for smoothness—sudden starts or ends to movement (as with other effects) is not always desirable as it can sometimes detract from the video.

Practical examples

These principles can apply to individual text/video/image or colour sources, or to entire video tracks and video groups.

Spinning

For full rotation(s) it is recommended that you introduce a new Key Frame for every 120° of rotation to ensure you don't encounter any accidental switching of rotation direction as your component spins.

Add Key Frames at regular intervals, adjusting the rotation for each Key Frame, preferably using the Properties pane for accurate Key Frame positioning on the Timeline and accurate rotation values.

Zooming

Use at least two Key Frames (you will only need two for a simple zoom) with a different size value for each Key Frame. To **zoom in** on your video/text/colour or image, increase its size with the second Key Frame or decrease its size with the first Key Frame. To **zoom out** either increase its size for the first Key Frame or decrease its size for the second Key Frame.

Scrolling (panning)

Use at least two Key Frames, with different positional information in each Key Frame. You can achieve this by dragging the transform region in the Preview pane or by typing values in the Properties pane. For instance, to scroll a text item across your "screen" from right to left, the first Key Frame could have an X position value of 100% and the second Key Frame could have an X position value of -100%.

Perspective

Use two or more Key Frames with a different shape applied in each case. Hold **Control** while dragging transform handles in the Preview pane to modify perspective in a freeform way, or hold **Control+Alt+Shift** and drag a corner handle to constrain perspective to a more uniform adjustment. We'll look at Perspective in a moment.

Combining different types of transforms

Each Key Frame on a transform envelope stores full information about size, position, rotation, and any perspective or skewing.... so to combine a zoom and a pan, all you need to do is modify the size and position of your source/track/group with each Key Frame, you do not need (and cannot use) multiple transform envelopes for a single video component—although you can possibly transform a video component in three ways, by modifying the source transform envelope, the video track transform envelope, and a video group's transform envelope.

Perspective

Perspective is a function of MoviePlus's **transform envelope**. Each of the types of video source (images/videos/text/colour) plus video tracks and video groups has an opacity envelope and transform envelope that can be revealed by enabling the Key Frame View.

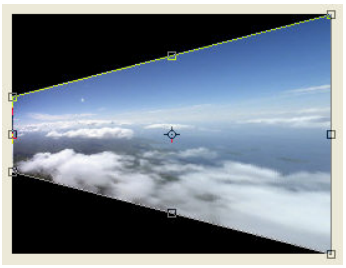
If you need to have a refresh on selecting envelopes go to **Selecting the transform envelope** on p. 91.

Adjust the transform envelope's settings

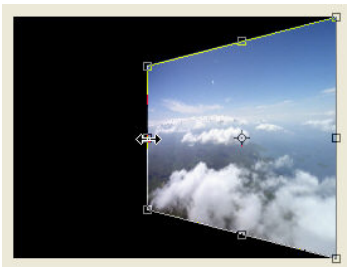
Even perspective

Hold **Control+Alt+Shift** at the left side of your keyboard then click and drag a transform corner handle in the Preview pane. Dragging a top corner handle downwards will have a corresponding mirrored affect on the position of the corner handle beneath it. Dragging a corner handle sideways will have a corresponding affect on the opposing corner handle at the other side of your video component.

Optionally, once you have achieved a suitable amount of "compression" of your video at one end, release the mouse button and keyboard keys then drag one of the sides' middle handles inwards.



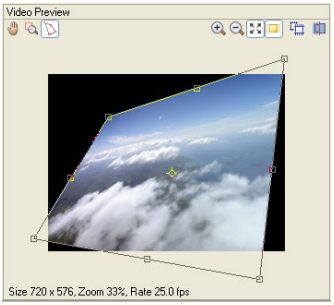
Control+Alt+Shift drag of corner handle



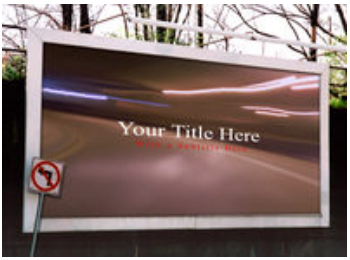
Drag of a middle handle

Freeform perspective

You can achieve interesting perspective effects by dragging individual handles rather than using the more coordinated perspective editing described above; simply hold **Control** while dragging a corner handle (below-left). Drag multiple corners to further transform your video! Use in conjunction with **overlays** for even more flexibility (below-right).



Control + Drag



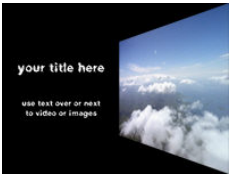
Freeform perspective on an overlay

Skew

As with the freeform perspective described above, holding Control gives you more transforming freedom: to skew your video, hold **Control** and drag a side's middle handle in the Preview pane.

Picture-in-Picture Effects

Picture-in-Picture is a feature available thanks to **transform envelopes**.



Use in conjunction with titling

A four-in-one effect

A four-in-one effect that rotates in time

The samples shown above could all be described as picture-in-picture, although the term picture-and-picture is applicable where video or images do not "overlap".

To achieve a picture-in-picture effect of any kind, you will by definition need more than one video, image, text or colour source playing at once, i.e. your project has multiple tracks each with a source at the same point on the Timeline, otherwise they cannot play at the same time!

Simple picture-in-picture

You can achieve this using the methods discussed in **Scaling (Resizing) and Rotating** on p. 91 (refreshed here with additional track layout information).

Layout your tracks and sources as shown below:

The source video on the top track has a transform envelope applied. The transform envelope's default Key Frame value is being modified by using the transform tool shown in the Preview pane.

Adjust the Key Frame settings

Adjust the properties of your selected transform envelope Key Frame by either using the mouse in the Preview pane as shown above-right or by entering size and position values in the Properties pane. Resizing your video is mentioned in more detail in **Scaling (Resizing) and Rotating** on p. 91. With a single Key Frame, this transformed video would stay at the specified size and position without changing.

Popular use of picture-in-picture

Although a text overlay is not often thought of as picture-in-picture, the same principles apply to both concepts—one source sits on top of another with the upper source being resized and/or positioned using a transform envelope. So you can use picture-in-picture technology for:

- A video replay
- Text overlays like a flashing "Replay" logo
- Video montages (often used to show events in brief)

Picture-and-picture effects

The example shows four video sources of equal size each occupying a different "position" in the available area. For this example it was achieved by organizing the sources each on to a track of their own so that they could be positioned one atop the other to play simultaneously, then each source had an adjustment made to its transform envelope. Typing size and position values into the **Properties** pane for each source's default Key Frame made the accurate position of the picture-and-picture components a swift process; the values used were as shown below:

Video component	X Scale and Y Scale	X position and Y position
Top-left	X: 50% Y: 50%	X: -25% Y: -25%
Top-right	X: 50% Y: 50%	X: 25% Y: -25%
Bottom-left	X: 50% Y: 50%	X: -25% Y: 25%
Bottom-right	X: 50% Y: 50%	X: 25% Y: 25%

These values represent the shift in position in comparison to the overall project video size, so it is not necessary to calculate pixel-accurate positions for each project type.

Using groups

There may be occasions where you would like to transform a collection of sources or tracks, as in the sample below.

Tracks containing the four sources have been dragged into a video group to achieve the rotation of all four sources simultaneously (above). In addition to each source having a transform applied, the group of four tracks also has a transform applied, scaling and rotating the composite result of the group. Each source can still have its own opacity, effects, and as mentioned transforms, and thereafter additional effects and envelopes can be applied to the tracks and groups.

 or You can adjust track or group transform envelopes by clicking the **Show / Hide Envelopes** button in the track or group header then modify the Key Frame values in the transform envelope. The button's appearance will be different depending on whether the envelope has been modified previously (straight if unmodified)

Blend Modes

You can think of blend modes as different rules for merging overlapping video or image pixels together at the video track-level to create a resulting colour. In MoviePlus, you'll encounter blend modes as a track property. The video group, track or source opacity setting interacts with the track blend mode to produce varying results.

The blend modes available in MoviePlus are described as follows:

- **Normal**. The default blend mode. Blending of top source and underlying source pixels occurs only by varying the top source's opacity setting. If the top source's opacity setting is 100%, no blending occurs and only the top colour is visible.

- **Cross-fade**. This blend mode is used behind-the-scenes by the cross-fade transition. As the opacity of the upper source decreases, the opacity of the lower source automatically increases. The two values are evenly opposed to allow for smooth blending of video tracks with other sources below them.

- **Mask**. The pixels of the upper source are used to create areas of colour, transparency and opacity in the underlying source. White in the upper source equates to opacity, transparency in the upper source "knocks out" areas of the lower source.

- **Multiply**. The result is a combination of the top and bottom colour at each pixel position, always producing a darker value. Multiplying any colour with black yields black. Multiplying any colour with white leaves the colour unchanged. Successive multiplied colour applications (other than black or white) produce a progressively darker "magic marker" effect.

- **Dodge**. Lightens the video using lightness values of the top source at each pixel position. Dodging with black has no effect.

- **Burn**. Darkens the video using the lightness values of the top source at each pixel position. Burning with white has no effect.

- **Screen**. Like Multiply, but the result is a combination of the inverse of the top and bottom source at each pixel position, always producing a lighter value. Screening any colour with white yields white. Screening any colour with black leaves the colour unchanged.

- **Lighten**. The result is either the top or bottom pixel colour at each pixel position, depending which is lighter. Darker colours are replaced.

- **Darken**. The result is either the top or bottom pixel colour at each pixel position, depending which is darker. Lighter colours are replaced.

- **Hue**. The result is a combination of the hue of the top source with the lightness and saturation of the bottom source. A nice colourising effect.

- **Saturation**. The result is a combination of the saturation of the top source with the hue and lightness of the bottom source. No change over greyscale (0% saturation) regions.

- **Difference**. The result is the difference between the top and bottom colour at each pixel position.

- **Exclusion**. Similar to Difference, but a softer effect.

- **Soft Light**. Applies either Burn or Dodge, depending on the top colour at each pixel position. If the top colour is less than 50% grey, it burns; if greater, it dodges. This tends to add soft highlights and shadows to the video.

- **Hard Light.** Applies either Multiply or Screen blend modes, depending on the top colour at each pixel position. If the top is less than 50% grey, it multiplies; if greater, it screens. This tends to add soft highlights and shadows to the video. Compare to Overlay.

- **Overlay**. Applies either Multiply or Screen blend modes, depending on the bottom colour at each pixel position. If the bottom colour is less than 50% grey, it multiplies; if greater, it screens. This tends to preserve highlights and shadows from the bottom source along with main colours and patterns from the top source. Compare to Hard Light.

- **Colour**. The result is a combination of the hue and saturation of the top source with the lightness of the bottom source. Because lightness values (greyscale levels) are preserved, this mode is useful for colouring or tinting monochrome or colour video sources, respectively.

- **Luminance**. The inverse of the Colour blend mode. The result is a combination of the lightness (luminance) of the top colour with the hue and saturation of the bottom colour.

An illustration of each of the above blend modes is provided in the MoviePlus Online Help system.

Applying a blend mode

 To change the way a track blends its video content with the underlying video, click the **Blend Mode** button in the track's header. Aside from special "colour" effects, the blend mode is also used when cropping or cutting out video using **masks**.

Video Overlays

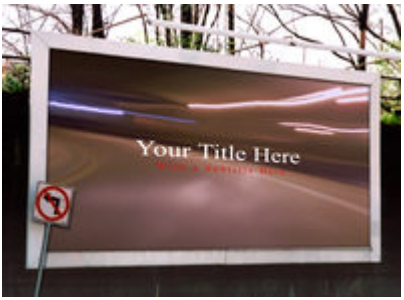
You can "layer" all sorts of different kinds of sources on top of existing video, images, or background colours—this flexibility opens up a world of possibilities in your video production.

Achieving an overlay

Overlays, in basic terms, are two or more sources being displayed at once, one on top of the other (text on top of video in the example above). For the bottom source to still be visible despite having another source on top of it, the top source needs to:

- to be smaller than the bottom source
- have transparent regions
- have reduced opacity

There may be more than one way you can achieve your effect—e.g., a picture of a billboard advertising poster displaying your video within the billboard area can be achieved by either placing your video above a billboard image and shaping the video to match the billboard area using a **transform envelope**, or you can also cut out the billboard region of the image using a photo-editing program such as Serif's PhotoPlus (exported as a 32-bit PNG to maintain transparency) and place it on top of your video, perhaps shaping your underlying video to approximately match the billboard region, again using a transform envelope. Both methods would have similar results; the second would allow some foreground objects in the image, such as a street sign, to sit in front of the billboard (see below).



Top source made smaller

When you add a source to the upper track so that it is displayed on top of other sources, it is likely to occlude them completely or almost completely, blocking out what's below so all you can see is the content of the top-most track. To resize your top source so you can see "around it" to underlying sources, use a **transform envelope** on the upper source or track.

You can resize or reshape your source, you can deform with perspective as shown above and you can even animate the process. See **Transforms** on p. 90 and choose a type of transform to learn more.

Top source has transparent regions

Overlaid STV video

Serif's **ImpactPlus** is an example of a program that can create video containing transparency—the **STV file format**, Serif Transparent Video, is a high-quality format based on a lossless 32-bit image format, which supports 256-levels of transparency in every frame and despite being compressed does not lose image quality when saved. When exported as STV, animations created using ImpactPlus can make for compelling effects in your movies, including smoke, fire, ethereal mists, sparkling fireworks and more. If you own Serif **ImpactPlus**, see its Online Help system or companion for information about exporting your scenes as video; remember to choose the STV format if you want your video to have a transparent background!

When you add a STV video file to a track above existing video or images, you do not need to take any further action, MoviePlus will smoothly overlay the STV on top of the video, colour or image on the lower track, revealing underlying sources through the video's transparent region.

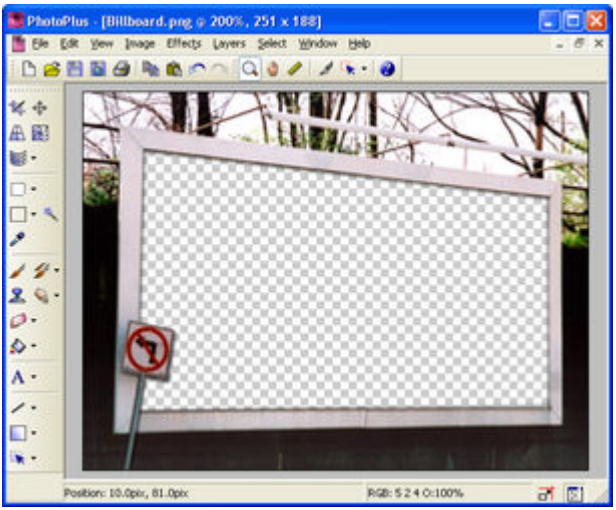
Overlaid text or images

Text

When text is applied to anything other than the bottom video track, it has a transparent background. This makes it very easy to overlay titles or scrolling credits on top of video or images in your project. To choose a coloured background, add a colour source to a track below your text.

Images

Images overlaid on tracks above other images or video can make for some fun projects (like the billboard composition, above). If the image on the top track has built-in transparency you will automatically be able to see through the transparent region to the underlying sources.



Creating images with transparency is a straightforward task for an application like Serif PhotoPlus, pictured above, but you can also use some ready-made images as supplied on the (optional) MoviePlus **Studio Effects** DVD.

Once installed, the overlay images will be available by clicking the **Samples** button in the Explorer pane and navigating to the **Overlays** folder. There are subfolders there for matching Regular and Widescreen overlay image formats to suit your different projects. The MoviePlus **Studio Effects** DVD needs to be installed to see the Overlays folder.

You can if you wish resize or skew your underlying video or images to match a custom shape (roughly matching the overlay's transparent region) using a **transform envelope**.

Cropping or fading with masks

You can "crop" overlays so that they do not fill the scene. See **Masking** on p. 78 for more details.

Top source with reduced opacity

There are a number of ways to reduce opacity of upper sources to partially reveal underlying sources—the quickest is to adjust overall track opacity using the **Opacity** slider in the track's header.

 To adjust opacity of an individual source you can double-click it to expand its source strip and adjust the Opacity slider in the strip's header, or reveal the source's **opacity envelope** by clicking the **Show / Hide Envelopes** button at the bottom-left of the Timeline while the source is selected. An adjustment to the envelope is independent of the source or track's Opacity slider, and multiple Key Frame settings along an envelope also allow for opacity change over time.

Text and Titles

Text sources in MoviePlus can be used as overlays, scrolling titles or credits, even **masks** so that you can create text-shaped video cut-outs.

Adding text to your Timeline

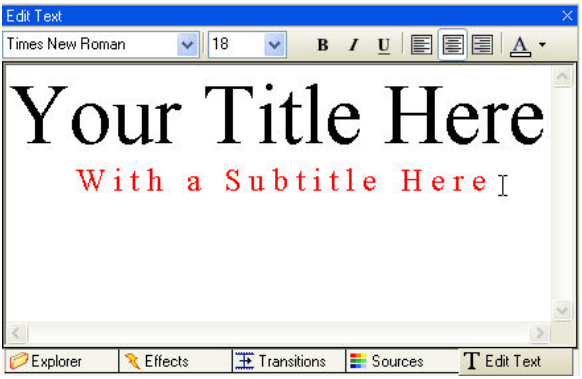
Text is one of the two kinds of sources available in the **Sources** pane—an area dedicated to computer-generated sources (rather than the video/image/audio files available via the Explorer pane). Select **Text** from the two choices in the left side of the pane, then choose a text source from the right-hand pane, clicking and dragging it over a video track on your Timeline.

Note that text has some special properties: when it is dropped on your Timeline, you might notice white text on a black background. These two colour choices are actually "automatic" rather than fixed as white and black. The black background is present automatically when there is no other image, colour source, or video underneath your text, the text is drawn white automatically.

Editing text

Using the presets available in the Text category of the Sources pane means you have a few easy starting points for your project text, but you may customise each text source to suit your needs if required. You can use the **Edit Text** pane to change the font (typeface), font size, paragraph alignment (left/centre/right) and colour.

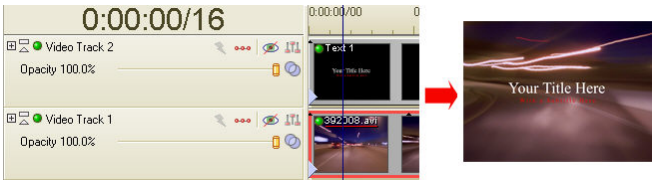
The Edit Text pane



The Edit Text pane allows you to edit a selected text source (selected on the Timeline by clicking it). You can view the Edit Text pane by clicking the tab amongst your MoviePlus panes or by clicking the **Edit Text** button in the Properties pane when you have a text source selected. Click and drag inside the Edit Text pane with your mouse to select regions of text to replace or to apply formatting to. When selected, text can be replaced just by typing new text using your keyboard.

Use the **Return** key to start new lines of text, and choose left, centre, or right justification for your text (select multiple lines first if you want to justify more than just the current line).

Text over other sources



To use your text as an overlay above your video, images, or an alternate background colour, you need to layer your sources on multiple tracks. The illustration above shows a two-track project—choose **Video Track** from the Insert menu to insert a new video track to your Timeline. Any text source can be added from the Sources pane (and edited in the Edit Text pane) to the empty upper video track by dragging and dropping. You can also use the same principle to add text over images or colour sources. The text will be overlaid over the video source.

Scrolling text

Scrolling text is used to move your whole text block to a different part of the available video area, to scroll your text up, down or across the screen, and to create a custom text animation.

Select the text source you want to scroll and take a look at the available options in the Properties pane.

The **Scrolling** option offers a pull-down list with **up**, **down**, **left** and **right** choices. Each of these will cause your text to smoothly animate in the direction specified, starting and ending "off-screen".

To slow down the scrolling, increase the duration of your text source on the Timeline.

Custom animations

 To create a non-standard scroll, pan or other animation, you can use a **transform envelope**. Transform envelopes can be modified for any text, colour, image or video source, as well as video tracks and collections of tracks in video groups. In short, you need to reveal the component's envelopes by clicking the **Show / Hide Envelopes** button at the bottom-left of the Timeline, then select the transform envelope's Key Frame and modify the transform using your mouse in the Preview pane or specific values in the Properties pane. Add multiple Key Frames with different properties specified for each to create video animation, scrolling, panning, etc.—for full details see **Transforms** on p. 90.

Deciding on a Background

Text, like other sources containing transparency, reveals a default black background when there is no other video, image or colour source underneath it.

What is on display underneath your text depends on the structure of your Timeline: the screenshot in **Text over other sources** on p. 113 shows a pair of tracks with text on top of a video source—in the composition of your project, this will mean the text is drawn on top of your video source as long as these two tracks are adjacent in this order. Drag the track headers up or down the Timeline to organize them to suit your needs.

Choosing a background colour

You can add a colour source to your Timeline to create a region of colour. The colour source's actual colour can be set using the Properties pane. A colour source would need to be on a track below your text source to act as a background.

Editing Your Audio

Audio can play an essential part in any movie, and creative audio editing is an art in itself. Standard ingredients of a soundtrack might include:

- Production sound as originally recorded (and later captured) “in sync” along with the video, e.g. camcorder footage of your last holiday
- Theme music or background sound from a variety of sources, often added as one or more longer clips that run “under” spoken-word or foreground sound
- Voiceover passages recorded separately, often serving as a commentary or a bridge between sections
- Sound effects or single-shot audio events, perhaps added for emphasis (“sweetening”) or comic relief

If you would like your movie to include more than basic production sound, allow yourself some time to do it right! Skillful sound editing is a combination of technique and judgment. Fortunately, MoviePlus makes the technical part straightforward. Getting sound to coincide properly with the visual track, to come in on cue and end (or fade out) at just the right moment, to blend well with other audio... all are easily accomplished via the Timeline.

Here's a few tips concerning audio compression and recording.

Audio Tips

- Just as video files are compressed with video codecs, audio is compressed using **audio codecs**. The audio codec you choose will affect not only the size of the video, but the audio quality. MPEG Layer 3 (MP3) is an excellent audio codec with a high compression factor. Check Web sources for details on the many other alternatives.

- If recording audio through your system's sound card, check its control panel software to make sure the correct **input channel** (for example, MIC or LINE IN) is selected, and to set a volume level for the input channel. Note that the input volume setting is separate from the master (Windows) playback volume setting. The input level will affect your recordings; the playback level will not. If you hear an echo, you may want to switch off the card's WAV output channel, or uncheck the Preview Audio button in the Capture dialog in MoviePlus—this is under the Audio Details section.

- For voice recording and many soundtrack situations, "Mono" is fine as a **Channels** setting. MoviePlus will monoize (combine) the left and right sides of the input signal. But when connecting your audio source, try to avoid feeding a mono signal to just one side of a sound card's stereo jack; that will leave an empty channel (i.e. noise) on the other side, and the noise will degrade the signal somewhat. It's sometimes advantageous to use a Y-connector to distribute a mono signal to both sides of a stereo input.

- If you are adding silent video footage and want to avoid dropouts on your soundtrack, you have several options:

- insert the new video source over an existing audio track

- mix in some new audio creatively over the silent sections

- stretch-repeat an existing audio track over the silent footage

Adding and Combining Audio

Whenever you add a video source with an audio component to the Timeline, e.g. an AVI file, the audio portion is automatically added to an audio track which accompanies the video track. These two tracks still maintain a linkage by default, but you can unlink the audio at any time, for example to replace it with some other sound, e.g. a piece of music, maybe your favourite song or soundtrack. This is possible by adding your new audio file to the Timeline on a newly created Audio track.

As the Audio track is treated in much the same way as a video track on the Timeline, with respect to adding and combining tracks, please see **Arranging Sources** on p. 53 for more information.

Adjusting Volume and Balance

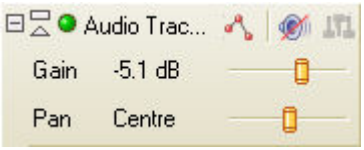
Adjusting Volume

Whether an audio clip plays separately or is blended with an overlapping clip on another track, setting the right **volume level** is critical. In general, try to record your original audio files at a consistent level. You can also employ an external sound editing program to even out widely disparate levels prior to bringing the files into MoviePlus.

As a rule, you will want all the sounds in your movie to maintain the same peak level. At the start of a project, and in each editing session, it's a good idea to play back a standard audio clip with suitable peak levels. Using this reference clip, adjust your volumes by adjusting the Gain slider (see below) on your audio source(s), track(s) or group(s) and calibrate your speakers or headphones for a normal level. Setting a consistent baseline is the best way to tell if a particular clip is too loud or too soft.

Simple Volume Adjustment

In MoviePlus, the volume adjustment on any audio source, track or group can be made by adjustment of the **Gain** slider , e.g. for a track header.

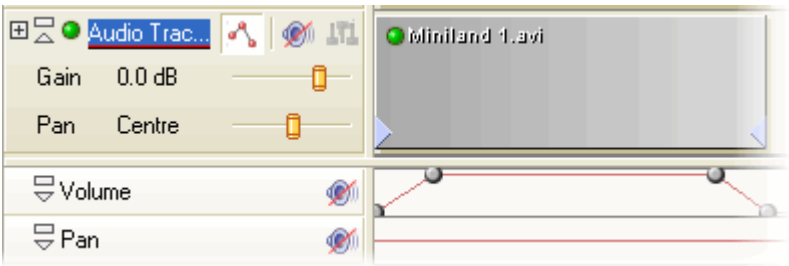


Move the slider to the right to increase volume and to the left to decrease volume. Note that this is a simple adjustment that can only be applied throughout the lifetime of the audio track playback. For an individual audio source or group the volume adjustment can be made in the same manner.

Volume Adjustment over Time

For volume adjustment over time, any audio source, track or group on the Timeline provides a small strip illustrating the volume level over time, called the **Volume** envelope. By adjusting this envelope, you can set each audio clip's starting, peak, and ending levels and achieve smooth fade-ups and fade-downs.

To adjust the volume levels of an audio source, track or group via the envelope, first select the object on the Timeline. Display the envelope for source, track or group by clicking the **Show / Hide Envelopes** button. On the envelope's red horizontal line click your mouse button to produce a key frame (a red button) at the very start and end of your audio track. Add another two key frames just after the start and just before the end key frames. The Timeline allows you to drag each of these key frames left, right, up or down. This permits fade-up and fade-down—drag the first and last key frames to the bottom of the line and the second and third key frames to the top of the strip. You should see something like this:



This audio envelope shows an abrupt "cut-in" at the start of the clip, with the sound instantly reaching its peak and ending as a "cut-out" just as abruptly when it's done.

Muting

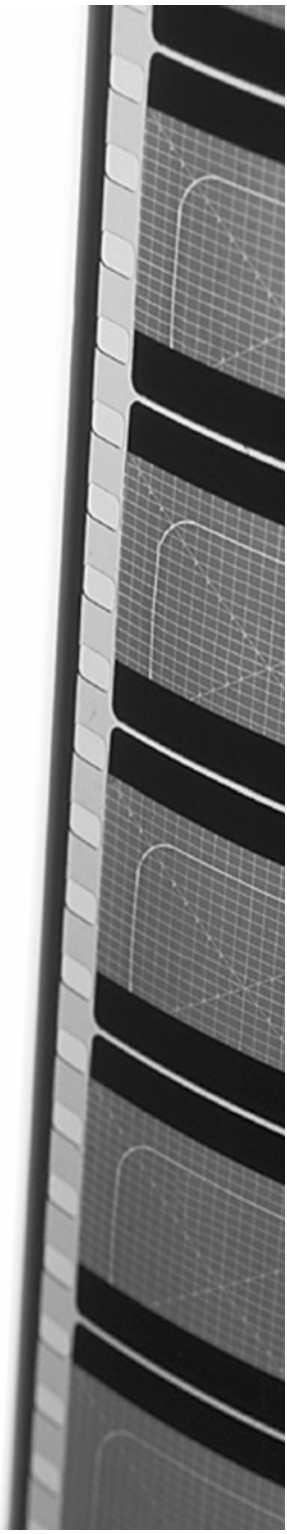
You don't have to delete a track from the Timeline to exclude it from playback. Switching off a particular Audio track can be extremely helpful when editing the mix. For example, you might want to see how your movie plays back if you temporarily mute a sound effect, or switch off a particular Audio track.

 To exclude an audio track, select the track and click the Mute button in the track header.

Adjusting Balance

Adjusting the balance follows the same principles as adjusting volume. For simple adjustments, a **Pan** slider is available in the track header. For adjustments to the balance over time, use the **Pan** Envelope below the Volume envelope to add key frames. These key frames and their vertical and horizontal positioning across the Timeline will allow balance to change over time.

5. Applying Effects and Transitions



Applying Effects

Effects can add variety and visual excitement to otherwise humdrum sections of a movie, or extend your repertoire of cinematic techniques. For example, you can apply a **Diffuse Glow** to brighten highlights or a **Greyscale** effect to turn a video clip into an old black-and-white film. Some effects, like **Brightness/Contrast** or **Gamma**, are designed to correct the original image; others, like **Mosaic** or **Diffuse Glow**, are simply special effects. The Effects tab gives you more than 20 effect presets—but the ability to create an unlimited number of your own effects is a major feature of MoviePlus.

The supported special effect categories are described as follows (effects used for colour correction are described on p. 128):

Chroma Key	A method of removing a colour (or a colour range) from one video or image to reveal another video or image behind it. The "removed" colour becomes transparent.
Colourize	Offers an easy way to apply a colour wash to an image or video.
Diffuse Glow	This broadens highlights in the video by brightening gradually outward from existing highlights.
Gaussian Blur	The Gaussian Blur effect smoothes the image or video by averaging pixels. It's especially useful for removing a moiré (interference) pattern from scanned images and can help regions of visual interference from fine patterns.
Gradient Map	The Gradient Map adjustment is for remapping lightness information in the video to a new colour range. It makes for great "posterized" effects and is a quick substitute where a pop-art feel is being sought.
Greyscale	This effect turns your movie or images into shades of grey; monotones ranging from black through to white.
Invert	This effect inverts the colours in your video, in the same way that a photo and its negative or colour opposites of each other.

Mask	The Mask effect is a useful way to convert a video or image into a more suitable mask by adjusting its lightness or other tonal values.
Mosaic	The Mosaic effect breaks the video or image into blocks of uniform colour for a tiled appearance.
Threshold	The Threshold effect creates a harsh duo-tone black and white image, with no blend through shades of grey.
Unsharp Mask	Unlike many sharpening tools that affect the entire image, the Unsharp Mask effect works mainly at edges. It's excellent for improving image quality, especially with resized images or video.

An effect can be applied equally to a source, track, group or master group by using the same method. Either a single or multiple effect can be applied at any one time—in fact, multiple effects can be applied by using their own **Effects Group**.

Effects Groups

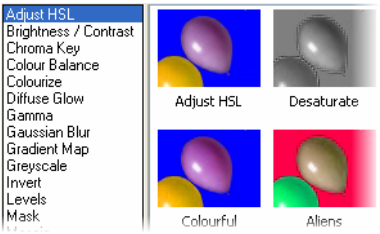
While it is not necessary to use effects groups in many cases, they are necessary if you wish to blend affected and unaffected video, also called **mix back**. This can be achieved by manipulation of the Effect Group envelope. Working with envelopes is explained in detail in **Opacity Envelopes** on p. 74. The same principles can be applied to Effects Groups.

To create an effects group, go to **Insert>Video Effect Group** when a track or source is selected. An Effect Group strip appears at the bottom of your Timeline.

 or  Click the **Show / Hide Envelopes** button in the header section of an effects group. The button's appearance will be different depending on whether the effect group has been modified previously (straight if unmodified). Either button type will reveal the envelopes in the Key Frame View for the effect group you clicked on.

Applying Simple Effects

Effects are available from one of MoviePlus's selection of panes, called the **Effects** pane.



To apply a simple effect, point to the effect thumbnail for an animated preview in the Effects pane, then drag the chosen effect onto the Timeline's video source, track or group. The effect will immediately be applied to your chosen object.

Note that an effects strip has been added at the bottom of your Timeline, i.e.

This shows that the Adjust HSL effect has been applied to an object.

Incidentally, you can switch on or off the effects strips in the header of your video source, track or group whenever you like. Use the **Show / Hide Effects** button.

Simple effects are applied for the duration of the source, track or group. However, more subtle effects can be added by **Applying Effects over Time** (see p. 126).

Customizing your Effects

Any effect added to your project will have its own set of properties associated with it. These are highly customizable via the **Properties** Pane, just like any other object in MoviePlus. Try clicking the effect name in the header of the Effects strip and check its properties in the Properties Pane.

The ability to customize effects by changing these property settings means that the presets supplied are merely a starting point for you to further create and save your own effects to your own requirements.

 A **Save** button on the Properties Pane lets you store your own settings to a new name in the Effects pane along with your existing presets.

Applying Effects over Time

While it's possible to apply an effect for the entire duration of a source, track or group, it may be more effective for effects to be applied more sparingly over a specific, perhaps shorter, time duration.

It is possible to specify how an effect is applied along your Timeline by use of Key Frames at different points. These Key Frames describe how an effect's properties are to be applied at that point on the Timeline. During preview, as the caret passes over each key frame the video will use the effect properties of the last visited effect key frame. The effect can be faded-in, faded-out, toggled on or toggled off.

Incidentally, key frames are explained in detail in **Editing opacity envelopes** on p. 75 where the application of the key frames is to change opacity but the principle is the same for effects, transitions, etc.

Blending Effect with Original Video

A series of effects can be blended with your original video source, track or group very simply. As blending involves the layering of one component on top of another (with varying degrees of opaqueness), a set of effects can equally be blended with our original video component.

However, if you are applying a series of effects, the adjustment of each effect's opaqueness is not always possible. In fact, some effects don't possess their own opacity. To overcome this we can add our combination of effects into their own **Effect Group**, whose overall opacity can be adjusted independently. The Effects Group can be added to your video source, track or group by selecting **Insert>Video Effect Group**. Simply drag each separate effect onto the Effect Group header to add it to the group.

Three effects stored under an Effect Group associated with a video source are illustrated below:

To increase the opacity, click on the grey key frame on the Effect Group strip and drag the key frame down to increase the opacity of the Effect Group, and hence the effects in the blended video output. The example applies a uniform level of effect opacity but more key frames can be added to alter effect opacity over time (see **Applying Effects over Time** on p. 126).

Combining Effects

Effects can be applied to a video source for two main reasons—you may want to fix a deficient video source or you may just want to add a "special effect". Either way, it's more than likely that you may want to combine both types of effects and to have them applied simultaneously.

The same principles as those described in **Adding and Arranging Tracks** on p. 58 can be used when combining video effects, i.e. effects can be organized in the Timeline's header region in a vertical sequence, composed from the top downwards just like video and audio tracks.

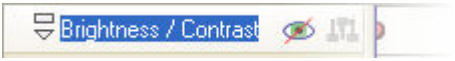
The order in which you apply your effects is not critical but typically any video "fixing" effects, such as adjusting hue, saturation or light, are applied first with any enhancing effects (Chroma key for blue screening) applied afterwards, e.g.

NOTE: Use the eye icons on each effect to switch on or off the individual effects when working with complex combinations. This will give you more control and will lead to better results.

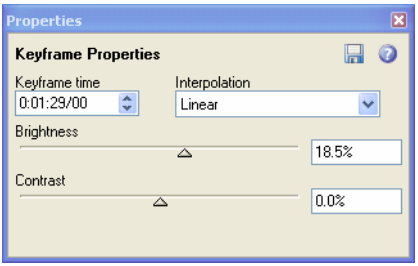
Colour Correction

The Effects pane includes a wide variety of colour adjustment presets that you can apply to video sources. These adjustments—to brightness, contrast, hue, and so on—are usually carried out in order to improve a deficient video source.

The adjustments are made by first of all **applying an effect** to a selected video source. In the resulting Key Frame View, the Effects strip will be displayed. By clicking on the key frame (a red button) on the Effects strip, the keyframe properties for that effect can be adjusted.



For brightness and contrast, the keyframe properties pane would display Brightness and Contrast sliders that can be adjusted independently, i.e.



In this case the brightness has been increased by 18.5%. Note that each effect will have its own set of properties for adjustment.

Let's take a look at the colour adjustment effect categories in turn.

Adjust HSL

Hue, Saturation, and Lightness (HSL) are components of a standard colour model that's used to identify colours. Generally speaking, Hue refers to the colour's tint—what most of us think of as rainbow or spectrum colours with name associations, like "blue" or "magenta." Saturation describes the colour's purity—a totally unsaturated video has only grays. Lightness is what we intuitively understand as relative darkness or lightness—ranging from full black at one end to full white at the other. Adjust HSL lets you alter these components independently. Experiment with the separate Hue, Saturation and Lightness sliders in the dialog accordingly.

Brightness / Contrast

Brightness refers to overall lightness or darkness, while contrast describes the tonal range, or spread between lightest and darkest values. This is a "quick and dirty" way of correcting an video, e.g. one that was over-exposed or under-exposed.

Colour Balance

The Colour Balance adjustment lets you adjust colour balance for general colour correction in the video source. Adjust the Cyan / Red, Magenta / Green and Yellow / Blue sliders left or right to lower or raise each colour mix.

The colours are paired together so moving the slider from the centre to the left increases the amount of cyan, moving from the centre to the right increases the amount or red. The same mechanism applies to the Magenta / Green and Yellow / Blue sliders.

Gamma

The Gamma adjustment lets you adjust the amount of mid-tone brightness in your video source. Think of midtones as the grey shading that lie between shadows and highlights present throughout your video source. A single Gamma slider controls the midtone distribution curve for pixels, where a value of 1.00 is the nominal slope set prior to adjustment. Move the value to <1.00 to lighten the mid-tones of your video or to >1.00 to darken them. The brightening should leave very dark and very light regions less affected than mid-tones. This can also be done via the Levels effect.

Levels

The Levels adjustment lets you emphasise mid-tone lightness regions in each or all of the three primary video colours, red, green, and blue.

The key frame properties dialog displays a set of "in" and "out" sliders to represent input and output, respectively (input and output means pixel values "before" and "after" any adjustment is applied.

To increase image contrast, narrow the spread between low and high input values by raising and/or lowering the Low In and High In value, respectively. Setting the Low In value tells the adjustment filter to "locate any pixels that are initially this dark (or darker) and set their lightness to that of the Low Out value." The High In value works the same way, but by remapping the lightest initial pixels to the High Out value.

To reduce image contrast, you could narrow the spread between low and high output values. This will mean your resulting image will not have pure black and/or white pixels. To adjust the midtone values, raise or lower the Gamma value. See Gamma Colour Correction above.

As a general guideline, colour correction is normally carried out on video sources, as most deficiencies will be inherited from the recording of the source (e.g., over-exposure, poor weather conditions, etc.)

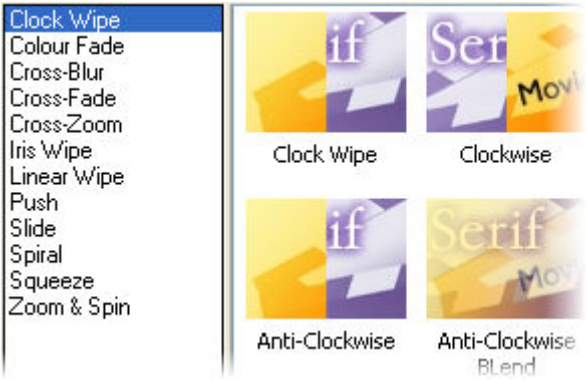
Applying Transitions

Any time one piece of video ends and another begins, a transition takes place. In its simplest form, the transition is simply a cut: in less than the blink of an eye, the last frame of a video clip is replaced by the first frame of a second video clip. In MoviePlus, the term “transition” applies to a more gradual way of switching from one clip to another. If you overlap the two clips slightly on separate tracks, you can then apply a time-based change between them.

For example, you can dissolve (**Cross-Fade**) between one track and the other, or apply a variety of patterned wipes that use a moving edge or outline. Transitions such as **Iris Wipe**, **Cross-Blur** and **Zoom & Spin** are very popular in movie editing and are, of course, fully supported in MoviePlus.

Applying Simple Transitions

Transitions are available from one of MoviePlus's selection of panes, called the **Transitions** pane.



Transitions are easy to accomplish. In general, first ensure that the video sources are placed on the same video track, one after the other with no gap. By then selecting the second video source and dragging its start over the end of the first video source you create a transition region, indicated as a box.

In this case a Cross-Fade is added by default—if you didn't see this region you may have to select the **Auto-Transitions** button. Try a video preview to check your transition.

 To change a transition, just select one from the Transitions pane. A series of presets are available, all stored under different transition categories. Drag the selected thumbnail on top of the existing transition region to swap the old transition for the new one. Note how the transition name has changed and the **Show / Hide Transitions** button becomes enabled in the bottom left of the Timeline.

As with other objects, you can also change the transition duration by dragging the left or right-hand end of the transition region to stretch or shrink it, and adjust its properties more accurately in the Properties pane, i.e. you can fine-tune the transition duration, interpolation and more transition-specific key frame properties.

Simple transitions are generally applied over the overlap duration. However, more subtle transitions can be made by **Applying Transitions over Time**.

Remember that each transition takes time to happen—so make sure the video in the overlap region is not part of the main action. If you expect to use transitions, it's a good idea to allow a couple of seconds of non-essential material at the start and end of clips when you initially capture them.

Auto Transitions

 MoviePlus by default will automatically create a cross-fade transition when you drag a source over another source (cross-fade for video and images, fade for audio). If you do not want MoviePlus to automatically create transitions, you can disable this feature using the **Auto Transitions** button on the Editing toolbar.

Snapping

 If snapping is enabled with the **Snapping** button, the transition will conveniently fit into the overlap region. If snapping is disabled, or you drag the transition to an overlapping area between tracks, it will adopt a default overlap time as set in **Tools>Options>Editing**.

Customizing your Transitions

Just like effects, transitions added to your project will have their own set of properties associated with them. These are highly customizable via the **Properties** Pane, just like any other object in MoviePlus. Try right-clicking on the transition region and check its properties in the Properties Pane.

The ability to customize transitions by changing these property settings means that the presets supplied are merely a starting point for you to further create and save your own transitions to your own requirements.

 A **Save** button on the Properties Pane lets you store your own settings to a new name in the Transitions pane along with your existing presets.

Applying Transitions over Time

The main difference between adjusting effects over time and adjusting transitions over time is that any change to the transition can only take place in the duration of the transition rather than over a whole video source or track.

 It is possible to change transitions over time by applying key frames. Any selected transition has its own Transition strip in Key Frame View. This view is shown by clicking the **Show / Hide Transitions** button at the bottom left of the Timeline. As for effects, the strip allows key frames to be place along its length which describe how a transition's properties are to be applied along the transition's lifetime, i.e.

The transition and key frame properties are accessible by right-clicking on the key frame and selecting the properties option.

During video preview, as the caret passes over each key frame the video will effect change over time between the last visited key frame and the next key frame on the Timeline. The transition can be interpolated linearly or can adopt different types of quadratic or cubic algorithms to effect different rates of change.

This is best described if we use an example—an unusual “spinning” linear wipe between two video clips. To do this it is necessary to vary the angle of a Linear Wipe transition over a 5-second period. The angle will vary over time between 90° (start) and 360° (end). This is configured in the Key Frame properties for the key frames at the start and end of the transition.

The video preview will show the transition as follows:

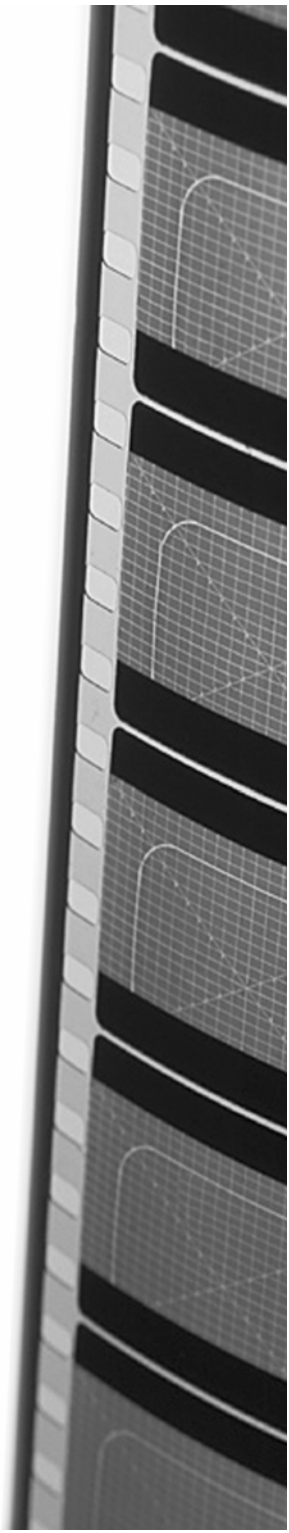
After 1 second

After 2 seconds

After 3 seconds

Incidentally, key frames are explained in detail in **Editing opacity envelopes** on p. 75 where the application of the key frames is to change opacity but the principle is the same for effects, transitions, etc.

6. Completing the Production



Sharing Your Movies

There are a number of ways you can share your movie once you've edited it with MoviePlus... the project might look fantastic in your Preview pane, but there's an upper limit to how many people can crowd around your monitor and watch your preview, so you'll need to export your movie in a standard distributable format to allow others to share the experience!

The considerations you'll face when deciding how to share your MoviePlus creations are the same for all video editors—the most important is "what device will the video be watched on and how am I going to deliver the video to the intended viewers?" This double-barrelled question, once answered, will help determine how you should export your movie for best results.

Viewing on a computer

Delivery via the Internet

The Internet has been promising to offer widespread video content for some time and the rise of domestic broadband connections makes this closer to reality. You can include videos on your own Web space for your site's visitors to download; raw video is still too large to download in any reasonable time and too large to store on typical computers so the video must be **compressed** at export time. Broadband connections come in many speeds and flavours—and are not available to all—so you may like to consider whether you should offer two versions of your video to allow for different connection speeds or just make your video suitable for everyone by creating it with as small a file size as possible.

A small file size is best achieved by exporting your file having adjusted some important settings:

- set a small size (320x240 pixels or lower)
- use video compression (a **codec**)
- reduce the video's frame rate (number of pictures per second)

Modern MPEG-4 codecs (such as those offered by Microsoft or derivatives of the original MPEG-4 format including DivX® and Xvid) offer a very good balance between file size and quality. For a 320x240 video with 25 frames per second you can typically achieve excellent quality using an MPEG-4 codec with under 800kbps (kilobits per second) of data, roughly 100KB per second. There's no magic wand that can make excellent quality video occupy a very small file size, you will always need to compromise, swinging towards quality or towards a very small file size, not both. Video sized and compressed as described above occupies roughly 6MB per minute of footage, perhaps 1/60th the size of good quality DVD video. You can apply similar compression and quality control to the audio accompanying your video.

To adjust these export settings and make a small compressed video file for the Internet you should choose **Video for Windows (*.avi)** as the file type and select the **Multimedia** template on the **Basic** tab, then on the **Advanced** tab set the video size (**Width** and **Height**), **Frame rate** and **Codec**. You should also adjust the codec **Properties** or the **Quality** slider (if available) to help manage the video's file size. Click **Export** to export your project as a video file when you are happy with your settings.

Delivery on a CD

You can choose to export to AVI format or WMV (Windows Media Video). The latter is naturally best supported by Windows PCs so is less suitable if your intended recipients are not running Windows PCs. AVI formats can contain many different types of compressed video and there is little guarantee that your chosen compressor is available as a decompressor on the viewer's PC, unless you choose a common standard format included with Windows such as Cinepak by Radius or Intel Indeo 4.5.

For Windows users

If you know you are distributing your movie to Windows PC owners, there is an excellent chance that they will have a recent version of Windows Media Player installed. MoviePlus offers WMV (Windows Media Video) export with templates for differing file size and quality presets. WMV makes it easy because you don't have to worry about "codecs", but viewers do generally need Windows Media Player to be present to play the video. Although Windows Media Player is normally required, it is possible that PC or Mac owners are using alternate media playing software that supports WMV files, such as the popular cross-platform (and free, at the time of writing this) **VLC** Media Player (http://www.videolan.org/vlc/).

Export as File

There are many different reasons for exporting your movie as a file, but they all share the need or wish to get other people viewing your video masterpiece. Crowds around your own computer screen using the MoviePlus Preview pane to watch your video just aren't practical! Whether your driving force is to attain a small file size to share a little video by email or over the Internet, MoviePlus can export your projects in a suitable format to help you achieve your goal.

Your basic choice of sharing format as well as any necessary "fine tuning" settings will help decide how best to export your project.

File types

MoviePlus exports three basic kinds of video file and two types of audio file. Here's a table showing what these formats can be used for:

Export format	Type	What is it and what is it useful for?
AVI	Video	Windows "Audio Video Interleave" file, for playback on a computer. Supports different types of video and audio compression. AVIs are mainly for viewing on a computer, but some types of AVI can also be played on modern DVD players supporting compressed "MPEG-4" and similar files.
MPG	Video	An acronym for "Motion Picture Experts Group", MPEG format video is compressed and widely supported by computers and DVD players. MPEG-1 files are better supported by computers and are also used to make Video CDs; newer MPEG-2 files are often higher quality and are typically used to make SVCDs & DVDs.
WMV	Video	WMV stands for Windows Media Video and is best supported on PCs running Windows Media Player, although some other software even on other platforms can play WMV video.
WAV	Audio only	A Windows Waveform sound file, commonly supported on other platforms. WAVs normally (but not always) contain uncompressed stereo audio.
WMA	Audio only	Windows Media Audio, a compressed format making smaller files, designed for playing with Windows Media Player but now also supported by many hardware MP3 players.

Next we'll examine some popular usage for file exports and describe the best basic settings to use in each case.

Export Procedure

Standard

- Click the Export to File button on the Standard toolbar, or choose the File>Export Movie>To File menu item.

- Select your chosen export type from the File type and Template drop-down list according to the type of output format you require. Use the table in Popular Output Formats (below) to choose your export option.

- Specify a name for file in the filename box, clicking Browse and selecting a new location if you first wish to choose an alternate drive or folder to store your file. When you are happy with your filename, export type, and export template, you can set an export quality and then click Export. Your project will then be composed and converted into the specified format and you will be shown a progress bar during this process.

See **Advanced Settings** on p. 148 for more detailed information.

Popular Output Formats

Reason for Export	File Type	Template[1]	Supporting Notes
DVD-compliant file for later use in a DVD-authoring program	MPEG Video (*.mpg)	DVD PAL, DVD NTSC, DVD PAL Widescreen, DVD NTSC Widescreen	MoviePlus can export your MPEG for authoring on a DVD-authoring program. If you would like to add menu and chapter features to use this method and then use an application such as Sonic MyDVD to author your menus and burn your disc.
SVCD-compliant file for later use in a disc-authoring program	MPEG Video (*.mpg)	SVCD PAL, SVCD NTSC, SVCD PAL Widescreen, SVCD NTSC Widescreen	MoviePlus can export a file in readiness of you writing a Super Video CD (SVCD) with menus and other advanced features in another application.
VCD-compliant file for later use in a disc-authoring program	MPEG Video (*.mpg)	VCD PAL, VCD NTSC, VCD PAL Widescreen, VCD NTSC Widescreen	MoviePlus can also export a video file in readiness for burning to a Video CD (VCD) in another application.
general-purpose use (high compatibility; low quality)	MPEG Video (*.mpg)	MPEG-1	MPEG-1 files are widely supported so they are a good choice for short snippets of video for general consumption.

			They can be written to CD or made available for download via the Internet. The format does not need special decompression software (codecs).
general-purpose use (low compatibility; high quality)	MPEG Video (*.mpg)	MPEG-2	MPEG-2 files are quite widely supported but they generally require specialised software to enable playback. This is because MPEG-2 decoding comes at a price, so it is not often supported by free media playing software. This format does support high-quality video so is still preferred for some uses above and beyond general-purpose MPEG-1 video.
Internet ready	Windows Media audio and video (*.wmv)	*Any*[2]	Take advantage of the widely distributed WMV format and its inherent streaming capabilities, optimised for viewing in the popular Windows Media Player. The format does not require any specific codec.

For CD distribution (to Windows PC)	Windows Media audio and video (*.wmv)	*Any*[2]	As for Internet ready above.
For CD distribution (to non-Windows PC)	MPEG Video (*.mpg) or Video for Windows (*.avi)		The type of file you export for distribution on CD is dependent on how you want people to use the CD, how they will view the video you are distributing.
Writing movie back to a DV camera	Video for Windows (*.avi)	DV PAL, DV NTSC, DV PAL Widescreen, DV NTSC Widescreen	The DV video format is used extensively by digital video cameras, so many video sources exist in this format before being edited. You can export your project as a DV file for future editing or for writing to a camera later. NOTE: To maintain compliance with the DV standard, it is not possible to modify the **Advanced** settings for the standard DV export templates, but if you wish to fine-tune your export you can copy a DV template in the Advanced tab and make changes to

			the new template.
Audio export	Waveform audio (*.wav)	32 kHz Stereo, 44.1 kHz Stereo, 48 kHz Stereo	You may find occasion where it is useful to export just the audio from your project. MoviePlus will compose all of your tracks and editing operations to generate a single audio output in mono[3] or stereo. 44.1 kHz is the standard for CD-quality audio, 44 kHz is the modern standard for DVD movies and other digital audio formats. You can alter the compression format (select a codec), switch between mono and stereo output, and alter the sample frequency. Lower sample frequencies can be used for low-fidelity audio, such as speech, and are suitable where you are trying to reduce the audio file's size.

[1] If you are not sure whether to choose a PAL or NTSC template, see below.

[2] Template choices reflect the throughput (i.e., connection speed) that you can serve to your intended audience on your WWW site—the templates are listed in the order of low- to high-speed Internet connections, giving increasing levels of video quality.

[3] For Mono, use the Advanced tab to create a new template and change the Channels option to Mono.

Export Quality

The **Export Quality** setting will perform additional video and audio processing as the quality increases. Choose **Good** quality or higher for high-standard export processing, choose **Draft** or **Preview** for test purposes.

Exports at **Best** quality take a long time for most formats so be prepared for a high-quality export to be quite slow. If your video is intended for general viewing by friends and family you can set a lower export quality. Draft and Preview settings are good as tests; with **Normal**, **Good** or **High** quality you will enjoy great results and the export will take notably less time than at Best quality.

NTSC and PAL

Whether you choose a PAL or NTSC template should depend on whether you intend for the video to be viewed in a PAL region or NTSC region. NTSC is the broadcast and recording standard used mainly in North and South American continents, plus parts of eastern Asia including Japan and South Korea. For example, if you wish to create a file suitable for use in the USA you should choose a suitable NTSC DVD export template. Choose a Widescreen variant of your selected template if your source footage or project is already in Widescreen format. PAL is used widely throughout Europe, Africa, the Middle East, Asia, and Oceania. If you wish to create a PAL video you should choose a suitable PAL video export template.

The export progress box

During export, you will see a progress bar displaying the progress made through rendering your project and encoding it to the selected output format. Upon completion, you can click **Open** to play the resulting video in your default media player software, click Open Folder to view the folder containing your export in Windows Explorer, or click Close to close the progress box and return to MoviePlus.

Note that if you click **Cancel** to abort the export process, MoviePlus will quickly finish the segment of video being encoded and will leave you a functioning but incomplete video file. You may wish to **Open Folder** and delete the video if you do not wish to keep it.

Advanced Settings

Templates

The list of templates changes according to the type of file export you have chosen: for AVI exports, there are templates for DV and Multimedia AVIs; for MPG you have choices encompassing VCD, SVCD, DVD and multimedia MPGs. You can change your selected template by selecting another from this list; the change will also be reflected in the Basic tab of the Export dialog, as this setting is available from both locations. In order to maintain compatibility with some video formats, some templates do not allow modification of their settings—for this reason you can make a copy of a template to further modify (see below for more information).

Copying, Renaming, Deleting Templates

You can create your own templates based on existing entries in the Templates list. You may wish to create a few different "multimedia" templates to save time in changing settings when you export your projects, or perhaps modify an existing DV or DVD template to enhance quality or adjust another setting.

Choose a template to modify then click the **Copy** button. Type in a suitable name for your template, such as "Optimised DivX Internet AVI 160x120". Make adjustments to the template settings to suit your needs.

Once a template has been created in this way, you can later rename or delete it using the **Rename** and **Delete** buttons.

Start/End Time

Rather than exporting your entire project, you can specify a Start time and End time to export just part of your project.

Quality

This setting matches that offered in the Basic tab of the Export dialog. You can determine what kind of processing is carried out during the export of your project by choosing one of six preset quality settings.

Video Details

Width and **Height**, given in pixels, determine the screen size of the final movie. DV and DVD movies are 720 wide by 576 high for the PAL format or 480 high for the NTSC format, but movies can range down to tiny sizes suitable for animations on the Internet. Try and keep the pixel sizes divisible by 16 for good compatibility with different video formats—some AVI codecs for instance are particular about the size of the video they are able to encode.

Pixel aspect ratio determines whether pixels are squashed, stretched, or left in their native (square) format as needed to achieve a particular movie screen size. You should use the setting automatically included with the template but if you wish to modify the pixel aspect ratio, use a ratio written as a decimal number near 1.0; lower than 1.0 is squashed, larger than 1.0 is stretched—e.g. for DVD PAL Widescreen compliance use 1.4568.

Frame rate (in frames per second or fps) of source material is typically determined by the broadcast television standard in use, i.e. NTSC or PAL. NTSC generally uses 29.97 or 24 frames per second, the PAL standard is 25. For general purpose video you should still conform to the standard in your region, but you can reduce the frame rate if you wish to optimise the file size of your video for Internet download.

Interlacing: Interlaced video (such as an analogue TV signal) builds each frame by splitting alternate lines from two separate scans of the picture area. The first or upper lines (or "field") contains the odd scanlines; the second or "lower" contains the even scanlines. (To visualize this, imagine that each of your hands is a separate video field, then interlace your fingers.) Non-interlaced ("no fields") or progressive digital video uses just one scan per frame.

The **Codec** list shows video compressor/decompressors available on your system. For information about choosing a codec, please see **A Guide to Codecs** on p. 155. The Codec Properties button will allow you to fine-tune the export settings for the particular codec you have chosen, providing that the codec manufacturer offers a properties window for their codec.

Adjust the **Quality** setting (if available) for best results when you've selected a particular codec. Moving the slider to the right will increase export quality (and the time taken to export the project). This slider, unlike the basic quality setting, can affect the size of your movie as more video data is used per second of video to achieve a higher quality result.

Audio Details

Uncheck **Export Audio** to export the movie without an audio component. In most cases this will reduce the file size, so uncheck it if you don't need (or don't have) a soundtrack.

Select the number of **Channels** to record. Mono means that just one audio stream is included, with no difference between left and right speakers when played back through a stereo device. Don't use "Stereo" unless necessary—two channels means a larger file size.

Bits per sample and **Sample frequency** together determine the amount of bandwidth allocated to each audio channel, which again translates directly to file size. As a rule, use "8-bit" for voice only, 16-bit for all richer audio. The higher the frequency range you select, the more sound will be sampled—so choose a number consistent with the sound quality you need to preserve. 44.1KHz is the CD-audio standard.

The **Codec** list shows audio compressor/decompressors available on your system. Change the setting if you have a specific reason for doing so.

Select a **Format** (if available) for best results when you've selected a particular codec.

Advanced Settings

If necessary, adjust settings for the type of AVI video file you want to capture.

Check **Version 1 AVI** to export an AVI file which is compatible with older software (but cannot be larger than 2GB in size). Leave the box unchecked to export an OpenDML (AVI version 2.0) compatible file that can be any size.

Adjust the **Interleave** rate slider (or enter a specific value in milliseconds) for faster or slower interleaving of audio and video data. Smaller values mean larger file sizes but more rapid cueing and startup when the file is played back (for example, in Media Player).

Export to Camera (Print to Tape)

The DV video format is used extensively by digital video cameras, many video sources exist in this format before being edited. Although MoviePlus can export your project to many types of video format, you can choose to export as DV to a connected DV camera or export your project as a DV file for later writing to a DV camera. Even exporting directly to your DV camera is a two-step process as MoviePlus first creates a suitable DV file before transferring it to your DV camera.

To export to camera (also called print to tape):

Step one

- Select the **File > Export Movie > To Camera** menu item.

A DV AVI file will be exported from MoviePlus before it is sent to your camera, to provide a smoother export and transfer process.

- Specify a name for the file in the Filename box, clicking **Browse** and selecting a new location if you first wish to choose an alternate drive or folder to store your file.

- Select a DV PAL or DV NTSC template from the **Template** drop-down list that suits your needs. Choose a Widescreen template if your source footage or project settings are already Widescreen. For information about choosing PAL or NTSC variants, see p. 147.

- The export **Quality** setting will perform additional video and audio processing as the quality increases. For information about the processing taking place, please see the MoviePlus Online Help system. Choose **Good** quality or higher for high-standard export processing, choose **Draft** or **Preview** for test purposes.

- When you are happy with your filename and DV template choice, you can set an export quality and then click **Export**.

Your project's sources, tracks, groups, transitions and effects will then be composed into a DV video file and you will be shown a progress bar during this process. When the export is complete MoviePlus will allow you to transfer the DV file to a connected DV camera.

Step two

- Once the first stage of exporting is complete, click the Exporting dialog's **Continue** button.

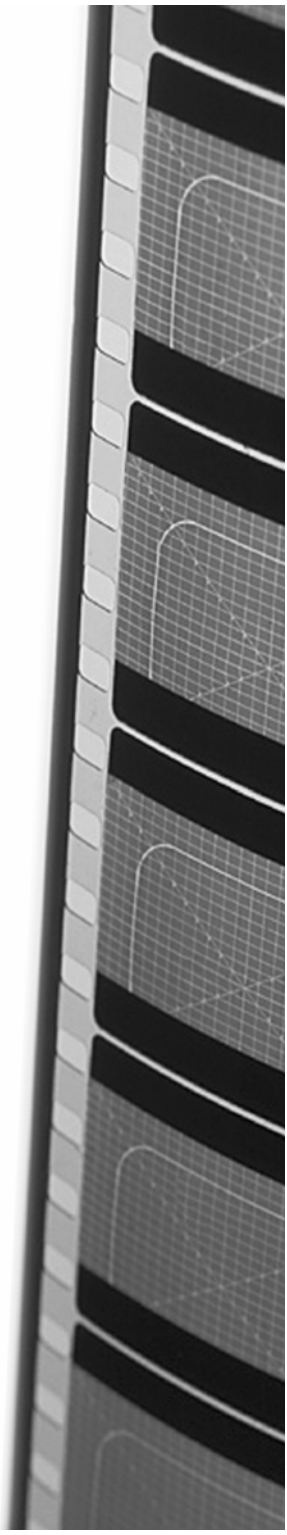
- To view the movie as it will play back on your camera, select the Preview on Device tab.

- On the Write to Device tab, use the control buttons to locate a suitable in-point on the tape. Place your camera in Stop mode.

- Adjust the Write Delay value if necessary to insert a timed pause before MoviePlus begins feeding data to the camera. A DV camera may be digital, but it's also mechanical and different transport mechanisms have different response times. A few tests will establish exactly how long your camera takes to start recording once it's activated. (When in doubt, it's better to set the delay slightly too long than too short.)

- To begin recording, click **Write to Device**.

7. Technical Tips



General Capture information

The DV format

"DV" stands for digital video, and while this is a term that can encompass all video data stored on a computer or other digital media, when written as DV it is normally referring to a specific format of video as now used in most digital video cameras. DV was developed as a high-quality consumer digital video format by a consortium of companies including Sony, Panasonic, JVC and Philips.

For DV and Mini DV video sources, MoviePlus will always capture your footage in its native format to maintain as much quality as possible during the capture and editing phases of your project. As a modern method of storing video data, DV offers higher resolution and three times more colour information when compared to analogue VHS and S-VHS video, storing even more colour information than the NTSC broadcast standard. DV cameras also record audio in a digital format that rivals CD quality.

DV occupies a fair amount of hard drive space on computers, significantly less than uncompressed video though, and it is suitable for converting into DVD-quality output. As a video format it is compressed with an approximate 5:1 ratio, meaning it occupies roughly one-fifth of the amount of hard drive space as uncompressed video of the same quality. While you can capture uncompressed video from analogue sources, DV video from modern DV devices maintains a good level of detail while taking up less hard drive space than uncompressed footage.

MoviePlus is optimised for working with 'DV' video sources.

Other video sources

You can also capture video footage from analogue sources such as VCRs and simple live video sources such as Web cams, although for devices such as video cassette recorders you will need a **capture card**. A capture card receives the analogue video information from your video device and converts it into a digital format suitable for editing and playing on computers. In addition to the video being supplied by the capture card in its chosen format, you can choose to save the media in a format of your choosing during the capture process, but it is recommended that you capture at as high a quality as possible without further compressing your video or audio data. For some analogue or Web cam captures you may need to have a separate audio input to capture audio at the same time as your video.

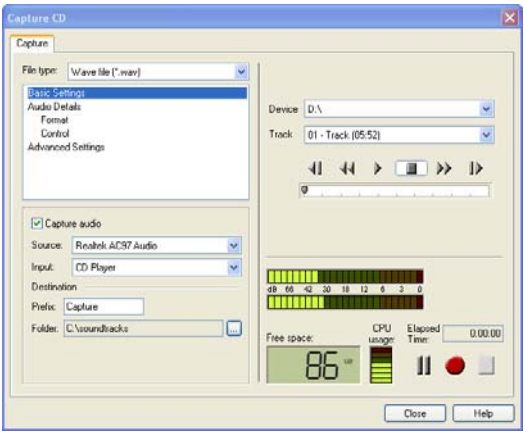
Troubleshooting

Although MoviePlus is optimised for modern systems with special processor instruction sets (MMX, SSE and SSE2), some slower systems may encounter 'dropped frames' during video capture. To rule out some system inefficiencies to improve video capture, please see **Performance Notes** on p. 167.

Capturing Audio from CD

To capture audio from an audio CD, select the **Tools > Capture From CD** menu item.

The Capture CD dialog



This image shows in-progress capture of digital audio from a CD-ROM drive. Track 1 is being captured from the disc in drive D and there is sufficient of free space for the resulting .WAV audio file to be stored. A typical 6 minute audio track will occupy about 60MB of hard drive space when the audio is saved as a .WAV with no compression.

The procedure to follow:

Choose a CD drive and track then preview your audio

In the **Device** pull-down, select the CD drive containing the audio CD you would like to capture from, then select the track number you wish to capture.

Click **Play** to preview the track to make sure you will be capturing the intended audio and that the volume levels seems good. If your audio levels metre has sustained periods "in the red" then you should adjust the **Volume** setting in the **Audio Details > Control** section of the dialog.

Important Note: To be able to capture CD audio, the **CD audio** input needs to be enabled in your sound card's "mixer". Try double-clicking the **Volume** icon in your Windows system tray (next to the clock) to view your mixer settings. If you are running Windows XP you may also need to *disable* **Digital CD Playback** via your Device Manager>CD device Properties window>Properties tab as a troubleshooting step if your capture contains no audio.

Set a suitable file storage location

As mentioned above, a typical 4-minute audio track will occupy 40MB of hard drive space, a full audio CD could be over 700MB when captured, so ensure you have enough room on the drive you choose to save your captured audio to. Click the **Browse** button to choose a target location for your captured audio and specify a name for the file in **Prefix**.

Choose an appropriate capture format

You should capture at CD quality (Stereo, 16-bit, 44100Hz) to maintain the best sound quality during the editing of your movie project. If you would like your audio be more compact (take up less drive space) than CD audio, this is a task you can best defer to the end of your project, when exporting your project.

If you still wish to capture a smaller file size, you can choose an audio compressor in the **Audio Details > Format** section of this dialog. Select a compressor from the **Codec** list and adjust the **Quality** slider if it is available.

Record

Click the **Record** button then click the **Play** button underneath your drive and track choice to begin the capture.

When you are happy that the required track has been captured, click the **Stop** button. You can begin recording again to capture subsequent tracks; MoviePlus will name each captured file with an incremented number suffix.

Keep an eye on the CPU usage during the capture process, if it reaches maximum levels it may result in "choppy" sounding audio.

Close the Capture module and return to MoviePlus

 When you've finished capturing your audio, click the **Close** button to return to MoviePlus. In the **Explorer** pane, click the **Capture** button to navigate to the default folder for captured video, then drag your chosen source(s) onto your Timeline.

Capture settings in detail

Basic Settings

Select the **Source** if you have more than one available audio source. **Input** means the physical line where the audio signal is arriving. This should typically be set to **CD Audio**.

Click the **Browse** button to locate a specific destination folder for the captured file(s). Note: You can set the default Capture folder using the **Folders** tab of the Tools>Options dialog.... MoviePlus automatically numbers new capture files sequentially upward within the designated folder, preceded by the **Prefix** you enter here.

Audio Details

Uncheck **Preview audio** to disable audio preview. Depending on your sound card setup, this may eliminate echo through your speakers.

The Input and **Source** drop-down lists match those offered in the Basic Settings section described above.

Click the **Source** button to access device-specific settings offered by the device manufacturer. These may include input mixer options.

Click the **Format** button to access device-specific audio settings offered by the device manufacturer. These may include audio format and quality options.

Audio Details > Format

Select the number of **Channels** to record. Two channels (stereo) means a larger file size and is only necessary if your source contains stereo audio to start with. The vast majority of audio CDs are stereo.

Bits per sample and **Sample frequency** together determine the amount of bandwidth allocated to each audio channel, which again translates directly to file size. As a rule, use 8-bit for voice only, 16-bit for all "richer" audio and music... sample frequency is to audio what "dots per inch" is to imaging—it translates most simply as "resolution". The higher the frequency range you select, the greater the "amount" of sound will be sampled each second. Choose a number consistent with the sound quality you need to store—44100Hz represents CD-quality sound sampling, 48000Hz is the new standard for digital audio (used for DVD videos and more).

The **Codec** list shows audio compressor/decompressors available on your system. Change the setting if you have a specific reason for doing so.

Adjust the **Quality** slider (if available) for best results when you've selected a particular codec. As is the case for video capture, it is best to capture at the highest quality and to defer any efforts to reduce file size to the export operation after you have edited your movie.

Audio Details > Control

Adjust the settings for the audio input device here.

Check **Mono** to combine ("monoize") both sides of the input signal.

Check **Loudness** for a lower-frequency equalization boost.

Adjust **Volume**, **Balance**, **Treble**, and **Bass** sliders (or enter a specific value) to improve incoming audio quality. Use the volume level meters (from -90 to 0 dB) as a guide and remember to preview your adjustments by clicking **Play** before you capture.

Advanced Settings

Advanced Settings > Capture Device Pin Configuration

Click the button to adjust settings for the input device, if troubleshooting problems with the Control setting (see above). This is an advanced setting that may be helpful if your audio capture does not work correctly within MoviePlus.

A Guide to Codecs

If you have made or played an AVI video file in the past, you have—knowingly or otherwise—used something called a Compressor / DECompressor (CODEC). A codec is a solution to a problem; the problem being that *uncompressed* broadcast-quality video is very large as a computer file, it occupies 20 Megabytes of data per second—excessive for delivery via the Internet and for reasonable hard drive storage.

The basics

AVI stands for **A**udio **V**ideo **I**nterleave and it is a common and flexible PC video format that has gained wide support on other computing platforms, too. AVI files are like containers for any kind of video interleaved with any kind of audio, unlike fixed file formats such as those used by DVD which only support very strict video/audio specifications.

If AVI video can be of almost any flavour, how can someone make a video in a format that everyone can watch? The answer is that there's no truly universal AVI format, anyone who wants to watch an AVI needs to have the right codec installed, one that matches or is compatible with the codec used to create (compress) the AVI file. No single media player has all codecs included with it, as some require licensing fees and new codecs are always under development, so additional or new codecs can typically be downloaded or purchased. While there is no single universal AVI format—except maybe the simple "uncompressed" video format mentioned above, which can occupy gigabytes of drive space in a trice—most PCs have an installed copy of Windows Media Player or an equivalent that automatically supports quite a wide range of types of video.

Other terminology

You may encounter some new words in this section, we'll make a brief introduction of some technical terms here:

AVI - has been introduced, a PC-based video file.

Bitrate - the amount of data per second of video. DVDs are typically between 4 and 10 Megabits per second (up to 75MB per minute of DVD video), a low-quality and small video for download via the Internet may only be a few hundred bits per seconds.

Codec - we have covered already; a compressor/decompressor, a video-squeezing "interpreter".

DV - "Digital video" both as a generic term for video stored on a digital medium and as a specific term describing 720x576 (or 720x480) DV AVI video captured by DV devices. The DV format was developed by a consortium of companies including Sony, Panasonic, JVC and Philips for consumer devices.

MPEG - A compression format developed by the Motion Picture Experts Group. MPEG-1 is used for Video CDs, MPEG-2 is used for SVCDs and DVDs, MPEG 3 is more commonly known as MP3, and MPEG-4 is used for both audio and video compression.

MPEG-4 - A modern compression format suitable for many AVI files.

What codec should I use when making my AVIs?

Your choice of codec should depend very much on what it is you intend to do with the video you are creating. If you are aiming to present your video on a television, you need to choose a different format when compared to presenting the video for download via the Internet. In the case of television, you would need a good quality and quite high resolution output format, whereas for Internet delivery it would be best to focus on the compression to achieve a small file size for speedier download. We'll explore some scenarios below.

Before you export your final version...

Some AVI codecs heavily compress the video data, sometimes while retaining decent video quality, but such heavy compression takes a fair amount of processing power during editing or playback. For this reason it is worthwhile choosing a format like DV. DV retains good quality during the capture and editing process but creates quite large files, so you could consider an alternative choice for your final export and just use DV throughout the capture and editing phases of your project. You can write DV video back to a DV camera if you wish, also called printing to tape.

Video for viewing using a television and DVD player

Having said that your intended use should define the choice of codec, it's important to point out that many videos are still intended for viewing on a television, in which case you should be considering a video format that is supported by DVD players—MPEG rather than AVI. Some DVD players do support a limited number of AVI formats, usually based around MPEG-4 video and its derivatives (including DivX®, Xvid, and Microsoft's MPEG-4 v1, v2, v3 codecs), but most only play MPEG video in Video CD, Super Video CD or DVD formats. For those players that do support it; MPEG-4 video and its derivatives are well known for combining good quality video with compact file sizes and this format is often referred to as the MP3 of the video world. Essentially, if your intent is playing your video on a television, MPEG-2 is still the preferred format in the majority of cases and is used by digital cable and satellite broadcast companies. Once you have created your MPEG-2 video, you would need to author a DVD video disc using an appropriate program.

When sharing video with other Windows-based PC users

In addition to AVI and MPEG video, MoviePlus 4 supports the creation of WMV, Windows Media Video. This format is supported by the Windows Media Player included on most PCs so this is a suitable format for sharing your video with other Windows users, without the worry that they may not have the codec required to support your AVI file. Despite the word Windows in its name, this format is also supported by some cross-platform media players such as the free **VideoLan Client**, so WMV files can in fact be played on Windows, Mac OS X, Be OS, and different flavours of Linux.

Creating an AVI file for Internet download

When choosing a video format for sharing your video with other Windows users, bear in mind which method of delivery you will be using. If your file is on CD, a common format such as MPEG-1 for small videos or even MPEG-2 for full-screen video will be widely supported. When creating AVIs and choosing a codec, a high-bitrate DivX or Xvid-encoded file will produce a welcome mix of picture quality and file size but not quite everyone has a compatible codec installed. For delivery via the Internet, a more widespread MPEG-4 codec, such as Microsoft's MPEG-4 v3, would be recommended and you should also consider creating the video at a small size somewhere between 160x120 to a maximum of 352x288 pixels. Many codecs require that your video's size be divisible by a factor of 16, please bear this in mind when sizing your export.

A Guide to Interlacing

An example of a video's technical make up

When we watch a video on a PC or television, we are usually blissfully unaware of the technical specifications of the video we are looking at, we can just sit back and enjoy the view. That's how it should be! When you are creating and editing movies of your own, you may need a grasp of some technical settings, although MoviePlus is geared to make as much of the technicality as possible something managed behind-the-scenes, by using preset export settings and auto-detection of the specification of video sources used in your projects.

In the case of PCs, the type of video and the video frame rate etc. is all normally understood and successfully processed by a media player. For digital video recording, TV broadcast, and DVD standards, the video data is organized somewhat differently according to differing international standards. The player, camera, or television, sometimes in conjunction with a set-top box, processes the data to create the picture we see.

Interlacing... what is it?

When we look at a piece of video on a PC screen and on a TV, they probably look much the same to our eyes; they both appear as a rectangular picture. It's therefore pretty straightforward to understand how we can usefully describe that picture inside MoviePlus as so many pixels wide by so many pixels high. But in the case of TV there's an important complication which MoviePlus normally looks after for you—interlacing.

We just mentioned how rectangular pictures are made up of row after row of pixels. On the PC screen, all of the pixels from each still picture from your video are displayed simultaneously, creating a rapid series of still pictures which your brain tells you is moving.

The majority of televisions, on the other hand, display pictures on your screen in a slightly different way. When TV systems were first designed, there was simply no way to broadcast pictures exactly as captured by the cameras—the technology simply wasn't up to it. One of the clever tricks they used was to throw away any information that wasn't crucial to the eye. That legacy is still with us today, and so rather than carry 25 or 30 complete pictures per second to your TV screen (depending on whether you have PAL or NTSC in your region), they broadcast 50 (or 60) half-pictures, or fields, per second.

Consecutive pairs of fields fit together (or interlace) to make a complete picture, because the first field of each pair contains the "pixels" for an odd numbered row in the rectangular picture, and the next one contains the matching information for the even numbered rows. When displayed sequentially, and processed by your eye and brain, you see complete moving pictures—even though the amount of information transmitted is much reduced. And because of the higher repetition rate, 50 half pictures vs. 25 full pictures, the result is relatively flicker free.

Tricks like that are exactly what the MPEG (and other) compression schemes depend on—only naturally after 60 years of development we're much, much cleverer at it now.

If you pause an interlaced video during draft-quality playback in MoviePlus, you may notice the visible difference between odd and even lines because they come from different frames in your project (normally about 0.04 of a second apart). These lines should not be apparent when playing DV or DVD interlaced video on a television, or progressive (full frame) video on a PC.

What do I need to do now?

"Nothing" is the usual answer! If you are using typical video sources and are exporting your project to a known standard, you really don't need to worry about interlacing settings at all.

MoviePlus should detect the method of interlacing used in your captured video or existing video files, and will "deinterlace" where necessary while creating your project. Deinterlacing is the process of making full video frames from the correct set of odd or even lines of interlaced video. As an aside, a video with full frames, with no odd/even line weaving, is called **progressive** or non-interlaced video. MoviePlus creates progressive video frames when required in order to correctly apply effects and transitions, and will subsequently split (and remix) the video into differing odd and even lines again at export time (if your chosen export format requires any interlacing). All of this happens automatically, so you don't normally need to do anything!

Why do I need to know what interlacing is?

You only really need to know what interlacing is if you see poor export results due to MoviePlus having misdetected your source video's interlacing method. You only need to adjust interlacing settings if you are working with a video source (an existing video file) for which MoviePlus has incorrectly determined the correct interlacing settings. This should, in theory, be very rare but may prevent the need to recapture digital video, for instance.

MoviePlus might mistakenly determine the interlacing settings if the video file has been created incorrectly in the first place, or if the file is somehow wrong in its declaration of which field, odd or even horizontal lines, should be displayed first. You can choose, for a selected video file, whether MoviePlus should display both fields simultaneously (progressive video), to display the upper field first or the lower field first. Experiment with these settings in the Properties pane when you have a video source selected on the Timeline if your high-quality preview shows some unwanted edge-effects where there is motion.

You can also change the method that MoviePlus uses to "undo" the effects of video interlacing, the method used to deinterlace and make full-frame progressive video. The deinterlace method setting is available via the **Advanced...** button on the Properties pane when you have a video source selected in your Timeline. The available methods of deinterlacing are:

Blend Fields - takes 50% of each field and merges them, often resulting in some ghosting or motion blur. This is not often the best method to choose as the motion blur isn't often a desired end result; for sections of video with no or little subject motion, this produces high-quality full frames.

Field Interpolate - discards one set of fields and builds a full image by looking closely at the remaining fields, creating a matching set to fill in the empty lines (interpolating). Although half the data has been discarded, this is the default method for MoviePlus as it normally produces good results.

Field Median - again discards half the video data and in rebuilding the missing lines it takes the median (middle) from a range of lines including the scan line above (in the same field set), the scan line below (in the same field set) and the same scan line (from the alternate field set). This method maintains a good deal of horizontal detail but may result in some edge-noise where there is motion.

Performance Notes

While MoviePlus has been engineered from the ground up to provide a fast working environment, video editing is still a task that demands a great deal from a typical computer. The amount of data being moved between the system's hard drive, memory, and processor (and back again) can be immense, stretching the capabilities of many PCs. At the same time the system processor (CPU) has to perform the additional task of visual effects processing and composing your edited clips into a resulting movie.

Improving system performance

If you are experiencing stuttering playback of your video project or dropped frames during video capture, there may be some changes you can make to MoviePlus or your system to improve your playback or video-editing performance. They include but are not limited to:

Checking the MoviePlus preview quality and size

 If your preview playback is stuttering, you may wish to reduce the quality of the preview to improve performance. Click the **Render Quality** button at the top-right of the **Video Preview** pane and select a lower quality, or do the same via the **Preview>Render Quality** menu flyout. You can also reduce the size of your preview (zoom out) by clicking the **Zoom Out** button or choosing the same option from the **Preview** menu. Your exported movie will not be affected by your preview quality.

If your PC is equipped with multiple graphics cards and you enjoy previewing your movie in full-screen view, remember to preview on the monitor whose graphics card is of the highest specification.

Disabling Anti-Virus on-access scanning/live protection

Many anti-virus programs offer a live virus-checking service running in the background, often called auto-protect, active shield service, or on-access scanning. This increases the level of security offered by your PC as all files being accessed are checked for viruses instead of waiting for a full system scan once a week to know you're safe, but this of course does slow down disk access for other programs. Temporarily disable auto-protect or on-access scanning to improve overall disk performance while using MoviePlus, but don't uninstall your security software, don't wholly remove it from your PC! It's worth noting that if your system does become infected by a virus, trojan horse (a malicious program that often offers remote access to your PC), or spyware and malware (malicious data-tracking or key-logging programs), your system's performance will also be compromised—sometimes severely—and you may also be perpetuating the spread of such software to other computer users. It is therefore important to use virus and spyware removal software (and a security firewall if you are amongst the majority of PC users who connect to the Internet). You can obtain freeware security solutions via sites such as C|Net's popular **Download.com**.

Enabling DMA Mode for improved hard drive performance

DMA (Direct Memory Access) mode in this context allows hard disks to transfer data using less of the system processor's power, typically a proportional reduction of 40% in CPU usage with the exact same hardware. To enable DMA mode (or check that it is enabled) see Microsoft's how-to guide for Windows XP at:

http://www.microsoft.com/whdc/device/storage/ide-dma.mspx

This details the use of the Device Manager in the System Control Panel. For Windows 9x users, the steps to follow are similar but a **DMA** checkbox is available in the disk device's Properties window rather than the driver controller's Properties window.

Disabling write-behind caching

Write-behind caching is a Windows feature that monitors a number of small file edits and rather than writing them in real-time instead stores them up and writes them in bulk. Disabling this Windows feature for the drive used for video capture may improve capture performance. For Windows XP and 2000, write-behind caching is an option on a disk drive's device **Properties** page, accessible via the **Device Manager**. For Windows 9x, it is an option on the Troubleshooting tab of the File System Properties dialog (accessible via the System Control Panel>Performance tab>Advanced Settings... File System button).

Disk defragmentation

When files are written to your hard drive, they occupy the necessary amount of space on the disk and are subsequently caged in to their space by newer data. As changes are made to your "caged-in" files, new data is written as new file fragments elsewhere on your drive, hence the need for a drive to be "defragmented". This defragmentation process reunites all a file's segments back into one piece, so the hard drive does less work when reading a file, and the "clean space" area of the drive is neater and faster to write to. Some "defrag" software will also move frequently-modified files to the end of the drive and frequently-accessed files to the beginning to improve performance. A defragmented drive or dedicated empty drive is preferred for video-editing work.

You can defragment your drive using a built-in Windows tool, normally available in the drive's **Properties >Tools** tab; right-click a drive in Windows Explorer and choose **Properties** to access this dialog.

Windows swap file location

If you are a power user familiar with the Windows swap file or virtual memory settings, you may like to consider moving your swap file location to a drive other than the one used to store or process your video. This may help improve performance when Windows is using your virtual memory in complex compositions or exports.

Optional system changes

For Windows XP, two standard services can sap a proportion of a system's speed. Unfortunately, these services can also be quite useful so it is not recommended that you disable them unless you understand the consequences. They are System Restore (a service that keeps track of system changes and allows you to roll-back your system to a previous state) and the Indexing Service (a service that tracks file usage and speeds up file searches). Microsoft's **System Restore** and **Indexing Service** articles may help you better understand these processes and how to manage them.

PC technologies

While it may not be necessary to upgrade a computer in order to run MoviePlus, there are some affordable technologies that you may wish to consider in the event of a new PC purchase or upgrade, if your video editing warrants the attention. These include:

A GOOD modern processor

MoviePlus is programmed to take advantage of the capabilities of modern processors. Specifically, MoviePlus is optimised for processors with **MMX**, **SSE** and **SSE2** processor instruction sets. Pentium 4 or higher processors from Intel support SSE2, as do AMD Athlon 64 processors. MoviePlus is also optimised for HyperThreaded processing and multiple processors; at the time of writing this, HyperThreading is an Intel Pentium 4 feature. It is sometimes the case that budget processors, such as Celeron or Duron/Sempron chips, have fewer processor features compared to their full-priced counterparts and this may be more notable when using an intensive application like MoviePlus.

To find out if your current processor supports all the modern speed-enhancing instruction sets including SSE2, use the free CPU-Z tool from **www.cpuid.com**.

Fast hard drives and RAID Arrays

There have historically been some expensive hard drives that are sold as "AV drives", suitable for high performance audio and video work. They have good data throughput speeds so can read and write audio and video files efficiently. You can, if you wish, consider a high performance drive when you next make a PC purchase, but in modern PCs it is possible to achieve better-than-normal hard drive access and data throughput speeds with standard hard drives by using what is termed a **RAID** configuration or RAID array (or just RAID). RAID stands for **R**edundant **A**rray of **I**nexpensive **D**isks (sometimes Independent rather than Inexpensive) and was first introduced in the late 80s as a way to use regular hard disks to attain fault tolerance or performance exceeding that of a Single Large Expensive Drive (SLED).

A **striped** RAID pair—a pair of hard drives working in unison to share the load of data throughput—is a favoured method of inexpensively improving hard disk performance for data-intensive processes like video editing, but unlike other RAID configurations there's no data backup built in to this setup. This striped type of RAID configuration is also called **RAID 0**; neither of the drives are actually redundant so this newer configuration is outside the original five numbered (RAID 1 to RAID 5) types. The striped drives appear to your operating system as a single drive with a single drive letter by default, but in reality the data is split

by a "RAID controller", half the data being written to each drive simultaneously. Striped RAID capability is often a standard feature of modern PCs although it is not always enabled or populated with a pair of matched hard drives. If not built-in to the system's motherboard, a RAID controller can be purchased separately and added to a PC, occupying a spare expansion slot.

Mirrored RAID configurations, properly called **RAID 1**, also use a matched pair of drives and the system also writes data to each drive simultaneously, but rather than half the data being on each drive as with a striped RAID pair, all data is written to each drive; they are exact copies of each other. When it comes to reading that data, both drives can work together to transfer the data to the system quicker than if there was just one drive performing this task. Mirrored drives offer a level of data backup in the event of one of the drives failing, which is better than RAID 0, but two drives working together in a mirrored RAID 1 configuration do not double the capacity, unlike RAID 0. Two 120GB drives in RAID 0 (striped) offer 240GB storage with half the data on each, two 120GB drives in a RAID 1 configuration (mirrored) offer just 120GB storage, each drive containing all the data. Both methods of using two drives with a RAID controller in place of the usual single drive offer faster system performance.

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