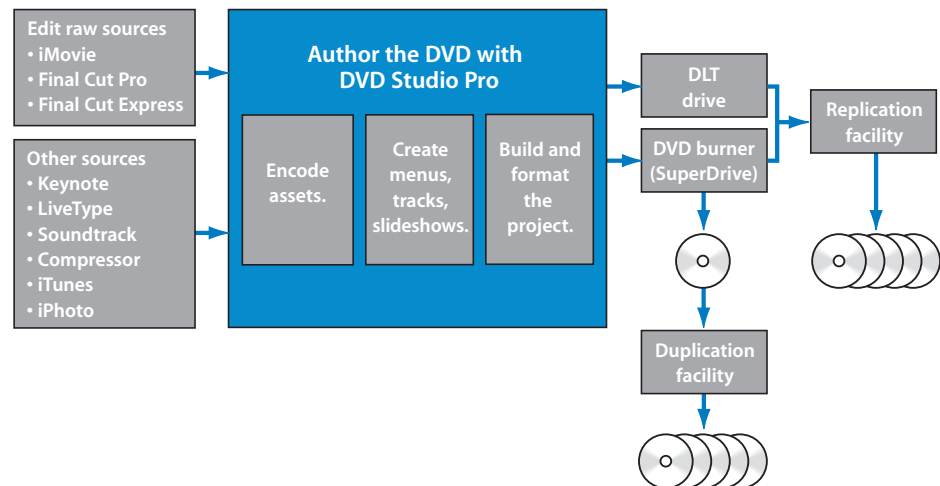




Brief Overview of the DVD Creation Process

You can create many different styles of DVDs with DVD Studio Pro, from corporate presentations to training materials to event videos to feature films. While the content and structure of each style may vary considerably, they all use the same basic DVD creation process.



There are four phases to the DVD creation process:

- Creating your source material
- Encoding audio and video to compatible formats
- Authoring your DVD title
- Building the project and creating your disc

It's important to understand the entire process, and how DVD Studio Pro is used in the process, before you begin your DVD projects.

Creating Source Material

The first part of the DVD creation process is to create or assemble your source material. This might mean shooting video, recording voice or music tracks, designing graphics to be included, and planning the general functionality of your project. If you are converting an existing video program into a DVD, you may only need to gather your original video and audio material and design graphics for the menus that will weave them together.

You can use whatever tools you prefer for creating your video and audio material, as long as the resulting files are compatible with the MPEG encoder that you plan to use. In most cases, your video and audio assets will be created and saved as QuickTime movie files or in standard sound file formats like AIFF, WAVE, or SoundDesigner II.

Your program material should be completely edited, including any special effects, audio fades, and scene transitions, before you encode it.

Menu graphics can be still image files, multilayer Photoshop files, or full-motion video. To create the menu graphics, you can use virtually any graphics program. DVD Studio Pro includes extra support for Adobe Photoshop (PSD) files, taking advantage of Photoshop's "layers" feature to simplify the creation of backgrounds and overlays.

If you plan to include alternate-language subtitles in your DVD project, you will want to have your soundtrack transcribed and translated.

Quality In = Quality Out

The most important thing you can do when preparing your assets is to use the highest-quality settings available. Any flaws in your material will be revealed on DVD much more quickly than in any other medium.

Once they are encoded into a DVD-compliant format, DVD Studio Pro does not improve or degrade the quality of your source material in any way; if you use high-quality source materials, you'll get high-quality results.

Here are some guidelines to help you maintain high quality.

- Capture and edit your video material at the same resolution that you will use on the DVD (typically 720 x 480 at 29.97 frames per second [fps] for NTSC or 720 x 576 at 25 fps for PAL).
- When recording and editing audio, use a 48 kilohertz (kHz) sample rate and no compression. This assures the best quality whether you use the uncompressed audio on the DVD or decide to use the included A.Pack AC-3 encoder to compress it.

Important: When creating DVDs, your audio must have either a 48 kHz or 96 kHz sample rate. You cannot use the 44.1 kHz sample rate found on standard audio CDs. In most cases, the DVD Studio Pro embedded QuickTime MPEG Encoder will convert your audio to the correct sample rate if necessary.

- When saving video material to the QuickTime format, either specify no compression (which requires a lot of disk space) or use a high-quality compression codec like DV or Motion JPEG.

Encoding Video and Audio

Once you have created your source materials, they must be encoded to comply with the DVD specification. DVD Studio Pro can use materials encoded using the supplied QuickTime MPEG Encoder and A.Pack applications, as well as materials encoded using the Apple Compressor application and other methods.

What Is Needed for DVD?

Before video or audio material can be used on a DVD, it must be prepared in one of the formats defined in the DVD specification. This usually means MPEG-2 format for video and MPEG-1 Layer 2 or Dolby AC-3 format for audio files (although you can also use standard PCM audio formats, such as AIFF files).

The DVD specification also accepts the older MPEG-1 video format, most commonly seen in web-based applications. Because MPEG-1 is about one quarter the resolution of MPEG-2 (352 x 240 as opposed to 720 x 480 for NTSC or 352 x 288 versus 720 x 576 for PAL) and utilizes much lower data rates, the quality is significantly lower. However, MPEG-1 is useful for very long programs if the picture quality is not of primary importance. Using MPEG-1 encoding, you can fit many hours of material on a single DVD.

MPEG encoding performs extremely complex calculations on your source material to determine what can be safely “thrown away” with minimal impact on the visual quality. As a result, MPEG encoding can produce files that are less than ten percent the size of the source files, while still looking great.

Using the DVD Studio Pro Tools

The QuickTime MPEG Encoder is integrated into DVD Studio Pro. You can use the QuickTime MPEG Encoder with any application that supports QuickTime export, or simply add a QuickTime asset directly to your DVD Studio Pro project—it will automatically be encoded while you continue authoring. The QuickTime MPEG Encoder creates high-quality MPEG-2 video streams, and converts the audio to the uncompressed AIFF format.

For projects with sophisticated soundtracks, you will probably want to use a Dolby-certified AC-3 encoder (such as the Apple A.Pack encoder included with DVD Studio Pro). An AC-3 encoder can be used to encode multichannel surround soundtracks for inclusion on a DVD, as well as for stereo or mono soundtracks. Uncompressed audio formats (PCM or AIFF) have significantly larger file sizes and generally do not support specialized soundtrack formats, such as surround channels.

Also included with DVD Studio Pro is Compressor, an encoding tool that provides additional MPEG encoding configurations and can process batches of video and audio clips in one step.

Using Pre-Encoded Sources

There are many other available tools that produce MPEG streams, including software and hardware encoders. You can use any MPEG encoder you prefer, as long as it creates DVD-compliant elementary streams. This means that the audio and video information is contained in separate files (the streams).

Important: DVD Studio Pro cannot use MPEG multiplexed System, Program, or Transport streams.

Authoring With DVD Studio Pro

You use DVD Studio Pro to orchestrate your video, audio, and graphics material into an interactive DVD-Video title, complete with menus, buttons, subtitles, and alternate languages or soundtracks.

DVD Studio Pro gives you complete control over every aspect of your DVD, and lets you view its elements and simulate your DVD in real time as you create it.

You can easily create menus, add buttons, and specify the actions that occur when the buttons are activated. You can define powerful linking and scripting functionality with just a few clicks. And the Inspector gives you a complete picture of all the characteristics of any item in your project.

Authoring in DVD Studio Pro consists of these basic steps:

Step 1: Import assets

Import your video, audio, graphics, and subtitle assets into DVD Studio Pro. If they are not already DVD-compliant, the embedded QuickTime MPEG Encoder automatically encodes them.

Step 2: Create menus

Create one or more menus to define the structure and navigation of your DVD. The menus can rely completely on the supplied templates and styles or can use your own graphics.

Step 3: Add buttons to the menus

Add buttons to your menus. Depending on its aspect ratio, each menu can have up to 36 buttons (4:3) or 18 buttons (16:9). Each button can initiate a wide variety of actions, the most common being to open a different menu, play a track, or run a script. This hierarchy of menus and buttons gives you tremendous flexibility in constructing an “interactive” program in which the viewer has numerous options to choose from.

Step 4: Create tracks and slideshows

Create one or more tracks, each consisting of one or more video streams, audio streams, subtitle streams, chapter markers, and stories. Create one or more slideshows, each consisting of still images and, optionally, audio. Tracks and slideshows can also be created by dragging assets to the Menu Editor and choosing options from the Drop Palette.

Step 5: Link the project elements

Set up the various actions and links that will make your project work as it should when viewed. For example, you can set what happens when a DVD player first starts playing the disc, what happens when a track finishes playing, and what happens if the player sits idle at a menu for a specific amount of time.

Step 6: Simulate your project

View your elements and test your project as you go using the real-time DVD Simulator built in to DVD Studio Pro. This process allows you to verify the links between the project elements.

Step 7: Build and burn your project

Build the completed project and either send it to a replication facility or burn a DVD on your own system.

Creating a Disc

Creating a disc involves two steps: building the DVD-formatted video title set (VIDEO_TS) and formatting it for how you intend to deliver it.

Building the VIDEO_TS

When you build your project, a set of files is created and stored on your hard disk in a folder named "VIDEO_TS" (video title set). The contents and structure of this folder are strictly defined by the DVD specification.

When you build your project within DVD Studio Pro, it combines all the material you've included (video, audio, and subtitles for the menus and tracks) into a single stream and writes it to this special folder. Using DVD Player, which is included with your operating system, you can open and play the contents of this folder, just as if it were on a DVD disc.

Formatting and Burning

Depending on the quantity of DVD discs you need, you can:

- *Burn one or more DVDs on your system (if properly equipped).* This is a quick way to create a test disc. You are limited to creating a single-sided single-layer (DVD-5) disc. You cannot add high-end features such as copy protection or region support.
- *Send a burned disc to a duplicator who can burn additional copies for you.* This allows you to create more discs than you would want to burn on your own system at a lower cost than using a replicator. Since the copies are based on a disc you burn on your system, the duplicated discs have the same restrictions as when you burn on your system.
- *Prepare suitable files to send to a DVD replication facility.* Use a replicator to make copies that are compatible with all DVD players, to create larger quantities of discs, and to include specialized features not supported by your system's DVD burner.

If you are using a DVD replication facility, you can deliver your project to the facility in several ways:

- *DLT:* Digital Linear Tape (DLT) is the preferred method for sending a DVD project to a DVD replication facility. DVD Studio Pro supports writing directly to a DLT drive. DLT is well suited to transporting DVD projects because of its reliability and very high capacity. (A completed DVD could be up to 17 GB in size!)
- *DVD-R:* Many DVD replicators accept DVD-R discs for replication. There are special requirements if you want to include high-end features such as dual-layer, copy protection, and region support.