Connect a UDP encoder to Wowza Streaming Cloud using the Wowza Streaming Cloud REST API

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The Wowza Streaming Cloud™ service can connect to any H.264 encoder that supports the User Datagram Protocol (UDP). This article describes how to use the Wowza Streaming Cloud REST API to create a transcoder and configure a UDP-based encoder as the video source.

To set up a UDP encoder for ingest into Wowza Streaming Cloud, you will:

- Create a transcoder that's configured to accept a source via the UDP protocol
- Complete the transcoder by adding output renditions and stream targets
- Configure the source encoder with connection details from Wowza Streaming Cloud

Create a transcoder

1. Using the Wowza Streaming Cloud REST API, create a transcoder.

Notes:

- Wowza Streaming Cloud accepts UDP source streams through the transcoder workflow only. You can't configure UDP ingest directly through the live stream workflow.
- Source authentication is not available for transcoders ingesting UDP streams.

Transcoder parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>billing_mode</td>
<td>string</td>
<td>The billing mode for the stream. Use the default, pay_as_you_go.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Data Type</td>
<td>Description</td>
</tr>
<tr>
<td>--------------------</td>
<td>-----------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>broadcast_location</td>
<td>string</td>
<td>Specify the region that's closest to where your stream originates. For a list of valid regions, see the API reference documentation.</td>
</tr>
<tr>
<td>delivery_method</td>
<td>string</td>
<td>The method you're using to deliver the source stream to the transcoder. Use push so the UDP source pushes the stream to Wowza Streaming Cloud.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>UDP source streams can't connect to the transcoder using a delivery_method of pull.</td>
</tr>
<tr>
<td>name</td>
<td>string</td>
<td>The name of the transcoder. Enter an alphanumeric string that is short (maximum 200 characters) and descriptive, for example, MyUDPTranscoder.</td>
</tr>
<tr>
<td>protocol</td>
<td>string</td>
<td>The transport protocol you're using to send the encoded stream to the transcoder. Use udp.</td>
</tr>
<tr>
<td>transcoder_type</td>
<td>string</td>
<td>Specify the default, transcoded. You can alternatively use passthrough, depending on your needs and the functionality available at your broadcast location.</td>
</tr>
</tbody>
</table>

Example request and response
This request creates a transcoder with an id parameter, but no outputs or stream targets. The details of the transcoder's configuration are listed in the response, which should look something like this:

```json
{
    "transcoder": {
        "id": "tmd8ybp2",
        "name": "MyUDPTranscoder",
        "transcoder_type": "transcoded",
        "billing_mode": "pay_as_you_go",
        "broadcast_location": "us_west_california",
        "delivery_method": "push",
        "name": "MyUDPTranscoder",
        "protocol": "udp",
        "transcoder_type": "transcoded"
    }
}
```

This request creates a transcoder with an id parameter, but no outputs or stream targets. The details of the transcoder's configuration are listed in the response, which should look something like this:

2. Complete the transcoder by adding output renditions and stream targets. For instructions, see one of the following articles, depending on whether you’re creating an adaptive bitrate or passthrough transcoder:

   - Create an ABR stream and send it to a target with the Wowza Streaming Cloud REST API
   - Pass a stream through the transcoder to a target with the Wowza Streaming Cloud REST API

3. Next, configure the source encoder. See Configure the source for next steps.
Configure the source

Next configure the UDP encoder to send the source stream to Wowza Streaming Cloud.

For a hardware encoder, make sure you have the latest firmware installed. See the encoder’s user guide for details about how to operate the device or software and how to specify settings such as resolution, bitrate, and frame rate.

1. Use the `domain_name` and `source_port` values returned when you created the transcoder to configure the UDP encoder.

2. Refer to documentation for your specific encoder to note where to input the stream settings.

   For example, **Address** is the `domain_name` value:
   
   ```
   [hostname].entrypoint.cloud.wowza.com
   ```

   While **Destination Port** is the `source_port` value:
   
   10000

Test the connection

1. Start the transcoder using the Wowza Streaming Cloud REST API.

   Start the transcoder:
   
   ```bash
   curl -X PUT
   -H "wsc-api-key: ${WSC_API_KEY}" 
   -H "wsc-access-key: ${WSC_ACCESS_KEY}" 
   "${WSC_HOST}/api/${WSC_VERSION}/transcoders/[transcoder_id]/start"
   ```

   Alternatively, click **Start Transcoder** at the top of the transcoder detail page in the Wowza Streaming Cloud user interface.

2. If you’re using the Wowza Streaming Cloud REST API to start the transcoder, fetch the state of the transcoder to make sure it’s started.

   Fetch the state of the transcoder:
3. Start the stream in the UDP encoder.
4. Confirm that the stream is playing.
   a. Fetch a video thumbnail of the stream using the Wowza Streaming Cloud REST API.

   Fetch the thumbnail URL of a transcoder:
   ```bash
   curl -X GET
   -H "wsc-api-key: ${WSC_API_KEY}"
   -H "wsc-access-key: ${WSC_ACCESS_KEY}"
   "${WSC_HOST}/api/${WSC_VERSION}/transcoders/[transcoder_id]/thumbnail_url"
   ```

   b. View the thumbnail URL in a browser.
   c. Alternatively, in the Wowza Streaming Cloud user interface, confirm that the transcoder is playing by looking at the Video Thumbnail in the Overview tab of the transcoder detail page.

5. Use the Wowza Streaming Cloud REST API to stop the transcoder.

   Stop the transcoder:
   ```bash
   curl -X PUT
   -H "wsc-api-key: ${WSC_API_KEY}"
   -H "wsc-access-key: ${WSC_ACCESS_KEY}"
   "${WSC_HOST}/api/${WSC_VERSION}/transcoders/[transcoder_id]/stop"
   ```

   Alternatively, click Stop Transcoder at the top of the transcoder detail page in the Wowza Streaming Cloud user interface.

6. Stop the stream in the source camera or UDP encoder.

More resources

- Wowza Streaming Cloud REST API reference documentation
- Connect a UDP encoder to Wowza Streaming Cloud