

TechNote – AltitudeCDN™ Multicast+ Plugin for Brightcove

Version 1.1

AltitudeCDN Multicast+ (US Pat. 9,516,390) is a standards-based solution that brings multicast support to any live video deployment that uses HTTP Live Streaming (HLS). The AltitudeCDN Multicast+ Plugin for Brightcove allows you to use both Brightcove live streaming and Multicast+ together to provide multicast support with fallback capability.

This guide describes how to implement the Multicast+ Plugin for Brightcove with Brightcove Video Cloud.

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Introduction

AltitudeCDN Multicast+ takes live video streams in HLS, or other widely-used formats, and uses multicast to transfer the stream to groups of users for viewing in any HLS or HTML5 compatible browser. AltitudeCDN Multicast+ is deployed using Multicast+ Senders and Multicast+ Receivers:

- **Multicast+ Sender** – The video stream is sent by the encoder to the Media Server, which uses HLS to packetize the stream. The segmented stream is transferred to the Sender, which encapsulates the stream with security, forward error-correction, and bandwidth smoothing, then uses a multicast protocol to send the stream to Multicast+ Receivers that are bound to the Sender.
- **Multicast+ Receiver** – Listens for HTTP requests specifying the use of multicast data, performs packet error checking and reordering, decodes the multicast data into HLS, then encrypts the HLS for delivery to the HLS or HTML5 compatible player.

When used with Brightcove Video Cloud, Multicast+ is easily configurable to provide multicast support for your viewers with flexible fallback capability:

Product	Fallback Path
Multicast+ only	<ul style="list-style-type: none">• If multicast source isn't detected > fallback to Brightcove source.
Multicast+ used with OmniCache	<ul style="list-style-type: none">• If multicast source isn't detected > fallback to OmniCache.• If OmniCache isn't reachable > fallback to Brightcove source. <p><i>Note: For information on using OmniCache, see the TechNote – AltitudeCDN™ OmniCache Plugin for Brightcove.</i></p>

Note: The Brightcove player is built upon the Brightcove-sponsored Video.js open source player framework. The general techniques described in this guide are adaptable to other Video.js-based players, provided the appropriate changes in the plugin installation steps are made.

Requirements

To use the Multicast+ Plugin for Brightcove, you need the following:

Item	Recommendation
Multicast+ Sender	<ul style="list-style-type: none">• Multicast+ v1.6.5 or later.
Multicast+ Receiver	<ul style="list-style-type: none">• Multicast+ Windows Service Receiver Version 1.0.47 or later.• Multicast+ Windows Add-On (Web-Click) Receiver Version 1.1.25 or later.• Multicast+ Mac Receiver Version 1.6.5 or later.• Multicast+ Java Receiver Version 1.6.5 or later.
AltitudeCDN Altimeter	<ul style="list-style-type: none">• (Optional) Altimeter Management server 1.2 or later.
Brightcove Video Cloud Studio	<ul style="list-style-type: none">• You must be able to reconfigure Brightcove players in Brightcove Video Cloud Studio.
Brightcove Players	<ul style="list-style-type: none">• Brightcove players 5.5.0 through 5.19.1 have been tested with the Multicast+ Plugin for Brightcove, but any Brightcove player that supports plugins should work with the solution.

Solution Summary

To use the Multicast+ Plugin for Brightcove, you need to:

1. Review the Multicast+ Plugin for Brightcove outlined in this TechNote. For more information, see [Multicast+ Plugin for Brightcove Reference](#).
2. Configure and activate the Multicast+ Plugin for Brightcove in Brightcove Video Cloud Studio. For more information, see [Configure and Activate the Multicast+ Plugin for Brightcove](#).
3. Configure a Live Event in Brightcove Video Cloud Studio, using the player that uses the Multicast+ Plugin. For more information, see [Configure a Live Event in Brightcove Video Cloud](#).
4. Configure a multicast channel for the Live Event. For more information, see [Configure a Multicast Channel](#).
5. Install the Multicast+ Receiver so users can view the Live Event. For more information, see [Install the Multicast+ Receiver](#).

Multicast+ Plugin for Brightcove Reference

This section describes the Multicast+ Plugin for Brightcove that was developed for use with Brightcove Video Cloud.

Note: The Multicast+ Plugin for Brightcove is also hosted at the following location:
<http://livetools.ramp.com/omnicache/plugin/multicastplugin.allinone.js>

Functionality

The Multicast+ Plugin for Brightcove has the following functionality:

1. The Multicast+ Plugin for Brightcove is configured within Brightcove Video Cloud when you add the plugin to a player, using simple JSON that provides:
 - The multicast address channel.
 - The name of the Multicast+ Receiver host.
 - The type of Multicast+ Receiver being used.
 - For OmniCache fallback, the host name/port of the OmniCache server.
2. The Multicast+ Plugin for Brightcove instantiates itself as a player plugin.
3. When the plugin is loaded, it redirects the player's src() routine to the plugin's src() routine, and starts the OmniCache and Multicast+ Receiver detection process, using the supplied source stream as a unicast or OmniCache fallback.
4. When the plugin is ready, it processes its queue to handle any source stream requests that were applied as it was being loaded and started:
 - If any multicast/unicast/unicast via OmniCache URL is supplied during the multicast detection process, then that URL is prepended to the player's original list of sources.
 - The player tries the multicast/unicast/unicast via OmniCache URL first. If the URL fails to load, the player tries the next source in the list until a suitable source is found, or the list is exhausted. You can optionally choose to rewrite the original source list to use an available OmniCache.

Note: For information on using OmniCache, see the TechNote – AltitudeCDN™
OmniCache Plugin for Brightcove.

Configure and Activate the Multicast+ Plugin for Brightcove

To configure and activate the Multicast+ Plugin for Brightcove in Brightcove Video Cloud Studio:

Note: You can use the Multicast+ Plugin for Brightcove with any Video.js-based players that you wish to use with Multicast+.

1. Access Brightcove Video Cloud Studio.
2. Click Home, then select the Players option on the page. The Players page appears.
3. Select the name of the Brightcove player you want to use with Multicast+.
4. Scroll to the Plugins section, then click Edit to add a custom plugin.
5. Select JavaScript.
6. Create an entry for the Multicast+ Plugin for Brightcove URI (using the // protocol matching format). For example:

```
//livetools.ramp.com/omnicache/plugin/multicastplugin.allinone.js
```

7. Click Name, Options (JSON).
8. Create an entry for the name of the custom plugin. The plugin must be named:

```
multicast
```

9. Create a JSON configuration entry for the custom plugin. For example:

```
{
  "params": {
    "maddr": "239.55.0.1",
    "allowHttpFallback": false,
    "receiverHost": "hostname",
    "receiverType": "native",
    "omnicache": "https://cache.ramp.com:10000"
  },
  "verbose": true
}
```

Where:

Parameter	Type	Description
maddr	string	The IP address and port used by the Multicast+ Receiver to communicate with the Multicast+ Sender.
allowHttp Fallback	boolean	Must be set to: "allowHttpFallback": false
receiverHost	string	The hostname of the Multicast+ Receiver: <ul style="list-style-type: none">• For HTTP, Ramp recommends that you specify 127.0.0.1 as a security best practice.• For HTTPS, you must specify the name of a host that holds a valid certificate:<ul style="list-style-type: none">• Public certificate: All Multicast+ Receivers include a built-in public HTTPS certificate to support customers and partners who wish to use HTTPS without obtaining

		<p>their own certificate. You can either contact Ramp to obtain a DNS name assignment, or use the following value:</p> <pre>brightcove.multicast-receiver-altitudecdn.net</pre> <ul style="list-style-type: none"> • Custom certificate: You can install your own HTTPS certificates, if needed, and specify that hostname.
receiverType	string	<p>The type of Multicast+ Receiver being used.</p> <p>Valid values:</p> <ul style="list-style-type: none"> • null • native • java • webclick or web-click • mac • service (special case where it continually searches for the Receiver)
omnicache	string	The hostname and port used by OmniCache.
verbose	boolean	<p>Boolean flag indicating whether to display most log messages.</p> <p>Default value: false</p> <p>Valid values:</p> <ul style="list-style-type: none"> • true – Displays most log messages. • false – Only displays critical log messages.

10. Publish the player.

Configure a Live Event in Brightcove Video Cloud

Configure a Live Event within Brightcove Video Cloud, using the Multicast+ enabled player that you defined in [Configure and Activate the Multicast+ Plugin for Brightcove](#).

As part of configuring a Live Event in Brightcove Video Cloud, the process produces a direct link to the HLS source for the video stream. You must copy or save the HLS source link for use with Multicast+.

For information on using the Brightcove Video Cloud interface, see the Brightcove documentation.

Configure a Multicast Channel

Configure a multicast channel for your Live Events, using either the AltitudeCDN Altimeter Management Server interface, or by editing the “sender.properties” file in Multicast+. You must include the following:

- Multicast address – The IP address and port used by the Multicast+ Receiver to communicate with the Multicast+ Sender. This is the maddr value you used in [Configure and Activate the Multicast+ Plugin for Brightcove](#).
- HLS source – The link to the HLS source. This is the link you copied/saved in [Configure a Live Event in Brightcove Video Cloud](#).

For more information, see the *AltitudeCDN Altimeter Deployment Guide* or the *AltitudeCDN Multicast+ Deployment Guide*.

Install the Multicast+ Receiver

Install the Multicast+ Receiver so users can view your Live Events.

For more information, see the *AltitudeCDN Multicast+ Deployment Guide*.