

StreamPackage

Practical Application

Product Documentation



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Practical Application

Implementing Live Streaming

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Preparations

You can refer to the following document: StreamLive > Feature Guide > Implementing Live Streaming > [Preparations](#).

Configuration

1. Configure StreamPackage

You can refer to the following document: StreamLive > Feature Guide > Implementing Live Streaming > [Configuring StreamPackage](#).

2. Configure CSS

You can refer to the following document: StreamLive > Feature Guide > Implementing Live Streaming > [Configuring CSS](#).

3. Configure StreamLive

You can refer to the following document: StreamLive > Feature Guide > Implementing Live Streaming > [Configuring StreamLive](#).

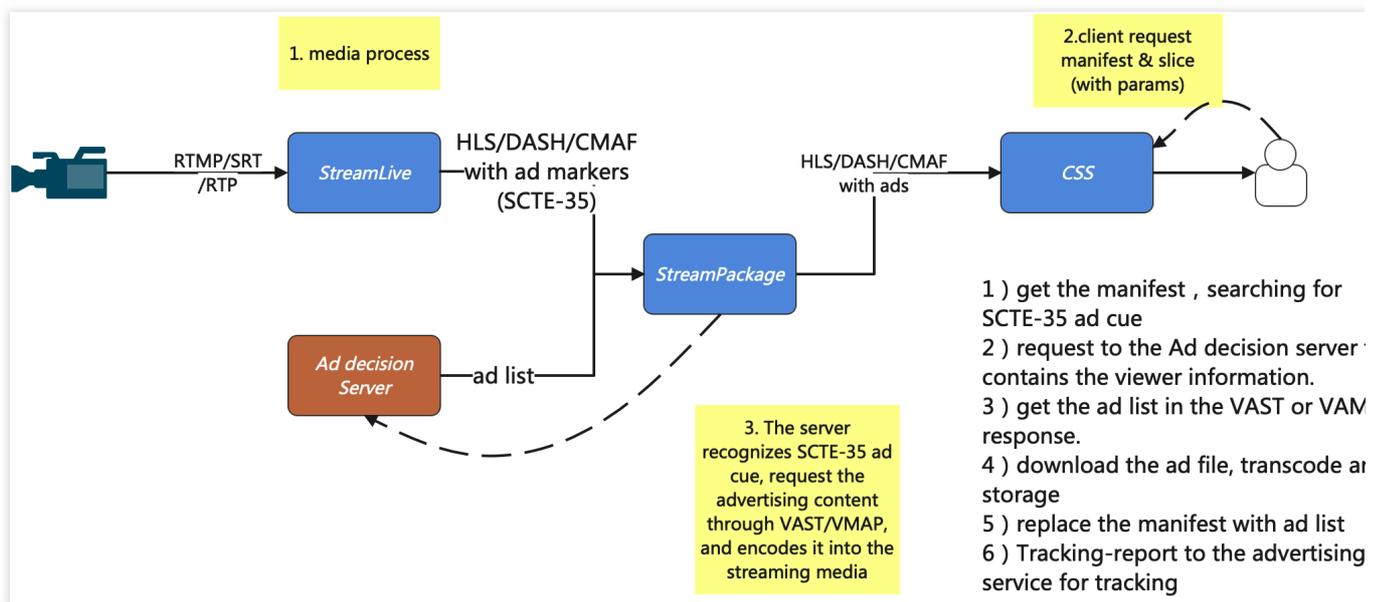
4. Publish and play a live stream

You can refer to the following document: StreamLive > Feature Guide > Implementing Live Streaming > [Publishing and playing a live stream](#).

Configuring SSAI AD Insertion Preparations

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With the advancement of streaming media technology and applications on internet, it is apparent that ad-supported streaming media delivery has become a major monetization strategy. By using Tencent Cloud's Stream Service, you can implement dynamic ad insertion based on SCTE-35 ad markers and SSAI. The complete general process of SSAI is as follows:



1. The publisher pushes the live stream to StreamLive for transcoding, packaging, and inserting SCTE-35 ad markers, and then transmits it to StreamPackage. If there are no subsequent processes, step 1) has already completed all server-side steps in CSAI.

2. The player requests the manifest (m3u8/mpd), and StreamPackage fetches the origin manifest while parsing the manifest and checking the SCTE-35 ad markers.

3. StreamPackage send the request to the Ad Decision Server, parses the VAST/VMAP response, and obtains the ad video address.

4. StreamPackage downloads the ad video, transcodes and stores it.

5. StreamPackage updates the transcoded ad segment url in the manifest by inserting and replacing, and then distribute it.

6. After the ad is played on the client-side, StreamPackage reports to the ad Tracking service for tracking the event.

If you use this AD insertion feature. [AD insertion fee](#) will be incurred.

Configuration process

Following the aforementioned process for ad insertion and replacement, users are required to make the following preparations in advance:

1. Prepare the content source.
2. Prepare the ad decision server.
3. Configure StreamPackage.
4. Configure the StreamPackage SSAI service domain name.
5. Insert ad markers.

Prepare the content source

Configure the source server to generate content manifests compatible with StreamPackage SSAI service.

HLS Content Source Requirements

The manifest must be accessible on the public network.

The manifest must be either live or video on demand (VOD).

The manifest must have EXT-X-VERSION 3 or higher.

For live content, the manifest must include ad markers. Video on demand (VOD) can use ad markers or specify advertising time information through VMAP.

Note :

If you want to use StreamLive as the content source,, you can refer to '[Implementing Live Streaming](#)' in StreamLive Feature Guide.

Prepare the ad decision server

StreamPackage SSAI service supports VAST and VMAP responses from the Ad Decision Server (ADS). The ADS should return an XML, and this XML should conform to the IAB specifications for the supported VAST and VMAP versions.

Currently, StreamPackage SSAI service supports the following versions of VAST and VMAP:

[VAST 2.0 and 3.0](#)

[VMAP 1.0](#)

Commonly used ad decision servers include : [Google Ad Manager](#)、[AdSpeed](#)。

Configuration

Configuring StreamPackage

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Basic configuration

Refer to the **Console Guide** > [Server-Side Ad Insertion](#) to complete the StreamPackage configuration. The advanced settings are described as follows:

SCTE-35 ad message type

StreamPackage SSAI allows only recognizing specified types of SCTE-35 markers as ad markers for processing, and other types of markers will be ignored. The service will parse the SCTE-35 information in the ad marker (such as the base64 in the HLS `SCTE-35 Enhanced` type ad marker) to obtain its type. The specific steps are as follows:

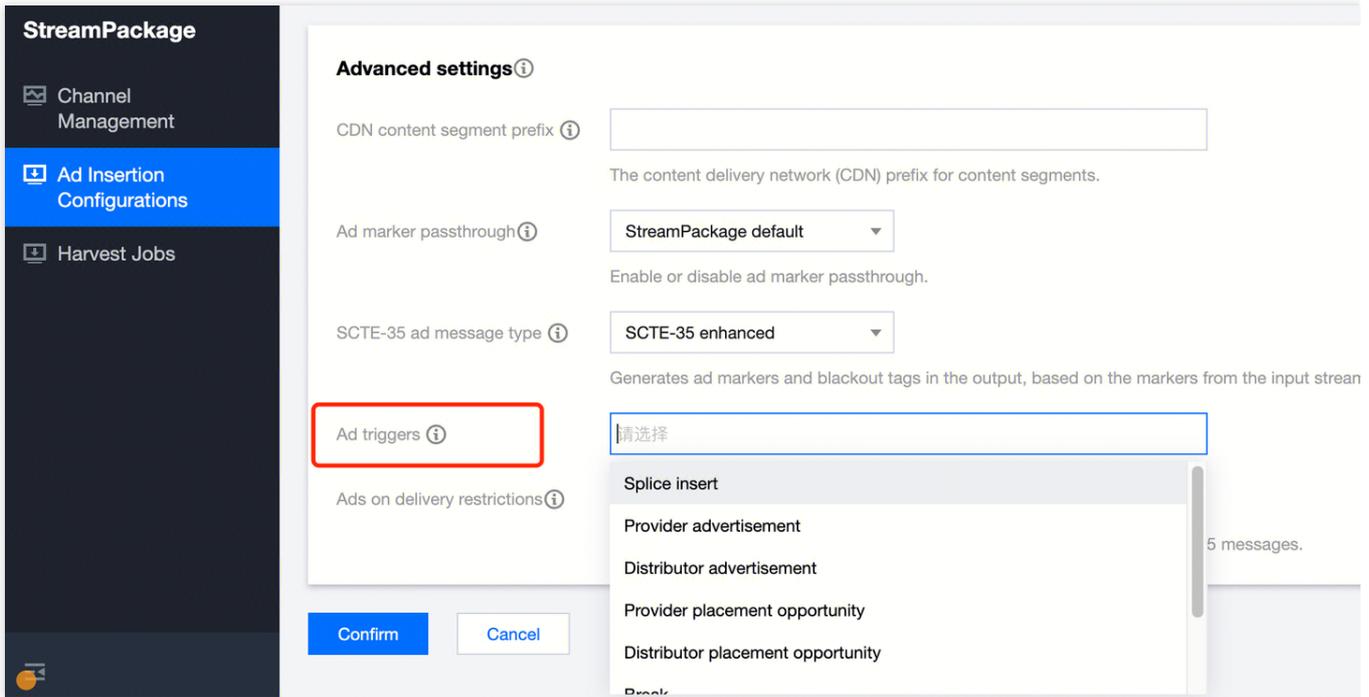
1. In **Advanced Settings**, set the **SCTE-35 ad message type** to SCTE-35 enhanced. Then **Ad triggers** and **Ads on delivery restrictions** settings will appear;

The screenshot shows the 'StreamPackage' console interface. On the left is a navigation menu with 'Channel Management', 'Ad Insertion Configurations' (highlighted), and 'Harvest Jobs'. The main area displays 'Advanced settings' with the following configuration:

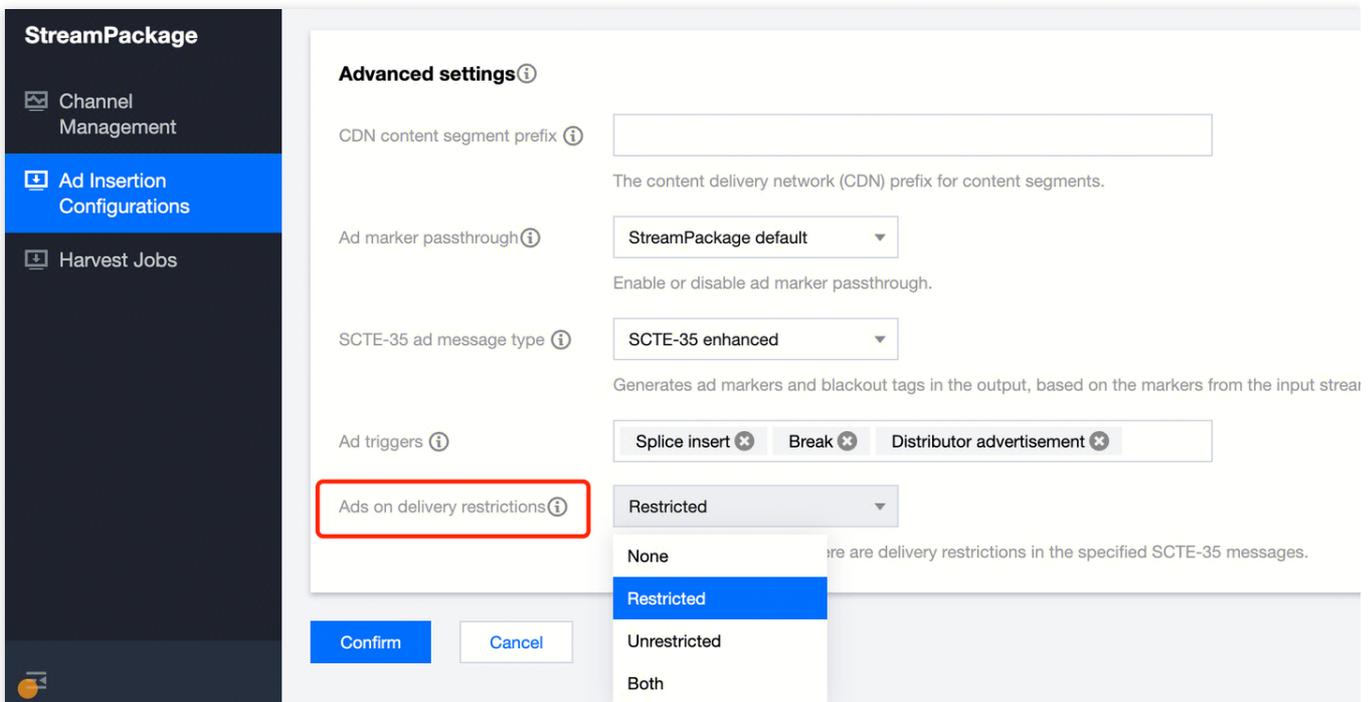
- CDN content segment prefix**: An empty text input field.
- Ad marker passthrough**: A dropdown menu set to 'StreamPackage default'.
- SCTE-35 ad message type**: A dropdown menu set to 'SCTE-35 enhanced', highlighted with a red box.
- Ad triggers**: A dropdown menu set to 'SCTE-35 enhanced'.
- Ads on delivery restrictions**: A dropdown menu set to 'Restricted'.

At the bottom of the settings panel are 'Confirm' and 'Cancel' buttons.

2. In **Ad triggers**, select the types you need, which can be multiple selections. Following eight types are supported: Splice insert, Provider advertisement, Distributor advertisement, Provider placement opportunity, Distributor placement opportunity, Break, Provider overlay placement opportunity, Distributor overlay placement opportunity;



3. In the **Ads on delivery restrictions**, select the restriction type, which is single selection. Options include: None, Restricted, Unrestricted, Both.



Ad marker passthrough

StreamPackage SSAI service supports configuring whether ad markers appear in the output manifest.

When the **Ad marker passthrough** is set to StreamPackage default, the ad markers in the input manifest will be passed through even if ad replacement has been performed.

StreamPackage

- Channel Management
- Ad Insertion Configurations**
- Harvest Jobs

Advanced settings ⓘ

CDN content segment prefix ⓘ

The content delivery network (CDN) prefix for content segments.

Ad marker passthrough ⓘ

StreamPackage default ▼

StreamPackage default passthrough.

Disabled ▼

SCTE-35 ad message type ⓘ

Directly copies the ad markers from the input stream to the output.

Confirm Cancel

Slate ad

In the **Personalization details** configuration section, StreamPackage SSAI service supports configuring **slate ad** and **maximum threshold for unfilled ads**. This configuration is only used for live streams.

StreamPackage

- Channel Management
- Ad Insertion Configurations**
- Harvest Jobs

Personalization details ⓘ

Slate ad ⓘ

A default ad that's used if an ad break isn't filled by an ad replacement. If using HTTPS, the certificate can't be self-signed. Maximum 25,000 characters

Personalization threshold ⓘ

- 5 +

The maximum amount of underfilled ad time (in seconds) allowed in an ad break.

Slate ad: a slate ad is a default on-demand video. When the ad duration returned by the ad decision server is insufficient, StreamPackage will loop the slate ad after the personalized ad to maintain a stable live stream duration.

Maximum threshold for slate ad: by configuring the **Personalization threshold**, you can control the maximum duration of slate ads. If the personalized ad duration is too short and the required slate ad exceeds the threshold, the ad replacement will be canceled, and the source stream will be played directly.

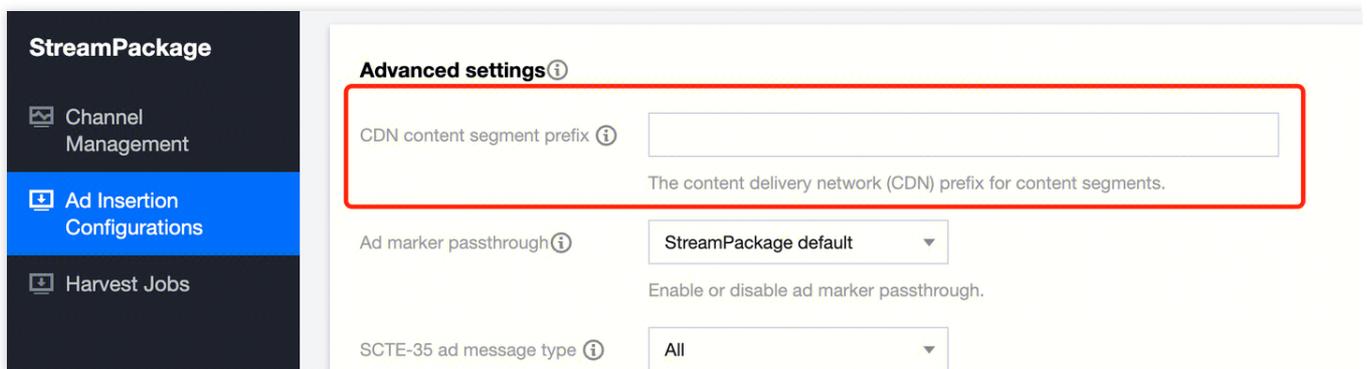
CDN content segment prefix

When configuring the source stream CDN prefix, StreamPackage will use this prefix to replace the prefix filled in the content source when stitching the back-to-origin manifest request. And in the replaced manifest, add this CDN prefix to the URL of the source stream content segment.

When the player initiates a request to the replaced source stream segment URL, it can directly back to the source through this CDN.

The configuration process is as follows:

1. Configure the domain name at the CDN to map the CDN domain name to the source stream;
2. In the StreamPackage **Ad insertion configuration**, fill in the CDN domain name in the **CDN content segment prefix**.



StreamPackage

- Channel Management
- Ad Insertion Configurations**
- Harvest Jobs

Advanced settings ⓘ

CDN content segment prefix ⓘ

The content delivery network (CDN) prefix for content segments.

Ad marker passthrough ⓘ

Enable or disable ad marker passthrough.

SCTE-35 ad message type ⓘ

Configuring StreamPackage SSAI Service Domain Name

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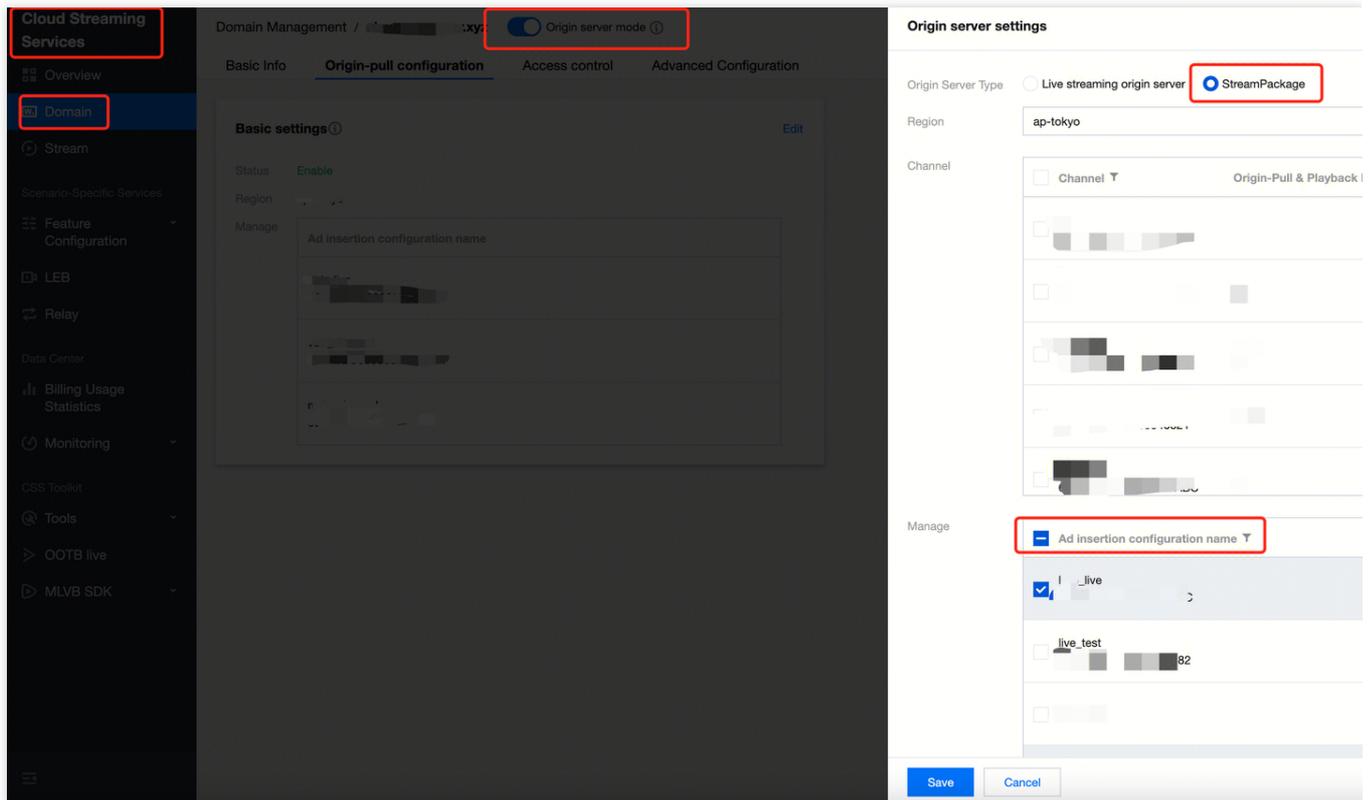
You can use CDN service to improve the efficiency of StreamPackage ad replacement service. The benefits of CDN include content and ad caching, consistent domain names in personalized manifests, and CDN DNS resolution.

When using CDN, the request and response process of StreamPackage SSAI service is as follows:

1. The player sends a request to the CDN to obtain the playback manifest. The CDN forwards the request to StreamPackage.
2. StreamPackage retrieves the source stream manifest from the source stream server, performs ad replacement, and replaces the source stream content prefix and ad segment prefix with the source stream CDN prefix and SSAI service CDN prefix, respectively. The personalized manifest is sent to the CDN, which returns it to the player.
3. The player initiates a request to the segment URL in the manifest.
4. The CDN sends the source stream segment request to the source server and sends the ad request to the StreamPackage SSAI service.
5. The source server returns the source stream segment; when the SSAI service receives the ad request, it triggers the reporting of tracking data and redirects to obtain the actual ad segment as the return.
6. The player starts playing.

Use Tencent Cloud Streaming Services (CSS)

In **CSS > Domain > Origin server mode > Select StreamPackage as the origin server type > Select the needed ad insertion configuration**, the required configuration will be automatically distributed for the domain.

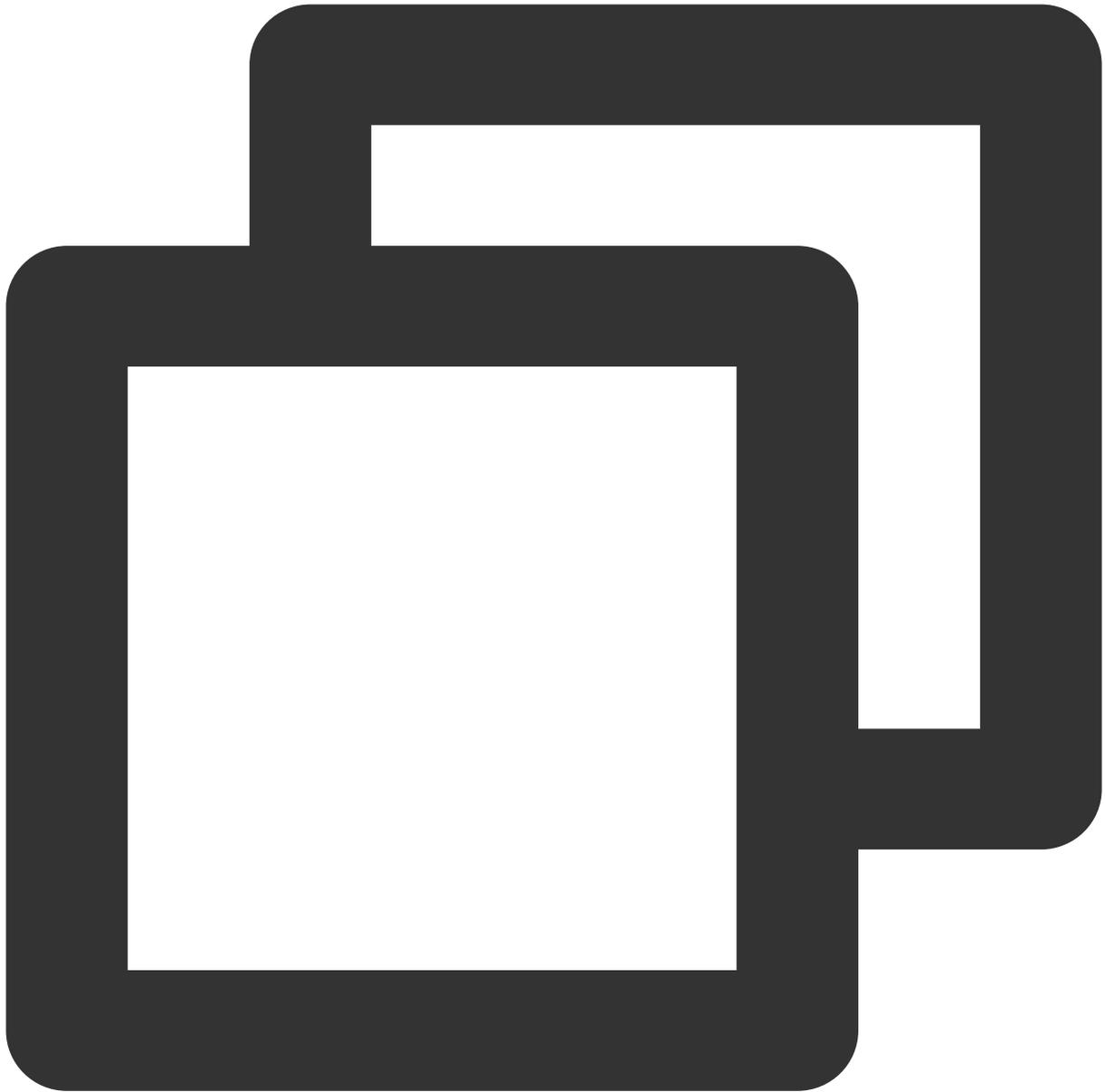


Use Tencent Cloud CDN

You can use [Tencent Cloud Content Delivery Network CDN](#) as the domain name for StreamPackage SSAI service.

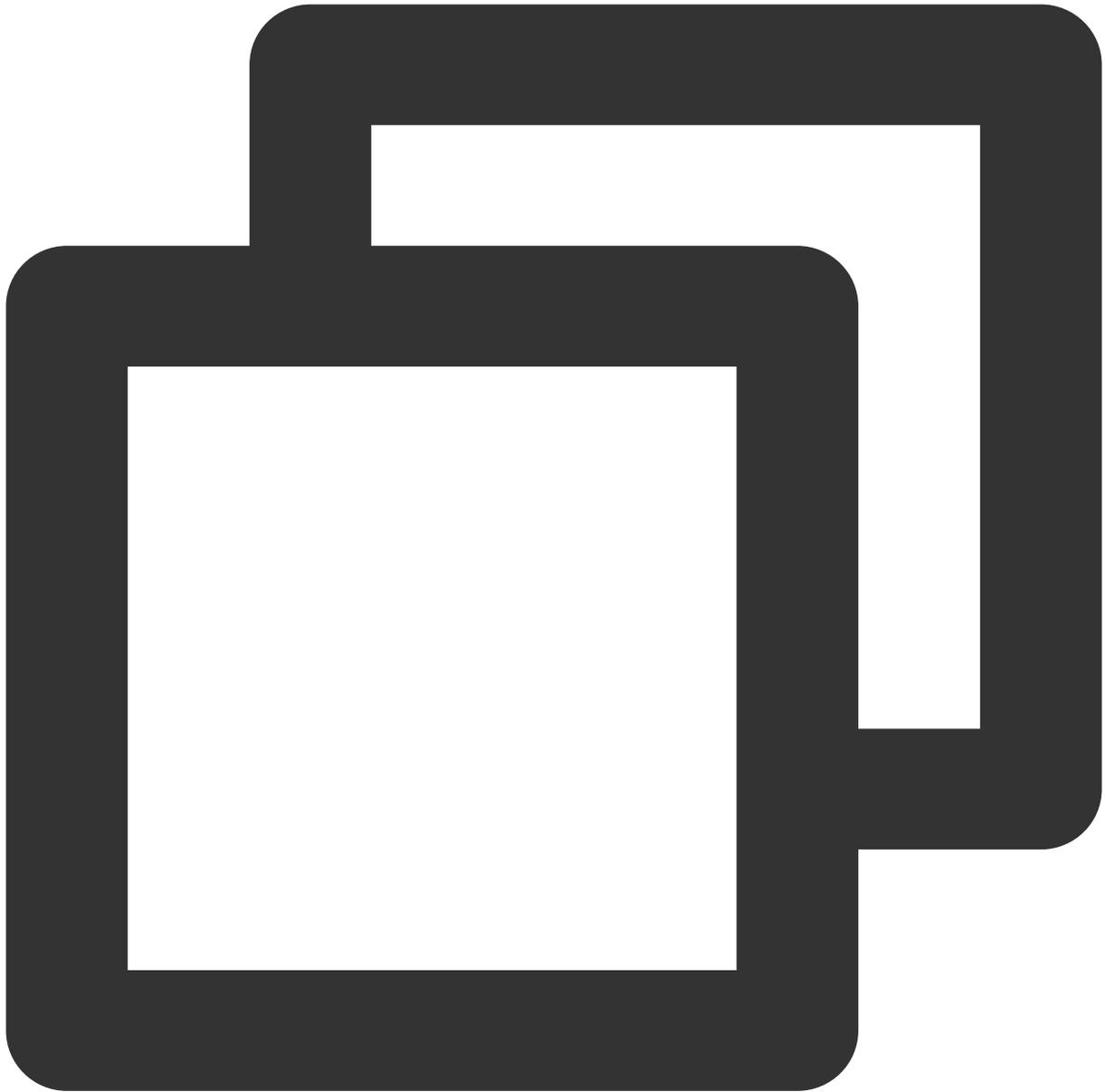
Configuration Content

1. Main manifest request, the path starting with `/v1/ssai/master` , not cached, directly transparent.



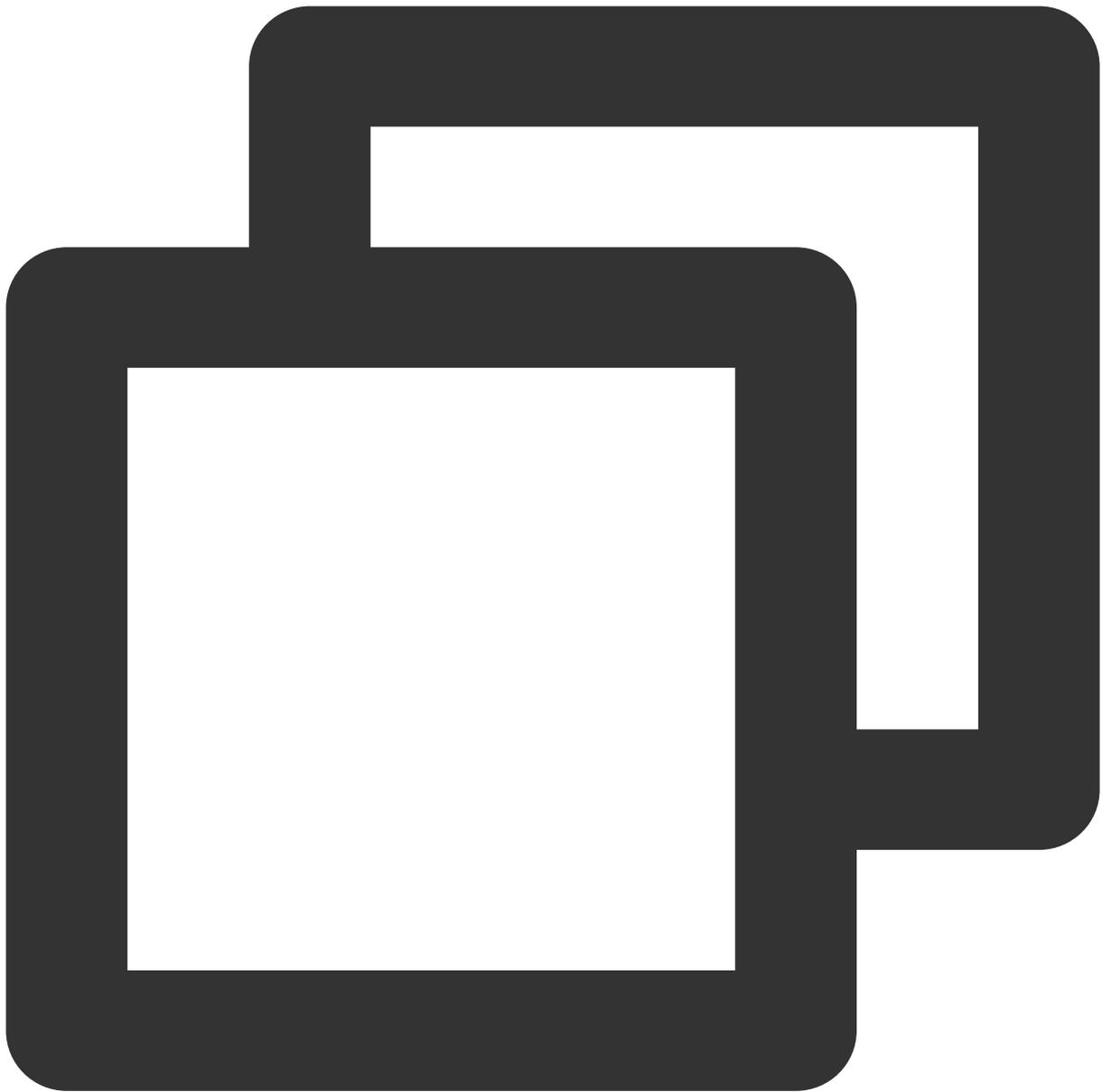
```
GET <StreamPackageURL>/v1/ssai/master/<uniq_id>/xxx.m3u8?xxx1=p1&xxx2=p2
```

2. Sub-manifest request, the path starting with `/v1/ssai/manifest`, can be configured as a normal manifest. For example, in the HLS live scenario, refer to the cache configuration of the live `.m3u8` file; in the HLS on-demand scenario, refer to the cache configuration of the on-demand `.m3u8` file.



```
GET <StreamPackageURL>/v1/ssai/manifest/<uniq_id>/<session_id>/xxx.m3u8
```

3. Personalized ad request, the path starting with `/v1/ssai/segment` , can be configured as a normal `.ts` file.

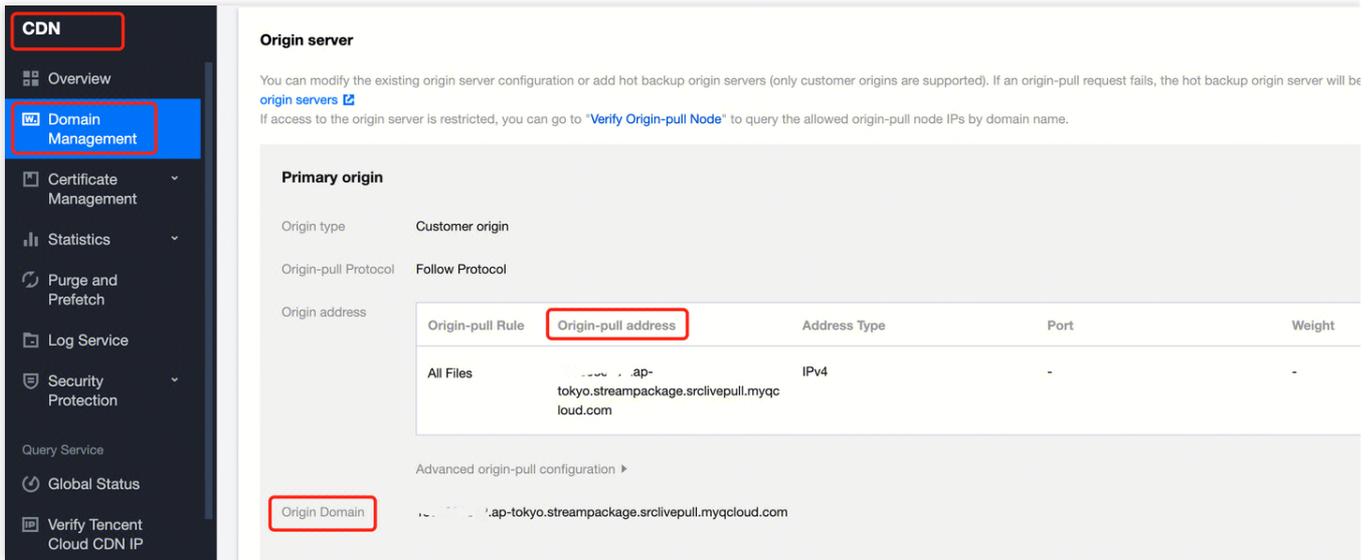


```
GET <StreamPackageURL>/v1/ssai/segment/<uniq_id>/<session_id>/<asset_id>/<seq_num>
```

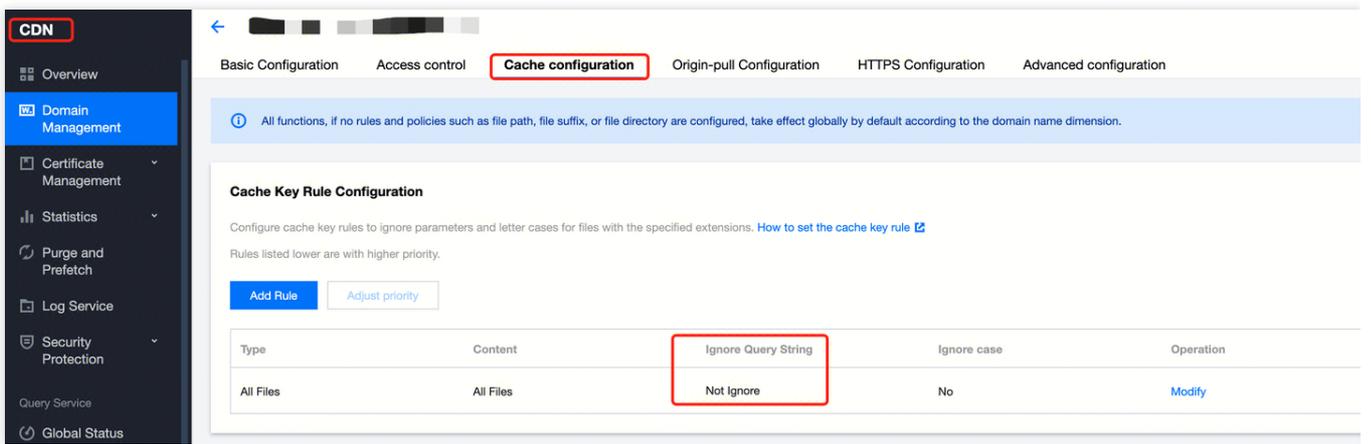
4. All request parameters are fully passed through.

Operation Process

1. In **Tencent Cloud Console** > **CDN** > [Domain Management](#) > **Basic Configuration** > **Origin Server**, configure the Origin-pull address and Origin Domain for the playback domain. You need to set it to the playback domain of the StreamPackage ad insertion configuration, which is the domain name in Playback endpoint prefix, in the format: {appid}.{region}.streampackage.srclivepull.myqcloud.com.



2. In Cache Configuration, set it to **not ignore** parameters, that is, all request parameters are completely transparent.



3. In **Node Cache Validity Configuration**, configure the cache separately for different requests based on the path.

CDN

- Overview
- Domain Management
- Certificate Management
- Statistics
- Purge and Prefetch
- Log Service
- Security Protection
- Query Service
- Global Status
- Verify Tencent Cloud CDN IP
- Verify Origin-pull Node

Node Cache Validity Configuration

The node cache expiration configuration can set the cache expiration time of the origin server resources on the CDN node to adjust the cache update frequency of the origin server resources on the CDN node. [How to node cache validity configuration](#)

If the cache of the CDN node needs to be updated immediately after the source site resources are updated, the cache refresh function can be used to actively update the unexpired cache of the CDN node, so that the node cache is consistent with the source site resources.

Advanced Cache Validity Configuration
After it is enabled, CDN will compare the cache time of the matched cache rule with the origin server's "max-age" value, and then adopt the smaller value as the cache time.

Follow origin server
After it is enabled, the advanced cache validity configuration cannot be enabled.

[Add Rule](#) [Adjust priority](#)

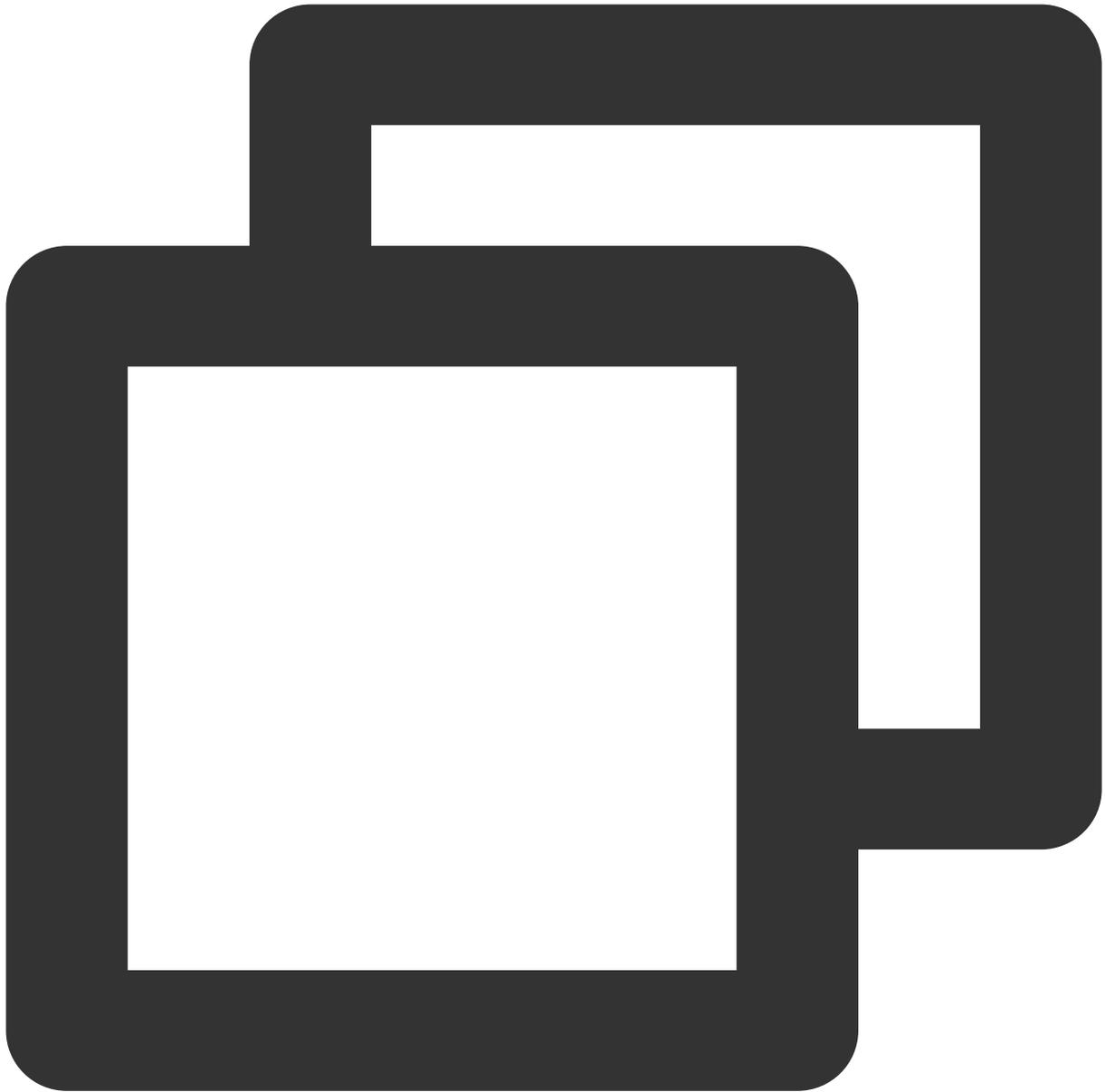
Type	Content	Cache time	Operation
All Files	All Files	1 days	Modify Delete
File Directory	/v1/ssai/master	0 seconds	Modify Delete
File Directory	/v1/ssai/segment	1 minutes	Modify Delete
File Directory	/v1/ssai/manifest	2 seconds	Modify Delete

Total items: 4 10 / page / 1 page

Use Third-Party CDN

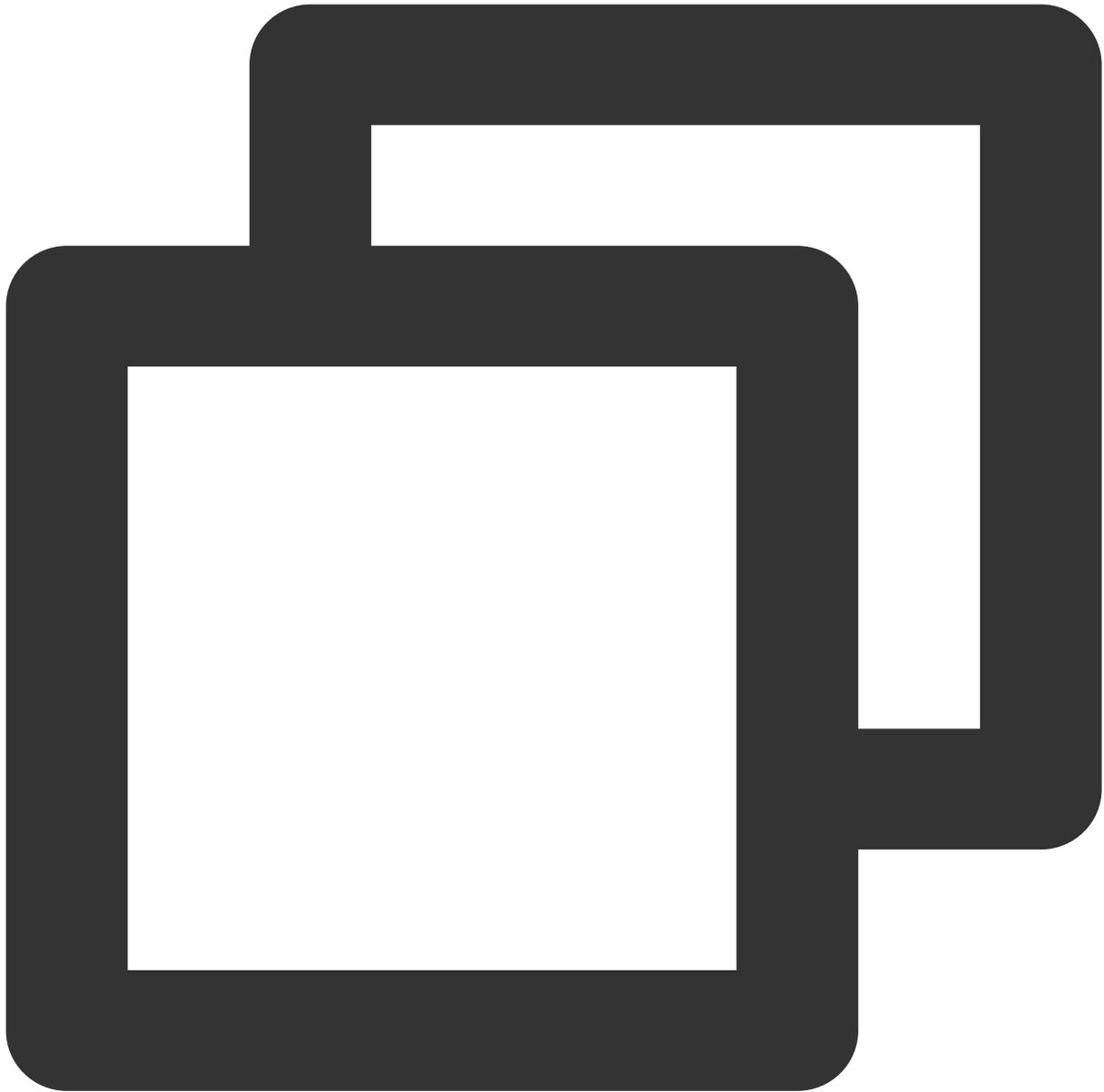
To use a third-party CDN to implement personalized ad replacement, you need to configure the following at the external CDN:

1. Main manifest request, the path starting with `/v1/ssai/master` , not cached, directly transparent.



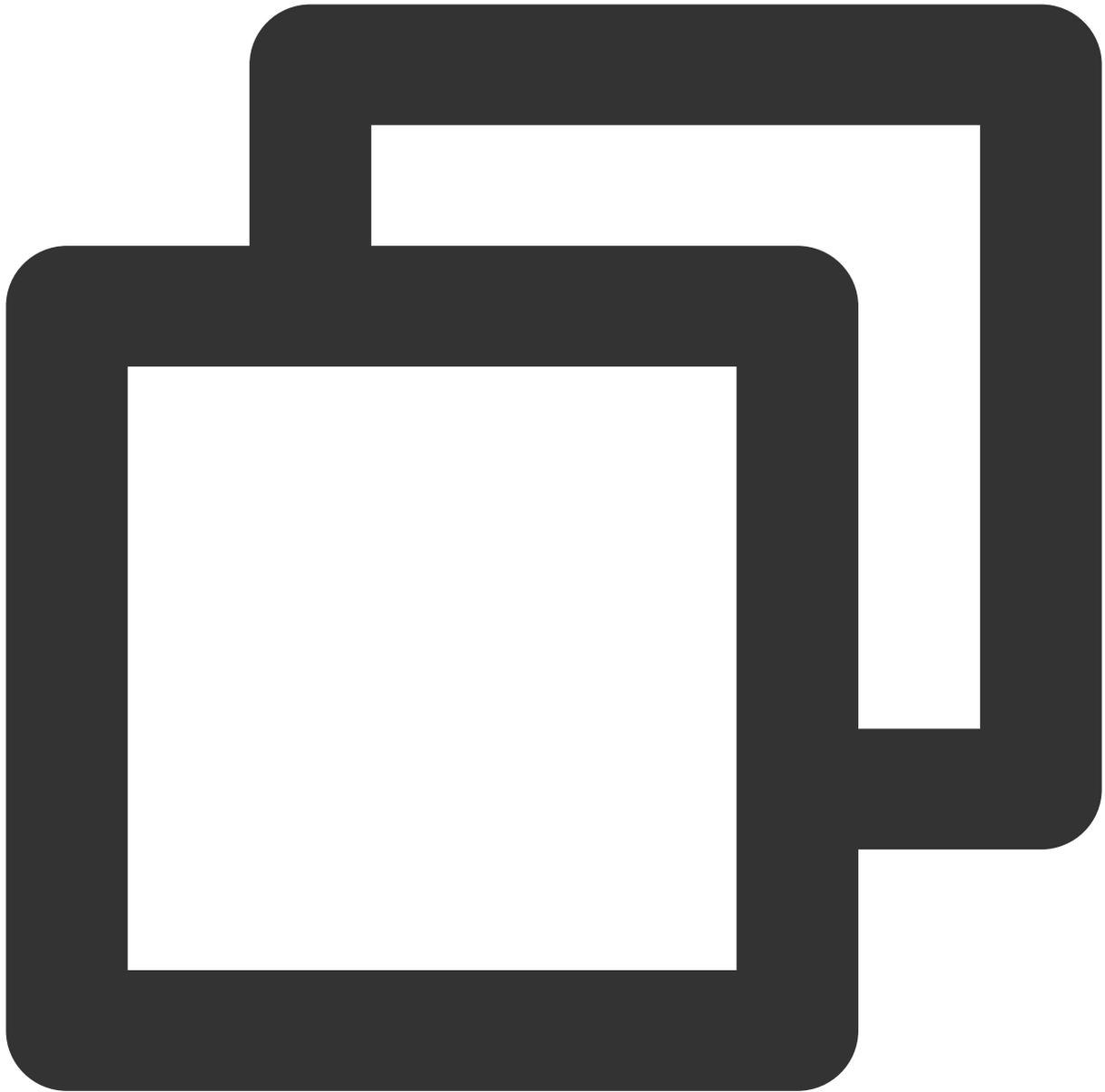
```
GET <StreamPackageURL>/v1/ssai/master/<uniq_id>/xxx.m3u8?xxx1=p1&xxx2=p2
```

2. Sub-manifest request, the path starting with `/v1/ssai/manifest`, can be configured as a normal manifest. For example, in the HLS live scenario, refer to the cache configuration of the live `.m3u8` file; in the HLS on-demand scenario, refer to the cache configuration of the on-demand `.m3u8` file.



```
GET <StreamPackageURL>/v1/ssai/manifest/<uniq_id>/<session_id>/xxx.m3u8
```

3. Personalized ad request, the path starting with `/v1/ssai/segment` , can be configured as a normal `.ts` file.



```
GET <StreamPackageURL>/v1/ssai/segment/<uniq_id>/<session_id>/<asset_id>/<seq_num>
```

4. All request parameters are completely transparent.

Inserting Ad Marker

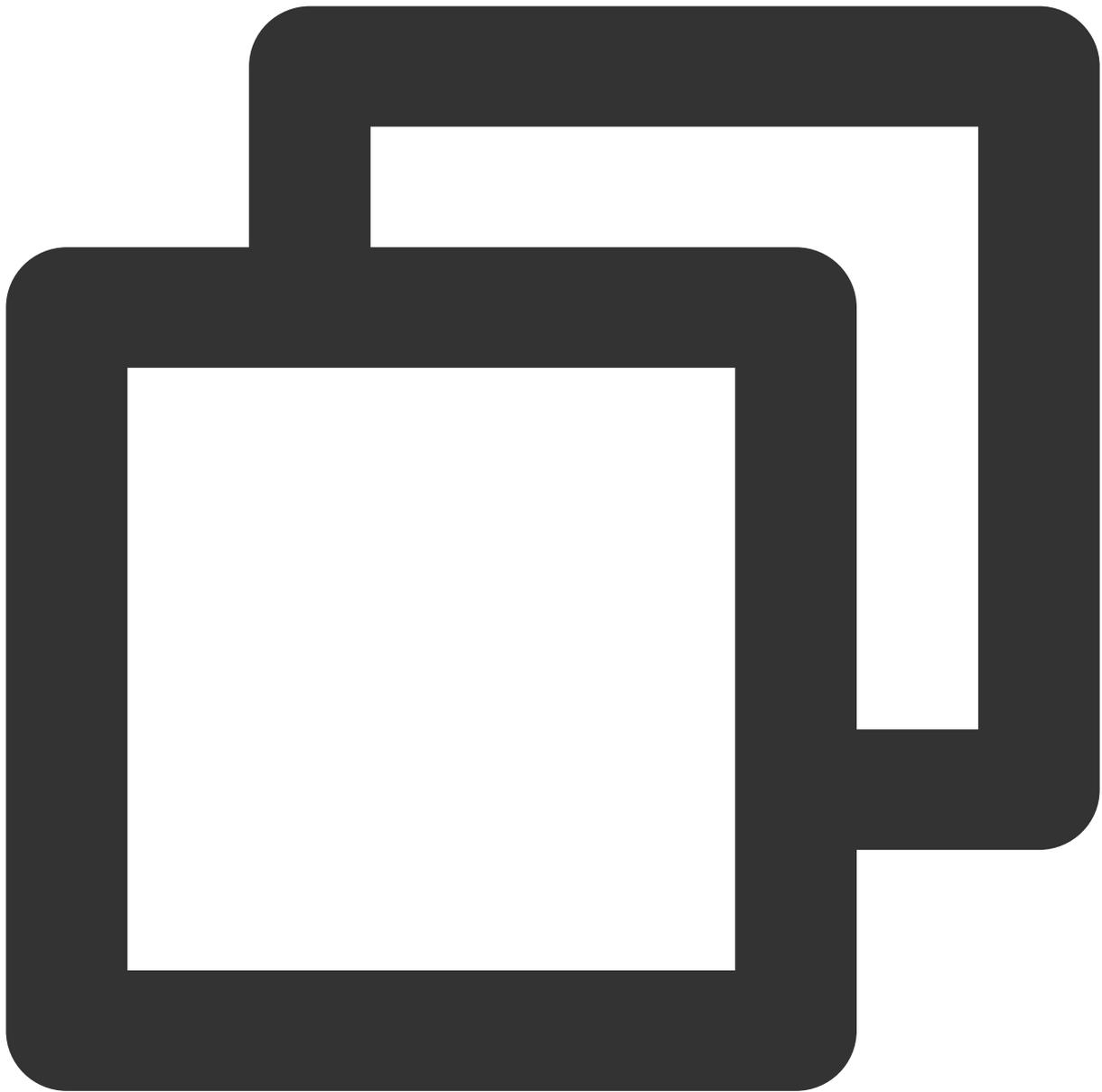
Last updated : 2024-05-23 17:41:50

StreamPackage SSAI allows only recognizing specified types of SCTE-35 markers as ad markers for processing.

HLS supported ad markers

StreamPackage SSAI service supports identifying the following types of ad markers in HLS manifests

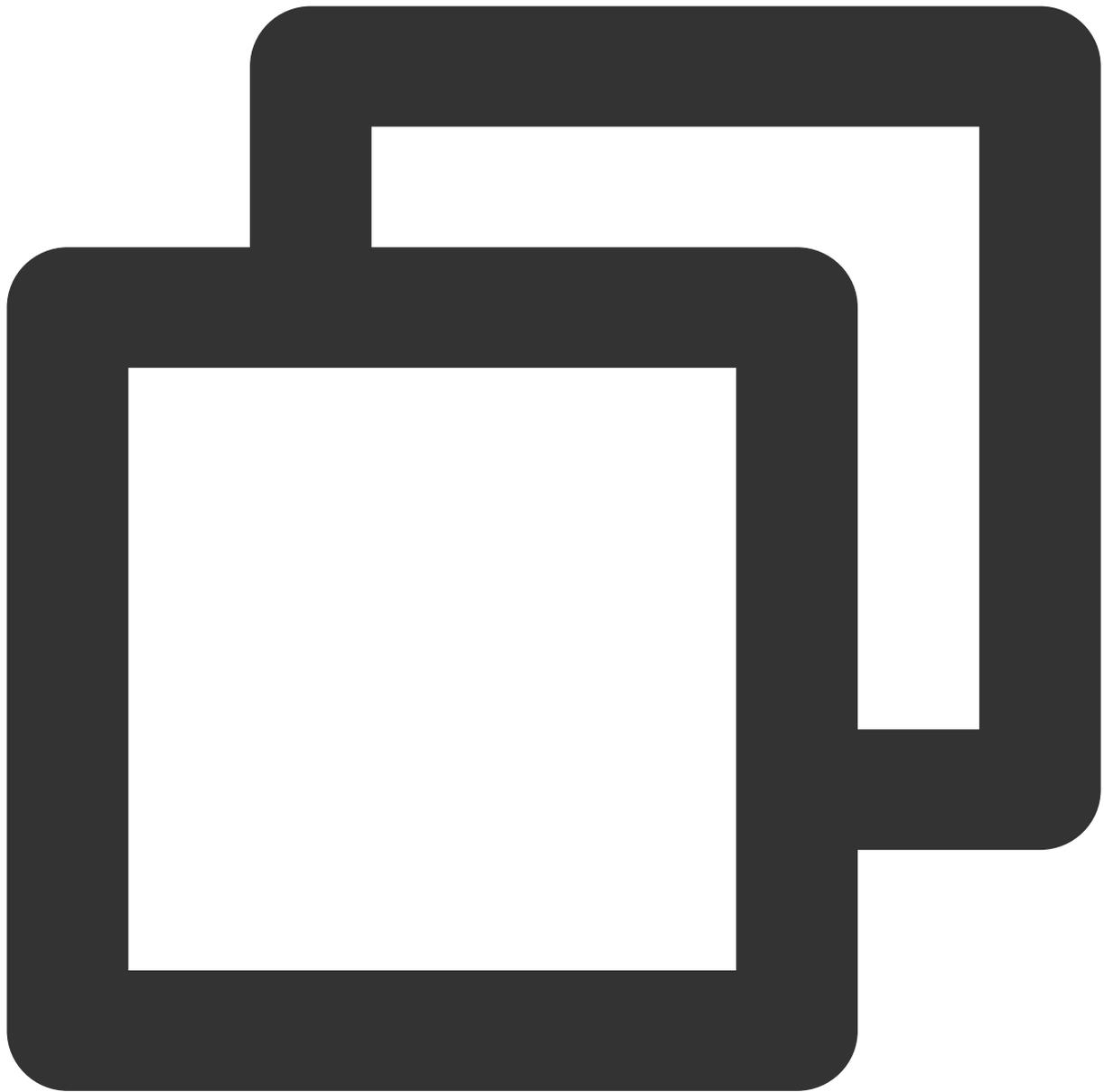
EXT-X-CUE-OUT and EXT-X-CUE-IN



```
#EXT-X-CUE-OUT:DURATION=120
```

```
...
```

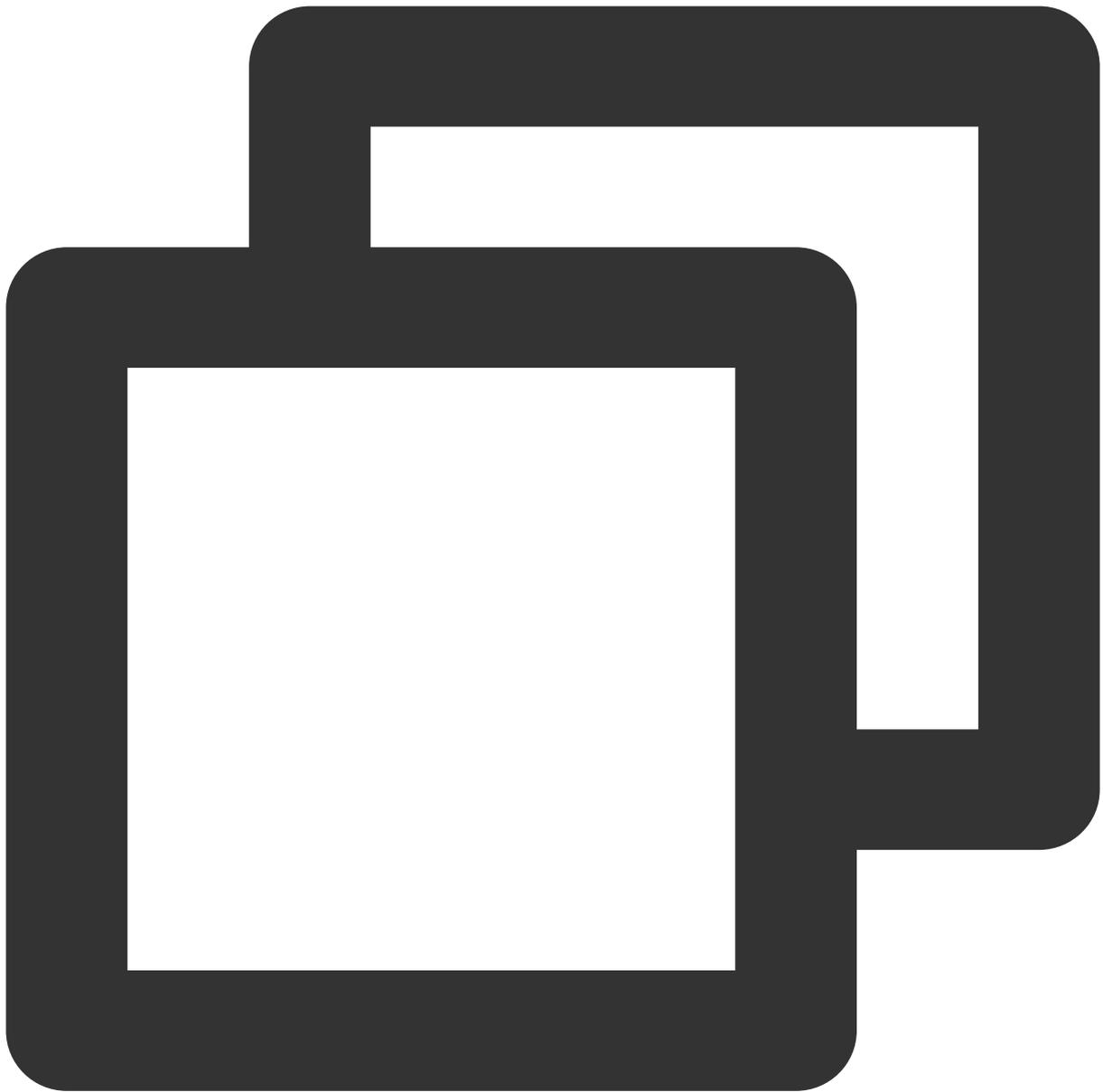
```
#EXT-X-CUE-IN
```



```
#EXT-X-CUE-OUT:30.000
```

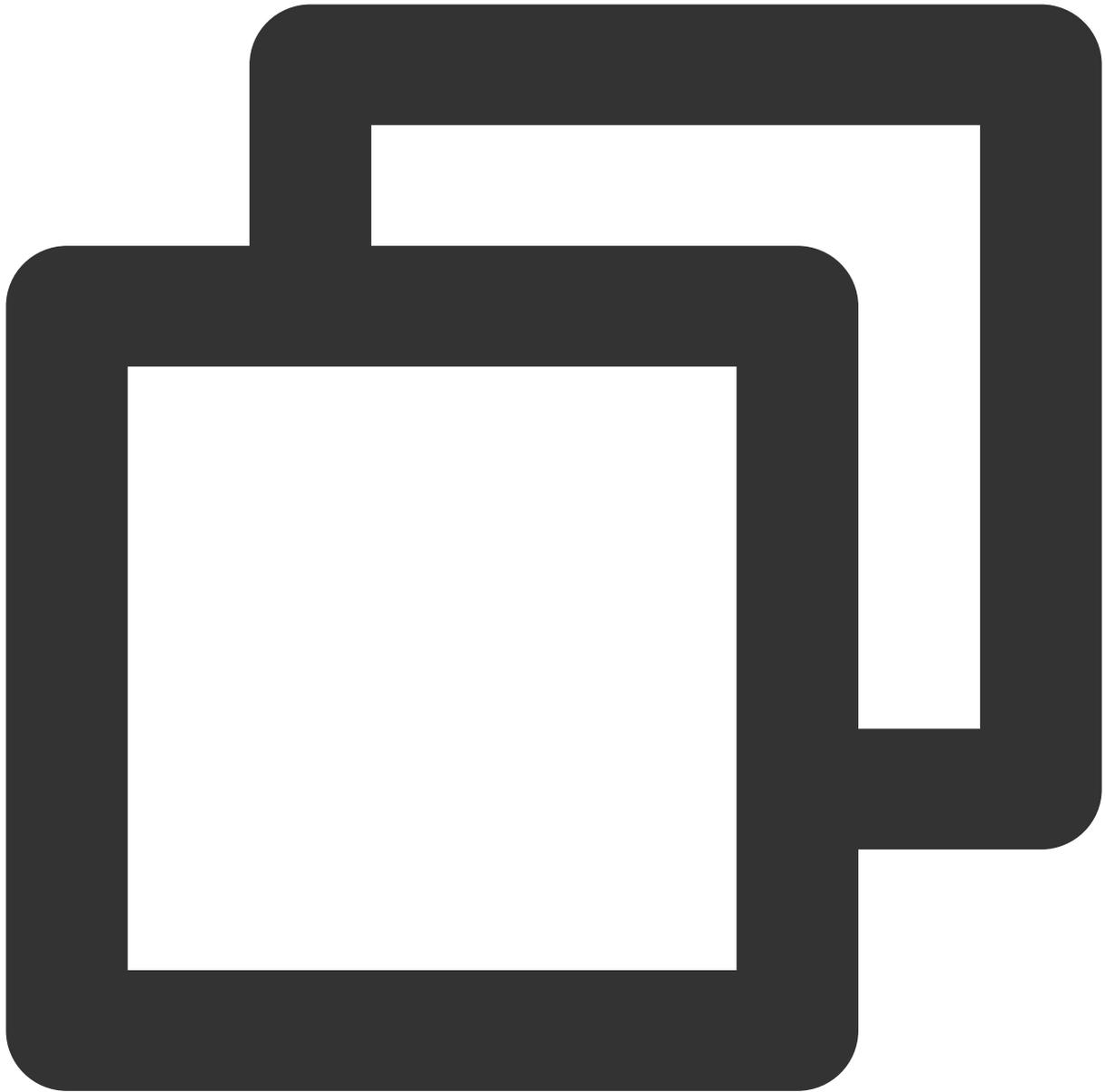
```
...
```

```
#EXT-X-CUE-IN
```



```
#EXT-X-CUE-OUT  
...  
#EXT-X-CUE-IN
```

SCTE-35 Enhanced



```
#EXT-OATCLS-SCTE35:/AAgAAAAAAAAAAAAADwUAAAABAPCAABSZcAAAAAAAAABcABfA=  
#EXT-X-CUE-OUT:15  
...  
#EXT-X-CUE-OUT-CONT:ElapsedTime=4,Duration=15,SCTE35=/AAgAAAAAAAAAAAAADwUAAAABAP  
...  
#EXT-X-CUE-IN
```

Ad marker handling

StreamPackage SSAI replaces the `EXT-X-CUE-OUT` , `EXT-X-CUE-OUT-CONT` , and `EXT-X-CUE-IN` tags in the input manifest with the `EXT-X-DISCONTINUITY` tag in the output manifest.

The `EXT-X-DISCONTINUITY` tag appears at the following boundaries:

Where the source stream switches to an ad

Where one ad switches to another ad

Where the ad switches back to the source stream

Use StreamLive to insert ad markers for live streams

1. Refer to the [Implementing Live Streaming](#) in the StreamLive feature guide to implement StreamLive streaming.
2. Turn on the SCTE-35 pass-through function in the Output of the StreamLive channel.

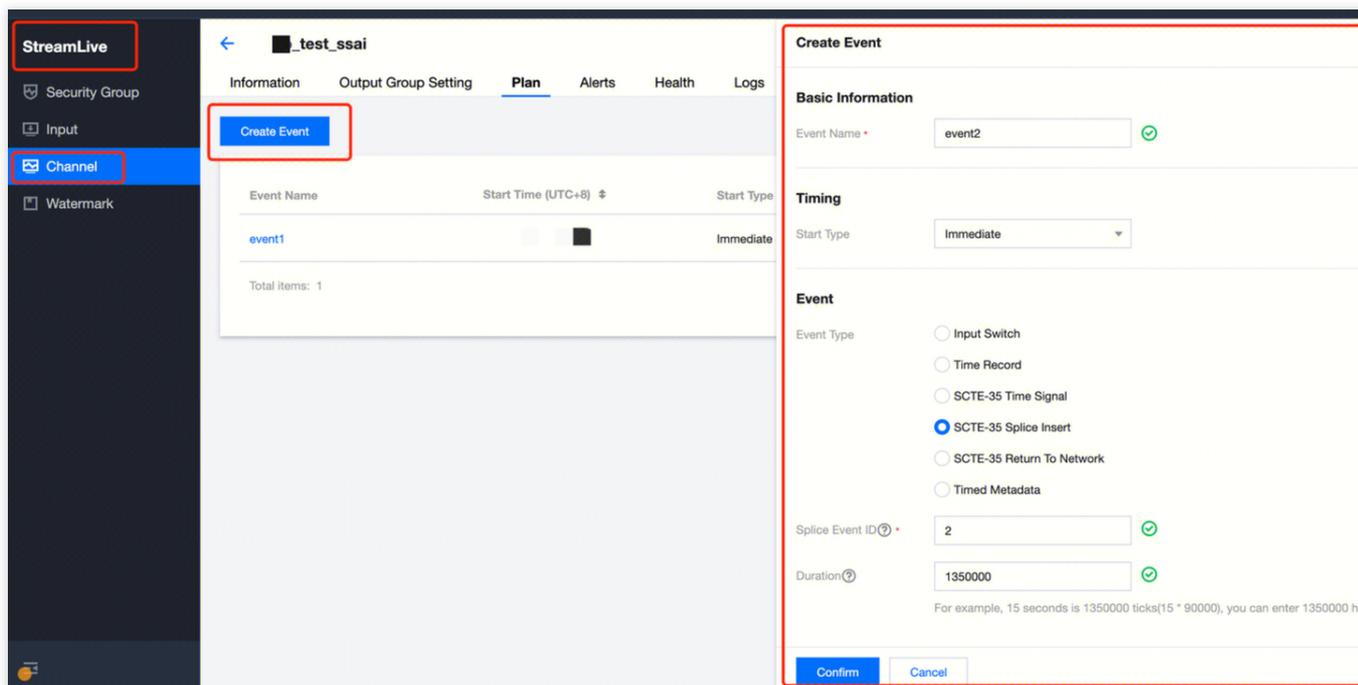
Outputs

Add one or more outputs to this group. Each output has unique stream settings that enable you to choose the video, audio, and captions tracks that you need. All outputs in a output group need to be kept in the same transcoding type (joint transcoding/separate transcoding).

[Add](#)

Output Name	SCTE-35 Setting	ID3 Passthrough	Transcoding Setting	Actions
720p	<input checked="" type="checkbox"/>	<input type="checkbox"/>	av1	Remove

3. In the **Plan** of the StreamLive **Channel**, click **Create Event**, select the event type and time, and you can insert SCTE-35 events into the live stream.



Ad markers in VOD

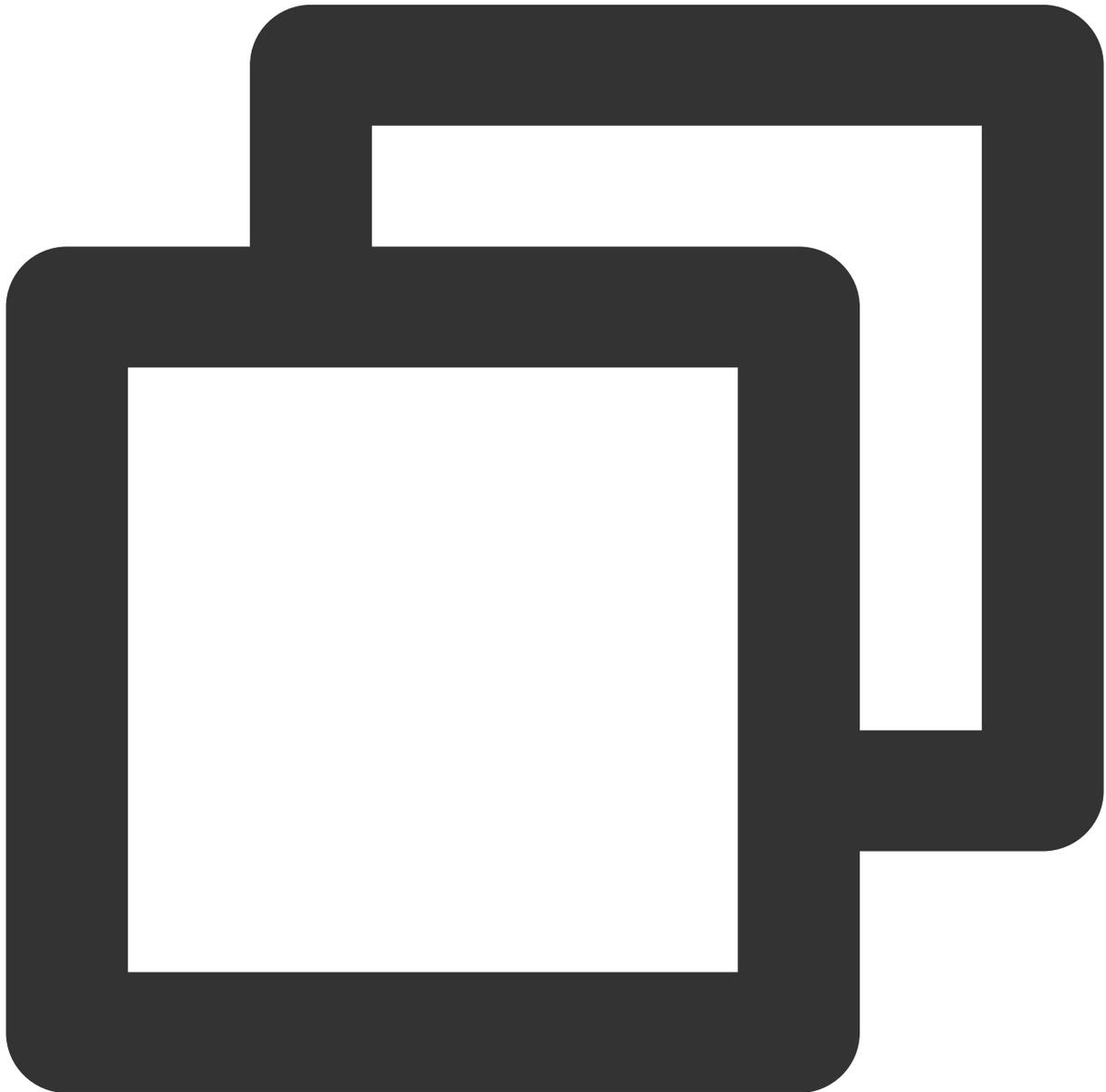
1. The current StreamPackage is capable of processing ad markers within HLS on-demand files; moreover, on-demand files can also designate ad insertion points through the use of VMAP.
2. In future updates to StreamPackage, we will also support the functionality of inserting advertisement markers into on-demand files.

Reporting Ad Tracking Data

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StreamPackage SSAI service uses server-side reporting. When the player requests the ad URL in the manifest, the SSAI service will directly report the ad usage to the ad tracking URL.

Ad URL format in HLS:



```
GET <StreamPackageURL>/v1/ssai/segment/<uniq_id>/<session_id>/<asset_id>/<seq_num>
```

When the player requests playback through the ad segment URL (/v1/ssai/segment path), StreamPackage will send the tracking data to the ad server through the ad tracking URL, and at the same time, redirect to obtain the actual *.ts ad segment and distribute it to the player.