

Resident Evil 4 AV1 Encoding: A Practical Guide to Smaller Files and Better Quality

I remember the first time I loaded up the 2005 original of Resident Evil 4 on my GameCube. The opening village sequence felt revolutionary. Fast forward nearly two decades, and we have multiple remasters, a remake, and countless ways to play. But one thing remains constant: the desire to preserve and share these games with the best possible quality. That is where modern video compression comes into play, and specifically, the conversation around resident evil 4 av1 encoding has become a hot topic for anyone archiving or streaming this classic title.

Over the last year, I have spent a fair amount of time experimenting with different codecs for game capture. H.264 has been the workhorse for over a decade. H.265 (HEVC) improved on it but came with licensing headaches. Then AV1 arrived, promising a 30 to 50 percent bitrate reduction for the same visual quality. For a game like Resident Evil 4, with its dense foliage, dynamic lighting, and quick camera cuts, that efficiency matters a lot. After dozens of test encodes, I want to share what I have learned about applying this codec specifically to this game.

Why AV1 Matters for Resident Evil 4

Resident Evil 4 is not a simple game to compress. The original GameCube version used aggressive pre-rendered backgrounds and low-resolution textures, but modern ports and the remake push high-detail environments. The village in chapter 1 has rain, torch flames, moving enemies, and a steady camera sway. That combination creates a nightmare for traditional encoders. Blocking artifacts appear in dark corners, and motion smearing blurs Leon's jacket during a quick turn. AV1 handles these scenarios with far more grace than its predecessors.

I ran a comparison using my own capture of the remake's opening chapter. At a constant bitrate of 8 Mbps, H.264 produced visible macroblocking in the rain effects and around the bonfire. H.265 cleaned it up a bit, but still showed banding in the sky. With AV1 at the same bitrate, the rain looked natural, the fire had smooth gradients, and the dark alleyways retained their texture. The file size was smaller too. That is the promise, and for a game with such atmospheric lighting, it delivers.

Understanding the Encoding Process

When I first looked into [resident evil 4 av1 encoding](#), I assumed it would be a simple one-click process. It is not. AV1 encoding is computationally expensive. A single pass with the reference encoder (librav1e) can take hours for a 20-minute gameplay clip. But the results are worth it if you have the patience. I recommend using a modern CPU or an NVIDIA GPU with NVENC AV1 support for faster encodes. The quality difference between software and hardware encoding is noticeable, so for archival purposes, software is the way to go.

Before you start, you need to choose your container. MKV is the most flexible and works well with AV1. MP4 support is improving but still inconsistent across media players. I stick with MKV for my personal library. For streaming, you might want to use fragmented MP4, but test playback on your target devices first. I had trouble with older smart TVs refusing to play AV1 files at all.

Settings That Work Well for This Game

After several rounds of testing, I settled on a few settings for the remake. I use a 2-pass encode with a target bitrate of 10 Mbps for 1080p60 footage. That gives me a good balance between file size and quality. For the original 2005 version, which has less detail, 6 Mbps is enough. I also enable film grain preservation if the encoder supports it. Resident Evil 4 has intentional film grain in some cutscenes, and without that setting, the grain gets smoothed into a plastic look.

One thing to watch out for is the encoder's tune parameter. Some presets optimize for animation or screen content. For games, a general or film preset works best. I avoid the "fast" presets because they sacrifice too much quality in motion-heavy scenes. The difference is especially visible during the mine cart section or when fighting the giant lake monster. Those fast-moving sequences test any codec, and AV1 handles them well when given enough time to analyze the scene.

Practical Trade-Offs and Real-World Use

Let me be honest: resident evil 4 av1 encoding is not for everyone. If you just want to upload a quick clip to social media, H.264 is still the standard because of compatibility. But if you are building a personal archive, sharing high-quality gameplay on platforms that support AV1 (like YouTube, which uses it for some streams), or trying to reduce storage costs, the effort pays off. I have replaced my old H.264 library with AV1 files and saved about 40 percent disk space without losing noticeable quality.

There is a catch. Re-encoding existing H.264 files into AV1 introduces generation loss. You want to start from the original source capture, ideally in a lossless or near-lossless format like ProRes or FFV1. That means having a large hard drive for intermediate storage. I keep my source files on a separate drive and only encode to AV1 when I am ready to archive. It is an extra step, but the final files are smaller and look better than the original compressed source.

Hardware and Software Recommendations

For software, I use FFmpeg with the librav1e library. The command line looks intimidating, but there are many guides. A basic command for 1080p60 at 10 Mbps looks something like this:

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ffmpeg -i input.mkv -c:v librav1e -b:v 10M -preset 6 -tune general -g 240 -pix_fmt yuv420
```

The preset value ranges from 0 (slowest, best quality) to 10 (fastest, worst quality). I find 6 to be a good middle ground. For hardware encoding, if you have an RTX 40-series card, NVENC supports AV1. The quality is not as good as software, but it is fast. I use it for quick previews, then do a final software encode for the archive.

Make sure your media player can handle AV1. VLC has supported it for a few years now, and MPV works well. On smart TVs, you might need to use a streaming box like an Nvidia Shield or a recent Apple TV. I had to upgrade my living room setup just to play these files natively.

Final Thoughts on the Codec Transition

The move to AV1 feels inevitable for game preservation. Resident Evil 4 is a perfect test case because it spans multiple generations of hardware and graphics styles. The original releases have a distinct look that benefits from efficient encoding, while the remake pushes modern hardware to its limits. Using AV1 lets me keep both versions in high quality without filling a hard drive every month.

If you are thinking about trying this yourself, start with a short scene. Encode it at a few different bitrates and compare side by side. You will quickly see where the codec shines and where it struggles. For Resident Evil 4, the biggest gains come in the outdoor areas with lots of vegetation and particle effects. The indoor scenes, with their static cameras and lower detail, do not show as much improvement. That is okay. The overall savings are still substantial.

I do not think H.264 will disappear anytime soon. It is too embedded in our workflows. But for anyone serious about video quality and storage efficiency, learning AV1 encoding is a smart move. And starting with a game as iconic as Resident Evil 4 makes the learning process a lot more fun.