Kaltura eCDN
Information Guide

Version: 1.0

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Overview of the Kaltura eCDN

The Kaltura eCDN is an out-of-the-box solution for scalable and secure delivery of live and on-demand video content behind the firewall.

As video usage increases, Kaltura eCDN streaming and caching capabilities effectively stream high quality video to an unlimited number of users, in any number of remote sites, to any device, without any impact on the corporate's WAN/LAN networks.

Whether it is the CEO speech, a training session, a campus event or User-Generated Content videos (UGC) it is possible to reliably and securely broadcast a live event in multicast or unicast mode as well as deliver on-demand videos to an internal audience.

Kaltura eCDN is always installed on premise and can work fully on premise alongside Kaltura's OnPrem™ Video Management solution or as a Hybrid model alongside Kaltura SaaS.

The Kaltura eCDN's main components are:

- **Kaltura Streaming Server (KSS)** – based on the Wowza streaming server. Responsible for getting the stream from the encoder, segmenting it, packaging it, translating it to multiple bitrates on-the-fly, delivering it in several possible formats (HDS, HLS, etc.) and more. This component is the content origin. Usually resides in the customer's Data Center.
- **Kaltura Edge Server (KES)** – based on Nginx. A component that helps content be accessible wherever users are (remote sites as well the Headquarters/data-center, near the streaming server). Helps cache popular content for VOD and HTTP-based live (HDS/HLS), supports pre-positioning of content. Similar to CDN POP (node/edge). Purge scheduling is configured on the edge itself.

Installing the Kaltura Streaming Server

The Kaltura eCDN is based on Wowza Streaming Engine 4.0.0.00 build 10425 with jar file version KalturaWowzaServer-3.0.8.5.5.jar.

Contact your account manager for installation instructions.

Multicast Support

Multicast streams are natively supported by Wowza and use RTP. Multicast support is configured in the Kaltura Admin Console and should be enabled at the account level by the Kaltura admin. Multicast setup instructions are specified in the Kaltura Streaming Server Installation Guide. Contact your account manager for installation instructions.

▤ To configure multicast support

1. In the Kaltura Admin Console 'Configure' screen, check the 'Push-Publish Feature' check box.
   If you do not have access to the KAC, contact your account manager.

2. Multicast playback is supported through the Kaltura Silverlight player (native part of Kaltura V2 player). Therefore, to support Multicast, enable a Silverlight page on the browser in use.

3. In case the Silverlight page plugin is missing, there is a smart 'Multicast to Unicast fallback' mechanism that can be enabled on the player, or you can explore other possibilities with the Kaltura staff, such as RTMFP over Adobe Media Server (AMS) and more.

Assigning Multicast Ports

IT should assign specific multicast ports. Kaltura assigns live entries to multicast ports as follows:

1. Ports are assigned in ascending order.
2. Begin assigning entries to the multicast ports using the first designated port.
3. Live entries are then automatically assigned to sequential ports.
4. When the designated ports are filled, the next entry will be assigned to the first available port in the list.

In case a user reloads the web page with the live player, the entry is assigned to the same port as was previously used.

It is recommended that organizations using Multicast should reserve substantial ports to keep the risk of overriding in-use ports minimal.

Multicast in KMC

The following features/components are added or removed when using multicast ports:

1. A partner that is enabled for Multicast in the Kaltura Admin Console will have an added Multicast provisioning option in the KMC's live stream type drop-down menu – "Multicast (RTP)".

2. Live transcoding profile - An option of 'Multicast' (400 KBPS - 360 video, 40 audio), is pre-created by Kaltura. You can choose to add additional Multicast transcoding profiles.

3. DVR – If Multicast is chosen, "Enable live DVR" is removed as there is no DVR in Multicast streaming.

Multicast Transcoding Profile

The Kaltura Multicast support comes with a default Multicast flavor - 400 Kbps (360 Video, 40 Audio).

Any transcoding profile that needs to support Multicast flavors should be created with a 'Multicast' tag on the flavorParam.

Contact Kaltura Support to create a new multicast transcoding profile.

Multicast Timeout

A multicastStartTimeout player var was created on the Kaltura Silverlight player. It defines the time the player will search for Multicast packets. The default multicastStartTimeout is 10000 milliseconds (10 seconds).

If you change the multicastStartTimeout, it should be to minimum few seconds timeout. Less than that (milliseconds) can either cause issues or not enough to identify Multicast packets.

When timeout is met, if the fallback mechanism is in place, it will activate the fallback to unicast. If no fallback mechanism is in place, it will show 'Multicast isn't supported'.

The vars can be changed in 2 ways:

- On a specific player embed – directly on the player embed code by the customer.
- On all embed of a specific player – through Kaltura editing the UI conf through the Kaltura Admin Console. Contact your account manager for more information.

Multicast to Unicast Fallback

An enableMulticastFallback player var was created on the Kaltura Silverlight player.

The enableMulticastFallback player var should be set to enable/disable a fallback mechanism to Unicast (HLS/HDS) when Multicast is not playable by the player.

Note that a Unicast stream must be streamed along-side the Multicast stream in order to support the fallback mechanism.

enableMulticastFallback - The default is false - no fallback.

The entire playback matrix should look as follows:

Fallback is disabled:

	Silverlight plugin on browser	**No Silverlight plugin on browser**
Multicast	Multicast playback on Silverlight	Playback HLS/HDS*
Unicast	No playback	Playback HLS/HDS

Fallback is enabled:

	Silverlight plugin on browser	**No Silverlight plugin on browser**
Multicast	Multicast playback on Silverlight	Playback HLS/HDS*
Unicast	Playback HLS/HDS	Playback HLS/HDS

* This behavior is due to the fact that the fallback mechanism is active only on the Silverlight player. When Multicast is streamed and there is no Silverlight plugin on the browser, the Kaltura Silverlight player cannot be loaded and the system will attempt to playback content from other resources (HLS/HDS). It is possible to avoid this kind of behavior by adding the fallback mechanism on the Flash and HTML5 players as well. Contact your account manager for more information.

The vars can be changed in 2 ways:

- On a specific player embed – directly on the player embed code by the customer.
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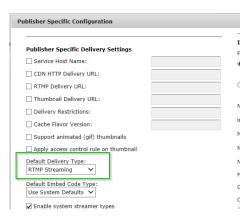
Known Issues and Workarounds

Problem: KSS acts as VOD remote storage as well

The live recording redirect (which uses the same URL for live and VOD) is broken. Since Wowza does not support HTTP Progressive Download, and the VOD redirect is HTTP by default for the streamerType, an error is displayed, and the entry does not play.

Workaround

Manually change the flashvars[streamerType] to RTMP.

Problem: A Wowza type remote storage URL is unavailable.

A Wowza type remote storage URL is not available on the Kaltura Admin Console Remote Storage creation page.

Workaround:

Please contact your account manager to resolve this problem.

Problem: KSS (Wowza based) does not support HTTP Progressive Download.

Workaround:

Connect a load balancer and redirect the progressive download request to a local Apache server, or deliver the progressive download directly from the Kaltura server