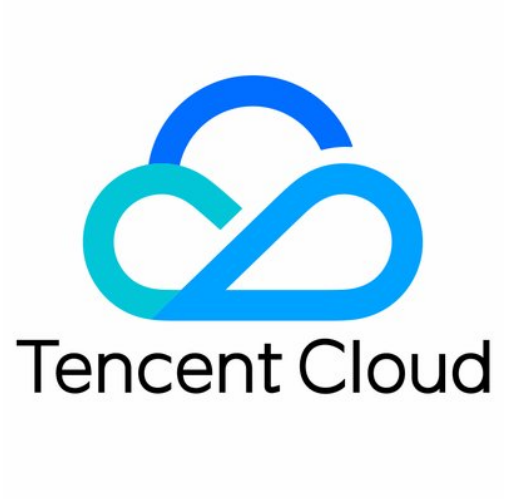
Cloud Streaming Services

About Pushing

Product Documentation



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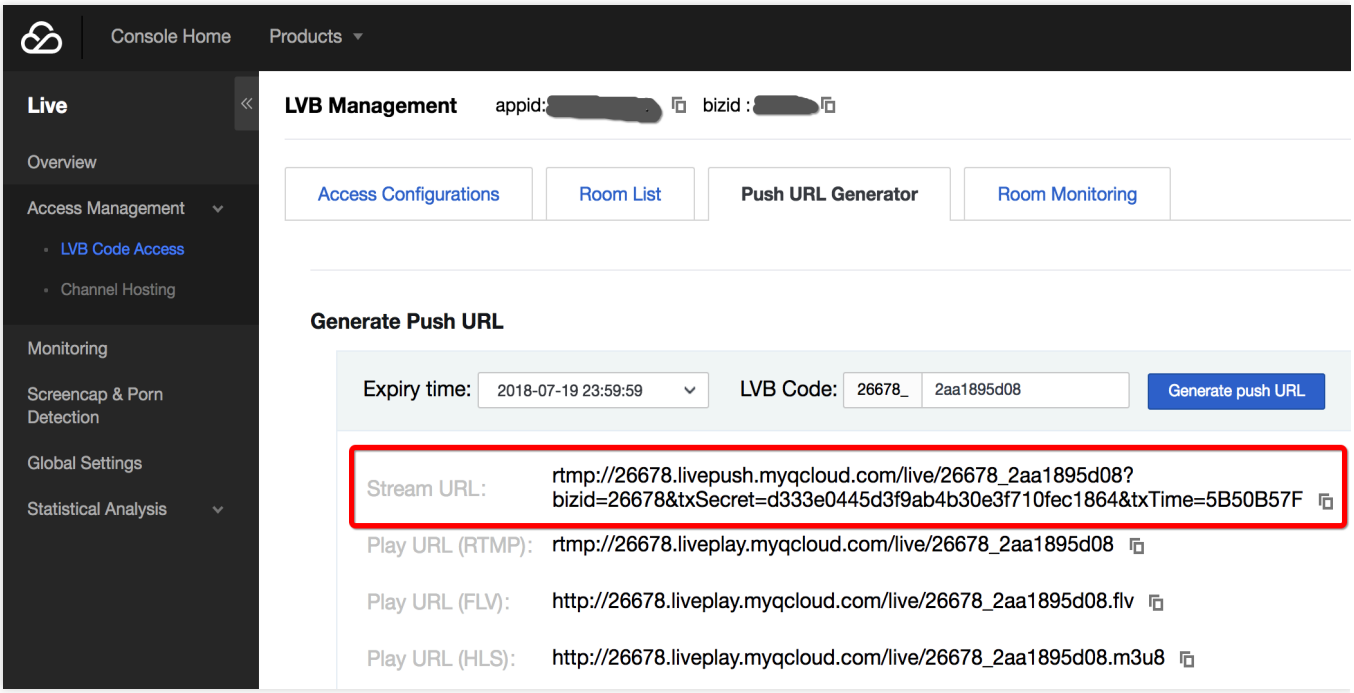
Generating Push URLs
Quick URL Generation

Last updated：2022-03-14 14:37:06

1. How to Get URL Quickly

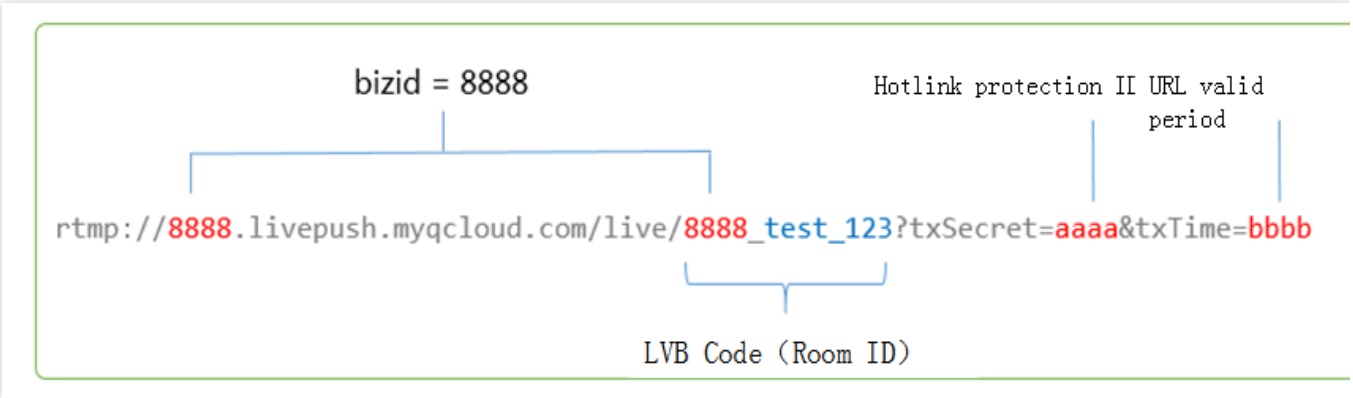
If you want to generate a group of URLs for testing, you only need to open CSS Console > CSS Code Access > Push Generator, and click **Generate Push URL** button, to generate a push URL and three playback URLs with different playback protocols.



2. How to Realize Auto Construction at the Backend

2.1 Push URL

In the actual application scenario, it is impossible to create push and playback URLs manually for each VJ. Instead, these URLs are constructed automatically by your server. Any URL that conforms to Tencent Cloud specifications can be used as a push URL. A standard push URL is shown below, which consists of three parts:



CSS Code

It is also called room ID. Random numbers or user ID is recommended. BIZID prefix is required in a valid CSS code.

txTime

It refers to the time when the URL expires. The format is UNIX time stamp in hexadecimal notation, for example, 5867D600 means that the URL will expire at 00:00:00 AM on Jan. 1, 2017. Generally, txTime is set to a time which is 24 hours later than the current time. It is not recommended to set a too short validity period to avoid the inability of VJ to restore push in case of a flash breakdown of network during the broadcasting.

txSecret

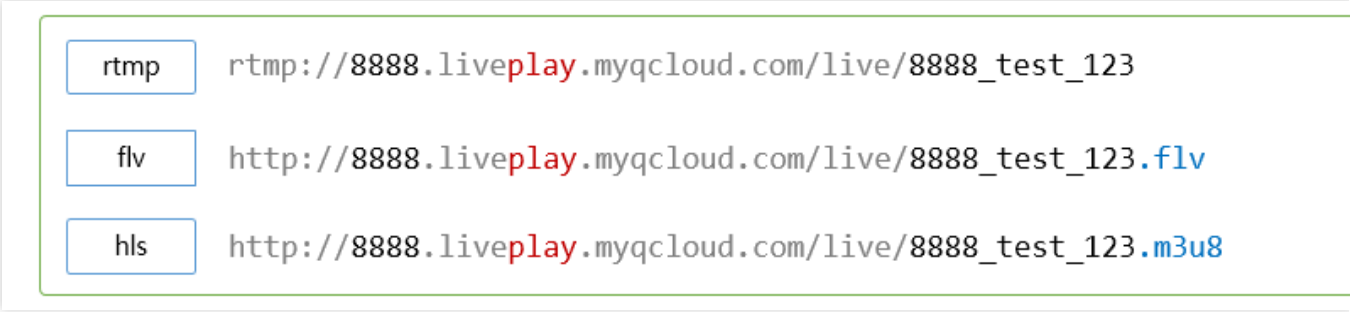
This refers to hotlink protection signature, which is used to prevent attackers from simulating your backend server to generate push URL. For more information about computing method, please see Computing of Hotlink Protection.

Sample Code

Go to CSS Console > CSS Code Access > Push Generator. In the lower part of the page, the sample code (PHP and Java) is provided to show how to generate a hotlink protection URL.

2.2 Playback URL

Constructing a playback URL is as simple as constructing a push URL, except that the sub-domain name needs to be changed from **livepush** to **liveplay**:

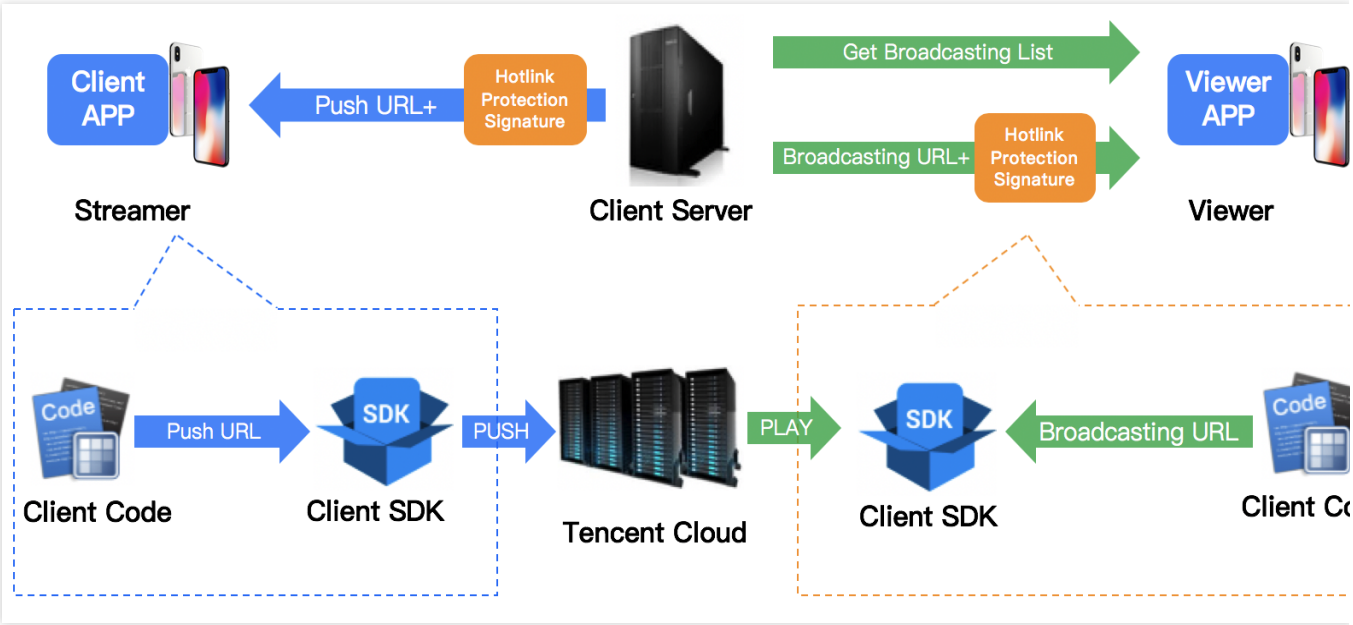


3. How to Calculate Hotlink Protection

The security hotlink protection refers to the **txSecret** field in push and playback URLs. It is used to prevent attackers from simulating your backend server to generate push URL or hacking your playback URL for their benefits.

3.1 How it works

To prevent attackers from simulating your server to generate push URL, you need to configure in CSS console a **hotlink protection encryption key** that is unlikely to be obtained by attackers for faking a valid push URL. The figure below shows how it works.

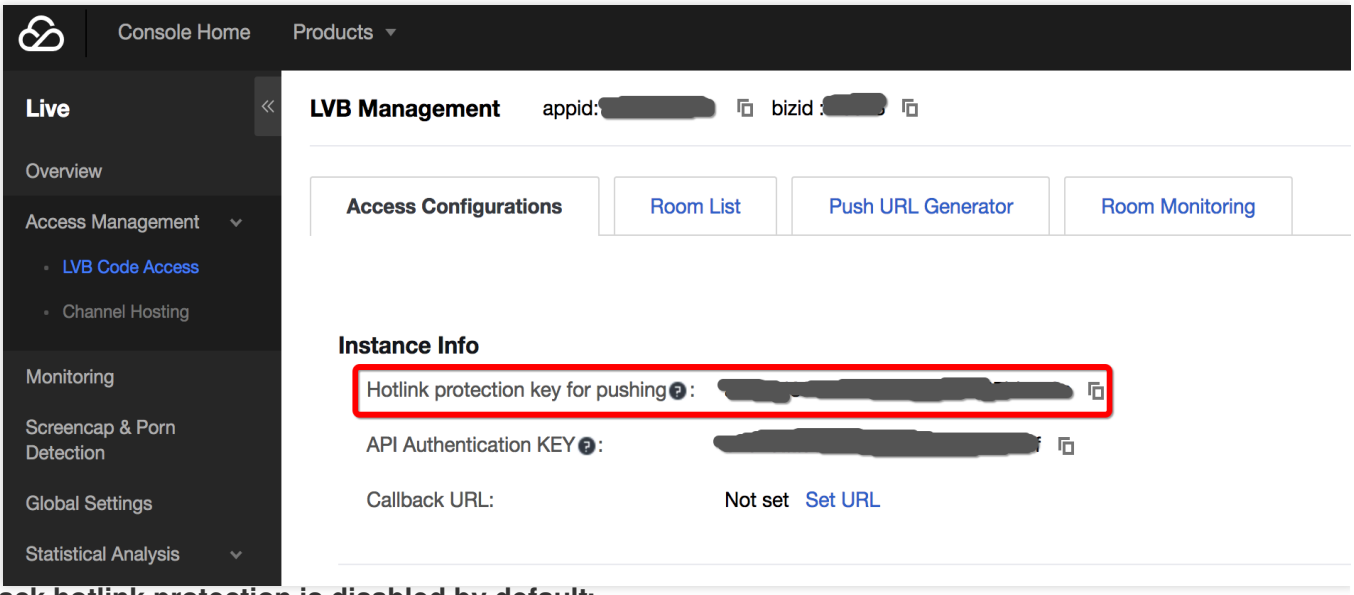


3.2 Computing procedure

Step 1: Exchange the key

You need to negotiate an **encryption key** on the console at the official website. This encryption key is used to generate a hotlink protection signature on your server. Since Tencent Cloud has the same key as yours, it can decrypt and verify the hotlink protection signature generated by your server.

Encryption keys are classified into **push hotlink protection keys** and **playback hotlink protection keys**. The former are used to generate the push hotlink protection URLs and the latter are used to generate the playback hotlink protection URLs. You can configure push hotlink protection keys in the CSS Console, as shown below:



Playback hotlink protection is disabled by default:

Since the configuration of playback hotlink protection key needs to be synchronized to thousands of CDN clusters, the key cannot be frequently modified in the debugging phase due to a long synchronization period. Contact us if you need to configure the playback hotlink protection by calling our customer service. It generally takes 1 to 3 days to complete the synchronization in all of the clusters.

Step 2: Generate txTime

In the signature, the plaintext is txTime, which indicates the URL validity period. For example, if the current time is 2016-07-29 11:13:45 and the generated URL is expected to expire after 24 hours, txTime can be set to 2016-07-30 11:13:45.

Such a long time string would occupy too much space in the URL. In actual scenario, 2016-07-30 11:13:45 is converted into a UNIX timestamp, i.e. 1469848425 (various backend programming languages are directly handled by available time functions during the conversion). Then, the timestamp is converted into a hexadecimal string to further reduce the string length, that is, txTime = 1469848425 (hexadecimal) = 579C1B69 (hexadecimal).

Generally, txTime is set to a time which is 24 hours later than the current time. It is not recommended to set a too short validity period to avoid the inability of VJ to restore push in case of a flash breakdown of network during the broadcasting.

Step 3: Generate txSecret

txSecret is generated as follows: txSecret = **MD5 (KEY + stream_id + txTime)**. The **KEY** here is the encryption key you configured in Step 1. In this example, stream_id is 8888_test001, txTime is 579C1B69 as calculated above, and **MD5** is the standard unidirectional irreversible hash algorithm.

Step 4: Construct the hotlink protection URL

Combine the push (or playback) URL, the txTime indicating the expiration time of the URL and the txSecret that can be decrypted and verified only by Tencent Cloud to generate a secure hotlink protection URL.

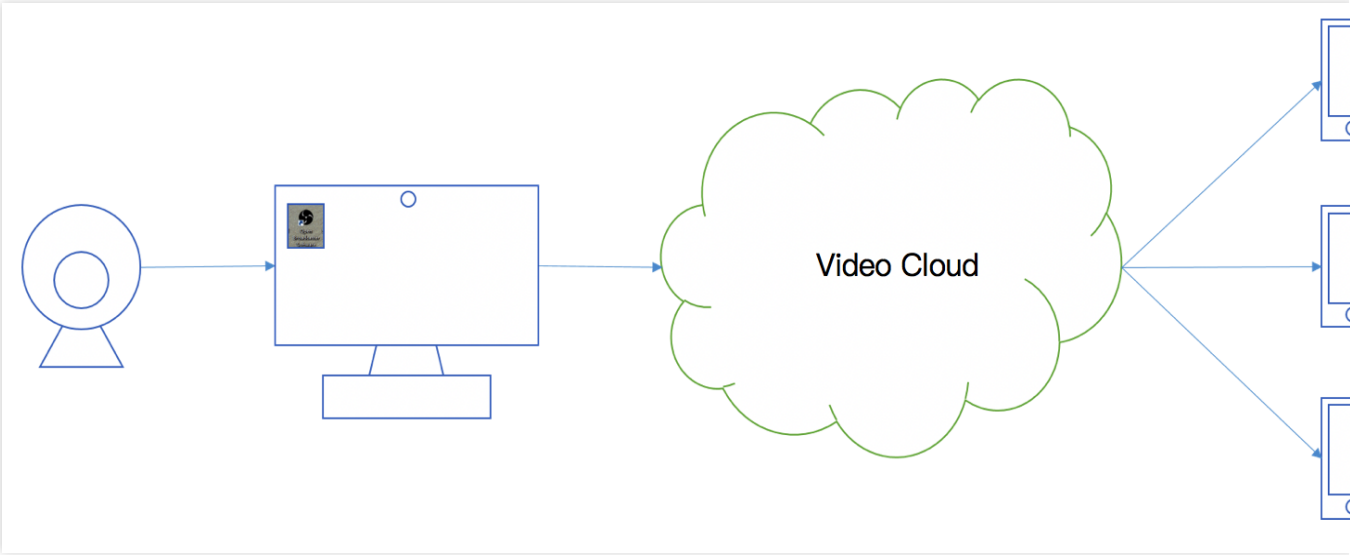
3.3. Sample codes

Go to CSS Console > CSS Code Access > Push Generator. In the lower part of the page, the sample code (PHP and Java) is provided to show how to generate a hotlink protection URL.

PC Push Overview

Last updated：2021-03-12 11:32:57

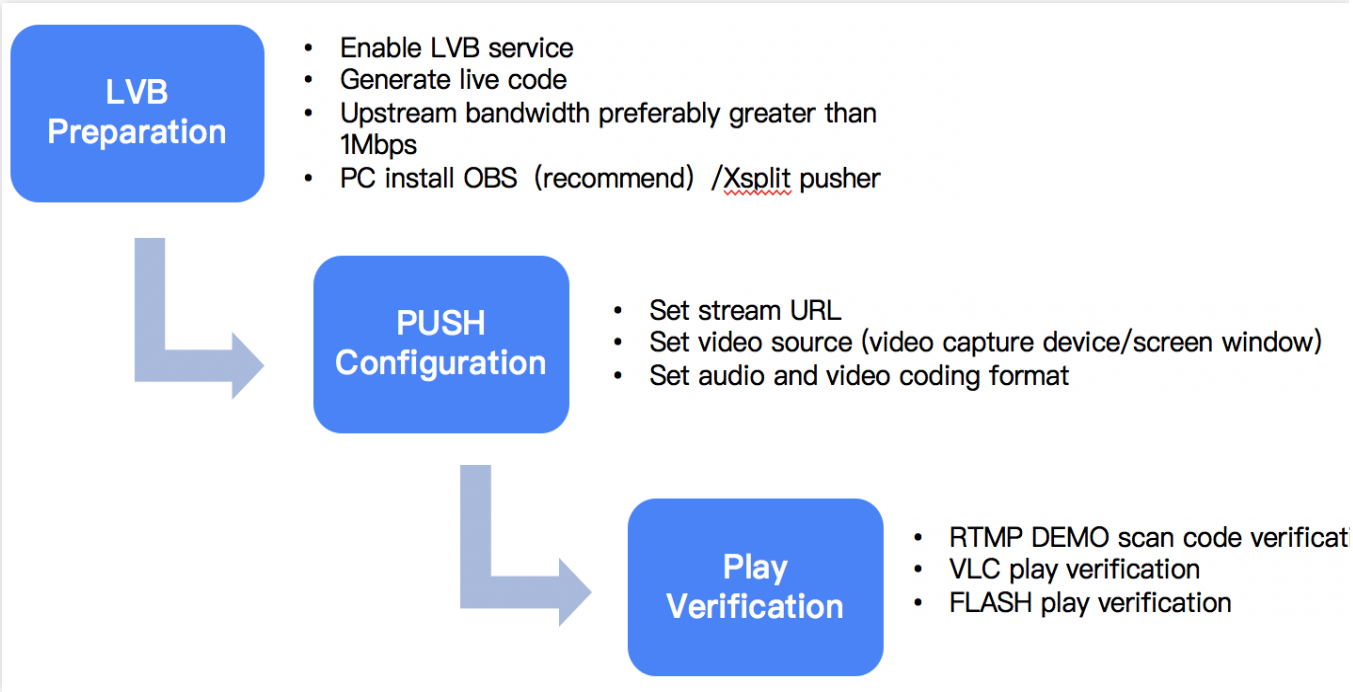
PC CSS Overview



Tencent Cloud PC CSS is used to push compressed and encoded images (such as **live events**, **teaching**, **projection** or **games**) to the **push URL** of Tencent **Video Cloud** by using push software (**OBS (recommended)** or **XSplit**) installed on PCs (**windows**/**mac**). Meanwhile, viewers can see **real-time images** using the playback URL corresponding to the push URL.

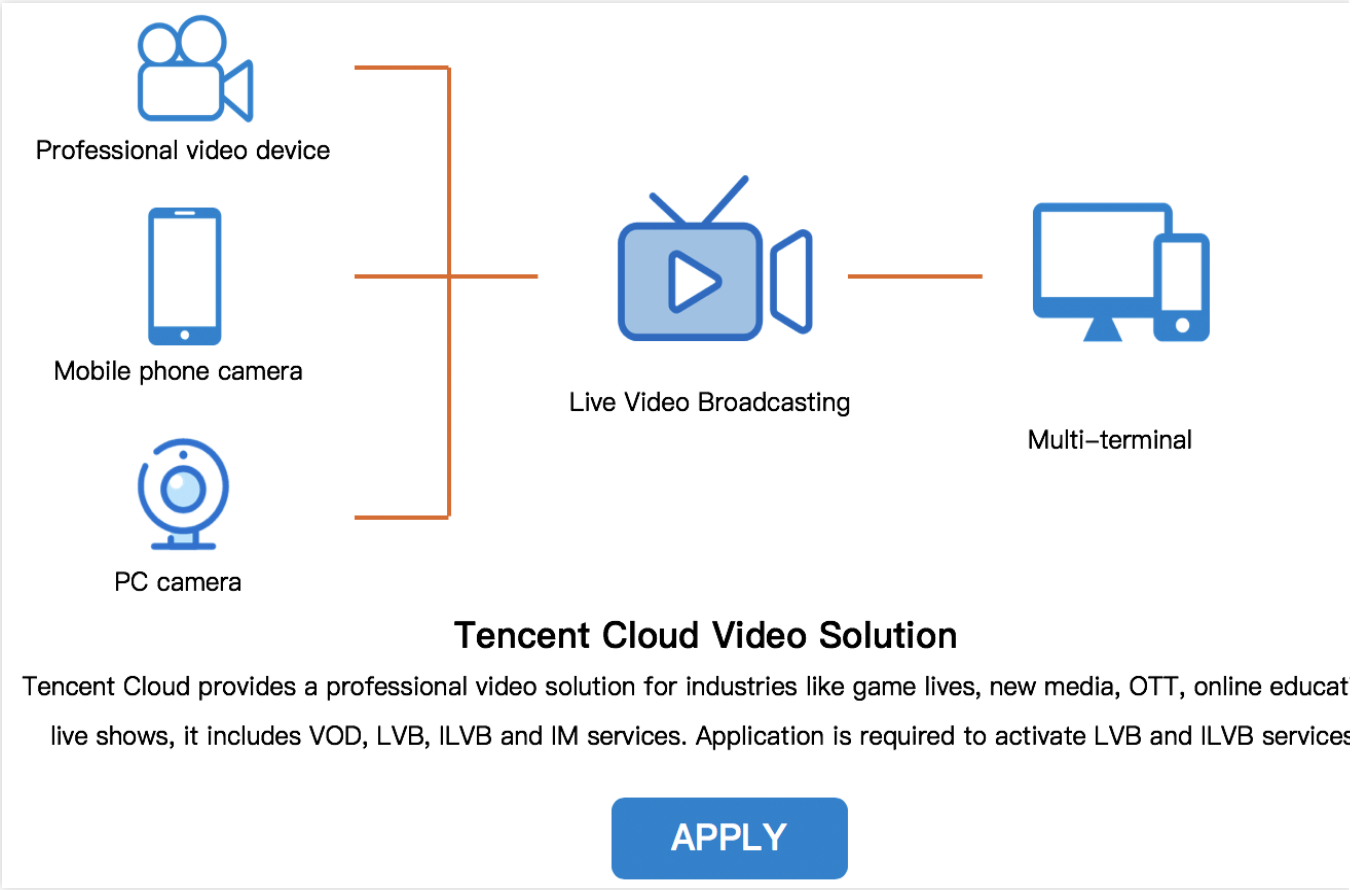
PC CSS Procedure

You can implement PC CSS easily by following the steps below:
Where are the streams pushed to: Get a **push URL** and 3 playback URLs from Tencent Cloud CSS console.
What is pushed: Set audio/video sources for push and encoding parameters in the third-party push software.
Viewer can watch CSS using our RTMP DEMO to set playback URL. This helps **push the content to the viewers**.



1. Before CSS

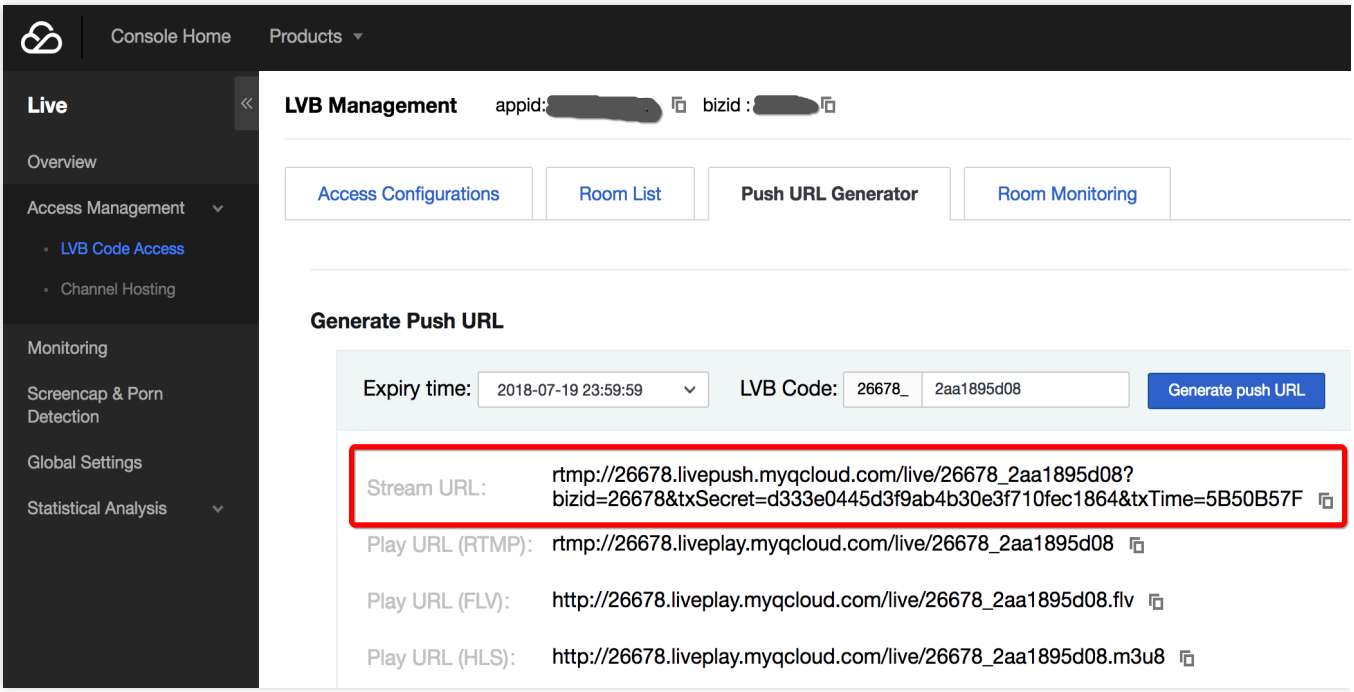
Activate cloud CSS service on Tencent Cloud.If you have not activated the Tencent Cloud CSS service, click here to apply for the service.



1.2 Generate push URL

If you don't have a **push URL**, you can generate a **push URL** and 3 playback URLs by clicking Access Management > CSS Code Access > Access Configuration.

The one whose domain name is **livepush.myqcloud.com** is the push URL:



1.3 Select the network for CSS

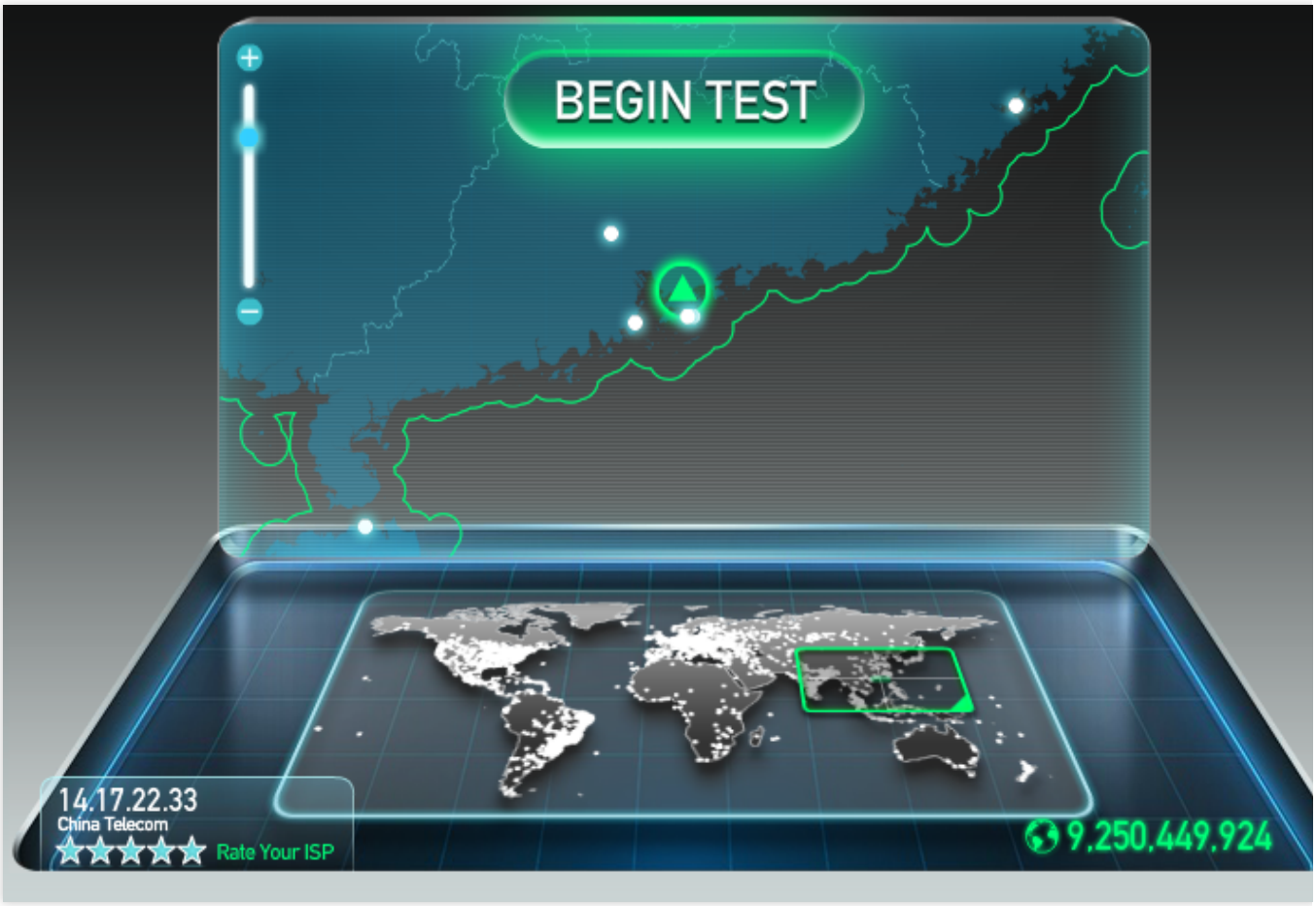
Network selection

Network Type	Accessibility	Stability
Wired network	Low	High
WIFI	High	Low

It is recommended to use cable network if possible, which is more stable than WIFI to make signals less disruptive. For event CSS, it is recommended to use WIFI for convenience.

Upstream bandwidth test

The requirement for upstream bandwidth depends on the video quality and resolution. Generally, a better video quality with a higher resolution means a higher requirement for upstream bandwidth. The upstream bandwidth should not be less than 1 Mbps. To check the condition of upstream bandwidth, you can conduct a test using speedtest.



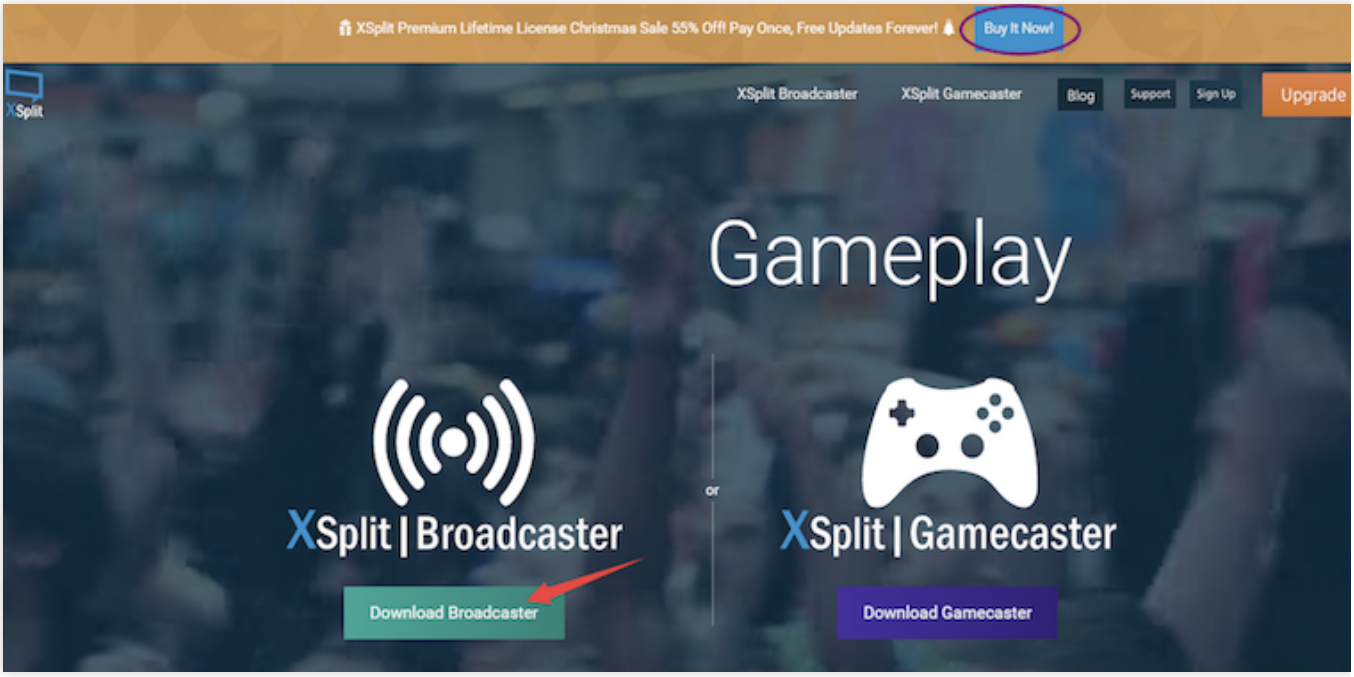
1.4 Install push software

OBS installation

You can download an installation package on OBS official website to install according to default settings. OBS is supported in such systems as Windows/Mac/Linux. You should make sure it is Open Broadcaster Software. OBS also provides OBS Studio which is not discussed in this document.

XSplit Installation

You can download an installation package on XSplit official website to install it according to default settings. XSplit is not a free software. As an alternative, you can use OBS (**Free**). For game CSS, XSplit has a separate installation package. It is recommended to use BroadCaster for non-game CSS.



2. Software parameter configuration

2.1 Set push URL

If you get the following push URL:

rtmp://3891.livepush.myqcloud.com/live/3891_test?bizid=3891&txSecret=xxx&txTime=58540F7F
You need to set two parts separately:
The front part of the push URL **"rtmp://3891.livepush.myqcloud.com/live/"** is called **FMS URL**The latter part of the push URL **"3891_test?bizid=3891&txSecret=xxx&txTime=58540F7F"** is called **stream code**.
OBS push URL configuration
Click **Settings**, select **Broadcasting Settings**, and then set **Mode** to **CSS Stream**, **Streaming Service** to **Custom**, **FMS URL** to the first part of push URL, and **Playback Path/Streaming Code** to the second part. You're recommended to check **Automatic Reconnection**, which means push reconnection is triggered automatically when OBS detects an exception (such as network disconnection).
OBS Studio push URL settings
Click **Settings** in the lower right corner of the page, select **Stream**, and then set **Streaming Type** to **Custom Streaming Media Server**, **URL** to the first part of the push URL, and **Stream Key** to the second part.

2.2 Set audio and video sources

Audio and video sources are just like the contents of the package to be sent. There are three formats:
From video capturing devices, such as camera or video recording devices.
From PC windows or game sources;
From media files stored in PC, such as video images.
OBS audio and video sources settingsNote: **Click the right mouse button** in Source box. The left button is not applicable. The Add menu is popped up, followed by **Acquire from Window**, Acquire from Screen, Image Source, Slide Show, Text Source, CLR Browser, **Video Capturing Device**, Game Source, etc. We generally use Acquire from Window and Video Capturing Device. Other sources are configured in a different way. Next, we will introduce how to configure **Video Capturing Device**.
OBS Studio audio/video source settings
For more information, please see **OBS audio and video sources settings**.

2.3 Set audio and video formats

After the video source is configured, even though you can get the audio and video signals, the original ones are not applicable for spreading in the network because they need more bandwidth. Therefore, it is important to configure the audio and video encoding parameters before CSS starts.

Configuration Item	Feature
x264	The h264 encoder is most commonly used in the industry with a higher video compression ratio under the same image quality. **It is recommended to select this option**.
Nvidia NVENC	It performs encoding using the video processing core dedicated to nv graphics card. Nvidia graphics card is required.
Quick Sync	Use Intel Quick Sync Video technology to support hardware encoding with a high encoding

	speed and image quality. But it has a poor compatibility and high bitrate.
CBR	This is one of video encoding bitrate control modes and is called constant bitrate control. With a consistent bitrate, it is more suitable for network transmission. **It is recommended to select this option**.
AAC	This is the most widely used live audio encoding format. **It is recommended to select this option**.

OBS audio and video formats configuration

OBS Studio audio/video format settings

3. Playback verification

3.1 Confirm playback URL

If the push URL (livepush) is:

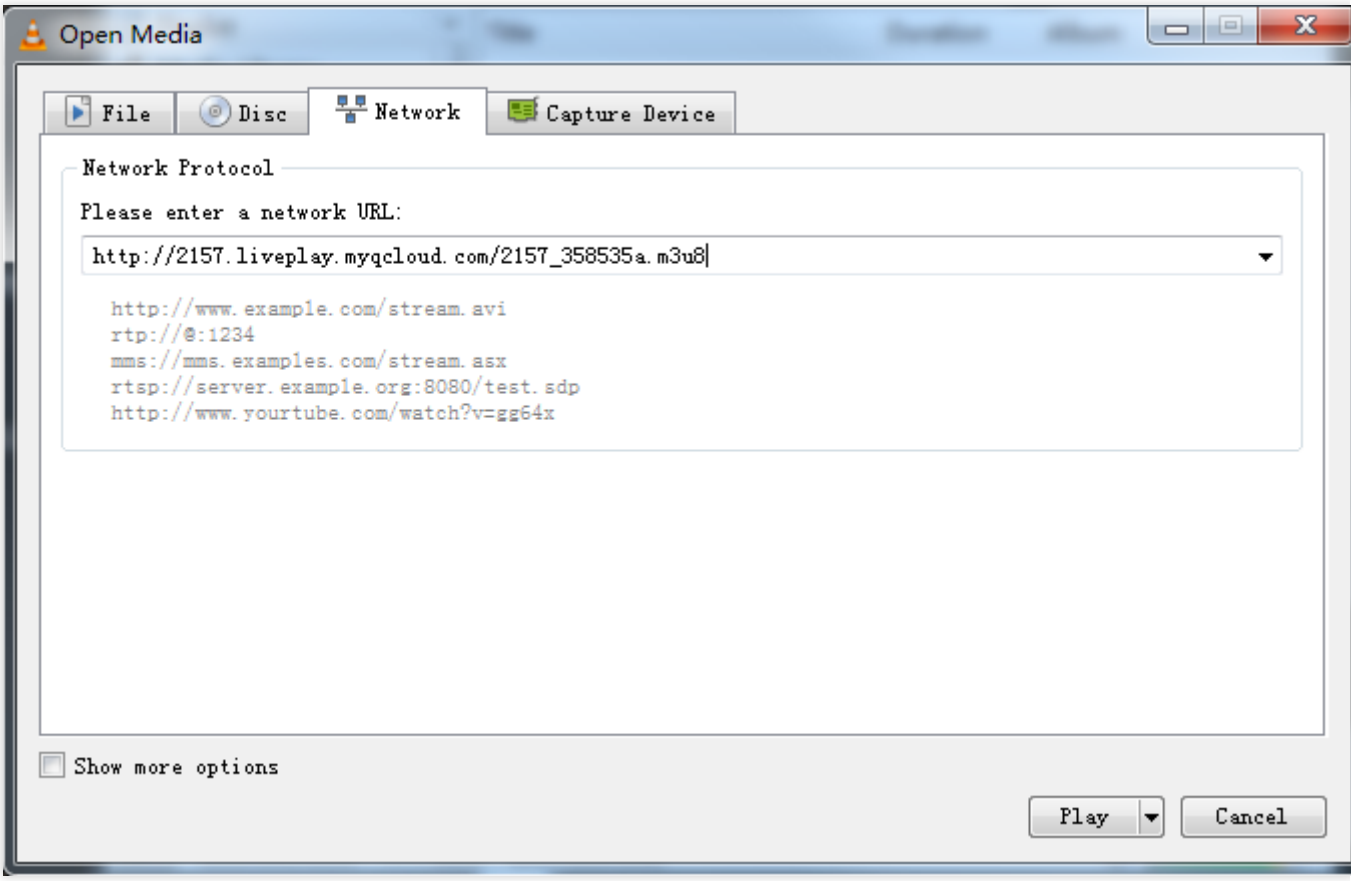
rtmp://3891.livepush.myqcloud.com/live/3891_test?bizid=3891&txSecret=xxx&txTime=58540F7F

the playback URL (liveplay) is:

Playback Protocol	Playback URL
FLV	`rtmp://3891.liveplay.myqcloud.com/live/3891_test`
RTMP	`http://3891.liveplay.myqcloud.com/live/3891_test.flv`
HLS(m3u8)	`http://3891.liveplay.myqcloud.com/live/3891_test.m3u8`

3.2 VLC playback verification

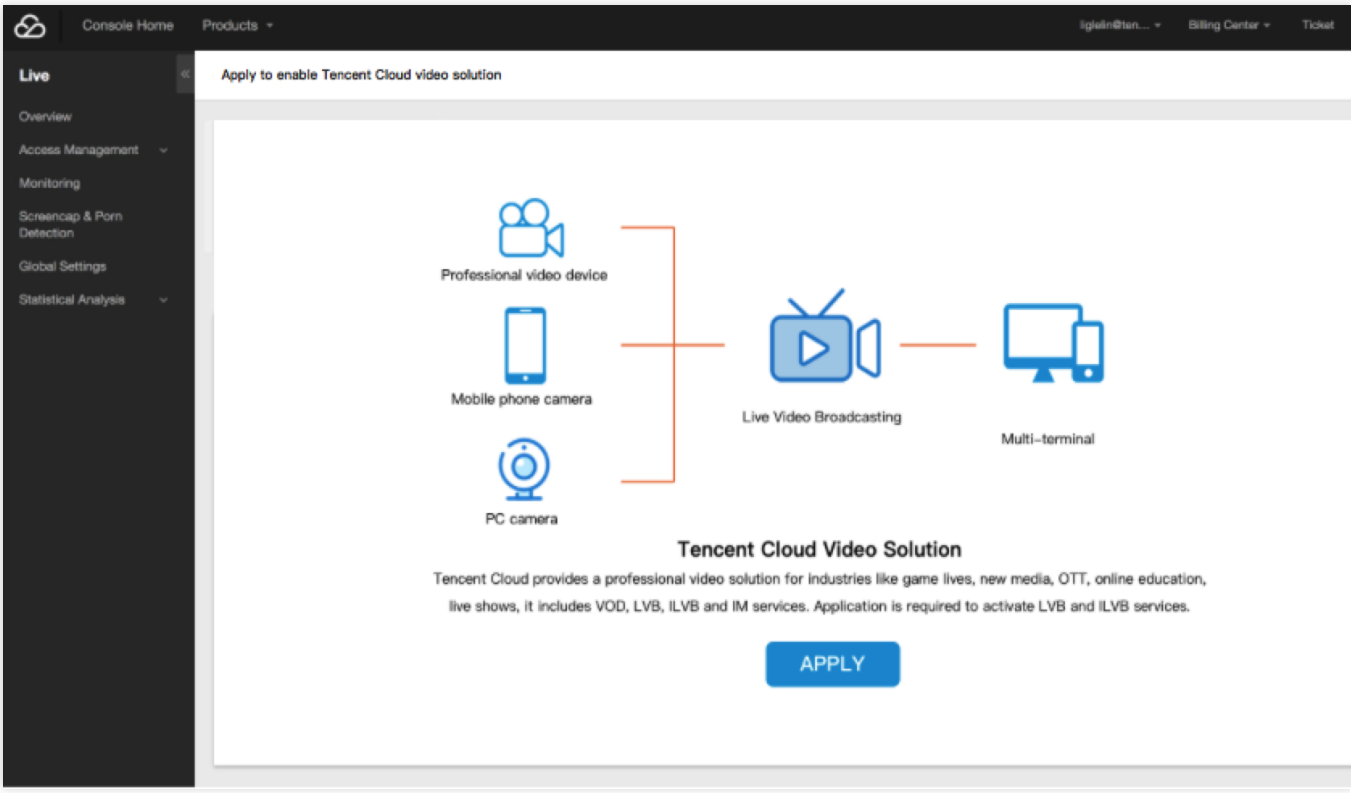
Click here for VLC Download URL. You can install according to the default settings. Open the software, click **Media Menu**, select **Open Network Stream**, enter the playback URL, and click **Play**.


Open Media
File
Disc
Network
Capture Device
Network Protocol
Please enter a network URL:
http://2157.liveplay.myqcloud.com/2157_358535a.m3u8
http://www.example.com/stream.avi
rtp://@:1234
mms://mms.examples.com/stream.asx
rtsp://server.example.org:8080/test.sdp
http://www.yourtube.com/watch?v=gg64x
Show more options
Play
Cancel

CSS Preparation

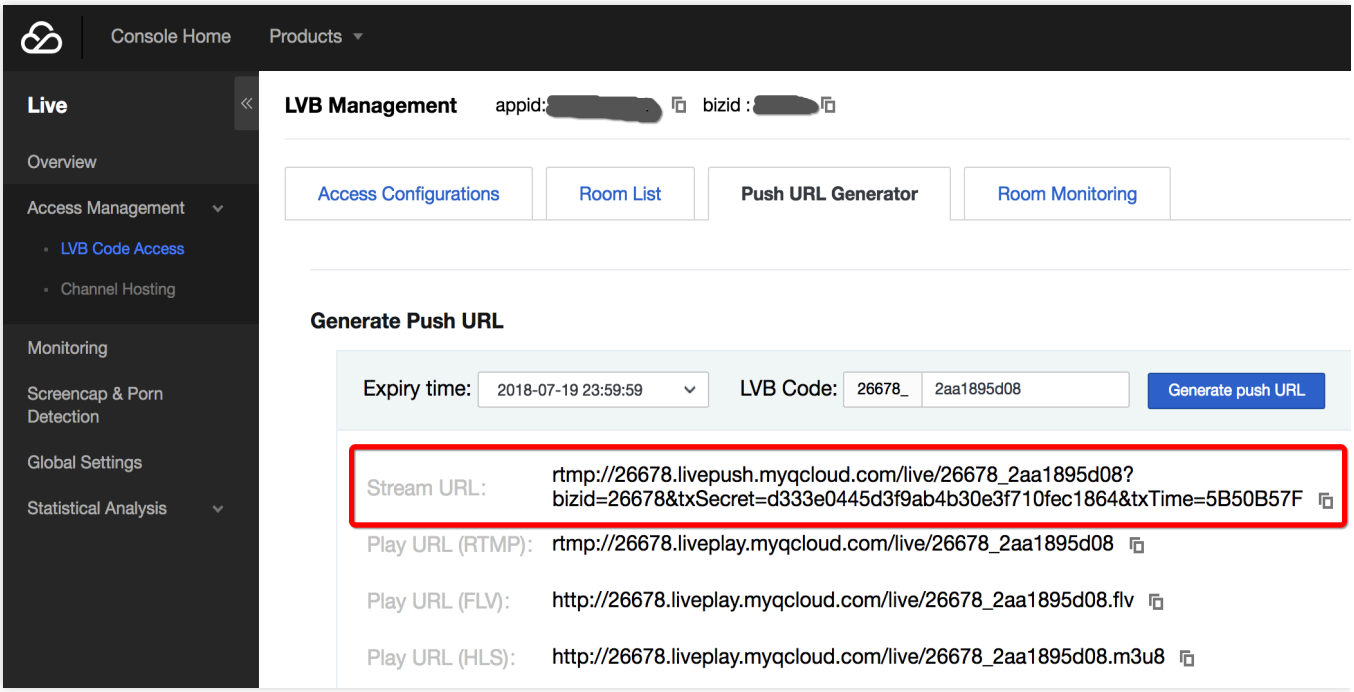
Last updated：2021-03-24 15:23:27

If you have not activated the Tencent Cloud CSS service, click here to apply for the service.



Generate push URL

If the push URL is not ready yet, log in to Tencent Cloud CSS Console, select **Access Management** > **CSS Code Access (Recommended)** > **Push Generator** to generate a push URL and three playback URLs. The URL with a domain name of livepush.myqcloud.com is the push URL:



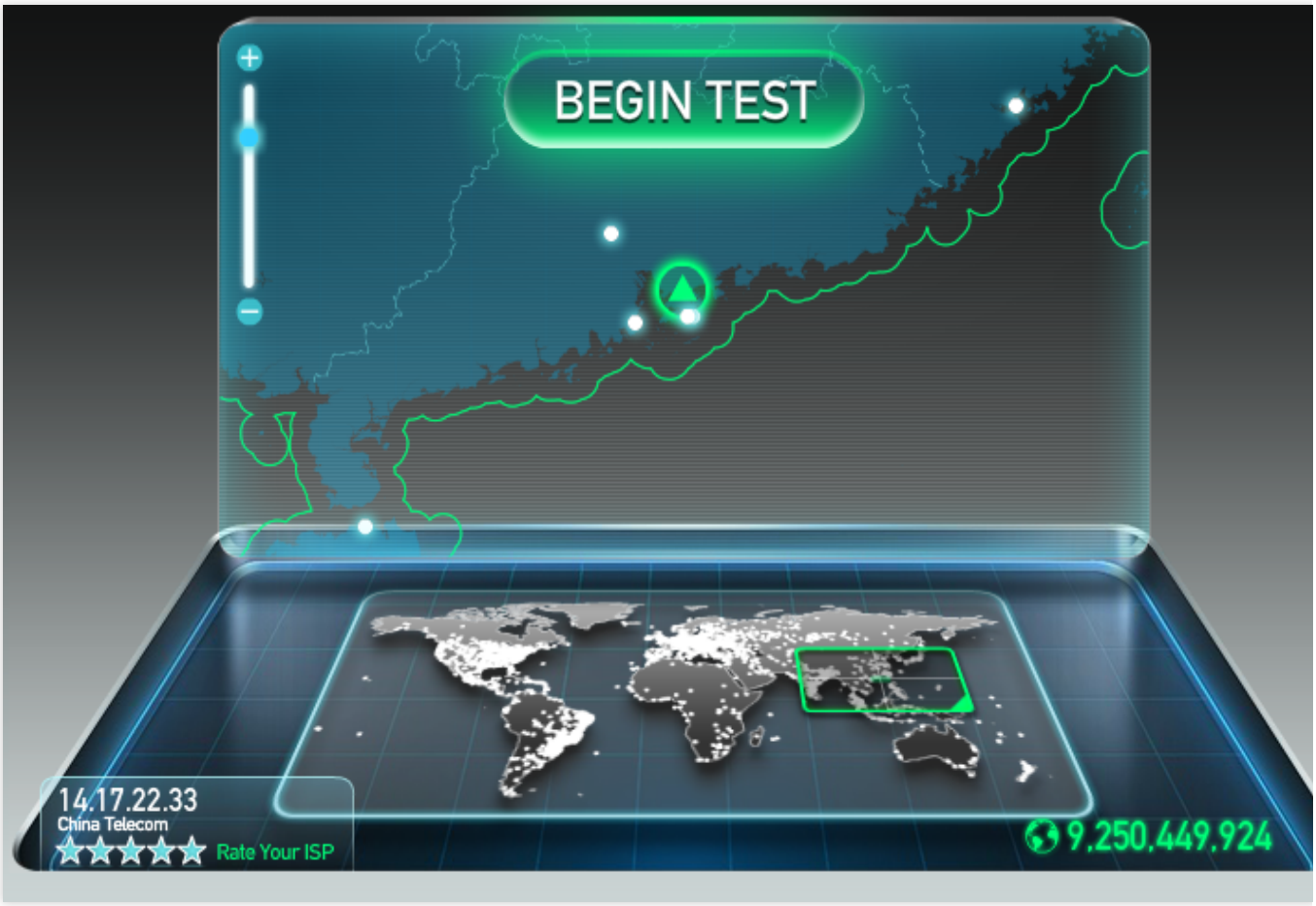
Select the network for CSS

Network options

Network Type	Accessibility	Stability
Wired network	Low	High
Wi-Fi	High	Low
If possible, it is recommended to use a wired network, which is more stable than Wi-Fi to prevent interference with signals. Wi-Fi is more suitable for live video broadcasting for events because of the convenience it offers.		

Upstream bandwidth test

The requirement for upstream bandwidth depends on the video quality and resolution. Generally, a better video quality with a higher resolution means a higher requirement for upstream bandwidth. The upstream bandwidth should not be less than 1 Mbps. To check the condition of upstream bandwidth, you can conduct a test using speedtest.



Install push software

Install OBS

Download the OBS installer package on OBS official website and then install it with default settings. Windows, Mac, and Linux operating systems are supported. Make sure the downloaded software is Open Broadcaster Software. OBS Studio is also available but is not covered in this document.

Install XSplit

Optionally, download the XSplit installer package on XSplit official website and then install it with default settings. XSplit is a paid software. In case of a budget constraint, OBS (**Free**) is recommended. A dedicated XSplit installer package is available for game CSS. For non-game CSS, BroadCaster is recommended.