DOLBY® MADE-FOR-WEB SOUND PRODUCTION GUIDE
Technology provides powerful tools for artists to pursue their vision. But sometimes that technology can seem to be a barrier.

We’ve written this production guide with the hope that by sharing this information, we can help technology serve your artistic vision.
Sound is a critical aspect of storytelling that is too often neglected in the world of digital production for the web.

The unique production environment of making videos for Internet playback requires a special approach for sound. Although much of the philosophy of creative sound can be borrowed from cinema and broadcast television, aspects such as exceptionally short production timelines and extremely small crews present special challenges to Internet video production. Preparing your soundtrack for playback anywhere doesn’t mean spending twice as much or needing thousands of dollars’ worth of audio equipment.

Modern technology allows for production workflows such as mixing a multichannel soundtrack for listening over headphones. Although these techniques might not immediately result in a soundtrack that sounds like the last one you heard in a cinema, they will greatly increase the quality of your production and help you connect with the people who watch and listen to your story.
“The easiest way to up your production value and the easiest way to stand apart is through rich sound design.”

STEVEN CAHILL
VIDEO GAME HIGH SCHOOL
SUPERVISING SOUND EDITOR, DESIGNER, MIXER

“The Dolby involvement with VGHS has improved the show immensely, and chief among it is being able to give proper full attention to sound design and sound mixing.”

FREDDIE WONG
VIDEO GAME HIGH SCHOOL
CO-CREATOR
There Are Two Key Benefits to Adding Creative Sound to Your Digital Production

**Emotion**

Sound provides a quick route to your audience’s emotions, often subconsciously. Music and sound effects can lead the way in making a scene dramatic or scary, while enhancing the performance of your actors.

**Economy**

Sound can play a major role in production on a tight budget. You can use sounds to convey the terror of a tropical storm or a marauding monster. Save yourself the cost of building large production sets, creature special effects, or computer graphics.
Basic Sound Production

Sound production is both art and science. This guide provides some basic information to get you started. After following these steps, if you still aren’t satisfied with the sound, you may want to do some further research on audio and acoustics.

Place Your Microphones

When you’re shooting, get microphones close to the sound source: the actor or the object.

- Use a boom mic. A good rule of thumb is to keep the mic 1.5 to 3 feet away from the action or just out of the frame (if over 3 feet).
- Using a boom mic is generally best, but sometimes—for instance, on wide-angle shots—you’ll need to use a lavalier (lav) mic. Remember: capturing the actors’ performance is the most important job of sound on the set.
Prepare for Your 5.1 Program

Consider the scene you’re shooting and plan your approach.

- Are your actors close mic’d (with boom or lav), or are you using a camera-mounted mic?

  A camera-mounted mic may work for close-up shots, but the farther away you get, the more ambience you’ll pick up. That could make it hard for viewers to understand the actors.

- You’ll likely get a better and more controlled result by using a combination of close mics (lavs) together with a boom mic.

- Keep it simple.

- Make sure to place and point your mics to avoid unwanted location sound, such as traffic or nearby conversations.

- Listen as you record.

- More mics can be better, but don’t go overboard.
Postproduction and Mixing

After you’ve captured video and audio, you’re ready for postproduction.

The tools you already use, like Adobe® Premiere® Pro, allow advanced postproduction, including mixing in 5.1-channel sound (also known as multichannel sound).

Surround or multichannel sound is a very powerful tool for the storyteller. Right away, the audience is immersed in the world you’re creating. Here are some simple things to keep in mind when working in 5.1 channels.
Surround sound is a great way of immersing the audience in the world you’re creating.
Mixing-Room Monitoring and Calibration

Monitoring

When you start preparing surround sound mixes, you will want a way to listen to them. This can be done in two main ways:

- Set up a 5.1-channel monitoring room complete with six speakers: left, center, right, right surround, left surround, and a subwoofer to handle low frequency sound.

- Get a device that plays back 5.1 channels on headphones—many tablets do this, for example. Using this device will tell you how others will hear your mix. The device will be able to play your 5.1 soundtrack in stereo using a process called downmixing. Some devices also create a surround sound experience on headphones by using virtualization technology. This technology tricks your brain into thinking sounds are coming from outside the headphones and surrounding you.

Dolby Audio™ (supporting Dolby Digital Plus™) is one such technology and is available on a number of tablets and other devices.

Room Calibration

If you use a regular editing room (rather than a studio control room) to monitor your mix, you’ll want to calibrate the room to more easily predict how your mix will sound in other places. Echoes and other sounds added by the room are a problem.

Calibration can be complex, but start simply by putting speakers in fixed spots and treating the walls with material that absorbs sound. You want to “deaden” the room, to eliminate sound reflecting off the walls. This key step ensures consistency in all your mixes and will help you learn to predict the way others will hear your soundtrack, based on the way the mix sounds where you do your work.

Without room calibration, you will hear sounds that are a product of your room rather than of your mix. Whether you mix in a studio or on headphones, learn to understand the way the mixes translate to various devices so that you can make adjustments to your mixing techniques.

It’s important to know your listener’s space.

5.1 can be monitored over headphones.
Upmixing: A Shortcut from Stereo to 5.1 Channels

If you are already producing stereo audio soundtracks, you may be only steps away from doing a simple 5.1-channel mix.

Technology called an upmixer can take your stereo sound mix and create a 5.1-channel mix based on what you’ve done for stereo at the press of a button.

An upmixer tries to approximate 5.1-channel mixes by simply doing math on your stereo mix. Phase information and levels are used to spread the stereo mix out to 5.1 channels. Many inexpensive upmixer plug-ins are available, like Waves or Penteo® Suite 7.

Try one out as a first step in creating original 5.1-channel mixes, or to create 5.1-channel mixes from the content you’ve already made. While this method never sounds like a mix done in 5.1 channels, it can still sound very good, depending on the quality of your stereo mix.

After you’ve upmixed, you can send that mix to a Dolby® encoder to create the Dolby soundtrack. (More about why this is a good idea just below.)

Workflow for Stereo (or Two-Channel) Mixes

An upmixer can create a 5.1 mix from your stereo mixes.
For more information on creative sound work, visit the Dolby Institute at Dolby.com/institute

Sam & Niko’s Audio Series: Foley presented by the Dolby Institute. Published on October 27, 2014.
5.1-Channel Mixing: Starter Pack of Sound Elements

In general, here’s how elements are arranged in a 5.1 configuration:

- Left and right front channels: sound effects and music
- Center channel: dialogue
- Left and right surround channels: stereo ambience captured with a simple X-Y pair or similar configuration

As you get more advanced, here are additional elements to experiment with:

- Spread the music around the soundfield—place individual instruments or groups of instruments in the surrounds and center channel, in addition to the front left and front right.
- Add additional sound effects from a sound library or other source and play with moving them around in the surround field. Have fun with the rear channels.
- Take your dialogue to the next level by replacing bad production tracks with new ones you record in postproduction.

Take a look at these short tutorial videos on basic sound topics, produced by Corridor Digital and the Dolby Institute:

- Do-It-Yourself Foley
- Mixing
- Fixing Audio
- Sound Design
Sound/Audio Editing Tools and Dolby Soundtracks

Once you’re happy with your mix, you can send that mix to a Dolby encoder to create the Dolby soundtrack. Watch this simple workflow video to see how it’s done in Adobe Premiere Pro.
Things to Know When You Create a File with Dolby Sound

The Dolby Digital Plus codec delivers 5.1-channel audio by compressing the audio information in a high-quality file.

Dialogue Level

Dialogue level is perhaps the single most important metadata parameter. The dialogue level setting represents the average level of dialogue within a presentation. The metadata that represents this level is called dialnorm.

If you see this value, it might be the opposite of what you’d expect. It does not change how loud your dialogue is, but it does change how loudly it’s played back on different devices with different speaker configurations or capabilities. Dialnorm simply indicates the loudness at which you’ve produced your dialogue.

For example, if your dialogue is recorded consistently at –11 dB, the default dialnorm is set to –11. But it does not work in the other direction. If your dialogue is at –20 dB and you set dialnorm to –1, your dialogue does not get any louder. In fact, you might find that your dialogue sounds quieter.

Dolby has developed automated ways to set this value, so don’t worry. All devices with Dolby decoders—streaming media devices, mobile phones, set-top boxes, or TVs—use this metadata. The goal of this metadata value is to allow listeners to turn up the volume to the level they like for the voices, or dialogue, in the production and never have to touch the volume again.
Dynamic Range Control

Dynamic range is the volume level between the very loudest sound in your production and the quietest. Life has a lot of dynamic range, so sound recordings with wide dynamic range sound more lifelike.

Different home listening environments present a wide range of requirements for dynamic range. Just as with dialogue level, Dolby has provided metadata that tells a TV or a mobile device how to best play your production.

By adding a Dolby soundtrack, you are ensuring that your content will play back consistently whether it’s on a mobile phone, laptop, or in a high-end home theater.

Dolby Digital Plus

Dolby Digital Plus (E-AC-3) is the audio technology commonly used by major movie streaming services (such as Netflix®, Vudu®, Amazon®, and so on) and major subscription TV services worldwide.

Built on Dolby Digital, Dolby Digital Plus provides high-quality audio but with smaller file sizes, more channels, and greater flexibility. It is used in many devices, including mobile phones, tablets, TVs, and set-top boxes.
Benefits of Dolby Digital Plus

- Small file size: Dolby 5.1 sound for 192 kbps (192,000 bits per second—as small as MP3)
- Multichannel sound with discrete channel output
- Channel and program extensions can carry multichannel audio programs of up to 7.1 channels and support multiple programs in a single soundtrack
- Offers new creative power and freedom
- Accurately reproduces what the sound production team intended
- Interactive mixing and streaming capability in advanced systems, including providing description tracks for the visually impaired

Uploading Your Dolby Mixes

It is important to understand that current Internet sound playback is limited due to browser media capabilities. It will take time before your fully realized sound design can be experienced online everywhere. Please contact your preferred streaming services to encourage them to support streaming of Dolby Digital Plus.
Experiment and Have Fun!

We hope this simple guide for producing 5.1 surround sound content has been helpful. As online video services start supporting playback of Dolby Digital Plus content, you’ll be able to showcase the full experience of your content. There are tons of resources for learning more on this topic, including from the Dolby Institute at Dolby.com/institute. The most important thing is to be bold, experiment, and push yourself to use new tools to tell your story.