User Generated Short Video SDK

Media SDK (RT-Cube)

Product Documentation

Contents

Media SDK (RT-Cube) Overview

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Tencent Cloud's media SDKs (RT-Cube) offer capabilities including real-time communication, live streaming, instant messaging, video on demand, and short video production. They come in mobile, desktop, web, and other editions.

Quick Overview

The media SDKs offered by Tencent Cloud are the **TRTC SDK, MLVB SDK, UGSV SDK, Player SDK, and All-in-One SDK**. Their capabilities are listed in the table below. **The All-in-One SDK offers the capabilities of all the other SDKs. You can choose the one that best fits your needs.**

Capability/SDK	All-in-One	MLVB	UGSV	TRTC	Player
Publish live streams	✓	✓	-	✓	-
Same/Cross-room communication	✓	✓	-	✓	-
Shoot, edit, upload, and publish videos	✓	-	✓	-	-
Audio/Video calls	✓	✓	-	✓	-
Play videos live	✓	✓	-	-	✓
Play on demand	✓	-	✓	-	✓

> Note：
>
> For more detailed information about the capabilities, see SDK Download.

Demos

We offer demos for you to try out capabilities such as interactive live streaming, audio/video calls, short video production, and video playback.

The **RT-Cube demos** integrate Tencent Cloud's audio/video products including CSS, MLVB, UGSV, and TRTC and offers capabilities such as **live stream publishing, same/cross-room communication, video shooting, editing,**

upload, and publishing, live playback, VOD playback, and audio/video calls. We use a modular design for these capabilities. You can combine the modules you need and build your own audio/video application in as little as **one day**.

Billing Overview

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Billing Overview

In order to use a capability of Tencent Cloud's media SDKs (RT-Cube), you need to purchase the corresponding license resource.

> Note：
> For details about the capabilities of the SDKs, see SDK Download.

Item		Description	Billing
SDK Licenses	Live stream publishing	This license can activate the **live stream publishing and video playback** capabilities.	• Live stream publishing license fee
	UGSV	This license can activate the **UGSV and video playback** capabilities.	• UGSV license fee
	Video playback	This license can activate the **video playback** capability.	• Video playback license fee

Using Tencent Cloud services with the media SDKs will also incur fees.

Item		Description	Billing
Tencent Cloud services	Cloud Streaming Services (CSS)	CSS service fees will be incurred if you use CSS together with the live stream publishing and video playback capabilities of the media SDKs to quickly publish live streams to the cloud for processing and delivery.	Billing of CSS
	Tencent Real-Time Communication (TRTC)	TRTC service fees will be incurred for using the media SDKs to implement features such as audio/video calls, group conference, and interactive live streaming.	Billing of TRTC

Item		Description	Billing
	Video on Demand (VOD)	VOD service fees will be incurred if you use VOD together with the media SDKs to implement capabilities such as live recording, replay, short video editing, video storage, and video distribution.	Billing of VOD
	Instant Messaging (IM)	IM service fees will be incurred if you use Tencent Cloud's IM service together with the media SDKs to implement capabilities such as room management, on-screen commenting, gift/red packet sending, and messaging.	Billing of IM

SDK Licenses

Fees

We use licenses to manage access to different functional modules of the media SDKs. Currently, you need licenses to use the **live stream publishing**, **UGSV**, and **video playback** capabilities. For UGSV, we offer two types of licenses: **UGSV Standard** and **UGSV Lite**.

- A live stream publishing license can activate the **live stream publishing and video playback** capabilities.
- A UGSV license can activate the **UGSV and video playback** capabilities.
- A video playback license can activate the **video playback** capability.

A live stream publishing, UGSV, or video playback license is valid for one year after you bind it to an application (**expire at 00:00:00 the next day**).

> Note：
> The video playback license was introduced in the 10.1 version of the media SDKs (launched at the end of May 2022).

Pricing of live stream publishing licenses

License Type	Validity Period	Capability	Price (USD)	How to Get
Live stream publishing (**trial**)	28 days	Live stream publishing + Video playback	0	Apply for free
Live stream publishing	One year		5,988	Buy now

Pricing of UGSV licenses

License Type	Validity Period	Capability	Price (USD)	How to Get
UGSV Standard (**trial**)	28 days	UGSV (Standard) + Video playback	0	Apply for free
UGSV Lite	One year	UGSV (Lite) + Video playback	1,899	Buy now
UGSV Standard	One year	UGSV (Standard) + Video playback	9,999	

> Note：
> UGSV Standard offers additional capabilities such as filters, special effects, and transition effects to help you easily build short video applications for mobile devices. For details, see Different Editions of the UGSV SDK.

Pricing of video playback licenses

The **video playback** license was introduced in the 10.1 version (launched at the end of May 2022) of our media SDKs for mobile devices (Android, iOS and Flutter).

- **If your application is already bound with a live stream publishing license or UGSV license, you can continue to use the corresponding features after you update to v10.1.**
- If your application is not bound with a live stream publishing license or UGSV license, **you need to purchase a video playback license in order to use the live or VOD playback features of the new SDKs**. For details, see Activating capabilities.
- If you don't use the video playback capability or do not update the SDKs, you will not be affected by the change.

License Type	Validity Period	Capability	Price (USD)	How to Get
Video playback (trial)	28 days	Video playback	0	Apply for free
Video playback	One year			

Activating capabilities

In v10.1 and later versions, you can activate the **video playback** capability (live and VOD playback) using **any** of the three licenses: live stream publishing, UGSV, or video playback. For more details about the capabilities different licenses can activate, see the table below:

License	Capabilities			How to Get
	Live stream publishing	UGSV	Video playback	
Live stream publishing	✓	-	✓	• Purchase a live stream publishing license (valid for one year)
UGSV	-	✓	✓	• Purchase a UGSV license (valid for one year)
Video playback	-	-	✓	• Apply for a video playback license for free (valid for one year)

Billing details

- Each Tencent Cloud account can **apply for one live stream publishing license, one UGSV license, and one video playback license for free** to try out the corresponding capabilities. You can use a trial license for at most 28 days.

- A license can be bound to a new application or replace an existing license. After replacement, the expiration time of the new license will apply. The original license will be automatically unbound from the application. Its validity period will not change.

- About validity:

○ After you purchase a license, the license will be inactive until you bind it to an application. A purchased license is valid for one year **after you bind it to an application** (expires at 00:00:00 the next day).

- **Each license can be bound to one iOS bundle ID and one Android package name, regardless of whether you use it in the development or production environment.** If you want to use the media SDKs with more than one application, you need to purchase multiple licenses.

- **A purchased license is not refundable after it's bound to an application.**

Service fees

In addition to license fees, using the media SDKs may also incur the following service fees.

Cloud Streaming Services (CSS)

The live stream publishing and video playback capabilities of the media SDKs rely on a backend to receive, process, and deliver live streams. We recommend you use CSS.

CSS offers capabilities including live stream receiving, on-cloud recording, live transcoding, live screencapture, and live stream delivery and playback.

- Using CSS to receive and deliver live streams will incur basic service fees, which are charged based on the traffic/bandwidth consumed.
- Using CSS features such as live transcoding (including stream mixing and watermarking), live recording, live screencapture, RTC-based co-anchoring, and relay to CDN will incur value-added service fees.

> Note：
> For more information about the billing of CSS, see Pricing Overview.

Tencent Real-Time Communication (TRTC)

TRTC service fees will be incurred if you use the media SDKs to implement features such as audio/video calls, group conference, and interactive live streaming.

Billing of TRTC:

- Basic service fees are charged based on the duration of an audio/video live streaming session or an audio/video call.

- Value-added service fees are incurred if you use TRTC services such as on-cloud recording and On-Cloud MixTranscoding.

> Note：
>
> For more information about the billing of TRTC, see Billing Overview.

Video on Demand (VOD)

You can use Tencent Cloud's VOD service to record and replay live streams or store and distribute short videos after editing.

Billing of VOD:

- Storage fees are charged based on the storage space used by files uploaded to VOD and their transcoding outputs.
- If you transcode files stored in VOD, transcoding fees are charged based on the specifications and durations of the outputs.
- If you use VOD's acceleration service to deliver videos, acceleration fees will be charged based on the traffic consumed for playback.

> Note：
>
> For more information about the billing of VOD, see Billing Overview.

Instant Messaging (IM)

You can use Tencent Cloud's IM to implement features such as room management, on-screen commenting, red packet/gift sending, and messaging. For the billing details, see Billing Overview.

> Note：
>
> - The messaging feature relies on IM's audio-video group capability. The maximum number of audio-video groups that can be created depends on the IM plan and value-added services you purchase.
> - You can use Tencent Cloud's IM to implement features such as on-screen commenting, messaging, and red packet/gift sending. You can also develop your own solutions or use a third-party service.

- IM has a free edition that allows you to try out its features. You can purchase plans or value-added services based on your actual needs.

SDK Download

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TRTC SDK

MLVB SDK

Player SDK

UGSV SDK

Chat SDK

All-in-One SDK

Features

Feature	Description
Video call	720p/1080p one-to-one or group video callsEach room allows up to 300 concurrent users, and up to 50 users can turn their cameras on at the same time.
Audio call	One-to-one or group audio calls with 48 kHz sample rate and dual channelsEach room allows up to 300 concurrent users, and up to 50 users can turn their mics on at the same time.
Interactive video streaming	Same-room communication between anchors and audience membersCross-room communication between anchors.Smooth mic on/off without waiting, anchor latency less than 300 ms.There is no upper limit on the cumulative number of anchors in a room, and up to 50 users can communicate at the same timeThe low-latency live streaming mode supports streaming to up to 100,000 concurrent users, with playback latency as low as 1,000 ms.
Interactive audio streaming	Same-room communication between anchors and audience membersCross-room communication between anchors.Smooth mic on/off without waiting, anchor latency less than 300 ms.There is no upper limit on the cumulative number of anchors in a room, and up to 50 users can communicate at the same timeThe low-latency live streaming mode supports streaming to up to 100,000 concurrent users, with playback latency as low as 1,000 ms.

Advanced Features

Feature	Description	
Co-anchoring	Audience members can mic on to communicate with the anchor. Smooth mic on/off without waiting.	Interacti
Cross-room communication	Anchors from different rooms can communicate with each other while audience members watch.	Show inte

Screen sharing	Share the desktop, a window (for example, a Microsoft PowerPoint window), or a portion of the desktop	Online cl
Server-side local recording	Server-side local recording relies on the Linux SDK, which is currently offered to a limited number of customers. If you have questions about the SDK or want to use it, please contact us at colleenyu@tencent.com.	Reco
On-cloud recording	On-cloud recording relies on the relay-to-CDN feature and leverages the capabilities of CSS to record live streaming sessions (audio/video). Recording files are saved securely and in real time to VOD.	Audiovisu
On-Cloud MixTranscoding	TRTC uses an MCU cluster to mix and transcode the audio and video streams in a room and publishes the mixed stream to CSS for on-cloud recording or CDN playback.	Stream m
High audio quality	48 kHz sample rate, end-to-end 192 Kbps bitrate, and dual channels for a clear and immersive audio interaction experience	Audio c streamin quality F
High video quality	720/1080p video quality	Video calls
3A processing	Leveraging the industry-leading 3A (acoustic echo cancellation, active noise suppression, automatic gain control) technologies of Tencent Ethereal Audio Lab, TRTC can ensure audio quality even when multiple people speak at the same time or in the presence of background noise.	
AI-based noise suppression	Remove intermittent noises that traditional noise suppression technologies cannot handle, such as coughing, sneezing, and car horns	Audio c streaming
Basic beautification	Basic beautification effects including skin brightening, skin smoothing, rosy skin, and basic filters	Video calls
Background music	Use local music files in formats such as MP3, AAC, and WAV as background music	Audio c streamin roor
Audio effects	Audio effects such as applauding, cheering, whistling, and booing	Audio c stream
Publishing system audio	Publish the audio you play locally, for example, the music played by QQ Music on your computer, to remote users	Interactiv a
Voice change	Voice changing effects such as girl, man, and heavy metal	Audio c stream

		Audio c stream
Reverb	Reverb effects such as karaoke room, small room, hall, and shower room	
Volume callback	Data on volume levels, based on which you can generate waveform animations or send volume reminders to users	Audio ca FM rad
In-ear monitoring	Capture local audio and play it back in the user's earphones, usually for voice quality check or pitch control during singing	Interac s
Custom audio	Callback of raw audio for custom processing. You can connect the SDK to non-standard external devices or use local audio files	Non-star audio eff
Custom video	Custom video sources and renderers. You can use non-camera video sources such as video files, external devices, and third-party sources	Custom b sources, rec
SEI messages	Embed custom information such as lyrics and questions as SEI frames into published video streams	Karaoke r

Core features

Feature	Description
Live stream publishing	Publish live streams using RTMP or RTC, with increased adaptability to network fluctuations faster transmission speed that help deliver a reliable and low-latency publishing experienc
Live playback	Play RTMP, FLV, HLS, DASH, or WebRTC streams. Smooth and HD viewing experienc
Mic connect	RTC-based low-latency communication between the host and audience members as well between hosts from different rooms, with host-audience latency lower than 300 ms
Mobile (game) screen recording	Stream the host's phone screen and camera video at the same time

Details

Module	Feature	Description
Video capturing	Capturing parameters	Resolution, frame rate, audio sample rate, GOP, bi

	Aspect ratio	Capture videos in the aspect ratio of 16:9, 4:3,
	Orientation	Publish streams in portrait mode, landscape left mode, or lan
	Video quality selection	SD, HD, or FHD
	Flashlight	Turn on/off the flashlight
	Camera switch and zoom	Switch between the front and rear cameras and zoo
	Auto and manual focus	Turn on/off auto and manual focus
	Photo taking	Take photos
	Video flipping	Horizontally flip the camera video or the published video. The front ca
	Watermarking	Add watermarks to captured videos
	Screenshot	Take a screenshot of the phone screen
	Pausing audio/video	Pause audio or video during live streaming
	Filters	Add custom filters and adjust the filter streng
	Basic beautification	Smooth skin, brightening, and rosy skin
Audio capturing	Background music	Select a local MP3 file as the background music befor
	Pitch change	Change the music pitch
	Audio mix	Mix voice and music audio with independent volume a
	In-ear monitoring	When earphones (wired or wireless) are used, the user can hear the audio c own earphones
	Stereo	Recreate multi-directional and 3D sounds using dual-ch
	AI-based noise suppression	Built-in noise suppression is based on a psychoacoustic model and can inc more than 20 dB without compromising the sound
	Voice change	Voice changing effects such as girl and ma

Live stream publishing	Reverb	Reverb effects, which can be used together with voice changing to pro
	Muting	Disable the mic during capturing to publish only vide
	Auto volume adjustment	The SDK can adjust the volume automatically depending o
	RTMP publishing	Publish 180-1080p videos using RTMP or RTI
	WebRTC publishing	Publish streams using WebRTC
	SRT publishing	Publish streams using SRT
	QUIC publishing	Publish streams using QUIC
	Publishing from screen	Publish a stream containing content captured from t
	SEI messages	Insert text data as SEI (Supplemental Enhancement Information) into the aud is published by the host and received by audience members. This allows yo with audio/video content.
Live playback	Adaptive bitrate	The SDK can automatically adjust the bitrate (multiple control modes sup conditions to deliver a smoother streaming expe
	Audio-only push	Capture and publish audio-only streams, which helps you sav
	External publishing source	Publish from an external source
	Auto reconnection	The SDK can automatically reconnect after a disconne
	RTMP playback	Play RTMP streams
	FLV playback	Play FLV streams
	HLS playback	Play HLS streams
	DASH playback	Play DASH streams
	WebRTC playback	Play WebRTC streams
Mic connect	Same-room communication	One-to-multiple video interaction between the host and aud

	Cross-room communication	One-to-one video interaction between host
Quality monitoring	Quality monitoring	Monitor publishing and playback performan

Module	Feature	Description	Web	
Playback protocols/formats	VOD, live	Both	✓	
	Supported formats for live playback	RTMP, FLV, HLS, DASH, WebRTC	WebRTC, FLV, HLS, DASH	R
	Supported formats for VOD playback	HLS, DASH, MP4, MP3	HLS, MP4, MP3, FLV, DASH	N
	Live Event Broadcasting (LEB)	Live and VOD playback	✓	
	DASH	Play DASH videos	✓	
	QUIC transmission	Use the QUIC protocol to transmit data with higher efficiency	-	
	SDR/HDR videos	Play SDR and HDR10/HLG videos	-	
	H.264 playback and decoding (software/hardware)	Play and decode (based on software or hardware) H.264 videos	✓	
	H.265 hardware decoding	Play and decode (based on hardware) H.265 videos	-	
	Audio-only playback	Play audio files in formats such as MP3	✓	
	Dual-channel audio	Play dual-channel audio	×	
	Custom HTTP headers	Customize the header in an HTTP request for video sources	×	
	HTTPS	Play HTTPS videos	✓	
	HTTP 2.0	Support for HTTP 2.0	✓	

Playback features	Predownloading	Predownload a video, with configurable download size limits and resolution. This feature can greatly reduce the time to first frame (TTFF) and is optimized to reduce the energy consumption of the playback device	✓	
	Downloading while playing	Download a video in advance during playback (you can configure a download policy). This allows network resources to be freed up sooner	✓	
	Accurate seeking	Play from a specific point on the progress bar. Seeking is accurate to the frame in mobile applications and accurate to the millisecond on the web	✓	
	Real-time download speed	Get the download speed in real time, which you can show to users when playback stutters. This is also what enables bandwidth detection, a prerequisite for adaptive bitrate	✓	
	Multi-instance	Add multiple players on a page and play videos on different layers at the same time	✓	
	Dynamic frame sync	Fast forward to the current playback progress when a lag occurs to ensure the real-timeliness of live streaming	✓	
Playback control	URL playback	Play a live or VOD video via its URL	✓	
	File ID playback	Play a video via its VOD file ID, which corresponds to the video's available resolutions, thumbnails, and timestamp information	✓	
	Local playback	Play a local video file	-	
	Basic control	Start, stop, pause, and resume playback	✓	
	Picture-in-picture (floating window)	Play a video in PiP mode. For mobile applications, PiP is supported both within the application and out of the application	✓	
	Cache seeking	If a video is already cached, seeking will be based on the cache and is therefore	✓	

	faster		
Time shifting	Play an ongoing live stream from an earlier time point	✓	
Progress bar marking and thumbnail previews	Add marks to a progress bar and show thumbnail previews (image sprites)	✓	
Thumbnail	Set a thumbnail for a video	✓	
Replay	Manually replay a video after playback ends	✓	
Loop	Automatically replay a video after playback ends	✓	
Playlist	Play a list of videos in sequence in a continuous loop (after the last video of the list is finished, playback starts from the first video again)	✓	
Checkpoint restart	Resume a video from where you left off	✓	
Custom playback start time	Set a playback start time	✓	
Playback speed	Play a video at 0.5-3x speed	✓	
Background playback	Play audio/video even when the application is in the background	-	
Playback callbacks	Receive callbacks for the playback status, first frame rendering, end of playback, and playback failure	✓	
Auto-retry	The SDK retries automatically when playback fails	✓	
Volume adjustment	Adjust the system volume and mute audio in real time	✓	
Video quality selection	Smoothly switch between HLS streams of different definitions	✓	
Custom definition names	Use custom names for streams of different definitions	✓	

	Screenshot	Capture a frame of a video	-	
	Preview	Play video previews of a specific length	✓	
	On-screen comments	Show user comments that scroll across the video	✓	
	Imported subtitles	Import subtitle files	✓	
	Referer allowlist/blocklist	Configure an allowlist/blocklist and use the "Referer" field in a playback request to determine whether to allow or block the request	✓	
	Key hotlink protection	Add parameters for validity period, preview time, and max viewer IP count to playback request URLs to protect videos from unauthorized distribution	✓	
	HLS encryption	Encrypt HLS streams with a key based on AES	✓	
Video security	HLS private encryption	Encrypt videos in the cloud using VOD's private protocol. The encrypted videos can be decrypted only by the Player SDK, which effectively prevents videos from being decrypted by various browser extensions and cracking tools	✓	
	Commercial-grade DRM	Encrypt videos using Apple's FairPlay or Google's Widevine	✓	
	Secure download	Download encrypted videos. The videos can only be decrypted and played by the Player SDK	-	
	Dynamic watermark	Add a watermark that moves randomly across the video to prevent piracy	✓	
	Digital watermark	A low-cost way to track users that distribute videos without authorization	✓	
Display	Custom UI	We offer player components that include UI elements	✓	
	Fill modes	Select different ways to fit the video to the screen	✓	

	Custom player size	Set the player dimensions	✓	
	Pause image	Show an image when the video is paused, which can be used for advertising	✓	
	Video flipping	Flip a video horizontally or vertically	✓	
	Rotation	Rotate videos by a specific angle (you can also specify the rotate parameter of a video file to rotate the video automatically)	x	
	Screen locking	Lock the screen for immersive playback (disable rotation and hide system bars)	-	
	Brightness adjustment	Adjust the brightness during playback	-	
	Package size		-	

Module	Feature	Description	Lite	Sta
UI	Custom UI	We provide a complete set of UI interaction source code in the UGSV demo app. You can reuse the code directly or customize your own UI based on it	✓	
Shooting	Aspect ratio	Shoot videos in the aspect ratio of 16:9, 4:3, or 1:1	✓	
	Video quality selection	Shoot videos in SD, HD, or FHD and at a specified bitrate, frame rate, and GOP	✓	
	Shooting control	Switch the camera and adjust brightness during shooting	✓	
	Duration limits	Set the maximum and minimum video duration allowed	×	
	Watermarking	Add a watermark to the video shot	×	

	Focal length	Adjust the focal length during shooting	✓	
	Focus mode	Auto or manual focus	✓	
	Segment-based shooting	Pause shooting to generate a video segment, which can be deleted	✓	
	Photo	Take photos	✕	
	Speed change	Shoot a video in slow or fast motion	✕	
	Background music	Select a local MP3 file as the background music before shooting	✕	
	Voice change/reverb	Select a voice changing effect (such as girl or man) or reverb effect (such as karaoke room or hall) before shooting	✕	
	Filters	Swipe to preview the video with different filters applied; customize filters; set the filter strength	✓	
	Basic beautification	Apply effects including smooth skin, brightening, and rosy skin and adjust the strength	✓	
	Advanced beautification	Apply effects including big eyes, slim face, V shape, slim chin, short face, and slim nose, and adjust the strength	✕	
	Animated stickers	Apply face reshaping effects and stickers based on facial recognition technology	✕	
	AI-based keying	Change the background to an animated image, PowerPoint, or other background image	✕	
	Green screen keying	Replace the green background of a video with an animated image, PowerPoint, or other image	✕	
Editing	Quick import	Quickly import videos on Android	✓	
	Video clipping	Create a video clip from an original video by specifying a start and end time	✓	

	Bitrate setting	Generate a video at the specified bitrate	✓	
	Thumbnail generation	Capture a video frame at the specified time to use as the thumbnail	✓	
	Preview by frame	Move the cursor across the timeline to preview a video at a specific time point	✓	
	Filters	Apply filters and set the filter strength	×	
	Time effects	Apply time effects to a video such as reverse, loop, and slow motion	×	
	Special effects	Add special effects such as soul out, rock light, split screen, and phantom	×	
	Background music	Select a preset track or local MP3 file to use as the background music (you can clip the track and adjust the music volume)	×	
	Static/Animated stickers	Add an animated or static sticker to the specified segment of a video at the specified location	×	
	Text	Add text of a specific style (such as speech bubbles) to the specified segment of a video at the specified location	×	
	Image transitions	Add transition effects such as rotate and fade between multiple images and convert the images into a video	×	
	Splicing	Splice videos in the specified sequence	×	
Video splicing	Co-shooting	Shoot a video while playing an existing video and splice the two videos into one split-screen video	×	
Video upload	Upload to VOD	VOD offers services such as media management and content moderation	✓	
Playback	VOD player	A VOD player-based, open-source solution that integrates features including data pulling, orientation	✓	

		change, definition selection, on-screen comments, and time shifting		
		Package size		Android: arm64-v8a: 4.4M armeabi-v7a: 3.9M dex: 0.81M iOS: arm64: 8.5M armv7: 8.3M

User accounts

Feature	Description
Account import	Import multiple user accounts at a time
Account deactivation	Deactivate an account by invalidating the User
Account deletion	Delete multiple user accounts at a time
User online status	Track the online status of logged-in users
Account query	Query the status (already imported or not) of multiple acc

Multi-device login

Feature	Description
Single-platform login	A user can remain logged in on only one platform (Android, iPhone, iPad, Wind
Double-platform login (default)	A user can remain logged in on the web while logged in to one other device (Android, at the same time
Triple-platform login	A user can remain logged in on one mobile platform (Android, iPhone, or iPad), one Mac), and on web at the same time.
Multiple-platform login	A user can remain logged in on an unlimited number of platforms (Android, iPhone, iP time.

Message types

Feature	Description
Text	The message content is text.
Image	The message content is an image URL and image information such as the d

Emoji	You need to design your own emojis.
Audio	Duration information (in seconds) is required for audio messages
Location	The message content is location information including the location name, longitu
File	The message content is a file URL and file information such as the size and format. The file can be 100 MB.
Short video	The message content is a video URL and video information such as the size, duration, and format. T cannot exceed 100 MB.
Custom	Custom messages such as red packets and rock-paper-scissors
System	Preset and custom system messages
Group tips	System messages about the entry/exit of a group member, change of group description, change o updates
Combined	You can combine up to 300 messages.

Messaging features

Feature	Description
Message download	The application administrator can call an API to get all the one-to-one or group messages in a in the last seven days
Offline push	Push message notifications to a logged-in user who has moved the application
Message roaming	When a user logs in on a new device, their message history stored in the server (on the cloud) The messages are stored for seven days by default. You can purchase a value-added servi
Multi-device sync	Sync messages on all devices. Users can receive messages on multiple devic
Message history	Message history can be stored locally or on the cloud.
Message recall	Recall a message after it has been delivered. By default, messages that were delivered mo recalled. Only one-to-one and group chat messages can be recalled. Messages sent in audi cannot be recalled.
Read receipts	See if messages have been read in a one-to-one chat
Message forwarding	Forward messages to another user or group
Mentioning (@)	A group @ message is essentially the same as other messages. They differ onl
Typing indicator	This feature can be implemented by sending a custom online mes

Offline push	Apple APNs, Xiaomi push, Huawei push, Meizu push, OPPO push, vivo push, a
Message deleting	Use the remove API to remove messages from local storage
Red packets	Red packet messages are similar to @ messages and can be implemented thro
Push to all users	Chat provides a set of RESTful APIs to push notifications to all users or users that have specif receive such messages through the online push or offline push (Android background notificati
Local message search	Search for friends, groups, group members, and messages and orga

Profile features

Feature	Description
Setting user profiles	A user can edit information including their nickname, verification method, profile photo,
Viewing user profiles	A user can view their own profile as well as the profile of a friend
Search by field	Search for user profiles by field
Custom user profiles	Up to 20 custom user profile fields

Relationship chain features

Feature	Description
Searching for friends	Search for a friend by account ID
Friend requests	By default, a user does not need to add a note when sending a f mandatory.
Adding friends	Send a friend request
Importing friends	Import multiple one-way friends at a
Updating friends	Update a user's relationships with multip
Deleting friends	Delete friends
Querying all friends	Query all friends. By default, only basic user inform
Accepting/Rejecting friend requests	Accept or reject a friend request rece
Blocking	Add any user to the blocklist (this will unfrier
Unblocking	Remove a user from the blocklis

Querying the blocklist	Query the list of blocked users
Remarks	Add remarks for a friend
Custom friend profiles	Up to 20 custom friend profile field
Creating a friend list	Create a friend list and specify the friends to add to that list (a use lists)
Deleting a friend list	Delete a friend list
Verifying friends	Verify multiple friends at a time
Verifying blocked users	Query the block status of multiple users
Adding to a friend list	Add a friend to a friend list
Removing from a friend list	Remove a friend from a friend lis
Renaming a friend list	Rename a friend list
Querying a friend list	Get the information of a friend lis
Querying all friend lists	Get the information of all friend lists. You can also get friend list friends.
Relationship chain storage	The SDK can store relationship chain inf
System notifications on friend profile changes	Receive system notifications about friend pro
Relationship chain change notifications	Receive system notifications about relationship

Group features

Group Type	Description
Work groups	A work group is similar to a regular WeChat group. Only a group member can invite other user invitation does not need to be approved by the invited user or group o
Public groups	A public group is like a QQ group. The group owner can designate group admins. A user can sear and send a request to join it. The request needs to be approved by the group ow
Meeting groups	The members of a meeting group can join and leave freely, and can view the group's message hi are ideal for TRTC scenarios such as audio/video conferences and online
Audio-video groups	For audio-video groups, there is no limit on the number of members. A member can join and leave is not saved. Audio-video groups can be used in CSS scenarios to implement on-:

Community groups	A community group can have up to 100,000 members. A member can join and leave freely, and r can search for a community group by group ID and join it, without the need for app

Feature/SDK	All-in-One	TRTC	MLVB
Publishing	✓	✓	✓
Same/Cross-room communication	✓	✓	✓
Video shooting/edit/upload/publishing	✓	-	-
Audio/Video call	✓	✓	✓
Live playback	✓	-	✓
VOD playback	✓	-	-
Messaging	-	-	-

Licenses

Overview

Last updated：2022-10-25 17:19:15

Overview

We offer three types of media SDK (RT-Cube) licenses: **live stream publishing**, **UGSV**, and **video playback**. You can bind a purchased license resource in the TRTC console, the CSS console, or the VOD console to activate a new capability or extend the validity of an existing capability.

One set of license URL and key is used to manage the permissions to use different SDK features for the same application. Different functional modules of the SDK offer different capabilities. You will need a license to use the **live stream publishing (publishing, same-room/cross-room communication)**, **UGSV (shooting, editing, uploading, and publishing videos)**, or **video playback** module of a media SDK. For more information on the capabilities of different media SDKs, see SDK Download.

License	Capabilities
Live stream publishing	Live stream publishing + Video playback
UGSV	UGSV (Lite/Standard) + Video playback
Video playback	Video playback

Trial License

You can apply for one trial license for each functional module of the SDK in the TRTC console, the CSS console, or the VOD console. The validity and package type we offer for trial for different capabilities are as follows:

Capability	Trial Package	Validity	Application
Live streaming	-	28 days	
UGSV	Standard	28 days	Applying for a trial license
Video playback	-	28 days	

> **Note：**
> - You can apply for only one trial license for each functional module. To continue using the capabilities after your trial license expires, please purchase an official license.
> - If you apply for a trial license on `2022-10-01 11:34:55`, it will expire 28 days later on `2022-10-28 00:00:00`.

Official License

For information about the billing of official licenses and packages, see Billing Overview. The table below specifies the functional modules different licenses can activate.

Capability	Activation	Adding Official License
Live streaming	• Purchase a live stream publishing license (valid for one year)	Adding and Renewing a License
UGSV	• Purchase a UGSV license (valid for one year)	
Video playback	• Purchase a video playback license (valid for one year)	

Adding and Renewing a License

Last updated：2022-10-25 17:19:55

We offer three types of media SDK (RT-Cube) licenses: **live stream publishing**, **UGSV**, and **video playback**. For their billing details, see Billing Overview. After purchasing a license, you can bind it in the TRTC console, the CSS console, or the VOD console to activate a new capability or extend the validity of an existing capability. The capabilities different licenses can activate are as follows:

License	Capabilities
Live stream publishing	Live stream publishing + Video playback
UGSV	UGSV (Lite/Standard) + Video playback
Video playback	Video playback

> Note：
> Starting from v10.1, the live stream publishing license and UGSV license can also activate the video playback capability. This means you can now use the video playback capability of the Player SDK with a live stream publishing license or UGSV license.

This document uses the live stream publishing license as an example to show you how to activate a capability using a trial or official license, and how to extend the validity of an existing capability.

Trial License

Applying for a trial license

You can apply for a trial license (valid for 28 days) for the live stream publishing capability for free.

> Note：
> If you apply for a trial license on `2022-10-01 11:34:55`, it will expire 28 days later on `2022-10-28 00:00:00`.

In the console, you can either **create a trial license for a new application** or **activate a new capability for trial for an existing application**.

- Create a new trial license

- Activate a new capability for trial for an existing application

1. Log in to the TRTC console, the CSS console, or the VOD console and click **Create trial license**.
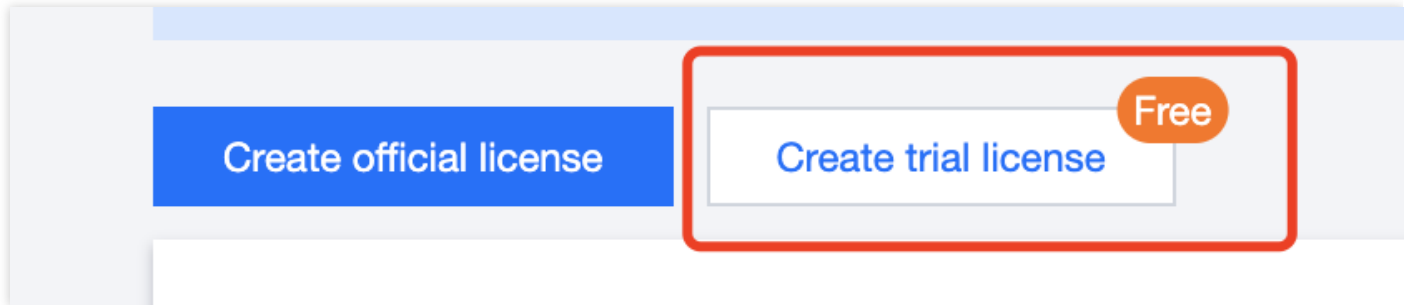
2. Enter an app name, a package name, and a bundle ID, select **Live stream publishing** (live stream publishing + video playback), and click **Create**.

Create trial license   ✕

Basic information

> ⓘ   App name, Package name, and Bundle ID are required and can be modified later.

App name

RT-CubeSDKTest   ✓

Max 128 bytes; supports letters, Chinese characters, numbers, spaces, underscores, hyphens, and periods. E.g.: TRTC

Package name

RT-CubeSDKTest   ✓

Max 128 bytes; supports letters, numbers, spaces, underscores, hyphens, and periods. E.g.: tencent.trtc.com

Bundle ID

RT-CubeSDKTest   ✓

Max 128 bytes; supports letters, numbers, spaces, underscores, hyphens, and periods. E.g.: tencent.trtc.com

Capability

> ⓘ   Each trial license can only be used for one capability. A trial license is valid for 28 days and cannot be renewed after expiration.

| UGSVStandard | Valid for 28 days | Available |

| Live Streaming | Valid for 28 days | Available | ✓

[Create]   [Cancel]

3. After the trial license is successfully created, you will see the license URL and key, **which you need to pass in when initializing the SDK. Save a copy of the information**.
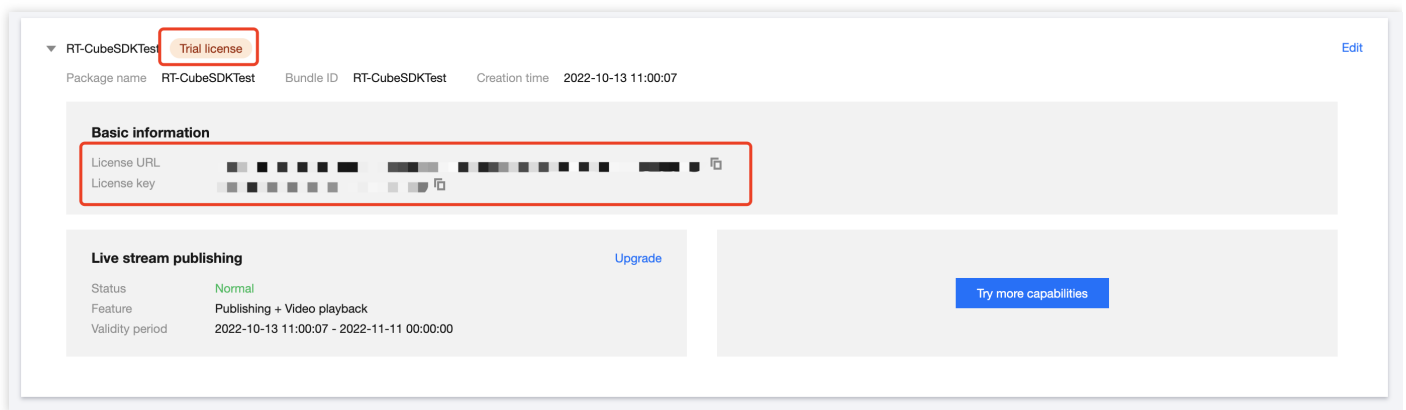
> Note：
>
> - You can click **Edit** to modify the bundle ID and package name bound to a trial license. After modification, click **Confirm**.
> - You can enter — if you don't have a package name or bundle ID to bind yet.
> - A trial license is valid for 28 days. **You can apply for only one trial license for each capability**. To continue using the capability after a trial license expires, please purchase an official license.

Upgrading to an official license

Follow the steps below to upgrade from a trial license to an official license (valid for one year):

1. Select an existing trial license and click **Upgrade** in the **Live stream publishing** area.

2. Click **Bind**, select a CSS traffic package or live stream publishing license which you have purchased, and click **Confirm**. If there are no license resources to bind, go to the Purchase Page to buy resources.

Official License

Purchasing an official license

1. Get an official license.
   - [Purchase](#) a [live stream publishing license](#). A purchased license is valid for one year after you bind it to an application (expires at 00:00:00 the next day).
2. Bind the license. You can either **bind the license to a new application** or **use it to activate live stream publishing for an existing application**.
   - Bind an official license to a new application
   - Activate the capability for an existing application

i. Go to the TRTC console, the CSS console, or the VOD console and click **Create official license**.
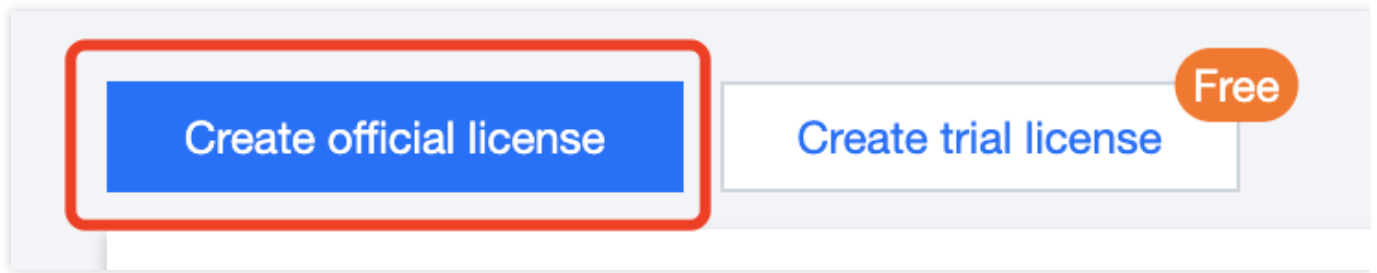
ii. Enter an app name, a package name, and a bundle ID, select **Live stream publishing** (live stream publishing + video playback), and click **Next**.

Create trial license   ✕

Basic information

ⓘ   App name, Package name, and Bundle ID are required and can be modified later.

App name   RT-CubeSDKTest   ⊘

Max 128 bytes; supports letters, Chinese characters, numbers, spaces,
underscores, hyphens, and periods. E.g.: TRTC

Package name   RT-CubeSDKTest   ⊘

Max 128 bytes; supports letters, numbers, spaces, underscores, hyphens, and
periods. E.g.: tencent.trtc.com

Bundle ID   RT-CubeSDKTest   ⊘

Max 128 bytes; supports letters, numbers, spaces, underscores, hyphens, and
periods. E.g.: tencent.trtc.com

Capability

ⓘ   Each trial license can only be used for one capability. A trial license is valid for 28
days and cannot be renewed after expiration.

| **UGSVStandard** | Valid for 28 days   Available |

| **Live Streaming** | Valid for 28 days   Available ✓ |

Create   Cancel

iii. Click **Bind**, select a CSS traffic package or live stream publishing license which you have purchased, and click
Confirm. If there are no license resources to bind, go to the Purchase Page to buy resources.

>? Before clicking **Confirm**, double-check the bundle ID and package name and make sure they are identical to what you submit to app stores. **The information cannot be modified after submission.**

iv. After the official license is successfully created, you will see the license URL and key, which you need to pass in when initializing the SDK. Save a copy of the information.

Extend the validity of a capability

You can view the validity of a license bound in the TRTC console, the CSS console, or the VOD console. You can also subscribe to notifications (**Message Center messages**/**email**/**SMS**) from the media SDKs in Message Subscription. We will send you notifications 30 days, 15 days, seven days, and one day before a license expires. To avoid business interruption, please extend the validity of a capability in a timely manner. If a license has expired, you can follow the steps below to extend the validity of the corresponding capability:

1. Select the target license and click **Update validity** in the **Live stream publishing** area.
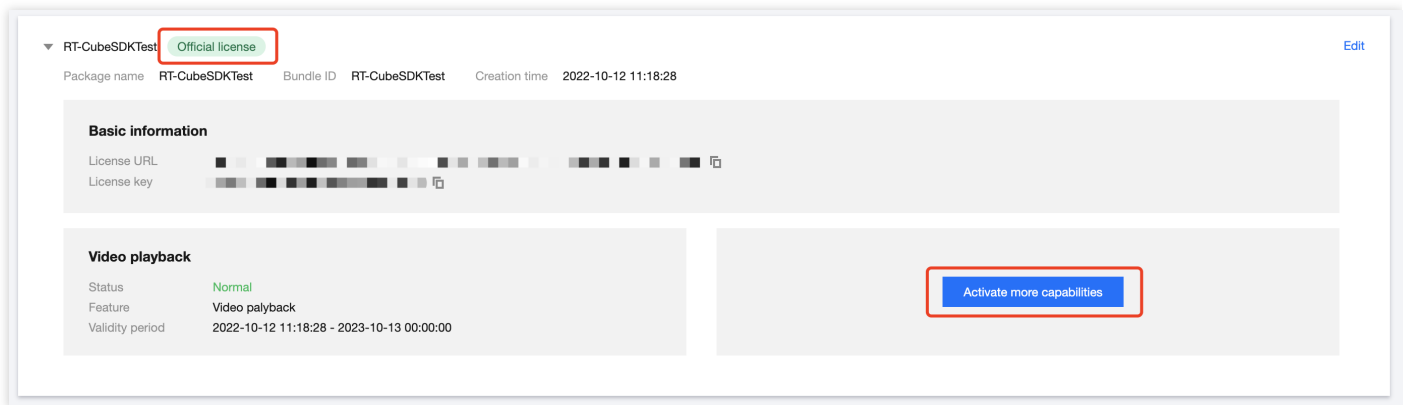
2. Click **Bind**, select a CSS traffic package or live stream publishing license which you have purchased, and click **Confirm**. If there are no license resources to bind, go to the Purchase Page to buy resources.

Tencent Cloud

Update validity   ✕

Current license information

| Current license | Live stream publishing |
| Expires on | 2023-09-24 |

Bind license resources

Capability	License Resource Name/ID	Validity period
Live stream pub…	Live stream publishing Resource ID: 19	2022-11-23 to 2023-11-24 Change license resource
	When you activate "Live stream publishing", the **video playback** capability that comes with "Live stream publishing" will also be activated.	

You can go to the License Purchase Page to buy new licenses

[Confirm]   [Cancel]

3. Check the new validity period.

> Note：
>
> **You cannot modify the information of an official license.** If you want to use a license resource you
>
> purchased for a new application, click **Create official license** to bind it to a new application.

Configuring and Viewing a License

Last updated：2022-10-25 17:30:28

Live Stream Publishing/Video Playback License

Configuration

Before you call the APIs of the media SDKs, follow the steps below to configure the license:

- **iOS**

  Add the code below in `[AppDelegate application:didFinishLaunchingWithOptions:]` :

  ```objc
  - (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions {
  NSString * const licenceURL = @"<The license URL obtained>";
  NSString * const licenceKey = @"<The key obtained>";
  // `V2TXLivePremier` is in the header file `V2TXLivePremier.h`.
  [V2TXLivePremier setLicence:licenceURL key:licenceKey];
  [V2TXLivePremier setObserver:self];
  NSLog(@"SDK Version = %@", [V2TXLivePremier getSDKVersionStr]);
  return YES;
  }
  #pragma mark - V2TXLivePremierObserver
  - (void)onLicenceLoaded:(int)result Reason:(NSString *)reason {
  NSLog(@"onLicenceLoaded: result:%d reason:%@", result, reason);
  }
  @end
  ```

- **Android**

  Add the code below in `application` :

  ```java
  public class MApplication extends Application {
  @Override
  public void onCreate() {
  super.onCreate();
  String licenceURL = ""; // The license URL obtained
  String licenceKey = ""; // The license key obtained
  V2TXLivePremier.setLicence(this, licenceURL, licenceKey);
  V2TXLivePremier.setObserver(new V2TXLivePremierObserver() {
  @Override
  public void onLicenceLoaded(int result, String reason) {
  Log.i(TAG, "onLicenceLoaded: result:" + result + ", reason:" + reason);
  }
  ```

```
    });
    }
```

Viewing license information

After the license is successfully configured, you can call the API below to view the license information. Please note that it may take a while for the configuration to take effect. The exact time needed depends on your network conditions.

- **iOS:**

```
NSLog(@"%@", [TXLiveBase getLicenceInfo]);
```

- **Android:**

```
TXLiveBase.getInstance().getLicenceInfo();
```

UGSV License

Configuration

Before you call the APIs of the media SDKs, follow the steps below to configure the license:

- **iOS**

  Add the code below in `[AppDelegate application:didFinishLaunchingWithOptions:]` :

```objc
- (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions {
NSString * const licenceURL = @"<The license URL obtained>";
NSString * const licenceKey = @"<The key obtained>";
// `TXUGCBase` is in the header file `TXUGCBase.h`.
[TXUGCBase setLicenceURL:licenceURL key:licenceKey];
NSLog(@"SDK Version = %@", [TXUGCBase getSDKVersionStr]);
return YES;
}
- (void)onLicenceLoaded:(int)result Reason:(NSString *)reason {
NSLog(@"onLicenceLoaded: result:%d reason:%@", result, reason);
}
@end
```

- **Android**

We recommend adding the following in the application:

```java
public class MApplication extends Application {
@Override
public void onCreate() {
super.onCreate();
String licenceURL = ""; // The license URL obtained
String licenceKey = ""; // The license key obtained
TXUGCBase.getInstance().setLicence(this, licenceURL, licenceKey);
TXUGCBase.setListener(new TXUGCBaseListener() {
@Override
public void onLicenceLoaded(int result, String reason) {
Log.i(TAG, "onLicenceLoaded: result:" + result + ", reason:" + reason);
}
});
}
}
```

> Note：
>
> If a live stream publishing license, a UGSV license, and a video playback license have the same license URL, you only need to configure license information once. You can apply for free trial licenses in the TRTC console, the CSS console, or the VOD console, or you can buy an official license.

Viewing license information

After the license is successfully configured, you can call the API below to view the license information. Please note that it may take a while for the configuration to take effect. The exact time needed depends on your network conditions.

- **iOS:**

```objc
NSLog(@"%@", [TXUGCBase getLicenceInfo]);
```

- **Android:**

```java
TXUGCBase.getInstance().getLicenceInfo(context);
```

Release Notes (App)

Last updated：2022-12-06 17:14:51

Tencent Cloud's media SDKs (RT-Cube) include the TRTC SDK, MLVB SDK, Player SDK, and UGSV SDK. You can choose one of the SDKs to build your application or use the All-in-One SDK.

Version 10.8 Released on October 27, 2022

MLVB

New features

Android: Added support for sending the system audio when publishing streams using V2TXLivePusher.

Improvements

- All platforms: Increased the success rate of playback in the LEB scenario.
- Android: Improved instant streaming performance.

Bug fixing

- All platforms: Fixed the issue where, when using V2TXLivePusher to publish streams, the 1101 warning code is not returned under poor network conditions.
- All platforms: Fixed the issue where manual focus fails to work with TXLivePusher\V2TXLivePushe.

UGSV

Improvements

Android & iOS: Reduced stuttering in the playback of background music during editing.

Bug fixing

- Android: Fixed the occasional no audio issue if background music is changed multiple times during editing.
- Android: Fixed the black screen issue for image transitions on HUAWEI Mate 50.
- iOS: Fixed the issue where the video bitrate of the generated video increases in iOS 14.

TRTC

New features

All platforms: Added the DJ scratch effect and improved the karaoke experience. For details, see
`TXAudioEffectManager.setMusicScratchSpeedRate` .

Improvements

Android: Sped up video decoding, which reduces the time to first frame to as short as 50 ms.

All platforms: Improved the accuracy of NTP time. For details, see `TXLiveBase.updateNetworkTime`.

Bug fixing

- All platforms: Fixed the occasional issue where, when the streams of a room are mixed and pushed to another TRTC room that does not have upstream audio or video, playback fails and callbacks stop working.
- All platforms: Fixed the occasional issue where, after an audience member changes their role upon room entry, they fail to publish audio and video due to network type change.
- All platforms: Fixed the issue where, after a disconnection, audio quality cannot be changed during reconnection.
- All platforms: Fixed the issue where, after a disconnection, there is sometimes no audio in the published stream during reconnection.
- Android & iOS: Fixed the issue where `muteRemoteVideoStream` removes the last video frame.

Player

Improvements

- Android & iOS: Added the `VOD_PLAY_EVT_LOOP_ONCE_COMPLETE` event, which indicates that one loop of the playlist is finished.
- Android: Fixed the issue where `NetworkInfo.getExtraInfo` is called twice when the SDK is started, improving compliance.

Bug fixing

- Android & iOS: Fixed the issue where videos encrypted using VOD's private protocol fail to be played in certain scenarios.
- Android & iOS: Fixed failure to play some GZIP-compressed videos.
- Android & iOS: Fixed the issue where the duration indicated by the progress bar does not match the actual video length after playback ends.
- iOS: Fixed the issue where, when a video is played by `appid` and `fileid` using the v2 protocol, an error occurs when the SDK gets the original video URL.

Version 10.7 Released on September 20, 2022

MLVB

New features

iOS & Android: The `startPlay` API of TXLivePlayer\V2TXLivePlayer was renamed `startLivePlay` , and license verification is required. For how to get a license, see "Video Playback License."

Improvements

All platforms: Optimized the buffering policy of `AudioJitterBuffer` .

Bug fixing

- All platforms: Fixed the issue where playback of HEv2 audio using V2TXLivePlayer is abnormal in the LEB scenario.
- All platforms: Fixed the issue where, when an IP address is used to publish RTMP streams with TXLivePusher\V2TXLivePusher, publishing fails.
- Windows: Fixed compilation failure on C# because the `V2TXLivePlayerStatistics` constructor is not found.
- iOS: Fixed the issue of low capturing volume on some iPad devices.
- Android: Fixed the occasional issue where Bluetooth earphones are connected, but audio is played from the device's speaker.

UGSV

Improvements

Android & iOS: Optimized the shooting module to solve the no audio issue, enhancing user experience.

Bug fixing

- Android: Fixed the issue where the SDK crashes when the user exits during video preprocessing.
- Android: Fixed failure to apply stickers if a video is not previewed.
- Android: Fixed failure to apply effects when a video is played backwards.
- Android: Fixed the issue where the video processing callback configured for video editing fails to work.
- iOS: Fixed the issue where audio and video are out of sync in saved videos.
- iOS: Fixed failure to splice videos without audio.
- Android & iOS: Fixed the issue of noise in case of repeated shooting.

TRTC

New features

- All platforms: You can now independently adjust the audio volume of each stream in On-Cloud MixTranscoding. For details, see `TRTCMixUser.soundLevel` .
- All platforms: Added the `onRemoteAudioStatusUpdated` API, which is used to monitor the audio status of remote streams.

Improvements

- All platforms: Upgraded the encoding engine, improving the video quality of screen sharing streams.
- All platforms: Improved rate control for encoding under poor network conditions.

Bug fixing

- iOS: Fixed the issue of low capturing volume on some iPad devices.
- Android: Fixed the occasional issue where Bluetooth earphones are connected, but audio is played from the device's speaker.
- All platforms: Fixed the issue where the SDK occasionally crashes if a user enters and leaves the room repeatedly.

Player

Improvements

- Android & iOS: The `startPlay` API for VOD playback was renamed `startVodPlay`.
- Android & iOS: The `startPlay` API for live playback was renamed `startLivePlay`.
- iOS: Fixed the issue where, if the player is switched to the foreground after remaining in the background for a long time, playback fails.
- Android: Fixed failure to play some videos in old Android versions.

Version 10.6 Released on September 9, 2022

MLVB

New features

iOS & Android & macOS: TXLivePlayer and V2TXLivePlayer in the All-in-One SDK supported HLS playback, adaptive bitrate playback, and seamless bitrate change.

Improvements

- All platforms: Fixed the issue where audio volume is low in the music mode.
- Android & iOS: Fixed the issue of audio loss when call volume is used.
- Android: Fixed occasional echoes.

Bug fixing

- All platforms: Fixed the issue where, in the LEB scenario, after the internet disconnects and reconnects, V2TXLivePlayer fails to reconnect immediately.
- All platforms: Fixed the issue where, in the LEB scenario, when a UDP channel fails to be established, V2TXLivePlayer is not able to switch to a TCP channel.

- macOS: Fixed the issue where echo cancellation occasionally fails to work after the mic is changed.

UGSV

Bug fixing

- Android: Short videos are now encoded using the High Profile.
- Android: A message is now shown if the format of a background music file is not supported.
- iOS: Fixed the issue of noise when videos are played in slow motion.

TRTC

Improvements

- All platforms: Sped up room entry in IPv6 networks.
- All platforms: Improved the audio recovery performance and audio-to-video synchronization under bad network conditions, enhancing user experience.
- All platforms: Improved the ability to maintain connection under poor network conditions, reducing disconnections.
- All platforms: Fixed the issue where the volume is low in the music mode (which is specified when `startLocalAudio` is called).
- macOS: Improved call experiences when Bluetooth earphones are used, reducing noise and delivering clearer audio.
- Android: Supported stereo audio capturing for more devices.
- Android: Fixed occasional echoes, improving call experience.

Bug fixing

- Android & iOS: Fixed the issue of audio loss in the speech mode (which is specified when `startLocalAudio` is called).
- macOS: Fixed the issue where echo cancellation occasionally fails to work after the mic is changed.

Player

Improvements

- Android & iOS: Added callbacks of image sprites, URLs, and other information for file ID playback.
- Android & iOS: Reduced the SDK package size.

Bug fixing

iOS: Fixed the issue where, in some scenarios, after videos encrypted using VOD's private protocol are downloaded, playback fails.

All-in-One SDK 10.5 Released on August 24, 2022

MLVB

Improvements

- Android: Optimized memory management for video decoding, preventing the accumulation of memory leaks.
- Windows: Optimized noise suppression for the built-in mic, especially in the music mode.
- macOS: Fixed the frequent noise issue when the mic is turned on.

Bug fixing

- All platforms: Fixed the issue where, in the LEB scenario with V2TXLivePlayer, SEI messages are sometimes not received.
- All platforms: Fixed the issue where, in the LEB scenario with V2TXLivePlayer, audio is missing because the timestamp moves backward.

UGSV

Bug fixing

- Android: Fixed the green screen issue in videos made from pictures on HarmonyOS.
- Android: Fixed the issue of incorrect length for edited videos.
- Android: Fixed failure to play or re-encode videos with multiple audio tracks.
- Android: Fixed the issue where the "rock light" effect is applied only once during the selected time period.
- Android & iOS: Fixed the issue where, after a video segment is deleted during shooting, the playback progress of the background music does not match.

TRTC

Improvements

- All platforms: Optimized the QoS control policy, enhancing user experience under poor network conditions.
- iOS & Android: Reduced end-to-end latency and improved in-ear monitoring experience.
- Android: Optimized memory management for video decoding, preventing the accumulation of memory leaks.
- Windows: Optimized noise suppression for the built-in mic, especially in the music mode.
- macOS: Fixed the frequent noise issue when the mic is turned on.

Bug fixing

All platforms: Fixed occasional errors for the OnUserVideoAvailable and OnUserAudioAvailable callbacks when a user enters and leaves different rooms consecutively.

Player

Bug fixing

Android & iOS: Fixed failure to play URLs that do not include video formats at the end.

All-in-One SDK 10.4 Released on July 25, 2022

MLVB

New features

iOS & Android: V2TXLivePlayer can now freeze the last frame after playback ends.

Improvements

- All platforms: Fixed the issue of high memory usage when TXLivePlayer\V2TXLivePlayer plays FLV streams.
- Android: Fixed occasional playback stutter with TXLivePlayer\V2TXLivePlayer.
- Android: Improved the compatibility of low-latency in-ear monitoring and dual-channel capturing.
- Android: Optimized the policy for switching from hardware to software decoding.
- iOS: Fixed the issue of low capturing volume on iPad.

Bug fixing

Android: Fixed the issue where TXLivePlayer\V2TXLivePlayer occasionally switches to software decoding when playing streams.

UGSV

Improvements

Android: Added the `setBGMLoop` API for video editing.

Bug fixing

- Android: Fixed the issue of `setWaterMark` not working.
- Android: Fixed the issue where, when videos are previewed, TXVideoEditor fails to use the specified rendering mode.

TRTC

New features

- iOS & Android: Added support for the RGBA32 format for custom capturing. For details, see `sendCustomVideoData` .

- Windows & macOS: Added support for watermark preview after configuration. For details, see `setWaterMark` .

Improvements

- Android: Improved the compatibility of low-latency in-ear monitoring and dual-channel capturing.
- Android: Optimized the policy for switching from hardware to software decoding.
- iOS: Fixed the issue of low capturing volume on iPad.

Bug fixing

- All platforms: Fixed occasional room entry/exit callback errors.
- Windows: Fixed the issue where, after the window shared changes, the new window is not displayed in full.

Player

Improvements

Android & iOS: Added support for adaptive bitrate HLS playback.

Bug fixing

- Android: Fixed abnormal intervals for the `onNetStatus` callback and the progress callback.
- Android: Fixed the null pointer exception caused by failure to call `setConfig` .
- iOS: Fixed the stuttering issue when videos are replayed in some scenarios.

All-in-One SDK 10.3 Released on July 8, 2022

MLVB

New features:
All platforms: TXLivePlayer\V2TXLivePlayer added support for HLS playback.

Improvement:

- All platforms: Improved audio quality in the music mode.
- All platforms: Optimized the SEI parsing logic. TXLivePlayer\V2TXLivePlayer can parse some non-standard SEI messages now.
- All platforms: Fixed the issue of audio and video being out of sync as a result of the timestamp moving backward when TXLivePlayer\V2TXLivePlayer plays FLV or RTMP streams.

Bug fixing:

- All platforms: Fixed the abnormal audio that occurs when TXLivePlayer\V2TXLivePlayer plays some AAC-HEv2 streams in the LEB scenario.

- All platforms: Fixed incorrect cache calculation with TXLivePlayer.

UGSV

Bug fixing:

- Android: Fixed the issue of `setZoom` not working during video shooting.
- Android: Fixed failure to shoot videos with Samsung Galaxy S22.
- iOS: Fixed failure to trigger the callback for custom video pre-processing.

TRTC

New features:

- Windows: Added support for recording live streaming sessions and audio/video calls to local storage. For details, see the description of `ITXLiteAVLocalRecord` .
- Windows & macOS: Added a parameter to `startMicDeviceTest` , which allows you to specify whether to play the audio captured during mic testing. For details, see the description of `startMicDeviceTest` .

Improvement:

All platforms: Improved audio quality in the music mode.

Bug fixing:

- All platforms: Fixed occasional errors for the user list callback.
- Windows: Fixed the issue where videos sometimes freeze during playback.
- Windows: Fixed occasional video playback failure.
- Windows: Fixed the echo issue for custom audio capturing.

Player

New features:

iOS: Added support for picture-in-picture playback.

Bug fixing:

- Android: Fixed the issue where, when hardware decoding is used and a video playlist is played in the background, the player fails to automatically play the next video when one video is finished.
- Android & iOS: Fixed failure to trigger the callback when seeking is completed.

All-in-One SDK 10.2 Released on June 26, 2022

MLVB

New features:

- All platforms: Added support for license authentication for playback with TXLivePlayer\V2TXLivePlayer.
- All platforms: Added support for HTTP header configuration for FLV playback with V2TXLivePlayer.
- All platforms: Allowed changing audio encoding parameters dynamically when pushing RTMP streams with TXLivePusher\V2TXLivePusher.

Improvement:

- All platforms: Optimized the adaptive bitrate API of V2TXLivePlayer for LEB.
- All platforms: Fixed the issue where V2TXLivePlayer takes a long time to reconnect in the LEB scenario.
- All platforms: Fixed the issue of small local cache size when TXLivePlayer\V2TXLivePlayer plays FLV or RTMP streams.
- Android: Sped up the loading of the first frame for playback with TXLivePlayer\V2TXLivePlayer.
- iOS: Reduced the size of the iOS SDK package.
- iOS: Packaged `TXLiveBase.h` into the MLVB SDK.

Bug fixing:

- All platforms: Fixed the issue where the stutter rate limit configured for TXLivePlayer does not take effect.
- All platforms: Fixed abnormal timing of the callback for the first audio/video frame when V2TXLivePusher pushes RTC streams.
- Android: Fixed the black screen issue that occurs when TXLivePlayer\V2TXLivePlayer stops and starts playback within a short period of time.

UGSV

New features:

Android: Added support for editing videos without audio tracks.

Improvement:

Android: Sped up the loading of the first frame for short video playback.

Bug fixing:

- Android: Fixed the issue where the wrong section of video is cropped during video shooting.
- Android: Fixed incorrect aspect ratio for H.265 videos decoded with hardware.
- iOS: Fixed the issue of incorrect video clipping time.
- iOS: Fixed occasional noise that occurs in videos shot with devices with OS later than iOS 14.
- iOS: Fixed the issue where the SDK occasionally crashes when the user returns to the shooting view after finishing video shooting.

TRTC

New features:

- All platforms: Launched a new API for stream mixing and relaying, which offers more powerful features and greater flexibility. For details, see the description of `startPublishMediaStream` .
- All platforms: Added support for 3D spatial audio. For details, see the description of `enable3DSpatialAudioEffect` .
- All platforms: Added support for voice activity detection. This feature works even when local audio is muted (`muteLoalAudio`) or the capturing volume is set to zero (`setAudioCaptureVolume`). It allows you to remind users when they are talking but have not turned their mics on. For details, see the description of `enableAudioVolumeEvaluation` .
- All platforms: Added support for checking a user's permission when they switch roles. For details, see the description of `switchRole(TRTCRoleType role, const char* privateMapKey)` .
- iOS & macOS: The C++ API for custom pre-processing supported using textures for video processing.

Improvement:

- Android: Optimized in-ear monitoring, reducing latency.
- Android: Optimized audio capturing, fixing the issue of noise on some devices.
- iOS: Optimized the processing of upstream video data, reducing CPU and GPU usage.
- Windows & macOS: Improved encoding for screen sharing. The height and width of the output video are no longer limited by the window size.
- Windows: Reduced memory fragmentation and performance overhead.

Bug fixing:

- All platforms: Fixed the issue where push occasionally fails after changing to a different type of network.
- iOS: Fixed the issue of noise in recording files saved locally on some devices with iOS 14.

Player

Improvement:

Android & iOS: Optimized the callback of information including cached bytes and IP address during playback.

Bug fixing:

- Android & iOS: Fixed failure to play H.265 videos when hardware decoding is used.
- Android & iOS: Fixed HLS playback errors.
- iOS: Fixed failure to get `supportedBitrates` in some scenarios.