

FAQ: On2 VP6 and H.264 for Adobe Flash Player

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Adobe's recently released a beta version of Adobe® Flash® Player 9 that supports both a new profile of the On2™ VP6™ video codec and the H.264 video codec. This release has prompted questions regarding the implications of these changes and which codec or profile to choose in various encoding scenarios. On2 has previously announced H.264 support both with and independent of Adobe Flash Player. In terms of video quality, VP6 and H.264 are comparable, and they offer different benefits for different applications. Adobe's announcement highlights the need to address the growing demand for any video anywhere, especially for consumers and enterprises that want access to content that has previously been encoded in H.264. This document is aimed at providing some insight and guidance to our valued On2 Flix® customers.

Has H.264 replaced VP6 in Adobe Flash Player?

No. Adobe continues to push the envelope with VP6. They have added a new VP6 profile called "VP6 HD" targeted at High Definition content for the new Flash Player with VP6. This profile is lower in complexity and allows playback of high definition VP6 on a broader range of machines than either H.264 or the default VP6 profile. Adobe has also added hardware acceleration support for full screen playback for all profiles of VP6 within Flash Player. Of course, full backward compatibility with existing VP6 profiles in Flash Player is maintained, so existing content creation tools can continue to be employed to create VP6 content for Flash Player. Most of our Flix products will support encoding in this new VP6 profile in addition to H.264.

What capabilities does H.264 add to the Adobe Flash Player?

Support of H.264 allows choice for consumers and enterprises, and gives users access to a broader range of content for the Flash Player. Many in the broadcast industry, including content providers for HD DVD/Blue Ray DVD, already encode in H.264. To enable the most efficient consumption of this content on the PC using the Flash Player, supporting H.264 makes sense, and allows users of the new player to avoid delays or other artifacts associated with a transcoding step for a better viewing experience. The already ubiquitous Flash Player has now extended its reach to play back H.264 content across all PC platforms, i.e., Windows, Mac and Linux.

Which is more suitable, VP6 or H.264, for my Flash video application?

Both VP6 and H.264 offer unique benefits for different applications and comparable video quality overall. We agree with Tinic Uro, lead video engineer for Adobe Flash Player: *"Truth is that they have different strengths, not only performance and quality wise. It totally depends on your individual situation of what fits best."*¹

We have summarized some of the benefits of using H.264 above. Adobe originally licensed VP6 for its quality and low power playback. In general, On2's TrueMotion™ codecs (VP6™ and VP7™) are designed to combine video quality with platform efficiency. If quality is your concern, and you want to ensure that the largest number of PC users -- including users operating older, lower-powered machines -- can playback your high-quality content, we recommend VP6.

¹ http://www.kaourantin.net/2007/08/what-just-happened-to-video-on-web_20.html

Additionally, Alpha channel and cue point features in Flash Player are only supported within VP6. The powerful Alpha channel feature allows content creators to create Hollywood-style "green screen" special effects, among others, and is popular among content creators, ranging from advertisers to podcasters. Cue points allow content creators to add events to a video file or live stream at points where they want the video to interact with another element on a web page. You may, for example, want to display text, synchronize with a Flash animation, seek a different point in time in the video, or switch to a different video file altogether.

H.264 also carries with it intellectual property (IP) licensing fees for encoding, decoding, and streaming in addition to software licensing fees for using software from a particular vendor. A summary of the licensing terms can be found at the website of MPEG-LA (www.mpeg-la.com), the licensing body for H.264 IP licensing.

Quality aside, does it matter which format I use?

Yes. There are many considerations in addition to those mentioned above, and it is best to consult with your On2 representative to help guide you through the decision. On2 will support H.264 and VP6 HD for Flash Player in addition to VP6 and H.263 in our current line of Flix products for Flash video encoding and publishing. Broadly, the two major considerations are of cost and compatibility.

Cost: With H.264, the IP licensing terms are determined by MPEG-LA. Depending on your use, IP fees may be payable for encoders, decoders and distribution of content. These costs are in addition to the licenses required to acquire and implement actual H.264 software. With VP6, On2 combines IP licenses and software licensing fees into a single set of license terms **[and charges no fee for distribution of content]**. Customers are advised to consider total cost of ownership with both options, as these will vary with the type of product or service.

Compatibility: Depending on your target customers, service requirements and compatibility with certain devices, the choice between VP6 and H.264 can comprise a number of variables that must be considered:

1. If you are interested in targeting customers operating the broadest range of computers, ranging from the latest multicore processors to older ones, you should probably choose VP6.
2. VP6 is supported in Flash Lite 3 by Adobe for mobile phones and other devices. Adobe has currently not announced plans for H.264 support in Flash Lite 3. Contact your On2 sales representative for a comprehensive list of ARM and non-ARM based implementations. On2's VP6 optimized code is twice as fast as compared to the VP6 reference code.
3. Both VP6 and H.264 are available for operation on embedded platforms. Again, because of the relatively low complexity of VP6, it may be a better choice for use in situations where low processor power or battery consumption is important. Contact your On2 sales representative or sales@on2.com for a list of the growing number of platforms on which VP6 operates.
4. Adobe has indicated some challenges in implementing H.264 for FLV and recommends using H.264 in other formats supported by the new Flash Player. According to Tinic Uro's blog, *"There are functional limits with the FLV structure when streaming H.264 which we*

*could not overcome without a redesign of the file format.*² VP6 is supported in FLV and Flash Media Servers.

5. Compatibility with your existing content archives is a consideration. If you are currently using VP6 FLV, unless other considerations outweigh, re-archiving your library may be a formidable task.
6. On2 has integrated a number of its Flix products with large content delivery networks (CDN), such as LimeLight and Akamai for FLV streaming and live broadcasts. If streaming video support via a CDN is an important consideration, then it is available today with VP6.

Developments relating to VP6 HD and H.264 are in process, and Adobe and On2 have announced ship dates for the new products. The VP6 infrastructure is currently in place and more than 95% of PCs currently operate with VP6. On2 will be shipping H.264 products for Adobe Flash Player in the same time frame as Adobe rolls out the new Flash Player. Finally, one must keep in mind the time it takes for users to adopt a new Flash Player, which in the past has taken 12-18 months to reach greater than 90% of all systems.

² Ibid.