

# WCS5 CDN, 2761

## General description

CDN-module is started when WCS server is started, and then request to the server specified as `cdn_point_of_entry` is sent to get list of other nodes and routes to available streams being published in the CDN.

In case `cdn_point_of_entry` is not specified, or that server does not respond, notification from any other CDN server is expected (it will be sent if this server is specified as `cdn_point_of_entry`, or has previously been added to a list of CDN nodes on some other server).

As the result, each active CDN node will have list of all other nodes (active and passive) in CDN.

CDN node can have one of the following two roles

- Origin: source of streams for other nodes in CDN

or

- Edge: does not distribute streams published on it to other servers; can pull streams from Origin-nodes

When a stream is published on an Origin-node, it can be pulled for playback to any other node in CDN. However, if a stream, which has the same name as a stream published on an Origin-node, is published on another node, then the local stream will be played on that node (CDN stream will not be pulled).

Though name of a published stream may be not unique in CDN, it is unique for each server. If a CDN node has pulled a stream from another node, then stream with the same name cannot be published on this node till the pull-agent is deleted when 1 min inactivity timeout expires (after all subscribers stopped playing the stream).

## Node configuration

Config file `WCS_HOME/conf/flashphoner.properties`

Property	Default value	Description
<code>cdn_enabled</code>	<code>false</code>	If true, enable CDN-module
<code>cdn_ip</code>	Not set	Node address (IP or domain name)
<code>cdn_nodes_resolve_ip</code>	<code>false</code>	If true, IP addresses of other nodes are resolved to domain names
<code>cdn_point_of_entry</code>	Not set	Address of another node, from which this server will request CDN data. If not set, then the data will be received from other nodes in CDN (if they have address of this server in the list of nodes).
<code>cdn_port</code>	8084	Port for CDN-module
<code>cdn_role</code>	<code>edge</code>	Role in CDN: - origin: source of streams for other nodes in CDN – published stream can be pulled and played on any other node in CDN

		- edge: streams published on this node are not available to other nodes in CDN
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### Example of minimal configuration

Two servers: Origin (origin.flashponer.com) and Edge (edge.flashponer.com)

Settings for Origin:

```
cdn_enabled=true
cdn_ip=origin.flashponer.com
cdn_role=origin
```

Settings for Edge:

```
cdn_enabled=true
cdn_ip=edge.flashponer.com
cdn_point_of_entry=origin.flashponer.com
```

### Example of configuration with two Origin-nodes

Three servers: Origin1 (origin1.flashponer.com), Origin2 (origin2.flashponer.com) and Edge (edge.flashponer.com)

Settings for Origin1:

```
cdn_enabled=true
cdn_ip=origin1.flashponer.com
cdn_role=origin
```

Settings for Origin2:

```
cdn_enabled=true
cdn_ip=origin2.flashponer.com
cdn_point_of_entry=origin1.flashponer.com
cdn_role=origin
```

Settings for Edge:

```
cdn_enabled=true
cdn_ip=edge.flashponer.com
cdn_point_of_entry=origin1.flashponer.com
```

## CLI commands

Command	Description	Example of result
show cdn-nodes	List of nodes in CDN (ACTIVE – server is running and available; PASSIVE – server is stopped or unavailable)	<pre> Ip                               State ----- edge1.flashponer.com  ACTIVE edge2.flashponer.com  ACTIVE origin2.flashponer.com PASSIVE </pre>
show cdn-routes	List of streams in CDN	<pre> Route                               Stream ----- 1-origin2.flashponer.com-2 stream1 0-origin2.flashponer.com-0 stream2 2-origin1.flashponer.com-1 stream1 </pre>

(For information about CLI, see the [Admin Guide](#).)

## Example of work: CDN with two Origin-nodes and two Edge-nodes

CDN: Origin1, Origin2, Edge1 and Edge2

## 1. Playback of stream published on Origin-node

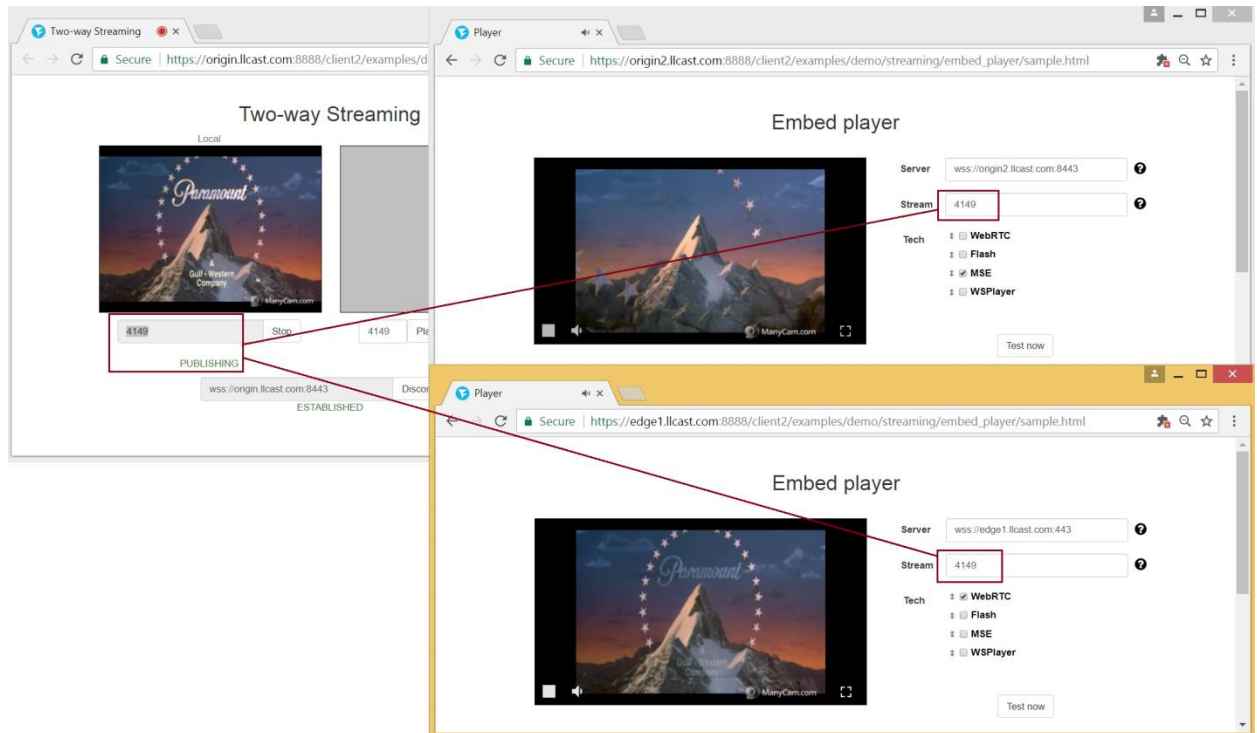
a) Stream stream1 is published on Origin1

Origin2, Edge1 and Edge2 get route to stream1 – to Origin1.

b) Playback of stream1 is started on Origin2 - stream published on Origin1 is played

c) Playback of stream1 is started on Edge1 - stream published on Origin1 is played

### Example:



## 2. Stream published on Edge-node

a) Stream stream3 is published on Edge1

- Other CDN nodes do not see stream3 in their routes tables

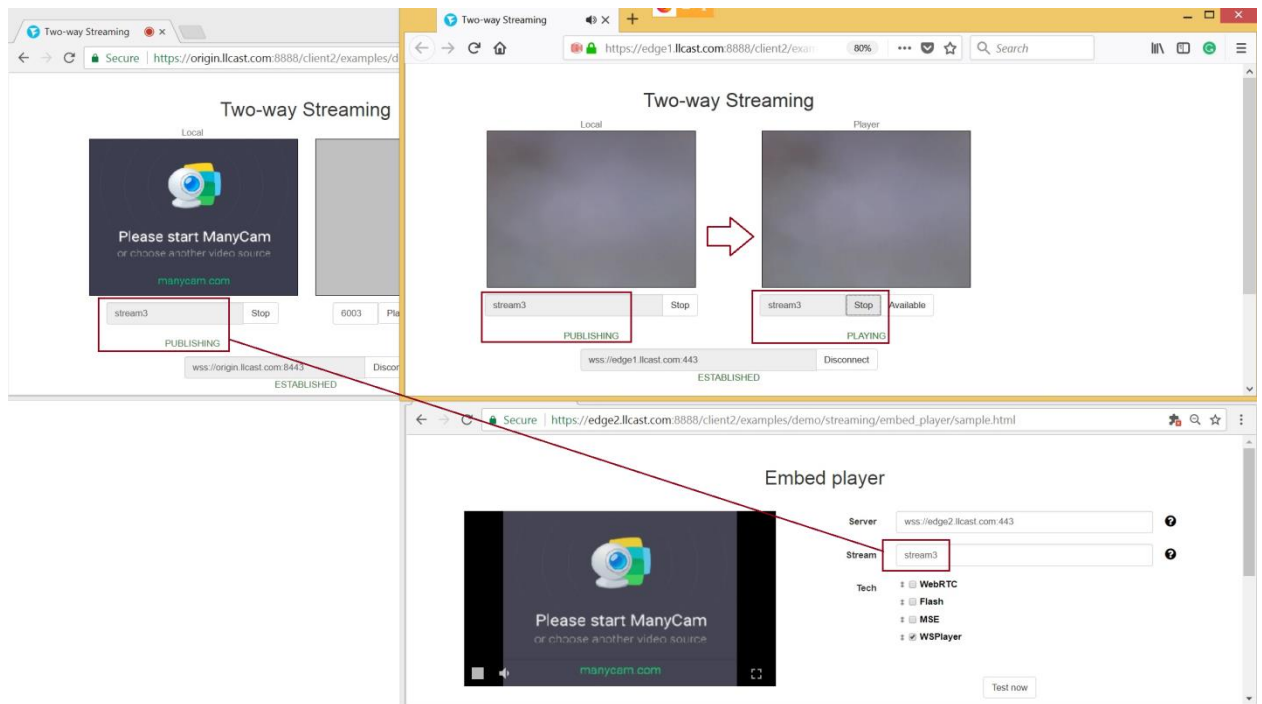
- The stream can be played only by subscribers connected to Edge1

b) Stream stream3 is published on Origin1

Origin2, Edge1 and Edge2 get route to stream3 – to Origin1.

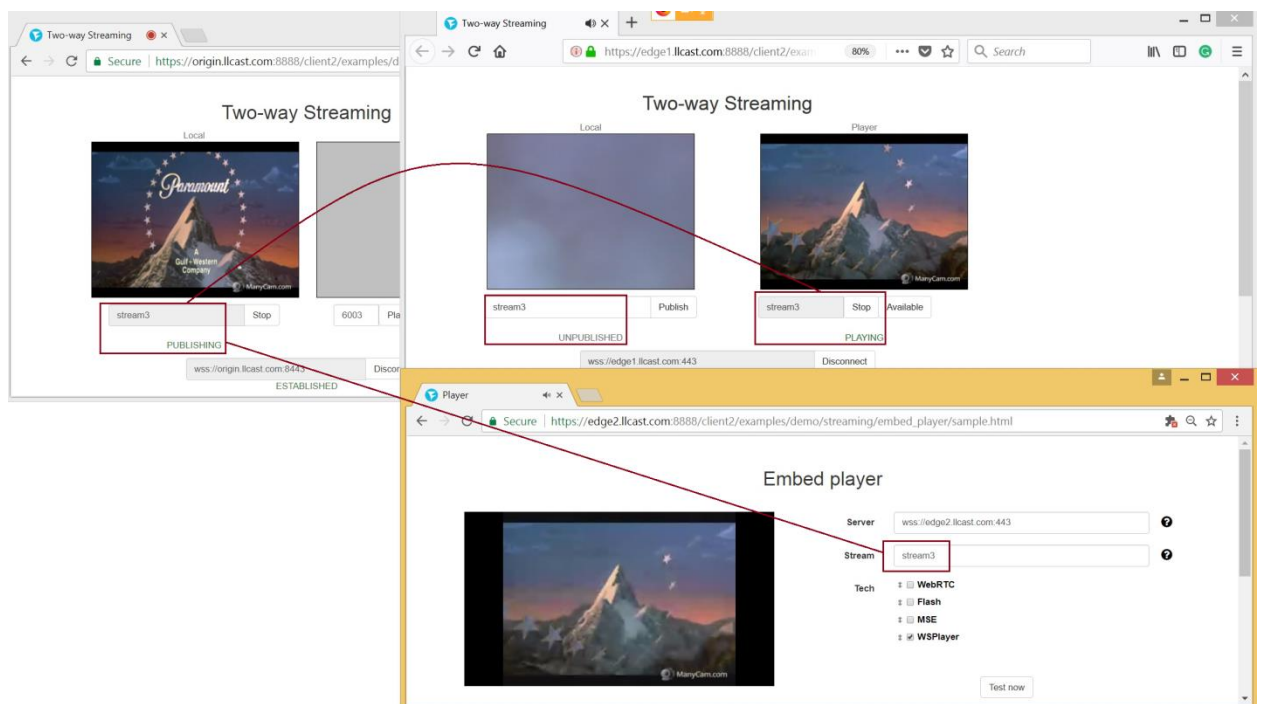
c) Playback of stream3 is started on Edge2 – stream published on Origin1 is played

d) Playback of stream3 is started on Edge1 – stream published on Edge1 is played



e) stream3 is unpublished on Edge1

f) Playback of stream3 is started on Edge1 – stream published on Origin1 is played



### 3. Exclusion of server from CDN

a) The following property is changed in flashphoner.properties on Origin2 to disable CDN-module on the server:

```
cdn_enabled=false
```

b) Origin2 is restarted

```
service webcallserver restart
```

All other servers remaining in the CDN see Origin2 as PASSIVE in the nodes table

E.g., on Origin1

```
show cdn-nodes
Ip                               State
-----
edge1.flashphoner.com  ACTIVE
edge2.flashphoner.com  ACTIVE
origin2.flashphoner.com  PASSIVE
```

Origin2 does not receive data about streams published in the CDN, and does not notify about streams published on it.

## Playback methods

Supported

- HLS
- MSE
- RTMFP
- RTMP
- WebRTC
- WSPlayer

Not supported

- VoD
- RTSP

## Known limitations

Name of stream published on an Origin-node should be unique in CDN.

E.g., when stream1 is being published on Origin1, stream1 should not be published on Origin2 or other Origin-nodes.