Wowza Transcoder AddOn

User's Guide

Wowza Transcoder AddOn: User's Guide

Version: 4.1

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Document History

Version	Description	Date
Doc v4.0.0	Document for Wowza Streaming Engine 4.0.0	02-11-2014
Doc v4.0.1	Added information about deprecated support for NVIDIA CUDA accelerated encoding in Wowza Streaming Engine 4.0.5.	07-22-2014
Doc v4.1.0	Document for Wowza Streaming Engine 4.1.0	09-16-2014

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Chapter 1

Introduction

What is Wowza Transcoder AddOn?

Wowza Transcoder AddOn enables an application to ingest a live stream, decode the video and audio, and then re-encode the stream for delivery to desired playback devices. The supported workflows include:

- Transcoding from selected non-H.264 video and non-AAC audio formatted streams to outbound H.263 or H.264 video and AAC audio. Multiple bitrate streams can be created from a single input stream.
- Transrating incoming H.264/AAC streams to multiple bitrate outbound streams.

The newly encoded multiple bitrate streams are keyframe-aligned with each other to enable adaptive bitrate delivery from Wowza Streaming Engine™ software for Real Time Messaging Protocol (RTMP), Adobe HTTP Dynamic Streaming (HDS), Microsoft Smooth Streaming, Apple HTTP Live Streaming (HLS) and MPEG-DASH. Single bitrate streaming is supported for all transport protocols, including RTSP/RTP and MPEG-TS.

Wowza Transcoder uses a template system to match the incoming stream to an encoding template that you can customize to control the encoding parameters of the resultant transcoded streams. H.264 streams can be delivered over any protocol supported by Wowza Streaming Engine.

For the most up-to-date information, tutorials, and tips, see the **Articles** tab of the Articles and Forums webpage.

This document is meant to help you specifically with Wowza Transcoder AddOn. The Wowza Streaming Engine User's Guide contains comprehensive information about Streaming Engine software.

Chapter 2

Installation

What do I need to install and run Wowza Transcoder AddOn?

Wowza Transcoder AddOn is a part of the Wowza Streaming Engine software installer. This AddOn is supported only with Streaming Engine installed on 64–bit versions of Windows or Linux operating systems. 64–bit Java runtime is also required. Wowza Transcoder AddOn is licensed separately from Wowza Streaming Engine. See the Wowza Streaming Engine Editions section in this document for applicable licensing details.

Wowza Streaming Engine editions

Wowza Streaming Engine software is available in Subscription or Perpetual editions to accommodate nearly any use case or business need. See Wowza Streaming Engine Pricing.

Entering a new or additional license key

License keys for all Wowza Media Systems products, including Wowza Streaming Engine and AddOns, are stored in **[install-dir]/conf/Server.license**.

```
%WMSCONFIG_HOME%\conf\Server.license                    - Windows
/Library/WowzaStreamingEngine/conf/Server.license      - Mac OS X
/usr/local/WowzaStreamingEngine/conf/Server.license    - Linux/Unix
```

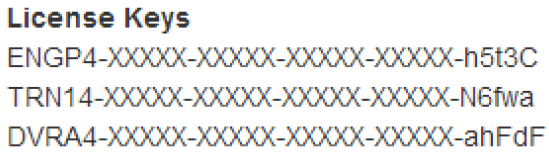
Subscription users can run an unlimited number of server instances and AddOns under a single license key. Perpetual Edition users must enter a separate license key for each server instance and for each AddOn.

To add a license key in Wowza Streaming Engine Manager, do the following:

1. Start Wowza Streaming Engine Manager.
2. Click the **Server** tab, and then click **Server Setup** in the contents pane.
3. In the **Server Setup** page, click **Edit**.

4. Enter each new license key on a new line in the **License Keys** box, and then click **Save**.
5. Click **Restart Now** at the top of the **Server Setup** page.

The licenses are additive, so when adding additional licenses, be sure to retain the original license information in the **License Keys** box and add each new license key on its own new line. The order in which the keys are listed isn't important. The first and last five digits of the license key are displayed in the **License Keys** box.



Configuration files

Wowza Streaming Engine configuration is stored in a set of XML files, which can be configured in Wowza Streaming Engine Manager. Wowza Transcoder AddOn relies on this configuration information and a correct server setup. The configuration files are read during server start up.

For more information about how to configure XML files by using the UI, see Configuration in Wowza Streaming Engine Manager. For information about how to configure and tune Wowza Streaming Engine, see the Wowza Streaming Engine User's Guide and Wowza Streaming Engine Configuration Reference.

Wowza Transcoder template files

The following sample template files are installed with Wowza Streaming Engine:

- **transcode.xml** – Use this template when the source stream isn't H.264 video (such as MPEG-2) with non-AAC/MP3 audio and you want Wowza Transcoder to generate a full set of bitrate renditions for adaptive streaming delivery. When using this template, the source stream isn't included in the set of adaptive bitrate renditions available for playback.
- **transrate.xml** – Use this template when the source stream is H.264 video with either AAC or MP3 audio and you want Wowza Transcoder to generate lower bitrate renditions of the source stream for adaptive bitrate delivery. When using this template, the source stream is used as the high bitrate rendition and the lower bitrate renditions are keyframe-aligned to the source video stream.

- **audioonly.xml** – Use this template to ingest an H.264 video and Speex audio stream from Adobe Flash Player and to convert the Speex audio format to AAC to make the stream compatible with additional player technologies.

You can modify Wowza Transcoder templates by using Wowza Streaming Engine Manager.

Chapter 3

Features

What can I do with the Wowza Transcoder AddOn?

Wowza Transcoder AddOn provides multiple features for transcoding or transrating incoming streams (referred to as *channels*) to outgoing streams with multiple bitrates that can be delivered over any transport protocol supported by the Wowza Streaming Engine software.

Video and audio codecs

Wowza Transcoder AddOn supports the following video and audio codecs:

From incoming channels:

Video decoding

- H.264
- MPEG-2
- MPEG-4 Part 2

Audio decoding

- AAC
- G.711 (μ-law and A-law)
- MPEG-1 Layer 1/2
- MPEG-3
- Speex

For resulting outgoing streams:

Video encoding

- H.264
- H.263v2
- H.265 (preview technology in Wowza Streaming Engine 4.1 software, see H.265 (HEVC) encoding.)

Audio encoding

- AAC

Notes

- 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 sample rates are supported: 48000, 44100, and 32000.
- H.263 video output isn't supported when using hardware acceleration.
- Instream CEA-608 closed caption data can be passed through Wowza Transcoder for delivery in Apple HLS streams to iOS-based devices. For more information, see How to configure closed captioning for live streaming.

Protocols and players

H.264 streams can be delivered over any protocol supported by Wowza Streaming Engine,Adobe HTTP Dynamic Streaming (Adobe HDS), Apple HTTP Live Streaming (Apple HLS), Microsoft Smooth Streaming, MPEG-DASH streaming, Real Time Messaging Protocol (RTMP), Real Time Streaming Protocol (RTSP), and Real-time Transport Protocol (RTP). For more information, see the Wowza Streaming Engine User's Guide.

This means newly encoded streams can be played back on many popular media players such as Adobe Flash Player, Apple iPhone, iPad and iPod touch and Apple QuickTime player (version 10 and later), Microsoft Silverlight player, Android smartphones and tablets, and IPTV/OTT set-top boxes, and many other players and devices.

Hardware acceleration

Wowza Transcoder AddOn can be configured to take advantage of hardware acceleration, which is recommended but not required. If your configuration doesn't include hardware acceleration, then a built-in software encoder is invoked.

On Windows 64–bit operating systems, Wowza Transcoder AddOn can be configured to take advantage of the following hardware acceleration technologies:

- Intel Quick Sync Video – For recommended workstation and server-level hardware specifications, see Server Specifications for Intel Quick Sync acceleration with Wowza Transcoder AddOn.
- NVIDIA NVENC and NVIDIA CUDA – For a list of supported NVIDIA graphics cards that are compatible with Wowza Transcoder, see Server Specifications for NVIDIA NVENC and NVIDIA CUDA acceleration with Wowza Transcoder AddOn.

Note

NVIDIA CUDA encoding acceleration isn't supported in the latest NVIDIA graphics drivers (340 and greater). CUDA-based accelerated encoding is deprecated in Wowza Streaming Engine 4.0.5 and will be removed in a future release of the Wowza Streaming engine software.

To run Wowza Transcoder AddOn on 64–bit versions of the Windows Server operating system, the following server features are required:

- .NET Framework 3.5.1 or later
- Desktop Experience

On Linux 64–bit operating system distributions, Wowza Transcoder AddOn can be configured to take advantage of the following hardware acceleration technologies:

- Intel Quick Sync Video – For more information, see How to configure Quick Sync accelerated encoding on Linux.
- NVIDIA NVENC – For more information, see How to configure NVIDIA NVENC accelerated encoding on Linux.

Adaptive bitrate delivery

Wowza Transcoder AddOn is designed to make live adaptive bitrate delivery easy. Wowza Transcoder can ingest a single high-bitrate live stream and dynamically create multiple lower bitrate renditions. These new renditions are keyframe-aligned to enable adaptive bitrate delivery. Wowza Transcoder uses a templating system to group streams into logical groups called *Stream Name Groups* for live adaptive bitrate delivery. Stream Name Groups serve the same purpose as a Synchronized Multimedia Integration Language (SMIL) file and either method can be used for playback of live streams.

When customizing your template, you should define and successfully playback individual resultant streams before defining your group.

For adaptive bitrate delivery, you can create new streams to offer the best possible viewing experience given a user's device and bandwidth. For example, you can encode one stream

for Android/iPhone 3GS (supports Baseline Profile Level 3.0 and lower), another stream for iPhone 4/iPad 2 (supports Main Profile Level 3.1 profile and lower), and a third stream for desktops or set-top boxes. For more information, see How to do adaptive bitrate streaming.

Playback with Stream Name Groups

During playback, the player decides which stream in a Stream Name Group is best suited for playback based on the stream metadata. Most player technologies make the right selection, but it isn't always perfect. Stream Name Group functionality in Wowza Transcoder allows adaptive bitrate streams to take advantage of this player feature. The Stream Name Groups that are defined in a transcoder template file are available for playback using the **ngrp:** media type prefix:

To play using Apple HTTP Live Streaming (HLS):

```
http://[wowza-ip-address]:1935/live/ngrp:myStream_all/playlist.m3u8
```

To play using Adobe HTTP Dynamic Streaming (HDS):

```
http://[wowza-ip-address]:1935/live/ngrp:myStream_all/manifest.f4m
```

To play using Microsoft Smooth Streaming:

```
http://[wowza-ip-address]:1935/live/ngrp:myStream_all/Manifest
```

To play using MPEG-DASH streaming

```
http://[wowza-ip-address]:1935/live/ngrp:myStream_all/manifest.mpd
```

Overlays

Wowza Transcoder AddOn provides the ability to apply graphic image overlays to both the decoded stream and each newly encoded individual stream.

Static images

Static overlay images in JPEG, PNG, and BMP image formats can be applied to streams to achieve stationary image effects such as a watermark to your video. You can customize the location, size, alignment, and opacity of your overlay by setting **Overlays** properties in transcoder template files for decoded and encoded streams. For more information about how to overlay static images onto your video streams, see How to set up and run Wowza Transcoder AddOn for live streaming.

Dynamic images

You can overlay dynamic images on top of video by using a Java-based API. Starting with a static image in GIF, JPEG, PNG, or BMP format, you can add text and configure animation sequences to achieve effects such as dynamic insertion of advertising, titling, sporting event

scores, and so on. Dynamic transcode overlays can be manually configured or pre-programmed based on external events, making this a powerful tool for adding premium TV-like experiences. For details about how to create dynamic transcode overlays, see How to add graphic overlays to live streams with Wowza Transcoder AddOn. The examples and classes in this article provide a starting point for development. More elaborate overlays are possible with custom development by expanding the examples or by creating custom classes.

Note

The dynamic transcode overlay feature supports manipulation of images and text to generate animation sequences. It doesn't support stream manipulation such as Picture-in-picture (PiP) or multi-stream compositing.

Logging

Log files for Wowza Streaming Engine and AddOns (including Wowza Transcoder AddOn) are located at **[install-dir]/logs**. Wowza Transcoder messages are logged separately to enable more generalized accounting information.

Example logging messages

```
decoder-audio-start    transcoder INFO    200 myStream    {codec:AAC,
objectType:2, sampleRate:44100, channels:2}
decoder-video-start    transcoder INFO    200 myStream    {codec:H264,
profile:77, level:31, frameSize:1280x720, displaySize:1280x720,
frameRate:29.97}
encoder-audio-start    transcoder INFO    200 myStream    {name:"360p",
bitrate:96000, codec:AAC, objectType:0, sampleRate:44100, channels:2}
encoder-video-start    transcoder INFO    200 myStream    {name:"360p",
bitrate:850000, codec:H264, profile:77, level:30, frameSize:640x360,
displaySize:640x360, frameRate:29.97}
decoder-video-stop transcoder INFO    200 myStream
decoder-audio-stop transcoder INFO    200 myStream
encoder-video-stop transcoder INFO    200 myStream    {name: "360p"}
encoder-audio-stop transcoder INFO    200 myStream    {name: "360p"}
```

Getting bitmap Images from Wowza Transcoder

A built-in HTTP Provider is available for use when Wowza Transcoder AddOn is actively transcoding the video portion of a stream. The HTTP Provider enables you to get a bitmap image of a video frame from Wowza Transcoder in either a JPEG or PNG image file format. For more information, see How to get thumbnail images from Wowza Transcoder with an HTTP Provider.

Extending Wowza Transcoder AddOn

Wowza Streaming Engine is built using Java technology. The server and AddOns can be extended by writing custom Java classes that are dynamically loaded at runtime. Server and AddOn extensions (extensions are also referred to as "modules") run at the full speed of the server. Wowza Streaming Engine and Wowza Transcoder AddOn include a rich API to interact with and control the streaming and transcoding process. For more information, see the Wowza Streaming Engine Server-Side API and refer to the **com.wowza.wms.transcoder.*** packages.

Chapter 4

Configuration in Wowza Streaming Engine Manager

How do I setup Wowza Streaming Engine for transcoding?

Configuring Wowza Streaming Engine software for use with Wowza Transcoder AddOn is easy by using Wowza Streaming Engine Manager. The following sections describe how to set up a transcoding application in the manager UI:

- Create the application
- Enable the transcoder
- Select and configure template for transcoding or transrating
- Configure transcoding session for the application

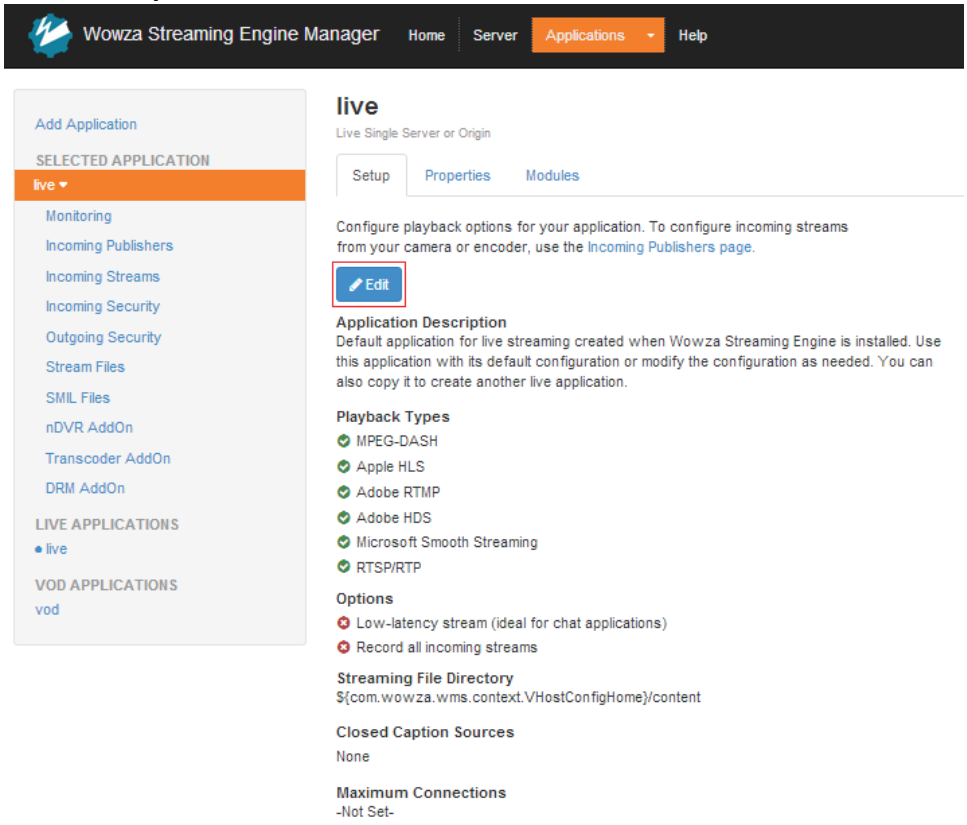
This chapter assumes that you're familiar with Streaming Engine software. For more information about how to configure Wowza Streaming Engine, see the Wowza Streaming Engine User's Guide.

Create the application

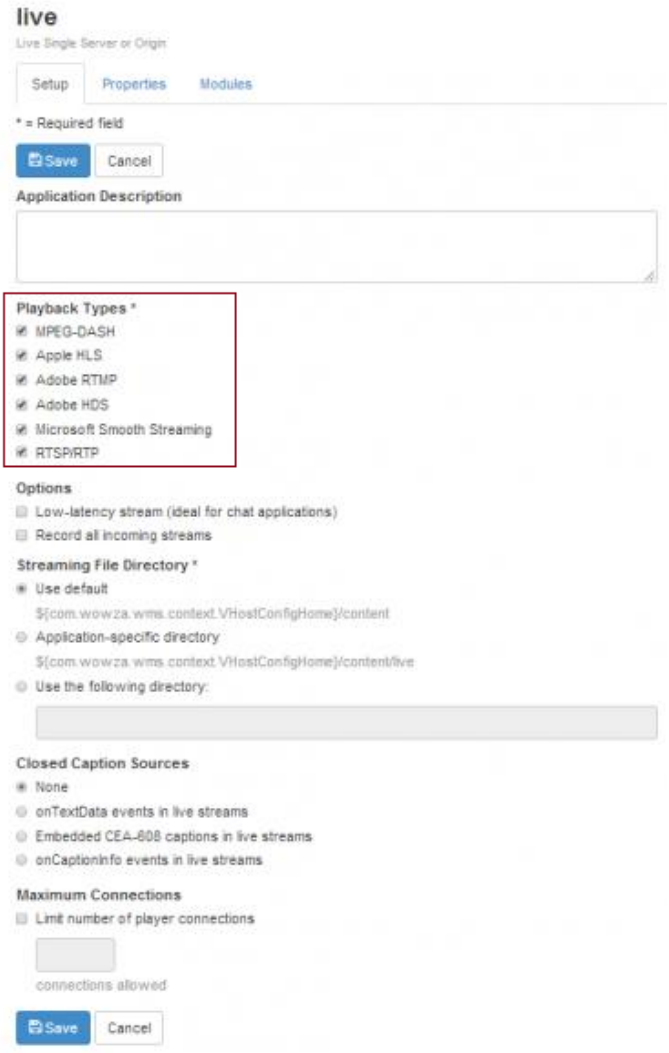
You can start Wowza Streaming Engine Manager from any web browser by navigating to http://localhost:8080/enginemanager. If the Streaming Engine is running on a remote machine, substitute the server domain name or IP address for *localhost* in the URL.

1. Start Wowza Streaming Engine Manager.
2. Click the **Applications** tab at the top of the page, and then click **live** in the contents pane to configure the **live** application (This example uses the installed **live** application. If you want to create a new live streaming application, click **Add**, then **Live**, and then follow the instructions in the UI.):

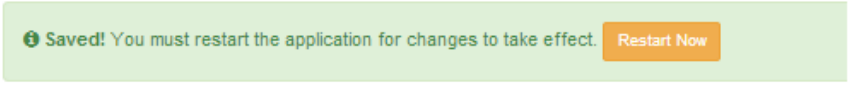
a. On the **Setup** tab, click **Edit**.



b. Select all of the **Playback Types**.

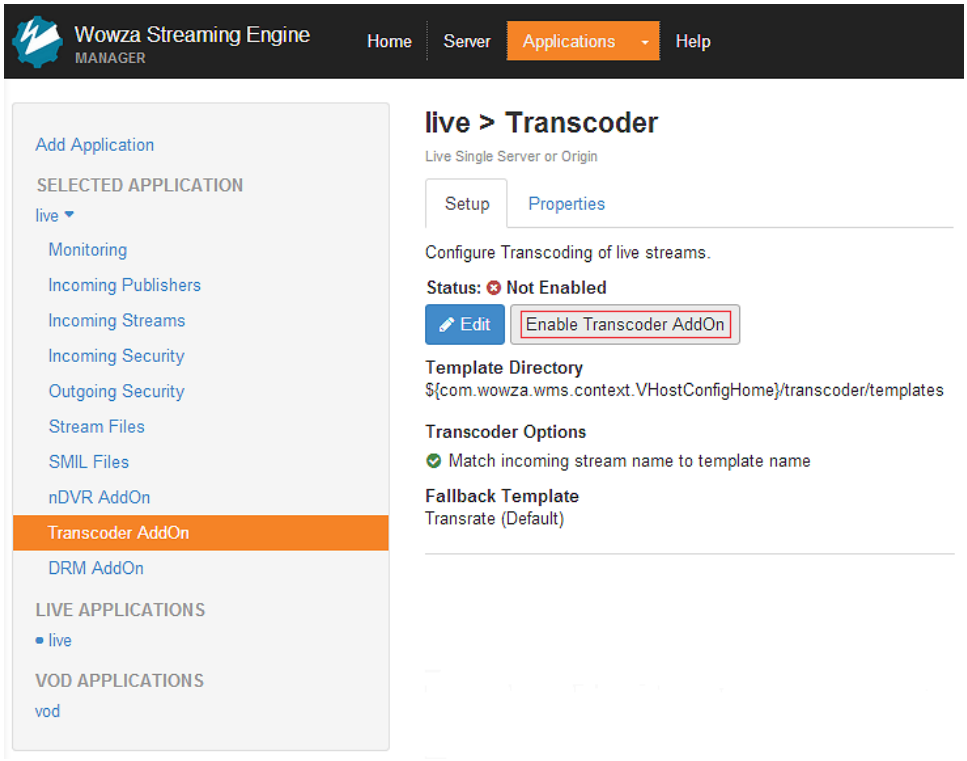


c. Click **Save**, and then restart the application.

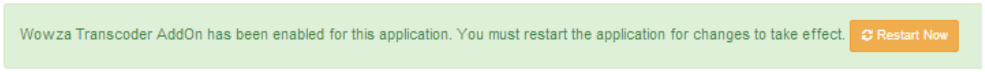


Enable the transcoder

In the contents pane, click **Transcoder AddOn**, and then click **Enable Transcoder AddOn**.



Restart the application.



Select and configure template for transcoding or transrating

Transcoder templates enable you to customize the video and audio parameters to target multiple playback devices. The newly encoded multiple bitrate streams are keyframe-aligned with each other to enable adaptive bitrate delivery from Wowza Streaming Engine for Real Time Messaging Protocol (RTMP), Adobe HTTP Dynamic Streaming (HDS), Microsoft Smooth Streaming, Apple HTTP Live Streaming (HLS), and MPEG-DASH.

Encodes define the parameters of the transcoded or transrated streams. Each encode represents a resultant encoded stream. Based on your needs, you can have a single template with multiple encodes or you can have multiple templates. Be sure to take into account your

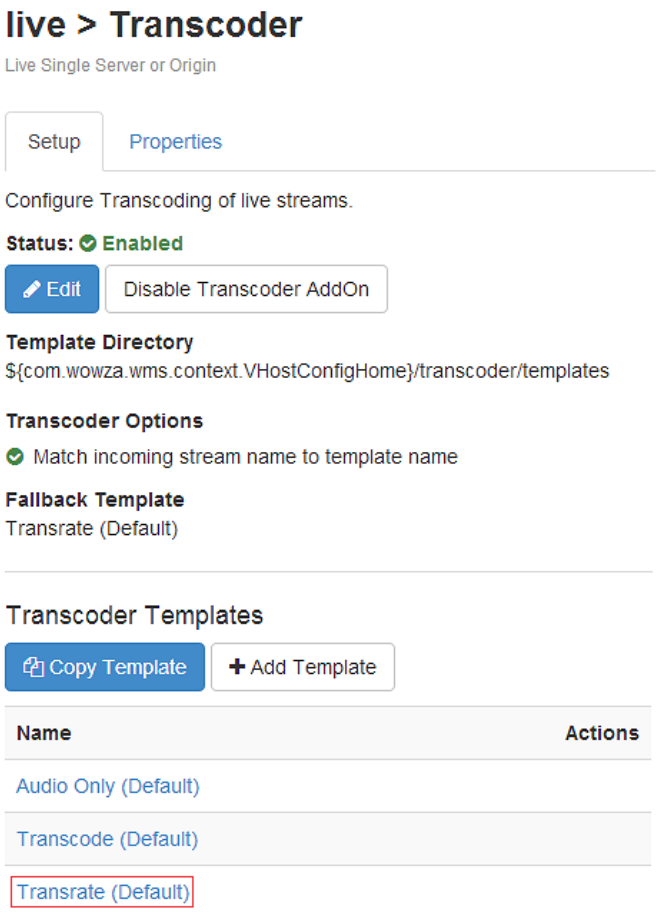
configuration and available bandwidth when determining how many encodes your server can handle. See the Performance Tuning chapter for more information.

You should start with the sample templates using the default encoding implementation before using accelerated hardware or customizing your template. The template configuration is described in more detail in How to set up and run Wowza Transcoder AddOn for live streaming.

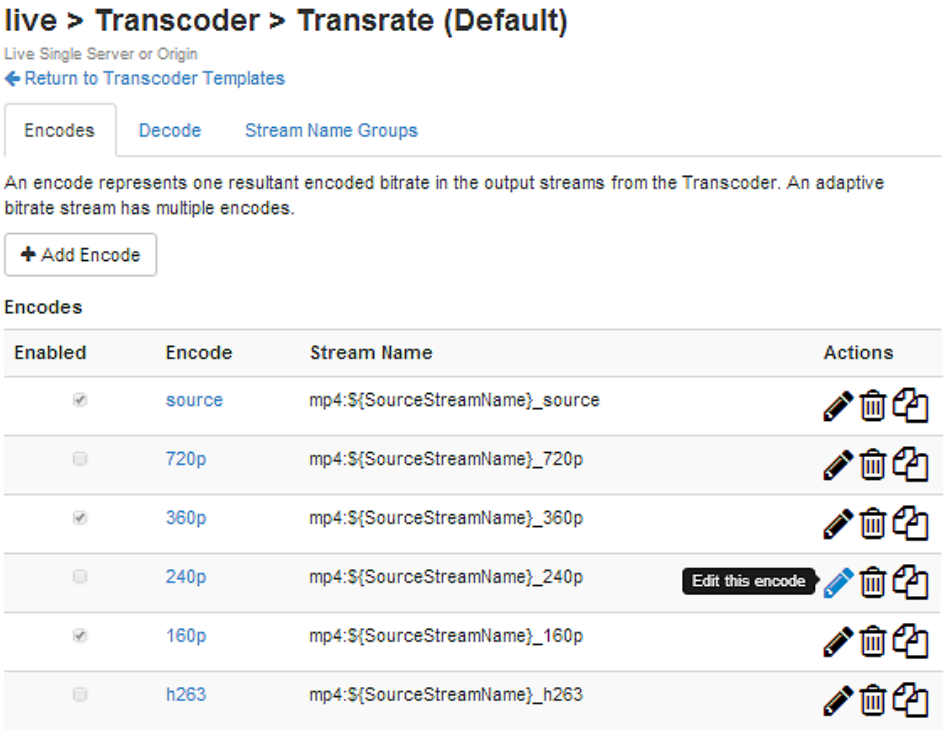
You can configure Transcoder templates in Streaming Engine Manager by setting the active Transcoder stream names and bitrates. Use the following procedure to activate streams in transcode, transrate, or audio-only templates.

This example configures the **Transrate** template. Make a backup copy of the file (**[install-dir]/transcoder/templates/transrate.xml**) before modifying it.

1. Under **Transcoder Templates**, click the **Transrate (Default)** template.

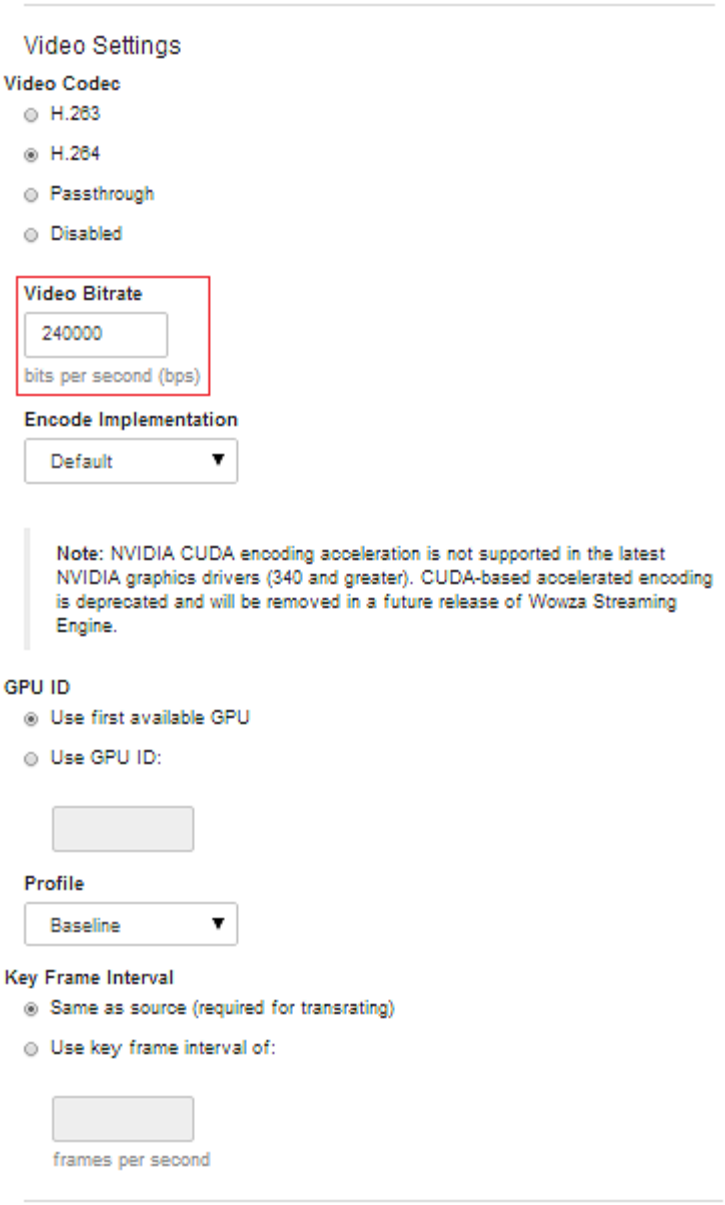


2. In the **Encodes** list, click the **Edit** icon for the **240p** encode.

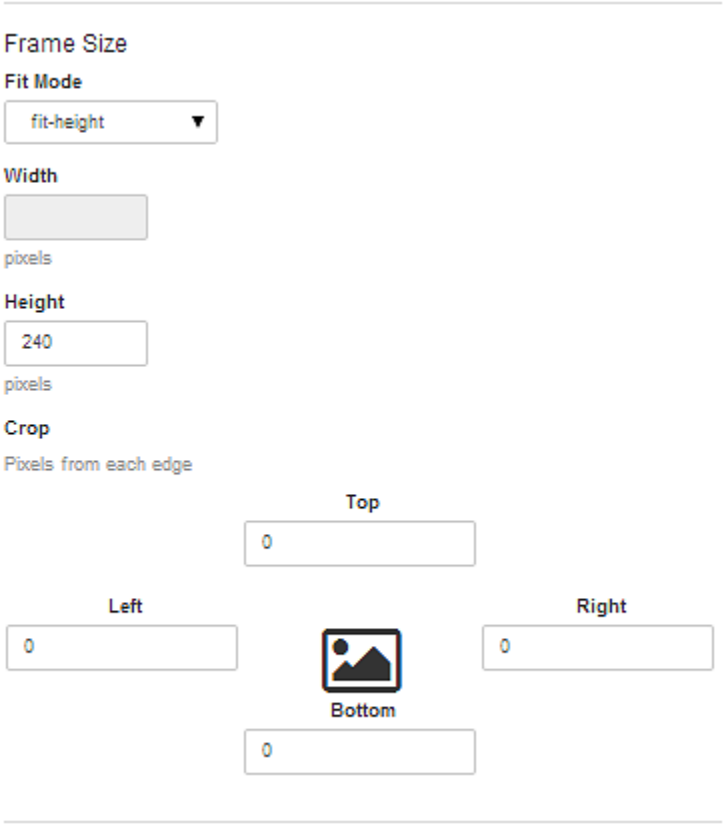


In the following steps, you can set the options for a 240000 bits-per-second encode and enable it, so it will be created along with the other enabled encodes. For more information about the encode options available in the user interface, see Template Details.

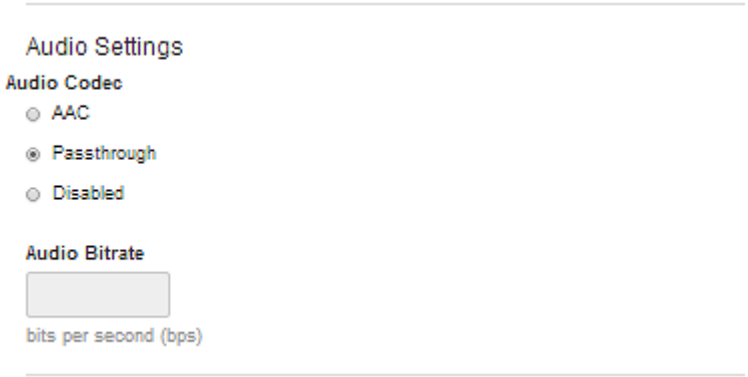
a. In the **Video Settings** area, in **Video Bitrate**, enter **240000**. Accept the defaults for other settings.



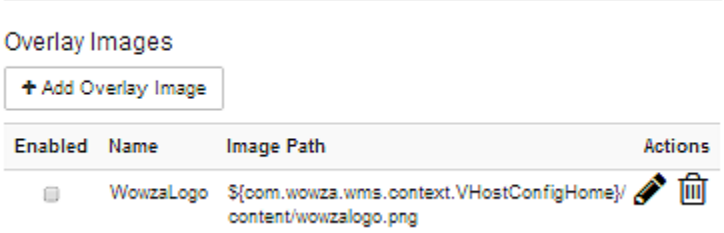
b. In the **Frame Size** area, accept the default settings.



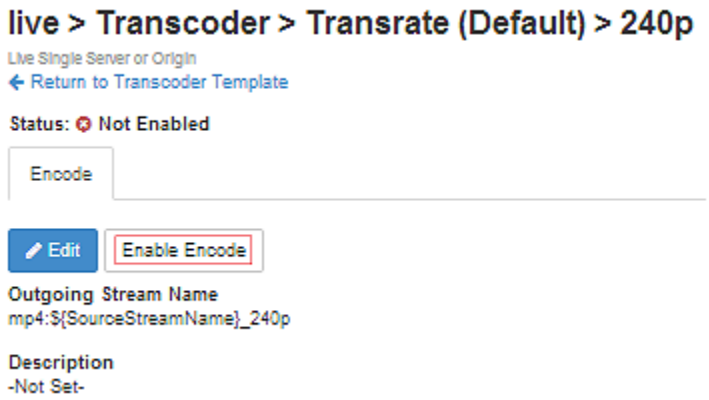
c. In the **Audio Settings** area, accept the default setting for the audio codec (**Passthrough**).



d. For this example, don't enable **Overlay Images**.



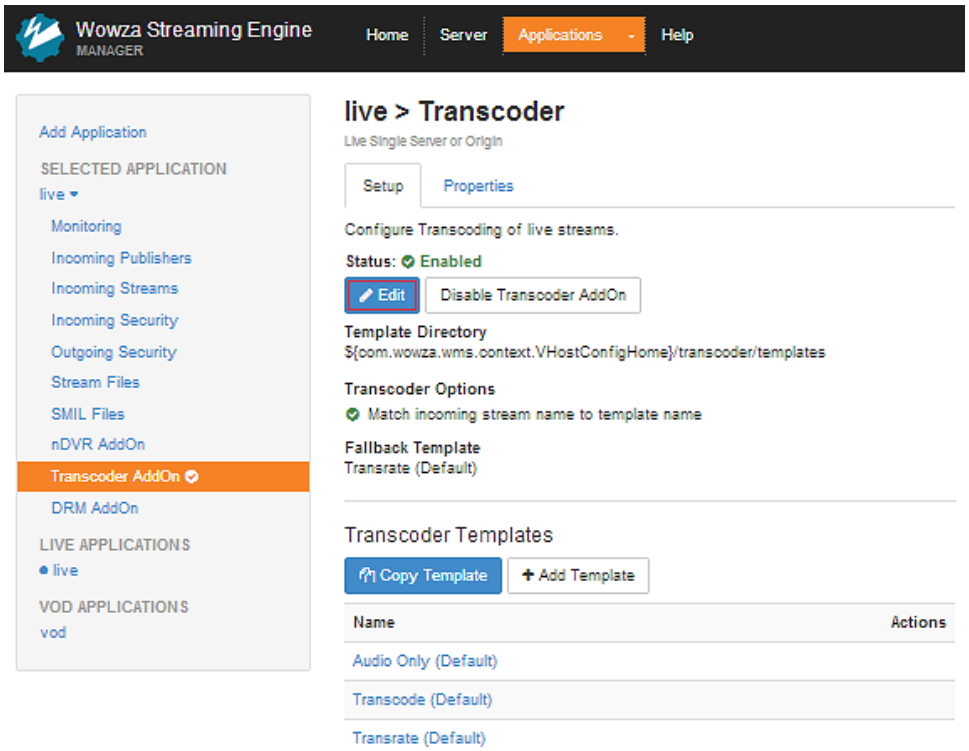
3. Click **Save** to save the settings.
4. In the **Encodes** list, click **240p**, and then click **Enable Encode**.



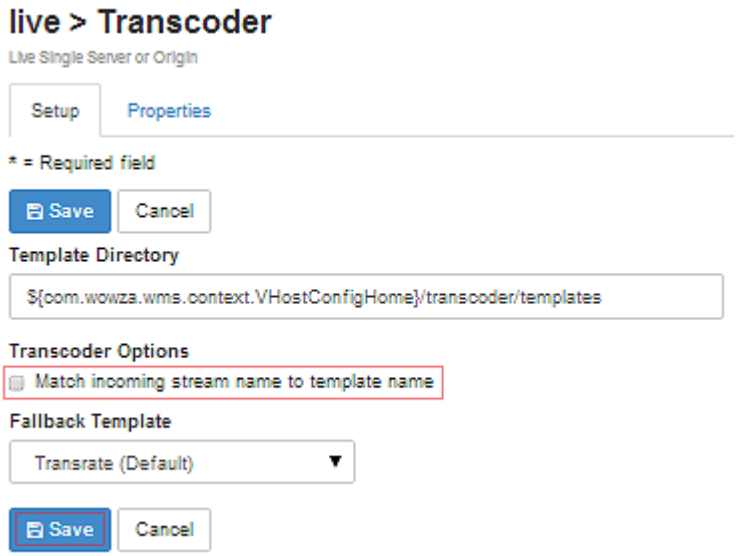
Configure transcoding session for the application

All transcoding sessions can use the same Transcoder template. This is the default configuration. To configure all transcoding sessions for a particular application to use the same Transcoder template, do the following:

1. In the contents pane for the **live** application, click **Transcoder AddOn**, and then click **Edit**.



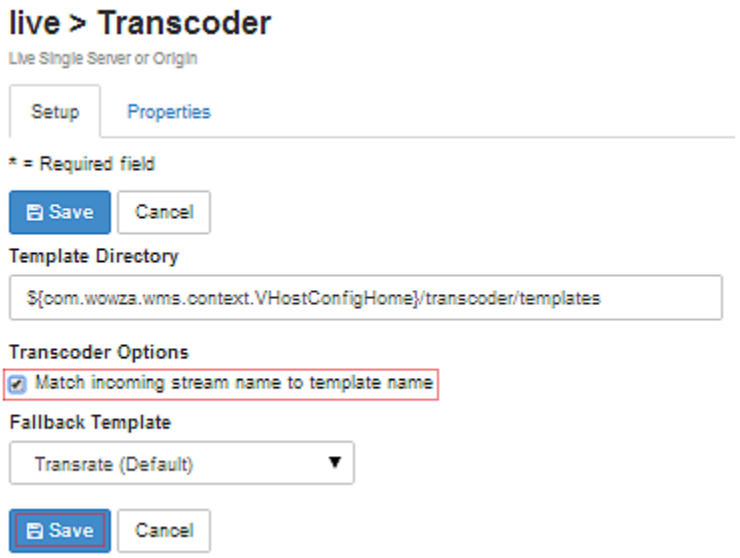
2. Under **Transcoder Options**, clear the **Match incoming stream name to template name** check box, and then click **Save**.



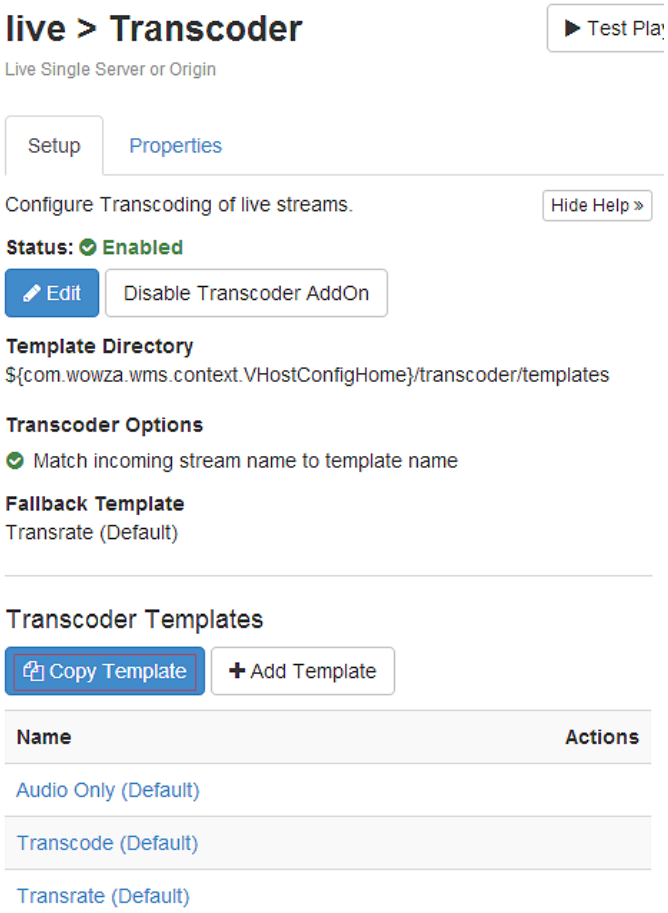
Clearing the check box means that all incoming streams will use the same template.

The active Transcoder template can also be based on the stream name. To configure all transcoding sessions for a particular stream to use the same Transcoder template:

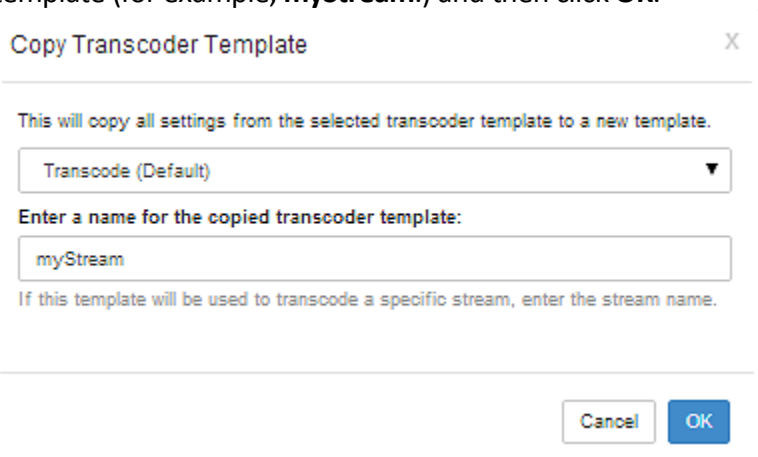
1. Under **Transcoder Options**, select the **Match incoming stream name to template name** check box, click **Save**, and then restart the application.



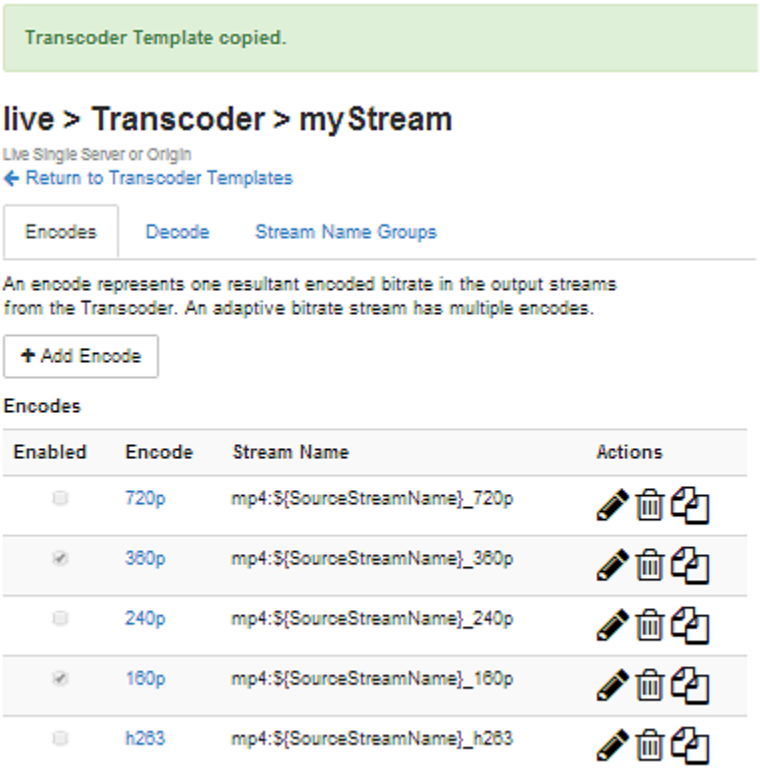
2. Under **Transcoder Templates**, click **Copy Template**.



3. In the **Copy Transcoder Template** dialog box, select **Transcode (Default)**. Name the template (for example, **myStream**.) and then click **OK**.



4. Edit the encode options or add new encodes for the copied template.



This will become the transcoding template for the stream named **myStream**. Other incoming streams to this application can have a template with a corresponding name for transcoding or transrating; otherwise, they will use the **Fallback** template.

For information about playback using transcoded or transrated streams, see How to do adaptive bitrate streaming or How to create and play SMIL files with streams created by Wowza Transcoder.

Using passthrough

If your source stream is already encoded with H.264 video and AAC audio and you don't want to make any changes to the stream, then it's not necessary to decode and re-encode the source file for playback. In this case, you should set the **Video Codec** and/or **Audio Codec** setting to **Passthrough** in the resultant stream encode. The video or audio stream is passed through to the resultant stream. Note that you can pass through the video, the audio, or both.

If the source stream is already encoded with H.264 video and you want to create a different bitrate, profile, resolution, or make any other change, then set the **Video Codec** setting to **H.264**, not **Passthrough**.

The default **Transrate** template has several sample encodes where the **Audio Codec** setting is set to **Passthrough** because the source audio is already AAC, a supported playback audio codec for Wowza Streaming Engine. The **Video Codec** setting is set to **H.264** because other properties are set to customize the resultant stream.

H.263 encoding

Wowza Transcoder AddOn supports H.263 encoding for live video streams, enabling users to stream to older devices. To transcode source streams using the H.263v2 video codec, set the **Video Codec** setting for an encode to **H.263**.

Note

H.263 video output isn't supported when using hardware acceleration. If you set the **Encode Implementation** setting for an encode to one of the accelerated encoding options (**QuickSync**, **CUDA**, or **NVENC**), the setting is ignored and the default MainConcept software encoder will be used to generate the H263-encoded video.

H.265 (HEVC) encoding

Wowza Transcoder AddOn in Wowza Streaming Engine 4.1 contains preview technology that adds support for High Efficiency Video Coding (HEVC) encoding of live video streams. HEVC (also known as H.265) is the successor to H.264/MPEG-4 AVC (Advanced Video Coding). HEVC/H.265 encoding features higher data compression ratios than H.264 for video of the same quality and has better video quality than H.264-encoded video with identical bitrates. For more information, see How to stream using HEVC/H.265 transcoding.

Transcoding and audio bitrate

You must configure the **Video Codec** and the **Audio Bitrate** settings when transcoding. If you forget to assign a value for **Audio Bitrate**, a default value is assigned so that the encoding of the resultant stream won't fail.

Using profiles

For adaptive bitrate delivery, you can create new streams to offer the best possible viewing experience given a user's device and bandwidth. For example, you can encode one stream for Android/iPhone 3GS (supports Baseline Profile Level 3.0 and lower), another stream for

iPhone 4/iPad 2 (supports Main Profile Level 3.1 profile and lower), and a third stream for desktop or set-top boxes.

Under **Video Settings**, set the **Profile** option to **Baseline** for:

- A mix of mobile devices (Android, iOS devices, or other mobile devices)
- iPhone 3GS and older
- Earlier iPod touch devices

This profile will also work for newer iOS devices such as iPhone 4, iPad 2, and iPod touch (4th generation).

Set the **Profile** option to **Main** for:

- iPhone 4, iPad 2
- Desktop players
- Set-top boxes (Roku, Amino, or other set-top boxes)
- High-end delivery

Note

Wowza Transcoder supports bi-directional frame (B-frame) encoding when **Encode Implementation** is set to **Default** and **Profile** is set to **Main**. B-frame encoding isn't supported when using hardware acceleration. For more information, see How to configure bi-directional frame (B-frame) support when using Wowza Transcoder.

Chapter 5

Performance Tuning

How do I tune Wowza Streaming Engine for transcoding?

It's very important that the Wowza Streaming Engine software and server hardware be tuned properly so that it can take best advantage of the available hardware resources. The default tuning of the server is sufficient for application development; however, it's not ideal for production use. Without proper tuning, the server under medium or heavy load may run out of resources and stop working properly. This chapter describes performance tuning considerations for Wowza Transcoder AddOn.

Template settings for bitrate and resolution

Determining the ideal settings for your configuration is a balancing act based on multiple factors. Increasing the target bitrate will increase the quality. When you make this kind of change, keep in mind that clients must have enough bandwidth available to play the higher bitrate stream. In addition to client bandwidth and how the resultant stream is played—the playback device, content type, and purpose should be considered. For example, security camera settings for streaming a video of a busy street where audio isn't important would be different from settings for streaming an interview where there's little movement but audio quality is critical. Experimentation is usually required to determine the right balance of settings.

Your checklist should include the following items:

- Make sure that your deployed server that's running Wowza Streaming Engine is tuned properly. For more information, see Performance Tuning.
- Turn off TCP auto-tuning on **Windows 7**, **Server 2003**, and **Server 2008**. For more information, see How to disable Windows Vista TCP/IP auto-tuning.
- Determine available server-to-client bandwidth by using the bandwidth checker tool.

Number of transcoder templates

Whether you have multiple encodes in one template or multiple templates, performance isn't affected given the same number of incoming live streams and the same number of resultant streams.

Hardware

Hardware acceleration is recommended, but not required for transcoding. When Wowza Streaming Engine is invoked for the first time, it checks to see if hardware acceleration resources are available and records the results in Streaming Engine logs. You can check the log files and then modify template files to either use a supported hardware acceleration technology or use the default MainConcept software encoder if your configuration doesn't include hardware acceleration. For more information, see How to verify which Wowza Transcoder implementation is invoked.

On Windows 64–bit operating systems, Wowza Transcoder AddOn can be configured to take advantage of the following hardware acceleration technologies:

- Intel Quick Sync Video – For recommended workstation and server-level hardware specifications, see Server Specifications for Intel Quick Sync acceleration with Wowza Transcoder AddOn.
- NVIDIA NVENC and NVIDIA CUDA – For a list of supported NVIDIA graphics cards that are compatible with Wowza Transcoder, see Server Specifications for NVIDIA NVENC and NVIDIA CUDA acceleration with Wowza Transcoder AddOn.

Note

NVIDIA CUDA encoding acceleration isn't supported in the latest NVIDIA graphics drivers (340 and greater). CUDA-based accelerated encoding is deprecated in Wowza Streaming Engine 4.0.5 and will be removed in a future release of the Wowza Streaming engine software.

To run Wowza Transcoder AddOn on 64–bit versions of the Windows Server operating system, the following server features are required:

- .NET Framework 3.5.1 or later
- Desktop Experience

On Linux 64–bit operating system distributions, Wowza Transcoder AddOn can be configured to take advantage of the following hardware acceleration technologies:

- Intel Quick Sync Video – For more information, see How to configure Quick Sync accelerated encoding on Linux.

- NVIDIA NVENC – For more information, see How to configure NVIDIA NVENC accelerated encoding on Linux.

For more information, see the Wowza Streaming Engine User's Guide.

Performance benchmarks

As a guideline for estimating transcoding performance for your transcoder configuration, see Wowza Transcoder AddOn Performance Benchmark. This article presents performance benchmark numbers captured for software (default) encoding, Intel Quick Sync accelerated encoding, and NVIDIA CUDA accelerated encoding. Wowza provides these benchmark numbers only as general guidance. Your results may vary depending on network traffic, source file composition, configuration, overall operating system overhead, and other factors.