The advanced mode of the Wowza Streaming Cloud™ service allows you to customize transcoding processes to suit all kinds of complex streaming workflows. It's especially useful for transcoding a live stream into multiple output renditions and delivering them to multiple targets, letting you reach a broad, widely distributed audience.

About transcoders in Wowza Streaming Cloud

There are three parts to a transcoder:

1. The transcoder itself, which receives the source stream, can be adaptive bitrate or passthrough, and offers customized processing and billing options.
2. The transcoder’s output renditions. An output rendition is a compressed version of the source stream at a lower bitrate and aspect ratio. Every custom transcoder must have at least one output rendition. A passthrough transcoder has only one output rendition but adaptive bitrate transcoders typically have multiple output renditions.
3. The output rendition’s stream targets. A stream target is a destination for an output rendition. A stream target can be either a Wowza CDN resource or an external RTMP destination. Every output rendition must have at least one target, and it can have multiple targets.

Custom transcoders accommodate all kinds of one-to-many streaming workflows. For example, you can transcode one stream to one output rendition (a passthrough stream), and send that one rendition to multiple targets such as YouTube and Ustream. Or you can transcode one stream to multiple output renditions, each of which goes to the same or different targets. You can even customize the transcoder of a live stream, adding and editing its outputs and targets. This lets you broadcast a live stream to any RTMP stream target, either a Wowza CDN or a third-party destination.
Set up a transcoder

Start by defining where and how the transcoder receives and processes the video stream.

1. Click **Advanced** on the menu bar, click **Transcoders**, and then click **Add Transcoder**.
2. On the **Transcoder Setup** page, enter a descriptive **Transcoder Name**. Subscription plans that support passthrough streaming require that you specify a **Transcoder Type**. For all other subscription plans, transcoders are adaptive bitrate.
3. If you can choose a **Transcoder Type**, select **Adaptive bitrate** to transcode your source video and create multiple output renditions of your stream at different bitrates.

   ![Add Transcoder: Transcoder Setup](image)

   If you choose **Passthrough**, Wowza Streaming Cloud automatically creates a single output rendition for it, based on the source video’s encoding settings. This passthrough output rendition can’t be edited, and you can’t create additional, custom outputs for passthrough transcoders. You can, however, attach multiple targets to a passthrough transcoder’s single output rendition.

   **Note:** The **Transcoder Type** can’t be changed after the transcoder is created.

4. Specify other transcoder setup options. For more information on the options, see the **Help** panel on right side of the page.
5. Click **Add**.
Create output renditions for a transcoder

Now give the transcoder at least one output rendition. You can’t start a transcoder that doesn’t have any outputs.

1. On the Outputs & Targets tab of the detail page of your adaptive bitrate transcoder, do one of the following:

   - Click the down arrow on the right side of the Add Output button and select a preset output rendition from the list.

   - Click the Add Output button to create a custom output rendition. On the Add an Output page, specify the details of the rendition and then click Save. For information on output options, see the Help panel on the Add an Output page.
Custom output renditions can include passthrough audio and video. Selecting **Passthrough Video** sends the stream to the target without transcoding the video track: the **Video Bitrate** defaults to 0 and you can’t specify **H.264 Profile**, **Aspect Ratio**, or **Keyframe Interval**. Selecting **Passthrough Audio** sends the stream to the target without transcoding the audio track: the **Audio Bitrate** defaults to 0.

2. Create as many output renditions as you need for your transcoder. Typically you might create a passthrough output that matches the source encoder’s settings. This would be your highest-quality output rendition for the stream. Then create additional, lower-quality output renditions.

Depending on the resolution of the passthrough (or highest) bitrate rendition, you might want to create three to five additional outputs. For each additional output, specify the aspect ratio, bitrate, and profile you want to use. The size difference between bitrate renditions should not exceed a factor of 1.8, and all aspect ratios should be divisible by 8.
Each output rendition now needs at least one stream target. You can’t start a transcoder that doesn’t have any stream targets.

**Note:** As a best practice, each output rendition should have no more than 10 stream targets. Five or fewer is better for the most efficient processing and delivery of your stream.

1. On the **Outputs & Targets** tab of the transcoder detail page, click the **Add a Stream Target** button for any output rendition.

2. Choose the type of stream target you want to create:

   - **Wowza CDN on Fastly** – A target at a Wowza Streaming Cloud location that receives and makes the stream available for playback over HLS. Enter a **Target Name** and then click **Add**. For information about the other options, see the **Help** panel on the right side of the page.
   
   - **Wowza CDN on Akamai - HLS** – A target at a Wowza Streaming Cloud location that receives and makes the stream available for playback over HLS. Enter a **Target Name** and then click **Add**. For information about the other options, see the **Help** panel on the right side of the page.
   
   - **Wowza CDN on Akamai - HDS/HLS** – A target at a Wowza Streaming Cloud location that receives the stream over RTMP and makes it available for playback over HDS and HLS. Enter a **Target Name** and **Target Location** and then click **Add**.
   
   - **Custom** – A target at an external RTMP destination. Enter the target settings and then click **Add**. For information about the options, see the **Help** panel on the right side of the page.
   
   - **Facebook Live** – A target that delivers the stream to a Facebook Timeline, Page, group, or event for Facebook Live Video playback. Enter the target settings and then click **Add**. For information about the options, see the **Help** panel on the right side of the page or see **Stream to**
Facebook Live from Wowza Streaming Cloud.

- **Existing stream target** – Any previously created stream target, either a Wowza CDN or custom target. Uses the existing target as is; you can’t edit it. Select a stream target from the list, select the option to use the backup URL if desired, and then click **Assign Stream Target**.

3. Repeat Steps 1 and 2 for the other output renditions for the transcoder, until each output has at least one stream target.

Now you can start transcoding. Make sure your video source is configured and connected to Wowza Streaming Cloud, start it, and then click **Start Transcoder**.

Wowza Streaming Cloud receives the stream from the source, starts transcoding, creates output renditions for the stream, and sends each output rendition to its target or targets.

**View and edit a transcoder and its outputs and targets**

The **Overview** tab of a transcoder detail page displays a list of the transcoder’s
**Outputs & Targets.** For each output, you can see the stream format, video and audio bitrate, H.264 profile, and aspect ratio. You can also see the targets assigned to each output.

- To edit the transcoder’s settings go to the Transcoder Setup tab.
- To add or edit outputs or targets, go to the Outputs & Targets tab.