

What you'll learn in this lesson:

- What types of content you can create in After Effects
- The properties of the video files you will be creating and importing into After Effects
- About the various broadcast and broadband standards that you can create content for

Understanding Motion Graphics

This lesson provides an overview of various types of motion graphics and digital video. It's filled with important information that you need to know to work effectively with After Effects. If you can't wait to get started using the program, skip over this lesson for now and jump ahead to Lesson 2, "Understanding the After Effects Interface." If you jump ahead, make sure you come back to review this lesson later.

Starting up

This lesson includes useful background information. If you'd prefer to jump right into working with After Effects, you should move to the second lesson, which gets you hands-on right away.



See Lesson 1 in action!

Use the accompanying video to gain a better understanding of how to use some of the features shown in this lesson. The video tutorial for this lesson can be found on the included DVD.

Defining motion graphics

Adobe After Effects is a standard tool for creating motion graphics that are used for broadcast television, film, and other video productions. After Effects is used to create content that appears in presentation graphics and on mobile devices. It is a tool for storytelling, creating visually appealing motion graphics that integrate into any medium to enhance a presentation, story, image, or mood.

Television and video graphics

After Effects is a principal tool of broadcast-design professionals. After Effects is used to create original content for interstitial, lower thirds, bumpers, and show openings. Many video professionals consider it an essential tool in their daily work. In fact, you can see it at networks such as MTV, Spike, truTV, and the Food Network, where it's used to produce stunning, high quality graphics and motion design packages quickly and affordably.

Internet and mobile devices

The Internet and mobile devices are becoming a major entertainment medium. After Effects high-quality motion graphics are being widely used for online and mobile content. Video sharing sites, such as *Vimeo.com* and *YouTube.com*, provide content creators with access to a wide audience, which creates additional distribution opportunities for individuals and organizations alike.

Desktop distribution and presentation graphics

Digital displays such as high-definition televisions, monitors, and projectors have created new venues for displaying motion graphics. After Effects adds impact to otherwise static slides, charts and graphs.

Regardless of how you plan to use After Effects, you will find it to be a powerful, well-rounded tool that, with a little practice, can serve you well.

Digital video basics

You could just open After Effects and start creating graphics without any understanding of how video works. If you really can't wait to get started, jump ahead to Lesson 2, "Understanding the After Effects Interface." However, successfully producing graphics for video and other media requires that you understand a few technical requirements. If you don't understand these, you'll merely be pushing buttons and clicking checkboxes, so you should take a few minutes to at least get a foundation in digital video.

When working in After Effects, you will want to consider the final destination for your project. Will it be used on television, in video, on a mobile device? Knowing this information allows you to accurately create your composition settings to match your intended destination. Projects for high-definition television differ from those for a portable device with a small-screen. Each of these media has its own standards for items, such as frame rate, aspect ratio, and bit rate. Understanding these items saves you time and effort in the production process.

Understanding video formats

Some video formats are common for professional video production, while others are suitable only for broadband or small-screen purposes. There are two main standards used for broadcast television, a handful of competing standards for desktop and web video, and a series of device-specific standards used in mobile handheld devices. Technical standards, such as the ones mentioned here, are very complex, and a full description of each one is beyond the scope of this book. In general, regardless of the platform for which you are creating video content, there are three main properties to keep in mind:

Dimensions: This property specifies the pixel dimensions of a video file—the number of pixels horizontally and vertically that make up an image or video frame. This value is usually written as a pair of numbers separated by an x, where the first number is the horizontal value and the second represents the vertical value, such as 720×480 . Pixel is a combination of the words *picture* and *element* and is the smallest individual component in a digital image, whether it is a still image or a single video frame.

Frame rate: This property specifies the number of individual images that make up each second of video. Frame rate is measured as a value of fps, which is frames per second.

Pixel aspect ratio: This property specifies the shape of the pixels that make up an image. Pixels are the smallest part of a digital image, and different display devices such as televisions and computer monitors have pixels with different horizontal and vertical proportions.

When producing graphics for broadcast television, you have to conform to a specific set of formats and standards. You will need to know if your graphics are going to be displayed on high-definition or standard-definition screens. Similarly, you will want to know if you're in a region that broadcasts using the ATSC or PAL standards. If you are producing animation for the Web, you'll need to know what format the distributing site will be using.

ATSC

In the United States, the ATSC, or Advanced Television Systems Committee, has issued a set of standards for the transmission of digital television that replaced the older analog NTSC (National Television Standards Committee) formats. The standards embraced by the ATSC include both standard-definition and high-definition display resolutions, aspect ratios, and frame rates. All broadcast video and graphics must conform to one of the ATSC standards. Information on the various ATSC standards is available on their web site at ATSC.org.

High-definition television

While high-definition (HD) television technology has existed for decades, it wasn't until the beginning of the 21st century that it came to the attention of the average American television viewer. The term HD is used to describe video that has a higher resolution than traditional television systems, which are called SD, or standard definition. There are two main high-definition standards for broadcast television—720p and 1080i—while many televisions and Blu-ray disc players can support a third, 1080p.

720p: The 720p format has a resolution of 1280 pixels wide by 720 pixels high and supports a variety of frame rates, from the 24 fps used by film, through the 30 fps that was part of the old NTSC standard, all the way up to 60 fps.

1080p and 1080i: The 1080 formats come in both progressive and interlaced versions and, like other modern digital standards, they support a variety of frame rates between 24 fps and 30 fps.



You will learn more about the differences between progressive display and interlacing later in this lesson.

Standard-definition television

Prior to the invention of high definition, there was only one standard in the United States, NTSC (National Television Systems Committee), which includes settings for both 4:3 and 16:9 aspect ratios. While technically it has been replaced by the ATSC standards, the term NTSC is still used by most video cameras and editing and graphics applications when referring to standard-definition, broadcast-quality video.

NTSC and NTSC widescreen: Applications such as Adobe After Effects include pre-built settings for video projects called presets. The NTSC presets include settings for both a standard (4:3) and widescreen (16:9) aspect ratio. They use the same dimensions, 720 × 480, but different pixel aspect ratios, and this is what accounts for the difference in shape. Devices that comply with the NTSC standard use a frame rate of 29.97 frames per second.

PAL

PAL, or Phase Alternating Line, is the standard for broadcast television used throughout Europe and much of the rest of the world outside North America. PAL differs from NTSC in several key ways, including dimensions and frame rate. It uses a frame rate of 25 fps, which is closer to the 24 fps used in film and, like NTSC, it has both a standard and widescreen setting.

PAL and PAL widescreen: In applications such as After Effects, the PAL presets include both a standard (4:3) and a widescreen (16:9) aspect ratio. Much like their NTSC equivalents, they use the same pixel dimensions, in this case, 720×576 , but each have different pixel aspect ratios.

Web and mobile device video: There is no single standard for video on the Web or on mobile devices, though there are only a handful of competing audio/video formats. QuickTime, Windows Media Video, Flash Video, Silverlight, and H.264 are the main video formats. The QuickTime format is controlled by Apple Inc., and for years was the de facto standard for web-delivered video. The freely available QuickTime Player is compatible with both Mac OS and Windows and is required to view QuickTime movie files. QuickTime format video is also supported on some mobile devices; most notably the Apple suite of phones, iPods and iPads.

Windows Media Video, often simply called WMV, is the Microsoft standard made by the creators of the Windows operating system. A variation of WMV is used for Silverlight video, which is widely used by many professional media organizations, including NBC Sports for their live Olympics coverage and Netflix for streaming videos. Windows Media is also a supported format on some multimedia players and mobile devices, such as Windows phones.

Flash video is the native video format of the Adobe Flash platform, and is used for distribution of video online. While the Flash player is widely installed on the desktop computers of Internet users, it is not as common on mobile devices. Many organizations and publishers are moving their video content away from Flash to other formats, such as H.264 and Silverlight. The dominance of Flash Video is being especially challenged by H.264. H.264 is a standard for video compression that is derived from the MPEG-4 standard. It really is a family of standards, and is intended to fit a wide range of different applications for displaying digital video content. Mobile devices such as the Apple iPod, Sony PSP and Microsoft Zune all support variations of H.264, as do many mobile phones and third-party video playback applications, such as the QuickTime Player, Flash Player and the VLC Media Player. H.264 is also the native video compression supported by the new iteration of the web page authoring language HTML 5.

Understanding frame rate and resolution

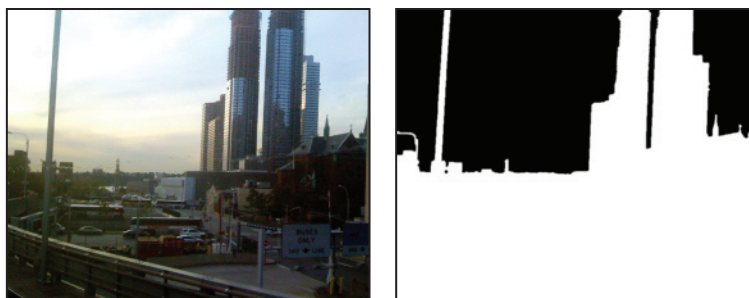
Video is essentially a series of individual still images that are displayed very quickly, one after the other. The frame rate of video is measured by the number of frames it contains in each second, denoted as fps or frames per second. Different video standards have different frame rates. Some video standards support a variety of frame rates. American television is broadcast at just below 30 fps, PAL uses 25 fps, and film uses a frame rate of 24 fps.

If you have a background in graphic design, you may be familiar with the term *resolution*, which refers to the pixel density or the number of pixels in a given space. As such, in North America, resolution is denoted in pixels per inch or ppi. For example, images created for printing in high-quality magazines are usually 300 ppi, while images created for use on a web site usually have a resolution of 72 ppi. When working with video, ppi is not used to address resolution. When discussing video, the term *resolution* is used to refer to the pixel dimensions of an image: the number of horizontal and vertical pixels that make up the actual image.



If you need to create graphics in Photoshop, the default resolution for video graphics is 72 ppi. The same is true for web graphics.

Understanding transparency



In video applications, transparency is referred to as alpha.

Graphics that are used in video are created using the RGB color mode. Each individual pixel is assigned a unique color value consisting of combinations of red, green, and blue. Each of these colors is saved to its own color channel. When the colors are combined together, the full color image is revealed. Some files are created using the RGBA mode, where the A represents an Alpha channel for the transparency of the image. If you also work in Photoshop, you may already be familiar with alpha channels, although the meaning of an alpha channel in video is somewhat different. In Photoshop, any saved selection is called an alpha channel, and you can have up to 99 alpha channels. In After Effects, the term alpha channel refers specifically to the transparency of an image or video file. Alpha channels use the 256 shades of gray to represent transparency. When looking at an alpha channel, black pixels represent those that are fully transparent, white pixels are fully opaque, and gray pixels represent semi-transparent areas. Only some image and video formats support saving alpha channels along with the other image information. Commonly used file formats that can include alpha channels are: Tagged Image File Format (.tiff), TARGA (Truevision Advanced Raster Graphics Adapter, .tga), QuickTime (.mov), and Flash Video (.flv and .f4v). Alpha channels are automatically created for the transparent areas of native Photoshop and Illustrator files when they are imported into After Effects.



You can create an alpha channel in Photoshop by creating a selection, saving it as an alpha channel in the Channels panel, and then saving the file in one of the image formats that support RGB and Alpha, such as PSD, TIFF, or PNG .

Self study

In this lesson, you learned about some of the technical details that affect decisions you make when creating your After Effects projects. As new video, image, and audio formats are developed and support for them is added to After Effects, you will also want to understand these emerging standards. Good sources to keep your knowledge levels up to date include the Adobe web site (adobe.com) and forums (adobe.com/support/forums). There are also a wide variety of print and online journals that serve all facets of the video and design market.

Review

Questions

- 1 What are the names of the two different standards that govern video for American and European broadcast television?
- 2 What are the frame rates for American television, European television, and film?
- 3 What are some of the areas where After Effects is used professionally?

Answers

- 1 ATSC (Advanced Television Systems Committee) is the name of the set of standards that govern American television and PAL (Phase Alternating Line) is the standard used in Europe.
- 2 American television uses a frame rate of 30 fps, European television uses a frame rate of 25 fps, and film uses a frame rate of 24 fps.
- 3 Television production, film, on-line video, mobile video, and presentation graphics are all areas where After Effects is used.

