The Transcoder in Wowza Streaming Engine™ media server software performs real-time video transcoding and transrating. For transcoding, it can ingest a non-H.264/H.265/VP8/VP9 video and non-AAC/MP3/Vorbis/Opus audio source stream and convert it to outbound H.263/H.264/H.265/VP8/VP9 video and AAC/MP3/Vorbis/Opus audio. Multiple outbound renditions with aligned keyframes can be created from the single input stream. For transrating, it can ingest an H.264 video and AAC/MP3 audio source stream and create a full set of output renditions that are keyframe-aligned to the original source. The aligned keyframes in the encoded output renditions enable adaptive bitrate delivery from Wowza Streaming Engine over Adobe HDS, Apple HLS, Microsoft Smooth Streaming, MPEG-DASH, and RTMP streaming protocols to multiple devices.

Supported video and audio formats

Transcoder can decode and encode the video and audio codecs specified in the following table:

<table>
<thead>
<tr>
<th>Video decoding (source streams)</th>
<th>Audio decoding (source streams)</th>
<th>Video encoding (outbound renditions)</th>
<th>Audio encoding (outbound renditions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.264</td>
<td>AAC</td>
<td>H.264</td>
<td>AAC</td>
</tr>
<tr>
<td>HEVC/H.265</td>
<td></td>
<td>HEVC/H.265</td>
<td>Vorbis</td>
</tr>
<tr>
<td>MPEG-2</td>
<td>G.711 (µ-law and A-law)</td>
<td>H.263v2</td>
<td>Opus</td>
</tr>
<tr>
<td>MPEG-4 Part 2</td>
<td>MPEG-1 Layer 1/2</td>
<td>VP8</td>
<td></td>
</tr>
<tr>
<td>VP8</td>
<td>MPEG-1 Layer 3</td>
<td>VP9</td>
<td></td>
</tr>
<tr>
<td>VP9</td>
<td>MP3**</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Supported only under certain conditions.**
**Notes:**

- Wowza Streaming Engine™ 4.5.0 or later is required to use the VP8/VP9 video codecs and Vorbis/Opus audio codec encoding.
- Transcoder support for the HEVC/H.265 codec is publicly available in Wowza Streaming Engine version 4.8.0 and later. Earlier versions (4.1.0 - 4.7.8) provide preview support. Note that HEVC/H.265 video compression hasn’t been widely adopted by player vendors, which means your options are limited for delivering these streams to viewers. To get the best results when using this codec, follow the instructions in [Stream using HEVC/H.265 with the Transcoder in Wowza Streaming Engine](https://www.wowza.com/docs/Stream-HEVC-H265).
- The non-H.264 video and non-AAC/MP3 audio codecs listed are supported for transcoding only. They aren’t available for direct playback.
- **The following MP3 audio sample rates are supported: 48000, 44100, and 32000.**
- H.263 video output isn’t supported when using hardware acceleration.
- To use the [VP8](https://www.wowza.com/docs/VP8) and [VP9](https://www.wowza.com/docs/VP9) video and [Vorbis](https://www.wowza.com/docs/Vorbis) and [Opus](https://www.wowza.com/docs/Opus) audio codecs, follow the instructions in [Transcode live streams to WebM for MPEG-DASH playback with Wowza Streaming Engine](https://www.wowza.com/docs/Transcode-live-streams-to-WebM-for-MPEG-DASH-playback).
- In-stream CEA-608 closed caption data can be passed through Transcoder for delivery in Apple HLS streams to iOS-based devices. For information, see [Configure closed captioning for Wowza Streaming Engine live streams](https://www.wowza.com/docs/Configure-closed-captioning-for-Wowza-Streaming-Engine-live-streams).

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**Software requirements**

Transcoder is supported only on 64-bit versions of Windows and Linux. A 64-bit Java runtime is also required.

32-bit versions of Windows and Linux aren’t supported.

The macOS operating system isn’t supported, either.

To run Transcoder on 64-bit versions of Windows Server, Windows Server 2008 R2...
Hardware acceleration

Transcoder can be configured to take advantage of hardware acceleration on 64-bit Windows and Linux operating systems. Using acceleration is recommended but not required. If your configuration doesn’t include hardware acceleration, a built-in software encoder is used. The following articles provide more information about the supported hardware acceleration technologies:

- Server specifications for Intel Quick Sync acceleration with Wowza Streaming Engine transcoding
- Server specifications for NVIDIA NVENC and NVIDIA CUDA acceleration with Wowza Streaming Engine transcoding

Notes:

- **Important:** NVIDIA CUDA encoding acceleration isn’t supported in the latest NVIDIA graphics drivers (340 and later). CUDA-based accelerated encoding is not supported in Wowza Streaming Engine 4.1.2 and later.
- Get transcoding working using the built-in default MainConcept software encoder before trying to get accelerated transcoding to work. The MainConcept software encoder doesn’t use hardware acceleration. For information about how to determine if hardware acceleration is available on your Wowza Streaming Engine server, see Verify how Transcoder is running in Wowza Streaming Engine.
- On newer Windows operating systems, Intel Quick Sync and NVIDIA CUDA hardware acceleration may not be available when running Wowza Streaming Engine as a system service due to a security measure called Session 0 Isolation. For information about how to work around this issue, see Enable hardware-accelerated transcoding for Wowza Streaming Engine when running as a Windows service.
- When using Windows Remote Desktop, Quick Sync acceleration may not be available.
Licensing Transcoder

Perpetual and Subscription licenses for Wowza Streaming Engine enable unlimited use of Transcoder with each licensed server instance. The integrated Transcoder can decode an unlimited number of inbound live streams and encode an unlimited number of outbound live renditions, subject to CPU/hardware limitations.

**Note:** If you purchased a license for Wowza Streaming Engine or Wowza Media Server software before January 1, 2015, contact sales@wowza.com to learn more about how to license Transcoder.

More resources

- Set up and run Wowza nDVR in Wowza Streaming Engine
- Transcoder user guide