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# About ultra low latency streaming with Wowza Streaming Cloud

Originally Published on 06/04/2018 | Updated on 07/31/2019 11:05 am PDT

Learn about ultra low latency streaming with the Wowza Streaming Cloud™ service with Ultra Low Latency, including what functionality is available, how to access the API and Wowza Streaming Cloud, and current limitations for ultra low latency streaming.

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## About ultra low latency streaming

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Wowza Streaming Cloud offers an ultra low latency stream target that combines a scalable live streaming infrastructure with high availability and ultra low latency. The target allows you to broadcast live streams with end-to-end latency of under three seconds.

Using the Wowza Streaming Cloud REST API or user interface, you can send a single bitrate live stream from any H.264 IP camera or encoder to geographically distributed cloud-based servers over RTMP, RTMPS, RTSP, WOWZ or WOWZS. The servers then deliver the stream to players that support WebSocket-based playback URLs. Usage endpoints in the API allow you

to analyze stream target connection metrics and to see the details of who watched your stream and where. You can also monitor ultra low latency stream targets and their metrics in the Wowza Streaming Cloud user interface.

Ultra low latency streams support:

- Source video from any H.264 encoder or camera, including the Wowza GoCoder app and the Wowza GoCoder SDK, IP cameras, and Wowza Streaming Engine
- AAC audio
- RTMP/RTMPS, RTSP, and WOWZ/WOWZS protocols for ingest
- Playback using Wowza Player in supported browsers or mobile apps developed with Wowza GoCoder SDK
- Video + audio, audio-only, and video-only streams
- Single-rendition streams only
- Resolution up to 1080p at 30 fps and 6 Mbps
- Servers located in multiple geographic zones (See Ultra low latency zones for more information.)

## Accessing ultra low latency through the REST API

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You can create ultra low latency streams through the Wowza Streaming Cloud REST API with a subscription to a Wowza Streaming Cloud with Ultra Low Latency plan.

The same API key and API access key that you use for the Wowza Streaming Cloud REST API provide access to ultra low latency resources and endpoints. See [Locate an API key and generate an access key](#) to learn more.

For detailed information on the REST API structure, endpoints, and query requirements for ultra low latency streaming, see the [Wowza Streaming Cloud REST API reference documentation](#). For basic information, see [About the Wowza Streaming Cloud REST API](#).

## Accessing ultra low latency through the Wowza Streaming Cloud user interface

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With a subscription to a Wowza Streaming Cloud with Ultra Low Latency plan, you can also configure ultra low latency stream targets and view target details in the Wowza Streaming cloud user interface.

For detailed instructions, see [Get started with Wowza Streaming Cloud ultra low latency streaming](#).

## Limitations of ultra low latency streaming

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Keep these things in mind when using Wowza Streaming Cloud with Ultra Low Latency.

### Features

These features are not currently supported for ultra low latency streaming.

- Adaptive bitrate streaming
- Transcoding
- Recording ultra low latency streams
- 4K streaming

### Viewer and Target Limits

- Each ultra low latency stream is limited to a specified number of maximum simultaneous viewers according to the subscription plan you select.
- You can create up to 10 ultra low latency stream targets within a span of three hours.

See [Wowza Streaming Cloud REST API limits](#) for details, and open a [Support ticket](#) to request an increase in peak viewers or ultra low latency stream target API limits.

### Playback

**Drift and catch-up**—Ultra low latency stream playback is unique because it uses a very small buffer and a single bitrate. To ensure that the player has enough data and to prevent drift between the network and playback, Wowza Streaming Cloud monitors drift to ensure that playback and available data stay synced. If a player falls behind, playback speed increases to catch up to the live point.

**Time to first frame**—*Time to first frame* is the period of time between when a viewer initiates playback and when a video begins playing. For ultra low latency live streams from Wowza Streaming Cloud, the time to first frame may range from a few seconds to tens of seconds. This range depends on a number of factors, including the quality of the network between the edge server and the viewer. It also depends on whether a playback request is the first request to the CDN edge server or whether it is a subsequent request. See [Show loading status during time to first frame with the Wowza Player JavaScript API](#) for a playback option that keeps viewers informed of video loading progress.

**iOS browser playback**—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 [How to play an ultra low latency stream with Wowza GoCoder SDK for iOS](#).

## Testing

Ultra low latency stream targets are not available as part of the Wowza Streaming Cloud REST API sandbox environment. To access ultra low latency streaming for development and testing, use the production environment available with a Wowza Streaming Cloud free trial.

## Ultra low latency zones

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Ultra low latency streaming uses servers on multiple continents to receive and deliver streams. Wowza Streaming Cloud automatically selects from the following regions and corresponding zones for origin and edge servers based on a DNS query. Regions reflect the approximate location of origin and edge servers, while zones reflect areas for billing. Billing charges differ depending on the subscription plan you choose and the zone.

Zone	Region Location	Region
Ultra Low Latency Zone 1	West Europe	nl-central1
Ultra Low Latency Zone 1	Central United States	us-central2
Ultra Low Latency Zone 2	West India	in-west1
Ultra Low Latency Zone 2	East Asia	hk-central1
Ultra Low Latency Zone 2	East Australia	au-east1
Ultra Low Latency Zone 2	East Japan	jp-east1
Ultra Low Latency Zone 3	South Brazil	br-south1

You can override the default locations and choose a region you want use as the origin server, or force the player to pull from an edge server in a specific region. See [Override the origin or edge server location used by an ultra low latency stream target with the Wowza Streaming Cloud REST API](#) to learn more.

## More resources

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- [Get started with ultra low latency streaming using the Wowza Streaming Cloud REST API](#)
- [Get started with Wowza Streaming Cloud ultra low latency streaming](#)
- [Wowza Streaming Cloud REST API release notes](#)
- [Wowza Streaming Cloud REST API reference documentation \(current version\)](#)
- [Configure Wowza Player for Wowza Streaming Cloud ultra low latency streams](#)
- [Configure Wowza GoCoder to stream to an ultra low latency stream target](#)
- [Play an ultra low latency live with Wowza GoCoder SDK for iOS](#)
- [Play an ultra low latency live stream with Wowza GoCoder SDK for Android](#)
- [View ultra low latency stream 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](#)