Get started with ultra low latency streaming using the Wowza Streaming Cloud REST API

Learn how to use the Wowza Streaming Cloud™ service’s REST API to send an encoded live stream to an ultra low latency stream target for browser-based playback with Wowza Player or playback through a mobile app.

Notes:
- Ultra low latency streaming is available through Wowza Streaming Cloud with Ultra Low Latency. For additional information see About ultra low latency streaming with Wowza Streaming Cloud.
- To get started with ultra low latency streaming using the Wowza Streaming Cloud web manager instead of the REST API, see Get started with Wowza Streaming Cloud ultra low latency streaming.
- For information on the Wowza Streaming Cloud free trial and its feature limitations, see Wowza Streaming Cloud free trial.
- See our Wowza ultra low latency playlist on YouTube for video tutorials about ultra low latency streaming.

Prepare authentication for your request

Note: The Wowza Streaming Cloud REST API uses hash-based message authentication code (HMAC) for secure authentication in production environments. In this form of authentication, the API key is a private, secret key. It is known to you and the Wowza Streaming Cloud service but never sent directly in an API request. To learn more, see HMAC Authentication.

For initial Wowza Streaming Cloud REST API testing only, you can use API key and access key authentication.

Create an ultra low latency stream target
If you are new to the Wowza Streaming Cloud REST API, start with About the Wowza Streaming Cloud REST API.

If you are familiar with the REST API, start by creating an ultra low latency stream target. Example commands are presented in curl using environment variables, but you can also use a GUI REST client for API testing such as Postman or Paw.

### Ultra low latency stream target parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>enable_hls</td>
<td>Boolean</td>
<td>If <strong>true</strong>, creates an HLS playback URL that can be used to view the stream on mobile devices or to provide redundancy in the event that Websocket connection attempts fail. The default is <strong>false</strong>.</td>
</tr>
<tr>
<td>enabled</td>
<td>Boolean</td>
<td>If <strong>true</strong> (the default), allows the source stream to be ingested by the target’s origin server.</td>
</tr>
<tr>
<td>ingest_ip_whitelist</td>
<td>string</td>
<td>Optional, if the source delivery method is <strong>push</strong>, A list of IP addresses for the stream’s source. Only whitelisted IP addresses can connect to the target’s origin server. Wildcard (*) characters are supported.</td>
</tr>
<tr>
<td>name</td>
<td>string</td>
<td>The name of the stream target. Enter a descriptive alphanumeric string that is under 200 characters.</td>
</tr>
<tr>
<td>region_override</td>
<td>string</td>
<td>Optional, for ultra low latency stream targets whose <strong>source_delivery_method</strong> is <strong>pull</strong>, The location of the ultra low latency stream target’s origin server. If unspecified, Wowza Streaming Cloud determines the optimal region for the origin server.</td>
</tr>
</tbody>
</table>
The method being used to deliver the source stream to the origin server. Valid values are pull, which instructs the stream target to pull the stream from the source, or push, which instructs the source to push the stream to the target.

required when the source delivery method is pull. The URL of a source IP camera or encoder. Consult the camera or encoder documentation for the URL syntax.

Example requests and responses

Create an ultra low latency stream target for a push stream. Use this request when streaming from the GoCoder mobile app or any source encoder that can send an RTMP or RTSP stream in H.264. Configuring a push stream indicates that your video source will push the stream to Wowza Streaming Cloud.

curl -X POST "${WSC_HOST}/api/${WSC_VERSION}/stream_targets/ull" -H "Content-Type: application/json" -H "wsc-api-key: ${WSC_API_KEY}" -H "wsc-access-key: ${WSC_ACCESS_KEY}" -d '{
    "stream_target_ull": {
        "name": "My Ultra Low Latency Push Target",
        "source_delivery_method": "push",
        "enable_hls": true
    }
}'

The command creates an ultra low latency stream target with an id parameter, ingest connection details, and playback details, including a hash of playback URLs. You will need details from this response to configure your source encoder. The response should look something like this:
Related API requests

View all ultra low latency stream targets:

```bash
curl -X GET
-H "wsc-api-key: ${WSC_API_KEY}" 
-H "wsc-access-key: ${WSC_ACCESS_KEY}"
"${WSC_HOST}/api/${WSC_VERSION}/stream_targets/ull"
```

View the details of an ultra low latency stream target:
Update an ultra low latency stream target’s configuration:

**Note:** The `enable_hls` and `source_delivery_method` parameters can’t be updated.

```bash
curl -X GET \
-H "wsc-api-key: ${WSC_API_KEY}" \
-H "wsc-access-key: ${WSC_ACCESS_KEY}" \
"${WSC_HOST}/api/${WSC_VERSION}/stream_targets/ull/[ull_stream_target_id]"
```

```bash
curl -X PATCH \
-H "Content-Type: application/json" \
-H "wsc-api-key: ${WSC_API_KEY}" \
-H "wsc-access-key: ${WSC_ACCESS_KEY}" \
-d '{
  "stream_target_ull": {
    "name": "My Awesome Ultra Low Latency Pull Stream Target",
  }
}' "${WSC_HOST}/api/${WSC_VERSION}/stream_targets/ull/[ull_stream_target_id]"
```

Delete an ultra low latency stream target:

```bash
curl -X DELETE \
-H "wsc-api-key: ${WSC_API_KEY}" \
-H "wsc-access-key: ${WSC_ACCESS_KEY}" \
"${WSC_HOST}/api/${WSC_VERSION}/stream_targets/ull/[ull_stream_target_id]"
```

**Configure the source**

Use the details of the ultra low latency stream target you created in the Wowza Streaming Cloud REST API to configure the **Wowza GoCoder™ mobile app**.

First, download the free Wowza GoCoder app for iOS from the [Apple Store](https://apps.apple.com) or for Android from [Google Play](https://play.google.com).

**Connect the GoCoder app using a connection code**

The easiest connection method is using the connection code value returned when you created the ultra low latency stream target.

**For GoCoder for iOS 2.0.5 or later**
If you're using the current version of the GoCoder app for iOS, enter the target's connection code in the app to use the app as the source for your live stream.

1. Tap the **Connect** icon (the Wowza gear).
2. In the **Connect To** menu, tap **Wowza Streaming Cloud**.

3. For **Connection Code**, enter the Wowza Streaming Cloud ultra low latency stream target's connection code, for example, **24cedc**.

4. Tap **Done**.

**Connect the GoCoder app manually**

If you're using an older version of the GoCoder app for iOS, parse the connection details from the ultra low latency stream target's primary URL into the host domain, port, application name, and stream name.

This connection method is also useful for troubleshooting a connection with a connection code that isn't working as expected.

1. Tap the **Connect** icon (the Wowza gear).
2. In the **Connect To** menu, tap **Wowza Streaming Engine**. (When connecting manually, it's correct to use the Wowza Streaming Engine settings for a Wowza Streaming Cloud target.)
3. Tap **Host**.
   - For **Server**, enter the target’s host domain, which is `origin.cdn.wowza.com`.
   - For **Port**, enter **1935**.

4. Tap **Back** and then tap **Application**.
   - For **Application** enter **live**.
   - For **Stream Name** enter the alphanumeric stream name from the ultra low latency target, for example, `0I1q1UHJEN1q84NA2gvuuywllGwn5f4e`.

5. Tap **Back** and then tap **Source Authentication**.

6. Make sure **Source Username** and **Source Password** are empty.

7. Tap **Done**.

**Note:** You can send an ultra low latency stream to Wowza Streaming Cloud using a number of different sources. See these articles for more information:

- Connect an RTMP encoder to Wowza Streaming Cloud with Ultra Low Latency with the Wowza Streaming Cloud REST API
- Connect an RTSP encoder to Wowza Streaming Cloud with Ultra Low Latency using the Wowza Streaming Cloud REST API
- Build a basic app with GoCoder SDK for iOS
- Configure a broadcast with GoCoder SDK for iOS
- Build a basic app with GoCoder SDK for Android
- Configure a broadcast with GoCoder SDK for Android
- Send a stream from Wowza Streaming Engine to an ultra low latency stream target in Wowza Streaming Cloud

**Configure playback**
To quickly test playback functionality, use Wowza Player Builder for Ultra Low Latency to preview the stream. Wowza Player for Ultra Low Latency works with the latest version of most modern web browsers such as Google Chrome, Firefox, Safari, and Microsoft Edge.

**Note:** Wowza Player for Ultra Low Latency currently supports HLS fallback streams only for browser-based playback on iOS devices. HLS fallback streams have higher latency than ultra low latency streams. For ultra low latency stream playback on iOS devices, see [Play a Wowza Streaming Cloud ultra low latency stream with Wowza GoCoder SDK for iOS](#).

Navigate to the Wowza Player Builder for Ultra Low Latency from within the Wowza Streaming Cloud web manager.

1. In Wowza Streaming Cloud, click **Advanced** on the menu bar, and then click **Stream Targets**.
2. Select your ultra low latency target on the **Stream Targets** page.
3. Click **Test player for Wowza ultra low latency targets** to launch Wowza Player for Ultra Low Latency with prepopulated fields for **License Key**, **Stream Source**, and (if you enabled HLS) **Backup Stream Source**.
4. Optionally enter a **Title** and **Description** that will appear on the player, and adjust the player **Size** options if desired.
5. Click **Player Options**, and then select or edit any of the **Playback Options** and add a video poster image if desired.
6. Click **Update Preview**.

For more configuration options and instructions on how to embed Wowza Player for Ultra Low Latency into a web page, see [Configure Wowza Player for Wowza Streaming Cloud ultra low latency streams](#).

**Note:** You can also use the GoCoder SDK to develop an app with ultra low latency playback functionality. For more information, see these articles:

- [Play a Wowza Streaming Cloud ultra low latency stream with Wowza GoCoder SDK for iOS](#)
- [Play a Wowza Streaming Cloud ultra low latency stream with Wowza GoCoder SDK for Android](#)

Start streaming
1. In the Wowza GoCoder mobile app, start sending video.
2. In Wowza Player Builder, click the **Play** button in the player preview to see your test stream.

If you have trouble sending a stream through the GoCoder app, check the settings in the **Connect the GoCoder app manually** section. You also may need to regenerate a connection code. You can do this in the stream target details page in the Wowza Streaming Cloud web manager or through the following API request:

```bash
curl -X PUT \
-H "wsc-api-key: ${WSC_API_KEY}" \
-H "wsc-access-key: ${WSC_ACCESS_KEY}" \
"${WSC_HOST}/api/${WSC_VERSION}/stream_targets/[ull_stream_target_id]/regenerate_connection_code"
```

**More resources**

- Wowza Streaming Cloud REST API reference documentation
- Configure Wowza Player for Wowza Streaming Cloud ultra low latency streams
- Configure Wowza GoCoder to stream to an ultra low latency stream target
- View ultra low latency stream health metrics with the Wowza Streaming Cloud REST API
- Get ultra low latency viewer data with the Wowza Streaming Cloud REST API
- View ultra low latency usage with the Wowza Streaming Cloud REST API