Avid Studio

Version 1

Avid Studio Ultimate

Your Life in Movies

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Before you start

Thank you for purchasing Avid Studio. We hope you enjoy using the software.

If you have not used Avid Studio before, we recommend that you keep the manual handy for reference even if you don't actually read it all the way through.

In order to ensure that your movie-making experience gets off on the right foot, please review the topics below before continuing to *Chapter 1: Using Avid Studio*.

Equipment requirements

In addition to your Avid Studio software, an efficient editing system requires certain levels of system performance as noted below.

Remember too that while specifications are important, they do not tell the whole story. For instance, the proper functioning of hardware devices can also depend on manufacturer-supplied driver software. Checking the maker's web-site for driver updates and support information can often be helpful in solving problems with graphics cards, sound cards and other devices.

Operating system

A 64-bit operating system is recommended if you are planning to edit HD material.

RAM

The more RAM you have, the easier it is to work with Avid Studio. You will need at least 1 GB of RAM to achieve satisfactory operation, and we highly recommend 2 GB (or more). If you work with HD or AVCHD video, the recommendation rises to 4 GB.

Motherboard

Intel Pentium or AMD Athlon 2.4 GHz or higher – the higher the better. AVCHD editing demands a more powerful CPU. The minimum recommendation ranges up to 2.66 GHz for editing 1920-pixel AVCHD video. A multi-core system like Core i7, Core i5 or Core i3 is recommended.

Graphics card

To run Studio, your DirectX-compatible graphics card needs:

- For typical use, at least 128 MB of onboard memory (256 MB preferred).
- For HD and AVCHD, at least 256 MB (512 MB preferred).

The hard drive

Your hard drive must be capable of sustained reading and writing at 4 MB/sec. Most drives are capable of this. The first time you capture, Studio will test your drive to make sure it is fast enough.

Video files are often quite large, so you also need a good amount of available hard drive space. For instance, video in the DV format fills 3.6 MB of hard drive space per second of footage: a gigabyte every four and a half minutes.

> **Tip:** For capture from video tape, we recommend using a separate hard drive in order to avoid competition between Avid Studio and other software, including Windows, for use of the drive.

Video capture hardware

Studio can capture video from a variety of digital and analog sources. Please see “The Import From panel” on page 189 for details.

Video output hardware

Studio can output video to:

- Any HDV, DV or Digital8 camcorder or VCR. This requires an OHCI-compliant IEEE-1394 (FireWire) port (as provided by Avid Studio DV). The camcorder must be set up to record from DV Input.

- Any analog (8mm, Hi8, VHS, SVHS, VHS-C or SVHS-C) camcorder or VCR. This requires Avid Studio USB-700, PCI-500, PCI-700, or another Avid device with analog outputs. Output to analog camcorders or VCRs is also possible using a Avid Studio DV or other OHCI-compliant 1394 port if your DV or Digital8 camcorder or VCR can pass a DV signal through to its analog outputs (see your camcorder manual and *Chapter 11: The Exporter*, for more information).

Abbreviations and conventions

This guide uses the following conventions to help organize the material.

Common terms

AVCHD: A video data format used by some high-definition camcorders, and for creating DVD discs that can be read on Blu-ray players. Successful editing of AVCHD files requires more computing power than other formats supported by Avid Studio.

DV: This term refers to DV and Digital8 camcorders, VCRs and tapes.

HDV: A 'high-definition video' format that allows video in frame sizes of 1280x720 or 1440x1080 to be recorded in MPEG-2 format on DV media.

1394: The term '1394' applies to OHCI-compliant IEEE-1394, FireWire, DV or i.LINK interfaces, ports and cables.

Analog: The term 'analog' applies to 8mm, Hi8, VHS, SVHS, VHS-C or SVHS-C camcorders, VCRs and tapes, and to Composite/RCA and S-Video cables and connectors.

Buttons, menus, dialog boxes and windows

Names of buttons, menus and related items are written in *italics* to distinguish them from the surrounding text, whereas window and dialog names are written with initial capital letters. For example:

Click the *Edit menu* button to open your menu in the Menu Editor.

Choosing menu commands

The right arrowhead symbol (➢) denotes the path for hierarchical menu items. For example:

Select *File* ➢ *Burn Disc Image*.

Context menus

A ‘context menu’ is a pop-up list of commands that appears when you click with the right mouse-button on certain areas of the application interface. Depending where you click, a context menu may pertain either to an editable object (like a clip on an editing timeline), to a window, or to a zone such as a control panel. Once open, context menus behave just like the ones on the main menu bar.

Context menus are available in most parts of the Avid Studio interface. Our documentation generally takes for granted that you know how to open and use them.

Mouse clicks

When a mouse click is required, the default is always a left-click unless otherwise specified, or unless the click is to open a context menu:

> Right-click and select *Title Editor*. (Or, one might say, “Select *Title Editor* from the context menu.”)

Key names

Key names are spelled with an initial capital and are underlined. A plus sign denotes a key combination. For example:

> Press Ctrl+A to select all the clips on the Timeline.

Please refer to *Appendix D: Keyboard shortcuts* for a comprehensive table of available shortcuts.

On-line help

Two kinds of immediate help are available while you are working in Avid Studio:

- **Help file:** To open the Avid Studio help file, click the *help* button in the main menu bar, or press F1.
- **Tool tips:** To find out what a button or other Studio control does, pause your mouse pointer over it. A ‘tool tip’ pops up, like ‘Help (F1)’ in the illustration above, to explain the control’s function.

CHAPTER 1:

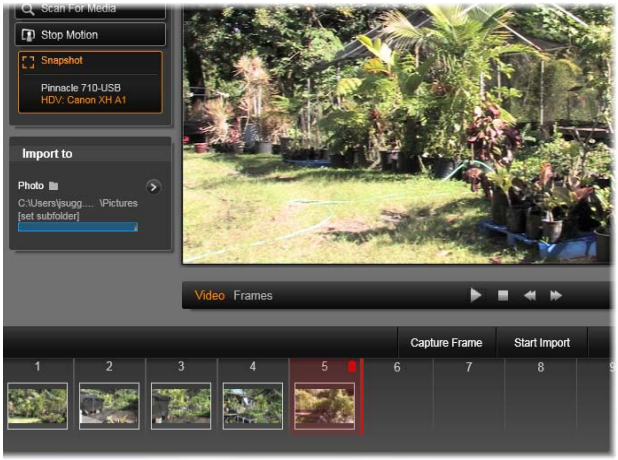
Using Avid Studio

For a simple outline of the digital movie-making process, you don't have to look any further than the central tab group of Avid Studio's main window.

Avid Studio's main control bar summarizes the movie-making process. (The Export button does not appear if you have the Library tab selected.)

The Importer

Import, on the left, is a preparatory step. It involves procedures like 'capturing' video from your analog or DV camcorder, bringing in photos from a digital camera, and copying media files to your local hard drive from a network location.



Principal controls in the Importer's Snapshot tool.

The Avid Studio Importer provides tools for these tasks, along with a *Snapshot* feature for grabbing frames from video files, and a *Stop motion* tool for building up video frame-by-frame. See *Chapter 10: The Importer* for details.

The Exporter

At the other end of the movie-making process is *Export*. By the time you get to this stage, the hard part of the task is behind you. The creative energy that went into making your movie has paid off in a production that now lacks only one ingredient – an audience.

Preparing to create a video file in the Exporter.

The Avid Studio Exporter helps you over that last hurdle with tools for taking your movie to its viewers, whoever and wherever they might be. Create a digital movie file in the format of your choice, burn a DVD, or even upload directly to your YouTube account.

Like the Importer, the Exporter opens in a separate window, and returns to the main window after its work is done. Turn to *Chapter 11: The Exporter* to learn more.

The central tabs

The three central tabs, *Library*, *Movie* and *Disc*, are where most of your work in Avid Studio takes place. The first of these opens the main view of the Library, where you can 'curate' your media collections.

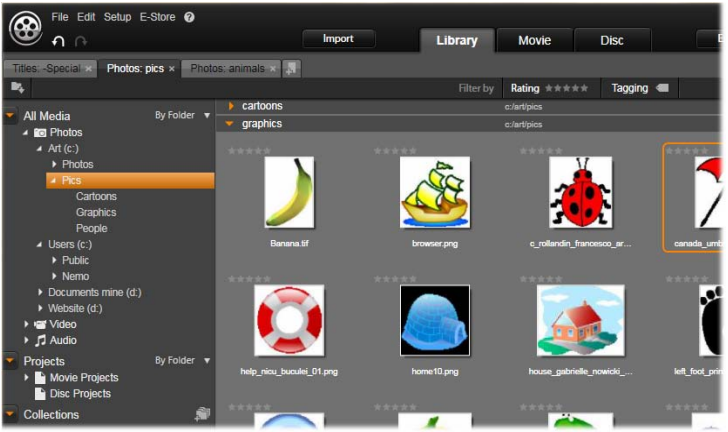
The other tabs open the two project editors, one for digital movies, and the other for disc projects, which are digital movies enhanced with interactivity in the form of DVD menus.

The Library

The Library is a cataloging and management tool for all the file-based resources – or *assets* – that you can draw on when authoring. Almost all of the materials of your movie – video footage, music and audio files, and many specialized resources such as transitions and effects – originate as assets in the Library. Many Library assets are supplied with Avid Studio, and are available for royalty-free use. These include professionally-designed titles, DVD menus, sound effects and more.

The Library uses *watch-folders* for keeping up automatically with the changing population of media files on your system. On the watch-folders page of the Avid Studio Settings, enter the names of your media directories, especially those that you update frequently. From now, the Library will scan those directories regularly for changes, and update itself accordingly. See “Watch-folders” on page 235 for details.

Main view: When you click the *Library* tab, the Library takes over the main window. This ‘main view’ gives you spacious access to a number of cataloging and search tools, including those for categorizing assets by means of ratings and tags, and those for creating user-defined asset collections.



The main view of the Library consists of navigation controls for exploring the catalog structure (left) and a browser for examining and selecting assets (right).

Compact view: The ‘compact view’ of the Library squeezes virtually the whole functionality of the main view into a panel embedded within certain other windows, such as the Movie Editor and the Disc Editor. The primary purpose of the compact view is to allow assets to be brought into a movie or disc project from the Library by drag-and-drop.

Player: The tools available from within the Library include the Player, a viewer that works for all media types handled by the application. When used from the main view of the Library, the Player opens in a separate window. When the compact Library is used, an embedded version of the Player appears in the same window. See “The Player” on page 7 for further information.

Previewing a Library video asset in the resizable Player window, with full transport controls including a shuttle wheel. You can keep working in the main window while the pop-up Player is open.

For comprehensive coverage of the Library and its uses, please see *Chapter 2: The Library*.

The next step

The next step, once you know your way around the Library and have made any changes needed to the default set-up, is to start creating a movie. There are two ways to go about this.

The usual way: If you want to exert detailed control over the way media assets are used in your production, you will usually start building your movie or disc project from scratch in one of the two *project editors*. These are described below.

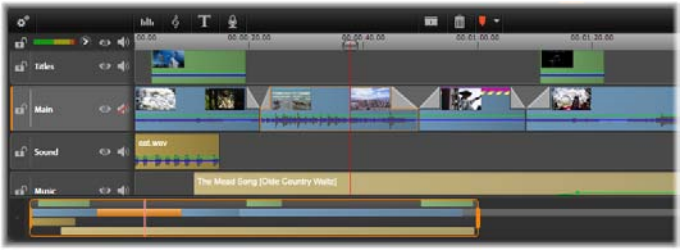
The easiest way: For ultra-quick results, the Library offers another way. Clicking the SmartSlide or SmartMovie tools at the bottom of the Library main view opens an extra tray of controls. With either of these you select some visual media assets to serve as the basis of the project, choose music for a soundtrack, and make a handful of other customizations. Then the software takes over, automatically generating a full-scale Avid Studio project containing the media and options requested. You can export the project immediately, or edit it further by hand as you choose. For details, please see "SmartSlide" on page 33 and "SmartMovie" on page 35.

The Movie Editor and the Disc Editor

Once you have gathered your materials together and organized them to your satisfaction in the Library, it's time to get to work on a video or a slideshow. If you are working on a disc production specifically, you can immediately start work in the Disc Editor, which is just like the Movie Editor but has extra tools for creating and setting up DVD menus. The Disc Editor is described in *Chapter 9: Disc projects*.

If you aren't planning on creating a disc, or aren't sure, or if disc is only one of the output media you are targeting, the Movie Editor is the right place to start. Once your movie is completed, you can export it to the Disc Editor and add in the menus.

The Movie Editor and the Disc Editor exist side-by-side, but apart from the export feature just mentioned, they do not interact. If you want, you can have a regular movie project and a disc project loaded simultaneously, and switch from one to another at will.



In both the Movie Editor and the Disc Editor, a multitrack timeline occupies the lower part of the display. Most of the 'clips' on the timeline come from the Library; a few types, like automatic background music, are generated with special tools.

As mentioned above, both project editors include embedded versions of the Library and the Player in addition to the timeline display. To build a project, drag assets from the Library onto the timeline tracks, where they are known as ‘clips’.

The *preview type* control above the Player lets you switch between viewing the current Library asset (‘source’) and the current timeline clip. In the Disc Editor, an additional preview type (‘menu’) lets you use the Player as an editor for linking disc menus to points on the project timeline.

Timeline editing, a central activity in project authoring, is covered in detail in *Chapter 3: The Movie Editor*.

The media editors

When needed, both the Library and the project timeline open additional windows for working with particular types of media and other assets. In general, you can open an editor window appropriate to any asset or clip by double-clicking the item.

Corrections from the Library: The editors for the standard media types of video, photo and audio are particularly important. When invoked from the Library (by double-clicking an asset), each of these editors provides a suite of *correction tools* appropriate to its media type. These tools can be applied directly to Library assets in order to remove camera shake from video, trim unwanted material from a photo, or suppress audio hiss, to give just a few examples.

When a correction is applied to a Library asset, the media file is not modified. Instead the correction parameters are saved in the Library database. They can be altered at any time, or removed, as your needs dictate. The corrections you make in the Library are brought with the asset when you add it to your project timeline as a clip.

Corrections from the timeline: When you open one of the standard media editors by double-clicking a timeline clip, the *correction tools* are again available, although in this case they apply only to the clip in the project, not to the underlying Library asset.

Effects: When they are invoked from the project timeline, the media editors also offer *effects*, which cover a wide-range of enhancements in all three media types. Effects range from the practical (*Brightness and contrast*) to

the theatrical (*Fractal fire*). Effects can be animated with *keyframed* parameter changes to any degree of complexity. They provide innumerable ways to add creative interest to your productions.

Pan-and-zoom: The Photo Editor provides one more tool, *pan-and-zoom*, of its own. Like the effects just discussed, pan-and-zoom can be animated with keyframes to create any desired combination of simulated pan and zoom camera moves within the boundaries of a single photo.

The Correction tools, and the media editors in general, are the subject of *Chapter 4: Media editing: Corrections*. The effects, and the *pan-and-zoom* tool, are described in *Chapter 5: Media editing: Effects*.

The Player

The Player is a preview screen in which you can examine Library media, play back your movie project, work on disc menus, and much more. In each window or context in which it is used, the Player exhibits somewhat different controls.

For an introduction to the Player and its basic controls, please see “The Library preview” on page 23. For the use of the Player in *trim* mode on the timeline, see “Clip operations” on page 55. For information on using the Player with Montage, see “The Montage Editor” on page 115. For the use of the Player in editing disc menus, see “Previewing disc menus” on page 174.

CHAPTER 2:

The Library

The Avid Studio Library, or simply ‘the Library’, is a cataloging and management tool for all the file-based resources you can draw on when authoring. Its purpose is to let you choose and use the video segments, photos, sound bites, transition effects, titles and other ‘assets’ (as they are often called) for your movies as easily, rapidly and intuitively as possible.

The Avid Studio Media Library opened on a folder of graphic images.

The Library’s classification scheme resembles what you might see in a file-system viewer. While the viewer groups *files* under their physical storage locations such as hard drives, the Library groups *assets* under their type – video, photo, and so on. In other respects, the tree view concept for accessing subgroups of assets is virtually identical and should feel immediately familiar.

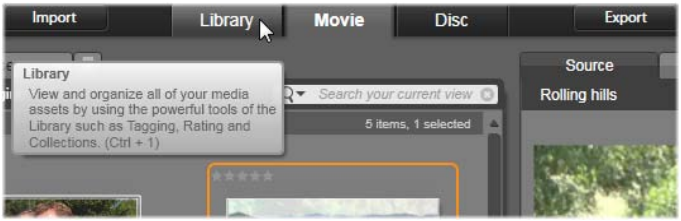
In addition to audio, photo and video files in standard formats, the Library includes specialized auxiliary media like titles and disc menus. They are found, along with transitions, filters and other effects, in the main category called ‘Creative Elements’.

The Library can easily manage large media holdings such as are often found nowadays even on a home system. All of the dozens of media file types usable in Avid Studio can be browsed, organized and previewed within its integrated interface.

Assets are displayed either as icons or text records within collapsible *folders* that stack up in the Library's Browser. The folders may correspond either to real directories in your computer's file system, or to virtual groupings based on ratings, file type, creation date, or membership in a user-defined *Collection*.

Adding assets to a project

Two views of the Library are found in Avid Studio. The Main view takes over the application window when you click the *Library* tab. It uses the full available space to provide as much information as possible.



To open the Main Library view, click the Library tab at the top of the Avid Studio application window.

The Compact view of the Library is a panel, either docked (as in the Movie and Disc project editors) or floating (as in the Title Editor). The Compact view retains the full functionality of the Library. Its primary purpose is to allow you to bring Library assets into a movie or disc project with drag-and-drop.

The current set of Library tabs, and the contents of the Browser, are common to all views of the Library. For instance, if you are browsing in a particular folder of disc menus in the Main view, that same folder will be open in the Compact view if you now switch to the Movie Editor.

Correcting media files

With regard to technical quality, media files are not all created equal. Occasionally, you do come across the perfect photo, clip, or sound effect. More often, though, the photo needs cropping, the video is shaky, or the

sound starts with an annoying hiss. Avid Studio's media correction tools let you fix these and similar issues by applying *correction filters* to a problem clip after you have placed it on the timeline of your project.

Often, however, an even better solution is to apply the correction to the Library asset itself, *before* adding it to a project. That way, any production using the asset will start with the corrected version, not the unsatisfactory original. Such corrections can quickly be made by opening media editors from the Library. The file underlying the corrected asset is not modified: instead, the correction parameters are stored in the Library database and reapplied whenever the item is displayed or used.

Instant gratification: SmartSlide and SmartMovie

In addition to the core functions mentioned so far, the Library offers a matching pair of tools for automatically constructing a complete project using media resources you specify. Just select some photos or video sequences, enter a few settings, and start. You can output the project Studio generates without further modification, or refine it with manual editing as you prefer.

UNDERSTANDING THE LIBRARY

The Avid Studio Library lets you manage and efficiently use the entire pool of media and other assets available for use in your productions.

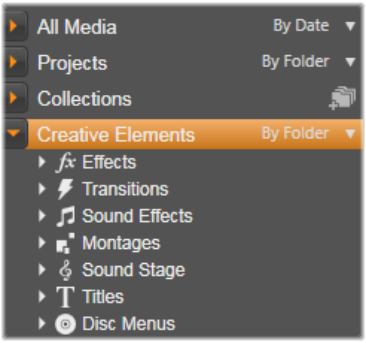
What exactly does the Library contain?

The full range of assets that you can draw on for your projects is summarized by the four main branches of the Asset Tree. Each branch is further divided into more specialized subsections.

All Media contains the standard media files on your system in subsections named *Photos*, *Video* and *Audio*. Many standard file types are supported. The purpose of the fourth subsection, *Missing media*, is described below.

Projects are your own Avid Studio movie and disc projects, with subsections named accordingly. You can open a project right from the Library and begin editing it, or you can add it to the timeline of another project to serve as an ordinary clip.

Collections are custom groupings of Library media. The more time you spend on media management, the more you will probably use Collections. They can serve as temporary holding places while you work, or for classifying and setting aside media for later use. Collections may be automatically generated, but most are user defined. Hierarchically-organized Collections are also supported. The top-level Collections in the hierarchy are used as the subsections of the *Collections* branch.



The *Creative Elements* branch is shown open in the illustration at right, revealing its subsections. Each is either a type of special effect (*Effects* and *Transitions*), or a special media type (the rest). Ready-to-use, royalty-free collections of all seven types are included with Avid Studio.

Storage of Library assets

Every asset in the Library – every clip, sound, transition, and so on – corresponds to a file somewhere in the local storage of your computer system. The Library doesn't 'own' these files, and never modifies them unless specifically requested to do so. Rather, it keeps track of their names, locations and properties in an internal database. The information stored also includes any tags and ratings with which you have annotated particular items, and the parameters of any correction filters you have applied.

The database

The files that make up the Library database are stored in a folder with single-user rather than shared access rights under Microsoft Windows. If Avid Studio is used on your computer by multiple users with individual log-ins, a separate Library will be created for each.

Missing media

Operations like adding, removing and renaming a Library asset are database operations that have no effect on the media file itself. When you remove an asset from the Library, an option on the confirmation dialog box does let you go one step further and delete the actual file as well, but the option is off by default – you have to specifically request the action.

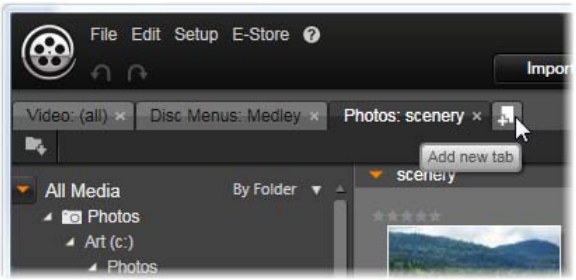
By the same token, when you delete or move an asset file in Windows Explorer or another application outside of Avid Studio, the database record of the file continues to exist. Since the Library can't actually access the file, however, an error graphic is added to the file's listing. If the file still exists, but has simply been moved to another folder or device, relinking it to the Library is easy. Double-click the item to pop up a standard File Open dialog with which you can point the way to the file's new location.

Incidentally, to check if there are missing media anywhere in the Library, look in the special subsection *All media ➢ Missing media* of the Asset Tree. The Asset Tree is described below (page 14).

Location tabs

Editing a video project involves coordinating the various media and other assets at your disposal. As you proceed, it's likely that you'll find yourself browsing repeatedly in various parts of the Library that are relevant to the project. No doubt you will also change your viewing and filtering options from time to time, depending on the material you're reviewing.

Like a web browser that uses a row of tabs to allow flipping effortlessly amongst multiple open web sites, the Library lets you create and configure location tabs as you work. The tabs provide direct access to each of the various locations in which you are currently working.

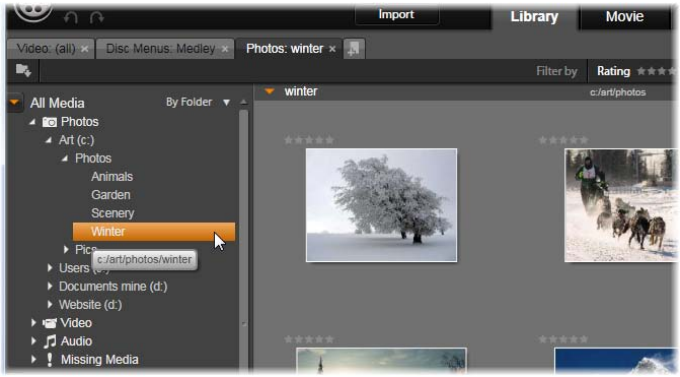


Here three tabs give access to media required by different parts of a disc project. The mouse pointer is poised to create a new tab. To close a tab, click the ***x*** *icon to the right of the tab caption.*

To set the location of the current tab, click a name in the Asset Tree. Changes you make to viewing and filtering options while the tab is active are retained between accesses.

The Asset Tree

The entire gamut of Library assets is organized into a folder tree whose structure and general usage should be familiar from file-system tools like Windows Explorer. When you select a location in the Asset Tree, the folder name appears on the caption of the active location tab, and its contents are displayed in the neighboring Browser.



In the Main Library, shown here, the Asset Tree occupies the left-hand pane of the workspace. In the compact view of the Library used by Avid Studio's project and media editing tools, the Asset Tree is presented instead as a dropdown list on the active tab.

The four main 'branches' of the Asset Tree were introduced above (page 11).

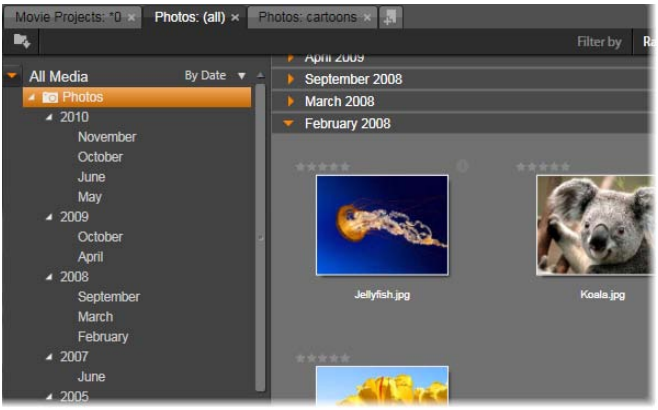
The *Group By* menu

The header line of the *All media* branch offers a small dropdown menu of options to control how the groupings within each subsection of the branch are created.

When you group *by folder* (the default), the folder structure corresponds to actual directories on your hard drive, flash drive, or other file-system device. Some standard folders are included by default; you can add others at will using the *watch folder* system. Grouping *by folder* is shown in the Main Library illustration above.

When you use another grouping, *by rating*, *by date* or *by file type*, exactly the same asset files are listed within each subsection as with the *by folder* grouping. However, instead of classifying them by the file system folders in which they are stored, the Asset Tree groups them into 'virtual folders' according to the chosen property.

Grouping by *rating*, for example, divides each subsection into six virtual folders. Five of them display media files to which you have given star ratings; the sixth is for those you haven't rated yet. See "The Browser" (page 19) for more information about file ratings and their uses.



The Main Library with grouping By Date selected in the All Media branch of the Asset Tree. The bottom-level folders in the Asset Tree are displayed in the Browser (right). These 'virtual' folders each represent all the photos whose file date falls within a particular month.

In the illustration above, the *Photos* subsection of the *All Media* branch is shown grouped by *file type*. The virtual folders have names like *bmp*, *gif* and *jpg* – one virtual folder for each recognized file extension in the subsection's media files.

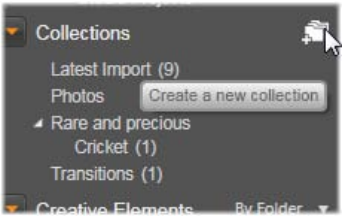
Under group *by date*, the folders represent the year of the file's creation; within these, the files are further grouped by month.

Grouping in other subsections

The *Projects* and *Creative Elements* branches of the Asset Tree also provide a g*roup by* menu, so it is possible for branches to be in different grouping modes. The menu commands are the same as described above for the *All Media* branch, except that the *by file type* option is not needed and doesn't appear.

The a*dd collection* button

The *Collections* branch does not exhibit a *group by* menu. This button on the branch header lets you create a new Collection as described under "Collection operations" below.



Collections

From the Library's point of view, a *Collection* is just an arbitrary grouping of assets – a set of Library items with no organizing principle. You may well have a good reason for gathering certain files into a particular collection, but the Library doesn't have to know what it is. Inside a Collection, any asset can rub shoulders with any other.

One special Collection, with the name *Latest import*, is automatically updated after each import operation to display the media added. Immediately after importing, you can turn to this Collection and start working with the new material.

Another automatically-generated Collection is *Latest Smart Creation*, which stores the media you selected for your most recent SmartSlide or SmartMovie production.

Collection operations

To create a new Collection, click the icon in the header line of the *Collections* branch and enter a name in the provided text field. Complete the process by pressing Enter. Alternatively, choose *Add to collection* ➢ *Create new collection* from any asset's context menu.

Manage Collections: The context menu for any Collection provides commands for renaming and deleting the Collection, and one for creating a subcollection that has the current Collection as its parent 'folder'.

Drag and drop: Collections can be organized in the Asset Tree with the mouse. A dragged Collection becomes a subcollection when dropped upon another.

Displaying collected assets

Clicking the name of a Collection causes it to be displayed in the Browser.

There is one important difference between the Browser view of Collections and those of all other categories: The media assets in any subcollections are visually merged with those of the selected Collection, but not subgrouped.

However, a special feature of the Browser makes it easier to keep track of the assets when viewing Collections, even if you're not a robotically systematic sort of person: As your mouse pointer passes over any listed asset, the Collections to which the asset belongs 'light up' in the Asset Tree.

Operations on collected assets

These operations can be performed from the context menu of any Collection item. To act on a group of items, first select them with the mouse (using Ctrl-click and Shift-click for multiple selections as needed) or by dragging out a frame around the items. Then right-click within the selection to access the context menu.

Add to collection: Choose a target Collection on the *Add to collection* submenu to add the selected item or items. Alternatively, drag the selection onto the target Collection.

Remove from Collection: The *Remove* command removes the item (or items) from the Collection. As usual with the Library, the underlying media items involved are not affected, so removing a video or other item from a Collection in the Library will *neither* delete the media file from your hard drive *nor* from the asset type category.

Managing Library assets

Media and other assets find their way into the Library in several ways. For instance, the original contents of the *Creative Elements* branch of the Library are installed with Avid Studio.

The Library automatically discovers some assets on your system by regularly scanning Windows-standard media locations. These are set up on Avid Studio installation as *watch-folders*. Media files in these locations will

automatically be brought into the Library. You can add your own watch-folders (see below), and they will be automatically updated, too.

Finally, you can import media manually by any of several methods (see "Importing" below).

Watch-folders

'Watch-folders' are directories on your computer that Avid Studio monitors. If you add media files such as video clips to a watch-folder, or one of its subfolders, they automatically become part of the Library. Updating occurs each time the application is launched and while the application is running.

Watch-folders are set up on the *Watch-folders* page of the Settings dialog. For each folder that you add, you can specify that either one particular supported media type will be 'watched for', or all of them.

Importing

If you need to import a large amount or variety of media, or to import from analog media such as VHS tape, click the *Import* button near the top of the application window to open the Importer. See *Chapter 10: The Importer* for full information.

Quick Import

The *Quick Import* button at the top left of the Library opens a Windows file dialog for fast import of files from a hard drive or other local storage.

New folders in the corresponding media categories (video, audio and images) are created for the files specified. In addition, the imported items are included in the *Last Import* Collection. (Collections were described earlier in this chapter, on page 16.)

Direct import via drag and drop

To select and import items in one step, use drag-and-drop from Windows Explorer or the desktop into the Browser. The new items are immediately displayed in the Collection 'Latest Import', which is created for the occasion if necessary.

Removing items from the Library

To remove an item from the Library, or a selection containing multiple items, choose *Delete selected* from its context menu or press the Delete key. A confirmation dialog verifies the names of the media files to be removed from the Library database. By default, the media files themselves will not be affected, but the *Remove from library and delete* option lets you delete the files too, if desired. Be careful, as this command works on all kinds of Library assets, including your Avid Studio projects if any of those are selected.

When all the files in a folder are removed, the Library hides the folder as well.

You may also remove a folder and all the assets it contains from the Library when removing the folder from the watch-folders list. However, this is not automatic and you will be asked if you want to keep your current assets listed in the Library, but still stop monitoring the location.

The Browser

This is the area in which the Library displays its media assets – the videos, photos, audio, projects, collections and 'creative elements' that are available for you to use in your movie and disc projects. The items are displayed either as a list of text records or as a grid of icons. Visual asset types use thumbnail images for their icons; other types use graphic symbols.

The Library would not be much help if the Browser displayed all its assets at once. It therefore has several controls that help you screen out items that aren't relevant to your purpose. See "Choosing what to display" below for details.

Thumbnails, Details, Show scenes

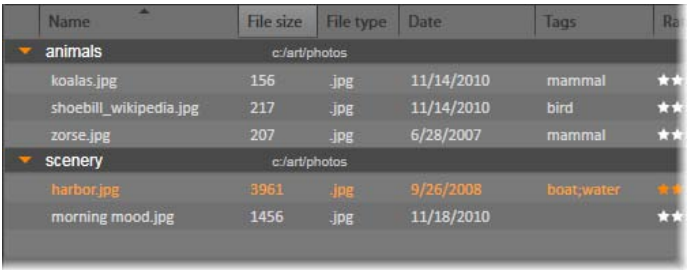
Each asset is displayed in the Browser in one of two formats, depending on the *view* selected. Because the icons of *thumbnails* view and the text records of *details* view represent the same assets, they have certain features in common. For instance, the context menu for assets is the same regardless of which representation is used.

Similarly, standard media assets (video, photo and audio), along with *Sound effects* in the *Creative Elements* branch, open an appropriate media correction editor when double-clicked in either view. The correction editors are also available from your project timeline, but when applied to a Library asset the corrections are carried forward into any future project that includes it. See “Correcting media defects” on page 30 for more information.

Details

In *details* view, each asset is presented as one line in a list of text records. In *thumbnail* view, it appears as a thumbnail image (for visual media types) or graphic icon.

To switch the Browser to *details* view, click the icon on the *details view* button at the bottom of the Library. The arrow beside the button opens a panel where you can choose the columns to be included in the text records. The columns available for inclusion are *Name*, *File size*, *File type*, *Date*, *Tags*, *Rating* and *Duration*.



In Details view, each asset is displayed as a one-line text record. A dropdown list beside the Details view button lets you select which columns to show. In the illustration, ‘animals’ and ‘scenery’ are the names of folders in the All Media branch of the Library.

Thumbnails

The button to the left of the *details view* button selects *thumbnails* view, in which assets are represented by icons rather than text. The arrow beside the button opens a panel where you can choose additional data to be shown in conjunction with each icon. The options are *Text*, *Tag indicator*, *Collection indicator*, *Ratings* and *Corrections indicator*.

In addition to these optional controls, whenever the mouse pointer is positioned over the icon, an *info* button is displayed. Clicking the button opens the *information* panel at the bottom of the Browser view. See page 23 for details.

When the mouse pointer is over a Library asset icon the Info button (top right corner) appears.

At the bottom left of most asset icons a *preview* button, a standard triangular *play* symbol within a circle, is displayed. In the compact version of the Library (used in the project editor and some media editors), the preview is shown on the *Source* tab of the embedded Player. In the Main Library, preview occurs in a separate Player window. See "The Library Preview" on page 23 for more information.

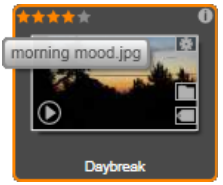
In either version of the Library, Alt-clicking the *preview* button will give you a mini-preview on the asset icon itself. With video and audio media, you can preview under manual control with a scrubber that appears below the thumbnail whenever the mouse is over the icon.

Show Scenes

On video *files* this button will switch to Scene View. Scenes are managed by the Library Player. See "The Library Preview" on page 23 for more information.

The optional controls

The optional indicators and buttons on an asset icon let you access asset information without having to burrow deeper.



Text: The caption below the icon is the Library alias for the asset, which you can set with the *Edit caption* context menu command for any asset. It is not necessarily the name of the asset file (which is shown in the tooltip).

Tag indicator: The lower of the two symbols at the bottom right of the thumbnail is shown if the asset has any tags assigned to it. Hover the mouse pointer over the indicator to bring up a menu on which the existing tags for the asset are shown. As you pass the pointer over a tag name on this menu, a *remove* button appears. Click it to unset the tag. Click *remove all* at the bottom of the menu to clear all tags from the asset. The creation and application of tags is discussed further below, and under "Tags" on page 28.

Collection indicator: Just above the *tag indicator*, the presence of this icon indicates that you have included the asset in one or more Collections. To see which ones, hover the mouse over the icon. As with the *tag indicator* menu, a *remove* button is shown as you position the mouse on each Collection name; click it to remove the asset from the Collection. The *remove all* command removes the asset from all Collections of which it is a member.

The Ratings control is displayed at the left above the thumbnail (or graphic icon, depending on the media type). At top-right is the Info button. The Corrections indicator is also at upper right but within the thumbnail.

Ratings: The row of stars above the top left of the icon lets you set the asset rating. If no stars are lit, the asset is said to be *unrated*. To set the rating of one asset or a selection of assets, either click the corresponding star on the indicator (click the first star twice to make the asset unrated again) or choose the setting on the *Apply rating* context submenu.

Corrections indicator: The Library allows you to apply image and audio correction filters 'non-destructively' on Library media assets, meaning that the original file remains intact. The types of corrections that have been applied to an asset, and the parameters that were used to control them, are stored in the Library database. The *corrections indicator* is shown on all assets to which corrections have been applied. See page 30 for information about applying correcitons to Library assets.

The Library preview

Most types of Library asset support previewing in the Browser. The capability is indicated by a *preview* button on the asset icon, and the presence of a *Show preview* command on its context menu.

Remember too that most asset types can be previewed on the icon itself with an Alt-click on the *play* button.

The Library Player

Clicking the *preview* button in the lower left corner of the asset icon loads the item into the Library Player for viewing.

Previewing a video clip in the Library Player window. The transport controls are at the bottom, starting with a Loop button at the far left and a Shuttle wheel. The third in the group of five arrow buttons starts playback. The two buttons on each side of it are for navigating from asset to asset in the Library folder.

Along the top of the Player, the current viewing position is displayed. At the bottom is a toolbar of transport controls and function buttons.

Transport controls

First among the transport controls is the *loop* button, which causes playback in a continuous loop from the start of the media. Next is a *shuttle wheel*

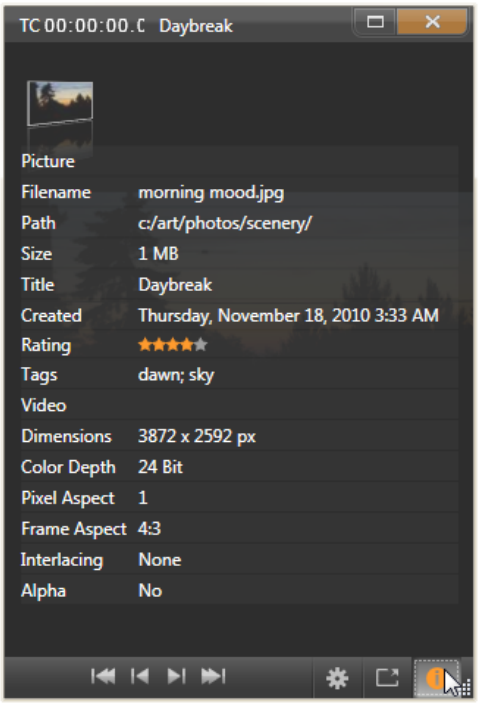
with which you can sensitively control the speed of playback by dragging backwards and forwards on the control.

The center *play* button in the cluster of five arrow controls begins preview of the video or audio asset. The two buttons on either side of it are for navigating from the viewed asset to others in its folder. When previewing a photo the *play* button does not appear; only the navigation buttons remain.

Click the *mute* button to the right of the transport controls to toggle the audio associated with the clip. A volume slider appears next to the *mute* button when the mouse is over it.

Function buttons

Some buttons in the final group at the bottom of the Player appear only with particular asset types. A video file uses all four types, in the order shown and described here.



Here, data regarding a Library asset, a photo, is displayed in the Information view of the Player. Click the Info button again to return to the Playback view.

Show Scenes: This button activates a mode in which the Browser displays a separate icon or text record for each *scene* in the video file. (As explained under Video scene detection, a scene in the most general sense is just any portion of a video file.)

When *Show Scenes* is active, the neighboring *Open in media editor* button is removed, and a *Split scene* button takes its place. This allows you to define your own scenes instead of, or as well as, relying on the automatic scene detection feature.

For more information about video scenes in the Library see “Video scene detection” on page 30.

Open in media editor: The media file is opened for editing in the correction editor appropriate for its type.

Full-screen: The preview is shown in a special full-screen window, with its own basic set of transport controls. To close the full-screen display, click the *close* button in the top right corner of the window, or press Esc.

Info: This button switches between the Player’s *information* and *playback* views. The *information* view can be opened directly by clicking the *info* button on a media asset icon in the Browser. Audio assets have no separate *playback* view; instead, full scrubbing controls are shown in the *information* view.

USING THE LIBRARY

The Library is much more than a passive storehouse of material for your Avid Studio productions.

Choosing what to display

The Library Browser has several features for decluttering your view by hiding assets that aren’t relevant to your purpose. No matter how numerous your media files, the combined power of these techniques can greatly speed your browsing.

Location tabs

Most importantly, each *location tab* corresponds to a different selection on the Asset Tree. Like web browser tabs, location tabs are readily defined (by clicking on the '+' icon at the right end of the tab list), and come in handy for keeping track of multiple things simultaneously.

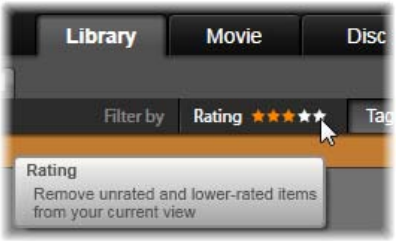
Clicking within the Asset Tree sets the location for the current tab; conversely, clicking another tab transfers you to its saved location on the tree. Only the assets within the chosen location are displayed in the Browser. If the location has subfolders, however, their contents will be included. To keep things simple, choose a location as near the bottom of the folder hierarchy as possible.

Other controls let you restrict the display further by filtering out some of the assets in the chosen location. Each location tab maintains its own set of filters, so any change of filtering settings affects the current tab only.

Filter by rating

The *Filter by rating* control at the top of the Library hides all assets that don't have at least the specified rating from one to five stars (zero stars means 'unrated'). To use the filter, simply click on the star that represents the minimum rating you want to bother with. The default filter setting is to show all assets regardless of rating.

See "Inadvertent filtering" (page 27) for instructions on switching off all filters at once. To deactivate just the rating filter click the *last selected* star or double-click any star.

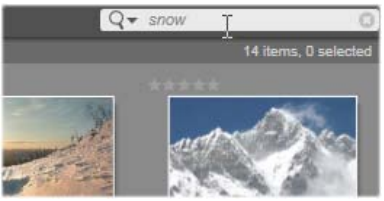


In this close-up, three stars are highlighted, meaning that only assets with ratings of three stars or better are on display. The mouse is poised to click the fifth star, which would set the rating filter to hide all but five-star assets.

Filter by tags

Another way to narrow the field of displayed assets is with filtering by *tags*. Tags are keywords that you can assign to assets as you work. Once tags have been defined, you can use them in several ways to control which assets are displayed by the Browser. See “Tags” on page 28 for details.

Search



At the top right of the Library is a *search* field that gives one further way to filter the display. As you begin entering your search term, the Browser continually updates the view to include only those assets with text that matches your search term.

Even when multiple terms are separated by spaces, partial-word as well as whole-word matches are allowed in each term. A dropdown list lets you choose whether the search will be satisfied if even a single search term matches the asset text, or if all terms must match.

Inadvertent filtering

The three filtering types can be combined at will. Should you leave any of the filtering types switched on when you don’t need it, it’s likely that some assets will be hidden that should be displayed. When an item is unexpectedly missing in the Browser, verify that filters are inactive.

The Browser guards against the possibility of inadvertent filtering by displaying a ‘filter alert’ that remains visible as long as any filter is in use.

A filter alert like the one shown here is displayed at the top of the Browser whenever filtering is in force. Click the x *icon at the right-hand end to clear all filtering at once.*

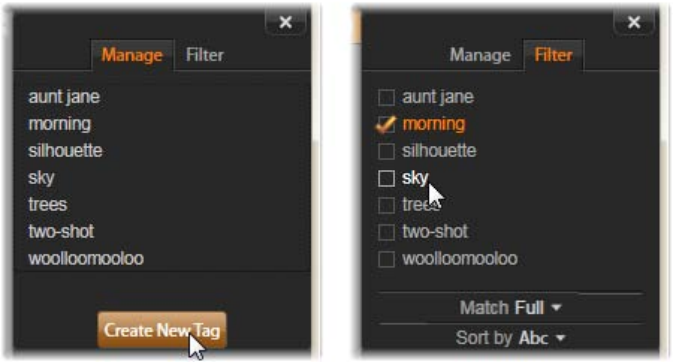
Tags

The Library is capable of handling a great number of asset files, sometimes far more in even a single folder than can be viewed conveniently. The Browser therefore provides a number of methods of winnowing out irrelevant assets from the display.

One method of streamlining the display of assets in the Browser is filtering by *tags*. A tag is a word or short phrase that you think would be useful as a search term. It is up to you whether you assign tags to your media, but if you do, they provide a powerful way of selecting assets to display.

Tag management and filtering

Management of tags, and filtering by tags, are the purpose of a panel that appears when the *Tags* button at the top of the Library is clicked.



Manage and Filter, the two tabs of the tags panel.

Manage tags

The *Manage* tab of the tags panel lists the tags you have defined so far, and lets you delete or rename them. Hovering the mouse over a tag reveals controls for those tasks.

Hovering over a tag in the Manage tab reveals the Rename and Delete buttons. Clicking the tag itself applies it to any currently-selected assets.

The *Create new tag* button opens a text input for entering another keyword. There is no limit to the number of tags you can define.

To apply a tag to all currently-selected assets in the Browser, click the tag name. Selecting multiple assets to tag makes the process much more efficient than if you could tag only one item at a time.

Filtering with tags

The *Filter* tab of the tags panel is the one that narrows the set of items displayed in the Browser. As you check and uncheck the tags, the view updates automatically.

The exact effect of your selections depends on another control, the *Match* dropdown at the bottom of the *Filter* tab. The list provides three options.

None displays only assets that have *none* of your checkmarked tags. If you have a tagged set of animal photos, checking both the 'dog' and 'cat' tags, then selecting 'None', should hide most of the pet pictures.

Partial selects assets with *any* of your tags, which happens to be exactly those hidden by 'No match'. If you leave 'dog' and 'cat' checked, but switch to 'Partial', all the dogs and cats will be displayed, including the handful of photos in which both animals appear. Photos with neither tag will be hidden.

Full selects only the assets that have *all* your tags. Now with the same boxes checked you should see only those photos in which at least one cat *and* one dog appear. Notice that under 'Partial' you will see more assets displayed as you check more tags, but with 'Full' you will see fewer.

Turning off tag filtering

To cancel filtering by tags, uncheck any checked tags on the *Filter* tab, and either 'Partial' or 'Full' in the *Match* dropdown.

Sorting tags

At the bottom of the *Filter* tab is the *Sort by* dropdown, offering just two choices: 'Abc', in which the tags are sorted alphabetically, or 'Relevance', which sorts them in descending order of their popularity in the set of assets currently on display. Under the second choice, you will see the tags being resorted each time one is checked or unchecked.

The art of tagging

There is no prescribed way of using tags. The best way to use them – if you do – is the way that works best for you. Consistency is important, however. The more faithful and systematic you are about assigning tags to your media, the more useful they will be.

Since the idea is to locate an asset quickly when you need it, tags should be chosen to work well as search terms. With family photos, your tags might include the names of the people in each shot. For vacation video scenes, tags naming the locations visited would probably be useful.

Videographic terms ('two-shot', 'silhouette', 'exterior') can also serve as good tags by making it easier to find assets that fulfil particular structural or creative requirements.

Correcting media

You can apply the media correction tools in the video, photo and audio editors directly to Library assets. This kind of editing does not change the underlying files. Instead, the editing parameters are stored in the Library database and are reapplied whenever the asset is recalled. See *Chapter 4: The media editors* for details.

Video scene detection

Using the Library's automatic scene detection function, video footage can be split into multiple scenes either automatically or manually. Dividing raw files into scene-length portions can make some editing tasks much less cumbersome than they would be otherwise.

The time required for scene detection varies depending on the length of the clip and the detection method selected. A progress bar keeps you informed of the status.

To initiate scene detection, select one of the methods on the *Detect scenes* context menu command for video assets.

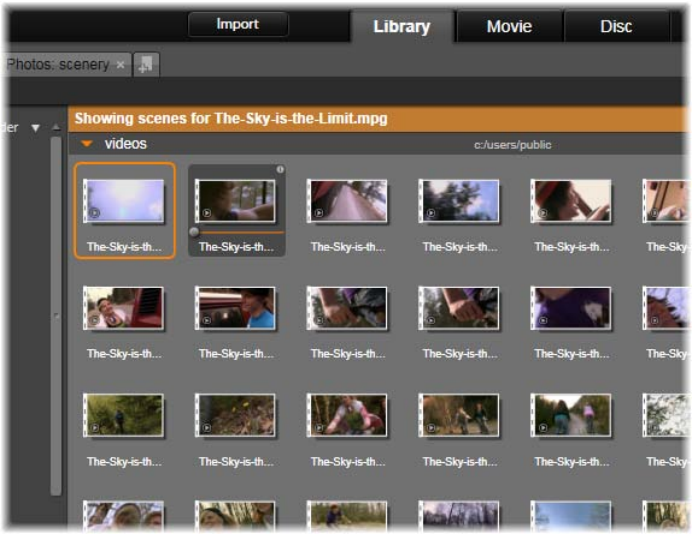
By date and time: This option often results in logical scene boundaries that reflect your intention while shooting. In many digital recording formats, such as DV and HDV, a discontinuity in the recorded timecode data occurs whenever the camera is restarted after being stopped. These shooting breaks are treated as scene breaks under the option.

By content: Under this option, the scene detection tool analyzes the image content of the material frame by frame, and establishes a new scene whenever there is an abrupt change in content. However, a quick pan or rapid movement across the frame may produce some unneeded breaks.

By time interval: In this variant you define the length of the scenes to be created. A small editing window opens for entering the desired value in hours, minutes, seconds and milliseconds; press Enter to confirm your input.

Show the scenes

To show the catalog of scenes for a particular video file, either select *Show scenes* from its context menu; or select the clip, then click the *Show scenes* button that appears at the bottom right of the Library.



A single video file can contain many scenes. This makes the footage easier to manipulate during editing than if it were treated as a single segment. The scenes are visually indicated by stylized film perforations.

Scene view is a temporary viewing mode. The orange bar at the top of the Browser alerts you that scene view is active. At the right hand end of the bar is an **x** button you can use to terminate the mode. Clicking the *Show scenes* tool again has the same effect.

During editing, scene clips behave identically to other video clips.

Manually creating scenes

If you want to manually divide a video file into individual scenes, select *Show scenes* from the asset's context menu. If you haven't previously subdivided the file, it will now appear in the Browser as a single scene.

In the Library Player, navigate within the clip to each frame where a scene break should occur, then click the *split scene* button. See "Function buttons" on page 24 for further information.

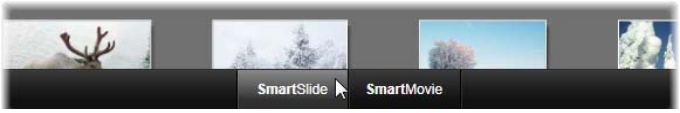
Removing scenes

To empty the entire list of scenes for a video file, select *Scene detection* ➢ *Remove scenes* on the asset's context menu.

To remove individual scenes, select one or more scenes then press Delete.

SMARTSLIDE AND SMARTMOVIE

SmartSlide and SmartMovie are built-in project generators that allow you to create a slideshow or movie automatically based on media you supply. The created production will include animated transitions, a full music soundtrack and eye-catching image effects.



At the bottom of the Library window, click SmartSlide for fast slideshows, or SmartMovie for fast movies.

To begin, select from the Library a series of photos (or other images) or video files. Your music might come from digital audio assets already in the Library, or you can cook up a soundtrack on the spot with the Scorefitter tool.

That might be all it takes, though you can work on the project further with manual editing if you wish. Once you have a final product you like, it takes only a few clicks to burn it onto a disc or save it as a file for other uses, such as upload to the web.

SmartSlide

To open the SmartSlide tool, click the *SmartSlide* button at the bottom of the Library window.

The SmartSlide controls are presented on a panel that slides up into the window from below. It contains three subpanels. The leftmost of these presents information about SmartSlide, and advice on how many files to include. The center subpanel is a storage area with bins for photos and other images (top) and audio. The right subpanel contains controls for customizing the show.

Adding media

To add images to the slideshow, drag them from the Browser into the upper bin in the storage area. Drag thumbnails within the storage area to get the order you want. Continue adding further images until you are satisfied.

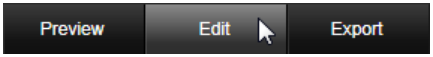
To add music, drag one or more sound files to the lower bin in the storage area. Alternatively you can click the *clef* button in the bottom left corner of the audio bin to create a music soundtrack in ScoreFitter.

Preview, edit and export

Once your media are in place, click the *Preview* button on the footer bar below the tool. The project is created and presented in a preview window. If necessary, you can return to the SmartSlide tool to modify your media selections.

When you click the *Preview* button, the media you have chosen are automatically saved in a Collection named *Latest Smart Creation*. If you expect to make further use of this grouping of assets, rename the Collection to prevent it being overwritten the next time you look at a SmartSlide or SmartMovie preview.

The *Edit* button brings your slideshow to the Movie Editor timeline for detailed editing. It's a good idea to check that the timeline video settings match your requirements for the show. The *video settings* button on the settings panel (below) provides access to these. Also see"Timeline" on page 41.



When the presentation is the way you want it, click *Export* to burn a disc or create a file for upload.

The storage area

The photos in the upper bin are displayed as icons, while the music and sound files in the lower bin appear as text lines giving the file name and duration of each asset. Both bins support multiple selection, drag-and-drop reordering, and a context menu with just two commands:

Delete selected: The selected media are removed from the SmartSlide production. They remain available in the Library for other uses. (Shortcut: Delete.)

Open editor: This command opens the Corrections tool of the Photo Editor or the Audio Editor. Any modifications you make to the media apply only within this SmartSlide production. (Shortcut: double-click.)

SmartSlide settings

The settings on this subpanel are for customizing the SmartSlide production.

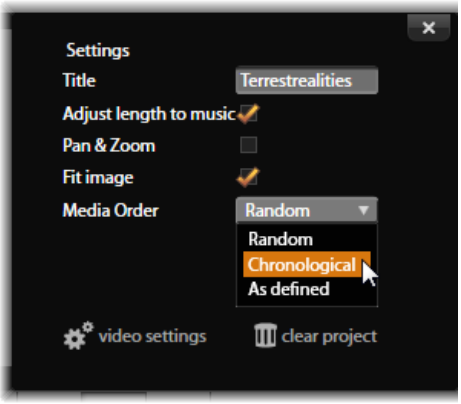
The settings entered will be used the next time the slideshow is generated. The *video settings* button lets you set up the timeline options that will apply if you take the production into the Movie Editor. The *clear project* button removes all media from the project and returns to default settings.

Title: Enter a caption to be used as the main title of the slideshow.

Adjust length to music: When this option is checked, SmartSlide attempts to adjust its timing parameters so that the generated slideshow lasts exactly as long as the music soundtrack you have specified. The information subpanel provides advice about how many images to employ when the option is in force.

Pan and zoom: Checking this option enlivens your presentation with simulated camera moves.

Fit image: Check this option to enlarge images that are too small for the selected format. For a more flexible approach, you can also consider correcting the asset with the *Crop* corrections tool.



Here the mouse pointer selects chronological order on the Media Order list of the SmartSlide settings panel. At the bottom of the panel are buttons for adjusting video settings for the generated project, and for starting over from scratch.

Media order: Select an option for the order of slides, from 'As defined' (the sequence is set by you), 'Chronological' (according to the file timestamp), and 'Random'.

SmartMovie

To open the SmartMovie tool, click the *SmartMovie* button at the bottom of the Library window.

SmartMovie, like SmartSlide, presents its controls on a panel that slides up into the Library from below. Again there are three subpanels. The leftmost presents information and advice concerning your SmartMovie. The center subpanel is a storage area with bins for video and photos (top) and audio. The right subpanel contains controls for customizing the show.

Adding media

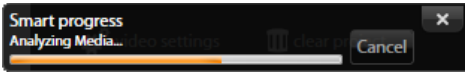
The visual elements in your SmartMovie can include photos and other still images along with the video. Drag the assets you want to use from the Browser into the upper bin in the storage area. You can also drag thumbnails within the storage area to get the order you want. Continue adding further material until you are satisfied.

To add music, drag one or more sound files to the lower bin in the storage area. Alternatively you can click the *clef* button in the bottom left corner of the audio bin to create a music soundtrack in ScoreFitter.

As media are added, the total running time of the source material is displayed in the top-left corner of the bin. This is not necessarily the length of the resulting movie.

Preview, edit and export

Having placed your media, click *Preview* on the footer bar below the tool. The project is created and opened in a preview window. If necessary, you can return to SmartMovie to modify your media selections.



The analysis phase of generating a SmartMovie may take some time to complete the first time the material is analysed. Full rendering of the project, with progress indicated by shading on the time-ruler of the Player, may introduce an additional delay before a fully-detailed preview is available.

When you click *Preview*, the media you have chosen are automatically saved in a Collection named *Latest Smart Creation*. If you expect to make further use of this grouping of assets, rename the Collection to prevent it being overwritten the next time you generate a SmartSlide or SmartMovie preview.

The *Edit* button brings your production to the Movie Editor timeline for detailed editing. As usual, it's a good idea to check that the timeline video settings match your requirements for the show. The *video settings* button on the settings panel (below) provides access to these. Also see"The project timeline" on page 41.

When the presentation is the way you want it, click *Export* to burn a disc or create a file for upload.

The storage area

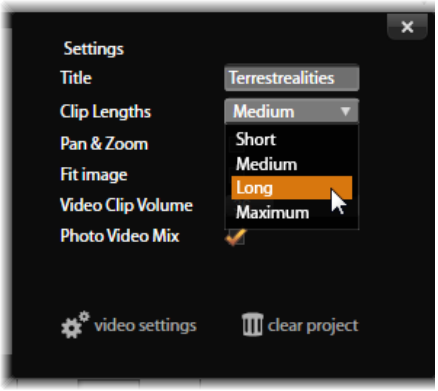
The visual assets in the upper bin are displayed as icons, while the music and sound files in the lower bin appear as text lines giving the file name and duration of each asset. Both bins support multiple selection, drag-and-drop reordering, and a short context menu:

Delete selected: The selected media are removed from the SmartMovie production. They remain available in the Library for other uses. (Shortcut: Delete.)

Open editor: This command opens the Corrections tool of the Video Editor, the Photo Editor or the Audio Editor. Any modifications you make to the media apply only within this SmartMovie. (Shortcut: double-click.)

SmartMovie settings

The settings on this subpanel are for customizing the SmartMovie production.



Here the mouse pointer selects the 'long' Clip Length setting on the SmartMovie settings panel. At the bottom of the panel are buttons for adjusting video settings for the generated project, and for starting over from scratch.

The settings entered will be used the next time the movie is generated. The *video settings* button lets you set up the timeline options that will apply if you take the production into the Movie Editor. The *clear project* button removes all media from the project and returns to default settings.

Title: Enter a caption to be used as the main title of the movie.

Clip lengths: The visual tempo of your movie increases as the clip length is shortened. To use the original length of the asset, choose *Maximum*.

Pan and zoom: Checking this option enlivens your presentation with simulated camera moves.

Fit image: Check this option to enlarge material that is too small for the frame format of your project.

Video volume: Set the volume of the original audio in the video segments you are using. If you want the soundtrack to contain background music only, set this value to zero.

CHAPTER 3:

The Movie Editor

The Movie Editor is Avid Studio's main editing screen for digital movie creation. The editor brings together three main components:

The Library, in its compact view, provides the assets available to your project.

The project timeline lets you organize the assets as *clips* within a schematic representation of your production.

A portion of the Movie Editor display, with the compact view of the Library at upper left, the Player at upper right (partly visible), and at bottom the timeline and the Navigator.

The Player lets you preview Library assets before adding them to your project. It also lets you view – on a frame-by-frame basis if you like – how any part of the production will actually appear to your audience when you *export* it (save it as a file or upload it to YouTube).

In addition, the Movie Editor calls upon a variety of tools and windows for creating and editing titles, adding effects, and other purposes.

Disc editing

If you plan ultimately to release your movie on DVD with interactive menus, you will at some point need the special features of the Disc Editor. It provides all the same timeline editing features as the Movie Editor, but also lets you create and work on the disc menus with which users will navigate your production.

Avid Studio lets you smoothly transition a movie to a disc project at any time during development, so it's all right to start in the Movie Editor even if you end up targeting DVD for output instead of or as well as the other options. Please turn to *Chapter 9: Disc projects* for information about the special features provided for disc authoring. The other aspects of timeline editing are covered in this and subsequent chapters.

The compact Library

The compact view of the Library, which uses the top left of the Movie Editor screen, is a core feature of the editing environment. If you switch back and forth between the Library and the Movie Editor, you will see that the same *location tab* is selected in both views, and that the same Library assets are on display.

With the compact Library and the timeline together in the same window, adding assets to your movie becomes a breeze: just drag the items you want from the Library Browser onto the project timeline.

Slideshow productions

In addition to all types of video productions – 'movies' – the Movie Editor (and the Disc Editor) can be used for authoring complex slideshows and presentations from still images. The same editing techniques apply in both cases.

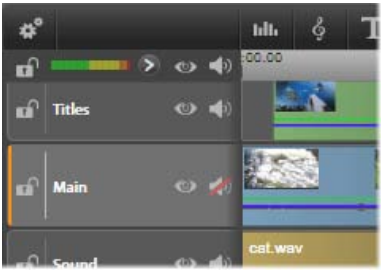
THE PROJECT TIMELINE

The timeline is where you create your movie, by adding video, photo and audio assets from the Library, by editing and trimming these core media, and by enlivening them with transitions, effects, and other enhancements.

Timeline fundamentals

The timeline consists of multiple tracks – as many as you require – in a vertical stack. Tracks nearer the top of the stack are positioned towards the front when viewed, their opaque parts obscuring the tracks below.

The basic action of movie authoring is to drag an asset from the Library to a timeline track, where it is called a *clip*. With a little practice, you can lay out a rough edit of a movie very quickly just by adding its main media assets at their approximate timeline positions.



At the left end of the timeline are track headers with several controls per track: a lock button, the track name, and monitoring buttons for the track's video and audio. Here the current default track is 'Main'.

The track header: To the left of each track is a header area that provides access to functions such as disabling video or audio monitoring for the track.

The default track: One track is highlighted with lighter background color, and is also marked with an orange bar to the left of the track header. This is the *default track*. It has a special role in certain editing procedures; for

instance, it serves as the target track for paste operations. To make another track the default track, simply click in its header.

Your current position on the timeline corresponds to the video frame shown in the Player when it is in *Timeline* mode. The current position is indicated by a vertical red line, at the top of which is a draggable *scrubber handle*. Another vertical line marks the same position in the Navigator (see below).

The toolbar

Above the tracks, the *timeline toolbar* provides several clusters of editing-related tools. (In the Disc Editor, the toolbar also includes tools specifically for disc authoring.)

The Navigator

Below the tracks, the *timeline Navigator* shows a bird's-eye view of your whole project at a reduced scale. The bars representing clips have the same colors as on the timeline, except that the bar representing the selected clip is drawn in orange. Clicking in the Navigator allows you to speedily visit any timeline location.

A portion of the Navigator view window, showing the current position (vertical line, left) and a sizing handle (right).

The orange rectangle that encloses a portion of the Navigator display – the *view window* – indicates the section of your movie currently visible on the timeline tracks.

To change which part of the movie is in view, click and drag horizontally within the view window. The timeline scrolls in parallel as you drag. Since your timeline position does not change, this may take the scrubber out of view.

Zoom

To change the zoom level of the timeline, either click and drag horizontally in the time-ruler along the top of the timeline, or drag the sides of the view window. The first method has the advantage that it always leaves the screen

position of the play line undisturbed, which may make it easier to orient yourself after the zoom.

To change the zoom of the Navigator itself, use the *plus* and *minus* buttons immediately to its right.

Double-clicking on the view window adjusts the zoom of both the Navigator and the timeline such that your entire movie fits within the Movie Editor window.

Resizing

The height of the timeline, along with the relative proportions of the Library and the Player, can be adjusted with the sizing grip in the form of an inverted T in the middle of the screen.

To adjust the height of individual timeline tracks, grab and adjust the separator lines between the track headers on the left. If the vertical size of all tracks exceeds the available viewing area, a scroll bar at the right will allow you to select which tracks are in view.

Set the height of the Navigator by vertically dragging the horizontal separator across the top.

The timeline toolbar

The toolbar above the timeline offers various settings, tools and functions that apply to the timeline and timeline editing.

Timeline settings

By default your timeline settings are copied from the first video clip you add to the timeline. If that will give the right result, you won't have to alter them.

If you do want to change them, click the leftmost button on the toolbar to open the Timeline Resolution window and configure the three settings provided.

Aspect: Choose between a 4x3 and a 16x9 display.

Size: Choose amongst the HD and SD pixel resolutions available for the given aspect ratio.

Frame rate: Choose from a selection of frame rates consistent with the other settings.

Timeline settings

These settings can be changed at any time during development of your movie, but you should be aware that a change of the frame rate can cause a slight shifting of clips on the timeline as they adjust to new frame boundaries.

Video material that is not in compliance with the chosen project settings will be converted automatically on being added to the timeline.

If you want to choose a video standard for your projects explicitly, rather than relying on inheriting the format from the first clip added, open the *Project settings* page of the application settings. See “Project settings” on page 238.

Audio mixer

This button opens the enhanced audio control area with volume adjustment tools and access to the Panner, a surround panning control. See “Timeline audio functions” on page 49 for details.

Scorefitter

Scorefitter is the integrated music generator of Avid Studio, providing you with custom-composed, royalty-free music exactly adjusted to the duration required for your movie. See “Scorefitter” on page 164.

Title

The *Create title* button opens the Title Editor. If none of the many supplied titles answers your need, why not author one of your own? See “The Title Editor” on page 117.

Voice-over

The voice-over tool lets you record commentary or other audio content live while viewing your movie. See “The Voice over tool” on page 165.

Razor blade

To split one or more clips at the play line position, click the *razor blade* button. No material is deleted by this operation, but each affected clip becomes two clips that can be handled separately with respect to trimming, moving, adding effects and so on.

If there are selected clips at the play line on any track, only those clips will be split. Both parts of those clips remain selected after the split.

If there are no selected clips at the play line, all clips intersected by it will be split and the right-hand parts will be selected to facilitate easy removal in case that is desired.

Locked tracks are exempt from the split operation.

Trash can

Click the *trash can* button to delete all selected items from the timeline. See “Deleting clips” on page 54 for details on how other timeline clips may be affected by the deletion.

Markers

The marker functions available here are identical to those provided in the media editors for video and audio. Please see “Markers” on page 88.

Instead of being attached to a particular clip, however, timeline markers are considered to belong to the video composite at the marked point. Only if there is a clip selection embracing all tracks at the marked point, and only if no track is locked, will the markers change positions during timeline editing.

Magnetic snapping

Magnet mode simplifies the insertion of clips during dragging. While the mode is active, clips are ‘magnetically’ drawn to other items on the timeline when they approach within a critical distance. This makes it easy to avoid the unnecessary – though often indiscernibly small –

gaps between items that are otherwise apt to arise during editing. If you want to deliberately create such a gap, however, simply turn off the mode to allow the preferred placement.

Volume keyframe editing

The *volume keyframe editing* button toggles keyframe-based editing of clip audio. While the button is engaged, the green volume contour on each timeline clip becomes editable. In this mode you can add control points to the contour, drag contour sections, and other operations. While the button is off, the volume keyframes are protected against modification.

Opening the Audio Mixer automatically activates the button.

Audio scrubbing

By default, the audio portion of a project can be heard only during playback in the preview. The *audio scrubbing* button on the timeline toolbar provides an audio preview even while just 'scrubbing' through your movie by dragging the timeline scrubber control.

The shuttle wheel of the Player also provides audio scrubbing.

Editing mode

The *editing mode* selector at the right-hand end of the timeline toolbar determines the behavior of other clips when editing changes are made. Material to the left of the edit point is never affected in timeline editing, so this applies only to clips that extend rightward from the edit point.

Three choices of editing mode are available: *smart*, *insert* and *overwrite*. The default is *smart*, in which Avid Studio selects from insert, overwrite and sometimes more complex strategies in the context of each editing operation.

Smart mode is designed to maintain synchronization between timeline tracks as far as possible. In a multitrack editing situation, clips typically have vertical as well as horizontal relationships. When you have carefully placed your cuts to coincide with the beats of a music track, for example, you don't want to disrupt everything when you make additional edits.

Insert mode is always non-destructive: it moves other clips on the track out of the way before inserting new material. It will also automatically close

gaps created by removing material. Only the target track is affected. Any prior synchronization with other tracks from the edit point rightwards is lost.

Insert is most useful in the early stages of a project, when you are collecting and arranging clips on the timeline. It ensures that no material will be lost, and makes it very easy to reorder clips and sequences of clips.

In the later stages, when the structure of your project is approaching its final state and you have started carefully synchronizing material on different tracks, *insert* mode is less helpful. The very properties that favor its use for the early stages (the 'ripple' behavior) count against it when finalizing. This is where *overwrite* comes into play.

Overwrite directly affects only the clips you select. Changing the length or position of a clip in *overwrite* mode will overwrite neighboring clips (if you lengthen) or leave gaps (if you shorten). It will never affect the synchronization between tracks.

Alternative mode

The *smart* editing mode works by predicting what you're trying to do and determining whether insert, overwrite or even some more complex strategy would be best to apply. You'll find it usually does what you want, but there are sure to be other times when you have something else in mind.

Many actions support both insert and overwrite, but no other possibilities. *Smart* mode will use sometimes one and sometimes the other, but if insert isn't what you want, overwrite usually is, and vice versa. All you need, therefore, is a method of overriding *smart* mode's default behavior.

To change insert to overwrite behavior, or overwrite to insert, hold down the Alt key while carrying out your edit as usual. You can press (or release) Alt as you please while setting up the edit: what counts is the state of the key at the instant the operation is finally enacted – when you drop dragged items on the timeline, for example.

The trick works in all editing modes, so it's always available when you need it. If you are not satisfied with the default behavior, just cancel or undo as needed, then try again with Alt.

In one timeline editing operation – that of replacing one clip by another while retaining its duration, effects and other properties – the Shift key takes on a similar role. See "Replacing a clip" on page 53 for details.

The timeline track header

In the header area of the timeline are a number of controls affecting the arrangement and organization of the timeline tracks. These are covered here, while the audio functions controlled from the timeline header, such as track volume, are described starting on page 156.

The *all tracks* area above the track headers offers controls similar to those found on each track header but with global effect: they apply to all tracks simultaneously, overruling the individual settings.

Default track

The orange vertical line to the left of the track header, together with a lighter background shade, identifies the *default* track. It provides a destination track for certain functions, including *send to* and *paste*. Newly-created titles and Scorefitter songs are also added on this track. For more information see "Sending to the timeline" (page 53), "Using the Clipboard" (page 64), "The Title Editor" (page 117) and "ScoreFitter" (page 164).

To make another track the default track, simply click anywhere within the track header boundaries other than on a button or other control.

Locking

Click the *padlock* buttons to protect a track from unintended edits. The same button in the *all tracks* area confers this protection on the whole project.

Track name

To edit the name of a track, click the name once to access the in-place editor, or select *Edit track name* from the track header context menu. Confirm your edit with Enter, or cancel it with Esc.

Video and audio monitoring

The *video* and *audio* buttons in the track header control whether this track contributes its video and audio to the composite output of the project. They support the many editing situations in which it is advantageous to block the output of one or more tracks in order to simplify the preview. The same

buttons in the *all tracks* area toggle audio and video monitoring for the entire project.

Additional track functions

The following functions are available in the track-header context menu:

New track: You can insert a new track either above or below the existing track.

Delete track: Delete a track and all clips on it.

Move track: Drag the track header up or down to a new layer position. As you drag, a bright horizontal line appears at valid placements.

Copy track: Keeping the Ctrl key pressed while moving a track will copy the track instead of move it.

Track size: The context menu contains four fixed track sizes (*Small*, *Medium*, *Large*, *Very large*). For custom sizing, drag the separator line between the track headers to seamlessly adjust the height.

View waveforms: Toggle the waveform view for audio clips.

Timeline audio functions

Please see “Audio on the timeline” on page 156 for coverage of these functions.

EDITING MOVIES

The first step in any movie editing session is to bring your project into the Movie Editor to begin work.

To launch a -new production: Choose *File* ➢ *New* ➢ *Movie* from the main menu. Before adding your first clip, make sure that the timeline video format will be right for the project (see below).

To edit an existing movie: Select a recent project from the *File* ➢ *Recent* menu; click *File* ➢ *Open* ➢ *Movie* to browse for a movie project to open; or locate the movie you want to open in the *Projects* ➢ *Movies* folder of the Library.

To open a Pinnacle Studio project: Choose *File* ➢ *Import previous Studio projects*. Please note that some features of your Pinnacle Studio project may not be supported in Avid Studio.

Timeline settings

To start editing a new project, verify that the video format settings of your project – aspect ratio, frame-size and playback speed – are as you want them. You can choose in the *Project settings* tab of the application settings to set the values of these properties automatically by matching the first clip added to the project. You can also set them manually. See “Project settings” on page 238 for configuring the automatic feature, and “The timeline toolbar” on page 43 for instructions on entering project settings manually.

Depending on your timeline settings, clips in some formats might not be instantly playable. Such content will automatically be rendered in an appropriate format.

Establishing tracks

With only minor exceptions, timeline tracks in Avid Studio do not have specialized roles. Any clip can be placed on any track. As your projects become more complex, however, you will find it increasingly helpful to give some thought to the organization of tracks, and rename them according to their function in the movie. For information on track properties and how to edit them, please see “The timeline track header” on page 48.

Adding clips to the timeline

Most types of Library asset can be brought onto the timeline as independent clips. The types include video and audio clips, photos, graphics, Scorefitter songs, Montage and Titles. You can even add your other movie projects as *container clips* that work just like video clips in your project. Disc projects, however, cannot be added as container clips to a timeline, since they require a capability – user interactivity – that timeline clips don’t have.

Drag-and-drop

Drag-and-drop is the commonest and usually the most convenient method of adding material to a project. Click any asset in the Movie Editor's compact view of the Library and drag it wherever you like on the timeline.

When crossing into the timeline area during the drag and continuing to the target track, watch for the appearance of a vertical line under the mouse pointer. The line indicates where the first frame of the clip would be inserted if dropped immediately. The line is drawn in green if the drop would be valid, and red if it would not be possible to insert a clip where indicated (because the track is protected, for example).

It is possible to insert multiple clips into the timeline at the same time. Simply select the desired Library assets, then drag any one of them to the timeline. The sequence in which the clips appear on the track corresponds to their ordering in the Library (not the order in which you selected them).

Magnet mode: By default, magnet mode is switched on. This makes it easier to insert clips so that their edges meet exactly. The new clip snaps to certain positions, like the ends of clips or the positions of markers, as if drawn by a magnet once the mouse pointer gets close to the potential target.

On the other hand, don't worry about whether the first clip is right at the start of the timeline. Not every movie starts with a hard cut to the first scene!

Live editing preview

In order to eliminate the confusion created by complex editing situations, Avid Studio provides a full dynamic preview of the results of editing operations as you drag clips around on the timeline. If things seem to jump around a bit more than you're used to during timeline editing, this is the cause. Don't worry: you will quickly get used to and learn to take advantage of the extra information provided. Take it slowly at first. Watch the changes on the timeline as you hover the dragged item over various possible landing places, and complete the drop when you see the result you want.

If it turns out that drag-and-drop isn't working the way you want, either press Esc or move the mouse pointer out of the timeline area and release the button. Either of these abandons the drag-and-drop operation. To call back a drag-and-drop after it's complete, press Ctrl+Z or click the *undo* button.

Don't forget that you can vary many timeline editing operations with *alternative* mode: just press and hold Alt while dragging or trimming. In a one-for-one clip replacement (see "Replacing a clip", below), Shift is also significant.

Advanced drag-and-drop

After you have assembled an assortment of clips on a timeline track, it's only matter of time before you want to start changing things around. For instance, you might want to:

- Fill a gap with clips.
- Insert some clips before a specific clip.
- Replace a clip already on the timeline with a different one.

The *smart* editing mode helps you achieve any of these goals with ease.

Filling a gap

Smart mode makes it simple to fill a particular timeline gap with new material, for example. Rather than having to painstakingly pre-trim the new material to the space available, you simply drag items into the gap. Any clips that are not needed for filling the gap will be dropped, and the last clip used will automatically be trimmed to the appropriate length. No existing clips are affected, so no synchronization problems can result.

Inserting clips

Suppose that your goal is to add new material to the timeline at a point where there is an existing clip. You don't want the clip already there to be overwritten, however; you just want it (and any clips to its right) to move rightwards far enough to make room for the new material.

Here again, *smart* editing provides a painless answer. Simply drag the new material to the start of the clip that is in the way, rather than into a gap. The clip moves aside exactly as far as necessary.

Inserting with split

If you drop an item onto the middle of an existing clip, rather than at a cut, the clip will be split. The new material is inserted at the point you specified, and is followed immediately by the displaced portion of the original clip.

In *smart* mode, synchronization of the target track with all other tracks is maintained by inserting in each of them a gap of length equal to the new clip. To avoid affecting the other tracks in this way, use *insert* instead of *smart* mode. Alternatively, pressing Alt as you drop the new material will cause it to overwrite a portion of the existing clip. A third approach is to *lock* any track that should not be modified, although this will affect the synchronization of clips on locked tracks with those on unlocked tracks.

Replacing a clip

To replace a clip, drag a single Library asset onto the clip you want to replace while holding down Shift. The replacement clip will inherit any effects and transitions that were applied to the original clip. Corrections are not inherited, however, since they are usually meant to address the issues of a particular media item.

In *smart* mode, the replace operation will succeed only if the Library clip is long enough to cover the full length of the clip being replaced. In other modes a Library clip of insufficient length will be extended using *over-trimming*. The direction and amount of the extension is based on your mouse position as you drag. For information on over-trimming, please see page 56.

If the Library asset is longer than needed, it will be truncated to the same length as the clip being replaced.

Sending to the timeline

In addition to dragging a clip to the timeline, you can 'send' it to the default track at the position of the *play line*. The operation is equivalent to drag-and-drop, so *smart* mode is applied accordingly when deciding how other clips will be affected.

The *Send to timeline* command is found on the context menu of an individual asset or multiple selection in the compact view of the Library.

Sending from the Player

There is also a second 'send' method that provides greater control.

If you click on a Library asset when working in the Movie Editor, the Player switches to *Source* mode for previewing. For trimmable media (video and audio), the Player also provides trim calipers for cutting out a starting or ending portion of the asset.

Clicking the Send To Timeline button in the Player after trimming a Library video asset.

After previewing the asset and trimming it if required, use the *send to timeline* button at the bottom left of the Player. As usual, the asset is added to the project on the default track and at the play line. A useful variation is to drag the *send to timeline* button itself onto the timeline track. The asset is then added at the drop point rather than at the play line.

Title Editor, Scorefitter, voice-over

These three functions add new clips to the project timeline, clips that are not underpinned by any Library asset. Instead, they are created from settings and other actions you take during editing.

Once your editing is complete, both titles and ScoreFitter clips will be sent to the default track on the timeline using the *Send to timeline* function, while voice-over clips will go to the special voice-over track instead. For details please see *Chapter 7: The Title Editor* (page 117), "Scorefitter" (page 164) and "The voice-over tool" (page 165).

Deleting clips

To delete one or more clips, first select them, then press Delete. Alternatively, click the *trash can* icon on the timeline toolbar, or choose *Delete* from the selection's context menu.

In *smart* mode, if the deletion produces a gap that spans all tracks, it is closed by shifting material to the right of the gap leftwards. This lets you avoid accidentally creating empty sections in your movie, while still ensuring that synchronization between tracks is maintained.

If the Alt key is held down when deleting, any gaps produced will be left unclosed.

In *insert* mode, gaps on the tracks from which clips are deleted will also be closed, but other tracks will be unaffected. No effort is made to preserve synchronization to the right of the deletion.

With regard to synchronization, the safest editing mode for deletion is *overwrite*, which will simply remove the clips and leave everything else unchanged.

Clip operations

The project timeline provides comprehensive support for selecting, adjusting, trimming, moving and copying clips.

Selecting

Select clips in preparation for performing editing operations upon them. A selected clip receives an orange frame and is displayed as solid orange in the Navigator.

To select one clip, click it with the mouse. Any previous selections are removed. For a fast multiple selection, click in an open timeline area then drag out a selection frame that intersects the clips of interest. To select all clips with one command, press Ctrl+A.

To clear a selection click into any gap area of the timeline.

Multiple selection with keyboard and mouse

To create more complex multiple selections, left-click while pressing Shift, Ctrl or both together.

To select a series of clips: Click on the first and Shift-click on the last. The two clips together define a bounding rectangle, or selection frame, within which all clips are selected.

Toggle selection of one clip: Use Ctrl-click to reverse the selection state of a single clip without affecting any of the others.

Select rest of track: Press Ctrl+Shift-click to select all clips that start at or after the start position of the clicked clip. This function is particularly useful if you quickly want to get the rest of your timeline 'out-of-the way' for inserting new material, or to manually ripple left to close timeline gaps.

Adjusting

As you move your mouse pointer slowly over the clips on your timeline, you will notice that it changes to an arrow symbol while crossing the sides of each clip, an indication that you can click and drag to adjust the clip boundary.

Adjusting changes the length of a single clip on the timeline in *overwrite* mode (since *insert* mode would cause synchronization issues). If you drag

the start of a clip to the right, a gap will be opened on the left side. If there is a clip to the immediate left of the clip being adjusted, dragging to the left overwrites it.

The adjustment pointer also appears when the mouse hovers at the ends of a gap – an empty space on a timeline track with at least one clip to its right.

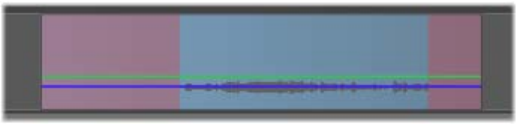
It turns out that adjusting gaps in *overwrite* mode, as we do for clips, is not especially helpful. However, gaps do come in handy when you're editing in *smart* mode if you want to ripple an individual track left or right, ignoring any resulting synchronization issues. Adjusting gaps therefore occurs in *insert* mode.

Even if no gap is available, incidentally, you can get the same result by holding Alt while adjusting the sides of a clip.

Over-trimming

Over-trimming occurs when you try to extend the duration of a clip beyond the limits of its source material, a situation you typically want to avoid.

Notice that if you have over-trimmed your clip the invalid parts are shown in pink.



Overtrimmed clip: The first and last frames will be frozen in the over-trimmed sections.

Over-trimming is not a crisis situation. You do not need to take action immediately. Avid Studio will simply extend the clip as specified by 'freezing' the first and last frames of the clip into the over-trimmed areas.

Depending on the duration of the over-trim, and the context, this simple approach may be all you need. A brief freeze-frame can even be visually effective in its own right.

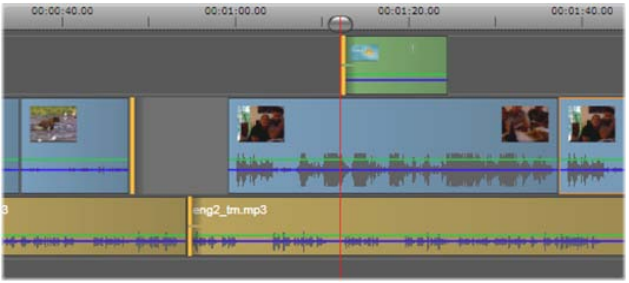
The freeze-frame method will probably not give satisfactory results if it happens during a sequence involving rapid motion, however. In such exacting cases you might consider supplementing or replacing the clip, or prolonging it with the Speed function. (See "Speed" on page 65.)

Trimming

Changing the length of clips or gaps on the timeline is called 'trimming'.

Multitrack trimming is a valuable editing skill. By trimming multiple tracks at once, you can assure that the clips coming later on the project timeline maintain their relative synchronization.

Trimming clips without consideration for content later on the timeline can disrupt the synchronization of your project. Soundtracks that don't match the action and badly-timed titles are the kinds of problem that may result.



Multiple track trimming

A rule for staying in sync

Avid Studio has powerful trimming tools to allow you to perform multitrack trimming without risk. Fortunately, there is a simple rule for safeguarding synchronization even on a complex timeline: open exactly one trim point on every track. Whether the trim point is attached to a clip or a gap, and at which end, are up to you.

Opening trim points

Move the mouse pointer to the beginning or end of a clip. Notice that the *trim* pointer faces left at the start of the clip and right at the end.

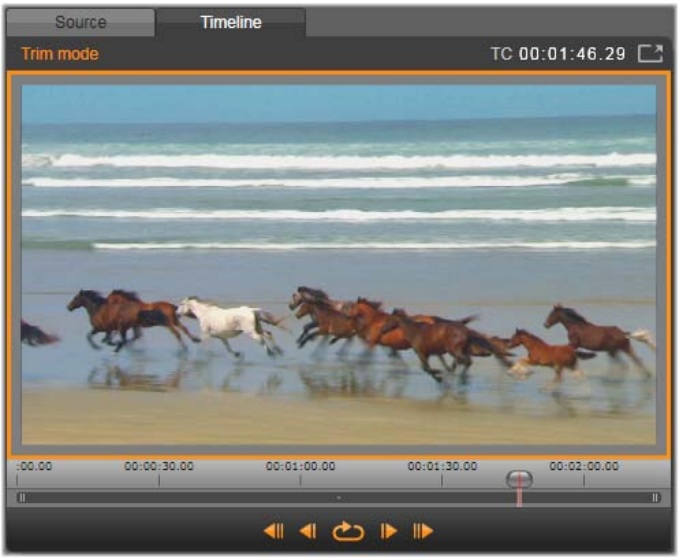
While the *trim* pointer is showing, click once at the point you want to trim. Then continue to open trim points on other clips if required.

You can open two trim points per track by holding down the Ctrl key to create the second point. This feature is useful for the *trim both*, *slip trim*, and *slide trim* operations, all described below.

You can also open a trim point by positioning the timeline scrubber near the cut you want to trim, then clicking the *toggle trim mode* button on the timeline toolbar.

When a trim point is opened several things happen:

- The left or right edge of the clip is highlighted with an orange bar.
- The *toggle trim mode* button becomes active.
- The transport controls under the Player become trim adjustment tools.
- You will see an orange outline around your preview to alert you that you are now in *trim* mode.



Trim mode with trim adjust buttons

Closing trim mode

Trim mode can be closed either by clicking in a gray area away from the trim points, or by clicking the *toggle trim mode* button.

Editing modes

The current editing mode – *smart*, *overwrite* or *insert* – determines how trimming will affect other clips on the timeline. Select the mode from the dropdown list at the far right of the timeline toolbar.

Insert mode: Clips to the right of a trimmed clip and on the same track will shift left or right to accommodate the new length of the clip. Synchronization with other tracks may be lost, but no clips are overwritten.

Overwrite mode: Only the clips you are trimming, and any neighboring clips they happen to overwrite, are altered in this mode. Synchronization across tracks is not affected.

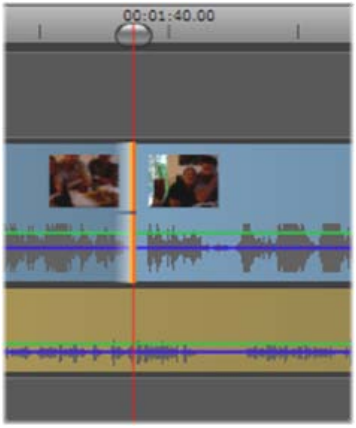
Smart mode: During trimming, smart mode is equivalent to insert mode.

Trimming the beginning of a clip

Prepare to trim the beginning of a clip (the 'mark-in' point) by clicking at the left-hand edge of the clip while the trim pointer is visible. With a trim point thus established, you can add or remove frames from the beginning of the clip.

To trim on the clip, drag the trim point to the left or right.

To trim on the Player, use the trim buttons to trim one or ten frames either forwards or backwards. Click the *loop play* button for a looping preview of the trim region.

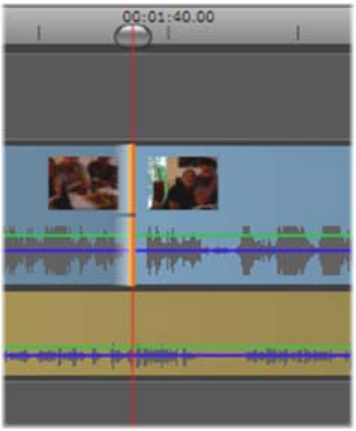


In-point trim selected

Trimming the end of the clip

To trim the end of the clip (or 'mark-out' point), open a trim point by clicking at the right-hand edge of a clip when the mouse pointer changes to a rightward-pointing arrow. Now you can add or remove frames from the end of your clip.

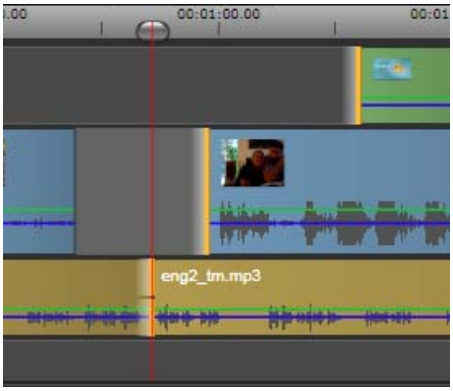
Once again you can trim directly on the clip by dragging the trim point, or on the Player while it remains in *trim* mode.



Out-point trim selected

Trimming gaps

The project timeline lets you trim not just the clips upon it but also the gaps between them. Trimming gaps might not sound terribly useful at first, but is in fact handy. For instance, the easiest way to insert or delete space on a single timeline track is to trim the right-hand edge of a gap. All clips to the right of the gap are shifted as a block when this is done.



Two gaps selected and an audio out point trim

Also, when you need to open a trim point on each track in order to maintain synchronization while trimming, you may often choose to trim the duration

of a gap rather than that of a clip. (Remember the rule: one trim point on every track is required for keeping in sync.)

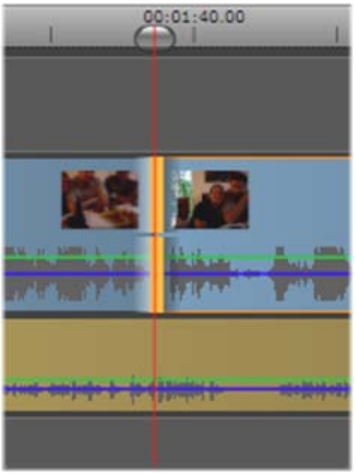
Trimming a gap, whether at the start or the end, is accomplished in exactly the same way described above for trimming a clip.

Trim both

In this operation, two adjacent clips (or a clip and an adjacent gap) are trimmed simultaneously. Any frames added to the left-hand item are taken away from the one on the right, and vice versa, as long as space and material are available. All you are moving is the cut-point where the items meet. One application for this technique is adjusting visual cuts to the beat of a music soundtrack.

To start, click at the end of the left-hand clip to open the first trim point, then Ctrl-click at the beginning of the right-hand clip to open the second.

When positioned over the adjacent trim points you just opened, the mouse pointer should be a horizontal two-headed arrow. Drag left or right to move the clip boundary, or use the Player in *trim* mode.

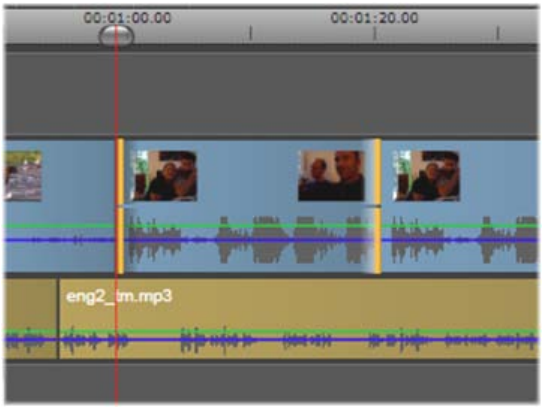


Trim both: Adjacent out and in trim-points have been selected

Slip trim

To change the starting frame of a clip within the source material, but leave its duration unchanged, open one trim point at the start of a clip, and another at the end of either the same clip or one later on its timeline track.

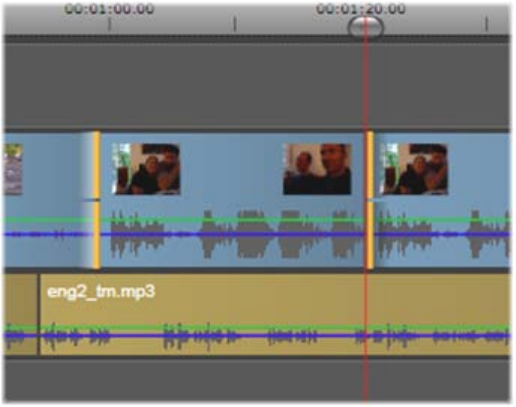
Drag either trim point horizontally or use the Player trim controls to reposition the clip within its source.



Slip trim: In and out trim-points of clip selected

Slide trim

A slide trim is an extended version of the *trim both* technique described above. In this case you open trim-points at the end of one clip and the beginning of another later on the timeline. Instead of sliding a single clip boundary along the timeline, as in *trim both*, you are sliding two that move together. All clips between the two trim points are repositioned earlier or later on the timeline.



Slide trim: An out trim-point has been opened on the first clip, and an in-point on the third

Both slip trimming and slide trimming can be useful for synchronizing clip contents to material on other tracks.

Monitoring trim points

When you are trimming with multiple trim points, it is helpful to switch the preview from one trim location to another to make sure that each is properly set. Selecting a trim-point for monitoring makes it the source for audio and video during preview.

Opening a trim-point causes it to be monitored. When multiple trim-points are involved, therefore, you can check on each one as it is created. To select a trim-point for monitoring directly, Ctrl-click it. While *trim* mode is active, pressing Tab cycles through the open points.

Moving and copying

To move a selection of one or more clips, place the mouse pointer on any selected clip and watch for it to change to a *hand* symbol. When it does, start dragging the clip to the desired position.

Move can be thought of as a two-step process. First, the selection is deleted from the current timeline, according to the rules of the current edit mode. Second, the selection is moved to the desired end position, where it is inserted in a left-to-right fashion per track. The relative position of all selected clips on all tracks is retained.

Moving a 'sparse selection' (a selection in which some clips per track are selected while others in the same region are not) is possible, but may be confusing unless executed in *overwrite* mode. Moving either single clips or a complete timeline cross-section is more straightforward and should be preferred when possible.

Holding down the Alt key while moving clips allows you to toggle between *insert* and *overwrite* modes. Standard *smart* operation is the same as *insert*, since the most frequent use of horizontal moves is to reorder the playback sequence.

Copy

Holding down the Ctrl key while moving a selection of clips, will copy the clips instead of moving them.

Using the Clipboard

Although drag-and-drop operations provide somewhat greater power when dealing with clips, the timeline does support the standard Clipboard operations *cut*, *copy* and *paste*, with the usual shortcut keys. The Clipboard also provides the only method for moving and copying transitions and effects between clips.

From the Library

After selecting one or more clips in the Library, select *Copy* from the selection's context menu or press Ctrl+C to put the selection on the application's Clipboard. (*Cut*, the other usual command for adding to the Clipboard, is not available in the Library.)

On the project timeline, position the play line at the point where the paste operation should begin, and select the desired track by clicking in its header.

Now press Ctrl+V to insert the clips from the Clipboard onto the given track, starting at the play line.

If you select *Paste* from the timeline's context menu rather than pressing Ctrl+V, the clips will be pasted at the mouse pointer position on the default track, not at the play line.

You can repeat the paste operation with the same set of clips as often as desired.

From the timeline

Select one or more clips on the timeline, then click either *Copy* or *Cut* on the selection's context menu, or press Ctrl+C (copy) or Ctrl+X (cut). Both commands add the clips to the Clipboard; *Cut* removes the original clips from the project, while *Copy* leaves them in place.

Paste the Clipboard contents onto the timeline as described above. The clips paste onto the same tracks as they originally occupied; and with the same horizontal spacing. Unlike drag-and-drop, the Clipboard does not support moving clips between tracks.

Effects on the Clipboard

Clips to which effects have been added have a magenta line along the upper edge. Right-click the line to access the *Effect* context menu, which provides *Cut all* and *Copy all* commands for transferring or sharing a set of effects between clips. Select one or more target clips, then press Ctrl+V or click *Paste* on the timeline context menu.

The effects stack will be pasted to all selected clips. The target clips retain any effects they may already have had. The pasted effects stack will be placed on top of the existing effects.

Transitions on the Clipboard

Right-click in the transition area in the upper corner at the start or end of a clip to access the *Transition* context menu. Select *Cut* or *Copy* to put the transition on the Clipboard.

As with effects, transitions can be pasted to one or more target clips, but any existing transition of the type (*start* or *end*) being pasted will be overwritten. The paste fails if the duration of the transition on the Clipboard is longer than the target clip.

Speed

The Speed Control window is launched by selecting *Speed* ➢ *Add* or *Speed* ➢ *Edit* in the context menu of a timeline video or audio clip. You can adjust the settings to produce any degree of slow motion or fast motion over a wide range.

The actual playback speed of your project always remains the same. It is set once and for all by the *frames per second* rate in your project settings. To achieve slow motion, new frames are interpolated between the original ones; for fast motion, some source frames are suppressed.

The options provided on the dialog are divided into several groups.

Constant

Select the clip playback speed as a value from 10 to 500 percent relative to the original material. Anything under 100 percent is slow motion.

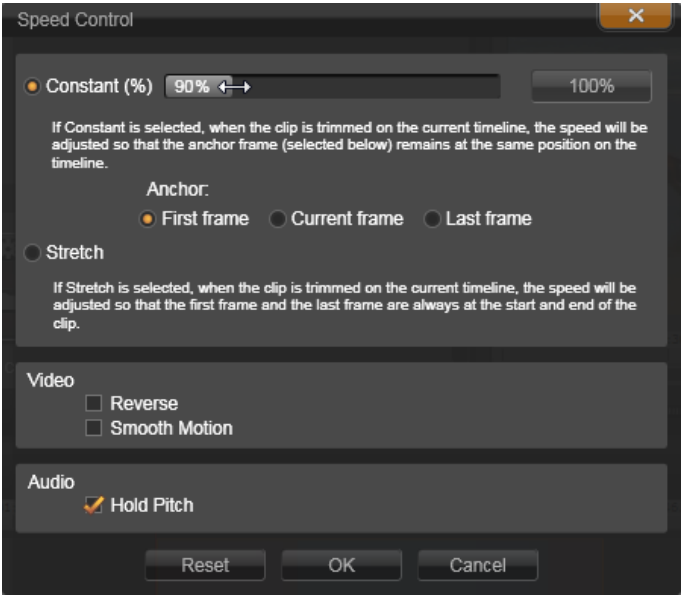
Anchor: When *Constant* is selected, the clip is anchored to the timeline by a specified frame during trimming operations. You can choose the first or last frame of the clip, or the frame indicated by the current position of the play line, to serve as the anchor. This can be useful for coordinating action between the speed-affected clip and material such as background music on other tracks.

Stretch

Under this option, the first and last frames of the clip as currently trimmed will remain locked when the clip is trimmed on the timeline. Shortening the clip, instead of trimming material from the end, speeds it up just enough so that it finishes at the same frame as before. Lengthening the clip by trimming its end rightwards slows it down rather than exposing any trimmed material.

Video

Reverse reverses the direction of playback without affecting the speed. Synchronous audio, if any, is suppressed with this option, since it is generally undesirable to play sound backwards.



The Speed Control window

Smooth motion: This option applies a special transition technique to achieve maximum fluidity of movement from frame to frame.

Audio

Hold pitch: This option maintains the original pitch of the recorded audio even when it is played back accelerated or slowed. The function becomes less effective the more the speed is changed. Beyond certain limits, it is switched off completely.

Movies within movies

All the movie projects that you create in Avid Studio appear as assets in the *Projects* branch of the Library. But the purpose of Library assets is to serve as the ingredients of movies. What will happen if you try to drag Movie Project A onto the timeline of Movie Project B?

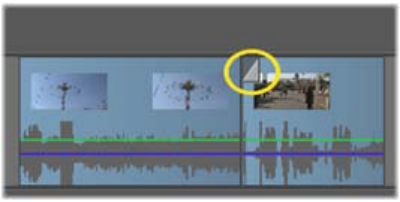
The answer is simple enough: As with most types of assets, Project A becomes a single clip on Project B's timeline. From the standpoint of timeline editing, it behaves just like any of your other video assets. You can trim it, move it around, apply effects and transitions, and so on. (The same is not true of disc projects. These cannot be used as clips in another project.)

Nevertheless, a copy of the internal structure of Project A remains intact inside this *container clip*, along with all of the project's clips, effects, titles and other components. What's more, if you double-click the container clip or select *Edit movie* from its context menu, a subsidiary Movie Editor opens in a new window to let you work on the 'sub-movie'. Any modifications you make affect only the copy of the project inside the container clip, not the original.

The length of the container clip on the timeline of the main project is not tied to the length of the sub-movie on its own timeline. Extending or shortening the sub-movie in the nested editor does not alter the length of the container clip in the parent movie. You need to manually trim the container clip if you want it to match the duration of the sub-movie.

Transitions

A *transition* is a specialized animated effect for easing – or emphasizing – the passage from one clip to the next. Fades, wipes and dissolves are common types of transition. Others are more exotic, and many employ sophisticated 3-D geometry to calculate the animated sequences.



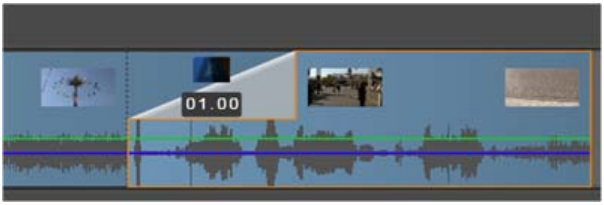
Creating a default fade-in transition by 'folding back' a clip's upper left corner.

Two transitions can be assigned to any clip, one at each end. A clip newly created on the timeline has neither. When a new clip starts, it does so with a hard cut to the first frame. When it ends, it switches to the next clip (or black) with equal abruptness.

Avid Studio offers a wide variety of transitions for softening, dressing up or dramatizing the change from one clip to another.

Creating a transition

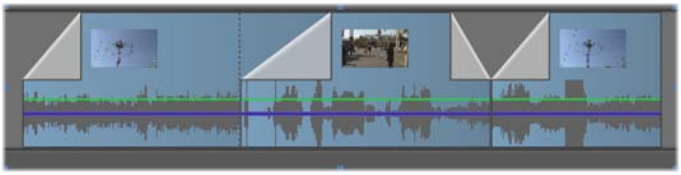
The most straightforward method of creating a transition is to click in the top left corner of the clip and 'fold back' the corner. This creates a fade-in. The wider you make the fold, the longer it will take the transition to complete. A fade-out results from the corresponding operation on the top right corner of the clip.



A transition dragged to the project timeline.

Transitions can also be added to the timeline from their section of the Library (under *Creative Elements*). When you find one you want, drag it onto a timeline clip. If you drag the transition onto the start or end of the clip, you can mark the length of the transition and drop it into place in a single operation. If the clip already has a transition at the chosen end, the dragged one replaces it.

Yet another way to apply a transition uses the *Send to timeline* context menu command for assets in the Movie Editor's compact Library view, or the *Send-to timeline* button in the Player when in *Source* mode. The transition is added to the clip on the default track at the play line.



Types of transitions

If magnetic snapping is on, the duration of transitions is snapped to the default duration defined in the Avid Studio Control Panel Project settings (one second by default). You can still drag freely to any duration outside the snap range. See "Project settings" on page 238 for details.

A fade-out transition is applied in *ripple* (or *insert*) mode, which creates an overlap by shifting the right-hand clip and all its neighbors somewhat to the left. This behavior saves the left-hand clip from having to be extended rightwards to create the transition, which might produce over-trimming. However, shifting the rightward clips causes a break in the synchronization with other tracks that may have to be worked around.

A fade-in transition is added in *overwrite* fashion. No synchronization issue will result, but over-trimming may be produced in the left-hand clip.

To invert the fade-in and fade-out behaviors, press the Alt key during dragging and trimming.

To apply a transition to multiple selected clips, hold down the Shift key while dragging a transition from the Library onto one of the selected clips. The position at which you drop the transition on that clip determines whether it will be placed at the beginning of each selected clip, or the end. The duration you drag out for the transition on the target clip is used for all the transitions created. The transition will not be applied to any clips that are shorter than the transition you create.

To keep tracks synchronized when inserting transitions in the *out* position, use this multiple-apply feature to add the same transition once on each track. Since each track will be affected in the same way, they will all remain synchronized.

When a fade-in follows a fade-out, the result is termed a 'fade through black'. The left-hand clip fades all the way out, then the right-hand clip fades all the way in. It is not necessary to leave a one-frame gap between the clips.

Replacing a transition

Select the transition you want and simply drag it onto an existing transition. This replaces the transition animation while retaining the original type (in or out) and duration.

Adjusting transitions

The durations of transitions can be adjusted just like those of clips. Notice the *adjustment* pointer when the mouse is positioned near the vertical side of the transition rectangle. Use this to change the duration of your transition.

As usual, fade-out transitions use *insert* mode during adjustment, whereas fade-in is done in *overwrite* mode. Hold down Alt while adjusting to invert this behavior.

You can adjust a transition so that its duration is zero, effectively deleting it. Alternatively, use *Transition* ➢ *Remove* on the transition's context menu. Once again, ripple mode is used for fade-out, and overwrite for fade-in, with the Alt key available to reverse the default.

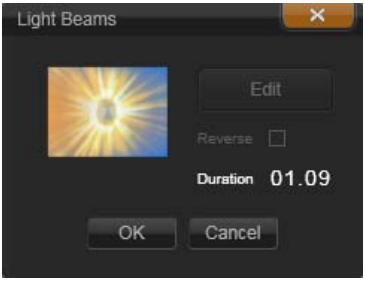
To set the duration of a transition numerically, click the duration field that appears when the mouse pointer is above the transition rectangle. (Zoom the timeline in to enlarge the screen width of the transition 'fold' if the field does not appear.) Clicking the field activates in-place editing, allowing you to enter a duration via the keyboard.

Transition context menu

Edit: This command invokes a pop-up window, the *basic transition editor*, where the transition duration can be set.

If the transition is one that offers a custom editor for configuring special properties, the *Edit* button in the basic transition editor provides access.

A *Reverse* checkbox is available with some transitions for reversing the transition animation.



Basic transition editor

Copy: This command puts the transition on the Clipboard, together with its type (fade-in, fade-out) and its duration. These properties will be retained by the transition when pasted. It is therefore not possible to paste a fade-in as a fade-out or vice versa.

To paste the transition to a particular clip, select *Paste* on its context menu.

To paste the transition to all selected clips, select *Paste* from the context menu of either an empty timeline area or any selected clip; or just press Ctrl+V.

Remove: This command deletes a transition. Fade-in transitions are removed without further ado. Removing a fade-out transition causes clips to the right to be rippled further rightwards by the duration of the transition. This can cause loss of synchronization with other tracks.

Clip effects

Clip effects (also called *filters* or *video effects*) operate on one clip at a time. Effects are of many kinds, and vary widely in purpose. With keyframing, effect parameters can be arbitrarily varied throughout the clip.

To apply a specific effect to a clip, either locate it in the Effects section of the Library and drag it to the clip you want to enhance, or double-click the clip and select the effect from those offered under the *Effects* tab of the clip's media editor.

Multiple effects can be applied to a clip using either or both of these methods. By default, multiple effects are processed for playback in the order they were added.

On the timeline, the upper border of any clip to which an effect has been applied is drawn in magenta. This *clip effect indicator* has its own context menu, which provides the Clipboard commands for cutting and copying effects between clips. See “Using the Clipboard” on page 64 for more information.

Double-clicking any clip opens it in its media editor, where effects may be added, removed or configured. Please see *Chapter 5: Media editing: Effects* for detailed information.

Clip context menus

Right-clicking a clip opens a context menu with commands appropriate to the item type. A video clip has a different menu than a title clip, for example. Some commands are shared between most or all types however. Differences of applicability are noted in the following descriptions.

Edit movie: Available only for movie (container) clips, this command opens the container in its own movie editor. The nested editor offers the same functions and areas as the primary one.

Edit title: For titles only, this opens the Title Editor. (See page 117).

Edit music: This command is for editing Scorefitter clips. (See page 164.)

Edit montage: Edit a montage clip in the Montage editor. (See page 115).

Open effects editor: Opens the media editor for the clip, whatever its type, with the *Effects* tab selected. Montage, title and container clips are treated in the same manner as ordinary video clips.

Speed: This command opens the Speed Control dialog, where you can apply fast and slow motion effects to selected clips. This option is not available for containers. See “Speed” on page 65.

Scaling: The first two options affect the treatment of clips that are not in conformance with the current timeline format when brought into the project. See “Timeline toolbar” on page 43).

- *Fit* displays the image at its correct aspect ratio, and scaled as large as possible without cropping. Unused parts of the frame are treated as transparent.

- *Fill* also maintains the aspect ratio of the image, but scales it such that there are no unused parts of the screen. Portions of the image will be cropped if the aspect ratios do not match.

  To further fine-tune the scaling behavior of a clip, try pan-and-zoom.

- *Keep alpha*, *Remove alpha*, *Generate alpha*: These commands apply to content with an alpha channel (specifying transparency pixel-by-pixel). Such alpha information can conflict with Avid Studio effects. The command isn't available for pure audio clips.

Active streams: This command is available for disabling individual streams in clips containing both video and audio. It is typically used as an easy way to discard unneeded camera audio.

Adjust duration: Enter a duration numerically in the pop-up window. All selected clips will be trimmed to the duration requested by adjusting their *out* points.

Detach audio: In clips with both video and audio, this command detaches the audio stream into a separate clip on a separate track, allowing advanced editing operations like L-cuts.

Find source: This command opens the Library Browser at the folder containing the asset that is the source of the video, photo or audio clip.

Cut, Copy, Paste: Move or copy a selection of clips using Clipboard commands instead of drag-and-drop.

Delete: Delete the selected clip or clips.

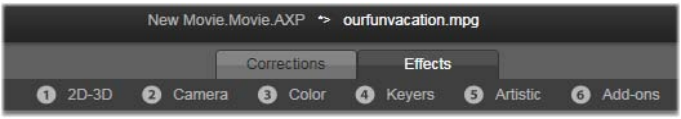
Display information: Display properties of the clip and underlying media files in textual form.

CHAPTER 4:

Media editing: Corrections

Avid Studio provides media editors for each of the three main media types: video, photos (and other images), and audio. The usual way to access one of these editors is by double-clicking either a media asset in the Library or a media clip on your project timeline.

All three editors provide two main families of tools, called *Corrections* and *Effects*. These are presented as tabs at the top of the editor window. (The Photo Editor has a third tab, for the *Pan-and-zoom* tool.)



The six groups under the Effects family in the Video Editor. When an editor is invoked from the Library, the Effects tab does not appear.

The tools in the Corrections family are designed to fix imperfections in the video, photos and other media that you use in your projects. The defects addressed by the tools are those most frequently encountered in recorded media. You can straighten a photo with a tilted horizon, improve the clarity of a muffled music track, or correct the 'white balance' of a video scene, to name just a few possibilities.

The application of Corrections does not modify your media files themselves. Instead, the parameters you set are stored either in the Library database (associated with a particular asset) or in a project (associated with a particular clip).

Correcting Library assets

Just one tool-family tab – *Corrections* – is available for use when you bring Library assets into a media editor. The *Effects* tab, and *Pan-and-zoom* for photos, appear only when the editor was opened to work on a timeline clip.

Using corrected assets: When you apply Corrections to a Library asset, the correction settings ride along with the asset when you add it to a project. All future projects get the benefit of the correction. You can make further corrections on the timeline, if you want, but they will have no effect on the Library asset.

Save alternative corrections: Corrected Library assets can optionally be saved (with *File* ➢ *Save as*) as independent asset files. This lets you have two (or more) variations of a particular asset under different names, each incorporating a different set of corrections.

Removing corrections: The context menu for Library assets that have corrections includes a *Revert to original* command for restoring the uncorrected state.

Corrections under direct export: If you choose to export Library media directly, rather than build a project on the movie or disc timelines, the correction settings are applied to the output.

Correcting timeline clips

When a clip from the Movie Editor or the Disc Editor timeline is opened in one of the media editors, you can use the Corrections family of tools to change it in any way you like without affecting either Library assets or other clips. Such changes to the clip become part of your project.

If you want to remove corrections from a clip on the timeline, select the context menu command *Open Effects Editor*, then switch to the Corrections tool. The settings panels indicate with highlighting which settings have been modified. Use this to locate and reset the corrections.

For details on using a particular media editor, please turn to “Correcting photos” on page 81; “Correcting video” on page 86; or “Correcting audio” on page 90.

Media editing overview

The media editors can be opened to access the available tools in a number of ways from both the Library and the project timeline.

To open from the Library:

- Double-click the icon or text record of a video, photo or audio asset; or,
- Select the *Open in corrections* command from the asset's context menu.

To open from the Library Player:

- After clicking the *play* button on a Library item to open the Library Player, click the *gear wheel* icon at bottom right.

To open from the project timeline:

- Double-click the clip in the timeline; or,
- Select the *Open effects editor* command from the clip's context menu; or,
- Use the context menu *Effect* ➢ *Edit* on the colored strip that appears along the upper edge of clips to which any effects have been applied.

To close the media editor window:

- Click the *Cancel* button; or,
- Click the *close (X)* button in the upper right corner. If you have made changes, you will be given a chance to save them.
- Click the *OK* button.

Previewing

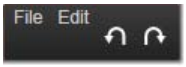
The central panel in each of the media editors is either a visual preview of media showing the result of applying corrections and effects, or an audio visualization.

When video media with an integral soundtrack is being edited, both the Audio Editor and the Video Editor are simultaneously available via tabs at the top left of the window.

Title bar

File and Edit menus: If you invoked the media editor from the Library, the *File* menu offers the ability to save a new copy (or 'Shortcut') of the currently-loaded asset. Shortcuts are stored back to the Library under the original name plus a sequence number. The Edit menu offers the standard editing commands for *Undo / Redo*, as well as *Cut*, *Copy*, *Paste*.

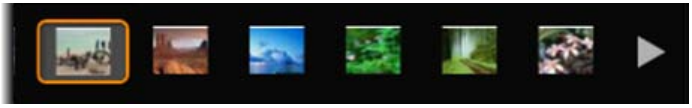
Undo/Redo: At the upper left of the window, beside the menus, the graphical *undo* and *redo* buttons let you step forward and back through your editing history.



Working with the Enhance group of corrections in the Video Editor.

The Navigator

The Navigator strip at the bottom of all media editor windows gives you an opportunity to load other Library items or other timeline clips.



When called from the Library, the Navigator strip at the bottom of the media editor lets you access other assets on display in the Library.

The current item is highlighted. You can switch to editing a different item by clicking a different element in the Navigator, using the arrows at right and left to assist scrolling if required. When you do so, any changes made to the currently-loaded item are automatically saved, as though you had clicked the *OK* button.

You can hide the Navigator by clicking its button at the bottom of the media editor window.

View options

Sharing the bottom toolbar with the *Navigator* button is a series of view-related buttons.

Solo: This button is available only if the media editor is selected from the project timeline. While it is highlighted, the current clip in the Navigator is shown in isolation when previewed, without taking into account the effect of any clips either above or below it on the timeline. While the button is not highlighted, all timeline tracks can contribute to the preview.

Zoom: The scroll bar at the far right of the toolbar provides continuous scaling of the preview image.

Preview zoom options: *Fit* adjusts the size of the preview so that the height and width of the image do not exceed the available space even when all tools are open. *Fill* utilizes the entire available working area, including under the settings panel and ruler. *Actual size* (*1:1)* displays the image at the original size of the source.

Full screen: When active, this button scales the preview image to the size of the current monitor and removes other tools from view. To exit the full screen mode, press Esc, or use the *close (X)* button at the top right of the window.

Before-and-after view: This button appears for photo media only. For details, see “Before-and-after” on page 81.

Magnifier zoom

Unless an effect or correction tool is active, the mouse pointer is a magnifying glass icon. With this pointer, a simple click enlarges, Alt-click reduces, and double-click toggles between *Fit* (see “Preview zoom options” above) and the current scaling.

Moving the preview in the window

The preview image can be dragged with the mouse anywhere within the working area. This is useful for scanning the image while it is zoomed in. The wave visualization in the Audio Editor is not draggable, however.

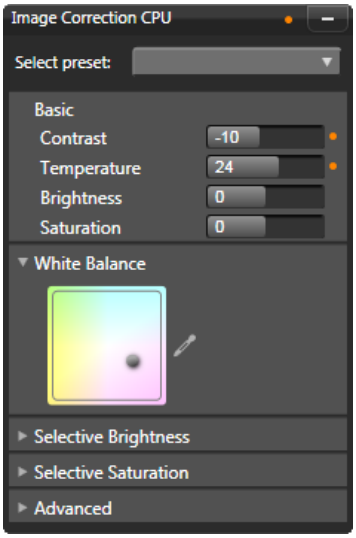
Info and captions

The Info button at the bottom left of any media editor opens a window with information about the current file.

The Caption field, which is available only when you invoke the media editor from the Library, allows you to rename the current asset.

The settings panel

When you select an effect or tool that has adjustable settings, a panel appears in the upper-right section of the window.



The settings panel lets you adjust the available settings for a correction or effect. Here the settings for the Enhance group of photo corrections are displayed.

Setting numeric values: Numeric settings fields have a gray slider bar within a darker gray field. Click once within this field to put it into numeric input mode, where you can type the desired value for the parameter. Alternatively, drag the slider bar to the left or right using the mouse. Double-clicking restores the default value.

Comparing parameter sets: A highlighted (orange) dot appears to the right of the field when the value of a setting is changed from the default.

Thereafter, clicking the dot toggles between the default and the most recent non-default values. The dot to the right of the effect or correction name toggles between the default and custom values of all parameters.

Linked parameters: Some parameters are configured to change in lock-step. The presence of a lock symbol indicates this. Click the symbol to toggle the link.

CORRECTING PHOTOS

For information about opening the Photo Editor to access the correction tools, along with general functions of the media editors, please see “Media editing overview” on page 77.

Photo editing tools

These tools are located on the bottom bar of the Photo Editor. They are available for photos and other graphic images loaded from the Library only. Images opened from the project timeline do not have access to them.

Image rotation

Two *rotary arrow* icons are located to the left below the image preview. Click the icons to rotate a Library image either clockwise or counterclockwise in 90-degree increments.

Rotation is only available in the Photo Editor when a photo is opened from the Library. Clips opened from the project timeline can be rotated using the *2D Editor* effect.

Before-and-after

When editing photos you can directly compare the original against the corrected version. The three available views can be accessed by the arrow at the right of the button.

Split image: The lower half of the preview displays the corrections. You can adjust the vertical position of the dividing line by dragging the center portion of the line up or down with the mouse. You can also divide the image diagonally by grabbing the line on either side and rotating.

Full image side-by-side: The right image shows the corrections.

Full image above and below: The lower image shows the corrections.

Photo corrections

The Corrections within the Photo Editor are *Enhance*, *Crop*, *Straighten* and *Red-Eye*.

Enhance photos

This area includes tools for fixing problems to do with color and illumination.

Contrast

This control increases the difference between the light and dark areas of an image. Boosting the contrast may enliven a dull photograph, although at the risk of losing definition in areas that are already very bright or very dark.

Temperature

The *color temperature* control changes the color composition of an image to make it seem 'warmer' or 'cooler'. Indoor lighting such as a tungsten bulb or candlelight is perceived as warm, while daylight, especially shade, is perceived as cold. Using the temperature control primarily changes the yellow and blue values in an image, with little effect on green and magenta.

Brightness

This control functions like the brightness button on a television. It impacts the light and dark areas of the image equally. For finer control in brightness editing, use *Selective Brightness* instead.

Saturation

This control regulates the color intensity of an image. Increasing the value pumps up the colors, making them more vivid, or even lurid. Decreasing the value drains the image of color until at zero only shades of gray remain. For finer control of saturation, use *Selective Saturation* instead.

White balance

Poor white balance is detected when supposedly white areas of an image bear a slight tint or color cast. To correct this, you adjust the image spectrum with two controls.

Gray-scale picker: Activate the picker and click in a nominally white or gray area of the image, where no coloration ought to be present.

Color circle: Slide the control point from the center of the color field until the undesired tint is removed from the image.

Selective brightness

To enable you to edit particular brightness zones in an image without impacting others, five separate brightness controls are provided:

Blacks: This slider affects only the darkest areas in the image. For best results, leave editing both *Blacks* and *Whites* until last.

Fill light: Increasing this slider may produce better detail in shadowy (but not black) areas of a full-contrast photograph.

Midrange: The zone impacted by this slider includes the entire medium range of illumination.

Highlights: This slider affects the bright locations in the image. It can be used to mute areas overexposed due to flashes, reflections or brilliant sunshine.

Whites: This slider impacts the parts of the image that are considered 'white'. Edit *Whites* and *Blacks* last.

Selective saturation

Whereas the standard *Saturation* correction increases color saturation equally across the entire spectrum, *Selective saturation* allows for individually boosting or suppressing the primary and secondary colors. For example, if blue appears to be too strong, it can be turned down while other colors retain their intensity.

Advanced

This panel of additional controls provides a number of useful functions.

Exposure: This simulates the effect that would have been produced by increasing or decreasing the image *exposure* (the total amount of light used to create a photograph).

Soft clipping: Soft clipping attempts to recover lost detail at the top and bottom of the luminance range and at the top of the saturation range by reducing extreme highlights, blacks and saturation.

Blend with original: This slider mixes the original image (in its initial position) with the changed one (0 to 100%).

CCIR Limits: This setting limits the color values used in the image to the range for TV video signals permitted by the CCIR (Comité Consultatif International des Radiocommunication).

Show info: Check this box to display various histogram representations of the image data.

Crop

Use this tool to emphasize a specific section in an image, or to remove undesired components.

Cropping an image.

Bounding box (cropping frame): After you select the cropping tool, a resizable frame is placed over the image. Drag the sides and corners of the frame to crop the image, or drag the center of the bounding box after cropping to adjust its position.

Aspect ratio: The *Aspect ratio* dropdown on the control bar can be use to ensure that the crop rectangle maintains a desired standard proportion while being resized. Standard (4:3) and wide (16:9) frame aspect ratios are supported.

Preview: This function displays the cropped image without the surrounding material. Press Esc or click the image to return to the editing view.

Clear, Cancel and Apply: *Clear* returns the bounding box to its original dimensions; *Cancel* closes without saving any edits made; *Apply* saves the changed image without exiting the editor.

Straighten

This correection enables you to straighten an image in which elements that should be exactly horizontal or vertical are visibly tilted. Unless you have cropped the image, it dynamically resizes as you rotate to keep the corners from being visibly cut off. With a cropped image, no resizing takes place as long as there is sufficient excess material to fill in the empty corners.

Ready to straighten an image (with crosshairs).

Several functions pertaining to *Straighten* are provided on the toolbar below the preview.

Guide line options: The two buttons at the far left of the toolbar set the mode for the lines that are superimposed on the preview as a guide to straightening. Selecting either button deselects the other. The *Crosshairs* (leftmost) button adds a pair of crossed lines that can be dragged with the mouse to serve as a reference for true vertical and horizontal alignment anywhere in the image. The *Grid* button produces a fixed, repeating grid pattern over the entire image.

Set angle: To set the degree of rotation you can either use the slider on the toolbar below the image, or click and hold the left mouse button while dragging over the image. Rotations up to 20 degrees in either direction are supported.

Clear, Cancel and Apply: *Clear* sets the image back to its original state; *Cancel* closes without saving any edits made; *Apply* saves the changed image without exiting the editor.

Red-eye

This tool corrects the red-eye effect that often occurs in flash photography when the subject's gaze is towards the camera. Mark the area around both red eyes with the mouse. Extreme precision shouldn't be necessary, but you can experiment with changing the area slightly if you are dissatisfied with the correction.

Clear, Cancel and Apply: *Clear* sets the image back to its original state; *Cancel* closes without saving any edits made; *Apply* saves the changed image without exiting the editor.

CORRECTING VIDEO

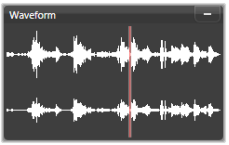
For information about opening the Video Editor to access the correction tools, along with general functions of the media editors, please see "Media editing overview" on page 77.

Like the other media editors, the Video Editor has a central preview display, and an area at right for correction and effect settings. If the video includes an audio track, floating panels for audio management will also appear. These are positioned originally at upper left, but you can drag them to new docking positions on either side of the window.

Video / audio switch

If an audio track is present, a tab is provided at the top left of the screen for switching to the Audio Editor. For details on the controls available when the *Audio* tab is selected, please turn to "The Audio Editor" on page 147.

Waveform display



This floating panel shows a section of the audio volume graph over the span of the video. The region of the waveform that is shown is centered on the current playback position.

When you switch to the Audio Editor, you will see a video preview panel at the same screen location. See “The Audio Editor” on page 147.

Video tools

These tools are located on the timeline toolbar below the Video Editor preview. At the left are the *marker* controls described on page 88. The remaining controls are devoted to previewing and trimming the media.

Shuttle: The *shuttle wheel* provides smooth, bidirectional control over a range of speeds when browsing video or audio. Both media types can be viewed at a reduced speed. Shortcuts J (reverse), K (pause), L (forward), and each of these in combination with the Shift key (for slow play), allow easy scrubbing and shuttling from the keyboard also.

Transport controls: The oval arrow icon activates *loop playback*. The remaining controls are (from left to right): *Jump backward, Frame backward, Play, Frame forward, Jump forward.*

Audio monitor: The *loudspeaker* icon sets the system playback volume but does not affect the recorded audio level. Click once on the *loudspeaker* to mute, or click on the slider to the right of the icon to adjust monitoring volume. To set the playback level of the clip itself, use the channel mixer. See “Channel mixer” on page 148.

Time-code displays: The left field indicates the duration of the media as trimmed. The right field displays the current play position. For a Library asset, the play position is relative to the start of the media. For a timeline clip, the play position within the project is given.

Setting the position numerically: Click the right-hand time-code field for the position and enter a position in ‘hh:mm:ss.xxx’ format. When you press Enter, the play line jumps to the specified location if that position is present on the clip. Press Esc to undo the change and exit the input mode.

Asset trimming: For Library assets, the orange calipers at either end of the time-ruler let you choose your own entry and exit points for playback. Doing so establishes the clip endpoints when the asset is used in a project.

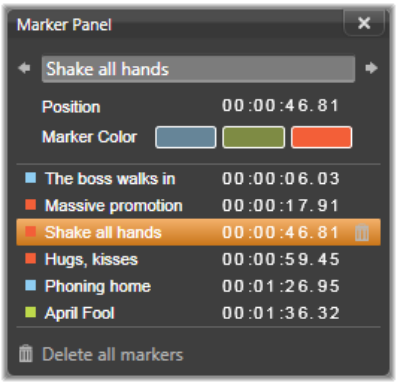
Ruler: The *time-ruler* displays a scale whose gradations depend on the current zoom factor. If you click anywhere on this ruler, the play line (see below) jumps to this position.

Play line: This red line, with its handle the *scrubber*, is synchronized with the image currently displayed (for video) and also with the red line shown on the waveform display (for audio). You can position it arbitrarily by clicking and dragging the scrubber, or by dragging within the waveform.

Scroll bar and zoom: By dragging the double lines at the end of the scroll bar to the right and left, you change the zoom level of the display. When the bar becomes smaller, the scroll bar can be moved back and forth as a whole, enabling you to zoom into an audio clip's waveform or scrub with extra precision. Double-click the scroll bar to return it to the full width of the clip. You can also zoom in and out by dragging left and right on the ruler area.

Markers

Markers are visual reference points that can be set on the time-ruler to identify changes of scene or other editing cues.



The Marker Panel

Setting and moving markers: Position the *play line* at the location where the marker should be set. Click the *toggle marker* button at the left of the toolbar, or press M. Only one marker may be set per frame.

To move a marker: Ctrl-click and drag left or right.

Deleting the marker: Click the marker to move the play line to that position, then either press M or click the *toggle marker* button.

You can also delete markers using the list on the Marker Panel, which opens when you double-click a marker on the ruler, or click the down-arrow next to the *toggle marker* button.

The Marker Panel shows the markers that have been set within the media currently on view, in ascending order, with color code, name, and position. Most of the available commands apply to the currently-selected marker. The exception is the *Delete all markers* button at the bottom of the panel.

Clicking a marker in the list selects it for editing. At the same time, the *play line* jumps to the marker position.

Edit name: The *name* field lets you enter a distinctive name for the currently-selected marker if desired. The left and right arrows beside the name provide another way of moving through the marker list.

Position: You can directly edit the position of a marker here as time-code.

Marker color: Set the color of the current marker (and markers subsequently created), by clicking one of the available color buttons.

Trash can: The trash can icon on each row of the marker list lets you delete individual markers.

Video corrections

The correction tools within the Video Editor are *Enhance*, *Snapshot* and *Stabilize*.

Enhance

The *Enhance* corrections for video are the same as those for photos and other images. See “Enhance photos” on page 82.

Snapshot

The snapshot tool enables you to acquire a single frame from a video and save it as a photo. Its controls are similar to those for the *Crop* correction for photos.

Selection Frame and Aspect Ratio: The frame for selecting an image cutout can be resized by grabbing its sides and corners, or dragged within the preview by grabbing it in the center.

Preview: Preview shows the selected cropped image without the snapshot tools. Press Esc or click once on the image to view the tools again.

Apply: The *Apply* button exports the cropped image as a JPEG file, then cancels cropping in the preview. Snapshots are stored in the library under *My Pictures* ➢ *Images*". You can find the new item by returning to the Library and clicking the special *find added item* button that is displayed temporarily on the Library footer bar. The new media file itself is created in:

```
[Registered User]\My Documents\My Pictures\Images
```

Clear and **Cancel:** *Clear* sets the selection frame back to its original setting (whole image), while *Cancel* exits snapshot editing without creating any new media.

Stabilize

Similar to the electronic stabilization in digital camcorders, this tool minimizes shake and jitter caused by inadvertent camera movement. When using this effect, the outer areas of the image are removed and a varying portion of the image is enlarged up to 20 percent in order to fill the frame.

CORRECTING AUDIO

The Audio Editor can be used both for audio-only media such as **wav** files and for video with an included ('original' or 'synchronous') audio track.

For information about opening the Audio Editor to access the correction tools, along with general functions of the media editors, please see "Media editing overview" on page 77.

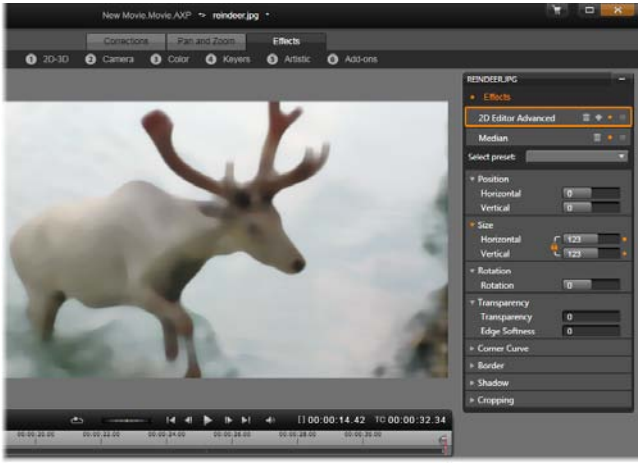
For an overview of audio-related information, please turn to *Chapter 8: Sound and music*, page 145. Coverage of the Audio Editor in particular begins on page 147. Please see "Audio corrections" on page 151 for descriptions of the individual correction tools.

CHAPTER 5:

Media editing: Effects

Avid Studio has three media editors, one each for video, photos and audio. Their general operation is described in "Media editing overview", starting on page 77.

One of the main functions of the three media editors is to provide applicable add-on tools in two families: Corrections and Effects, along with the specialized Pan-and-zoom function in the Photo Editor only. This chapter provides a general introduction to effects editing, then focuses on the visual effects in the Photo and Video Editors, as well as Pan-and-zoom. For information relating specifically to audio corrections and effects, please see *Chapter 8: Sound and music*.



Working with visual effects in the Photo Editor. At top, several groups of effects are listed. In the center a preview shows the image with effects applied; parameters to customize them are at right. At bottom, transport controls and a timeline support animating the effects with keyframing.

Corrections vs. effects

The tools in the Corrections family are meant primarily for remedying the imperfections that are often encountered in actual media files – poor white balance in photos, wind noise in soundtracks, and so on. Unlike effects, the correction tools can be applied to Library assets, not just to clips on the project timeline. When corrections have been applied in the Library, their benefit is passed on to any project that uses the improved assets. Please see *Chapter 4: Media editing: Corrections* on page 75 for details about Corrections and how to use them. The general operation of the media editors is also covered there starting on page 77.

About effects

'Effects' is an umbrella term taking in a wide range of software tools for manipulating your media. It includes presentational tools like *2D Editor*, atmospheric transformations like *Old film*, and some theatrical touches like *Fractal fire* that you may find are too much fun not to use.

Like Corrections, you can apply effects to clips on the project timeline. Just double-click the clip to open the appropriate media editor with its *Effects* tab already open.

Pan-and-zoom

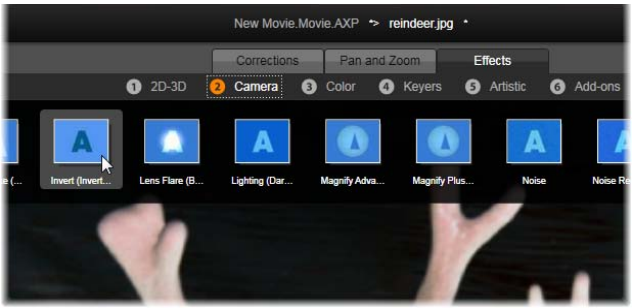
The Photo Editor provides a third tab, *Pan-and-zoom*, to go along with *Corrections* and *Effects*. The pan-and-zoom tool is a versatile accessory with which you can add motion and drama to any high-resolution photograph, among other uses. See "Pan-and-zoom" on page 102 for details.

Effects in the media editors

Like other resources for your project, effects are stored in the Library. You'll find them in the Asset Tree under *Effects* in the *Creative Elements* branch. As with other types of Library resource, you can use all the usual features – Collections, ratings, tags, and so on – to help you organize the many effects available.

You can apply an effect from the Library directly to a clip on the project timeline with drag-and-drop. Clips to which an effect has been added are indicated by a brightly-colored upper border.

When you double-click a timeline clip, its media editor opens automatically with the *Effects* tab preselected. Six groups of effects are available. Click the name of the group to see the effects it contains.



The Camera group of Effects is open in the Photo Editor. The mouse pointer is positioned over the thumbnail for the Invert effect (left side), causing it to be automatically demonstrated on the preview.

The thumbnail icons for the effects in the currently-selected group are shown in a full-width tray at the top of the work area. With visual effects, as your mouse pointer hovers over the effect icons, the preview shows how the clip you are editing would appear if each effect were applied. When you have made your choice, click the effect's thumbnail to apply it.

Customizing an effect

Once you have applied an effect to a clip, by either of the methods mentioned above, you can return to the media editor at any time to manipulate the effect's settings. Double-click the clip on the timeline, or select *Open effects editor* if you wish to customize the effect. See "The Settings panel" on page 96 for further information.

To save your modifications and return to the timeline, click *OK*. To cancel modifications and return to the timeline press *Cancel*.

Switching to a new clip

Even without leaving a media editor you can switch from one timeline clip to another by means of the Navigator, a schematic representation of your project that is optionally shown in the space just above the footer bar of the editor window.

To toggle the visibility of the Navigator, click the *compass rose* icon at the bottom right of the window.

Each clip in your project is represented in the Navigator by a colored bar. The layout of the bars on a horizontal time axis with vertically-arranged tracks exactly matches the timeline. The bar representing the clip now being edited is highlighted in orange.

The mouse is poised over the compass-rose button to turn off the Navigator, the area just above the button row, where project clips are represented by horizontal bars.

If you click on one of the other bars, any changes you've made to the current clip will be automatically saved; the clip corresponding to the bar you clicked on will then be loaded. If the new clip is of a different media type, the appropriate editor will switch in automatically.

Solo mode

Sometimes while editing an effect, it is useful to see the other timeline layers – those above and below the *current layer* containing the clip you are working on. On other occasions, you can simplify a complex editing situation by turning off the other track.

Solo mode is started or stopped with the *Solo* button and its accompanying drop-down menu in the lower right area of the Media Editor. Three configurations are possible:

- **Off:** When soloing is on, clicking once on the button will turn it off. All layers from the timeline are then used in the preview. Sometimes the current layer may be obscured by a layer above it on the timeline.
- **Show media and the tracks below:** Under this option, the current layer and all layers below it are previewed, but the clips on layers above the current layer are hidden.
- **Show media only:** This option allows only the layer you are currently working on to appear in the preview.

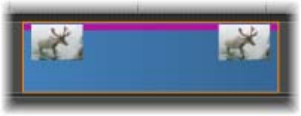
Previewing effects

In the Creative Elements section of the Library you can preview a sample of each effect either directly on the icons in *thumbnail view*, or in the separate Player window. These samples will give you some idea about the look of the effect, but can often do no more than hint at the possibilities that will be available once customization, keyframing, and combination with other effects are considered.

As mentioned earlier, you can see the effect previewed on your own media – without actually applying it – by hovering over the effect icon in a timeline clip's media editor. Then to apply the effect, simply click on the thumbnail.

Effects on the timeline

To check whether a timeline clip has had any effects applied to it, look for a magenta stripe along the clip's upper edge. Both this *clip effect indicator* and the clip itself provide useful context menu commands for effect management.



The clip effect indicator is a contrasting stripe along the top edge of any clip to which an effect has been applied.

A clip with corrections but not effects does not display the effect indicator or offer the context menu.

Clip context menu

Open effects editor: This opens the media editor appropriate for the clip, with the *Effects* tab preselected. There you can apply new effects to the clip, or modify existing ones.

Paste: Effects can be cut or copied to the Clipboard using commands on the *clip effect indicator* context menu. The *Paste* command lets you apply the effect to one or more other clips.

Clip effect indicator context menu

Cut All, Copy All: With these functions, effects assigned to a clip can be cut or copied to the Clipboard, from which they can be applied to one or more other clips as described just above.

Delete all, Delete: Remove all the effects at once from a clip with *Delete all*, or delete a particular effect by picking it on the *Delete* submenu.

Edit: From this submenu of applied effects choose one to open for configuration in the clip's media editor.

Real-time vs. rendered

Avid Studio always tries to preview effects in real time without pre-rendering. If playback of effects (or transitions) is unsatisfactory, try activating Background Playback Optimization on the *Preview* tab of the Avid Studio Control Panel. With this option, all effect sequences are pre-rendered to ensure optimum display.

The Settings panel

The Settings panel provides a list of the effects that have been assigned to the current clip (whose name is given at the top). Click an effect name in the list to select it; this causes its settings to be displayed for inspection and editing in the parameters area below the list. Most effects also offer a dropdown list of preset parameter combinations.

Though a clip might have both Corrections and Pan-and-zoom in addition to effects, the Settings panel on the *Effects* tab does not list these. Turn to the other tabs to access the settings information for their tools.

When a clip has multiple effects, they are applied in the order they were added, which is the reverse of the order in which they are listed (new effects are added at the top of the list, not the bottom). To change the order, drag the effect header up or down in the list.

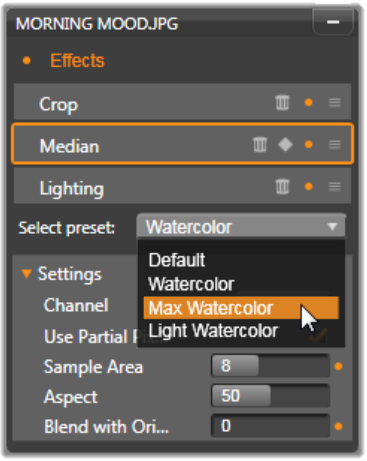
The right-hand end of the effect header has four buttons for operations related to that effect. From left to right they are:

Trash can: Remove the effect from the clip.

Diamond: Toggle keyframing for parameters of the effect. See "Working with keyframes" on page 98.

Dot: Toggle the effect on and off. You can switch the effect off for comparison purposes without deleting it and losing your settings.

Drag handle: Use either this zone or the name area for dragging the effect up or down in the effect list when the clip uses multiple effects. As mentioned above, effects are applied in bottom-up order. In some cases, changing the order can dramatically affect the cumulative result.



The Settings panel: Here, three effects (Crop, Median, Lighting) have been applied to the current clip, as listed in the upper area. The Median effect has been selected (highlighted box), so its preset list and editable settings are available in the parameters area.

Modifying parameters

Parameters are organized into named groups of related controls. Click the *expand/collapse* triangle on the group header to open the group and access its parameters, or close it and conserve screen space. Numeric parameters are controlled by horizontal sliders, with a gray bar that you can drag horizontally to change the value. Double-click the bar to reset a particular parameter to its default value.

Most effects furnish a dropdown list of preset parameter combinations for fast selection of variants. Once a preset has been selected, you can customize it by editing the parameters if desired.

When you are finished with a media editor, and are ready to return to the timeline, click *OK* at the bottom of the window to approve your changes, or *Cancel* to abandon them.

Working with keyframes

The normal use of some types of effect is to transform the source material in a uniform way from beginning to end. Atmospheric effects like *Old film*, and effects that change only the coloration of the clip, are among those in this category. Their parameters are generally set once and for all at the start of the clip. This is the *static* use of an effect.

Other effects, such as *Water drop*, depend on a sense of motion. They are likely to be effective only when their parameters are allowed to vary throughout the clip. The easiest way to this *animated* use of an effect is to use a preset that has animation built in, like most of those for *Water drop*. In this kind of *keyframe animation*, one or more parameters of the effect has a different value at the end of the clip than it did at the beginning. On playback, the parameters are updated after every frame to move smoothly from the start value to the end value.

Keyframing isn't limited to just the start and end frames of a clip. Keyframes can be defined with particular values of effect parameters at any point in the clip to produce effect animations of arbitrary complexity. If, for example, you would like an image to reduce to half-size by the middle of the clip and return to full size by the end, you would need to add at least a third keyframe.

Basic keyframing

Here's an outline of how to use keyframing to program the changes in an effect parameter during the playback of a clip.

1. Double-click a clip on the timeline to load it into its media editor.
2. Add an effect, then activate keyframing by clicking the diamond icon on the effect header if it is not already highlighted.
3. A *keyframe line* appears below the time-ruler. Any keyframes that have been added to the clip for the current effect to date are displayed as gray diamonds.

   A keyframe is added automatically at the beginning of the clip. This keyframe cannot be moved or deleted. If the effect and preset combination you chose is animated rather than static, there will be a keyframe generated at the end as well. You can delete or move the end keyframe; if you do so, all parameter values are sustained from the last remaining keyframe to the end of the clip.

4. Set the play line to the position in the clip at which you want to establish a change of some effect parameter such as size, position or transparency.
5. Modify the parameter using the Settings panel. If keyframe editing is turned on, a new keyframe will be automatically added at the play line position. If a keyframe already exists, the parameter data it represents will be modified.

Keyframe operations

For each effect, only one keyframe can be attached to any frame of the clip. The keyframe defines the instantaneous value of every clip parameter for the frame where it is set.

Add or delete a keyframe: To add a keyframe at the play line position without adjusting any parameters, or to delete an existing keyframe at the position, click the *toggle keyframe* button on the far left of the transport toolbar.

Move a keyframe: To move a keyframe along the keyframe line (and thus along the timeline), click it and drag.

Jump to a keyframe: Use the *arrow* buttons to the left and right of the *keyframe* button, or click directly on the keyframe in the keyframe line, to move the play line to that position. The keyframe should highlight, indicating that it is now the target keyframe for deletion or parameter editing.

Keyframing multiple parameters

Sometimes it is desired to keyframe multiple parameters of the same effect on separate schedules.

For example, suppose you wish to change the *Size* parameter of an effect smoothly over the whole clip, which changing another, let us say *Rotation*, at several points along the way. Here are two ways of approaching this:

Method 1: Set up the *Size* keyframes first, then add the more numerous *Rotation* frames where needed. At each of these, a correct *Size* value will be calculated.

Method 2: Add the effect twice: once to adjust the keyframes for overall changes (*Size*, in the example), then another time to make multiple keyframe changes (*Rotation*).

Video and photo effects

The effects provided for use with video also work with photos, and vice versa. Only Avid-supplied effects are described here. For third-party plug-in effects, please consult the manufacturers' documentation.

Blur: Adding Blur to your video produces a result similar to shooting out of focus. The *Blur* effect allows you to add separate intensities of horizontal and vertical blurring over the whole frame or any rectangular region within it. You can easily blur out only a selected portion of the image, such as a person's face, an effect familiar from TV news coverage.

Emboss: This specialized effect simulates the look of an embossed or bas-relief sculpture. The strength of the effect is controlled by the *Amount* slider.

Old film: Old movies have a number of traits that are usually considered undesirable: grainy images caused by early photographic development processes, spots and streaks from dust and lint adhering to the film, and intermittent vertical lines where the film has been scratched during projection. The effect lets you simulate these 'blemishes' to give your footage an antique look.

Soften: The Soften effect applies a gentle blurring to your video. This can be helpful for anything from adding a romantic haze to minimizing wrinkles. A slider controls the strength of the effect.

Bevel crystal: This effect simulates viewing the video through a pane of irregular polygons arranged into a mosaic. Sliders let you control the average dimensions of the polygonal 'tiles' in the image and the width of the dark edging between neighboring tiles from zero (no edging) to the maximum value.

2D Editor: Use this effect to enlarge the image and set which portion of it will be displayed, or to shrink the image and optionally add a border and shadow.

Earthquake: The Avid Studio Earthquake effect jiggles the video frame to simulate a seismic event, whose severity you control with sliders for speed and intensity.

Lens flare: This effect simulates the flaring seen when direct bright light overexposes an area of a film or video image. You can set the orientation, size and glow-type of the main light.

Magnify: This effect lets you apply a virtual magnifying lens to a selected portion of the video frame. You can position the lens in three dimensions, moving it horizontally and vertically within the frame, and nearer to or further from the image.

Motion blur: This effect simulates the blurring that results when a camera is moved rapidly during exposure. Both the angle and the amount of blurring can be set.

Water drop: This effect simulates the impact of a drop falling onto the surface of water, producing expanding, concentric ripples.

Water wave: This effect adds distortion to simulate a series of ocean waves passing across the video frame as the clip progresses. Parameters allow you to adjust the number, spacing, direction and depth of the waves.

Black and white: This effect subtracts some or all of the color information from the source video, with results ranging from partly desaturated (the 'Faded' preset) to fully monochrome ('Black and white'). The Amount slider controls the strength of the effect.

Color correction: The four sliders in the parameters panel for this effect control the coloration of the current clip in terms of:

• Brightness: The intensity of light.

• Contrast: The range of light and dark values.

• Hue: The location of light on the spectrum.

• Saturation: The quantity of pure color, from gray to fully saturated.

Color map: This effect colorizes an image using a pair of blend ramps, or color maps. Stylize your footage with bold color treatments, add duotone and tritone style colorization, or create striking editorial transitions. The effect can be used for anything from fine control of monochrome images to psychedelic color transformations.

Invert: Despite its name, the Invert effect doesn't turn the display upside-down. Rather than the image itself, it is the color values in the image that are inverted: each pixel is redrawn in its complementary light intensity and/or color, producing a readily recognizable but recolored image.

This effect uses the YCrCb color model, which has one channel for luminance (brightness information) and two channels for chrominance (color information). The YCrCb model is often used in digital video applications.

Lighting: The Lighting tool enables correction and enhancement of existing video that was shot with poor or insufficient lighting. It is particularly suitable for fixing backlit outdoor sequences in which the subject's features are in shadow.

Posterize: This Avid Studio effect lets you control the number of colors used to render each frame of the clip, all the way from the full original palette down to two colors (black and white) as you drag the Amount slider from left to right. Regions of similar color are coalesced into larger flat areas as the palette shrinks.

RGB color balance: RGB Color Balance serves a dual role in Avid Studio. On the one hand, you can use it to correct video that suffers from unwanted coloration. On the other, it allows you to apply a color bias to achieve a particular effect. For example, a night scene can often be heightened by adding blue and slightly reducing overall brightness. You can even make video shot in daylight look like a night scene.

Sepia: This Avid Studio effect imparts the appearance of antique photography to the clip by rendering it in sepia tones rather than full color. The strength of the effect is controlled by the Amount slider.

White balance: Most video cameras have a 'white balance' option for automatically adjusting their color response to ambient lighting conditions. If this option is switched off or not fully effective, the coloration of the video image will suffer.

Avid Studio's white balance effect corrects the problem by allowing you to specify which color should be taken as 'white' in this image. The adjustment needed to make that reference color white is then applied to every pixel of the image. If the reference white is well chosen, this can make the coloration seem more natural.

Pan-and-zoom

The pan-and-zoom tool is available for photos and images when they have been opened in the Photo Editor from the project timeline. Access the tool by clicking the *Pan-and-zoom* tab at the top of the screen.

With pan-and-zoom, an area from within the picture is used to fill the whole video frame. The area can be of any size and shape. On playback, it will be enlarged sufficiently to fill the video frame without empty areas.

If you define two or more areas, pan-and-zoom animates your presentation of the image by zooming in and out while traversing it with simulated camera movements as it moves smoothly from one area to another.

The pan-and-zoom tool utilizes the full available resolution of your original photo, so if the picture is large enough you will not forfeit detail by zooming in.

Adding pan-and-zoom

To apply pan-and-zoom to a photo clip on the timeline, double-click it to open the Photo Editor.

Because you are opening from the timeline, the *Effects* tab will be preselected in the Photo Editor. Switch instead to the *Pan-and-zoom* tab.

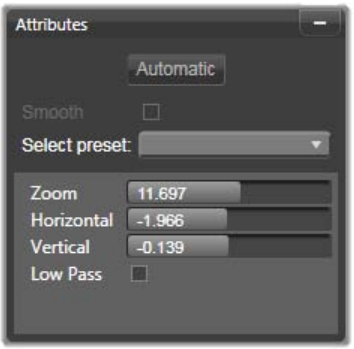
In this illustration the Pan-and-zoom tab has been selected and remains set to the default Static mode. The selection frame, which we see is being resized with the mouse, defines a region of the image that will be magnified to fill the entire frame, as shown in the floating preview panel (bottom right).

Pan-and-zoom has two alternative operating modes, which are selected with buttons just above the preview. In the *Static* mode, a single unchanging image region is shown throughout duration of the clip. In the *Animated* mode, separate regions are defined for the first and last frame of the clip; on playback, a smooth 'camera move' from one to the other is shown. *Animated* mode also allows *keyframing*, in which any number of additional defined regions can be added to the pan-and-zoom camera path.

Static mode

In *Static* mode, a gray selection frame with round control points is displayed over the image. You can enlarge, reduce, and move this frame, but you cannot change its proportions (aspect ratio). A small floating preview window displays the currently-defined selection.

The zoom and position can also be controlled numerically using sliders in the Attributes panel. Double-click the sliders to reset the values, or single click to enter a numeric value.



Attribute settings for the pan-and-zoom tool

Animated mode

When *Animated* mode is set, the image is automatically analyzed and an initial size and position both for the start and end is automatically set. The generated animation begins zoomed in slightly on the image subject, then pulls back to the full size available. If the image has a different aspect ratio than the video frame, enough zoom is applied throughout to prevent blank areas from appearing.

To support the extra functionality of *Animated* mode, the color of the selection frame is used to indicate its place in the animated sequence. The start frame is green, and the end frame is red. Frames at any intermediate point are drawn in white.

When multiple frames are visible, you can drag the frames as needed by positioning your mouse over either the edge of the frame or the center dot. Moving the white frame will automatically add a keyframe at the current position.

Keyframing pan-and-zoom

With keyframing, you can create a customized pan-and-zoom animation of arbitrary complexity, though simple sequences of a few steps may be all you ever need.

Switch to *Animated* mode as described above, and note that two frames have been added to the preview. These special start and end keyframes, which as mentioned above are drawn in green and red respectively. They can be dragged in space but not time.

If you don't require intermediate keyframes, positioning the start and end frames completes your session.

For a more complex animation, however, position the scrubber where a change of camera motion should occur. To create a new keyframe, simply set the white selection frame to the desired size and position. The new keyframe is represented by a lozenge-shaped gray icon in the *keyframe line* below the clip timeline.

Add as many keyframes as necessary. When you are finished, click *OK* to return to the project timeline.

Keyframe operations

Manually adding a keyframe: To add an explicit keyframe at the play line position without altering the current animation path, click the *toggle keyframe* button on the far left of the transport toolbar.

Moving a keyframe: You can drag a keyframe along the timeline to reposition it in time.

Jumping to a keyframe: To jump to a keyframe in order to modify or delete it, use the *arrow* buttons to the left and right of the *keyframe* button, or click directly on the keyframe in the keyframe line. When the play line is directly over a keyframe, the keyframe will highlight.

Deleting a keyframe: To delete a keyframe, click its icon on the keyframe line to navigate to the right frame, then click the *Delete keyframe* button on the far left of the transport toolbar.

The Settings panel

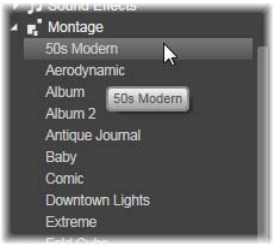
The Settings panel provides a number of controls for configuring the pan-and-zoom tool.

- *Smooth* provides gentle braking when approaching a direction change in the keyframe animation path.
- *Select preset:* Choose from a number of static and animated presets.
- *Zoom*, *Horizontal*, and *Vertical* display the numerical values of the current frame. Double-click the sliders to reset the values.
- *Low pass* filters out small-scale movements to achieve a smooth, optimized animation.

CHAPTER 6:

Montage

Avid Studio's Montage is a method of enhancing your movies with off-the-shelf slideshow, animation and multitrack editing effects. Numerous professionally designed sequences, called *templates*, are available to give your productions instant impact. The templates are grouped into matching *themes*, so that along with the technical sophistication of the templates you will also find it easy to maintain a consistent look.



But the prepared templates are only half the magic of Montage. The other half is *customization*. Montage templates can include several types of custom data, including video, text captions, photos and more.

Montage in the Library

Templates are grouped by theme in the Montage section of the Library. Each theme consists of a set of templates that can be added to your project as 'Montage clips'. You can create attractive, visually consistent sequences that integrate artist-created titles and animations with your own photos and video. See "The Montage section of the Library" on page 108 for details.

Montage titles vs. standard titles

Although you can make fancy 'titles' from Montage templates, these are not the same as those made in the Title Editor. Each has its own strengths.

Montage templates are especially easy to use, and can provide effects not available in ordinary titles. On the other hand, the Title Editor gives you greater control over the appearance of titles and the animation of their graphical elements.

The template collection

Each of the templates in the Library's Montage section is designed to cover a typical presentational need. Within each theme, the available templates are designed to complement one another when used in the same project.

Templates in the Library's Montage section. Some details are shown (e.g. the presence of text captions) and some omitted (e.g. ratings) because of current Library settings.

For instance, most themes provide an Opening template and a matching Ending template. Many themes also provide one or more Segue templates you can use when transitioning from one video or image clip to another.

Montage in your project

The first step in using a chosen template is to drop it onto your project timeline. Once there, the Montage template is treated as an ordinary, self-contained video clip. To customize the clip by filling in the template's blanks, you will double-click the Montage clip to open the Montage Editor. See page 115 for details.

Each template defines a video or graphic sequence with blanks to be filled in by you. The available customizations can take several forms. For instance, most templates provide one or more slots for video or image clips. Many let you supply text captions for titles, and some have additional parameters for other special properties.

The Montage section of the Library

Montage templates are stored in their own section of the Library. To find it, click the down arrow on any Library tab, and select 'Montage', which is listed in the 'Creative Elements' section.

The *play* button on any Montage icon loads the template into the Player, where it can be previewed with standard transport controls.

Click the Play button on the icon to preview the template.

To use a template in your project, drag the icon from the Compact Library in the Movie Editor or the Disc Editor to the project timeline.

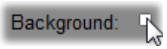
USING MONTAGE TEMPLATES

Montage templates are stored in the Montage section of the Library, where they are grouped by theme. To use a template, simply drag its thumbnail to the project timeline from the Compact Library in the Movie Editor or the Disc Editor.

Montage clips on the timeline can be trimmed and edited much like ordinary video. You can add transitions and effects, adjust their audio, and so on. For customizing the clip with your own content, however, a special editing tool is needed. This is the Montage Editor, which opens when a Montage clip is double-clicked on the project timeline. It can also be accessed with the clip context menu command *Edit Montage*.

The Montage Editor allows the user to customize a Montage clip by adjusting its built-in settings or specifying video and audio clips to use.

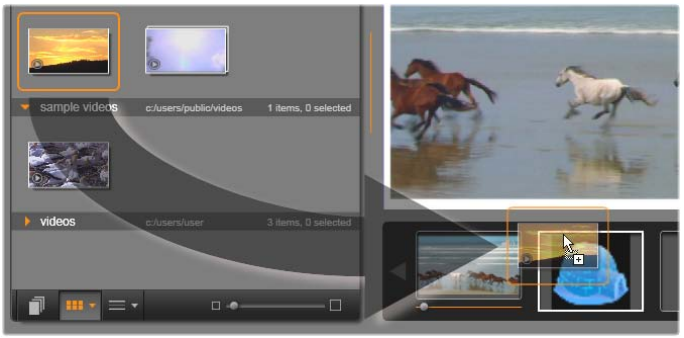
Template backgrounds



Some templates have built-in graphical backgrounds, a selectable background color, or both. Many of these also provide a *Background* checkbox in the Montage Editor, which when checked makes the background transparent. This allows the template to be

used on an upper timeline track over a background of the video or photo material on the tracks below.

To use a template, drag its thumbnail onto the project timeline. The numbers on the clip indicate that five subclips are available for customization.



The Montage Editor lets you specify template elements such as video or image clips, property settings, and text captions. Clips are added by dragging them from the editor's Compact Library to drop zones below the Player. Here, a Library clip is ready to drop on the second zone. The clip will replace the igloo graphic now occupying the zone.

Montage clips on the project timeline

Montage clips behave like ordinary video clips when it comes to operations on the project timeline, such as adding transitions, trimming and positioning.

A Montage template dropped onto the timeline is added by one of three methods: *insert, overwrite* and *replace*. When the *editing mode* button on the toolbar is set to *smart*, the *replace* method is chosen automatically. The default length of the clip varies from one template to another.

Inserting a Montage template before or after an existing clip: First, make sure the *magnet* button on the timeline toolbar is turned on. This will ensure that when you drop a clip very near the start or end of an existing clip, it will be positioned so that the clips adjoin exactly. Next, set the *editing mode* button to *insert* mode. This will ensure that existing material moves right to make space when you drop the clip, rather than any portion of it being overwritten.

It is not a requirement that a Montage clip should be dropped exactly at a cut point; as just described. It can be inserted into your production at any desired frame.

Replacing an existing Montage template: To replace an existing Montage template on the project timeline, hold down the Shift key on the keyboard, then drop the new template onto the old one. The new clip takes over not just the location but any existing customizations of the old clip. The placement lines, drawn in blue, show the boundaries of the clip to be replaced; regardless of its designed default length, the new clip will inherit these boundaries.

Overwriting clips with a Montage template: If you want to drop a Montage template onto a timeline track and have it simply overwrite other clips on the track without making any changes to the remainder of the timeline, you may do so by setting the *editing mode* button to *replace*. The length of the Montage clip will determine how much of the track is overwritten.

Trimming Montage clips

Although trimming operations on the timeline are the same for Montage clips as for video clips, the actual result produced by trimming may vary depending on the nature of the template.

In an all-animated template, such as a fancy rolled title, the animation always runs to completion. The animation speed therefore depends on the clip duration. Shortening the clip causes the animation to run faster, but does not truncate the sequence.

Clips that include video, in contrast, can be trimmed in the usual way. Many themes include a variable-length video subclip. When one of these is present, the clip can be expanded as far as the length of the subclip will allow – indefinitely, if the subclip happens to be a still image.

Transitions and effects

Transitions can be used at the beginning and end of Montage clips in the same way as with other clip types.

Video and audio effects can also be added to Montage clips as usual, and apply to all the content the clip embodies. However, a few effects, such as *Speed*, are not available for use with Montage clips.

To add an effect to a Montage clip, right click on the Montage clip on the timeline and choose *Open Effects Editor* from the context menu. Alternatively, drag an effect from the Library and drop it on the clip. Effects are located in the Creative Elements section of the Library.

To edit, copy or delete an effect on a Montage clip, right click on the magenta line along the top of the clip and choose the appropriately on the *Effect* context submenu.

Anatomy of a template

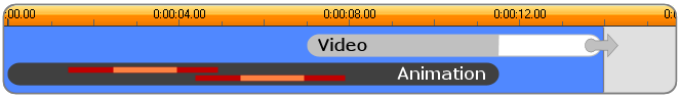
For examples of how themes work, let's examine the included '50s Modern' theme, which contains five templates.

All the templates in this particular theme use the same backdrop design – an abstract, scrolling pattern. It is continuously visible except during full-frame video segments. The coloring of the pattern is set using a parameter control available for each of these templates in the Montage Editor.

Now let's look at each template in turn to see how it is constructed from the elements – clips and captions – that you supply in the Montage Editor.

Opening: An Opening template usually starts with some sort of animation, including titles, and ends with full frame video. Our '50s Modern' example follows that pattern.

The scrolling background animation runs through most of this sequence. Within the animation, two customizable captions are displayed. They are represented in the diagram below by lines on the “Animation” bar. Both captions are flown into and out of the frame (dark line color), with a one and a half second pause for stationary display (light line color) in between.

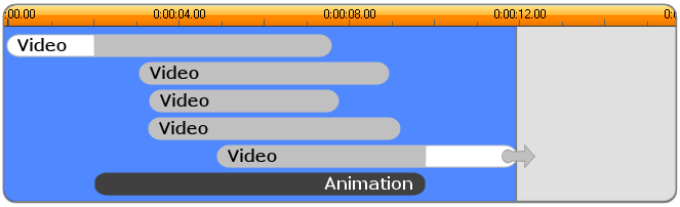


Schematic representation of the Opening template in the ‘50s Modern’ theme, at its default length of about 14 seconds.

Just as the second caption is leaving the frame, an animated panel containing the running video subclip is launched. The video zooms to full frame by 11:18 in the template clip, and remains so through to the end (the white portion of the ‘Video’ bar in the diagram).

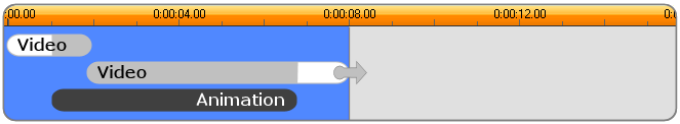
By default, the length of this template clip is 14:00. The embedded video clip starts at a fixed offset of 7:03 and runs to the end; its length is therefore 6:27. If your video subclip is long enough, you can lengthen the overall clip, extending the full-frame video portion. This capability is indicated in the diagram above by the arrow at the end of the ‘Video’ bar.

Segue A: Segue templates connect two full-frame video sequences by means of some kind of animation. This first Segue example begins with two seconds of full-frame video, then zooms out to reveal a formation of multiple video panels running simultaneously. Zooming in on the final subclip leads to an expandable section of full-frame video.



Segue A integrates multiple video sources.

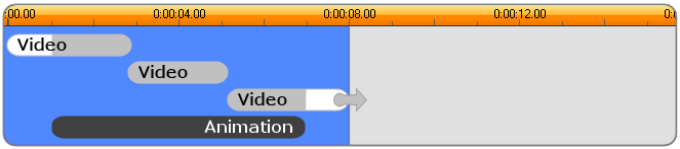
Segue B: This Segue achieves the basic aim of connecting two video clips more simply than the previous one. The first subclip starts at full frame, then zooms out while rotating away from the viewer. When the reverse side of its rotating panel comes into view, the second subclip is seen to have replaced the first. The panel zooms in to fill the frame towards the end of the clip.



Segue B creates a simpler transition.

Once again, the full-screen segment of the second subclip can be extended by expanding the template clip on the Timeline.

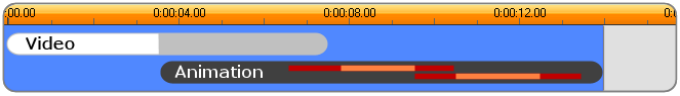
Segue C: This is similar to Segue B, except that the flying video panel takes an extra spin in the middle to admit one more subclip into the sequence.



Segue C includes a bridging video subclip.

The final subclip is again expandable.

Ending: The purpose of an Ending template mirrors that of an Opening template, and in this example the internal structure is also mirrored almost exactly. Full-frame video recedes to a flying panel that gives way to animated captions – exactly the opposite of the Opening sequence described above. The one difference is that in this case the full-frame video portion of the clip is not extendable.



The Ending template is essentially a mirror image of the Opening template.

THE MONTAGE EDITOR

The Montage Editor allows you to customize a Montage clip by specifying your own subclips and other customizations. The editor can be invoked from a Montage clip once it is placed on the project timeline by double-clicking the clip or by selecting *Edit Montage* on the clip's context menu.

Using the *Montage Editor*

Each Montage template has its own set of slots for video and photo content, represented by *drop zones* in the Montage Editor. Most templates have at least one of these; the maximum is six. Some also provide text captions and other parameters as required to customize special features.

The Montage Editor is split into five parts. On the left, the compact version of the Library provides access to your videos and photos; on the right is a customization panel including any text fields or other controls required by template parameters. The Player shows you the results of your changes. Below the Preview are the drop zones for your video and images.

Interior trimming of Montage clips

Montage templates often begin or end with a user-settable amount of full-frame video. For these, the Montage timeline provides handles for adjusting the *lead-in* and *lead-out* times – the durations of the full-frame portions.

Part of the Montage Editor window, with the timeline (bottom) and drop zones for video or images (middle). The lower portions of the Library and the Player are at left and upper middle respectively. To trim the Lead-in or Lead-out portion of the clip, click and drag the adjustment handles or the dotted parts of the line. Click between the handles (on the solid part of the line) to drag both at once, thereby repositioning the center in the clip without changing its duration.

Click a handle and drag left or right to adjust either duration separately. The duration of the center part of the clip – the animated part – will shorten or lengthen accordingly. If you want to balance the lead-in and lead-out without affecting the duration of the center portion, click *between* the handles and drag.

For a detailed explanation of the template structure, see "Anatomy of a template" on page 112.

Working with drop zones

Clearing drop zones: To delete a subclip from its drop zone, right-click the zone and select *Remove Media* from the context menu.

Muting subclip audio: Some drop zones are marked with an audio symbol, indicating that the audio portion of any video in that zone will be included in the Montage clip's audio. If you don't want the audio to be used, click the symbol to mute the subclip.

Choosing the start of your subclip: Video in a drop zone can be adjusted to start from an offset in the subclip. Click and drag the *start of clip slider* located under the drop zone to adjust the start frame. The keyboard left and right arrow keys are handy for making fine adjustments.

If the drop zone you are working with is active at that time index, the preview will reflect any changes to the start frame. When you are fine tuning the start frame of a subclip, it's a good idea to set the scrubber position to the location where the Player preview will be of the greatest assistance.

Using the *start of clip slider* changes neither the position of the subclip within the template nor its duration. Rather you are only choosing which excerpt of the subclip is used. If you set the start of the subclip so late that the video runs out while its zone is still active, the last frame of the subclip will be frozen to fill the allocated time.

Adding effects within drop zones: It is not possible to apply video or audio effects directly to a Montage subclip. Instead, prepare the video segment with all desired effects as a separate movie project, then drag that project onto the drop zone. Keep in mind, however, that assigning elaborate movie projects to Montage drop zones can significantly increase the performance and memory load imposed by the project that uses them.

CHAPTER 7:

The Title Editor

Avid Studio's Title Editor is a powerful tool for creating and editing animated titles and graphics. Its extensive suite of text and image effects and tools provides untold possibilities for the visual design of your movie.

Areas of the Title Editor display: ❶ the Presets Selector; ❷ the Library; ❸ the Edit Window; ❹ the Settings Panel; ❺ the Toolbar; and ❻ the Layer List.

These are the main areas of the Title Editor display, numbered as above:

1. **The Presets Selector** provides tabs for Look and Motion presets, with the presets organized by style within each tab. A Look is a visual styling of a *text* or *shape* layer in your title; a Motion is an animation routine that is most often applied to text. See "Preset Looks" (page 122) and "Preset Motions" (page 123) for further information.

   Hover your mouse over any preset to see how it will affect your title. A single click applies the preset to the current layer. After being applied, Looks can be customized using the Settings Panel.

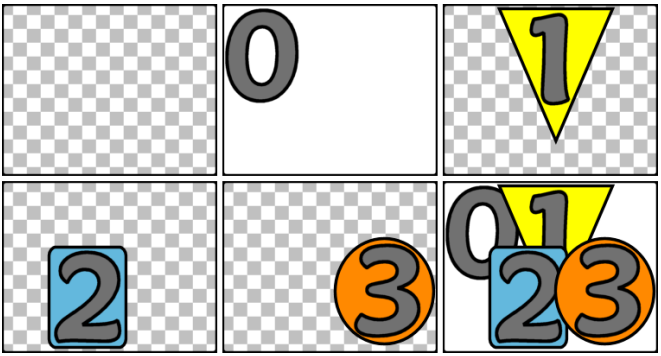
2. **The Library** provides resources for building your titles. The tabs across the top provide access to all available media and content. This compact version of the Library is functionally identical to the full Library as described in Chapter 2.
3. **The Edit Window** is your main work area when authoring or editing a title. It provides a scrubbable preview of your title with hands-on editing. See page 131 for details.
4. **The Settings Panel** has separate collapsible subpanels for each of three settings categories: *Text settings*, governing the style and size of text captions; *Look settings*, for the configuration of faces, edges and shadows; and *Background settings*, which pertain to the title's background layer.
5. **The Toolbar** has four control groups. From left to right: the *add text* and *add shape* tools; a set of layer manipulation controls; a full set of transport controls including a *loop* button; and a pair of counter readouts showing the duration of the title and the current playback position.
6. **The Layer List:** Each graphical or textual element constitutes a *layer* in the title, which is a stack of such layers. The opaque parts of each layer obscure the layers below; the bottommost layer can obscure only the background.

   In addition to listing each layer by name, the Layer List includes an animation timeline showing the timespan during which each layer is active, and the Motions that have been assigned to it. These properties can be adjusted by dragging.

The process of building up an image in layers is called 'compositing'. Because the information in each layer is maintained separately, to be combined only when the image is output, it is possible to return to the composition at any time and add new layers, and to adjust, reorder, remove or replace existing ones.

Launching (and leaving) the Title Editor

The Title Editor can be invoked in two ways: by double-clicking any title in the Library or on your project timeline; or by clicking the *Title* button on the toolbar of the project timeline.



Building up an image in layers starting with an empty frame (top left). The checkerboard pattern indicates transparency. Although backgrounds can have transparent or translucent areas, here we add an opaque background (0) for clarity, followed by successive layers with some opaque content (1, 2, 3). In the final composition (bottom right), upper layers obscure those below.

Keywords in title names

Some of the provided titles in the Library have transparent areas through which the content of underlying tracks will be visible. The names of these titles all contain the keyword ‘overlay’.

‘Full-screen’ titles have no transparent areas: they fully occupy the video frame. Their names contain the keyword ‘fullscreen’.

In the Library, you can easily view only the titles of one or the other type by searching on the appropriate keyword.

> **Tip:** Other search keywords to try out with titles in the Library are ‘roll’, ‘crawl’, ‘name’ and ‘title’.

Closing the Title Editor

To close the Title Editor, use any of the following methods:

- Click the *OK* button at the bottom of the Title Editor. If you opened the title from the Library, you will be prompted to save any changes to the title under a new name. If you opened the title from a timeline, your new or updated title becomes part of the current project.
- Click on the *Cancel* button at the bottom of the Title Editor. Any changes you have made are discarded.

- Click the button at the top right of the window. This is equivalent to clicking *Cancel*, except that if you have made changes you will be given an opportunity to save before closing.

The *File* menu

The commands on the *File* menu in the Title Editor let you store titles to your computer's file system, or retrieve stored titles for editing.

Open Title: With this command you can load a title from a file folder on your local system or network. If you have made changes to the currently-open title before giving this command, you will have an opportunity to save your work before proceeding.

Save Title and **Save Title As:** These standard commands, together with the previous, let you export titles to other computers, and share titles with other Avid Studio users.

THE LIBRARY

The Library appears in the Title Editor as a tabbed panel on the left side of the window. The tabs across the top give access to all the available media and content. This compact view of the Library is functionally the same as the main view described in Chapter 2.For editing titles, the Library sections of interest are *Photos*, *Video* and *Movie Projects*.

Adding Library media to a title

To add a video or photo to the title, drag it from the Library into the Edit Window. The new element is created at a default size where you drop it in the Edit Window. You can then move, resize or rotate it as you like.

To add a video or photo as a full-screen background for your title, drop it onto the background drop-zone of the Background Settings subpanel. See "Background Settings" on page 127 for details.

The compact version of the Library in the Title Editor provides the same comprehensive access to your media as the full version. See Chapter 2 for full information.

You can also use a video or photo as the fill for the face, border or shadow of your text. To do so, first add a face, border, or shadow to your Look Settings using the *add* buttons (illustrated). Then drop your photo or video into the drop zone to the right of the *Fill.*

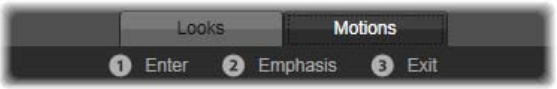
THE PRESETS SELECTOR

Quickly setting up an attractive title is easy with the Title Editor's Presets Selector. After entering your text, and with the text layer still selected, apply any of the preset Looks to it with a single mouse-click. To make it even easier, as you hover the mouse over any Look icon, the Edit Window previews the effect on your title of applying the Look to the current layer.

Even if you can't find exactly the Look you want among the presets, you can often save time by starting with one that's *almost* what you want, then tweaking it in the Look Settings subpanel.

The Presets Selector, with the Looks tab selected. Clicking the name of one of the listed preset families opens a pop-down tray of icons.

To give your title some visual impact, there's nothing like a bit of animation. Click the *Motions* tab of the Presets Selector. The three groups of presets available correspond to phases in the life of a layer.



The Motion presets are categorized by the role they play in introducing the layer, displaying it, or removing it from view.

As with Looks, Motions can be previewed as they will appear in your title by hovering the mouse over any of the preset icons. Once your mind is made up, you can apply the chosen Motion with a single click.

Preset Looks

The *Looks* tab of the Title Editor Presets Selector provides visual styles that can be applied to the text and shape layers in your title.

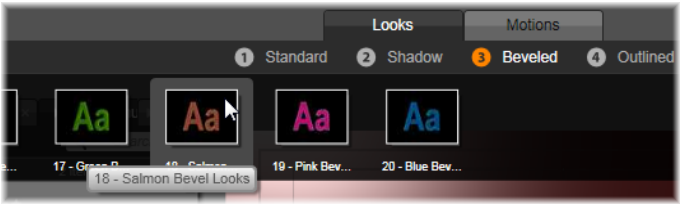
Previewing Looks

To preview a particular Look on a particular layer, first select the layer, then open the *Looks* tab of the Presets Selector and hover your mouse over the thumbnails. As you hover, the Edit Window previews your title as it would appear with the selected Look applied. This lets you immediately gauge its effect in context.

Applying a Look

To apply a preset Look to a text or vector graphics layer, first select the layer with the mouse by clicking in the Edit Window (page 131) or the

Layer List (page 137). You can also affect more than one such layer simultaneously using multiple selection or a layer group (page 142).



To begin using Looks, select a family of presets: Standard, Shadow, Beveled or Outlined. Hover over thumbnails to preview presets; click the thumbnail to apply one to the current layer.

Having selected the layer or layers to change, use one of the following methods to apply a Look:

- Click its thumbnail in the Presets Selector.
- Drag the thumbnail from the Presets Selector onto the layer in the Edit Window.

  Drag the thumbnail from the Presets Selector onto any of the layers or grouped layers in the Layer List header.

Cloning a style

Rather than applying a preset as such, you can also clone a Look as part of a *style*, which in the case of text layers includes font information as well as the attributes of the Look itself. Use *Copy Attributes* on the context menu of the layer in the Edit Window, and *Paste Attributes* on that of the destination layer, to achieve this.

Preset Motions

The *Motions* tab of the Presets Selector contains the animation routines that give the Title Editor much of its power. These *Motions* are assigned to and operate on single layers in your title. The Motions are divided into three classes based on the portion of the layer's lifespan they affect: *enter*, *emphasis* and *exit*.

- An *enter* Motion controls the arrival of the layer – its first appearance within the running title.

- An *emphasis* Motion maintains audience focus on the content of a layer by giving it an attention-getting action during its time on-screen.
- An *exit* Motion takes the layer off-stage again, completing its life cycle.

Each layer is allowed to have one Motion of each type. All Motions are optional, however, and it's also quite possible to have a title with no Motions at all.

The Motions collection

In each of the three types of Motion, most of the animations can be grouped into several standard classes based on their mode of action.

Letter-based Motions operate at the level of individual letters in a text caption (other kinds of layer are treated as consisting of a single 'letter'). For instance, in the *enter* Motion 'Letters turn', the letters in the text layer are first seen edge on, then rotate in place one by one until all are in their normal orientation.

Word-based Motions work similarly, but with words as the smallest unit of animation. In the *enter* Motion 'Words from bottom', the words in the layer float up into position one by one from below the frame.

Line-based Motions are meant for layers with multiple lines of text, each of which is processed in turn. In the *enter* Motion 'Lines from behind', each line of text is brought onto the screen along a perspective track as though it originated from behind the viewer's own position.

Page-based Motions affect the entire layer simultaneously. One example is the *enter* Motion 'Barrel roll', which 'rolls' the layer into position from above as though it were painted on the side of an invisible rolling barrel.

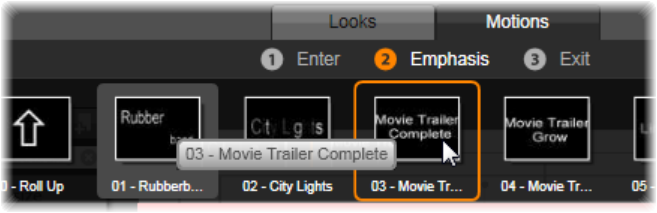
Matching the *enter* and *exit* Motions

Most *enter* Motions have a corresponding *exit* Motion with which they can be paired if visual consistency is desired. For example, a layer that enters with the 'Words from infinity' Motion could be configured to exit with 'Words to infinity'. However, this kind of consistency is only an option, not a requirement, and you can mix and match Motions of the three types in any way you choose.

Previewing Motions

To preview a particular Motion on a particular layer, first select the layer, then open the *Motions* tab of the Presets Selector and hover your mouse

over the thumbnail of interest. As you hover, a looping preview of the title animation will begin to run in the Edit Window so that you can immediately see the effect.



The Presets Selector offers Enter, Emphasis and Exit Motions. Each layer in a title can use one Motion of each type.

Adding Motions

To add a particular Motion to a particular layer, first select the layer, then do one of the following:

- Click the Motion's thumbnail in the Presets Selector.
- Drag the Motion's thumbnail from the Presets Selector to an accessible layer (one not masked by other layers) in the Edit Window.
- Drag the Motion's thumbnail from the Presets Selector onto any of the layers or grouped layers in the Layer List header.

Upon using any of these methods, the Motion will be added to the layer, replacing the existing Motion of the same type on that layer, if any. See "The Layer List" on page 137 for details on working with Motions in the Layer List.

CREATING AND EDITING TITLES

A title in Avid Studio's Title Editor is built from elements of four types:

The background layer: By default, the background is fully transparent. For overlay titles, this is normally what you want. For special purposes, or for full-screen titles, you can choose a color, a gradient, an image, or video for the background. For additional flexibility, the Background Settings also include an opacity control. See "Background Settings" on page 127.

Video and image layers: The resources that make up these layers originate in the Videos, Photos and Movie Projects sections of the Library. The layers support the same operations as text and shape layers except for the application of Looks.

Text and shape layers: These are 'vector-based' layers, meaning that they are stored not as bitmapped images like video and photo files, but as a kind of 'recipe' for recreating the images from straight and curved line segments to which properties (e.g. color) and special effects (e.g. blur) can be applied. Like video and image layers, these vector-based layers can be dragged, resized, rotated and grouped, and you can apply Motions to them. Unlike the other layers, however, they can also be customized with Looks from the Looks section of the Presets Selector. See "Preset Looks" on page 122 for details.

Motions: Motions are animation routines that can be applied to any layer in the title composition except the background. Motions are selected and applied from the *Motions* tab of the Presets Selector. Once a Motion has been applied to a layer, its timing can be adjusted in the Layer List timeline. See "Preset Motions" (page 123) and "The Layer List" (page 137) for further information.

Creating text and shape layers

To create a text layer, either click the *add text* button in the header bar of the Layer List timeline, or simply double-click an empty area of the Edit Window. A new layer containing default text will appear. The text is automatically selected, and will be replaced if you now begin to type.

To create a shape layer, click the *add shape* button (to the right of *add text*), then make a selection on the pop-up menu. The available choices include circle, square, ellipse, rectangle, horizontal and vertical 'pill' shapes, and triangle. Upon selection, a new layer of the given shape and a default size appears in the center of the Edit Window.

Editing layers

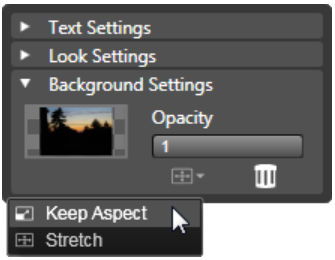
The remainder of this chapter provides details on editing the background and layers in the Title Editor.

- To learn about customizing the Background layer, see "Background settings" immediately below.
- For information on moving, resizing, rotating and rearranging all types of foreground layers, see "The Edit Window" on page 131 and "The Layer List" on page 137.

- To learn about editing text and setting text properties, see “Text and text settings” on page 133.
- Multiple selection and grouping is covered under “Working with layer groups” on page 142.
- Finally, to learn how about Motion editing in the Layer List timeline, refer to “The Layer List” on page 137.

Background settings

Unlike the foreground layers in a title, the special background layer does not appear in the Layer List, and is not modifiable in the Edit Window. Instead, the background is controlled from the Background Settings panel.



The Background Settings panel lets you create the background of a title. The small preview area serves as a Color Selector button, and also as a drop target for videos or images from the Library. Here the Aspect Ratio menu has been opened by clicking the button just above.

The default background for a title is fully transparent. If your title appears on an upper track in your project timeline, any video or other imagery on the tracks below will be visible behind the title foreground.

To create a solid or gradient background, click the background preview area. This brings up a color selection dialog, and also provides an eyedropper that allows you to pick up a color from anywhere within the Title Editor window.

You may choose to have a gradient background by choosing the *Gradients* tab at the top of the color palette. Additional gradient markers can be set by single-clicking below the gradient bar. Gradient markers can be removed by dragging them vertically out of the bar area.

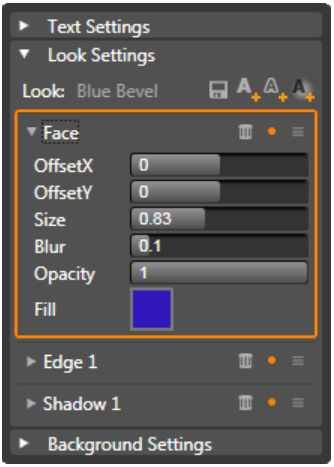
To use video or a still image as your background, drag the item down from the Videos or Photos sections of the Library to the background preview, which also serves as a drop zone.

To make the background translucent, position the the *opacity* slider anywhere between fully transparent (all the way to the left) and fully opaque. Double-clicking the slider returns it to full opacity.

To reset the background to its default state (with no background), click the *trash can* button.

Look settings

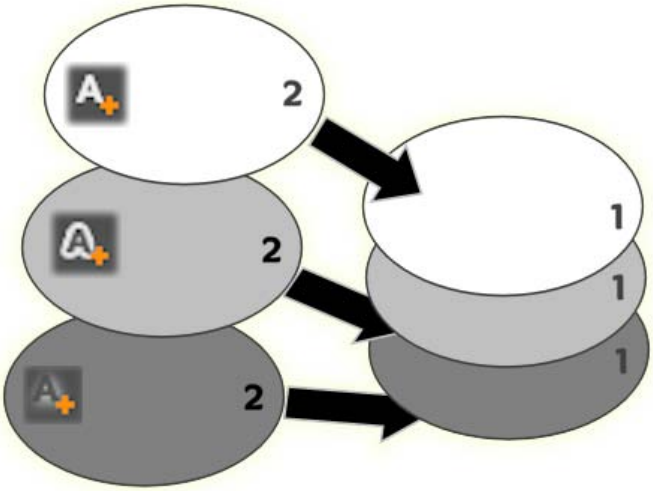
The *Settings* panel provides access to the Look Settings, where you can examine, modify, add or delete the individual *detail layers* that are overlaid to generate a particular Look.



Clicking the 'Look Settings' arrow on the Settings panel to open a subpanel where the Look of a layer can be edited. Next to the name of the currently-selected preset ('Blue Bevel') are three buttons for creating new detail layers. The edit panel for the Face detail is open; below it, the panels for Edge 1 and Shadow 1 are closed.

There are three types of detail layer: *face* (surface), *edge* and *shadow*. The three types differ not in the settings they support, but in the default position at which they will be inserted in the layer stack. Unless explicitly dragged

out of position, *face* details always appear at the top of the stack, followed by *edges*, and finally *shadows*. After a detail has been created, however, it can be dragged up or down in the layer stack as desired.

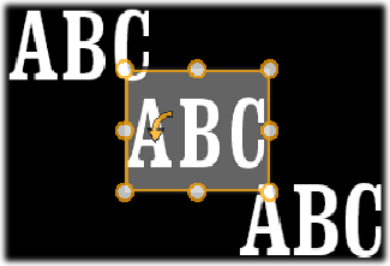


Face, Edge and Shadow: A new face detail (left, top) is added above the uppermost existing face layer; new edge and shadow details are added below the bottommost layer of their respective types.

The properties of individual detail layers can be modified by means of controls on collapsible panels in the Looks Editor.

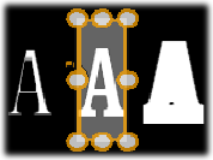
The following detail properties are available:

- **Offset X, Offset Y:** These sliders set the position of the detail layer relative to the nominal position of the text or graphic to which the Look is applied. The range of offset is -1.0 (left, or bottom) to +1.0 (right, or top). The maximum offsets represent one eighth the width and one eighth the height of the Edit Window work area.



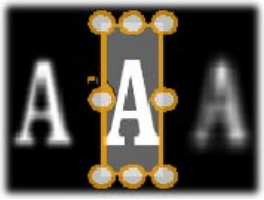
In this example, a Look with three detail layers has been applied to a single text layer. The detail layers are configured identically except for their offset values, as follows: top left (-1.0, 1.0); center (0, 0); bottom right (1.0, -1.0).

- **Size:** This slider sets the thickness of the segments used to draw the text or graphic, from zero to 2, where 1 represents the default thickness.



This example includes three detail layers with varying size values. From left to right: 0.90, 1.0, 1.20. The visual effect of varying the size depends on the default thickness of the strokes in the layer. In a text layer, this depends on the font family and size chosen.

- **Blur:** As this slider increases in value from 0 to 1, the detail layer affected becomes increasingly ghostly and indistinct.



The detail layers in this example differ only in their blur settings. From left to right: 0.15, 0, 0.40.

- **Opacity:** This slider sets the opacity of the detail layer from 0 (transparent) to 1 (opaque).
- **Fill:** Click the color swatch button to open a color picker in which the fill color of the detail layer can be set. The color picker includes an eyedropper button to pick up a color from anywhere in the Title Editor.

  To set a gradient background, choose the *Gradients* button at the top of the color palette. Additional gradient markers can be set by single-clicking below the gradient bar. Gradient markers can be removed by dragging them vertically out of the bar area.

Working with detail layers

In addition to setting the properties of existing detail layers, you can add details of any of the three types, delete details, and reorder the detail layer stack.

To add a detail layer, click one of the three small buttons at the top right of the Look Settings. From left to right, these create a new *face*, *edge* and *shadow* layer respectively. The placement of the new detail layer in the layer stack is determined by its type, as explained above.

To delete a detail layer, click the trashcan button in the header bar of the detail's edit panel.

To rename a detail layer, double-click its name, type the name you want, and press Enter.

To temporarily hide a detail layer, click the dot-shaped *visibility toggle* icon in the detail's header.

To close down or open up the edit panel of a detail layer, click the arrow button at the left-hand end its header bar.

To reorder detail layers, drag the header bar of the edit panel to its new location. If the Look you are editing contains more than two or three layers, it can be easier to follow the action if you close down the panels first so that the whole stack is visible at once.

Saving a custom Look

Once you have finished editing a custom Look, you can save it to the 'My Looks' presets group by clicking the *save look* button in the header bar of the Look settings. Before saving, it's a good idea to rename the Look. To do so, double-click the current name in the settings, type a descriptive name for the Look, and press Enter.

Once the Look is saved you can retrieve it at will through the Presets Selector, under 'My Looks'.

The Edit window

The Edit Window is the main preview and editing area of the Title Editor. This is where you rearrange, resize and rotate the foreground layers of your title.

A necessary first step for most kinds of editing is to select the layer or layers your want to affect. Selected layers are drawn within a frame having eight *control points* for sizing and a *rotation handle* at the top for rotating the selection in one-degree increments. Most types of layer can be

‘grabbed’ for dragging to a new position by clicking directly on the control frame.

Rotating a shape object within the Edit Window. The smaller dot at the top center of the control frame is the rotation handle for the layer. To rotate a layer, click down on its rotation handle and drag. When you are over the rotation handle, the mouse pointer will be a circular arrow.

With text and shape layers, some of the layer content may appear outside the control frame. This occurs if one of the ‘details’ within the Look is defined with a horizontal or vertical offset that moves the detail away from the nominal location of the layer. See page 122 for more information.

Layer operations in the Edit Window

The operations described here are for a single layer, but can be extended to work with multiple layers simultaneously. See “Working with layer groups” on page 142 for more information.

To select a layer in the Edit Window, click in the layer rectangle with the mouse. This causes the layer’s control frame to appear, ready for editing.

Layers respond to mouse clicks anywhere within their containing rectangle (the rectangle shown by their control frame when selected). This means that you may not be able to manipulate a layer that is visible only because it lies beneath a transparent area within the rectangle of another layer. To perform any editing with the mouse in such cases, you should first hide the upper layer(s) as described under “The Layer List”. See page 137 for details.

To move any non-text layer, click down anywhere within its rectangle and drag to the new position.

To move a text layer, position the mouse near the edge of the layer’s control frame until you see the drag pointer (four-way arrows) appear, then click and drag normally. Clicking inside the frame, as you would do a non-text layer, would instead activate text-edit mode. See “Text and text settings” below for detailed information.

To resize a layer but retain its proportions, click down on a corner point of the control frame and drag outwards or inwards until the desired size is achieved.

To resize a layer and modify its proportions, click a side point of the control frame and drag. By resizing with the center control point on two adjacent sides in succession, you can produce any desired size and proportion.

To rotate a layer, click down on its rotation handle and drag. For finer control over the rotation, move the mouse pointer away from the center of rotation while dragging. The extra distance makes it possible to define smaller angles between one mouse position and the next.

To change the stacking position of a layer, right-click the layer, and select from its context menu one of the commands on the *Order* submenu: *Send to Back*, *Send Backward*, *Bring to Front*, *Bring Forward*. Convenient keyboard shortcuts are available for all four operations; respectively, Ctrl+Minus, Alt+Minus, Ctrl+Plus and Alt+Plus.

Another approach to reordering layers, which may be more convenient in titles where several layers overlap, is to use the Layer List. See page 137 for details.

To delete a layer, select the control frame or select it in the Layer List, then press Delete. Alternatively, you can use the context menu command *Delete Layer*. If the layer is a text layer in text-edit mode, the *Delete* command (and the Delete key) apply to the layer's text only, not the layer itself.

Text and text settings

For all the graphical sophistication of the Title Editor, in many instances the primary reason for using titles is the text they contain. The editor therefore provides several specialized options to help you ensure that you can get your text looking exactly the way you want. The text operations we will look at below include:

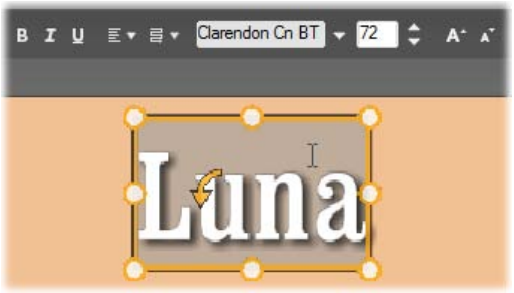
- Editing the text
- Changing fonts, font sizes and styles
- Setting text justification and flow
- Copying and pasting text properties

The areas of the Title Editor of most interest in text work are the Edit Window and the Text Settings panel. For styling a text layer, the Looks section of the Presets Selector and the Look settings panel also come into play. See “Preset Looks” (page 122) and “Look settings” (page 128).

Text-edit mode

As described elsewhere, when dragging a text layer you have to be careful to click at the edge of the control frame, rather than anywhere within it, to avoid accidentally putting the layer into *text-edit mode*. For the operations described here, however, text-edit mode is exactly what we want. In a newly-created text layer, text-edit mode is already enabled: you can begin to type immediately and the default text will be replaced.

To activate editing for an existing text layer, click anywhere inside the control frame. Text-edit mode becomes active and – to save you an often-required step – all existing text in the layer is automatically selected. As usual, selected text is indicated by highlighting.



A text layer with all text selected. From left to right, the text editing controls in the header bar above govern letter styling (bold, italic, underline); text alignment and text flow; and font name and size. In text-edit mode, the mouse pointer over the layer has the ‘I-beam’ shape as shown here.

To modify the text itself, simply start typing. The highlighted text disappears and the text you type takes its place. As you type, the current insertion point (the place in the text where new letters are inserted) is indicated by a vertical line.

If you want to add new text without losing what was already there, click at the desired insertion point after putting the layer in text-edit mode, or use the arrow keys to maneuver the insertion point as desired.

You can also highlight (and thus replace) only part of the text before typing: drag across the letters with the mouse, or hold down Shift while using the arrow keys. You may also triple click to select all of the text in the layer or double click on a word to select just that word. Lastly, if you want to select *all* the text in the layer again, you can use the mouse or arrow keys as just described, or give the standard shortcut Ctrl+A.

The Text Settings panel

The topmost Settings subpanel is this group of controls for editing and styling the content of the current text layer.

Using the text field

In cases where text in the Edit Window is difficult or impossible to access for editing, the text field in the panel provides another convenient way to select and edit your text. This is the approach to take if the text is off-screen at the scrubber position, which can happen when Motions are involved. The text field expands to provide up to three lines as you type, then adds a scroll bar if further lines are entered.

Styling highlighted text

Most of the Title Editor text controls are probably quite familiar to you from using similar controls in other applications. Those that apply to the highlighted text *only* are these:

Font styling: To set or unset the bold, italic or underline properties of the selected text, use the toggle buttons in the header bar, or the standard keyboard shortcuts Ctrl+B, Ctrl+I and Ctrl+U. The buttons light up when their respective style options are active.

Font name: Your titles are the perfect place to experiment with fancy display fonts, so you'll likely be accessing this drop-down list quite often. If you have many fonts on your system, the list can be quite long. For ease of navigation, pressing the first letter of a font name will take you instantly to the corresponding alphabetical location in the list. Click the font you want, or move to the name using the up and down arrow keys and press Enter.

To select a font, open the drop-down list and click the one you want. The font is applied to the currently-highlighted text only.

Font size: The Title Editor provides several methods of setting the font size. You can enter a new value directly into the font-size edit field (up to 360), or use the neighboring drop-down arrow to display a list of sizes. Further to the right, the *shrink font* and *enlarge font* buttons change the size in intervals that widen as the font size increases.

Copying and pasting text styles

With both text and shape layers, the *Copy Attibutes* and *Paste Attributes* context menu items, found by right clicking on a the control frame in the Edit Window, let you copy Looks from one layer to another without having to open the Looks section of the Presets Selector.

With text, this operation also replicates the font name, size and style from one text layer to another, and also works on partial selections within text layers.

Text alignment

For titles with multiple lines of text, the Title Editor provides a standard menu of justification options. The default for new text layers is center justification (*Align Center* on the drop-down list), in which each separate line is horizontally centered in the available space. The additional options provide for *Align Left*, *Align Right* and *Justify*.

Text flow

To accommodate the various conventions of different languages with regard to the direction in which lines of text are written, and

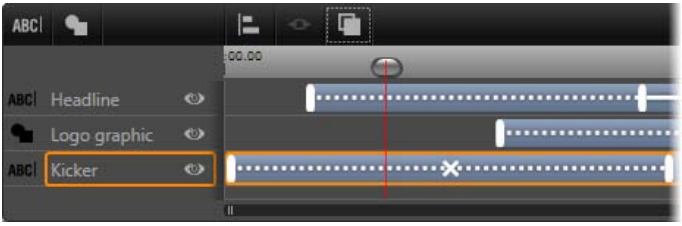
for maximum graphical design flexibility, the Title Editor offers a menu of eight text flow options. These options, which work in concert with the justification options just discussed, affect not just the way the text is displayed but also the meaning of standard keys like Home and End.

Styling with Looks

As explained in “Preset Looks” on page 122, the appearance of text and shape layers can be transformed by the application of Looks from the Presets Selector. In a partially-highlighted text layer, applying a Look affects only the highlighted text. In principle, each of individual character in your title could be given its own Look.

THE LAYER LIST

The Layer List, which occupies most of the bottom part of the Title Editor display, has two columns: one of layer headers, and one of timeline tracks. In each row, the header contains the name of the layer, and a *visibility* button. To the right of the header, the timeline track serves as a graphical editor for controlling the lifespan of the layer within that of the title as a whole, and the durations of any Motions that have been assigned to the layer.



The left-hand portion of the Layer List contains the layer headers; to the right is an animation timeline where the timing of each layer, and of any Motions applied to them, is displayed and can be modified. (Only the leftmost portion of the timeline is shown here.)

If the title you are editing was opened from the Movie Editor or the Disc Editor, the Layer List timeline represent the current length of the clip. To modify it, return to the project timeline and trim the title there.

If the title was opened from the Library, and so is not bound to a clip in the project, its length can be edited in the Title Editor. Set the desired duration by entering a value directly into the *duration* counter at the right side of the timeline toolbar. All layers will be adjusted relative to the new duration.

In addition to the layer headers and timeline, the Layer List has a toolbar that is home to several important groups of controls (see "The Layer List toolbar" below).

Working with the Layer List

The Layer List is a multitrack timeline very similar in conception to the project timeline itself. Some operations, such as those to do with Motions, are particular to the Title Editor, however.

Layer operations

The procedures described here are all carried out in the header area of the Layer List.

Selecting layers

Clicking a header in the Layer List has the same effect as selecting the layer in the Edit Window (and vice versa). The layer name highlights, and the layer's control frame appears. Multiple selection is also allowed, using the standard Windows mouse and keyboard combinations Shift-click (extend selection), Ctrl-click (toggle selection of one item), and Shift+Ctrl-click (extend selection from last item clicked). See "Working with layer groups" on page 142 for information on how to use multiple selections.

Layer names and renaming

When you create a new layer, the Title Editor gives it a default name based on the resource name or file name. Since the default names are often not very descriptive of the layer contents, it may be helpful in a title with a number of layers to give them custom names that make it easier to tell at a glance which name goes with which layer.

The name of a new text layer is the same as its default text ("Your text here"). Unless you give the layer a custom name, its default name will continue to match whatever text you type into the layer. Once you do rename a text layer, further changes to the text are no longer reflected in the layer name. The default behavior can be restored by setting a blank name, however.

To rename the primary layer, click its name. An edit field opens with the existing name selected. Type the new name, then press Enter or click outside the edit field to finish.

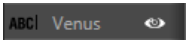
Reordering layers

As we saw on page 132 ("Layer operations in the Edit Window"), the position of a layer in the layer stack can be altered by means of commands on the *Layer* context submenu, or by keyboard shortcuts such as Ctrl+Plus (*Layer* ➢ *Bring to Front*).

The Layer List offers a more direct approach: simply drag the layer header to a new position in the list. This is particularly handy in situations where overlapping layers make mouse selection difficult. As you drag the layer, an insertion line shows where the layer will appear in the list when dropped.

Using multiple selection (see "Selecting layers" above) you can drag several layers at once to a new position.

Hiding and locking layers

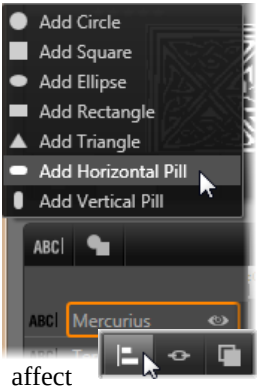


A complex title can get crowded very quickly as you add layers to the composition, and Motions to the layers. The *visibility* button at the right-hand end of the layer header is handyfor simplifying such situations.

Click the eye-shaped *visibility* button to temporarily remove a layer from the Edit Window. The layer's information and settings are preserved, but you will be able to work on other layers for the time being without the hidden layer obscuring either your view or your mouse actions. Click again to restore the layer to visibility.

The toolbar

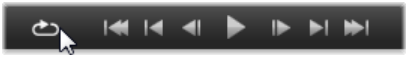
The controls and readouts on this header bar are in four groups. From left to right:



- The *add text* and *add shape* buttons allow you to create new 'vector-based' layers to which Looks from the Presets Selector can be applied. Clicking *add text* adds a new text layer with a default Look and caption. As a shortcut for *add text*, you can simply double-click any unused area of the Edit Window. Clicking *add shape* opens a pop-up menu from which you can select a particular shape as the contents of the new layer.

- Each of the *align*, *group* and *order* buttons opens a pop-up menu of commands that can affect multiple layers. These commands are covered under "Working with layer groups" on page 142.

- The *transport buttons* allow you to preview your title without leaving the Title Editor. From left to right, the functions of the buttons are: *loop play*, *jump to start*, *go back one frame*, *play/pause*, *advance one frame*, and *jump to end*.



  The *loop play* button loops continuously once started; to halt it, click anywhere on the Edit Window, or click *loop play* again. As usual, pressing Space provides a convenient shortcut for stopping and starting playback.

- The *System Volume and Mute* button allows you to adjust the speaker volume of your system. It does not change the audio level of any clips on your timeline.

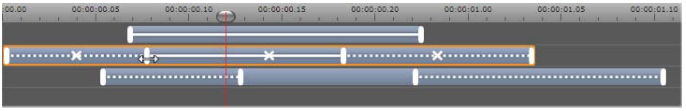
- The *counters* show the duration of the title and the current position of the Layer List timeline scrubber in the usual hours, minutes, seconds and frames format. For titles that come from your project rather than the Library, the scrubber position shown is relative to the start of the project timeline, not the start of the clip.

Editing layers and Motions

When a layer is created, its duration is set to the full span of the title of which it is a part. To delay the first appearance of a layer in the running title, or to banish one layer while continuing others, drag the ends of the layer along the timeline in the same fashion as clip editing on the project timeline.

A title is like a stage on which the layers are actors who come on for their big scene and then depart. Trimming the layers in the Layer List timeline allows you to control precisely the timing of their entrances and exits.

Up to three Motions – one of each type – are allowed to each layer. These are also displayed on the timeline, where their durations too can be adjusted. *Enter* and *exit* Motions are each anchored to their respective ends of the layer lifespan, but the end of the *enter* Motion and the start of the *exit* Motion can be freely edited with the mouse. If the layer has an *emphasis* Motion, it occupies whatever unused duration remains (up to the whole length of the title).



Three layers with Motions. The top layer has only an Emphasis Motion (solid line), which therefore uses the full duration. The bottom layer has Enter and Exit Motions, and a static interval between them. The center layer has Motions of all three types. The Enter Motion is being trimmed (note the horizontal arrow cursor); as its length changes, the Emphasis Motion self-adjusts to consume fully any unused time.

To replace one of the Motions used by a layer, simply add the new Motion as usual: an existing one of the same type will be overwritten.

To delete a Motion without replacing it, select the layer and click the small 'x' in the center of the Motion's timeline graph.

Working with layer groups

The Title Editor Layer List allows you to group layers on either a temporary or a permanent basis.

To create a temporary group, you will use standard multiple selection techniques whether in the Edit Window or on the Layer List. You can then make changes, such as applying a Look, to all the members of the group simultaneously. The group remains whole only until you click another layer or an empty area of the Edit Window, whereupon the layers resume their individual existences. In a temporary group, the control frames of each member are all visible at once.

To create a permanent group, you first create a temporary group, then click the *group* button on the Layer List toolbar (or use the *Group* command from any member's *Grouping* context submenu). Once created, the group stays together until you explicitly disband it with the *ungroup* button or menu command, or by dragging the member layers out of the group in the Layer List. One further command, *regroup*, automatically reconstitutes the last group to have been ungrouped.

When a permanent group is selected, it has a shared control frame that encloses all its members. The control frames of the individual members are not visible.

An ordinary layer and a group with three member layers in the Layer List. The timeline graphics show that Motions have been applied to the group itself and to one of its members. The mouse pointer is positioned to collapse the group, which would hide the names of the member layers.

Permanent groups have their own header entries and timeline track in the Layer List. The group header can be expanded or collapsed to reveal or

hide the headers for the member layers. When the group is open, its member layers are indented with respect to the group header.

Temporary groups and permanent groups respond differently to many commands as detailed below.

> **Note:** Even when a layer belongs to a permanent group, it can still be individually selected, either in the Edit Window (unless the group itself is currently selected) or the Layer List. A member layer can even be added to a temporary group with other layers inside or outside the permanent one.

Multiple selection of layers

The first step in making a group is to select the multiple objects that will comprise it. In the Edit Window, this can be accomplished in two ways:

- By clicking and dragging with the mouse to mark out a selection rectangle (a 'marquee') that intersects all the objects you want to group; or,
- By clicking the first object you want to group, then Ctrl-clicking each of the others.

Another approach to multiple selection uses the Layer List, as described above under "Working with the Layer List".

Edit Window operations on the group

Both temporary and permanent groups can be repositioned, resized and rotated.

To reposition any group, drag it to the new position as though it were an individual layer.

To rotate a permanent group, drag the rotation handle of the shared control frame. All members of the group revolve about their common center like planets revolving around the Sun.

To rotate a temporary group, drag the rotation handle of any member. All members of the group rotate about their own centers like planets rotating on their axes.

To resize a permanent group, drag any control point of the shared frame. The size of the whole group changes as though you were stretching a rubber sheet with all the layers painted on it.

To resize a temporary group, drag any control point of any member's control frame. Each layer is affected individually, expanding or contracting in place about its own center.

In resizing operations on groups, as with individual layers, dragging by a corner control point preserves the aspect ratio of the layer, whereas dragging by a side control point allows the proportions to be altered.

Applying properties to a group

Once a temporary group is selected, any property settings you make will affect every member to which the property is applicable:

- **If you apply a Look,** any text or shape member will receive it.
- **If you add a Motion** by right-clicking a Motion icon and choosing *Add to selected layer(s)*, the result will be the same as if you had added it to each member individually.
- **If you select a font,** or change any other text styling attribute, every text member of the temporary group will be updated.

Except in the first case, permanent groups have their own rules for these operations:

- **If you apply a Look,** it works the same as with a temporary group: all text and shape layers in the group are affected.
- **If you add a Motion to a permanent group,** the group is treated for the purposes of animation as a single graphic object, without regard to the letters, words or lines its members may contain. However, the individual Motions of its members continue to run along with that of the group as a whole.
- **Text stylings** cannot be applied to a permanent group.

Aligning layers in temporary groups

The final type of group operation, one that applies to temporary groups only, is provided by the *group align* button on the Layer List toolbar.The commands, of which there are three for horizontal and three for vertical alignment, affect all the members of the group except for the first selected, which sets the position for the others.

CHAPTER 8:

Sound and music

Video may be thought of as primarily a visual medium, but the role of sound in your movies is often no less important than that of the images on the screen.

Feature film and television productions include numerous types of audio, beginning with the dialog and other sounds created during live action. In your movies, that raw soundtrack – the *original* or *synchronous* audio – is imported along with the video, and remains bound to it unless you explicitly separate them.

Most commercial productions also require sound effects – slamming doors, crashing cars, barking dogs – and incidental music, which may consist of music created especially for the production, songs taken from recordings, or both. With the ScoreFitter tool, you can even create a full-length musical background track at the press of a button. Voice-overs and other types of customized audio are also often needed.

Audio features of Avid Studio

On the project timeline, audio clips behave very similarly to clips of other types, but the timeline also has some features just for audio.

For instance, the timeline header area includes a pop-out *mixer panel*, and the timeline toolbar includes a button for controlling clip dynamics with *keyframes*.

Some of the other buttons on the timeline toolbar also provide audio features. One lets you create a *ScoreFitter background music* clip; another in the same group lets you record a *voice-over*. Further along on the toolbar is a toggle button for *audio scrubbing*; which allows you to monitor audio in brief snatches as you drag the scrubber along the timeline.

The Library

Audio and music clips enter your productions via the Library, which handles audio files in **wav**, **mp3** and other standard formats. When you want to add audio files to your production, you can do so by dragging the desired asset from the Library Browser directly onto the project timeline.

Corrections and effects

The *correction tools* in the Audio Editor let you apply various repairs and customizations, including *noise reduction*, *compression* and *equalization*, to audio clips in your project. Unlike effects (discussed next), these tools can also be applied to audio assets in the Library. When you later use the asset in a project, the corrections will come with it; you can modify them further from the timeline if you choose. Corrections are *non-destructive*, meaning that the corrected audio file is not modified in any way.

The *effects* in the Audio Editor provide a number of ways of enhancing, transforming or having fun with sound clips on the project timeline. Unlike the correction tools just discussed, effects can't be applied directly to Library assets, but only within a project. The effects come with preset parameter combinations that you can further edit according to your needs.

Trimming and editing the stereo soundtrack of a video clip. At left is a video monitor panel and the channel mixer. The darkened portion of the waveform (center) represents material removed from this stereo sound by trimming on the timeline at bottom. The Compressor correction filter has been applied (right).

THE AUDIO EDITOR

The Audio Editor provides tools for previewing, analyzing and manipulating digital audio from **wav**, **mp3** and other file types. It includes special features for the *original* or *synchronous* audio track created during video recording.

For the general interface of the Audio Editor and the other media editors, please see Media editing overview.

The Audio Editor provides two sets of tools for different purposes. These are *Corrections* and *Effects*. Corrections are available both for Library assets *and* for clips on your project timeline. Effects are available for timeline clips only.

Corrections

When opened from either the Library or the project timeline, the Audio Editor provides access to a suite of correction tools for overcoming common flaws such as excess sibilance in recorded speech. If you are editing a Library asset, any changes you make will be preserved when it is later used in a project. Changes to a clip on the timeline, however, have no impact outside the project to which they belong.

For information about opening the Audio Editor to access the correction tools, along with general functions of the media editors, please see “Media editing overview” on page 77. For descriptions of the tools themselves, see “Audio corrections” on page 151.

Effects

As just mentioned, when the Audio Editor is opened from the project timeline, it provides a set of correction tools whose main purpose is to repair defects in media. These tools can be applied directly to assets in the Library as well as clips in the project.

With timeline clips only, the Audio Editor also provides a set of *audio effects*. These afford a wide range of possible ways to adjust or enhance your clips. Please see “Audio Effects” on page 154 for details.

Channel mixer

The channel mixer allows you to make level adjustments and redirect audio signals from their original channel assignments to new ones. For instance, you can use the mixer to condense separate stereo channels to a left or right mono channel.

The mixer panel originally opens in the left-hand column of controls, but can be dragged to a new docking position at either side of the window. Other panels will reposition themselves as needed while you drag.

If you need functions the channel mixer does not provide, consider applying the Channel Tool effect to the clip. See “Audio effects” on page 154 for information about the Channel Tool.

Level adjustment: Click on the slider under the level meters to set the playback level of the clip. The level you set will be used whenever this clip is played or used in a timeline. The red area on the meters represents overmodulation of the sound and should be avoided if possible. To determine the maximum level you can safely use, click the *normalize* button.

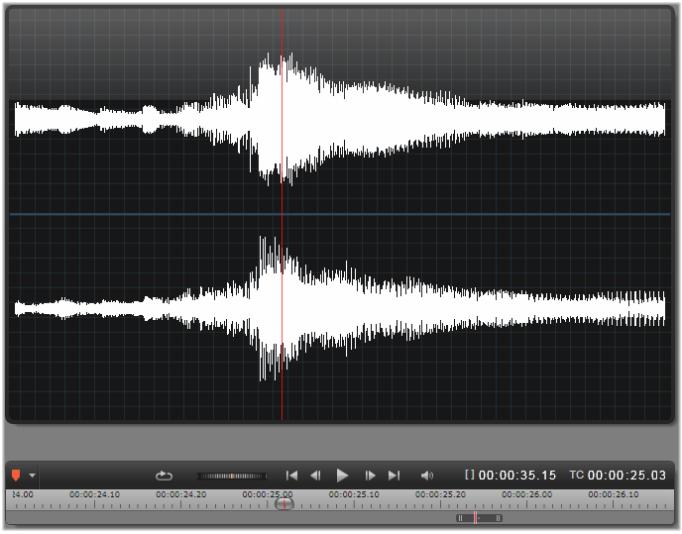
Channel routing: This dropdown list contains all options for redirecting audio signals, such as a channel exchange (left interchanges with right, for example), or combining a two-channel stereo signal onto one mono channel. The *1:1 routing* option routes the audio signal without changes.

Selecting a Channel Routing option in the Channel Mixer. Just above the list is the Level Adjustment slider (at the default setting of 0dB). To the right of the list is the Normalize button.

Normalize button: The *normalize* button examines the audio samples in the loaded sound to determine the amount of uniform increase that can be applied without overmodulation (harsh *digital clipping*) of any sample. Unlike compression and limiting, which modify the dynamics of audio material, normalization preserves dynamics by uniformly increasing (or decreasing) amplitude.

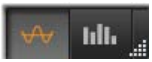
Waveform graph and frequency spectrum

The *waveform graph* of the audio is shown in the central display. It shows statically how the amplitude of the sound changes with time. If you zoom in on the sound as far as possible, the vertical lines on the graph indicate individual sound samples. The waveform graph is also seen in the Library ('source') Player when an asset is selected.

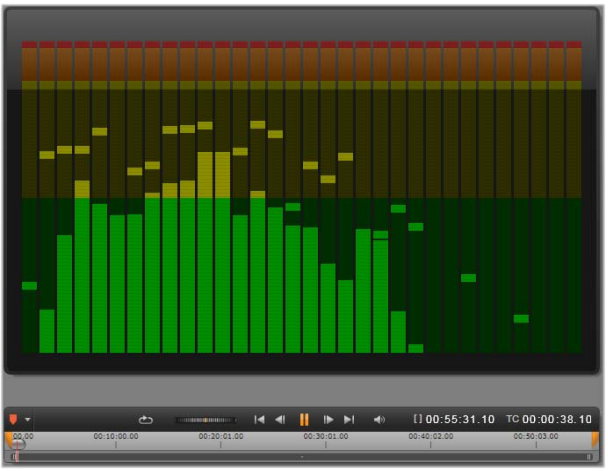


The waveform graph shows the change in audio levels over time. For stereo recordings, the graph is horizontally divided as shown here, with the left channel uppermost.

An alternative, dynamic view of the same audio material is given by the *frequency spectrum* display, which shows the changing spectral composition of the sound as it plays back.



The *waveform* and *frequency* buttons at the lower right of the Audio Editor let you switch between these complementary displays at will.



The frequency spectrum breaks down the audio signals by frequency bands, showing the sound level in each band. Lower frequencies are on the left. Peak levels are shown as a small box above each main bar for which a peak has been detected in the past few seconds.

Controls for synchronous video

If you are editing video that has a synchronous audio track, both video and audio editing facilities are available through the *Video* and *Audio* buttons at the top of the window. While you are in the Audio Editor, a video monitor panel is also available.

Video / audio switch

If video is available, a tab is provided at the top left of the screen for switching to the Video Editor. For details on the controls available when the *Video* tab is selected, please turn to “Correcting video” on page 86.

Video monitor

If synchronous video exists for the currently-selected audio, a small video preview panel opens at the upper left of the Audio Editor. While you are previewing the sound, the video monitor lets you follow the action visually as well. If you switch to the Video Editor, you will see a waveform display panel at the same screen location. See “Correcting video” on page 86.

Audio corrections

The correction facilities in the Audio Editor are *Equalize*, *Compressor*, *Expander*, *De-esser* and *Noise reduction*. Each can be applied both to Library assets and to timeline clips.

Equalize

Equalizers are similar in principle to the treble and bass controls of an audio system, but with finer adjustment capabilities. This equalizer divides the audio spectrum into five frequency bands, each centered on a specified frequency and with a settable amount of gain.

Preset list: A number of fixed presets can be selected from the dropdown list; for example, you can select a 'telephone voice' effect.

Settings and presets for the Equalize and Compressor audio corrections. Most Expander settings (not shown) are the same as those of Compressor. See the description for details.

Gain: Using the *Gain* parameter, you can determine the amount that the respective frequency band contributes to the overall sound (from -18 to +18).

Frequency: Using the *Frequency* parameter you can specify the center frequency of each band.

LoCut and HiCut: These controllers completely eliminate frequencies below or above a set value. The default values allow all frequencies.

Compressor

A compressor smooths the dynamics instant by instant in an audio signal, scaling back the loud sections while typically boosting the overall sound. This gives the impression of a stronger signal, even though the level peaks are not higher after compression than before. Light compression is very commonly applied in audio mastering of music tracks. Compression can also be used creatively in numerous ways depending on the material.

Preset list: Choose from a number of premade parameter sets for the compression filter.

Ratio: This control sets the *compression ratio*, which is the amount of compression applied to sections of the input signal that exceed the *Threshold* setting. For example, a 2:1 compression ratio means that a 2 dB increase of source level above the threshold produces only a 1 db increase in the output level. The allowed range is from 1:1 (no compression) up to 100:1 (hard limiting).

Threshold: All levels above this setting are attenuated by the value set in *Ratio*. You can apply an overall boost with the *Gain* controller to compensate for the level lost.

Attack and Release: *Attack* governs how quickly the compressor responds to an audio signal that has crossed the threshold. Larger values delay the onset of compression, allowing (for example) the brief attack of a piano note to remain distinct, while applying compression as usual for sustained sounds. *Release* controls the speed with which compression is switched off when the signal falls back below the threshold.

Gain: It is best to make adjustments to the gain after it has already been compressed.

Knee: A higher knee value causes compression to take hold gradually as the threshold sound level is approached and departed from, rather than switching on all at once. This changes the tonal qualities of the compressed sound.

Expander

The Expander decreases the gain of signals that fall below a chosen threshold. Expanders provide a gentler way of reducing noisy low-level signals than the abrupt cut-off of a gate.

Ratio, Threshold, Attack, Release: These parameters have the same meanings as in the Compressor (see above).

Range: This controls the maximum gain reduction (attenuation).

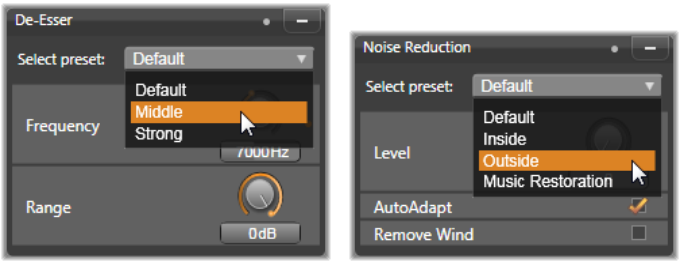
Hold: This determines how long the expander remains active after the initial attack. Increasing this value is useful when, between louder signals, there are small pauses or much quieter passages that should not be amplified. In this use, the expander works like a *noise gate*.

De-esser

This audio filter inconspicuously removes distracting sibilance from recorded speech. The available parameters allow individualized fine adjustment of the effect.

Frequency: This knob sets the frequency above which the *De-esser* is deployed.

Range: This knob controls the maximum attenuation that will be applied to the detected sibilance.



Setting and presets for the De-esser and Noise Reduction audio corrections.

Noise reduction

Using the noise reduction filter you can reduce or eliminate undesirable background noise. The filter reacts dynamically to changing amounts and kinds of noise within the material.

Noise reduction can be applied for a range of problems. The results obtained may differ, however, depending on the source material and the origin of the problem. In many cases the results can be optimized through targeted use of the *Level* and *Fine Tuning* parameters.

Since a new setting may take a few seconds to go into effect, make changes slowly and in small steps, carefully auditioning each change.

Level: Outdoor video recordings in which the subjects are far from the microphone frequently suffer from excess background noise. It may even be enough to obscure sounds of interest, such as the subjects' voices. Under the same conditions, the operating noise of the camcorder itself, or the words of its operator, may be amplified to an offputting degree. Experiment with the *Noise reduction* level until the best possible results for the source material have been achieved.

AutoAdapt: While this option is active, *Noise reduction* automatically and dynamically adapts to the type and amount of noise in the material. The *Fine tuning* option is ignored while *AutoAdapt* is selected.

Fine tuning: This controls the amount of correction. Its effect is only significant when lower *Level* settings are used, and it has no effect at all when *AutoAdapt* is active.

Remove wind: Select this checkbox to activate a filter that reduces wind and similar background noises in the current audio.

Audio effects

Audio effects, like video effects, are found in the Library under the Creative Elements branch. One way to add an effect to your project is to drag it from the Library onto any audio clip (including video clips with synchronous audio).

Adding the Grungelizer audio effect to the current clip.

Usually, though, effects are added with the help of an *Effects* panel in the Audio Editor, which lets you easily preview and customize them. The panel is aviailable whenever you are working on timeline clips with audio. The panel is not available when you open the Audio Editor from the Library. (In contrast, the tools on the Audio Editor's *Corrections* panel are always provided.) See "The Audio Editor" on page 147, and "Audio on the timeline" on page 156 for details.

The overall interface for audio effects is exactly the same as that for video effects. The common features are not covered here. (See *Chapter 5: Video effects.*) A few audio effects, such as the Equalizer and the De-esser, double as correction tools. These are covered under "Audio corrections" on page 151. Let's now take a look at the other audio effects.

Channel tool: The basic action of this effect is to route your stereo audio signal. It allows you to connect either or both of the left and right input channels to either or both of the output channels. In addition, channel tool offers special-purpose presets, including phase reverse and voice removal – the 'karaoke' effect.

Chorus: The Chorus effect creates a richer sound by repeatedly reintroducing 'echoes' into the audio stream. By controlling properties such as the frequency with which the echoes recur, and the decay in volume from one repetition to the next, a variety of results is possible, including flanger-like sounds and other special effects.

Grungelizer: The Grungelizer adds noise and static to your recordings. It can make your clips sound as though you were hearing them on a radio with bad reception or a worn and scratched vinyl record.

Leveler: This effect helps compensate for a common problem in recording audio for video productions: the imbalance in the recorded volume of different elements in the original audio. For instance, your commentary as you shoot the video may be recorded at such a high level that it overwhelms other sounds at the location.

The trick in using the Leveler is to find a target volume somewhere between that of the loud and soft audio in the original clip. Below that volume, Leveler increases the original level by a fixed ratio. Above the target volume, Leveler acts as a compressor, reducing the original level. With careful adjustment of the parameters, the internal balance of the audio can be significantly improved.

Reverb: The Reverb effect simulates the effect of playing back the source sound in a room of a given size and sound reflectivity. The interval between the arrival of the original sound at the listener's ears and the first echoes is

greater for a large room than a small one. The rate at which the echoes die away depends on both the room size and the reflectivity of the walls.

The presets for Reverb are named for the type of room they simulate – from the passenger cabin of a car all the way up to a huge underground cavern.

Stereo echo: This effect allows you to set separate delays on each of the left and right channels, with feedback and balance controls to provide a variety of interesting sounds.

Stereo spread: This effect allows you to decrease or increase the apparent width of the stereo listening field in an audio clip. Most often it is used to create a mix that sounds more open and spacious.

AUDIO ON THE TIMELINE

The audio levels and stereo or surround positioning of individual clips can be adjusted directly on the project timeline using *audio keyframing*. The same operations can also be accomplished with the Audio Mixer panel, which pops out to the right of the timeline header when you click its access button.

Both methods have their own advantages. Making the adjustments on the timeline gives a good sense of time versus volume or balance, whereas the Audio Mixer, in combination with the Panner, facilitates *mixing* – separately adjusting the volume and balance of each audio-containing track.

Surround sound

The Panner tool is fully surround-capable. For maximum flexibility, you can position any clip's audio as desired in a two-dimensional listening field – from front to rear as well as left to right.

If you mix the audio for every clip as though for surround playback, you can still output a movie file with a stereo soundtrack using just the left-right balance information. If you further decide to output your project on DVD, the 5.1 surround-sound production will already be complete.

Timeline audio functions

Along with the track management functions covered on page 48, the header area of the timeline is also home to a number of audio controls.

Master playback level

Above the timeline track headers is a master playback level indicator. As you preview your project, it shows the total output from all tracks as currently mixed. The *expand* icon to the right of the indicator opens a small floating window with separate level indicators for each output channel, and a *master gain* control to trim the output level up or down uniformly.

Click the icon next to the master playback level indicator to open the Master Volume panel, where you can apply an overall volume gain to the composite audio output of your project.

Audio mixer

The *audio mixer* panel pops out to the right of the track headers when you click its access button in the timeline toolbar. For each timeline track, the panel provides two fader knobs.

Track level: The left knob sets the output level of the track as a whole. Its numeric value is shown in a small pop-up window when the mouse pointer is over the knob. The default value of 0dB (which you can restore with a double-click on the knob) means that no overall change is applied to the original volume of the clips on the track. Clicking on the small window opens an edit field where you can enter the desired level. You can also set it by dragging horizontally within the small window.

Clip level: The other knob sets the level of the current clip at the scrubber position. If no clip is currently selected on the track, this second knob is unavailable. The volume contour of a clip can be controlled with keyframes, as discussed immediately below. When keyframing is in use, the *clip level* knob causes new keyframes to be created or existing ones to be repositioned.

When its access button above the timeline (L) is clicked, the audio mixer panel pops out to the right (R). Each track has two knobs. The first adjusts the level of the track's overall audio output, the second controls the levels of the current clip. It can be keyframed for moment by moment level control. The third icon on each track opens the Panner.

Volume keyframing

An audio clip's level can be varied at will using *keyframing*, which allows you to create a *volume envelope* that reflects the dynamic changes you want within the clip. The envelope appears as a green line on the clip; the keyframes are represented by small, square 'control handles' along the line. On playback, the clip volume tracks the envelope line as it moves smoothly from one keyframed level to the next.

If there are no keyframes on a clip, the volume contour is a horizontal line representing the default clip volume. To add a keyframe, make sure the *volume keyframe editing* button on the timeline toolbar is selected, then click on the volume contour of the clip.

Alternatively, you can position the scrubber to the desired keyframe location, then simply click the clip level knob; this second method works whether or not the *keyframe editing* button is lit. In either case, a control handle should appear on the clip. From now on, each change to the clip volume either creates a new keyframe, if there is not one at the current position, or updates the value of one that is already present.

Editing volume keyframes with the mouse

To allow keyframe editing with the mouse, activate the *volume keyframe editing* button in the group of buttons at the right-hand end of the timeline toolbar. Now when you position the mouse pointer over the green volume contour on an audio clip, you will see that the contour responds by highlighting in white.

To activate clip volume keyframe editing, click the button in the right-hand group on the timeline toolbar.

A number of mouse-based keyframe editing functions are now available. Before taking on any serious keyframe editing, take a few minutes to familiarize yourself with the commands in this set. They enable you to manipulate keyframes quickly without having to repetitiously move to a chosen keyframe and operate the clip level knob.

The default style of editing operations for volume keyframes favors maintaining sections of constant clip level rather than continuously wandering up and down along 'ramps' in the contour line. In cases where this does not produce the editing result you desire, try again while holding the Alt key. This turns off any automatic adjustments that might otherwise be made.

Insert a new keyframe by clicking the contour line.

Instantly create a keyframed fade by Ctrl-clicking the contour line. This inserts both a new keyframe at the point you clicked and a second one with the volume set to zero. If you clicked in the first half of the clip, the second keyframe is added at the start to create a fade-in; if you clicked in the second half of the clip, a fade-out is created by placing the second keyframe at the end.

Create abrupt level changes by dragging horizontal sections between neighboring keyframes up or down. This produces vertical steps in the volume contour.

Reposition swells and fades by dragging 'ramps' (rising or falling sections of the contour line) laterally within the clip.

Reposition control handles in two dimensions to any allowed point between their immediate neighbors (or the ends of the clip). You can

simultaneously change both the time index of the keyframe and the clip volume that will take effect when playback reaches it.

The arrows in this illustration show the uses of the mouse in keyframe editing. An individual control point can be dragged in all directions. Ramps and flat sections are respectively limited to horizontal and vertical movement only.

Delete a keyframe by dragging it onto another keyframes or by moving it vertically away from the contour.

Set a linear fade-in or fade-out by dragging either of the upper corners of the clip horizontally toward the center. Notice before you start that the unfolded corner of the clip becomes slightly dog-eared when the mouse hovers over it. The corner can now be dragged further into the clip, creating a fade. The wider you make the 'folded-over' area, the longer will be the duration of the fade.

Fade durations can be edited with the mouse as shown here. You can also click on the folded-over area to open a small dialog box for editing the duration numerically.

Edit an existing fade by positioning the mouse over the vertical line descending from the inward corner of the 'fold'. Make sure the bidirectional arrow pointer is displayed, then drag the edge as desired.

The context menu for control points on the volume contour provides the commands *Add keyframe*, *Delete keyframe* and *Delete all keyframes*. (Either the first or the second of these commands will be grayed, since only one of them can apply at a time.)

The Panner

This tool lets you regulate the apparent location of the sound source in relation to a listener within a 'surround' listening field. Like the clip volume tool it works with keyframes assigned to the clip, and so is active only when the timeline scrubber is positioned on an audio clip or a video clip with synchronous audio. The contour line for panning changes is drawn in blue.

In the Audio Mixer, the third icon in each track gives access to the Panner, where you can control the positioning of the track's audio output in a two-dimensional 'surround' listening space.

For the purposes of timeline editing, all panning occurs in surround mode, so you only have to deal with a single version of the Panner controls. The surround-panned clips can be mixed down to other output configurations after editing of the project has been completed. This lets you work with a single set of panning decisions for all formats you might eventually produce.

Changes made with this tool apply to the current clip only. They stay with the clip even if you move or copy it to another track.

To open the Panner, click its access button in the track header mixer panel. This button is grayed if there is no clip on the track at the scrubber position. The sound source is denoted by a blue spot on a two-dimensional grid. The listener is situated in the center, facing forward.

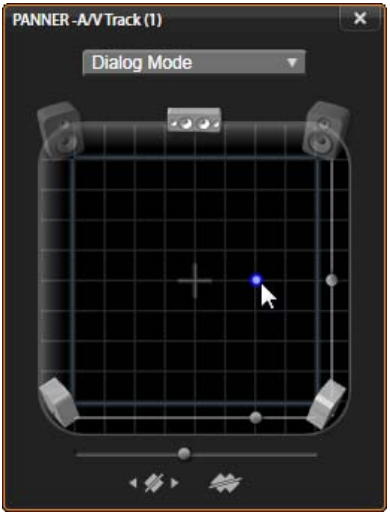
Selection list

The dropdown list at the top of the Panner window provides three methods for distributing the sound across the set of six surround speakers.

5.1 is the best general purpose setting for natural sound reproduction. Use it for general atmospheric sounds, such as barking dogs, or cars passing by. The five main speakers are represented by icons in the work area. The sixth, the LFE (low-frequency effects) speaker, is too low-pitched to provide positional cues. Its level in the surround mix is controlled by a slider beneath the work area.

Center channel off is the preferred setting for an immersive music track.

Dialog mode combines the center speaker with the two at the rear. This combination is suitable for dialog involving multiple speakers.



Positioning the clip audio using the Panner in Dialog mode. Note that the icons for the front corner speakers are translucent, indicating that they are not used in this mode. As adjusted here, the audio for the track will be heard coming from the listener's right.

Work area

The main body of the Panner window schematically depicts a listening area with a typical arrangement of loudspeakers. The cross icon in the center of the area indicates the position of the listener.

A blue control point sets the position of the sound source. The speaker symbols at the edge of the work area show your typical surround 5.1 speaker arrangement, with the screen at the top.

If you want to control the sound source position in one dimension, horizontal or vertical, use the slider at the bottom or right of the work area respectively.

LFE channel: Surround supports a special subwoofer channel (the '.1' in '5.1') that allows you to boost or cut the lowest frequencies for special effects. Control the LFE enhancement with the slider under the work area. Since the ear is unable to pinpoint the location of these low-frequency sounds, the LFE is not assigned to a spatial position.

Keyframe buttons: The keyframe buttons at the bottom of the panel allow you to add, remove and navigate between keyframes. The *Add* symbol automatically switches to *Delete* if you are positioned on an existing keyframe's position.

AUDIO CREATION TOOLS

The Movie Editor provides two authoring tools that allow you to build your own soundtrack rather than depending solely on Library-supplied media. Both tools are accessed with buttons on the toolbar above the project timeline.

ScoreFitter is Avid Studio's resident composer. You can use it to generate either incidental music or a full background scores for your production. ScoreFitter music clips can be of any desired length, and take only seconds to specify and create in the style of your choice. By default, a ScoreFitter clip exists only within your project, but you can also save particular music selections to the Library for re-use.

Just above the timeline in the project editor, the ScoreFitter button (under the mouse pointer) and voice-over button (far right) provide access to tools that let you author new audio material.

The voice-over tool lets you record live material – vocal or otherwise – using a microphone attached to your computer. Its most common use is for voice-overs and narrative tracks, but you can record any sound at all, providing it can be produced on cue. The tool creates an audio file that is automatically imported to the Library then added to your project at the scrubber location. The clip is added to the special *voice-over track* rather than the current track as with other media types.

Locating the Library asset

As mentioned above, a new Library asset is created each time you make a voice-over, and one can optionally be created from ScoreFitter as well. In both cases, a new button appears on the the Library footer bar.

A new button is temporarily added to the Library footer bar when a new ScoreFitter or voice-over asset is added to the Library. Click the button to locate the Library folder containing the asset.

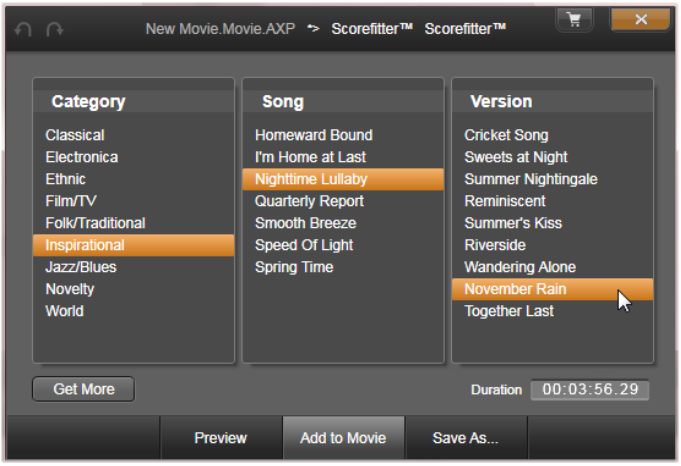
Click the button to navigate in the current location tab to the Asset Tree folder where the new item is stored. The button relates only to the operation just completed, and is removed after a short time.

ScoreFitter

Avid Studio's ScoreFitter automatically creates background music in the *category* of your choice. Within that category, you select one of several *songs*, and within that song, any of a number of *versions*. The list of versions available also depends on the duration of background music you specify.

To create music for a particular set of clips, select those clips before clicking the *Create song* button to open ScoreFitter. (To select your whole movie, use *Edit* ➢ *Select All* or press Ctrl+A.) The total length of the selected clips will determine the initial setting for the music duration, but you can modify the value at any time by trimming the clip on the project timeline or by directly editing the *Duration* counter in the tool.

In ScoreFitter, choose a category, song and version from the lists provided. Each category offers its own selection of songs, and each song its own selection of versions. Use the *Preview* button to audition the song while the tool is open.



The ScoreFitter window. Select a Category, Song and Version, then click the Add To Movie button.

Enter a name for the clip in the *Name* field and adjust its duration with the *Duration* counter, if desired. The music clip you create will be adjusted to fit exactly the duration you select.

When you have made your choice, click the *Add to Movie* button. Studio creates the new clip on the *active* track beginning at the current time index (as shown by the timeline scrubber and the preview frame in the Player).

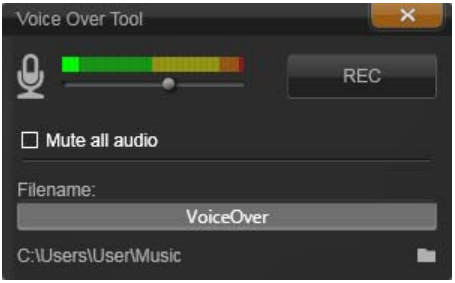
Expanding your song collection

ScoreFitter songs come in collections called 'libraries'. The Standard library, which is included with Studio, includes more than 40 songs in styles ranging from Folk to Electronica. Additional libraries may be purchased from within Studio as they become available by clicking the *Get More* button.

The Voice-over tool

Recording a voice-over in Studio is as easy as making a telephone call. Just open the Voice-over tool, click *Record* and speak into a microphone attached to your computer. You can narrate as you watch the

movie play so that your words match the action on the screen. You can also use the tool as a quick way of capturing ambient music or home-made sound effects via your microphone.



The Voice-over tool, ready to go. Just click the Rec button, count to three along with the software, then start talking.

Before you can record audio using the Voice-over tool, you will need to connect a microphone to the input jack of your PC sound board. Review the video scenes in your movie and decide where you want the voice-over to begin and end. When you are ready, open the Voice-over tool.

Select your starting point on the project timeline. You can do this by selecting a clip, playing the movie and stopping it at the desired point, or by dragging the timeline scrubber.

Position the microphone for use and try speaking a test phrase to check your recording level (see "Voice-over level" below). When you are satisfied, click the *Rec* button (which toggles to a *Stop* button during recording).

A three-second countdown is displayed, then your movie begins to run in the Player. Perform your narration, and click the *Stop* button when done.

Now you will be asked if you want to keep the recording. If you answer in the affirmative, the voice-over clip will be added to your Library and will also be placed automatically on the *voice-over track* on the project timeline.

Additional controls

Voice-over level: As you record, watch the peak level meter display to make sure that your microphone is generating a strong signal but not overmodulating. Watch this meter to make sure your recording levels get neither too high nor too low. The indicator changes color from green (0-70% modulation), through yellow, to red.

Adjust the *recording level* slider as necessary to stay in the right range. The slider is located immediately below the peak meter. Generally, you should try to keep your audio peaking in the yellow (71-90%) and out of the red (91-100%).

Mute all audio: The existing sounds on your movie soundtrack are sometimes distracting when you are trying to record a voice-over. This checkbox allows you to switch off timeline audio completely during recording.

Filename: With this text field you can preset the file name used for voice-over audio files. The first file is given the name you specify; if you leave it unchanged, later files are given a numeric suffix – e.g. 'Voice-over (1)' – that increases with each take.

Location: Clicking on the *folder* icon lets you navigate to a new file system folder for storing voice-over clips.

CHAPTER 9:

Disc projects

With the advent of DVD, Blu-ray and AVCHD discs, video technology has developed into an interactive medium that gives both the videographer and the audience new possibilities.

In a disc project you can go beyond the old idea of creating a movie to be viewed in strict sequence from beginning to end. Now the audience themselves can decide which parts of the production to view, and in what order.

Disc authoring is the process of designing and creating the structure that allows this interaction. Avid Studio provides automated features that make authoring easy while still giving you full control.

The Disc Editor in Avid Studio. Here, two menus have been added to the Menu List, and are now available for use. The Player (top right) in this window provides a special mode for editing the behavior of menu buttons.

The upper part of the Disc Editor screen includes two functional areas: the Compact Library, from which disc menus and other resources are drawn; and the Player, where you can preview menus and other media and edit menu interactions.

Next below these is the Menu List, where the your project's menus are stored. At bottom is the timeline for the media that will be the primary content of your disc. Both of these use the full width of the window.

Disc menus

The essential feature that makes disc authoring possible is the *menu*. A particular disc may have one, a few or many menus, each consisting of a still image or a short video loop. Areas within the menus, called *buttons*, can be selected by the viewer to activate other content on the disc.

Some buttons cause playback to resume from specified locations, called *chapters*, on the timeline of your production. These *chapter buttons* often show a thumbnail frame or video loop as a clue to their content.

Other buttons cause a transfer to another menu, or to another page of the same menu. Multipage menus, with each page displaying several chapter buttons along with automatically-managed navigation buttons, facilitate productions of any size.

The Menu List

Unlike timeline clips, the menus in your production are not bound to a particular time offset. Instead, a disc player will loop the menu until user interaction is received.

Because menus exist 'outside of time', Avid Studio provides the Menu List, a special area above the Disc Editor timeline to accommodate the menus in your project. Dragging a menu from the Library into the Menu List makes it available for use in your project.

Designing menu interactivity

A disc production may contain just one menu, or it may have many. Each menu contains graphically distinct areas, generically called 'buttons', that can be activated by the viewer, perhaps using the navigation keys on a DVD remote control.

The behavior of disc menu buttons can be set up using controls in the Disc Editor window. Alternatively, you can invoke the Chapter Wizard to create and configure a set of buttons automatically according to your chosen settings.

Activating a button either starts your movie playing back from a chosen point, or transfers control to another menu with its own buttons. The possible targets for menu buttons are:

- **A timeline location:** Upon activation, playback resumes from a chosen frame. The location, and the content found there, are referred to as a 'chapter' of your movie.
- **Another menu:** Any button can be linked to any menu in the Menu List.
- **Another page of the same menu:** Multipage menus always include *next* and *previous* buttons for navigating between their pages.

Automatic page creation

As you insert new chapter links into a multipage menu, additional pages are created automatically as needed. These appear in the Menu List alongside those already in the project. A connector graphic links pages belonging to the same menu. To insert new linked chapters, use either the *Insert Link* button on the toolbar, or the Chapter Wizard.

Main menu and matching multipage menu in the Library Player.

Next and Previous: It is the presence of the special *next* and *previous* buttons that causes a menu to support the multipage behavior. To create a multipage menu from an existing main menu, simply add buttons of both these types. Likewise, deleting either or both of the *next* and *previous* buttons from a multipage menu removes the automatic features.

Multipage menus in the Menu List

The icons of multipage menus are connected in the Menu List by a special graphic. It shows that the menus are *linked*, which is to say that you can navigate from one page within the menu to another by means of the *next* and *previous* buttons.

Splitting and joining: To unlink neighboring menu pages from each other, click the connector graphic between them. The graphic is removed. Pages to the left of the mouse remain with the original menu, while those to the right form a new, separate menu (with a new background color for its menu icons). Click in the gap between neighboring multipage menus to regroup them into a single menu.

Sorting chapters: A time-saving tool meant primarily for multipage menus is the *sort* button that appears with the *Chapter Wizard* button to the right of the menu's last page. When you have been working on a menu for a while – adding, deleting and rearranging chapters, perhaps even while editing the movie itself in parallel – you are likely to find that the chapter buttons are no longer in timeline order across the set of pages. Unless you want a custom order for some reason, the remedy is a single click on the *sort* button.

Pages from a multipage menu. The connector graphic shows that navigation within these pages is provided by Next and Previous buttons. The Sort button (top right, under pointer) arranges the chapter buttons in timeline sequence.

Adding disc menus

The disc menus section of the Library contains a collection of menus for a variety of occasions and in a spectrum of visual styles. Each menu comprises a background picture, a text title, and a set of navigation buttons appropriate to the menu's purpose.

To add a disc menu to your production, open the Compact Library in the Disc Editor, choose a menu in the Disc Menus (under *Creative Elements*), and drag it to the Menu List. To edit the actions assigned to the menu's buttons, you can use the authoring tools provided on the timeline in conjunction with the Player, or get some automated help from the Chapter Wizard. To modify the appearance of a menu (or create one from scratch) you will use the Menu Editor. For more information, see pages 179 and 182 respectively.

Menu types

Each menu design in the Library has two variations: *main* and *multipage*.

Main menu: In most productions, the first menu seen by the viewer is of this type. Main menus usually contain buttons with the default captions *Play Movie* and *Scene Selection*; you can change these if you like. Although the buttons' link targets are also up to you, it helps your audience if you stick to convention. For instance, the *Play Movie* button is normally configured to start playing back your movie from the beginning, and *Scene Selection* typically switches to a subsidiary menu, one with links to the 'chapters' of your movie.

Multipage menu: A scene selection menu often needs to provide more of these *chapter buttons* than will fit on a single screen. To solve this problem, Avid Studio supports *multipage menus*, which have additional buttons just for navigation between menus. The behavior of these buttons is built in. A pair of *next* and *previous* buttons lets the view move between pages within the same menu; while a *home* button causes a transfer to the project's first menu.

> **Tip:** To display the main menus side-by-side with their matching multi-page menus in the Library, right-click in the gray area next to a menu and choose *Sort by* ➢ *Name*.

Menu buttons

The number of chapter buttons per page varies from one menu design to another, so one criterion for selecting a menu is the number of clips you want it to handle. But if you want a different number of buttons on a particular menu, you can add or delete buttons in the Menu Editor, which is launched by clicking the *Edit* button on the Player. See "The Menu Editor" on page 182 for details.

Menus with fewer buttons usually have more space for captions; those with many buttons will have to settle for abbreviated captions or none at all. Whether you need captions, and if so whether they should be simple ("Chapter 1") or descriptive ("Cutting the Cake") is a matter of your authoring style and the content of your movie.

Unlinked menus and buttons

Only the first menu in the Menu List is automatically available to the user (and then only if there is any content on the timeline to serve as the initial chapter). Menus added later do not become part of your production's menuing system until you link them with the first menu. The link may be indirect, involving one or more intermediate menus, but until it exists the menu is an unreachable island. Such a menu is indicated by the symbol in the bottom right-hand corner of its Menu List icon thumbnail.

A special indication is also given in the Player for menu buttons that have not yet been linked either to a timeline location (a chapter) or to another menu. A linked button shows which chapter (e.g. 'C1') or menu (e.g. 'M1') it connects to. An unlinked one shows a question-mark instead. (If the button indicators are absent, click the *show/hide chapter numbers* checkbox below the Player.)

Previewing disc menus

The Disc Editor, like the Movie Editor, includes a Player for previewing Library assets and timeline clips. For a general introduction to the Player, please see page 7.

The special functions provided by the Player when viewing menus in the Menu List are described here. Clicking a menu in the Menu List puts the Player into Menu input mode and previews the selected menu. You can also switch to that mode directly while any menu is selected by clicking the *Menu* tab above the Player screen in the Disc Editor.

Special controls also appear at the bottom of the Disc Editor Player.

Menu Editor button: Creating or modifying the design and layout of disc menus is the task of the Menu Editor.

With Menu selected as the Player input mode (top), the Player provides interactive zones on the preview screen for assigning chapter links. Here 'C1' shows a chapter link has been assigned to the Play Movie button; the '?' over the Scene Selection button shows that it is not currently assigned.

Show Link Numbers checkbox: Check this box to cause link numbers to be displayed in the preview over every button in the menu. The link numbers match the format and color of the timeline chapter flags.

Disc Simulator button: This button invokes the Disc Simulator window where you can preview your project with full interactivity to make sure your menus are behaving as expected.

Burn Disc button: When you are ready to test your project on an actual disc, click this button (or *Export* at the top of the screen) to invoke the Exporter, which will guide you through the process of 'burning' your movie onto optical disc.

Link indicators

As seen in the illustration above, when a menu with unlinked chapter buttons is previewed, those buttons are indicated by red question marks rather than a chapter number. Except perhaps for an unused subset on the final page of a multipage menu, all the chapter buttons on your menus should link to your movie.

MENU EDITING ON THE TIMELINE

Developing a project for optical disc, such as DVD, in Avid Studio's Disc Project Editor, gives you lots of opportunities for putting your creative stamp on the production.

Every aspect of a disc menu – the details of its visual appearance, the linking of its on-screen buttons, the precise timing of its 'chapters' – can be edited in Avid Studio. For the visual aspects, you will turn to the Menu Editor, but the linking of buttons and the timing of chapters are both controlled within the Disc Editor itself.

For an overview of the Disc Editor interface, please see "Disc Projects" on page 169.

Timeline menu markers

The *chapter buttons* on a disc menu can be individually linked to any point on your movie's timeline. In the Disc Editor, those points are indicated on the timeline by *chapter markers* on the Chapter Track, which is a specialized timeline track that materializes above the time scale when a first menu is added to your movie. (The track is removed again if all menus are deleted.) The caption of a chapter marker consists of the letter 'C' followed by the chapter's sequence number in its menu.

Dropping a menu onto an empty Menu List causes a chapter marker to be inserted at the start of your movie's first clip (provided it has one) as the target of the menu's Play Movie button. A return marker, marking an exit back to the menu, is placed at the end of the movie.

Return markers, which mark automatic exit points from the timeline back to a disc menu, are also shown in the Chapter Track. The caption of a return marker is the letter 'M' with the sequence number of the target menu.

The color of chapter and return markers matches the Menu List icon color of the menu to which the markers are assigned. Markers can be repositioned on the timeline by dragging. See "Timeline editing of chapter and return markers" on page 179 for details.

Authoring tools

In the Disc Editor, the timeline toolbar provides a number of authoring tools that you can use directly without switching windows or views.

Tools on the Disc Editor timeline toolbar.

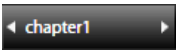
Create link: This button links the currently-selected chapter button in the Player to the location of the timeline scrubber.

Insert link: This button facilitates work with multipage menus by moving all existing button links (starting at the currently selected chapter button in the Player) one position towards the end.

In a multipage menu, the act of inserting a link may begin a chain reaction by forcing an existing link onto the next page, a link from there onto the page following, and so on to the final page, which itself will be created if necessary.

Remove link: Clicking on this button will remove the link that exists between the button on the menu and the chapter marker on the Chapter Track. An 'unlinked' chapter marker will remain on the Chapter Track. This unlinked chapter can be manually linked by drag-and-drop to another button on the Menu Preview, or it may remain as an unlinked chapter, in which case, during playback, it will work to jump through your disc using the *jump* button on your remote control. You may also right-click on one or more chapter markers and choose *Remove Selected Link*.

Button cycle: By clicking on the left and right arrows of this control, you can scroll through available buttons and make them active for editing. Click on the button caption to edit it. Buttons also may be selected by clicking the button links in the Player when a menu is previewed.



Set thumbnail: Clicking this button generates a thumbnail image of the frame at the timeline scrubber position, and displays it on the menu button selected in the *button cycle* control if it is of the *Thumbnail* type. For more information about menu button types, please see "Buttons", on page 183.

Create unlinked chapter: Unless the timeline scrubber is exactly positioned at a chapter or return marker, clicking this button will add a chapter marker to the Chapter Track, but will not link it to any menu. The unlinked chapter can later be manually linked by drag-and-drop to a button on the Menu Preview if that's what you want. However, an unlinked chapter also serves a useful purpose: during playback, it designates one of the points to pause at when browsing a DVD with the *jump* button on the remote control.

Remove chapter: When the timeline scrubber is positioned at a chapter, the *Create unlinked chapter* button takes on the opposite function, and a modified symbol. Clicking on it will remove both the chapter marker and the link that binds it to a menu, if it has one. You can also remove chapters with the *Delete Selected Chapter* context menu command when one or more chapter markers are selected. To remove the links from chapter markers, leaving them unlinked but still on the Chapter Track, use *Remove Selected Links* from the same menu.

Create return: Unless there is already a marker at the timeline scrubber position, this button will add a return marker to the Chapter Track.

A return marker is active during viewing only if playback commenced from the same menu the marker is associated with. (On the timeline, the marker color should match that of the associated menu's icon in the Menu List.) When playback reaches the frame associated with an active return marker, it will jump back to the associated menu.

Delete return: If there is a return marker at the scrubber position, the *Create return* button converts to *Delete return*, with an appropriately changed symbol.

The *Remove chapter* button, and the *Delete selected chapter* context menu command, can both also be used to delete return markers.

Timeline editing of chapter and return markers

Chapter and return markers are tied to particular frames on your timeline at which playback will be launched from a disc menu (chapters) or at which playback again gives way to the originating menu (returns). Both types of marker can be dragged with the mouse to change the location at which they take effect in the movie.

When you are previewing a menu, dragging a chapter marker from the Chapter Track to a button on the Player will relink the button. The reverse operation, dragging a button from the Player to a point on the Chapter Track, is an alternative method of creating a new chapter marker.

A project that contains one or more disc menus must have a return marker permanently positioned at the end of the Chapter Track. This guarantees that any chapter played on the disc will encounter a valid return. The final return marker can thus not be deleted.

The Chapter Wizard

When a multipage disc menu has been dragged from the Library into the Menu List, a *Chapter Wizard* button is displayed at the top right corner of the menu icon. Clicking on this button will open the Chapter Wizard window.

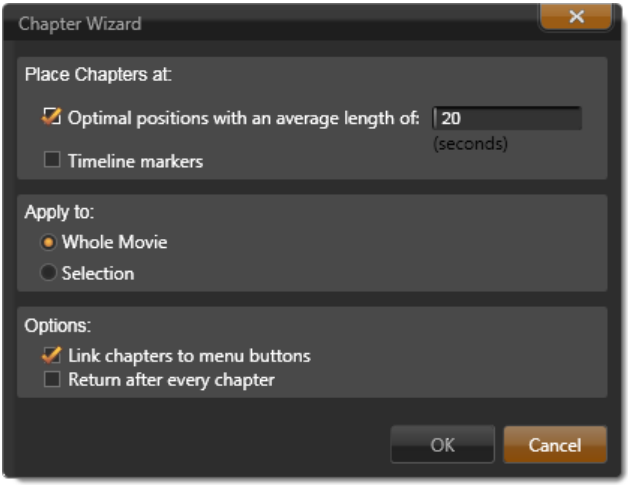
Why use the Chapter Wizard?

The Chapter Wizard provides a fast way to create chapters for your movie. *Chapter markers* will be added to the Chapter Track on the Disc Editor timeline to show where each chapter begins. With the *Link chapters to*

menu buttons option (see below), each chapter will be represented by one *chapter button* on a series of automatically-generated menu pages; these pages are linked into a series by *next* and *previous* buttons.

By activating chapter buttons when the menu is viewed, the viewer is able to play the movie from any of the provided starting points.

The Chapter Wizard is great for setting up slide shows and scene selection menus. If you are archiving video to disc, you can use it generate a menu that will serve as a scene catalog. The series of menu pages created can be arbitrarily long. Its length depends on how many chapters are created and on how many chapter buttons are provided in the menu's page design.



Incidentally, the Chapter Wizard does nothing that you could not do yourself using the available disc authoring tools within the Disc Editor (and they remain available for tweaking the generated menu afterwards). Its purpose is to speed your creative process by taking over much of the routine work that setting up a multipage menu entails.

Using the Chapter Wizard

The Chapter Wizard controls are grouped into three horizontal panels. When you have configured the controls to your satisfaction, click *OK*. The Chapter Wizard will carry out its work of creating new chapters for your

production, complete with markers on the timeline and (by default) an automatically-generated set of menu pages with as many chapter buttons as necessary.

Place chapters at

This is the uppermost panel in the Chapter Wizard. The two options here can be used separately or together.

Optimal positions: When this box is checked, the Chapter Wizard creates chapters at a selected interval along the timeline, but will adjust the chapter to a nearby clip boundary when one is available. The desired average chapter length is specified in seconds. The initial value is based on the length of your movie. To adjust it, either click directly on the number and type, or drag horizontally within the text box.

Timeline markers: This option assumes that you have prepared timeline markers to indicate to the Chapter Wizard particular places in your movie to which a chapter link must be created.

Apply to

The second panel in the Chapter Wizard provides options that control the scope of the wizard's operation.

Whole movie: Chapter markers will be created throughout the entire movie.

Selection: Chapter markers will be placed only within the range from the beginning of the first selected clip to the end of the final one.

Options

The third panel offers two final choices, which may be set independently.

Link chapters to menu buttons: When this option is selected, as many pages will be added to the menu as are needed to accommodate buttons for all of the created chapters. Without this option, the chapter markers are created on the timeline in the 'unlinked' state, and no menu pages are created.

If you want to link an unlinked marker to a menu button, drag it to the button while previewing the menu in the Player. Even if you leave it unlinked, the chapter marker will still serve as an available resumption

point when the viewer is skipping through the disc with the *jump* button on the remote control.

Return after every chapter: Checking this option will add a *return marker* at the end of each chapter. By default, the markers are placed so that each chapter will play up to the start of the chapter following, then return to the originating menu. To change the menu that a return marker is linked to, drag the marker to the menu icon in the Menu List. Remember, however, that the return marker will only be active when playback was launched from the menu to which the marker is linked.

THE MENU EDITOR

The Menu Editor shares most of its controls and usage with the Title Editor, which is described in Chapter 8. The present section focuses on features particular to the Menu Editor.

Starting the editor

To open a menu in the Menu Editor, either click the *Edit* button on the Player while previewing the menu, or double-click it in the Menu List.

As with the Title Editor, when the Menu Editor opens, one line of text is already highlighted. To edit it, just start typing. To start editing a different line, click inside its text box and highlight the characters you want to change. To stop editing text, click on an empty area of the window.

The button cycle

One feature that differs between the Menu Editor and the Title Editor is the *button cycle*, a control also present in the Disc Editor. In both cases it is located on the right side of the toolbar, just above the timeline. Click the left and right arrows on the control to step through the active buttons in the menu, and make one available for editing.

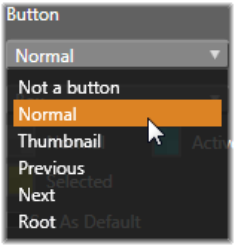
> **Note:** If you only want to edit text for the buttons on your menu, you do not need to enter the Menu Editor at all; instead, edit the button name directly in the *button cycle* control of the Disc Editor.

Menu buttons

Any visual element of your disc menu can be used as a 'button' that links to other content in your movie. Elements designated 'Not a button', on the other hand, have no linking behavior.

Button types

A menu button's type is the only factor that determines its behavior. Its text and appearance should almost always be consistent with that behavior in a well-authored disc production, but they don't affect it. Five button types are available.



Normal: This type of button lets your text, image or shape serve as a link to any chapter marker on your disc project timeline, or to a menu in your Menu List.

Thumbnail: This variation on the *Normal* button type allows a thumbnail from your timeline to be displayed on the button.

Previous and Next: These button types automatically handle navigation between the pages of multipage menus in the Menu List. During playback, the buttons are hidden automatically when their targets do not exist (on the first and last pages of the multipage set). Because their behavior is fixed, it is not possible to link these buttons to chapter markers.

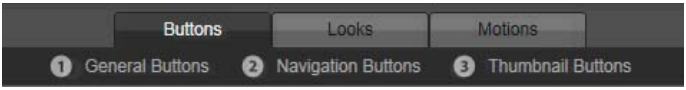
Root: A button of this type links to the first menu in the Menu List. Its behavior cannot be changed.

Buttons for multipage menus

If you add both a *Next* and a *Previous* button to any menu, it can serve as a multipage menu. If either button type is absent, the menu cannot be used in the multi-page mode.

Button presets

Click the *Buttons* tab at the top of the Menu Editor to view the available categories of premade menu buttons. Drag buttons onto the preview area to add them to your menu.



The three categories reflect the button types discussed above. The Navigation category includes all buttons of the Previous, Next and Root types.

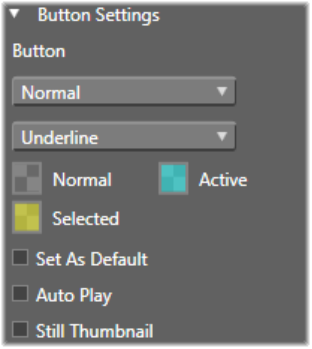
General Buttons: These images are intended for use with *Normal* buttons, which may be linked to any chapter marker on your timeline.

Navigation Buttons: These designs are meant for *Next*, *Previous* and *Root* buttons with hard-wired navigation.

Thumbnail Buttons: These include a thumbnail area where a timeline clip can be previewed.

Button settings

The *Button Settings* panel is to the right of the Menu Editor preview.



The Button Settings panel is part of the Menu Editor.

THE DISC SIMULATOR

To preview your project after setting up its menus, click the *play* button at the bottom of the Player. This activates the Disc Simulator window.

When the Disc Editor Player is previewing a menu in your project's Menu List, a button (bottom center) is provided for testing your project in the Disc Simulator.

Provided the project is built correctly, the simulator should open at the main menu, with 'Play Movie' and 'Scene Selection' links ready for the viewer to use.

In the Disc Simulator, you use a control set similar to that found on a DVD remote control. Menu interactions and playback can be fine-tuned and fully tested before you burn the project to disc.

To move from link to link within the preview, use the DVD navigation buttons on the bottom right.

Take the time to verify all the chapter and menu links your production includes. Every desired user interaction should be checked: slip-ups are frustrating for the viewer, and easily avoided.

Once you are happy with the project, it can be exported as a movie file, saved to a disc image file, or burned to a disc. See *Chapter 11: The Exporter* for more information.

CHAPTER 10:

The Importer

Avid Studio lets you incorporate many kinds of media in your video productions. When these are stored externally to your computer – on a camcorder tape, say, or a memory stick from your digital camera – they must be transferred to local storage before you can use them.

This transfer process is called ‘capturing’ or ‘importing’. A distinction has long been made between ‘capturing’ from tape and ‘importing’ from file-based sources, but it is less significant nowadays when most audiovisual recordings are stored in digital form throughout their lifetimes. Only when transferring from analog or tape-based sources (e.g. VHS, Hi8 or DV tape) is there still a ‘capture’ process, often involving conversion to digital form.

Because Avid Studio uses its Library to manage all source media, media files that are present on the local hard drive must also be imported into the Library. In most cases, this is handled automatically using ‘watch folders’. However, the Importer can also be used to import media from local folders that are not set up as watch folders.

We will most often use the terms ‘import’ and ‘importing’ to signify all methods of bringing images and sound into the Library for use in your productions.

The next step

After Studio has finished importing your media, you will be able to access the imported files for use in your productions. See *Chapter 2: The Library* for details.

Using the Importer

The very first step in importing is to open the Studio Importer by clicking the *Import* button at the top left of the screen.

The Importer consists of a large central area surrounded by a number of smaller panels. One of these, the Import From panel at the top left of the display, has a pivotal role. It provides a list of device types that can serve as the source of your import operation. Your choice of input source in turn determines the rest of the Importer display. Above all, the set of controls and views offered in the central area for preview, browsing and selecting material depends on the chosen import type.

Here the Importer is configured for importing material from DVD. For disc sources, the central area lists the 'chapters' available for importing.

Importing can be regarded as a four-step process:

1. Select the import source on the Import From panel.
2. Confirm or adjust the settings on the other panels.
3. Select material to import from the chosen source.
4. Initiate the import operation.

At this point Studio begins transferring the requested audio, video and pictorial material from the source device to your hard drive (if necessary), using the locations set in the Import To panel. The media are then immediately added to the Library. Once the import operation is complete, the Importer returns control to the prior screen, from which you can access the imported files through the Library. (See *Chapter 2: The Library*.)

IMPORTER PANELS

The actual selection of material to be imported takes place in the central area of the Importer. Each import source uses the central area somewhat differently.

Depending on the input source, the central area shares the Importer interface with up to five auxiliary panels with standardized functions.

The Import From panel

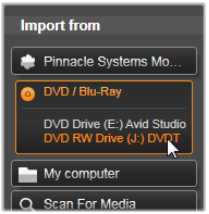
This is the top left panel of the Importer, a position that reflects its vital role in setting up the import operation.

The photos, music and video footage you want to import may reside on a variety of device types and technologies. The supported import sources include:

- All types of auxiliary file-based storage media, including optical drives, memory cards and USB sticks (see “Import from file-based media”, page 201). Click *My computer* in the Import From panel to select individual files for import from drives connected to the computer.
- Click *Scan For Media* to import all files of specific types from a set of one or more directories.
- DV or HDV video cameras using an IEEE-1394 (FireWire) connection (see “Import from DV or HDV camera”, page 207). Devices are listed by name in the Import From panel by their device names (e.g. “DV Device”). Select the applicable one.

- Analog video cameras and recorders (see “Import from analog sources”, page 211). Any analog capture hardware on your system is listed by name (e.g. “Pinnacle Systems 710-USB”).
- DVD and Blu-ray discs (see “Import from DVD or Blu-ray Disc”, page 212).
- Digital still cameras (see “Import from digital cameras”, page 213).

Some sources in the Import From panel are chosen from a sub-list of actual devices that appears when you click the main source entry. In the illustration, *DVD / Blu-Ray* has been clicked. The user can now choose between the two DVD drives installed on this particular system.



Single-frame import

Studio provides two special modes for importing single frames, rather than continuous footage. These modes are:

- Stop motion: Create an animated film by importing one frame at a time from a live video source (see “Stop motion”, page 213).
- Snapshot: Import individual images from tape or from a live source like a webcam (see “Snapshot”, page 215).

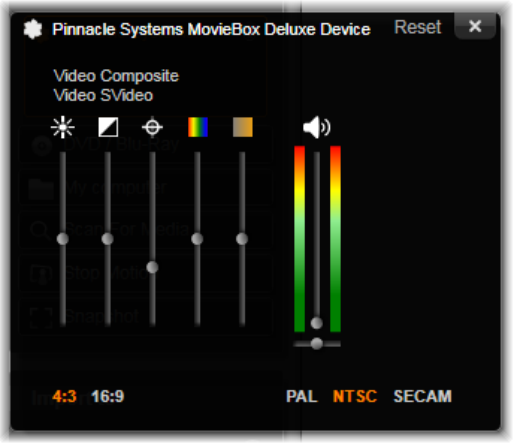
Adjusting analog audio and video levels

Analog capture hardware may provide additional controls for modifying parameter levels of the audio and video signals. Such a capability is useful for correcting exposure problems and the like in the source material, and when you need to compensate for differences in video from multiple sources.

To access the controls, select the analog source, then click the *more* button beside the source name. This opens the Analog Input Levels window.

Although you can also adjust these levels with the appropriate correction in the Video Editor, setting them correctly for capture can save you from having to worry about color correction later on.

Setting your audio options correctly as you capture will help in achieving consistent volume levels and quality.



The Analog Input Levels window lets you adjust a number of video and audio parameters. The Hue slider (fourth from left) is not used with PAL sources.

Particular capture devices may offer fewer options than are shown and discussed here. For instance, with hardware that doesn't support stereo captures, an audio balance control will not appear.

Video: Choose the type of video you are going to digitize by clicking the appropriate s*ource* button (*Composite* or *SVideo*). The five sliders allow you to control the brightness (video gain), contrast (ratio of lightest to darkest), sharpness, hue and color saturation of the incoming video.

- The *hue* slider can be useful for correcting unwanted color shifts in NTSC material; it is not available when capturing from a PAL source.

- The *saturation* slider regulates the 'color saturation' – the amount of color – in the image. (An image with zero saturation has only black, white and gray tones.)

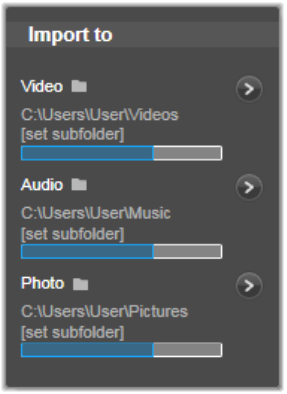
Audio: The sliders on the right side of the panel let you control the input level and stereo balance of the incoming audio.

The Import To panel

After importing from devices external to your computer, media items will be accessible as files on your computer. The Import To panel of the Importer lets you specify where those files will be stored. Separate folders are available for video, audio and picture items, but the Import To panel only lists those that are relevant to the current import source, as set in the Import From panel.

As the number of media files on your system grows, it becomes increasingly useful to give some thought to how best to organize the material into folders and subfolders such that in the future you can most readily retrieve any desired item. The controls on the Import To panel are designed to automate this process to whatever degree you choose.

Working with import folders



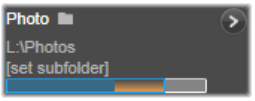
Until you specify otherwise, the Importer uses the standard document folders for video, music and pictures within your Windows user account. The illustration shows a typical setup in Windows 7. To change an import folder, click either the small folder button or the current folder path. (See “Selecting an import folder” below.)

The folders you choose for each media type, whether default or custom, serve as *base locations* for your imported files. In order to manage your media collection effectively, you can also specify either a custom subfolder name or a method of automatically-generating a name based on either the current date or the creation date of the imported material. Click either “set subfolder” or the *more* button for the media type to access the subfolder options. (See “Setting a subfolder” below.)

For example, if you set your main video folder to “c:\vid”, and your subfolder naming method to “Current month”, any video you import will be transferred to a folder with a name like “c:\vid\2011-10”.

Fill level indicator: This bar graph shows for each import destination how much room is left on the storage device. The first part of the bar represents

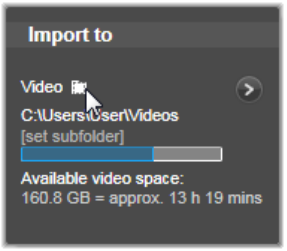
space already occupied on the device. The colored extension shows how much room any currently-selected media files awaiting import will require.



Available storage space display

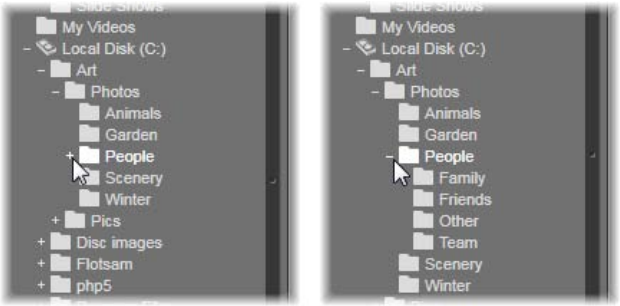
> **Note:** If a destination device reaches 98 per cent full during import, the operation is halted at that point.

Selecting an import folder



To choose a different base folder for a given media type, click the corresponding folder button or folder name on the Import To panel. This opens a folder selection box where you can navigate to, and if necessary create, the folder you want to use.

Folders that contain subfolders are indicated with a plus icon to the left of the folder icon if they are currently closed, and a minus icon if they are open. Clicking the icon reverses the state of the folder.

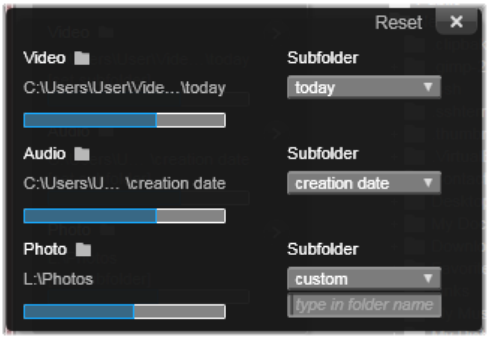


Click the plus icon to view the contents of a folder.

Setting a subfolder

To designate a subfolder of the base folder as the actual import destination for the media type, click either the *set subfolder* button or the *more* button . These buttons open a dialog window that represents an expanded version of the Import To panel, one that includes controls needed to set the

subfolder name or the naming method for each media type supported by the currently-selected import source.



The expanded Import To dialog window for file-based media. Since files can be of any media type, controls for all three types are provided. Most other sources import only video media, and don't show the Audio and Photo controls.

The row of controls for each media type includes a dropdown list of naming options:

No subfolder: With this option, the files you import will be stored in the base folder.

Custom: When you choose this option, an in-place edit box appears. Enter the name of the subfolder in which to store your next import or imports of the media type.

Today: Your imports will go to a subfolder named with the current date, in the format "2009-10-25".

Creation date: Each imported file will be stored in a subfolder named with the creation date of the media, in the same format as above. When multiple media items are brought in as part of a single import operation, this may entail creating or updating multiple subfolders.

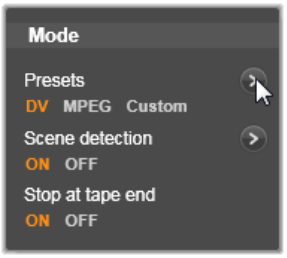
Current month: This is the same as the Today option but without the day portion, e.g "2009-10".

After making your choice, click the 'x' button at the top right of the dialog window to return to the Importer.

The Mode panel

The Mode panel of the Importer provides a place to adjust the options offered by several import sources.

DV / HDV import options



The options for DV and HDV import are in three groups on the Mode panel.

Presets: The *Presets* group offers two standard configurations for video and audio compression, and a custom setting that lets you fine-tune compression parameters in the Compression Options window, which opens when the upper *more* button is clicked. (See "The Compression Options window" on page 197.) The fixed presets are:

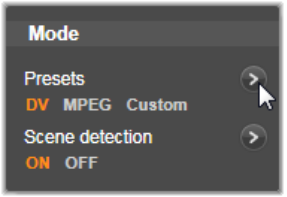
- DV: This provides full-quality DV capture, using about 200 MB of disk space per minute of video.
- MPEG: MPEG compression produces smaller files than does DV, but requires more computational horsepower to encode and decode. This could result in slower performance on older computers.

Scene detection: When the scene detection feature is enabled, your footage is divided up on import into 'scenes' that can be displayed and manipulated separately in the Library. This greatly simplifies the task of locating material of interest during editing. Click the lower *more* button to open the Scene Detection Options window. (See "The Scene Detection Options window" on page 198.)

Stop at tape end: This option tells Avid Studio whether to automatically stop capturing if a blank area of tape is encountered. A blank area – one without timecode striping – indicates virgin tape. Provided you have avoided leaving any blank spots during shooting (by slightly overlapping neighboring shots), this option allows for unattended capture.

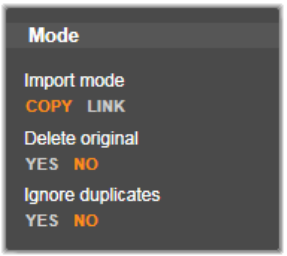
Import options for analog media

The options for analog import are similar to those just discussed for digital sources. See below for explanations of the Compression Options and Scene Detections Options windows.



Import options for file-based media

The Mode panel provides two options affecting importing from file-based media.



Import Mode: This option determines whether the media file is physically copied from the source location to the target folder of the local hard drive (as specified on the Import To panel.) If *Copy* is selected, the file is copied. If *Link* is selected, the file is not copied and a link is created in the Library to the file in its original location.

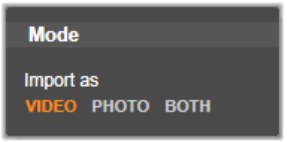
It is strongly recommended that files on network drives be copied to the local hard drive.

Delete original: When this option is enabled, the original copies of the files you import will be deleted after copying. This option is handy if you are using the Importer to consolidate your media and don't want your hard drive cluttered with redundant copies.

Ignore duplicates: This option helps you deal with redundant media files you *already* have, by telling the Importer not to import extra copies of files that may be differently-named but are apparently identical.

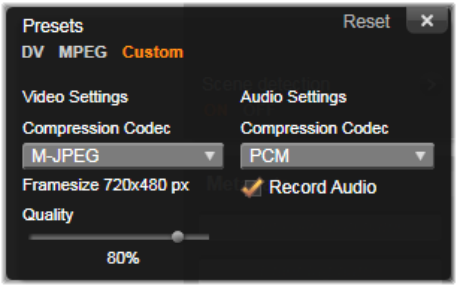
Import options for stop-motion capture

In stop-motion animation, a series of individual frames is captured from a live video source. Depending on your plans for the stop-motion sequence, you can instruct the Importer to integrate the individual frames into a movie, or simply import each frame as a picture, or both.



The Compression Options window

The options provided in the Mode panel for both DV / HDV and analog import include access to this window for fine-tuning compression preferences. If you select either of the DV and MPEG presets, you can use this window to review the actual settings used. Editing the settings here automatically selects the “Custom” preset.



The Compression Options window for digital and analog video import.

Because some options are contingent on others, not all will be visible simultaneously.

Video settings

Compression Codec: Use this dropdown list to select the codec you want to use.

Framesize: This line shows the dimensions of the captured video.

Quality, Data rate: Some codecs present quality options in terms of a compression percentage (*Quality*), and others in terms of the required data transfer rate in KB/sec (*Data rate*).

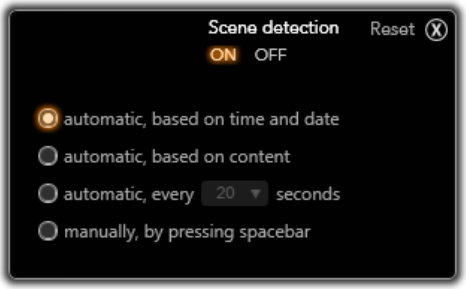
Audio settings

Compression: This dropdown shows the codec that will be used to compress the incoming audio data.

Record audio: Clear this checkbox if you are not planning to use the captured audio in your production.

The Scene Detection Options window

The options provided in the Mode panel for both DV / HDV and analog import include access to this window for configuring scene detection preferences.



The Scene Detection Options window for DV or HDV import. When importing from analog sources, only the last two options are supported.

Automatic scene detection is a key feature of Studio when working with DV and HDV sources. As video capture proceeds, Studio detects natural breaks in the video and divides it up into *scenes*. Scenes can be independently viewed and managed in the *Scenes* view in the Library.

Depending on which capture device you are using, automatic scene detection is carried out either in real time during capture, or as a separate step immediately after capture is completed.

The four scene detection options are:

- **Automatic based on shooting time and date:** This option is available only when you are capturing from a DV source. Studio monitors the time stamp data on the tape during capture, and starts a new scene whenever a discontinuity is found.
- **Automatic based on video content:** Studio detects changes in the video content, and creates a new scene wherever there is a large change in the images. This feature might not work well if the lighting is not stable. To take an extreme example, a video shot in a nightclub with a strobe light would produce a scene each time the strobe flashed.
- **Create new scene every X seconds:** Studio creates new scenes at an interval you choose. This can be useful for breaking up footage that contains long continuous shots.

- **Manually, by pressing spacebar:** Select this option if you want to monitor the entire capture process and decide for yourself where scene breaks should occur. Press the [Space] key each time you want to insert a scene break during capture.

The Metadata panel

In the Metadata panel, you can enter information that will be associated with the imported media file in the Library. This can make it easier to find and manage the clip when you are searching the Library for assets to use.

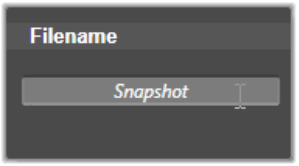
Use the *Collection* field to enter the name of a Collection to which all imported clips will be added. You can enter the name of an existing Collection, or create a new Collection by entering a new name. (See page 16 for more information on Collections.)

You can enter a tag for the clip in the *Tag* field, which can later be used to locate the clip. (See page 28 for more information on tags.)

The Filename panel

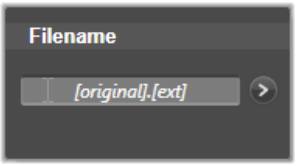
This panel of the Importer is where you specify the names under which your imported media files will be stored.

Each type of input source has a default filename assigned by Studio. For instance, the default filename when importing a Snapshot is “Snapshot”. To change it, click in the space and type the name you want.



The Importer never overwrites an existing file when importing. If a file with the same name as the target name already exists, a sequence number is added to the name of the incoming file.

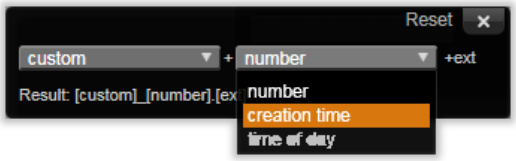
When importing from file-based media, additional file naming features are available. By default the naming formula for a file-based input is given symbolically as "[original].[ext]", meaning that the original filename and extension are used.



If you want a custom name, enter it into the edit box as usual; however, in the case of file-based media the target filename has two parts: a *stem*, which you supply, and a *tail*, which is generated by one of three simple rules at the time of import. The default rule adds a unique sequence number to every filename. While you are entering your custom name, the edit box shows only the stem. But when the name is displayed at other times, the rule for the tail part of appears as well.

To select a different rule for the tail part, click the *more* button . This opens a dialog window with two dropdown lists. The first lets you choose between "original" and "custom" for the stem. You can use this if you ever want to revert to importing files under their original names. The second dropdown, which is displayed only for custom names, gives the available rules for generating the tail part:

- **Number:** This is the same rule used by other media types to avoid name collisions. If your stem is "Parade", the first file copied will be named "Parade" (plus the original file extension), the second will be named "Parade_001", and the numbers then continue in sequence.
- **Creation time:** The time of day when the file was created, in hours, minutes, and seconds, is used to generate file names like "Parade_20-30-00" for a file that was created at exactly 8:30 in the evening.
- **Time of day:** This is like the previous option, but the time of importing the file is used.



The Import Filename configuration window.

SELECTING MEDIA FOR IMPORT

Each source supported by the Importer has its own appropriate set of controls for selecting the material to be imported. When you click the source name in the Import From panel, the central area of the Importer configures itself appropriately with the controls you need.

Import from file-based media

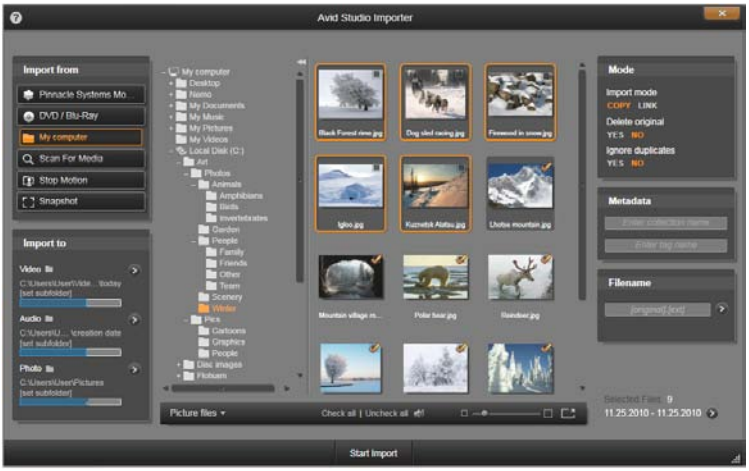
There are two methods for importing media files from file-based storage media including local hard drives, optical drives, memory cards and USB sticks.

- Select *My computer* in the Import From panel of the Importer to select specific media files or groups of files for import.
- Select *Scan For Media* in the Import From panel to select one or more folders and import all media of selected types that are found in those folders.

Selecting files for Import

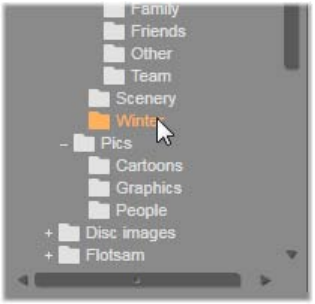
When you select *My computer* in the Import From panel, the job of selecting the files to import belongs to the folder and media file browser in the central area of the display.

A single import operation can take in multiple types of media files from multiple source folders. Each selected file will be copied to the correct folder for its media type (as specified in the Import To panel).



When importing from file-based media, the Importer provides a folder and file browser in the central area. This is flanked on the left by the Import From and Import To panels, and on the right by the Mode, Metadata, and Filename panels. The Start Import button at bottom sets things in motion after the desired media files have been selected.

The folder and media file browser

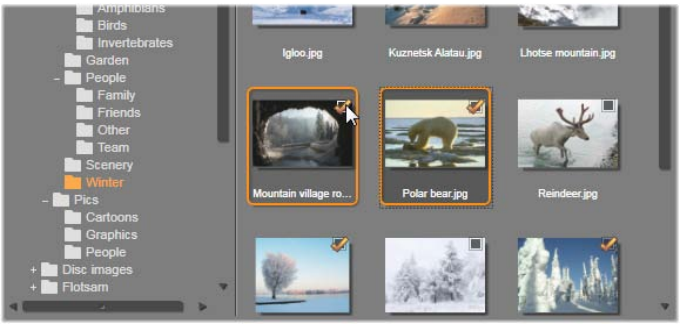


The left hand column of the browser is a hierarchical view of all folders on all file-storage devices attached to your computer. These devices include hard drives, optical disc drives, memory cards and USB sticks.

Navigation in this “folder tree” is similar to that in Windows Explorer and other programs. Folders containing other folders are indicated by a plus sign to the left of the name when they are closed and by a minus sign when they are open. Click the sign to open out (“expand”) or close down (“collapse”) a folder’s list of subfolders.

Only one entry in the folder tree can be highlighted at a time. Any media files contained in that folder are immediately listed in the larger, right-hand division of the browser. You can preview files on the spot, and earmark

those you intend to import by checking the box at the top right of corner of each file icon.



Here, the folder 'Photos\Winter' is open, revealing a set of image files. To select (or unselect) files for import, click the checkbox in the top right corner of one or more icons. In the illustration, four files have been selected.

Previewing media files

Previewing audio and video: The media file browser includes built-in previewing for all supported media types. Click the *play* button in the center of video and audio file icons to preview the media they represent. For quick viewing, video files play back within the icon frame itself. Click anywhere on the icon to halt playback; otherwise the entire file is previewed.

Full-screen photo preview: To view a digital photo or other picture file at full-screen resolution, double-click its icon, or click the *full-screen* button in the toolbar beneath the browser, or press the F11 key.

Scrub preview: Audio and video clips both provide a scrubber control immediately below the file icon. Click and drag the *scrubber knob* to manually review any part of the file. The mouse pointer changes to a two-headed horizontal arrow when it is correctly positioned for scrubbing.

Marking media files for import

To mark media files one at a time for importing, click the *check box* at the top right corner of the file icon. This box is checked automatically when you browse to a new folder for all the files on display.

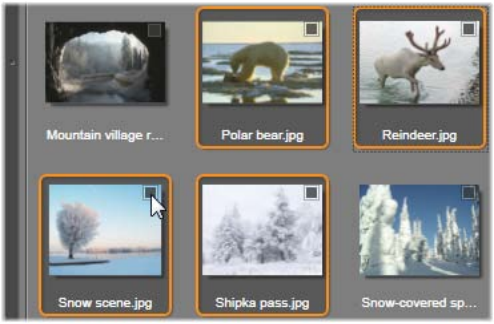
Click the check box to mark or unmark the file.

Marking multiple files: The browser also provides a method of checking or unchecking simultaneously a group of highlighted files. To highlight an individual file, simply click on its name or its icon; the highlighted state is indicated by an orange border. To highlight additional files, click icons in conjunction with either of the Shift and Ctrl keys, as follows:

- Click while pressing Ctrl to add or remove the highlighting from one file without affecting the others in the group.
- Click while pressing Shift highlights the clicked icon and all those between it and the *previously* clicked icon, inclusive. Highlighting is removed from any icons not within the range.

You can also highlight a range of icons directly with the mouse, by dragging out a rectangle that intersects the icons you want to include. Click the first icon and move to the last one before releasing the mouse button.

Having highlighted some icons you want to import, click the check box of any one of them to mark or unmark the entire group at once.



A group of four highlighted image file icons. Marking or unmarking any one will affect the whole group.

Check All and Uncheck All: Click these buttons along the bottom of the media file browser to mark for importing either all or none of the media files listed in the current folder. The buttons do not affect any files currently selected in other folders.

Use the Check All button to mark all the media files in the current folder.

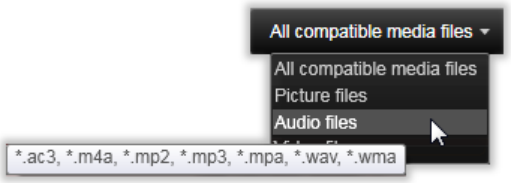
Each time a file is added to or removed from the list of those to be imported, the media browser updates the count in the *selection status indicator* at the bottom right of the display.

Customizing the browser

Several controls allow you to configure the media file browser appropriately for your display hardware and requirements.

Close the folder tree: To maximize the space for viewing files, click the left-pointing double-arrow icon at the top of the folder tree scroll bar. This collapses the folder tree to a vertical bar down the left-hand side. At the top of the bar is the right-pointing double-arrow that will reopen the tree. The name of the current folder is also shown.

Filter the file list: Another way to optimize your use of the file area is to limit the files shown to insclude only one media type. This is the function of the media filter dropdown at the bottom left of the browser. By default, all supported media file types appear in the browser, but you can limit the view to picture files, audio files or video files by your selection here. To see exactly which file types are included in a selection, hover on the item for a second or two to pop up the list.



Hovering over the Audio files option brings up a list of file types from which audio import is supported.

Set preview size: A final tool for managing screen real estate is the preview size slider at the bottom right of the browser. Move the

slider leftwards to reduce, or rightwards to increase, the size of the preview images in the file browser. There are three ways of moving this slider with the mouse:

- Click on the slider knob and drag to the left or right.
- Click beside the slider knob to nudge it in the appropriate direction.
- Click the minus/plus buttons at the ends of the slider scale to move the knob by a larger amount.

Full-screen photo: To preview a selected photo on the full monitor screen, click the rightmost button.

Set preview volume: To set the playback volume of audio and video clips for previewing, hover the mouse pointer in the area of the *audio/mute* button in the bottom bar of the media file browser. A *volume slider* will appear beside the button. Drag the knob up and down to control the volume. Click the *audio/mute* button itself to toggle audio muting.

Adjusting the import file date and time

The internal clocks of the recording devices are often set incorrectly, resulting in incorrectly timestamped media files. The Importer can correct this kind of problem by setting the date and time of the imported files according to your specifications.

To correct the file time or date:

Use the *more* button on the selection status indicator to open a window that offers two options for adjusting the timestamps:

- **Correct time zone:** This slider changes the file-system timestamp of any media files you import by up to 12 hours in either direction. You can use this adjustment to compensate for the time difference when you bring home video from your travels.
- **Set date and time:** These fields lets you enter an arbitrary date and time. The timestamp of any media files you import will be set to this.

Scan for media

When you select *Scan For Media* in the Import From panel, a hierarchical folder view is displayed, much like the one shown for *My computer*. Expanding and collapsing folders works as usual, including the use of the Plus and Minus keys as shortcuts.

Since you are selecting folders rather than files to be scanned, the media files contained in the folders are not shown. A checkbox appears next to each name in the folder tree, and three pop-up lists are offered on the toolbar at bottom. These lists offer a menu of file types to import in each category: *Video*, *Photo* and *Audio*.) By default, the file extensions on each menu are all checked, meaning that all the appearing file types will be included in the import operation. Uncheck the file extensions for any types that you do not wish to import.

To start importing, mark all the folders from which you want to import media files. Use the file-type lists just discussed to narrow the range of incoming file types, if desired.

When selections have been made, click the *Scan and Import* button at the bottom to begin the Import operation. This will import all files of the selected types in the chosen directories.

Import from DV or HDV camera

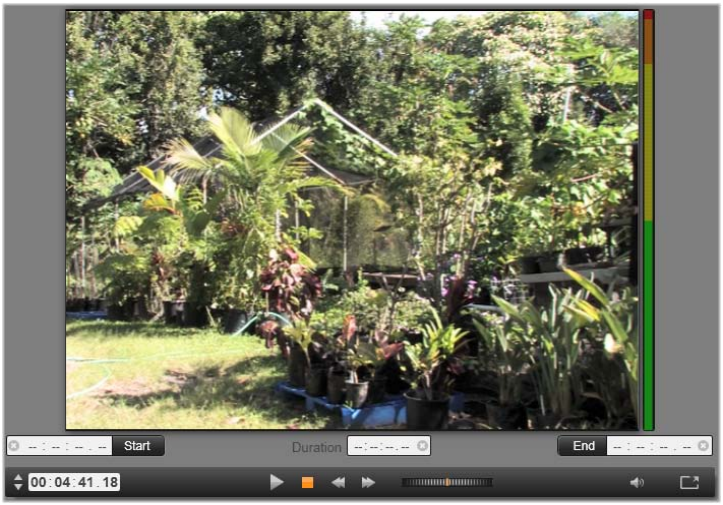
To prepare for importing digital video, switch on your DV or HDV device in play mode and select it in the Import From panel of the Importer.

You will also need to make sure that your destination folder, compression presets, and other options are set up in the other panels the way you want them. (See “Importer panels”, page 189.)

Previewing video

The video currently playing on the source device should now be visible in the preview area at the central area of the display. Along the right edge of the video preview is a scale showing the moment-by-moment audio level.

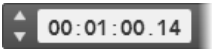
Below the preview image is a row of controls for automating capture by setting mark-in and mark-out points. See “Recording video and audio” on page 209 for more information.



When a DV or HDV source is selected, the central area of the Importer provides controls for previewing and importing the taped material.

Another row of controls, the *transport bar*, serves as your navigation console for the source device.

The transport bar for DV and HDV import, with (from left) jog controls and timecode readout, transport buttons, a shuttle control, and an audio button with a pop-out slider for controlling the preview volume.



The *current timecode indicator* shows your playback position according to the timecode recorded onto the tape when it was shot. The four fields represent hours, minutes, seconds and frames respectively. To the left of the indicator is a pair of arrow buttons; use these to jog the position one frame back or frame forward at a time.

From left to right, the *transport buttons* are *play*/*pause*, *stop*, *rewind* and *fast forward*. These buttons relay commands to your camera. Using them is equivalent to using the camera's onboard controls, but typically more convenient.

Drag the orange needle on the *shuttle control* to the left or right to change the playback position in the reverse and forward directions respectively. The motor speed increases as you drag the needle further off center. When you release the needle, it homes to the center position and pauses playback.

Set preview volume: To set the playback volume for previewing, hover the mouse pointer in the area of the audio/mute button in the bottom bar of the media file browser. A volume slider will appear beside the button. Drag the knob up and down to control the volume. Click the audio/mute button itself to toggle audio muting.

Mark-in, mark-out: The mark in and mark out timecode fields above the ends of the transport bar indicate the planned starting point and ending point of a video capture.

> **Note:** DV and HDV sources are also suitable for snapshots; see page 215 for details.

Recording video and audio

The Importer supports two approaches to selecting a range of video to be imported.

In the manual approach, you simply watch the preview playback and press *Start Capture* at the start of the desired footage. When you reach the end of the segment, press *Stop Capture*. If you have continuous timecode on the source footage, and have set *Stop at tape end* to 'Yes' in the Mode panel, you can walk away and leave the Importer to switch off when the input is exhausted.

The automatic method of capture is good for setting the endpoints of your capture (the "mark-in" and "mark-out") points with single-frame precision, and for unattended importing that should halt before the end of the recorded material.

Sometimes you may want to use set the mark-in time and leave mark-out blank. When you click *Start Capture* the Importer will locate your start time then capture until you tell it to stop (or at tape end).

You can also set a mark-out time and leave the mark-in time blank. When you click *Start Capture* import will begin immediately, and end automatically at the mark-out point. Entering a duration and entering a mark-out time are equivalent. Whichever you specify, the Importer calculates and displays the other one automatically.

> **Note:** Before starting the import operation, verify that the settings on the Import To panel and other panels (see page 189) have been configured correctly.

To capture manually with the *Start Capture* and *Stop Capture* buttons:

1. Make sure that the mark-in and mark-out points are not set. If needed, use the ⊗ button associated with the field to clear it with one click.
2. Manually start playback of the source tape before the desired starting point of the capture.
3. Click the *Start Capture* button when the starting point is reached.

   The button caption changes to *Stop Capture*.
4. At the end of the segment click the button again. The captured material is stored in the Library.
5. Manually halt playback (unless automatic shutoff is in effect as noted above).

To capture automatically by setting *mark-in* and *mark-out* points:

1. Use the time counter controls to set the mark-in and mark-out values – the start and end points of the desired footage.

   To set the mark-in point, either enter a value directly into the start field, or navigate to the desired point and click the *Start* button. A similar approach can be used to set the mark-out point.

2. Click *Start Capture*. Studio positions the source device to the mark-in point and automatically begins recording.
3. When the mark-out point is reached, import is terminated and the source device is stopped.
4. The captured material is stored in the Library.

Import from analog sources

To record analog video (e.g. VHS or Hi8) you need a converter that you can connect to your computer and that has the appropriate video and audio connections. This is also the case when recording from analog sound sources, such as a record player.

Currently supported devices include Pinnacle and Dazzle products such as 500/510-USB, 700/710-USB and DVC 100, and webcams based on DirectShow technology.

To prepare for importing from an analog source, switch on the device and select it by name in the Import From panel of the Importer. Also choose the applicable input (e.g. “Video Composite” or “Video SVideo”). If you wish to tweak the incoming analog signal prior to digitization, click the *more* button , which provides access to the Analog Input Levels window. (See page 190 for more information.)

Before starting the capture, make sure that your destination folder, compression presets, and other options are set up in the other panels the way you want them. (See “Importer panels”, page 189.)

To capture from an analog source:

1. Verify that the correct input is connected (e.g. “Video S-Video”).
2. Start the playback device just before the point at which you would like capture to begin.

   Video and audio previewing should now be active. (If not, check the cabling and the converter installation.)
3. Click the *Start Capture* button to start recording.

   The button caption changes to *Stop Capture*.
4. At the end of the segment click the button again. The captured material is stored in the Library.
5. Halt the source device.

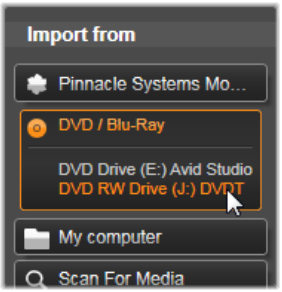
To capture for a specified duration:

1. Verify that the correct input is connected (e.g. “Video S-Video”).
2. Enter the desired capture duration in the *Duration* time-counter control below the video preview.
3. Start the playback device just before the point at which you would like capture to begin.

   Video and audio previewing should now be active. (If not, check the cabling and the converter installation.)
4. Click the *Start Capture* button to start recording.

   The button caption changes to *Stop Capture*.
5. The capture operation will stop automatically after the desired duration has been captured. You may also stop the capture manually by clicking the *Stop Capture* button.

Import from DVD or Blu-ray Disc



The Importer can import video and audio data from DVDs and BDs (Blu-ray discs). To begin, insert the source disc in its drive and select it in the Import From panel of the Importer. If you have more than one optical drive, choose the correct device among those listed.

Before starting the capture, make sure that your destination folder and file name are set up in the other panels the way you want them. (See “Importer panels”, page 189.)

Because large files can be involved when importing from optical discs, selecting the correct import directory is important. In particular, ensure that the designated storage location has sufficient space available (page 192).

Note: Copy-protected media cannot be imported.

Previewing the disc files

The media on optical discs are accessed through the computer's file system. For this reason, the previewing controls in the central area, the methods for selecting files, and the procedure for importing, are the same as for ordinary file-based media (except that the unneeded folder view starts in the closed position). Please see page 201 for further information.

Import from digital cameras

Like optical disc drives, the media on digital cameras is accessed through the computer's file system. The camera may appear on the source list as a removable disk drive. Previewing, selecting and importing are the same as for ordinary file-based media (except that the folder view starts in the closed position). Please see page 201 for further information.

Stop motion

The Stop Motion function of the Importer allows you to create animated films by stitching together individual frames grabbed from a live video source, such as an analog video camera or webcam. The result of your Stop Motion import will be either a movie at 8 or 12 frames per second, the collection of still images you grabbed, or both, depending on your Mode panel settings.

To prepare for Stop Motion import, make sure the source device is switched on, then select it by name under the Stop Motion heading in the Import From panel of the Importer. (See page 190 for more information.)

Before starting the capture, make sure that your destination folder, options and file name are set up in the other panels the way you want them. (See "Importer panels", page 189.)

If your source equipment is functioning correctly, you should have a live preview in the central area of the Importer window. Click the *full-screen* button at the right-hand end of the transport bar to preview on the full monitor screen.

When you are ready to capture an image, click the *Capture Frame* button. A thumbnail of the grabbed frame is added to the Image Tray at the bottom of the window. (See "Using the Image Tray" on page 216 for more information.)

Since this is a stop motion sequence, after each image is grabbed you will generally make small changes to the scene you are shooting in order to create the illusion of motion from frame to frame.

To make your task of visualization easier, the Stop Motion preview includes an "onion skin" effect, whereby successive frames are shown simultaneously in translucent layers so that the differences can be clearly seen. This feature can be configured on the control bar.

The number of images shot so far and the duration of the film (based on the number of images, rounded off) are displayed to the right below the control bar.

The Stop Motion control bar

This bar provides transport and other functions for Stop Motion import. From left to right:

- **Video and Frames indicators:** These let you switch between previewing the live video feed and previewing the captured frames in the Image Tray. You can review – and if necessary replace – particular frames without having to undo other work.
- **Counter:** This readout shows your current position within the animation in hour, minutes, seconds and frames. The counter value depends on the number of frames you have grabbed and the animation speed in frames per second. The up and down arrow buttons to the left of the counter provide single stepping when previewing your animation.
- **Navigation buttons:** These buttons are for previewing your animation. A *loop* button lets you cycle the animation continuously for easy checking.

- **Frame rate:** This rate, in frames per second, determines how many frames you will have to create in order to amass one second of movie time. This rate influences the apparent speed of the animation.
- **Onion skin settings:** Click the *more* button to open a small window where the onion skin feature can be configured. The first slider shows the difference in transparency between successive frames, while the second controls the number of frames, in addition to the current one, that will take part in the effect. Experiment with both settings until you find the levels that work best for your movie.

Importing the animation

When you have added all the frames you want to the animation, click the *Start Import* button. The Importer adds your animated movie, and/or the individual frames you captured, to the appropriate sections of the Library.

Snapshot

The Snapshot function of the Importer is used to record individual frames (still images) from cameras or players connected to the system. To prepare, make sure the source device is switched on, then select it by name under the Snapshot heading in the Import From panel of the Importer. (See page 190 for more information.)

Before starting the capture, make sure that your destination folder and file name are set up in the other panels the way you want them. (See “Importer panels”, page 189.)

Now start your camera, or roll your tape, and start monitoring the embedded preview display in the central area of the Importer window. Click the *full-screen* button at the right-hand end of the transport bar to preview on the full monitor screen.

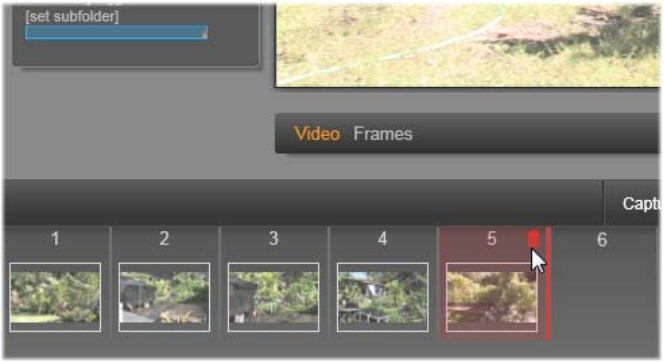
Capturing snapshots in the Importer. While previewing live or taped video in the central area of the window, use the Capture Frame button to grab still images. Grabbed frames accumulate in the Image Tray at the bottom of the window until you click the Start Import button to transfer them to the Library.

When you want to capture an image as it goes by, click the *Capture Frame* button. A thumbnail of the grabbed frame is added to the Image Tray at the bottom of the window.

Capture as many additional frames as are required. The Importer adds each one in turn to the collection growing in the Image Tray. In the course of capturing, you can change tapes, re-aim your camera, and so on as you see fit. The source video doesn't need to be uninterrupted as long as there is signal present when you actually click the *Capture Frame* button.

Using the Image Tray

For on-the-spot review of a frame you have already grabbed, click the thumbnail of any but the most recent frame in the Image Tray. This switches the preview display from the video source to the captured file, and activates the *File* indicator. You can also activate the indicator by clicking it directly.



Click the File indicator or any thumbnail in the Image Tray to review images already grabbed. Here, thumbnail 5 has been clicked, and the mouse is poised over the trash-can icon to delete it. The heavy line to the right of the selected thumbnail indicates where the thumbnail of the next grabbed frame would be inserted.

To delete a captured frame, select it in the Image Tray, then click the trash-can icon that appears in the top right corner of the thumbnail.

To switch back to previewing video after reviewing files in the Image Tray, click the *Live* indicator beneath the preview display.

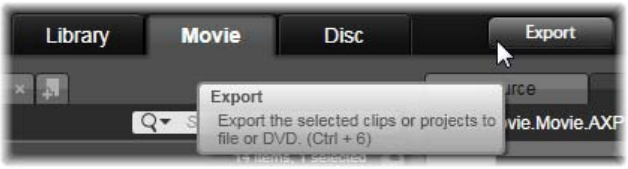
Importing the frames

When you have grabbed all the frames you want from the video source, click the *Start Import* button. The Importer adds the grabbed images to the still images section of the Library.

CHAPTER 11:

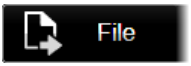
The Exporter

One of the great things about digital video is the large and growing number of devices that can make use of it. Studio lets you create versions of your movie for whatever video viewers your audience will be using, from hand-held DivX players and mobile phones to HDTV home theaters.

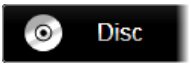


When you have finished editing your project, open the Exporter by pressing the *Export* button at the top of the screen. With a few clicks you can tell the Exporter everything it needs to know to output your movie in the format that best fits your requirements.

Begin by selecting the media type of your finished movie from the tabs at the left side of the window: *Disc*, *File* or *Web*.

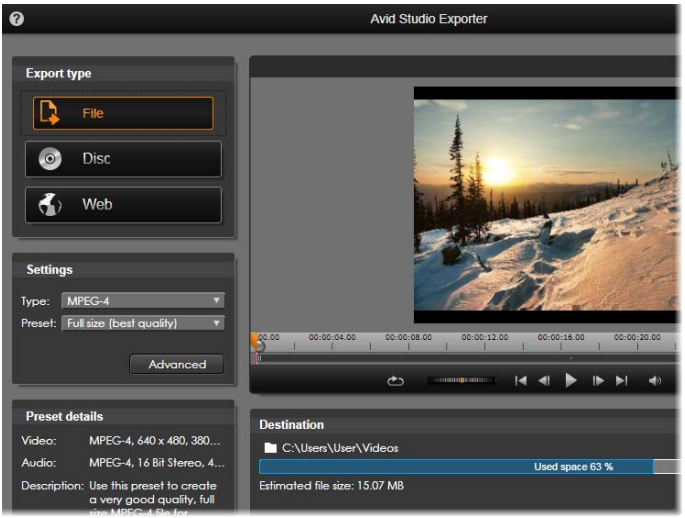


File output creates files that can be viewed from your hard drive, your web-site, your portable movie player, or even your mobile phone. See page 224.



Disc output lets you copy a movie onto a recordable disc in your computer's CD, DVD or Blu-ray recorder (also called a 'burner'). You can also direct the Exporter to create a copy, or 'image', of the disc on your hard drive, without actually burning it. See page 221 for more information.

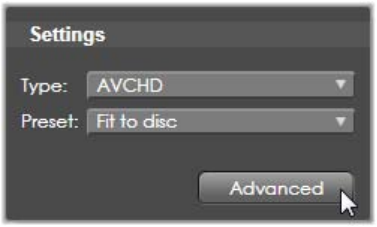
Web output creates a file for uploading to YouTube or Yahoo! Video. On these popular websites, your work has a potential audience of millions. See page 231.



The Exporter. The tabs at left let you save to file, disc or the Internet. Other controls let you set output options as needed for the chosen media type. At bottom right the available space on the output device is displayed.

Configuring output

Output can be configured quickly within each media type using the dropdown lists in the Settings panel.



If you need hands-on control, click the *Advanced* button to open a panel of options for the media type. When you have confirmed your settings, click either the *Create Image* or the *Burn Disc* buttons to output in disc format, or the *Start Export* button to begin saving as a file or to the Web.

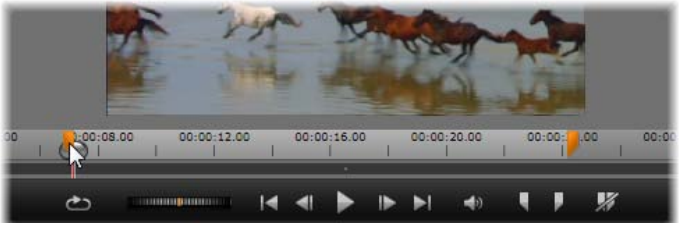
Output buttons at the bottom of the Exporter window.

Preparing your movie for output

Before your movie is completely ready for output some preprocessing will usually be required. In general, Avid Studio will need to 'render' (generate video frames in the output format for) any transitions, titles, disc menus and video effects you've added to your movie. Any files generated during the rendering process are stored in the auxiliary files folder, whose location you can set in the application settings window.

Create between markers

For output to file or to the Web, you have the option of exporting only a selected portion of your movie. Adjust the calipers in the Player to indicate which part of the movie you want to export.



Output to file or the Web can be delimited at one end or both by trim calipers on the Player time-ruler.

OUTPUT TO DISC MEDIA

Studio can output movies directly onto DVD and Blu-ray discs, if the requisite disc-burning hardware is available on your system.

Whether or not you have a disc burner, Studio can also create a 'disc image' – a set of files containing the same information as would be stored onto the disc – to a directory on your hard drive. The image can subsequently be burned to disc.

DVD and Blu-ray

If your system has a DVD burner, Studio can create two types of DVD disc: standard (for DVD players) and AVCHD format (for Blu-ray players).

If your system has a Blu-ray recorder, you can record onto any recordable media supported by the device.

Your standard DVD discs can be played back:

- On any DVD player that can handle the recordable DVD format your burner creates. Most players can handle the common formats.
- On a computer with a DVD drive and suitable playback software.
- On any HD DVD player.

Your Blu-ray disc, or DVD disc in AVCHD format can be played back:

- On the Panasonic DMP-BD10, the Playstation 3, and other Blu-ray players (not all players support the AVCHD format, but most do).
- On a computer with a Blu-ray drive and suitable playback software.

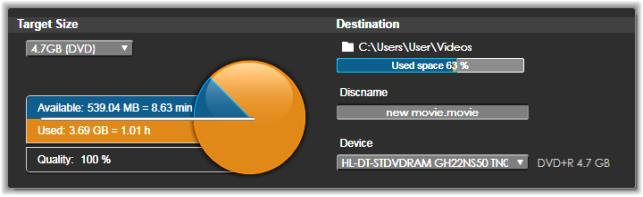
Outputting your movie

Studio creates your disc or disc image in three steps:

1. First the entire movie must be *rendered* to generate the MPEG-encoded information to store on the disc.
2. Next, the disc must be *compiled*. In this phase, Studio creates the actual files and directory structure that will be used on the disc.
3. Finally, the disc must be *burned*. (This step is skipped if you are generating a disc image rather than an actual disc.)

To output your movie to disc, or to a disc image:

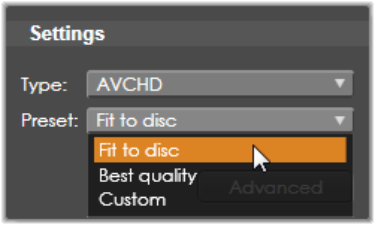
1. Click the *Disc* tab to bring up this display:



   The circular display summarizes your disc usage. It also shows an estimate of the time the movie will occupy on your writable disc.

Use the *folder* button to change the hard drive location Studio uses for storing auxiliary files. If you create a disc image, it too will be stored in that folder. The dropdown list on the lower display specifies the disc burner to use if more than one is available.

2. On the Settings panel, select the disc *Type* you are using, then whichever video quality and disc usage *Preset* best matches your intent.



If you wish to fine-tune your output settings, choose the Custom preset then click the *Advanced* button to bring up the Advanced Settings panel.

3. Click the *Burn Disc* button.

Studio goes through the steps described above (render, compile, and burn) to create the disc. Click the *Create Image* button to perform the identical steps but omit the burn step.

4. When Studio has finished the burning operation, it ejects the disc.

5. If you want to burn a previously created image press the *Burn Image* button.

Quality and capacity of disc formats

The differences amongst the various disc formats can be boiled down to these rules of thumb regarding the video quality and capacity of each format:

- **DVD:** Each disc holds about 60 minutes of full-quality MPEG-2 video (120 minutes if the disc recorder supports dual-layer recording).
- **DVD (AVCHD):** Each disc holds about 40 minutes of full-quality AVCHD video per layer.
- **BD:** Each disc holds more than 270 minutes of HD video per layer.

OUTPUT TO FILE

Studio can create movie files in all of these formats:

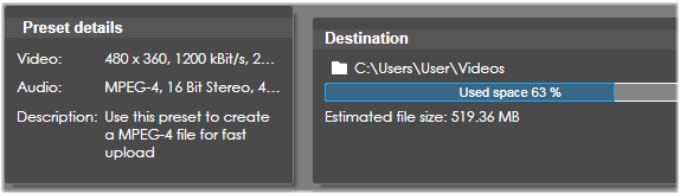
- 3GP
- Audio only
- AVCHD/Blu-Ray
- AVI
- DivX
- DivX Plus HD
- Flash Video
- iPod compatible
- MOV
- MPEG-1
- MPEG-2
- MPEG-4
- Real Media
- Sony PSP compatible
- Windows Media

Choose whichever format matches the needs of your audience and the details of their viewing hardware.

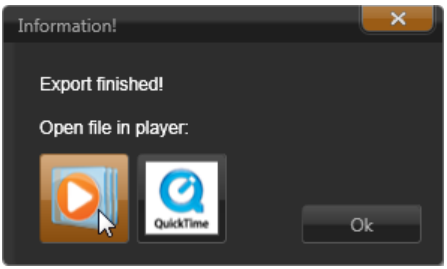
The size of the output file depends on both the file format and the compression parameters set within the format. Although compression settings can easily be adjusted to produce small files, heavy compression comes at the expense of quality.

The detailed settings for most formats can be adjusted by choosing the Custom preset and clicking the *Advanced* button. Other presets load settings designed for typical situations.

When your output options are in place, click the *Create file* button. A file browser opens to let you specify a name and location for the video file you are creating.



As a convenience after output has completed, the Exporter provides shortcuts for opening Windows Media Player and the Quicktime Player. To view your output file as soon as you have created it, click the icon representing the player of your choice.



The File tab of the Output Browser

3GP

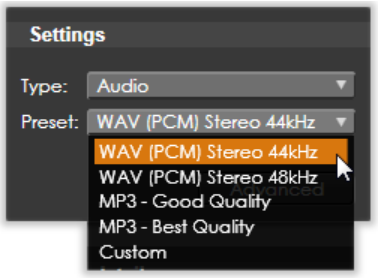
Avid Studio can generate movies in this widely-used file format using your choice of MPEG-4 or H.263 video compression, along with AMR audio compression. The format is adapted to the comparatively modest processing and storage capabilities of mobile phones.

The list of presets for this file type offers two frame sizes in either encoder. Choose Small, at 176x144, or Very Small, at 128x96.

Audio only

Sometimes a movie's soundtrack can stand alone without visuals. Live entertainment footage, and video recordings of interviews and speeches are instances in which an audio-only version might be desirable.

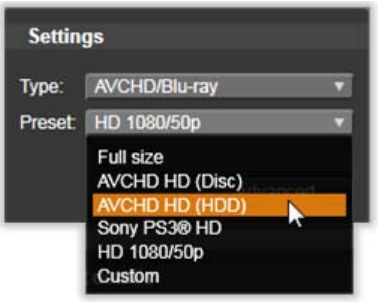
Avid Studio lets you save your soundtrack in **wav** (PCM), **mp3** or **mp2** format.



Click the preset that best meets your needs; or choose *Custom*, then click the *Advanced* button to open the Advanced Settings panel.

AVCHD/Blu-ray

AVCHD/Blu-Ray is the 'transport stream' version of MPEG-2. It may contain video in MPEG-2 or H264/AVC compression. Its applications include HD playback on AVCHD-based camcorders and Sony's PlayStation 3 home game console.

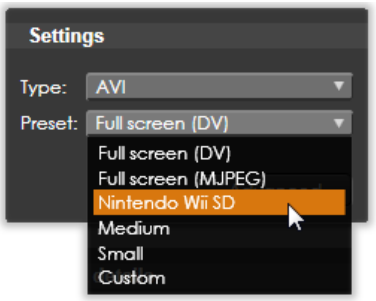


Click the preset that best meets your needs; or choose *Custom*, then click the *Advanced* button to open the Advanced Settings panel.

AVI

Although the AVI file type for digital video is itself widely supported, the actual coding and decoding of video and audio data in an AVI file is performed by separate *codec* software.

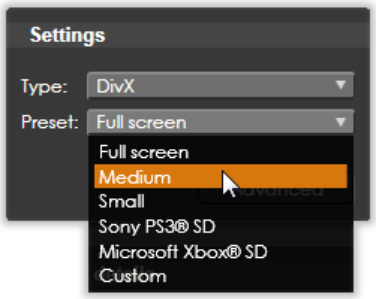
Studio supplies a DV and an MJPEG codec. If you wish to output your movie as an AVI in some other format, you can use any DirectShow-compatible codec installed on your PC, as long as that codec is also installed on the PC that will play your movie.



Click the preset that best meets your needs; or choose *Custom*, then click the *Advanced* button to open the Advanced Settings panel.

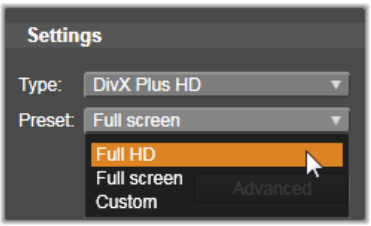
DivX

This file format, based on MPEG-4 video compression technology, is popular for video files disseminated over the Internet. It is also supported by a range of DivX-compatible hardware devices, from DVD players to portable and handheld units.



Click the preset that best meets your needs; or choose *Custom*, then click the *Advanced* button to open the Advanced Settings panel.

DivX Plus HD

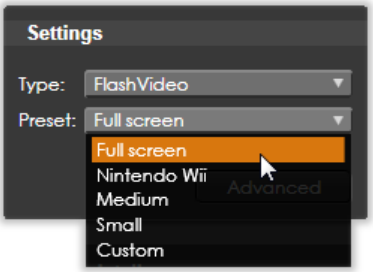


This file format, based on H264 video compression technology, is popular for HD video files disseminated over the Internet.

Click whichever of the quality presets matches your needs; or choose *Custom*, then click the *Advanced* button to open the Advanced Settings panel.

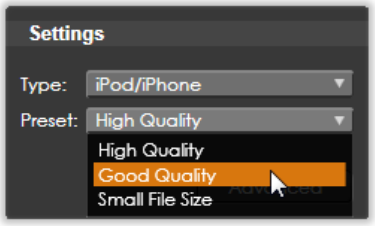
Flash Video

Studio supports output in Flash Video (**flv**) format, version 7. Virtually all current web browsers are able to display this popular format, which has been widely adopted by social networking sites and news sites.



Click the quality preset that matches your needs; or choose *Custom*, then click the *Advanced* button to open the Advanced Settings panel.

iPod compatible

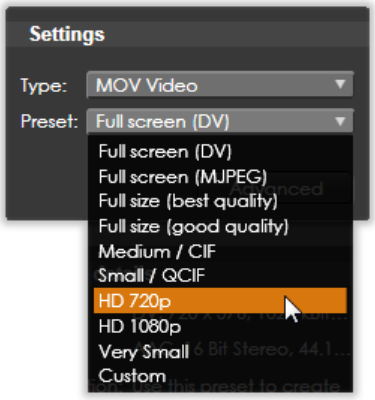


Like DivX, this file format is based on MPEG-4 video compression technology. The combination of powerful compression with a small 320x240 frame size produces very small output files relative to the more expansive formats. The generated files are compatible with the popular Video iPod devices, and may work with some other devices types as well.

The three quality presets select different data rates, each providing a different balance of quality and file size.

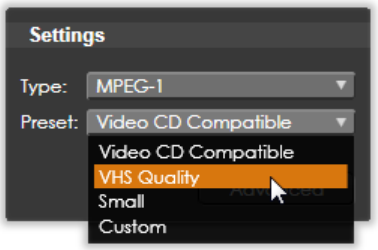
MOV Video

This is the QuickTime® file format. It is particularly suitable when the movie will be played on the QuickTime player.



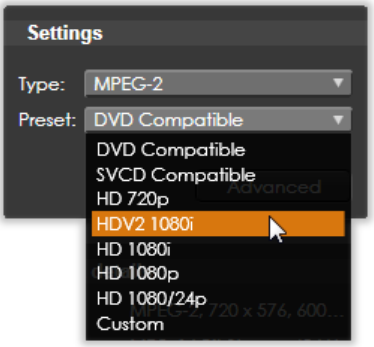
The presets provide a variety of size and encoding options. *Medium* (384x288) uses MJPEG compression; *Small* (176x144) uses MPEG-4.

MPEG



MPEG-1 is the original MPEG file format. MPEG-1 video compression is used on VideoCDs, but in other contexts it has given way to newer standards.

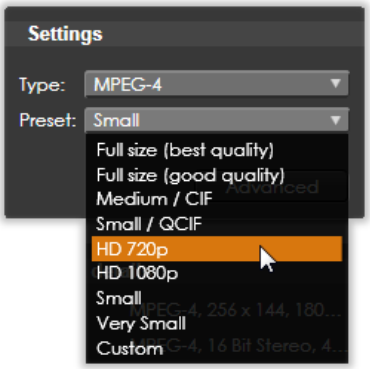
MPEG-2 is the successor format to MPEG-1. Whereas the MPEG-1 file format is supported on all Windows 95 and later PCs, MPEG-2 and MPEG-4 files can only be played on PCs with appropriate decoder software installed. Two MPEG-2 presets support HD (High Definition) playback equipment.



MPEG-4 is another member of the MPEG family. It offers image quality similar to MPEG-2 but with even greater compression. It is particularly suitable for Internet use. Two of the MPEG-4 presets (QCIF

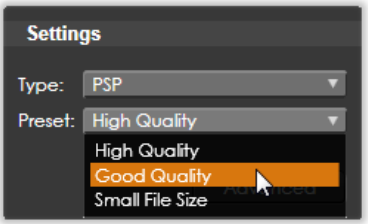
and QSIF) create ‘quarter-frame’ video sized for cellphones; two others (CIF and SIF) create ‘full-frame’ video suitable for handheld viewers.

Custom presets. With all MPEG variants, *Custom* lets you configure movie output in detail by clicking the *Advanced* button to open the Advanced Settings panel.



PSP

This is another file format based on MPEG-4 video compression technology. As with the iPod-compatible type, the combination of powerful compression with a small 320x240 frame size produces very small output files relative to the more expansive formats. The generated files are compatible with the popular Sony PlayStation Portable devices, and may work with some other devices types as well.



Real Media

Real Media movie files are designed for playback on the Internet. Real Media movies can be played back by anyone around the world who has the RealNetworks® RealPlayer® software, which is a free download from www.real.com.

Click the *Advanced* button to configure your output with the Advanced Settings panel.

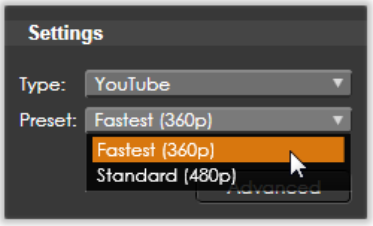
Windows Media

The Windows Media file format is also designed for streaming Internet playback. The files can be played on any computer where the Windows Media player – a free program from Microsoft – is installed.

Click the *Advanced* button to configure your output with the Advanced Settings panel.

OUTPUT TO THE WEB

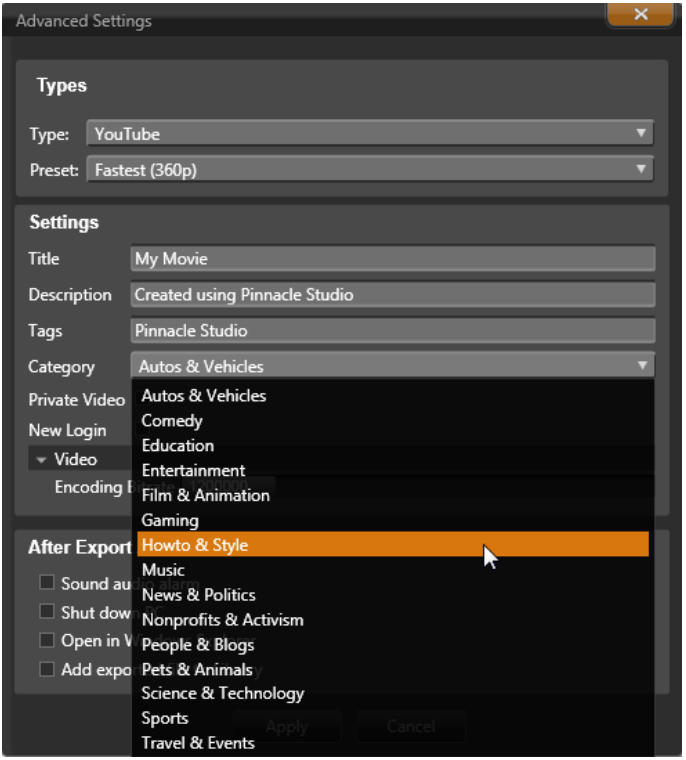
Studio can upload your video directly to YouTube for sharing with a potential audience of millions of other Internet users.



The option offers two preset formats, *Standard (480p)* and *Fastest (360p)*. These provide different combinations of frame size and video data rate.

No additional format settings are required for either destination.

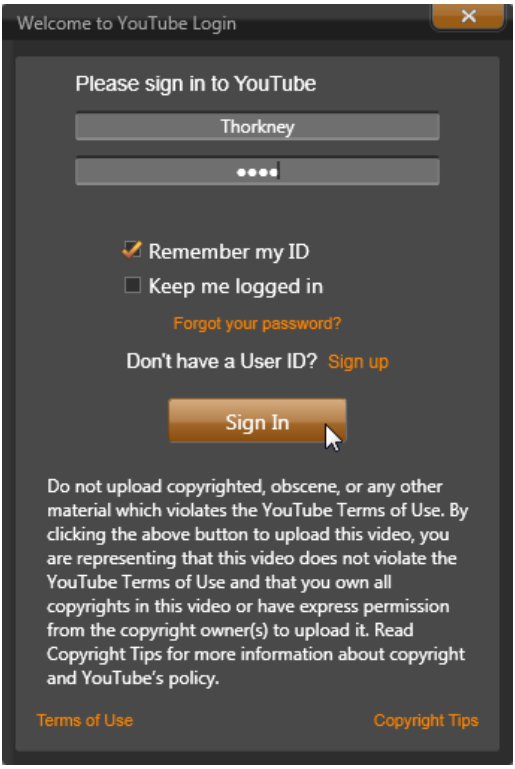
After selecting the upload site and preset you want, click the *Create* button. This opens the Advanced Settings dialog box, where you can enter editorial information about your production.



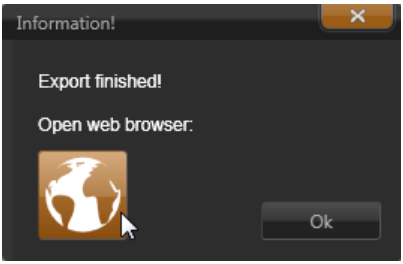
Set the title, description and comma-separated search tags as desired, then select a category in which your movie should be listed.

If you have previously logged into your YouTube account from Studio, but this time want to use a different user ID, check the *New Login* box.

Unless you are already logged in, the YouTube Login dialog is now displayed. If you have an existing YouTube identity, enter your user information now; otherwise, you first click the *Sign up* link to set up a new account.



Studio now automatically creates and uploads your movie. Click the *Open web browser* button if you would like to visit the YouTube site in your web browser to confirm the success of the upload.

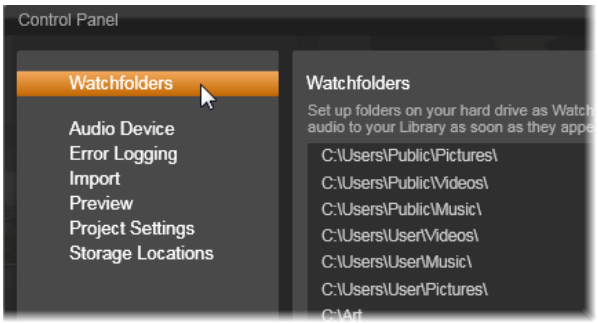


CHAPTER 12:

Settings

Avid Studio's central configuration window is called the Control Panel. (Note that it is for Avid Studio settings only. The Microsoft Windows Control Panel is unrelated.)

To begin, select *Setup* ➢ *Control Panel* on the Avid Studio main menu. When the Control Panel appears, choose a page from the directory on the left side of the window.



The Avid Studio Control Panel is a central configuration window for the application.

The seven pages of Control Panel settings are described here in turn.

Watch-folders

Watch-folders are folders on a hard drive or other storage medium that are monitored by Avid Studio. When the contents of a watch-folder changes, the Library is automatically updated.

You can create as many watch-folders as you wish and optionally set them up to watch for only one media type (video, image or audio) instead of all three, the default.

To designate a folder on your system as a watch-folder, click the *Add folder* button below the watch-folders list, and navigate to the folder you wish to add. To cancel watch-folder behavior, select the folder in the list and click the *Remove folder* button.

Apply Changes directs the Library to update its catalog in light of the watch-folder changes.

Audio device

This settings page provides the parameters available for recording devices (such as microphones) that are connected to the computer. Click the device name to access the Windows settings dialog for the device.

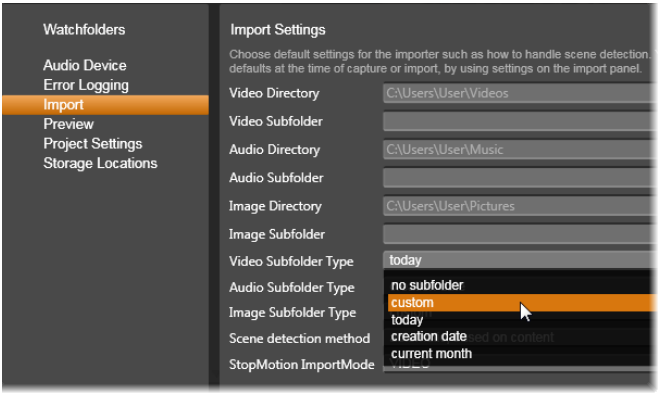
Event logging

Messages are logged in this window during certain operations, such as importing a number of files. You can check here for details about any problems that may have occurred during these operations.

Import

The default options for the Avid Studio Importer may be set here; however, you can adjust or override them in the Importer at the time of importing.

Folder options: View or set the default storage locations for imported media that are physically copied during import; unlike linked imports, and the Library's Quick Import feature, which simply link to the existing media without relocating it. The folder locations are initially set to the user's directories. for music, video, and images (*My Music*, and so on).



Selecting a video subfolder type on the Import Settings page.

After locating and selecting the folder you want to serve as the base folder, you can optionally set up a *subfolder*:

- **No subfolder:** With this option, the files you import will be stored in the base folder.
- **Custom:** When you choose this option, the text entered into the *Subfolder* text box will be used as a folder name for the media type.
- **Today:** Your imports will go to a subfolder named with the current date, in the format "2011-10-25".
- **Creation date:** Each imported file will be stored in a subfolder named with the creation date of the media, in the same format as above. When multiple media items are brought in as part of a single import operation, this may entail creating or updating multiple subfolders.
- **Current month:** This is the same as the Today option but without the day portion, e.g "2011-10".

Scene detection: This sets the default detection method for scene detection. See "The Scene Detection Options window" on page 198.

Stop motion: This sets the default import method for the frames you capture with the Stop Motion feature. See "Stop Motion" on page 213.

Preview

These settings affect the representation/display of video.

Quality: These options control the quality of video previewing throughout the application.

- **Best** provides previewing at full resolution – the resolution at which the project will ultimately be exported. Under this option there may be dropped frames during playback on slower systems.
- **Balanced:** At this setting, the recommended one for ordinary use, some quality optimizations are omitted for the sake of a faster preview. In most cases the difference is barely noticeable.
- **Fastest playback**: The preview is optimized in favor of processing efficiency, which may be helpful on a slower system.

Background playback optimization: If this option is active (the default), Avid Studio renders all real-time effects and transitions. Rendering progress is shown on the time-ruler by yellow ('to be rendered') and green ('now being rendered') shading. The shading is removed as soon as rendering is complete.

If this option is not active, the yellow and green markings are not displayed; all effects are played back in real time. However, this can result in reduced playback quality (lost frames, 'jerky' playback) if the number and complexity of effects outstrips the available processing capacity of the system.

Render while play: When the *Automatic* setting is used, the application decides on the basis of system information whether real-time rendering can be done during playback. If the *Off* setting is used, real-time rendering is disabled during playback but resumes when playback is stopped.

Show full-screen preview on: Select the computer monitor (if more than one is available) on which you want to see full-screen displays.

- **Show External Preview on:** Select from a list of available devices and signal outputs.
- **External preview standard:** Select the TV standard of the connected video monitor.

Project settings

On this page of the Avid Studio Control Panel, you can select your default settings for new projects, titles and transitions.

New movie project format: Select a resolution (such as PAL or HD 1920x1080i), as the default for every newly created timeline. Alternatively, let the first clip placed on the timeline define the format for the project with the option *Detect format from first clip added to project.* The format for the current timeline may be changed at any time while editing, by using the timeline settings located at the upper left of the timeline toolbar.

Default durations: Set the default durations of titles, images, and transitions when they are first brought to the timeline. (Once there, of course, the clip length can be trimmed as required.)

Ruler zooming: When this option is checked, dragging horizontally on the time-ruler zooms the timeline in and out. In this mode, you will need to drag directly on the scrubber handle to scrub or to reposition the play line. When ruler zooming is turned off, you can click anywhere on the ruler to move the play line. In either case, zooming may also be performed by using any of:

- the Plus and Minus keys on the numeric keypad;
- the Navigator at the bottom of the timeline; or,
- the scrollbars under the previews.

Storage locations

This page allows you to set where to save media and projects you create with Avid Studio. You can separately specify locations for each of:

- Movie projects
- Disc projects
- Titles
- Menus
- Render files (temporary files produced while rendering items requiring intensive computation, such as video effects).

Changes apply only to files that are created following your changes to the storage location; existing files remain in their current locations.

Delete render files: You can delete render files to save space without concern over permanently losing data. However, the files will be recreated the next time your project needs to be rendered.

APPENDIX A:

Troubleshooting

Before you begin troubleshooting, take some time to check your hardware and software installation.

Update your software: We recommend installing the latest operating system updates for Windows. For information on updating Windows see the following web page:

windowsupdate.microsoft.com/default.htm

Check your hardware: Ensure that all installed hardware is functioning normally with the latest drivers, and is not flagged as having a problem in Device Manager (see below). If any devices are flagged you should resolve the issue before starting the installation.

Get the latest drivers: We also highly recommend installing the latest drivers for your sound card and graphics card. Each time it is launched, Avid Studio verifies that both cards support DirectX. See “Update audio and video drivers” on page 252 for help with this process.

Opening Device Manager: The Windows Vista and Windows 7 Device Manager, which lets you configure your system’s hardware, has an important role in troubleshooting.

The first step in accessing Device Manager is to right-click on *My Computer*, and then select *Properties* from the context menu. This opens the System Properties window. The *Device Manager* button is listed on the left panel.

Ensure that all installed hardware is functioning normally with the latest drivers, and that nothing has been flagged in Device Manager with the yellow exclamation mark icon indicating an error condition. In the case of a driver problem that you cannot resolve yourself, contact the device manufacturer or your computer vendor for assistance.

CONTACTING SUPPORT

This is a brief overview on how to contact support. See your support flyer, included with your purchase, for more details.

Forums: Please visit our forums to join the discussion on Avid Studio. Scroll down to find the forum in your desired language:

forums.pinnaclesys.com/forums/default.aspx

Knowledge base: Access the knowledge base with your web browser by visiting:

avid.custkb.com/avid/app/selfservice/search.jsp

To most effectively search the knowledge base, use the filters to narrow down the number of article results. Select 'Pinnacle' in the top-level filter, followed by 'Avid Studio' in the second level filter if you want to get more specific.

Each knowledge base article has an associated *document ID*. When you are referred to a document ID (in the discussion of support issues below, for instance), you can use it as a search term to retrieve that particular information. Select 'Document ID' in the *Search by* list on the Avid Knowledge Base search form, enter the ID in the *Type your question* box, then click *Search*.

Email: You can submit your question to our technical support department by email, using the form on our site to submit your question. We will automatically propose some likely answers. If these don't help, your question will be forwarded to our team. Emails are generally answered within 48 business hours. This is a free service. To access email support, please log in here:

www.Avid.com/Studio/Email

If you do not already have an account, you will need to create one.

Live chat: Free technical support by live chat is also available every day. Open hours for chat are generally longer than those for phone support. To access live chat support, please log in here:

www.Avid.com/Studio/Chat

If you do not already have an account, you will need to create one using the provided link.

Phone: Please see the support flyer included with your product. All phone support calls will require an Avid Service Code.

TOP SUPPORT ISSUES

The remainder of this chapter draws on some of the knowledge-base articles most consulted by users. The text presented here may be less detailed or current than that provided on-line. For the full text available under each document ID, please refer to the on-line knowledge base.

Compatibility with past content

Document ID 384211

Much, but not all, of the additional creative content from Pinnacle Studio 11 through 15 can be used directly in Avid Studio, as can many content offerings from third-party providers. Some of these are included in the product itself. A few of the third-party content packages require a paid upgrade to work with Avid Studio. For some others, no compatible version has been released.

Content-support chart

Pinnacle Studio Content	
HFX Plus, Pro, Mega	Supported – Included in Avid Studio
RTFX 1	Supported – Included in Avid Studio
RTFX 2	Supported – Included in Avid Studio
Hollywood FX Volume 1	Supported – Included in Avid Studio
Hollywood FX Volume 2	Supported – Included in Avid Studio
Hollywood FX Volume 3	Supported – Included in Avid Studio

Premium Pack Volume 1	Supported – Included in Avid Studio
Premium Pack Volume 2	Supported – Included in Avid Studio
Creative Pack Volume 1	Supported
Creative Pack Volume 2	Supported
Creative Pack Volume 3	Supported
Winter Pack	Supported
Scorefitter Volume 1	Supported
Scorefitter Volume 2	Supported
Scorefitter Volume 3	Supported
Title Extreme	Supported*
Third party content from *Ultimate* or *Ultimate Collection* content discs	
Studio 11 - Stagetools: Moving Picture	Not supported
Studio 11 - BIAS SoundSoap V1 PE	Supported – Paid upgrade required
Studio 11 - ProDAD VitaScene	Supported – Paid upgrade required
Studio 12 - ProDAD VitaScene	Supported – Paid upgrade required
Studio 12 - Red Giant Magic Bullet Looks	Supported – Included in Avid Studio
Studio 14 - Red Giant Knoll Light Factory	Supported – Included in Avid Studio
Studio 14 - Red Giant ToonIt	Supported – Included in Avid Studio
Studio 14 - Red Giant Trapcode 3D Stroke	Supported – Included in Avid Studio
Studio 14 - Red Giant Trapcode Particular	Supported – Included in Avid Studio
Studio 14 - Red Giant Shine	Supported – Included in Avid Studio
3rd Party Content from eStore	
BIAS SoundSoap V2 PE	Supported**
Red Giant Magic Bullet Looks Indie Pack	Supported**
RedGiant Particular Studio Preset Pack	Supported**
RedGiant Shine Studio Preset Pack	Supported**
RedGiant ToonIt Studio Preset Pack	Supported**
RedGiant Knoll Studio Preset Pack	Supported**
Red Giant Trapcode Starglow	Supported**
Red Giant Warp	Supported**
ProDad Vitascene	Supported**
ProDad Adorage	Supported**

ProDad Adorage FX Pack 10	Supported**
ProDad Adorage FX Pack 11	Supported**
NewBlue Video Essentials I	Supported**
NewBlue Video Essentials II	Supported**
NewBlue Video Essentials III	Supported**
proDAD Mercalli	Supported**
3rd Party Bonus DVD Plugins	
Bravo Studio 1, 2 & 3	Not supported
BWPlugins 1, 2 & 3	Not supported
Dziedzic Effects Pack 1 & 2	Not supported
eZedia Effects	Not supported
NewBlue Art Effects 1	Not supported
NewBlue Effects	Not supported
NewBlue Time Effects 1	Not supported
PE CameraPOV	Not supported
proDAD Adorage	Supported*
proDAD Heroglyph 1	Not supported
proDAD Heroglyph 2	Supported – Included in Title Extreme*
proDAD Vitascene 1.0	Supported*
StageTools Moving Picture Full	Not supported
StageTools Moving Picture LE	Not supported
Vance Effects	Not supported
Algorithmix	Not supported
NewBlue Audio Enhancements 1	Not supported
NewBlue Audio Essentials 1	Not supported
NewBlue Audio Essentials 2	Not supported
NewBlue Audio Essentials 3	Not supported
NewBlue Audio Essentials 4	Not supported

* Free for previous content owners. Eligible customers should receive an email with instructions.
** Free for previous content owners. Eligible customers should receive an email with instructions or can download the content by logging into https://account.avid.com/.

Capture hardware compatibility

Document ID 384431

Avid Studio has been tested and found to work successfully with a wide variety of video capture hardware. However, some older devices are not supported.

Supported hardware

The following capture devices will work with all versions of Avid Studio.

USB-based

- 710-USB
- 510-USB
- 700-USB
- 500-USB
- MovieBox Deluxe
- DVC-90
- DVC-100
- DVC-101
- DVC-103
- DVC-107
- DVC-130 (no 64-bit drivers available)
- DVC-170 (no 64-bit drivers available)

PCI-based

- 700-PCI (Pinnacle Studio Deluxe 2)
- 500-PCI (Pinnacle AV/DV)
- Any 1394 card

Unsupported hardware

The following list of hardware came with older versions of Studio and is no longer in warranty or supported.

- DC10
- DC10 Plus
- MovieBox DV
- Dazzle DVC 80, 85
- Linx
- MP 10
- S400

Serial number information

Document ID 384215

This FAQ will give you information on the location of your Avid Studio serial numbers, and how to use your serial number from a previous version to activate an upgrade to Avid Studio.

Finding your serial number

For a product that you downloaded, the serial number is shown on the confirmation page at the end of the ordering process, and in the confirmation email sent at that time.

If you own a physical copy of the product, the serial number is shown on either the inside or the outside of the DVD case, if one is included; and on the outside of the paper sleeve otherwise.

If you have lost your serial number, please check the knowledge base for document 232809, *How to replace a lost Studio serial number*.

Looking up your customer information

1. Start by logging in at www.Avid.com.
2. Browse to 'Your Product'.
3. Choose your products again from the products section.
4. Your serial number is listed in the 'Your products' window that comes up.

Using a serial number when upgrading

You can upgrade to Avid Studio from Studio 14, 12, 11, 10 and 9. To do so you will need the serial number from the old version. The locations listed above to find your serial number are valid for most versions of Studio.

Once you have found your old serial number, start the install. A window will appear asking for both the new and old numbers. Put them in the correct windows and click *Next*.

Error or crash while installing

Document ID 284219

Here are some tips for troubleshooting errors or crashes that could occur while installing Avid Studio.

Specific Errors

Error 1402: If you are getting a 1402 error during installation, please follow the instructions in document 364555 in the knowledge base, *Error 1402 on installation.*

Error on install "Setup will now abort installation": If this error occurs during installation, please follow the instructions in knowledge base document 363187, *Error on install "Setup will now abort installation"*.

General troubleshooting

Here are some further avenues to explore if you are having trouble getting the application to install.

Try cleaning the disc: Inspect the install disc, checking its surface for smudges and dirt. If cleaning is necessary, use a soft cloth, not paper towels or any abrasive material. Wipe from the center of the disc to the outer edge rather than a circular motion. Once the disc is clean, try installing again.

Another optical drive: Many systems have two optical drives; for instance, a DVD burner and a separate DVD reader. Put the disc that won't install into the other drive, if available, and retry.

Restart the computer: In some cases the installation can crash if Windows Update is running. If that happens, it is best to restart the system as requested by Windows before trying again to install Studio.

Startup tasks/programs: If you are familiar with **msconfig**, you can use this tool to disable any programs launched at start-up that might be interfering with the Studio installer.

When all else fails

If the disc is damaged with deep scratches or cracks so that it won't install, please contact support for a replacement. The discs are warranted for 30 days; beyond that time there is a $14.95 charge for replacement discs. Please have your Pinnacle order number or proof of purchase (receipt) from the store available to get a replacement disc.

Hangs or crashes while launching

Document ID: 284223

If Studio previously launched successfully and now does not, review any changes that have been made to the computer recently for possible clues. If necessary, undo the changes to see if the problem goes away.

Further troubleshooting steps:

1. **Restart the computer:** Unstable software behavior of undetermined cause can often be fixed by resetting the system. This is almost always a good place to start when troubleshooting.
2. **Wait a few minutes:** If Avid Studio still won't launch, wait a few minutes to let it finish launching. On some computers it may take a little while for the launch to complete.
3. **Update Studio:** When troubleshooting any problem, it is always best to use the latest version of the software if possible.
4. **Disconnect capture hardware:** If possible, unplug any capture hardware and try launching Avid Studio again. If you can't launch with your webcam plugged in, try it unplugged, and vice-versa. You may have to set the webcam up in the same way every time you launch Studio.
5. **Download and reinstall hardware drivers:** During the Studio software launch process we do check that you have a DirectX compatible graphics and sound card. Download and reinstall the latest version of the driver for the graphics card that is on your system. Many

customers have nVIDIA cards, for which the latest drivers should be available from:

www.nvidia.com

Drivers for ATI/AMD cards can be obtained from:

www.amd.com/us/Pages/AMDHomePage.aspx

If you need assistance with this step, please contact the graphics card manufacturer.

6. **End background tasks:** There are a couple ways to accomplish this. One is to use start-up management software to assist in eliminating unnecessary programs that launch on Windows start-up. Many shareware and freeware programs of this type have been created. Use an Internet search engine such as Google or Yahoo to search for 'startup managers'. We don't endorse any particular one, but recommend you try a couple to see which one works best for you.

   Alternatively, you can also use the Microsoft System Configuration Utility (**msconfig**), which is part of Windows, to disable start-up programs.

   Whichever route you take, we recommend disabling all programs and then re-enabling them one at a time until the conflicting program is located.

7. **Reinstall:** If all of the above fail, you may want to try uninstalling Avid Studio from the Control Panel "Programs and Features" list. Once it is uninstalled, reinstall Avid Studio and try launching again.

Troubleshooting software crashes

Document ID: 384231

If Studio is crashing repeatedly, the cause of the problem is most likely a configuration issue, or a problem with a project file. Many customers fix this type of issue by:

- Optimizing their computer
- Rebuilding a corrupt project
- Recapturing a corrupt clip, etc.
- Uninstalling and reinstalling Avid Studio

For further troubleshooting, determine which of the failure modes below best matches your problem, then read on to review the suggested troubleshooting steps for that case.

Case 1: Avid Studio crashes randomly. There doesn't seem to be any one thing that will cause the crash, but it seems to crash frequently.

Case 2: Avid Studio crashes after a user action such as a click on a certain tab or button. The crash is predictable and consistent.

Case 3: Avid Studio crashes repeatably when you perform some specific combination of steps.

Case 1: Studio crashes randomly

Here are some troubleshooting steps to try. You can work through them in order until you get a result.

Get the latest version

Make sure that you have the latest version of Avid Studio installed.

Optimize settings

Check these settings in Avid Studio that may be adjusted to get better results.

Quality: Select 'Fastest Playback' and see if your results improve.

Background playback optimization: Try disabling this option to see if it helps your crashing problem. Poor preview playback may result from this setting.

Render while play: Try turning off this option if you notice that the crash tends to occur while you are previewing.

End background tasks

It is important with this type of problem to unload any background processes before using Avid Studio.

Many 'tasks' (software programs) run 'in the background' on every Windows system, usually without drawing attention to themselves. Occasionally, however, one of these may be the cause of instability in a particular application.

In Windows XP, Windows Vista and Windows 7, the Ctrl+Alt+Delete key combination leads to a window on which the *Task Manager* button may be selected. You may not see much under the *Applications* tab, but the *Processes* tab will show you what is running. See knowledge base document 229157, *How do I turn off background programs that are interfering with system performance and software installation?*, for detailed instructions about how to proceed.

Defragment your hard drive

See knowledge base document 232457, *Windows hard disk defragmenting information*, for instructions and advice on this step.

Update video and audio drivers

Make sure that you have the latest sound and video card drivers loaded from their manufacturer's websites.

You can determine what sound and video card you have by checking in Device Manager (right-click on the My Computer icon and select *Properties*). In Windows XP and Windows Vista you can select the *Hardware* tab then click the *Device Manager* button.

To determine what video card you have, click the plus sign next to *Display adapters* in the Device Manager list. Now your video card will be displayed. To determine the manufacturer and date of its driver, double-click the card name. Now click the *Driver* tab to see all the driver information including *Driver Provider* and *Driver Date*.

The process for the sound card is very similar. In Device Manager the sound card is displayed in the *Sound, video and game controllers* section. Double-click the card name to determine the driver information in the same fashion as for the video card.

Driver updates are often released through the websites of the hardware manufacturers such ATI at atitech.com, Nvidia at nvidia.com, and Sound Blaster (SB) at creative.com.

Update Windows

Make sure you have all available Windows updates for your computer. They are available from:

v4.windowsupdate.microsoft.com/en/default.asp

Optimize computer performance

Windows provides a built-in tool for this purpose.

1. Right-click *Computer* and select *Properties*.
2. Click the *Advanced System Settings* link.
   This will bring up the System Properties window.
3. Click the *Settings* button in the *Advanced* section.
4. Select Adjust for best performance, and click OK.

Free space on boot drive

Make sure you have 10 GB or more on your boot drive for paging. If you do not have 10 GB, you will need to free up some space.

Uninstall and reinstall Avid Studio

If none of the suggestions so far help, you could have a corrupted installation of Studio. If that is the case, you should try uninstalling Avid Studio and then reinstalling it. You can uninstall Avid Studio with *Start* ➢ *All Programs* ➢ *Avid Studio* ➢ *Uninstall Avid Studio*. You can also uninstall via the *Programs and Features* list in the Windows Control Panel. Once Avid Studio is uninstalled, install it again from your disc or program download.

Check for a corrupt project

Try rebuilding the first few minutes of your project. If this does not cause any instability, try adding a few more minutes to the project. Continue to rebuild the project if the system remains stable.

Check for corrupt media

If the instability seems to occur when you manipulate certain audio or video clips, you should recapture or import the audio or video. If the media were imported and created by another application, you should capture with Studio and create a test project. While Studio works with many video formats, the clip you have may be corrupt or in an uncommon variant format. If you have a **wav** or **mp3** files that seems to be problematic, convert the file to the other format and then import the file.

Reinstall Windows

This is quite a drastic step, but if the steps to this point have not helped, Windows itself may be corrupt. The heavy processing demands made on your system by a multimedia authoring tool like Avid Studio can reveal instabilities that might not show up with ordinary applications. One way to help determine if your Windows install is part of the problem is to run the Microsoft system information tool. This tool keeps track of when Windows crashes.

To use the system information tool:

1. Click *Start*, then *Run*, and type 'Msinfo32' in the search window under the *Start* button. Press Enter to bring up the System Information window.
2. Expand the *Software environment* category on the left side of the window.
3. Click on Windows error reporting.

If the Windows Error Reporting window has many entries, it could be an indication that the OS is unstable or that the computer has a hardware issue. Inspecting the entries may show what caused the crash. If most of the crashes involve system software like Window Explorer, then the OS has a problem. Frequent random crashes are another common sign of a corrupt Windows installation.

Case 2: Studio crashes after a user action

If Avid Studio crashes, or tends to crash, when you click on some particular tab or button, start by trying all of the steps in Case 1 above. Such a problem usually means that Studio is not installed properly or has become corrupt, so uninstalling Studio, then reinstalling it, and then patching the latest version should correct the situation.

To try to determine if the failure is specific to a particular project, create a test project and add a few scenes to the timeline from the sample video. Then click on the tab or button that seems to cause the failure. If this test project does not crash, it may mean that the problem is with the actual project you are working on rather than with Studio or your system. If the test project does fail, please contact support and provide us with the details on the exact failure mode. We will try to recreate the problem.

Case 3: Studio crashes repeatably

If Studio crashes when you performing some specific procedure or combination of steps, start by trying the troubleshooting steps given above for Case 1, since this is just a more complicated version of Case 2. It is often very difficult to pin down the exact sequence of steps that results in a failure. A simple test project using the sample video, as noted above, will be a big help first in your own investigations, and second to help achieve a fast resolution if support is required.

Export problems

If errors are reported, or the application freezes or performs incorrectly while exporting a file or disc, please check our knowledge base for articles regarding the specific failure scenario you are experiencing. See page 242 for more information about the knowledge base.

Disc playback problems

Document ID: 384235

If you have a problem with DVDs created by Studio not playing back, or appearing to be blank, the steps below should help to resolve it.

Other kinds of playback problems may be addressed elsewhere in the knowledge base.

- If the video on your disc plays back, but the sound does not, read document 222577, *Discs burned with Studio have no sound*.
- If only a portion of your disc project appears on the DVD, or if recent changes are missing, try document 219785, *DVD created with Studio is missing part of the project*.

If your DVD does not play back, or appears blank:

1. Check the disc for cleanliness. Ensure that there are no obvious smudges or scratches on the disc surface. If the disc is dirty, clean it with a soft cloth (don't use a paper towel) by wiping the DVD radially from the center to the outside edge, not in a circular motion.

2. Insert the disc into a DVD drive on the computer and verify that it contains file-system folders.

   - Double-click *My Computer*.
   - Right-click the DVD drive and choose *Explore*.

   There should be two folders on the DVD, named 'audio_ts' and 'video_ts'. The 'audio_ts' folder should be empty, while 'video_ts' should contain files with **bup**, **ifo** and **vob** extensions.

   If the files are present, the issue definitely relates to playback as such rather than the burning of the disc. Conversely, if the disc is in fact blank, you are looking at a burn problem rather than a playback problem. In that case, follow the instructions in document 214533, *Studio burn problems*.

3. If the disc fails in your set-top DVD player, try playing it back on the computer . The disc should play back successfully when DVD player software like PowerDVD and WinDVD are used. DVD playback in Windows Media Player may work depending on your version of Windows. If you have problems playing the disc DVD even on your computer's DVD drive, read document 221479, *Playing DVDs on your computer*.

4. Try playing the DVD on other set-top players. Some equipment may not play a certain brand of DVD or a certain DVD media format (-R, +R, -RW or +RW).

   If you are uncertain whether the DVD player supports a given media type, check the manufacturer's website for information. Another good place to check for compatibility is:

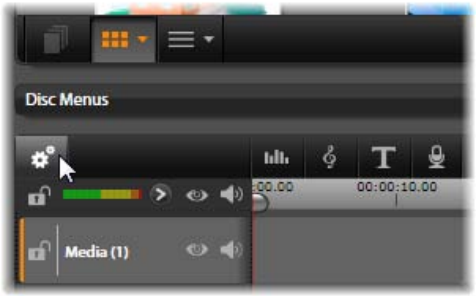
   www.videohelp.com/dvdplayers

   If the disc type is not supported by the player, you will need to recreate the disc in another format. If the disc plays in one DVD player but not another, it may be that the second player is on the verge of device failure, or that it cannot reliably read writable media. In this situation,

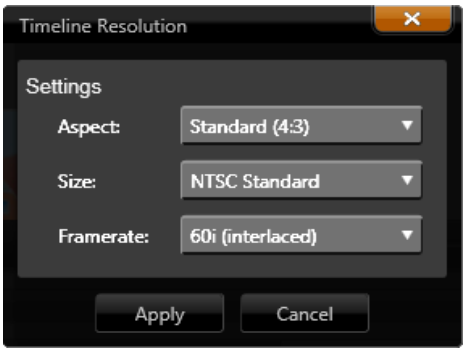
experiment with DVD brands and types until you find a combination that works dependably on your equipment.

5. Confirm that the project you created is set for the playback format used in your region (e.g. NTSC for North America, PAL for Europe). If the project, and hence the disc, are in the wrong format, some DVD players will not be able to play the disc.

   To check the project video format, click the gear icon at the top left of the timeline in the Disc Editor.



   This opens the Timeline Resolution dialog.



   Make sure that the *Size* dropdown is set to the right standard.

   You can also set the default video standard for projects on the *Project Settings* page of the Avid Studio settings dialog.

Resources, tutorials and training

Document ID: 384227

Many resources are available for users who would like to learn more about Avid Studio. Some of these are listed below. The most current list is available from our knowledge base under the above document ID.

Video tutorials

A set of free video tutorials covering many Avid Studio topics is available on-line. Click the *?* ➢ *On Line Training* menu command to see all the video tutorials, or navigate your web browser to:

www.Avid.com/AvidStudio/Tutorials

Knowledge base

We have hundreds of freely available documents covering a wide range of topics. To view and search our knowledge base, go to:

www.Avid.com/Studio/KB

User forums

There is a good chance that other users may have a similar or the same question, so read, search and post to our free Community Forums, which are located at:

www.Avid.com/Studio/Forums

DVD training

An Avid Studio training DVD is available for sale on the Avid e-store, which is located at:

www.Avid.com/Studio/estore/training

APPENDIX B:

Videography

To shoot good video, then create from it an interesting, exciting or informative movie, is something anyone with a little basic knowledge can achieve.

Starting from a rough script or shooting plan, the first step is to shoot your raw video. Even at that stage, you should be looking ahead to the editing phase by making sure you will have a good set of shots to work from.

Editing a movie involves juggling all your fragments of footage into some kind of harmonious whole. It means deciding on the particular techniques, transitions and effects that will best express your intent.

An important part of editing is the creation of a soundtrack. The right sound – dialog, music, commentary or effect – can work with the visuals to create a whole greater than the sum of its parts.

Avid Studio has the tools you need to create professional-quality home video. The rest is up to you – the videographer.

Creating a shooting plan

It is not always necessary to have a shooting plan, but it can be very helpful for large video projects. The plan can be as simple or as complex as you like. A simple list of planned scenes might be enough, or you might also want to include some notes regarding detailed camera directions or prepared dialog. The really ambitious can go all the way to a full-fledged

script in which every single camera angle is described in detail along with notes about duration, lighting and props.

Title: “Jack on the kart track”				
No.	**Camera angle**	**Text / Audio**	**Duration**	**Date**
1	Jack's face with helmet, camera zooms out	“Jack is driving his first race...”. Noise of engines in the background.	11 sec	Tue. 06/22
2	On the starting line, driver's perspective; low camera position.	Music is played in the hall, noise of engines.	8 sec	Tue. 06/22
3	Man with a starting flag is accompanied into the scene to the start position. Camera stays, man goes out of the scene after start.	“Let's go...”. Carry out the start, add starting signal.	12 sec	Tue. 06/22
4	Jack on the start position from the front, camera follows, shows Jack up to the bend, now from behind.	Music from the hall no longer audible, fade up same music from CD over noise of engines.	9 sec	Tue. 06/22
5	...			

Draft of a simple shooting plan

Editing

Using varying perspectives

An important event should always be shot from varying perspectives and camera positions. Later, during editing, you can use the best camera angles alone or in combination. Make a conscious effort to tape events from more than one camera angle (first the clown in the circus ring, but then also the laughing spectator from the clown’s point of view). Interesting events can also take place behind the protagonists or the protagonists may be seen in a reverse angle. This can be helpful later when trying to establish a sense of balance in the movie.

Close-ups

Don't be stingy with close-ups of important things or persons. Close-ups usually look better and more interesting than long shots do on a television screen, and they work well in post-production effects.

Long shots / Semi-long shots

Long shots provide the viewer with an overview and establish the scene of the action. However, these shots can also be used to tighten longer scenes. When you cut from a close-up to a long shot, the viewer no longer sees the details, and it is thus easier to make a chronological jump. Showing a spectator in a semi-long shot can also provide visual relief from the main action, and the opportunity of a transition away from the action if desired.

Complete actions

Always shoot complete actions with a beginning and an end. This makes editing easier.

Transitions

Cinematic timing requires some practice. It is not always possible to film long events in their entirety, and in movies they often have to be represented in severely abbreviated form. Nonetheless, the plot should remain logical and cuts should almost never call attention to themselves.

This is where the transition from one scene to the next is important. Even if the action in neighboring scenes is separated in time or space, your editorial choices can make the juxtaposition so smooth that the viewer bridges the gap without conscious attention.

The secret to a successful transition is establishing an easily-felt connection between the two scenes. In a *plot-related* transition, the connection is that of successive events in an unfolding story. For example, a shot of a new car might be used to introduce a documentary about its design and production.

A *neutral* transition doesn't in itself imply a story development or a change of time or place, but can be used to smoothly connect different excerpts from a scene. For example, cutting away to an interested audience member during a podium discussion lets you then cut back unobtrusively to a later point in the same discussion, omitting the part between.

External transitions show something apart from the action. For example, during a shot inside the marriage registry, you might cut to the exterior of the marriage registry, where a surprise is already being set up.

Transitions should underscore the message of the film and must always fit the respective situation, in order to avoid confusing viewers or distracting from the actual storyline.

Logical sequence of action

The shots strung together during editing must interact appropriately in relation to the action. Viewers will be unable to follow the events unless the storyline is logical. Capture viewer interest from the very beginning with a fast-paced or spectacular start and maintain that interest until the very end. Viewers can lose interest or become disoriented if scenes are strung together in a manner that is illogical or chronologically false, or if scenes are too hectic or short (under three seconds). There should be some continuity of motif from one scene to the next.

Bridging the gaps

Make an effort to bridge the gaps from one filming location to another. You can use close-ups, for example, to bridge chronological jumps, zooming in on the face, then back out after a few seconds onto a different scene.

Maintain continuity

Continuity – consistency of detail from one scene to the next – is vital in providing a satisfying viewing experience. Sunny weather does not fit with spectators who opened their umbrellas.

Tempo of cuts

The tempo at which a film cuts from one scene to the next often influences the message and mood of the film. The absence of an expected shot and the duration of a shot are both ways of manipulating the message of the film.

Avoid visual disjunctions

Stringing together similar shots in succession may result in visual disjunctions. A person may be in the left half of the frame one moment and in the right half of the frame the next, or may appear first with and then without eyeglasses.

Do not string together pan shots

Pan shots should not be strung together unless they have the same direction and tempo.

Rules of thumb for video editing

Here are some guidelines that may be helpful when you come to edit your movie. Of course, there are no hard and fast rules, especially if your work is humorous or experimental.

- Do not string together scenes in which the camera is moving. Pans, zooms, and other moving shots should always be separated by static shots.
- Shots that follow one another should be from different camera positions. The camera angle should vary by at least 45 degrees.
- Sequences of faces should always be shot alternately from varying angles of view.
- Change perspectives when shooting buildings. When you have similar shots of the same type and size, the picture diagonal should alternate between front left to rear right and vice versa.
- Make cuts when persons are in motion. The viewer will be distracted by the ongoing motion and the cut will go almost without notice. In particular, you can cut to a long shot from the middle of the motion.
- Make harmonious cuts; avoid visual disjunction.
- The less motion there is in a shot, the shorter it should be. Shots with fast movements can be longer.
- Long shots have more content, so they should also be shown longer.

Ordering your video sequences in a deliberate manner not only permits you to produce certain effects, but even enables you to convey messages that cannot or should not be shown in pictures. There are basically six methods of conveying messages through cuts. Let's look at each in turn.

Associative cuts

Shots are strung together in a certain order to trigger associations in the mind of the viewer, but the actual message is not shown. Example: A man bets on a horse race and, in very next scene, we see him shopping for an expensive new car at a car dealership.

Parallel cuts

Two actions are shown in parallel. The film jumps back and forth between the two actions; making the shots shorter and shorter until the end. This is a way of building suspense until it peaks. Example: Two different cars drive from different directions at high speed toward the same intersection.

Contrast cuts

The film purposely cuts unexpectedly from one shot to another, very different shot, in order to point up the contrast to the viewer. Example: A tourist lying on the beach; the next shot shows starving children.

Substitutionary cut

Events that cannot or should not be shown are replaced by other events (a child is born, but instead of childbirth, the blossoming of a flower bud is shown).

Cause and effect cuts

Shots are related by virtue of cause and effect: without the first shot, the second would be incomprehensible. Example: A man fights with his wife and, in the very next shot, is seen sleeping under a bridge.

Formal cuts

Shots that vary in content can be strung together if they have something in common – the same shapes, colors, or motions, for example. Examples: A crystal ball and the earth; a yellow raincoat and yellow flowers; a falling skydiver and a falling feather.

Soundtrack production

Soundtrack production is an art, but it is an art one can learn. Of course, it is no easy task to create a superb narration, but short, informative comments are often very helpful for the viewer. Whatever narration there is should sound natural, expressive and spontaneous, not wooden or stiff.

Keep comments brief

A general rule applicable to all commentary is that less is more. Pictures should speak for themselves, and things that are evident to viewers from the pictures require no comment.

Preserve original sounds

Spoken commentary should be mixed with both the original sounds and the music in such a way that the original sounds can still be heard. Natural sound is part of your video footage and should not be cut away altogether if at all possible, because video without natural sound can easily seem sterile and lacking in authenticity. Frequently, however, the recording equipment captures noises from aircraft and cars that do not appear in the scene later. Sounds such as these, or loud wind noises, which can be distracting or annoying, should be masked, filtered or replaced with appropriate narration or music.

Select appropriate music

Appropriate music adds a professional finishing touch to your movie and can do a lot to reinforce the message of a video. The music selected, however, should always be appropriate to the message of the film. This is sometimes a time-consuming matter and a challenge, but greatly appreciated by the viewer.

Title

The title should be informative, describe the contents of the movie, and arouse interest. If it's also a striking turn of phrase, so much the better.

When it comes to presentation, the Title Editor gives almost unlimited scope for creative visuals. It's one place in your production where you're not tied to the reality of actual footage, so you can let your fancy run free.

Of course, the ultimate goal is to communicate, so some basics almost always hold true. For instance, a concise title in a large, legible font is likelier to get its message across than one that is over-decorated or too long.

Title colors

The following combinations of background and text are easy to read: white with red, yellow with black, and white with green. Exercise caution with very white titles on a very black background. Some video systems are unable to handle contrast ratios in excess of 1:40 and are unable to reproduce such titles in detail.

Time on screen

As a rule of thumb, a title should be displayed long enough to be read twice. Allow about three seconds for a title with ten letters. Allow an additional second of on-screen time for every five additional letters.

‘Found’ titles

Besides postproduction titles, natural titles like directional signs, street signs or title pages of local newspapers also create interesting possibilities.

APPENDIX C:

Glossary

Multimedia terminology contains computer and video terminology. The most important terms are defined below. Cross-references are indicated by 🕮.

720p: A high-definition (HD) video format with a resolution of 1280x720 and progressive (non-interlaced) frames.

108i: A high-definition (HD) video format with a resolution of 1440x1080 and interlaced frames.

ActiveMovie: Software interface by Microsoft for the control of multimedia devices under Windows. 🕮 *DirectShow, DirectMedia*

ADPCM: Acronym for Adaptive Delta Pulse Code Modulation, a method of storing audio information in a digital format. This is the audio encoding and compression method used in CD-I and 🕮 *CD-ROM* production.

Address: All available saving positions in a computer are numbered (addressed). By means of these addresses each saving position can be occupied. Some addresses are reserved for the exclusive use of particular hardware components. If two components are using the same address, this is called an "address conflict".

Aliasing: An inaccurate display of an image due to the limitations of the output device. Typically, aliasing appears in the form of jagged edges along curves and angled shapes.

Anti-aliasing: A method of smoothing out jagged edges in bitmap images. This is usually accomplished by shading the edges with pixels intermediate in color between the edge and the background, making the transition less apparent. Another method of anti-aliasing involves using higher resolution output devices.

Aspect ratio: The ratio of width to height in an image or graphic. Keeping the aspect ratio fixed means that any change to one value is immediately reflected in the other.

AVI: Audio Video Interleaved, a standard format for digital video (and 🕮 *Video for Windows*).

Batch capture: An automated process that uses an 🕮 *edit decision list* to locate and recapture specific clips from a videotape, usually at a higher data rate than the clip was originally captured.

BIOS: Acronym for Basic Input Output System, which refers to basic input and output commands saved in a 🕮 *ROM*, PROM or 🕮 *EPROM*. The essential task of the BIOS is the control of input and output. When the system is started, the ROM-BIOS carries out some tests. 🕮 *Parallel port*, *IRQ*, *I/O*

Bit: Abbreviation of "BInary digiT", the smallest element of a computer's memory. Among other things, bits are used to store the color values of pixels in an image. The more bits used for each 🕮 *pixel*, the greater the number of available colors. For example:

1-bit: each pixel is either black or white.

4-bit: allows 16 colors or gray shades.

8-bit: allows 256 colors or gray shades.

16-bit: allows 65,536 colors.

24-bit: allows about 16.7 million colors.

Bitmap: An image format made up of a collection of dots or "pixels" arranged in rows. 🕮 *Pixel*

Blacking: The process of preparing a videotape for insert editing by recording video black and continuous control track on the entire tape. If the recording deck supports timecode, continuous timecode will be recorded simultaneously (also called "striping").

Brightness: Also "luminance". Indicates the brightness of video.

Byte: One byte corresponds to eight 🕮 *bits*. With one byte, exactly one alphanumeric character can be displayed (i.e. a letter, number).

CD-ROM: Mass storage media for digital data, such as digital video. CD-ROMs can be read from but not written (recorded) onto: 🕮 *ROM* is an acronym for Read-Only Memory.

Channel: Classifications of information within a data file to isolate a particular aspect of the file. For example, color images use different channels to classify the color components in the image. Stereo audio files use channels to identify the sounds intended for the left and right speakers. Video files use combinations of the channels used for image and audio files.

Clip: In Avid Studio, any media element used on the timeline of a movie or disc project. Clip media include videos, audio files, photos, titles, and Montage.

Clipboard: A temporary storage area shared by all Windows programs, used to hold data during cut, copy, and paste operations. Any new data you place onto the clipboard immediately replaces the existing data.

Closed GOP: 🕮 *GOP*

Codec: Contraction of compressor/decompressor – an algorithm that compresses (packs) and decompresses (unpacks) image data. Codecs can be implemented in either software or hardware.

Color depth: Number of bits delivering the color information for each pixel. A 1-bit color depth allows 2^1=2 colors, an 8-bit depth allows 2^8=256 colors, and a 24-bit depth allows 2^{24}=16,777,216 colors.

Color model: A way to mathematically describe and define colors and the way they relate to each other. Each color model has its own strengths. The two most common color models are 🕮 *RGB* and 🕮 *YUV*.

Color saturation: Intensity of a color.

Complementary color: Complementary colors are opposite in value to primary colors. If you were to combine a color with its complement, the result would be white. For example, the complementary colors of red, green and blue are cyan, magenta and yellow respectively.

COM Port: A serial port located on the back of your computer for attaching a modem, plotter, printer or mouse to the system.

Composite video: Composite video encodes luminance and chrominance information into one signal. 🕮 *VHS* and 8mm are formats that record and play back composite video.

Compression: A method for making files smaller in size. There are two types of compression: *lossless* and *lossy*. Files compressed with a lossless scheme can be restored unchanged from their original state. Lossy schemes discard data during compression, so some image quality is sacrificed. The loss of quality may be negligible or severe depending on the amount of compression.

Cropping: Choosing the area of an image to be displayed.

Data rate: The quantity of data transmitted per unit time; for example, the number of bytes read from or written to a hard drive per second, or the amount of video data processed per second.

Data transfer rate: The measurement of the speed at which information passes between the storage device (e.g. 🕮 *CD-ROM* or hard drive) and the display device (e.g. monitor or 🕮 *MCI* device). Depending on the devices used, some transfer rates may offer better performance than others.

DCT: Discrete Cosine Transformation – part of 🕮 *JPEG* image data compression and related algorithms. The brightness and color information is saved as a frequency coefficient.

DirectShow: System extension by Microsoft for multimedia applications under Windows. 🕮 *ActiveMovie*

DirectMedia: System extension by Microsoft for multimedia applications under Windows. 🕮 *ActiveMovie*

DirectX: A bundle of several system extensions developed by Microsoft for Windows 95 and its successors to make possible video and game acceleration.

Dissolve: A transitional effect in which the video is faded from one scene to the next.

Dithering: Increasing the number of apparent colors in an image by the application of color patterns.

Decibel (dB): A unit of measurement of the loudness of sound. An increase of 3 dB doubles the loudness.

Digital8: Digital videotape format that records 🕮 *DV*-coded audio and video data on 🕮 *Hi8* tapes. Currently sold only by Sony, Digital8 camcorders and VCRs can play both Hi8 and 8mm cassettes.

Digital video: Digital video stores information 🕮 *bit* by bit in a file (in contrast to analog storage media).

DMA: Direct Memory Access.

Driver: A file containing information needed to operate peripherals. The video capture driver operates a video capture board, for example.

DV: Digital videotape format for recording digital audio and video on ¼"-wide metal evaporated tape. Mini-DV tapes hold up to 60 minutes of content, while standard DV tapes can hold up to 270 minutes.

ECP: "Enhanced Compatible Port". Enables accelerated bi-directional data transfer via the 🕮 *parallel port*. 🕮 *EPP*

Edit decision list (EDL): A list of clips and effects in a particular order that will be recorded to your output disc or file. Studio allows you to create and edit your own edit decision list by adding, deleting and reordering clips and effects in the Movie Editor and the Disc Editor.

EPP: "Enhanced Parallel Port". Enables accelerated bi-directional data transfer via the 🕮 *parallel port.* 🕮 *ECP*

EPROM: "Erasable Programmable Read-Only Memory". Memory chip that after programming retains its data without power supply. The memory contents can be erased with ultraviolet light and rewritten.

Fade to/from black: A digital effect that fades up from black at the beginning of a clip or down to black at the end.

Field: A 🕮 *frame* of video consists of horizontal lines and is divided into two fields. The odd lines in the frame are Field 1; the even-numbered lines are Field 2.

File format: The organization of information within a computer file such as an image or word processor document. The format of a file is usually indicated by its "file extension" (e.g. **doc**, **avi** or **wmf**).

Filters: Tools that alter data to produce special effects.

FireWire: Apple Computer's trademarked name for the 🕮 *IEEE-1394* serial data protocol.

Field: A 🕮 *frame* of 🕮 *interlaced* video consists of horizontal lines and is divided into two fields. The odd lines in the frame are Field 1; the even-numbered lines are Field 2.

Frame rate: The frame rate defines how many frames of a video sequence are played in one second. The frame rate for 🕮 *NTSC* video is 30 frames per second. The frame rate for 🕮 *PAL* video is 25 frames per second.

Frame size: The maximum size for displaying image data in a video or animation sequence. If an image intended for the sequence is larger than the frame size, it must be cropped or scaled to fit.

Frequency: The number of repetitions in a periodic process (like a sound wave or an alternating voltage) per unit of time. Usually measured in repetitions per second, or Hertz (Hz).

GOP: In 🕮 *MPEG* compression the data stream is first divided into "Groups Of Pictures" – sections of several frames each. Each GOP contains three types of frames: I-Frames, P-Frames (pictures) and B-Frames.

GOP size: The GOP size defines, how many I-Frames, B-Frames and P-Frames are included in one 🕮 *GOP*. For example, current GOP sizes are 9 or 12.

Hardware codec: Compression method that uses special hardware to create and play back compressed digital video sequences. A hardware codec may offer better encoding speed and image quality than a codec implemented completely in software. 🕮 *Codec, Software codec*

HD: High Definition video. Most HD formats in use have a resolution of either 1920x1080 resolution or 1280x720 resolution. A substantial difference exists between the 1080 and 720 standards: the larger format uses 2.25 more pixels per frame. This difference substantially increases requirements for processing 1080 content in terms of encoding time, decoding speed, and storage. The 720 formats are all progressive. The 1080 format has a mixture of progressive and interlaced frame types. Computers and their displays are inherently progressive, whereas television broadcasting has been based on interlaced techniques and standards. For HD terminology, we indicate progressive with the letter "p" and interlaced with the letter "i"

HDV: A format for the recording and playback of high-definition video on a DV cassette tape. has been established as the "HDV" format". Instead of the "DV" codec, HDV uses a flavor of MPEG-2 . There are two varieties of HDV: HDV1 and HDV2. HDV1 is 1280x720 resolution with progressive frames (720p). The MPEG transport stream is 19.7 Mbps/s. HDV2 is 1440x1080 resolution with interlaced frames (1080i). The MPEG transport stream is 25 Mbps/s.

Hi8: Improved version of 🕮 *Video8* using 🕮 *S-Video* recorded on metal particle or metal evaporated tape. Because of higher luminance resolution and wider bandwidth, the result is sharper pictures than Video8.

HiColor: For images, this normally means a 16-bit (5-6-5) data type that can contain up to 65,536 colors. TGA file formats support images of this type. Other file formats require prior conversion of a HiColor image into 🕮 *TrueColor*. For displays, HiColor normally refers to 15-bit (5-5-5) display adapters that can display up to 32,768 colors. 🕮 *Bit*

Huffman coding: Technique used in 🕮 *JPEG* and other data compression methods in which seldom occurring values receive a long code, while frequently-occurring values receive a short code.

IDE: “Integrated Device Electronics” – a hard-drive interface that combines all drive control electronics on the drive itself, rather than on the adapter connecting the drive to the expansion bus.

IEEE-1394: Developed by Apple Computers and introduced as FireWire, this is a serial data transmission protocol with rates up to 400 Mbits/sec. Sony offers a slightly modified version for transmitting DV signals named i.LINK, providing transmission speeds up to 100 Mbits/sec.

Image: An image is a reproduction, or picture of something. The term is often applied to digitized pictures, consisting of pixels, that can be shown on a computer display and manipulated by software.

Image compression: Method of reducing the amount of data required to store digital image and video files.

Interlaced: The screen refresh method used by television systems. The 🕮 *PAL* TV image consists of two interleaved image halves (🕮 *fields*) of 312½ lines each. The 🕮 *NTSC* TV image consists of two image halves of 242½ lines each. The fields are displayed alternately to produce a blended image.

Interleave: An arrangement of audio and video to promote smoother playback and synchronization or compression. The standard 🕮 *AVI* format equally spaces audio and video.

I/O: Input/Output.

IRQ: "Interrupt Request". An "interrupt" is a temporary break in the main processing stream of a computer so that housekeeping or background tasks can be performed. Interrupts can be requested by either hardware (e.g. keyboard, mouse) or software.

JPEG: Joint Photographic Experts Group, and the standard developed by them for compressing digital frames based on 🕮 *DCT*.

Kbyte (also KB): One Kbyte (kilobyte) contains 1024 🕮 *bytes*. The "K" here stands for the number 1024 (2^{10}), and not 1000 as in the metric prefix.

Key color: A color whose display is suppressed so that a background image can show through. Most commonly used when overlaying one video sequence on top of another, allowing the underlying video to display wherever the key color appears.

Keyframe: A video frame for which the value of a particular parameter of a video or audio effect is specified. During playback the animation of effects is accomplished by adjusting parameters smoothly from one key-framed value to the next. Animating effects by means of keyframes is often called 'keyframing'.

LPT: 🕮 *Parallel port*

Luminance: 🕮 *Brightness*

M1V: (File extension for) an MPEG file that contains video data only. 🕮 *MPA*, *MPEG*, *MPG*

Mbyte (also MB): One Mbyte (megabyte) corresponds to 1024 🕮 *Kbytes* – 1024 x 1024 bytes.

Mark In / Mark Out: In video editing, the mark in and mark out times refer to the starting and ending timecodes that identify the portions of clips to be included in the project.

MCI: Media Control Interface. Programming interface developed by Microsoft recording and playing back audio and video data. It is also used to connect a computer to an external video source such as a VCR or laser disc.

Modulation: The encoding of information upon an empty carrier signal.

Motion-JPEG (M-JPEG): A 🕮 *Video for Windows* format, specified by Microsoft, for encoding video sequences. 🕮 *JPEG* compression is used to compress each frame individually.

MPA: (File extension for) an MPEG file that contains audio data only. 🕮 *M1V*, *MPEG*, *MPG*

MPEG: Motion Picture Experts Group, and the standard developed by them for the compression of moving images. Compared to M-JPEG, it offers 75-80% data reduction with the same visual quality.

MPG: (File extension for) an MPEG file that contains both video and audio data. 🕮 *M1V*, *MPEG*, *MPA*

MPV: (File extension for) an MPEG file that contains video data only. 🕮 *MPA*, *MPEG*, *MPG*

Non-interlaced: Describes an image refresh method in which the complete image is generated as a single field without skipping lines. A non-interlaced image (most computer monitors) flickers much less than an interlaced image (most TVs).

NTSC: National Television Standards Committee, and the color TV standard created by them in 1953. NTSC video has 525 lines per frame and 60 image fields per second. It is used in North and Central America, Japan and other countries. 🕮 *PAL*, *SECAM*

PAL: "Phase Alternation Line", a color TV standard developed in Germany and used throughout most of Europe. PAL video has 625 lines per frame and 50 image fields per second. 🕮 *NTSC*, *SECAM*

Parallel port: Parallel port data is transmitted via an 8-bit data line. This means that eight 🕮 *bits* (one 🕮 *byte*) can be transmitted at once. This kind of transmission is much faster than serial transmission, but is not appropriate for long-distance connections. Parallel ports are often named "LPT*n*", where *n* is a number (e.g. "LPT1"). 🕮 *Serial port*

Pixel: The smallest element of a monitor image. The word is an abbreviation of "picture element".

Port: Electrical transfer point for the transmission of audio, video, control or other data between two devices. 🕮 *Serial port*, *Parallel port*

Primary colors: The colors that are the basis of the RGB color model: red, green, and blue. It is possible to create most other colors on a computer screen by varying the blend of these primaries.

QSIF: Quarter Standard Image Format. An MPEG-1 format specifying a resolution of 176 x 144 under PAL and 176 x 120 under NTSC. 🕮 *MPEG*, *SIF*

Quantization: One part of the 🕮 *JPEG* image data compression strategy. Relevant details are represented precisely, while details that are less relevant for the human eye are represented with less precision.

Raster: The area of a video display that is covered by sweeping the electron beam of the display in a series of horizontal lines from upper left to lower right (from the viewer's perspective).

Redundancy: This trait of images is exploited by compression algorithms. Superfluous information can be eliminated during compression and restored without loss during decompression.

Resolution: The number of pixels that can be displayed on the monitor horizontally and vertically. The higher the resolution, the more details can be displayed. 🕮 *Pixel*

RGB: Red, Green and Blue: the primary colors in additive color mixing. RGB designates the method used in computer technology of encoding image information in pixels, each containing some combination of the three primaries.

ROM: Read Only Memory: Memory storage that, having been programmed once, retains its data without requiring electrical power. 🕮 *EPROM*

Run Length Encoding (RLE): A technique used in many image compression methods, including 🕮 *JPEG*. Repeating values are not stored separately but with a counter to indicate how many times the value occurs in succession – the length of the "run".

Scaling: Adaptation of an image to a desired size.

SCSI: Small Computers System Interface. SCSI was long preferred as the hard drive interface for some high-performance PCs because of its high data rate. Up to eight SCSI devices can be connected to a computer at the same time.

SECAM: "Séquentiel Couleur à Mémoire", a color TV transmission system used in France and Eastern Europe. Like PAL, SECAM video has 625 lines per frame and 50 image fields per second. 🕮 *NTSC*, *PAL*

Serial port: Data transmitted via a serial port is processed one 🕮 *bit* at a time; that is, "serially" – one after another. The transmission rate is much slower than that of a parallel port, where parallel data lines allow multiple bits to be sent simultaneously. Serial ports are named "COM*n*", where *n* is a number (e.g. "COM2"). 🕮 *Parallel port*

SIF: Standard Image Format. An MPEG-1 format specifying a resolution of 352 x 288 under PAL and 352 x 240 under NTSC. 🕮 *MPEG, QSIF*

Single frame: A single 🕮 *frame* is part of a series or sequence. When this series is viewed at sufficient speed, the illusion of a "moving picture" is created.

Software codec: Compression method that can create and play back compressed digital video sequences without special hardware. The quality of the sequences depends on the performance of the complete system. 🕮 *Codec, Hardware codec*

Still video: Still images (or "freeze-frames") extracted from video.

S-VHS: Improved version of VHS using S-Video and metal particle tape to deliver higher luminance resolution, resulting in sharper pictures than VHS. 🕮 *VHS, S-Video*

S-Video: With S-Video (Y/C) signals, the brightness (luminance or "Y") and the color (chrominance or "C") information are transferred separately using multiple wires, avoiding modulating and demodulating the video and the resulting loss of picture quality.

Timecode: Timecode identifies the position of each frame in a video sequence with respect to a starting point (normally the beginning of the shot). The usual format is H:M:S:F (hours, minutes, seconds, frames), e.g. "01:22:13:21". Unlike a tape counter (which can be "zeroed" or reset at any point in a tape), timecode is an electronic signal written onto videotape, and is permanent once it is assigned.

Transition: A bridging effect between adjacent video or audio clips, ranging from a simple "cut" to a showy animated effect. Common transitions like cuts, fades, dissolves, wipes, slides and audio cross-fades are part of the language of film and video. They can convey passages of time and changes of viewpoint concisely – and often subliminally.

TrueColor: The name indicates an image with enough color resolution to appear "true to life". In practice, TrueColor normally refers to 24-bit RGB color, which allows about 16.7 million combinations of the red, green and blue primary colors. 🕮 *Bit, HiColor*

TWAIN driver: TWAIN is a standardized software interface allowing graphics and capture programs to communicate with devices that supply graphical data. If the TWAIN driver is installed, the capture function of a graphics application can be used to load images directly from your video source into the program. The driver supports 32-bit programs only and captures images in 24-bit mode.

VCR: "Video cassette recorder".

VHS: "Video Home System" – Popular video standard for home VCRs. Half-inch tape is used to store "composite" signals incorporating both brightness and color information.

VISCA: Protocol used with certain devices for controlling external video sources from computers.

Video8: Analog video system using 8mm tape. Video8 recorders generate composite signals.

Video CD: CD-ROM standard that uses 🕮 *MPEG* compressed videos.

Video decoder: Converts digital information into analog video signals.

Video encoder: Converts analog video signals into digital information.

Video for Windows: A Microsoft Windows system extension that can record digital video sequences to files on a hard drive and subsequently play them back.

Video scan rate: Frequency with which the video signal is scanned onto an image display. The higher the video scan rate, the higher the image quality and the less noticeable the flicker.

WAV: (File extension for) a popular file format for digitized audio signals.

White balance: In an electronic camera, this is the adjustment of the amplifiers for the three color channels (red, green and blue) so that white areas of the scene do not show a color cast.

Y/C: Y/C is a color signal with two components: brightness information (Y) and color information (C).

YUV: The color model of a video signal where Y delivers the brightness information and U and V the color information.

APPENDIX D:

Keyboard shortcuts

Left, *Right*, *Up* and *Down* in these tables refer to the arrow (cursor) keys.

General shortcuts

Ctrl+1	Open Main Library tab
Ctrl+2	Open Movie tab
Ctrl+3	Open Disc tab
Ctrl+4	Close focused window
Ctrl+5	Open Title Editor (from Movie Editor)
Ctrl+6	Open Exporter
Ctrl+ I	Open Importer
Ctrl+S	Save project, title or menu
Alt+F4	Close application
Shift+F10	Access context menu
Ctrl+Z	Undo
Ctrl+Y	Redo
Ctrl+A	Select all
Shift+Ctrl+A	Deselect all
Ctrl+C	Copy to clipboard
Ctrl+V	Paste from clipboard
Ctrl+X	Cut to clipboard
End	Go to end
Home	Go to beginning
Alt+Enter	Play using full screen
Esc	Exit full-screen viewing, or close panel
Delete	Delete without copying to clipboard
Double-click	Open appropriate editor (Media, Titler, Project, Montage etc.)
F1	Open context sensitive help

Library

Ctrl+N	New collection
Alt+Click	Play in thumbnail
Numbers 1-5	Rate selected clip(s)
Number 0	Remove rating from selected clip(s)
Page Up	Scroll up a page
Page Down	Scroll down a page
Right	Expand folder in tree
Left	Collapse folder in tree
Arrow keys	Navigate up, down. left, right
Delete	Delete selected clip and / or media
F7	Show / hide tagging interface

Playing and transport

Spacebar	Play and pause
Shift+Spacebar	Loop playback
Alt+Enter	Play using full screen
Esc	Exit full-screen viewing
Alt+Click	Play in thumbnail
J	Fast reverse (hit multiple times for faster playback)
K (or Shift K)	Pause playback
L	Fast forward (hit multiple times for faster playback)
Shift+L	Slow forward (hit multiple times for slower playback)
Shift+J	Slow reverse (hit multiple times for slower playback)
Right (*or* X)	Step forward 1 frame
Left (*or* Z)	Step back 1 frame
Shift+Right (*or* Shift+X)	Step forward 10 frames
Shift+Left (*or* Shift+Z)	Step backward 10 frames
D (*or* Page up) (*or* Ctrl+Left)	Jump backward to cut
F (*or* Page down) (*or* Ctrl+Right)	Jump forward to cut

Ctrl+I	Jump to mark in
Ctrl+O	Jump to mark out
. (period)	Jump to next marker
, (comma)	Jump to previous marker

Importer

Enter	Stop Motion: Capture Frame (when capture frame is open)
Right	Expand folder in tree
Left	Collapse folder in tree
Arrow keys	Navigate up, down. left, right
Ctrl+A	Check all
Ctrl+Shift+A	Uncheck all
F4	Start Import

Movie interface

A (or I)	Mark in
S (or O)	Mark out
Shift+I	Clear mark in
Shift+O	Clear mark out
Shift+U	Clear mark in and out
Scroll Lock	Audio Scrub On/Off
E (or Home)	Go to start
R (or End)	Go to end
P	Toggle Magnetic Snapping
; (semicolon)	Split clip(s) at scrubber position
M	Add/Delete marker
. (period)	Jump to next marker
, (comma)	Jump to previous marker
Ctrl+. (period)	Open Marker list panel
Delete	Delete selected clip(s) from timeline
Double-click on clip in timeline	Open media editor for clip
B	Send preview clip to the primary track on the timeline (at scrubber position)
H	Swap Preview between timeline and source
Ctrl+5	Open Title Editor

F5	Show/Hide Audio Mixer
F7	Create Song
Numeric pad +	Zoom in the timeline
Numeric pad -	Zoom out the timeline
[(left bracket)	Zoom out on the timeline
] (right bracket)	Zoom in on the timeline
Ctrl+[	Fit timeline to window
Ctrl+]	Show every frame (zoom in)
Alt	Provides the alternate behavior when editing on the timeline (insert/overwrite)
T	Trim Mode On/Off
Right	Trim 1 frame right (with trim open)
Left	Trim 1 frame left (with trim open)
Shift+ Right	Trim 10 frames right (with trim open)
Shift+ Left	Trim 10 frames left (with trim open)
Ctrl+Click on trim	Add second trim point to the same track
Shift+Click on trim	Open similar trim point on all tracks
Tab	Cycle focus on open trim points

Media editors

Numbers 1-8	Choose a corrections or effects category
Double-click slider	Return slider to default
Ctrl+L	Rotate Photo Left
Ctrl+R	Rotate Photo Right
Alt+Enter	Play using full screen
Esc	Exit full-screen viewing

Title Editor

Shift+Left	Expand character selection left
Shift+Right	Expand character selection right
Shift+Ctrl+Left	Same as Shift+Left (expand by word)
Shift+Ctrl+Right	Same as Shift+Right (expand by word)
Ctrl+B	Toggle bold
Ctrl+I	Toggle italic
Ctrl+U	Toggle underline
Ctrl+A	Select all
Ctrl+D	Deselect all
Spacebar	With timeline area selected: Start and stop playback

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5

5.1. *See* Audio

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