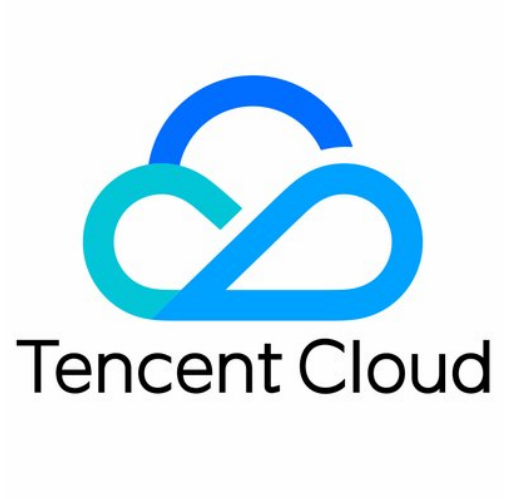
Tencent Effect SDK

Beauty AR Web

Product Documentation



Contents

Beauty AR Web Overview

Last updated：2025-03-04 14:33:52

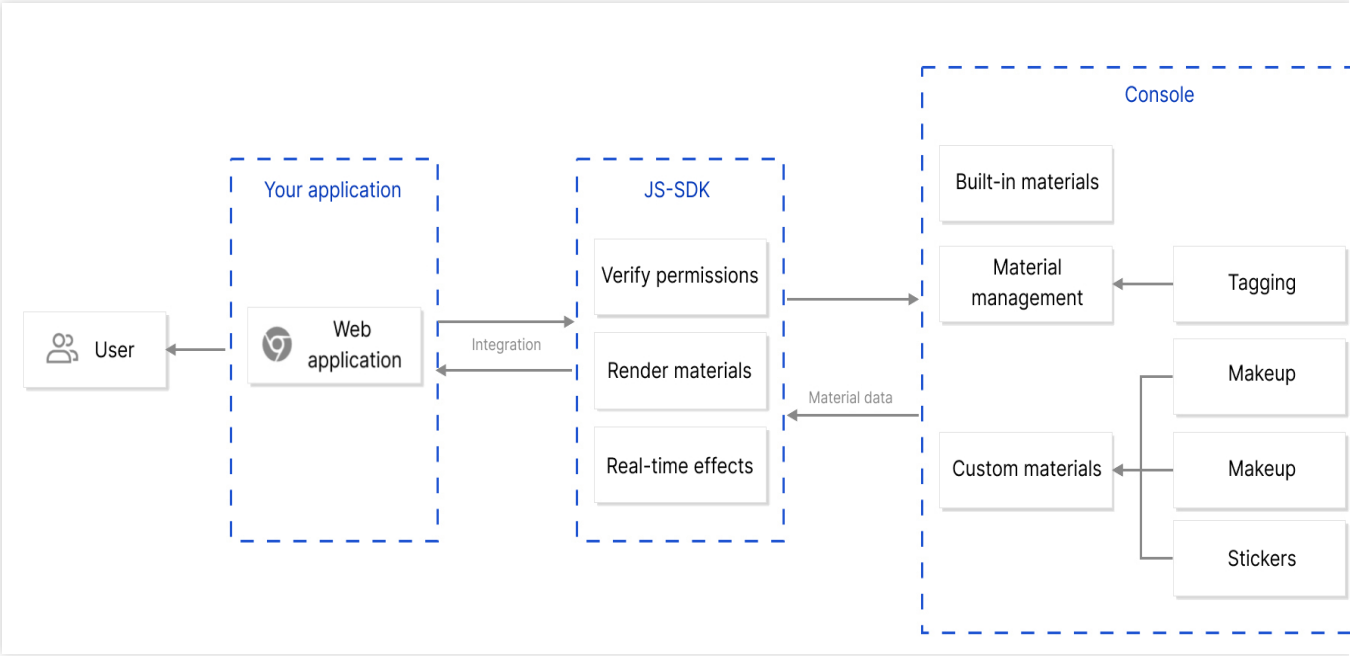
As a key part of Tencent Cloud RT-Cube, Beauty AR Web provides an easy way to implement AR effects such as beauty filters and special effects on the web.
With the **SDK** and the **material customization and management tool**, you can easily add AR effects such as AI beautification, filters, makeup styles, stickers, animojis, and virtual avatars to your mobile or desktop webpages.

Commercial editions

Beauty AR Web has been commercially available since February 2023 and comes in Standard and Advanced editions. You can purchase a license for either edition based on your business needs.
Note:
A free trial license used during a trial period cannot be renewed upon expiration. If you still need to use the product after a trial license expires, you need to purchase an official license.

Package Edition	Feature	Supported Domains	Billing Type
Standard	Beautification, makeup, filters, 2D stickers, and virtual backgrounds	Single domains	Annual subscription
Advanced	Beautification, makeup, filters, 2D stickers, and virtual backgrounds 3D stickers, animojis, and virtual avatars	Single domains and wildcard domains	Annual subscription

Architecture



Demos

Platform	Address	Runtime Environment
Web	Click here to try	We recommend that you use desktop Chrome 90 or later in a PC environment. For mobile, we recommend that you use the latest version of Safari or Chrome

Quick Connection

You can run a demo within just a few minutes to try out the capabilities of Beauty AR Web. For more information, see Quick Start.

Technical Support

If you have any questions, feel free to contact us.

Quick Start

Last updated：2024-07-11 17:02:47

Beauty AR Web allows you to implement AR beautification, filters, makeup, stickers, and other features on websites. This document describes how to quickly run a web application that supports real-time beautification locally. Based on this application, you can implement other features as instructed in relevant documents.

Note:

This project is a test project intended for local testing only. To officially launch your project with Beauty AR Web capabilities, you need to purchase an official license and configure the website domain in the product console. For more information, see Upgrade the trial license.

Step 1. Create a license

1. Applying for a trial license

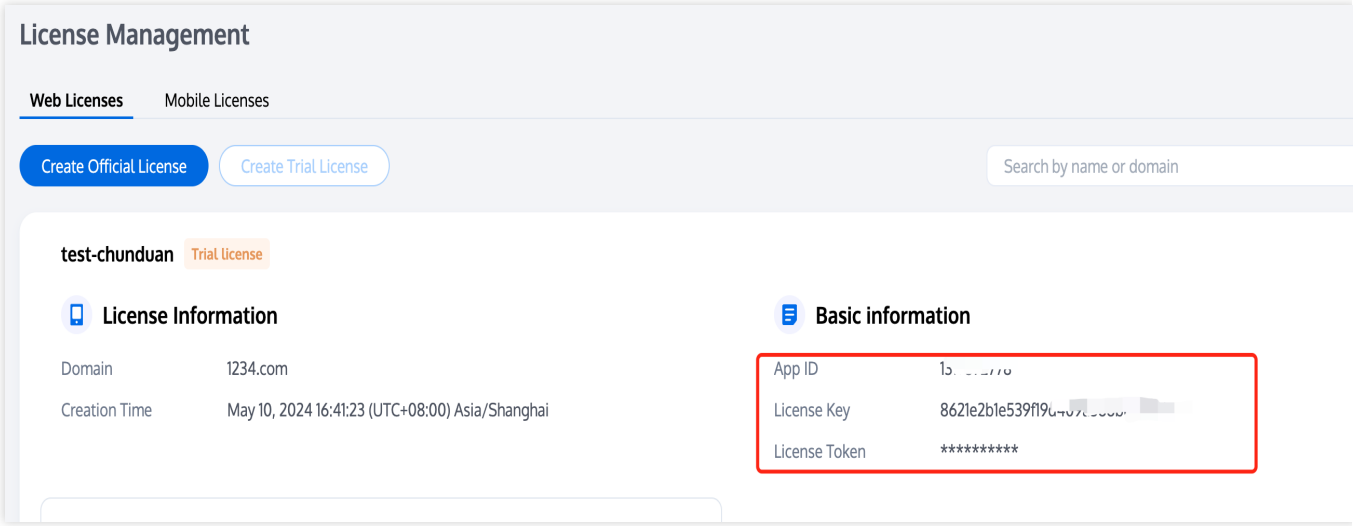
make sure you have created a web license as instructed in Applying for a trial license.

2. Getting the license key and token

After the creation, you can see the information of the created test project in the project list and get the `License Token` for Beauty AR Web and the `License key` for the test project. you also can get the `App ID` .

Note:

The license token is used to calculate the authentication signature, so make sure to keep it secure and confidential. Here, the token is used to calculate the signature on the frontend just to help you run the demo locally. In a real production environment, you need to implement the signature algorithm on the server.



Step 2. Run locally

1. Pull sample project code.

```
git clone https://github.com/tencentcloud-webar/web-demo-en.git
cd quick-start
```

2. replace the specified configuration items in `index.js` with the license key, token, and `APPID` obtained in step 1 as shown below:

```
/** ----- Authentication configuration ----- */

/**
 * Tencent Cloud APPID
 *
 * View the APPID at [Tencent Cloud Account Center](https://console.tencentcloud.com/developer)
 */
const APPID = '' // 'your APPID';

/**
 * Web LicenseKey
 *
 * Obtain a LicenseKey by creating a project at [Web License Management](https://console.tencentcloud.com/xmagic/web)
 */      broli, 12个月前 • 最佳实践&文档 …
const LICENSE_KEY = '' // 'your LicenseKey';

/**
 * This Token is the secret key used for calculating the signature.
 * Obtain a Token by creating a project at [Web License Management](https://console.tencentcloud.com/xmagic/web)
 */
const token = '' // 'your token';

/** -------------------- */

/**
 * Obtain Signature Function
 *
 * WARNING: This is only for demo and debugging purposes.
 * In the production environment, please keep the Token on the server side and migrate the signature calculation method to the server
 * The signature can be obtained by calling the Interface from the front end.
 *
 * eg:
 * async function () {
 *   return fetch('http://xxx.com/get-ar-sign').then(res => res.json());
 * };
 */
const getSignature = function () {
  const timestamp = Math.round(new Date().getTime() / 1000);
  const signature = sha256(timestamp + token + APPID + timestamp).toUpperCase();
  return { signature, timestamp };
};
```

3. Run the project in the local development environment.

Note:

Before running your project locally, make sure the `nodejs` environment is already installed on the device.

Run the following commands successively in the project directory and access `localhost:8090` in the browser to try out the capabilities of Beauty AR Web.

```
# Install dependencies
npm i

# Compile and run the code
npm run dev
```

After following the steps above, you can try out the filters and effects of the SDK for desktop browser. You can use the built-in materials to try out various makeup filters and effects as instructed in Overview, or use more capabilities of

Beauty AR Web such as custom stickers, makeup, and filters. For detailed directions on how to customize effect materials, please contact us.

SDK Integration Overview

Last updated：2025-05-16 15:46:43

This document describes how to quickly and securely connect to **Beauty AR Web** and use its features.

Preparations

Before connecting to the SDK, make sure you have purchased a web license and created a project as instructed in Adding and Renewing a License (Web).

Getting parameter information

Getting the license key and token

In the RT-Cube console, select **License management** > Web Licenses, view the web license you created, and copy its license key and token.

Web Domain: The domain information entered during project creation. The license can be used only under this domain.
Note:
Be sure to use the license key and token that matches the developed domain, otherwise, authentication will fail, and the SDK cannot be properly initialized.

Getting the `APPID`

Log in to the Tencent Cloud console and go to **Account Info** > Basic Info to view the `APPID` .

Preparing signing information

In addition to the license key that is needed to authorize the SDK, you also need to use the token to sign the APIs called in the SDK.

Signature algorithm authentication process

Token: Your unique ID, which is used to sign SDK APIs.
App ID: The `APPID` displayed in **Account Info** > Basic Info in the Tencent Cloud console.
Timestamp: The current time accurate to the second (10 digits).
Signature: The signature used for signing, which expires after five minutes.

Deploying a signature service

Because the signature expires after a given time, and to prevent the token from being leaked, you need to deploy a signature generation service.

Note:

If the token is leaked, your identity will be stolen, which will lead to your resources also being leaked.
If the signature generation method is implemented on the frontend, the token may be leaked. Therefore, to safeguard your security, we recommend that you do not implement signature generation on the frontend.

```
// Taking the `express` backend as an example,
// Signature algorithm: sha256(timestamp+token+appid+timestamp)

const { createHash } = require('crypto');
const config = {
    appid: 'Your Tencent Cloud `APPID`',
    token: 'Your token',
}
const sha256 = function(str) {
    return createHash('sha256')
        .update(str)
        .digest('hex');
}

const genSignature = function() {
    const timestamp = Math.round(new Date().getTime() / 1000);
    const signature = sha256(timestamp + config.token + config.appid + timestamp).t
    return { signature, timestamp };
}

app.get("/get-ar-sign", (req, res) => {
    const sign = genSignature();
    res.setHeader('Access-Control-Allow-Origin','*');
    res.setHeader('Access-Control-Allow-Methods', 'GET, OPTIONS');
    res.send(sign);
})
```

Calling the signature service on the frontend

After deploying the signature service, add a signature acquisition method to your webpage program for the SDK to connect to and call.

Web

```
async function getSignature() {
    const res = await fetch('Your domain/get-ar-sign')
    const authdata = await res.json()
    console.log('authdata',authdata)
    return authdata
}
```

SDK Integration

After completing the above preparations, follow the process below to connect to and use the SDK.

Process description

The **Tencent Effect web SDK** offers simple and minimally invasive APIs. To integrate it and use its features, you only need to initialize an instance and add the render node to your webpage.

Installing the SDK

Use npm package.

```
npm install tencentcloud-webar
```

In addition, you can also use it for your project by importing JS.

```
<script charset="utf-8" src="https://webar-static.tencent-cloud.com/ar-sdk/resource
```

Initializing the SDK

we offer two initialization modes for the SDK.

Built-in camera and player: The device's built-in camera and player are used. API calls are easy and fast, with rich interactive features.

Custom streams: You can use this mode if you want to apply effects to your own streams or want greater flexibility and control.

Using the SDK

Configuring beauty filters and special effects

For more information, see Configuring Filters and Effects.

Keying (new in v0.2.0)

The keying feature allows you to segment and change the background in the image. For details, see Configuring Keying.

3D effects (new in v0.3.0)

For more information, see Configuring Filters and Effects.

Animojis and Virtual Avatars (new in v0.3.0)

This capability relies on a WebGL2 environment, For more information, see Using Animojis and Virtual Avatars.

Parameters and APIs

See Parameters and APIs.

Sample Code

See Quick Start.

Integrating Beauty AR Web

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Separate integration

The SDK can be integrated into a webpage as instructed in Overview.

Scenario-specific integration

The SDK can be integrated with WebRTC as instructed in the following documents:

Publishing with Cloud Streaming Service(CSS) and WebRTC

Publishing with Cloud Streaming Service(CSS) and WebRTC (Preinitialization Scheme)

Publishing Using TRTC (Version 4.x)

Publishing Using TRTC (Version 5.x)

Web Integration
Built-in Camera

Last updated：2025-05-22 10:00:34

You can choose this integration mode if you want to use the SDK with a device's built-in camera or if your business scenario involves interaction with the built-in camera.

Step 1. Import the SDK

use npm package:

```
npm install tencentcloud-webar
```

```
import { ArSdk } from 'tencentcloud-webar';
```

you can also import the SDK using the following method:

```
<script charset="utf-8" src="https://webar-static.tencent-cloud.com/ar-sdk/resource
<script>
    // Receive ArSdk class from window.AR
    const { ArSdk } = window.AR;
    ......
</script>
```

Step 2. Initialize an Instance

Initialize an SDK instance.

```
// Get the authentication information
const authData = {
    licenseKey: 'xxxxxxxxx',
    appId: 'xxx',
    authFunc: authFunc // For details, see “Configuring and Using a License - Signa
};

const config = {
    module: {
        beautify: true, // Whether to enable the effect module, which offers beauti
        segmentation: true, // Whether to enable the keying module, which allows yo
```

```
        segmentationLevel: 0 // Optional values: 0 | 1 | 2. The higher the value, t
    },
    auth: authData, // The authentication information
    camera: { // Pass in the camera parameters
        width: 1280,
        height: 720
    },
    beautify: { // The effect parameters for initialization (optional)
        whiten: 0.1,
        dermabrasion: 0.3,
        eye: 0.2,
        chin: 0,
        lift: 0.1,
        shave: 0.2,
        // For more beauty parameter settings, please refer to the「API Documentati
    },
    // For more config settings, please refer to the「API Documentation」
}
const sdk = new ArSdk(
    // Pass in a config object to initialize the SDK
    config
)

let effectList = [];
let filterList = [];

sdk.on('created', () => {
    // You can display the effect and filter list in the `created` callback. For de
    sdk.getEffectList({
        Type: 'Preset',
        Label: 'Makeup',
    }).then(res => {
        effectList = res
    });
    sdk.getCommonFilter().then(res => {
        filterList = res
    })
})

// Call `setBeautify`, `setEffect`, or `setFilter` in the `ready` callback
// For details, see “SDK Integration - Configuring Effects”
sdk.on('ready', () => {
    // Configure beautification effects
    sdk.setBeautify({
        whiten: 0.2
    });
    // Configure special effects
```

```
    sdk.setEffect({
        id: effectList[0].EffectId,
        intensity: 0.7
    });
    // Configure filters
    sdk.setFilter(filterList[0].EffectId, 0.5)
})
```

Note:

The loading of the effect and keying modules takes time and consumes resources. You can enable only the module you need during initialization. A module not enabled will not be loaded or initialized.

If you specify the `camera` parameter of `config`, the video data the SDK captures from the device's camera will be used as the input. We also offer some basic device management APIs. For details, see Step 6. Control Devices.

Step 3. Play the Stream

The SDK offers players for quick preview of effects on your webpage. The players you get in different callbacks vary slightly. Choose the one that fits your needs.

If you want to display a video image as quickly as possible, get the player in the `cameraReady` callback. Because the SDK hasn't loaded the resources or completed initialization at this point, the player can only play the original video.

```
sdk.on('cameraReady', async () => {
  // Initialize a player of the SDK. `my-dom-id` is the ID of the player's containe
  const player = await sdk.initLocalPlayer('my-dom-id')
  // Play the video
  await player.play()
})
```

If you want to play the video after the SDK is initialized and effects are applied, get the player in the `ready` playback.

```
sdk.on('ready', async () => {
  // Initialize a player of the SDK. `my-dom-id` is the ID of the player's containe
  const player = await sdk.initLocalPlayer('my-dom-id')
  // Play the video
  await player.play()
})
```

Note:

The player obtained by `initLocalPlayer` is muted by default. If you unmute it, there may be echoes.

The player obtained is integrated with the `sdk.getOutput()` API.

The player object obtained by `initLocalPlayer` is integrated with the following APIs:

API	Description	Request Parameter	Return Value
play	Plays the video.	-	Promise;
pause	Pauses the video. This does not stop the stream. You can resume the playback.	-	-
stop	Stops the video. This stops the stream.	-	-
mute	Mutes the video.	-	-
unmute	Unmutes the video.	-	-
setMirror	Sets whether to mirror the video.	true|false	-
getVideoElement	Gets the built-in video object.	-	HTMLVideoElement
destroy	Terminates the player.	-	-

Note:

The player's behaviors are affected by camera settings. Camera settings prevail over the settings of `LocalPlayer`.

For example, after you call `camera.muteVideo` to disable video, playback will not start even if you call `play`.

After you call `camera.unmuteVideo` to enable video, the player will play the video automatically.

Therefore, if you specify `camera`, you don't need to manually configure `localPlayer`.

Step 4. Get the Output

If you need to publish the stream, call `getOutput` to get the output stream.

After getting the `MediaStream`, you can use a live streaming SDK (for example, TRTC web SDK or LEB web SDK) to publish the stream.

```
const output = await sdk.getOutput()
```

Note:

If you use the built-in camera, the type of all media returned by `getOutput` is `MediaStream`.

The video track of the output stream is processed in real time by the Tencent Effect SDK. The audio track (if any) is kept.

`getOutput` is an async API. The output will be returned only after the SDK is initialized and has generated a stream.

You can pass an `FPS` parameter to `getOutput` to specify the output frame rate (for example, 15). If you do not pass this parameter, the original frame rate will be kept.

To learn more about how to publish the processed streams, see Publishing Using TRTC and Publishing over WebRTC.

Step 5. Configuring Effects

For detailed directions, see Configuring Effects.

Step 6. Control Devices

You can use an `sdk.camera` instance to enable and disable the camera or perform other camera operations.

```
const output = await sdk.getOutput()
// Your business logic
// ...

// `sdk.camera` will have been initialized after `getOutput`. You can get an instan
const cameraApi = sdk.camera

// Get the device list
const devices = await cameraApi.getDevices()
console.log(devices)
// Disable the video track
// cameraApi.muteVideo()
// Enable the video track
// cameraApi.unmuteVideo()
// Change to a different camera by specifying the device ID (if there are multiple
// await cameraApi.switchDevice('video', 'your-device-id')
```

If you want to get an `sdk.camera` instance as soon as possible, you can get it in the `cameraReady` callback.

```
// Initialization parameters
// ...
const sdk = new ArSdk(
    config
)

let cameraApi;
sdk.on('cameraReady', async () => {
```

```
    cameraApi = sdk.camera
    // Get the device list
    const devices = await cameraApi.getDevices()
    console.log(devices)
    // Disable the video track
    // cameraApi.muteVideo()
    // Enable the video track
    // cameraApi.unmuteVideo()
    // Change to a different camera by specifying the device ID (if there are multi
    // await cameraApi.switchDevice('video', 'your-device-id')
})
```

You can use the following APIs of `camera` to control the built-in camera.

API	Description	Request Parameter	Return Value
getDevices	Gets all devices.	-	Promise<Array<MediaDeviceInfo>>
switchDevice	Switches the device.	type:string, deviceId:string	Promise
muteAudio	Mutes the current stream.	-	-
unmuteAudio	Unmutes the current stream.	-	-
muteVideo	Disables the video track of the camera stream. This does not stop the stream.	-	-
unmuteVideo	Enables the video of the camera stream.	-	-
stopVideo	Disables the camera. This stops the video stream, but the audio stream is not affected.	-	-
restartVideo	Enables the camera. This API can only be called after `stopVideo`.	-	Promise
stop	Disables the current camera and audio device.	-	-

Custom Stream

Last updated：2025-03-19 16:46:21

You can use this integration mode if you want to apply effects to your own streams or want greater flexibility and control.

Step 1. Import the SDK

use npm package:

```
npm install tencentcloud-webar
```

```
import { ArSdk } from 'tencentcloud-webar';
```

you can also import the SDK using the following method:

```
<script charset="utf-8" src="https://webar-static.tencent-cloud.com/ar-sdk/resource
<script>
    // Receive T ArSdk class from window.AR
    const { ArSdk } = window.AR;
    ......
</script>
```

Step 2. Initialize an instance

1. Initialize an SDK instance.

```
// Get the authentication information
const authData = {
 licenseKey: 'xxxxxxxxx',
 appId: 'xxx',
 authFunc: authFunc // For details, see “Configuring and Using a License - Signatur
};
// The input stream
const stream = await navigator.mediaDevices.getUserMedia({
 audio: true,
 video: { width: w, height: h }
})

const config = {
 module: {
     beautify: true, // Whether to enable the effect module, which offers beautific
     segmentation: true, // Whether to enable the keying module, which allows you t
     segmentationLevel: 0 // Optional values: 0 | 1 | 2. The higher the value, the
 },
```

```
 auth: authData, // The authentication information
 input: stream, // The input stream
 beautify: { // The effect parameters for initialization (optional)
     whiten: 0.1,
     dermabrasion: 0.3,
     eye: 0.2,
     chin: 0,
     lift: 0.1,
     shave: 0.2,
     // For more beauty parameter settings, please refer to the「API Documentation」
 }
 // For more config settings, please refer to the「API Documentation」
}
const sdk = new ArSdk(
 // Pass in a config object to initialize the SDK
 config
)
```

Note:

The loading of the effect and segmentation modules takes time and consumes resources. You can enable only the module you need during initialization. A module not enabled will not be loaded or initialized.

2. For `input`, you can also pass in `string|HTMLImageElement` to process image, and `HTMLVideoElement` to process video.

```
const config = {
 auth: authData, // The authentication information
 input: 'https://xxx.png', // The input stream, also support image and video elemen
}
const sdk = new ArSdk(
 // Pass in a config object to initialize the SDK
 config
)

// You can display the effect and filter list in the `created` callback. For detail
sdk.on('created', () => {
 // Get the built-in makeup effects
 sdk.getEffectList({
     Type: 'Preset',
     Label: 'Makeup',
 }).then(res => {
     effectList = res
 });
 // Get the built-in filters
 sdk.getCommonFilter().then(res => {
     filterList = res
 })
```

```
})

// Call `setBeautify`, `setEffect`, or `setFilter` in the `ready` callback
// For details, see “SDK Integration - Configuring Effects”
sdk.on('ready', () => {
 // Configure beautification effects
 sdk.setBeautify({
     whiten: 0.2
 });
 // Configure special effects
 sdk.setEffect({
     id: effectList[0].EffectId,
     intensity: 0.7
 });
 // Configure filters
 sdk.setFilter(filterList[0].EffectId, 0.5)
})
```

Step 3. Play the stream

Call `ArSdk.prototype.getOutput` to get the output stream.

The output streams you get in different callbacks vary slightly. Choose the one that fits your needs.

If you want to display a video image as quickly as possible, get and play the stream in the `cameraReady` callback.

Because the SDK hasn’t loaded the resources or completed initialization at this point, the original video will be played,

The effect will be automatically applied once the SDK initialization is complete.

```
sdk.on('cameraReady', async () => {
  // By getting the output stream in the `cameraReady` callback, you can display a
  // You can choose this method if you want to display a video image as soon as pos
  // You don’t need to update the stream after the effects start to work.
  const output = await ar.getOutput();
  // Use `video` to preview the output stream
  const video = document.createElement('video')
  video.setAttribute('playsinline', '');
  video.setAttribute('autoplay', '');
  video.srcObject = output
  document.body.appendChild(video)
  video.play()
})
```

If you want to play the video after the SDK is initialized and effects are applied, get and play the output stream in the `ready` playback.

```
sdk.on('ready', async () => {
  // If you get the output stream in the `ready` callback, because the initializati
```

```
    // The `ready` callback occurs later than `cameraReady`. You can get the output s
    const output = await ar.getOutput();
    // Use `video` to preview the output stream
    const video = document.createElement('video')
    video.setAttribute('playsinline', '');
    video.setAttribute('autoplay', '');
    video.srcObject = output
    document.body.appendChild(video)
    video.play()
  })
```

Step 4. Get the output

After getting the `MediaStream`, you can use a live streaming SDK (for example, TRTC web SDK or LEB web SDK) to publish the stream.

```
const output = await sdk.getOutput()
```

To learn more about how to publish the processed streams, see Publishing Using TRTC and Publishing over WebRTC.

Note:

If the input passed in is an image, a string-type data URL will be returned by default. You can set getOutput(OUTPUT_TYPES.MEDIA_STREAM) to force the return type to be MediaStream; other input scenarios will always return the MediaStream type.

The video track of the output stream is processed in real time by the Tencent Effect SDK. The audio track (if any) is kept.

`getOutput` is an async API. The output will be returned only after the SDK is initialized and has generated a stream.

You can pass an `FPS` parameter to `getOutput` to specify the output frame rate (for example, 15). If you do not pass this parameter, the original frame rate will be kept.

You can call `getOutput` multiple times to generate streams of different frame rates for different scenarios (for example, you can use a high frame rate for preview and a low frame rate for stream publishing).

Step 5. Configuring effects

For detailed directions, see Configuring Effects.

Updating the Input Stream

If you want to feed a new input stream to the SDK after changing the device or enabling/disabling the camera, you don’t need to initialize the SDK again. Just call `sdk.updateInputStream` to update the input stream.

The following code shows you how to use `updateInputStream` to update the input stream after switching from the computer's default camera to an external camera.

```
async function getVideoDeviceList(){
    const devices = await navigator.mediaDevices.enumerateDevices()
    const videoDevices = []
    devices.forEach((device)=>{
        if(device.kind === 'videoinput'){
            videoDevices.push({
                label: device.label,
                id: device.deviceId
            })
        }
    })
    return videoDevices
}

async function initDom(){
    const videoDeviceList = await getVideoDeviceList()
    let dom = ''
    videoDeviceList.forEach(device=>{
        dom = `${dom}
        <button id=${device.id} onclick='toggleVideo("${device.id}")'>${device.labe
        `
    })
    const div = document.createElement('div');
    div.id = 'container';
    div.innerHTML = dom;
    document.body.appendChild(div);
}

async function toggleVideo(deviceId){
    const stream = await navigator.mediaDevices.getUserMedia({
        video: {
            deviceId,
            width: 1280,
            height: 720,
          }
    })
    // Call an API provided by the SDK to change the input stream.
    // After the input stream is updated, you don't need to call `getOutput` again.
    sdk.updateInputStream(stream, true) // The second parameter defaults to true, i

}

initDom()
```

Pausing and Resuming Detection

You can call `disable` and `enable` to manually pause and resume detection. Pausing detection can reduce CPU usage.

```
<button id="disable">Disable detection</button>
<button id="enable">Enable detection</button>
```

```
// Disable detection and output the original stream
disableButton.onClick = () => {
    sdk.disable()
}
// Enable detection and output a processed stream
enableButton.onClick = () => {
    sdk.enable()
}
```

Play and Pause output screen

You can use the `stop` and `resume` methods to pause and play the output screen. In the paused state, the screen remains static and playback is halted.

```
<button id="stop">stop</button>
<button id="resume">resume</button>
```

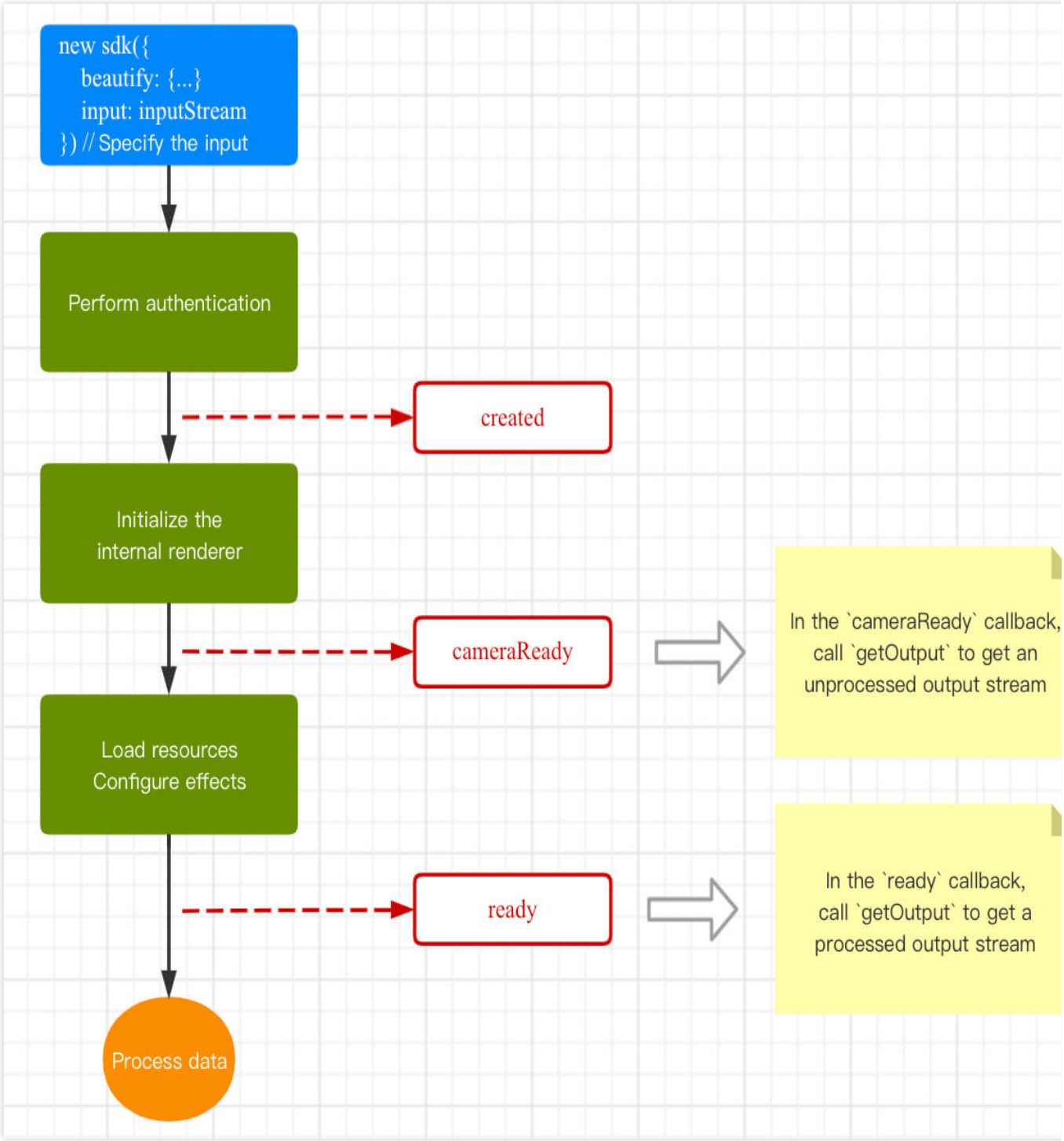
```
// stop output
stopButton.onClick = () => {
    sdk.stop()
}
// resume output
resumeButton.onClick = () => {
    sdk.resume()
}
```

Loading Optimization

Last updated：2024-05-08 16:30:10

Regular Mode

In regular mode, if you call `getOutput` to get the output stream in the `cameraReady` callback, because the effects are not working yet at this point, the stream obtained will be the same as the input stream fed into the SDK. After the effects start to work, the SDK will apply them to the output stream automatically. You don't need to call `getOutput` again. You can use this method if you want to display a video image as soon as possible but do not need to apply effects to the video the moment it is played.
In contrast, if you call `getOutput` in the `ready` callback, the output stream obtained will have been processed. Because the `ready` callback occurs later than `cameraReady`, you can call `getOutput` in the `ready` callback if you want to apply effects to the video the moment it is displayed, but do not expect the video to be played as soon as possible.



Sample code:

```
// Get the authentication information
const authData = {
    licenseKey: 'xxxxxxxxx',
    appId: 'xxx',
    authFunc: authFunc // For details, see “Configuring and Using a License - Signa
};
```

```
// When initializing the SDK in regular mode, pass in the input or camera parameter
const config = {
    auth: authData, // The authentication information
    beautify: { // The effect parameters
        whiten: 0.1,
        dermabrasion: 0.5,
        lift: 0,
        shave: 0,
        eye: 0.2,
        chin: 0,
    },
    input: inputStream // Prepare the stream data fed into the SDK as the input. Fo
}
const sdk = new ArSdk(
    // Pass in a config object to initialize the SDK
    config
)
// After authentication succeeds, the SDK will trigger the `created` callback immed
sdk.on('created', () => {
    // Pull and display the filter and effect list in the `created` callback
    sdk.getEffectList({
        Type: 'Preset',
        Label: 'Makeup',
    }).then(res => {
        effectList = res
    });
    sdk.getCommonFilter().then(res => {
        filterList = res
    })
})

// The data you get by calling `getOutput` in different callbacks vary slightly. Ch
sdk.on('cameraReady', async () => {
    const output = await sdk.getOutput() // The effect parameters have not taken ef
    // Play the stream
    ...
})
sdk.on('ready', async () => {
    const output = await sdk.getOutput() // The effect parameters have taken effect
    // Play the stream
    ...
    // Call `setBeautify`, `setEffect`, or `setFilter` in the `ready` callback
})
```

Pre-Initialization

When the SDK is loaded for the first time, it needs to download static resources in order to initialize the detection module. As a result, the loading of the SDK is affected by network conditions. Given that in some scenarios, you may want to display a video image as soon as possible, we offer a pre-initialization plan that loads static resources in advance.

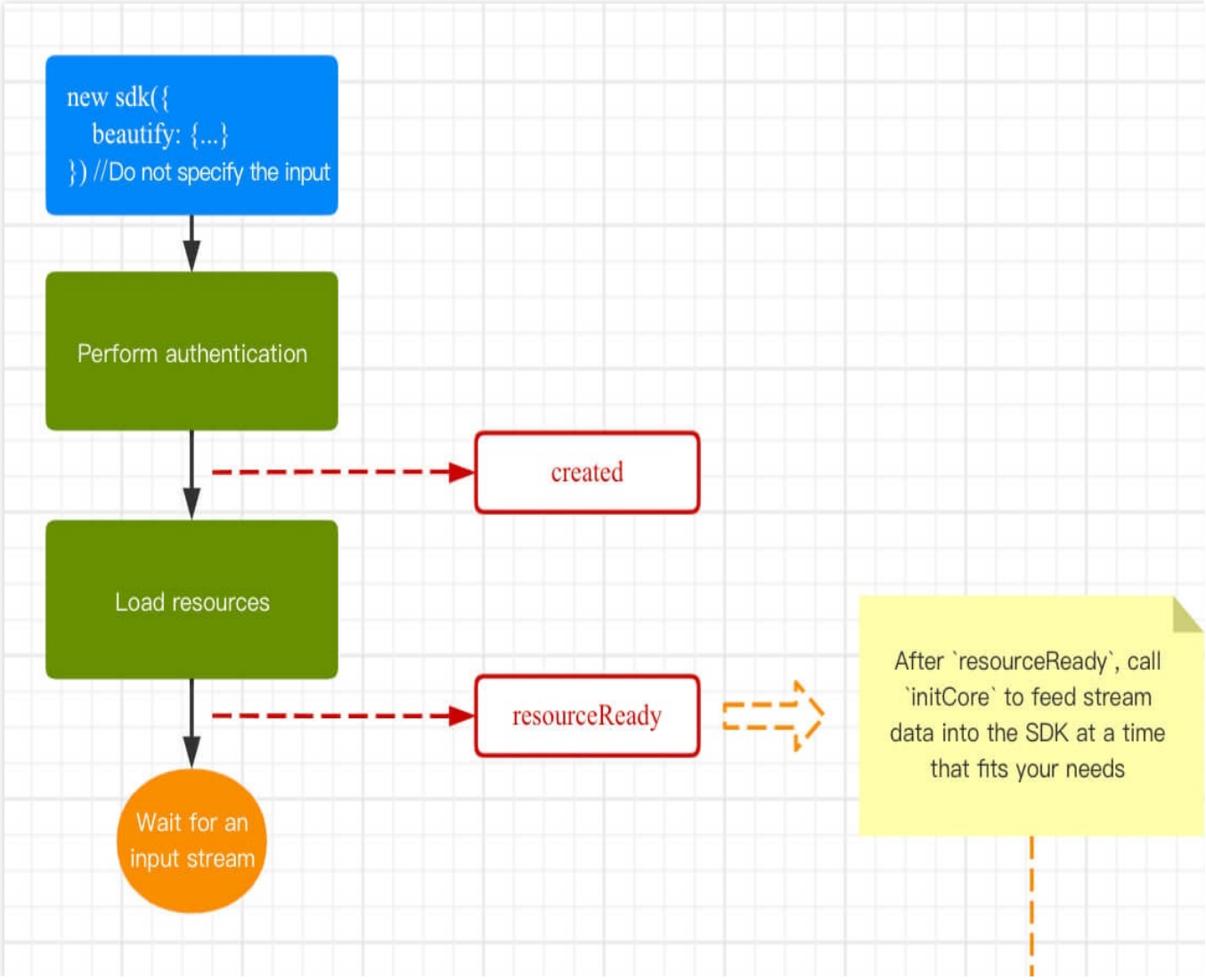
Use cases for pre-initialization

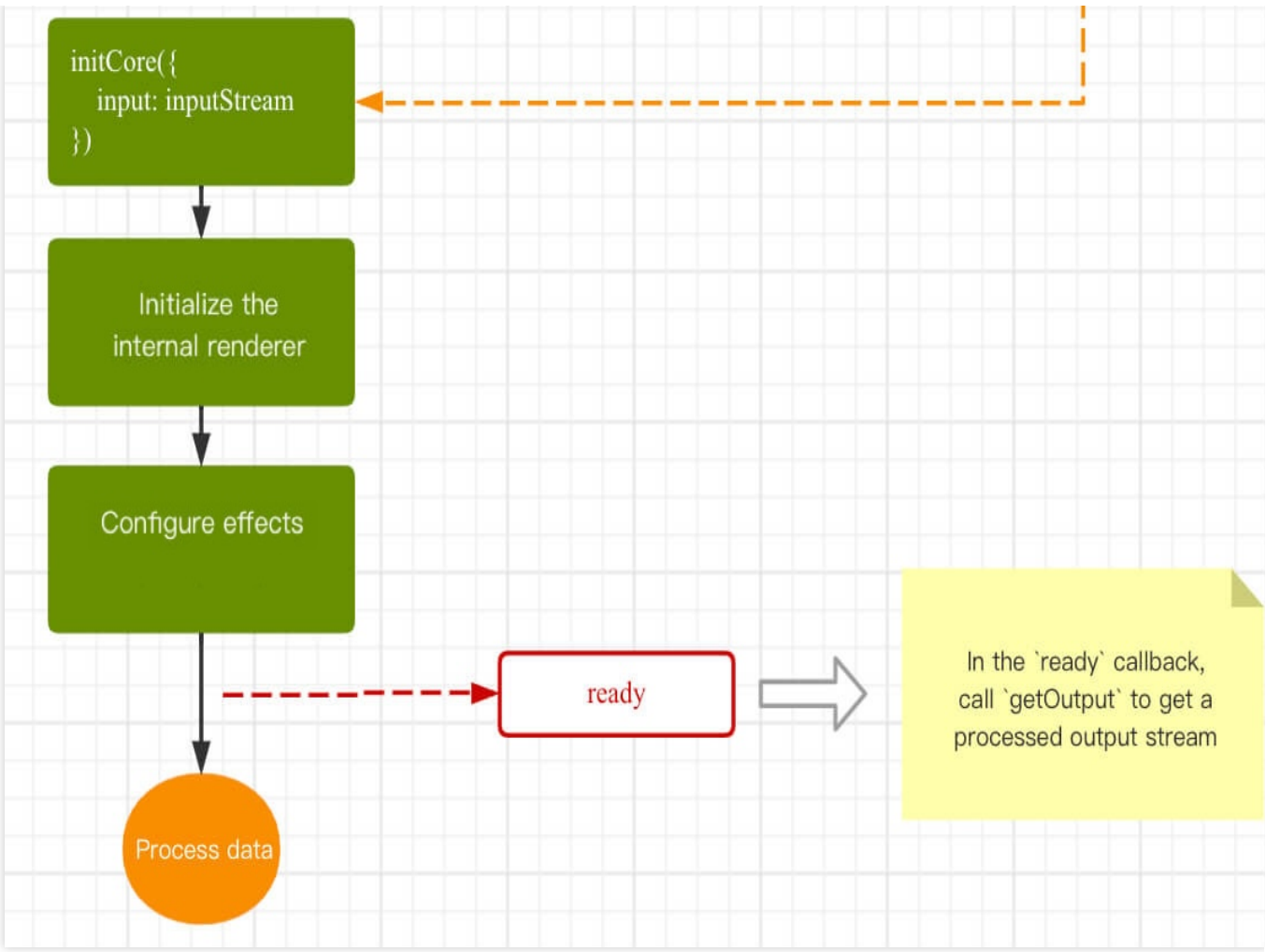
Case 1: The effect SDK is not needed when the webpage is initialized. A video is displayed only after the user performs certain operation.

Case 2: Effects are needed for page B, and page B is directed from page A.

In such cases, you can load resources in advance (as early as possible), feed an input stream to the SDK when necessary, and then get a processed output stream.

For example, in case 1, you can load resources when the webpage is initialized; in case 2, you can get an SDK instance on page A and pass it to page B.





The code below works for case 1

```
<button id="start">Enable the camera</button>


// Get the authentication information
const authData = {
    licenseKey: 'xxxxxxxxx',
    appId: 'xxx',
    authFunc: authFunc // For details, see “Configuring and Using a License - Signa
};

// Do not pass in the input or camera parameters when initializing the SDK. After a
const config = {
    auth: authData, // The authentication information
    beautify: { // The effect parameters
        whiten: 0.1,
        dermabrasion: 0.5,
        lift: 0,
        shave: 0,
        eye: 0.2,
        chin: 0,
```

```
    },
}
const sdk = new ArSdk(
    // Pass in a config object to initialize the SDK
    config
)
// After authentication succeeds, the SDK will trigger the `created` callback immed
sdk.on('created', () => {
    // Pull and display the filter and effect list in the `created` callback
    sdk.getEffectList({
        Type: 'Preset',
        Label: 'Makeup',
    }).then(res => {
        effectList = res
    });
    sdk.getCommonFilter().then(res => {
        filterList = res
    })
})
// `resourceReady` indicates that the necessary resources are ready. After receivin
sdk.on('resourceReady', () => {
})
// In this mode, the SDK will trigger the `ready` callback only after `initCore` is
sdk.on('ready', async () => {
    const output = await sdk.getOutput() // The effects have been applied.
    // Play the stream
    ...
    // Call `setBeautify`, `setEffect`, or `setFilter` in the `ready` callback
})
// Feed stream data to the SDK when the user turns the camera on
document.getElementById('start').onclick = async function(){
    const devices = await navigator.mediaDevices.enumerateDevices()
    const cameraDevice = devices.find(d=>d.kind === 'videoinput')
    navigator.mediaDevices.getUserMedia({
        audio: false,
        video: {
            deviceId: cameraDevice.deviceId
            ... // Other configuration
        }
    }).then(mediaStream => {
        // In this mode, make sure you call `initCore` after the `resourceReady` ca
        sdk.initCore({
            input: mediaStream // Prepare the stream data fed into the SDK as the i
        })
    })
}
```

Configuring Effects

Last updated：2024-05-08 16:30:10

The Tencent Effect SDK offers **beautification effects**, **filters**, and **special effects**. For filters and special effects, you need to get the material list first and configure them in the SDK by specifying the effect ID.

Beautification

You can pass in beautification parameters during initialization. You can also call `setBeautify` of the SDK to set beautification effects.
Currently, the SDK supports the following beautification effects:

```
type BeautifyOptions = {
  whiten?: number, // The brightening effect. Value range: 0-1.
  dermabrasion?: number // The smooth skin effect. Value range: 0-1.
  lift?: number // The slim face effect. Value range: 0-1.
  shave?: number // The face width. Value range: 0-1.
  eye?: number // The big eyes effect. Value range: 0-1.
  chin?: number // The chin effect. Value range: 0-1.
// The following parameters are only available in version 1.0.11 and above
  darkCircle?: number; // The dark circle effect. Value range: 0-1.
  nasolabialFolds?: number; // The nasolabial folds effect. Value range: 0-1.
  cheekbone?: number; // The cheek bone effect. Value range: 0-1.
  head?: number; // The head effect. Value range: 0-1.
  eyeBrightness?: number; // The eye brightness effect. Value range: 0-1.
  lip?: number; // The lip effect. Value range: 0-1.
  forehead?: number; // The forehead effect. Value range: 0-1.
  nose?: number; // The nose effect. Value range: 0-1.
  usm?: number; // The distinct effect. Value range: 0-1.
}
```

Call `setBeautify` of the SDK to set beautification effects:

```
sdk.setBeautify({
  whiten: 0.2,
  dermabrasion: 0,
  lift: 0.3,
  shave:0.1,
  eye: 0.9,
  chin: 0,
  ……
})
```

Filters

Given the relatively high cost of filter design, we offer some built-in filters which you can use directly.

1. Get the built-in filter list:

```
const filterList = await sdk.getCommonFilter()
```

2. Set the filter:

```
sdk.setFilter(filterList[0].EffectId, 0.5)
```

Special Effects

You can use the SDK's built-in effects or effects you customized in the RT-Cube console. To learn about how to customize effects, please contact us.

```
// Get the built-in effects
// By default, both makeup effects and stickers are returned. You can also use the
const presetEffectList = await sdk.getEffectList({
    Type: 'Preset'
    // Label: ['Sticker'] (Return only stickers)
})

// Get the custom effects
const customEffectList = await sdk.getEffectList({
    Type: 'Custom'
})

// Pass in the request parameters of `getEffectList`
const lipList = await sdk.getEffectList({
    PageNumber: 0,
    PageSize: 10,
    Name: '',
    Label: ['Lip makeup'], // Specify the specific type of materials to return
    Type: 'Custom'
})
const eyeList = await sdk.getEffectList({
    PageNumber: 0,
    PageSize: 10,
    Name: '',
    Label: ['Eye makeup'], // Specify the category of resources to return
    Type: 'Custom'
})
```

```
// Use an effect
sdk.setEffect([lipList[0].EffectId, eyeList[0].EffectId])

// Specify the effect to use and the strength of the effect
sdk.setEffect([
{
    id: lipList[0].EffectId,
    intensity: 0.5
},
{
    id: eyeList[0].EffectId,
    intensity: 0.7
})
// Set only the filter strength
sdk.setEffect([
{
    id: lipList[0].EffectId,
    intensity: 0.5,
    filterIntensity: 0
},
{
    id: eyeList[0].EffectId,
    intensity: 0.7,
    filterIntensity: 1
})
```

Note:

When customizing a special effect, you can add a filter to the effect. In such cases, you can use `filterIntensity` to adjust the strength of the filter separately.

Disabling Detection

The performance overhead of AI detection is high. To reduce resource consumption, the SDK will automatically disable AI detection when no effects are used and enable AI detection again when effects are applied.

```
// Clear all effect settings to disable AI detection
sdk.setBeautify({
    whiten: 0,
    dermabrasion: 0,
    lift: 0,
    shave:0,
    eye: 0,
    chin: 0,
    …… // reset all parameters to 0
```

```
})
sdk.setEffect('')
```

Configuring Segmentation

Last updated：2025-03-19 16:46:21

The segmentation module needs to be enabled during initialization to implement virtual backgrounds. For more information, see Custom Stream or Image and Built-in Camera.

Setting the Background

The SDK allows you to blur the background or set an image as the background. You can pass in keying parameters during initialization.

```
const config = {
  module: {
      beautify: true, // Whether to enable the effect module, which offers beautifi
      segmentation: true // Whether to enable the segmentation module, which allows
      segmentationLevel: 0 // Switch background segmentation models supported since
  },
  auth: authData, // The authentication information
  input: stream, // The input stream
  beautify: { // The effect parameters for initialization (optional)
      whiten: 0.1,
      dermabrasion: 0.3,
      eye: 0.2,
      chin: 0,
      lift: 0.1,
      shave: 0.2
  },
  background: {
      type: 'blur' // Blur the background
  }
}
const sdk = new ArSdk(
  // Pass in a config object to initialize the SDK
  config
)
```

You can also change the background.

```
sdk.setBackground({
  type: 'image', // The background image
  src: 'https://webar-static.tencent-cloud.com/assets/background/1.jpg'
})
```

Support video-type dynamic backgrounds (**supported from version 1.0.23**):

```
sdk.setBackground({
  type: 'video', // The background video
  src: 'https://webar-static.tencent-cloud.com/assets/background/video-bg-1.mp4',
})
```

Set edge blur intensity (**supported from version 1.0.25**):

```
sdk.setBackground({
  type: 'image',
  src: 'https://webar-static.tencent-cloud.com/assets/background/1.jpg',
  edgeBlur: '6', //Range of values: 0-10, which controls the edge blur intensity. T
})
```

Using Transparent Backgrounds

The SDK supports transparent backgrounds on some browsers.

```
sdk.setBackground({
    type: 'transparent'
})
```

Note:

Keep the following in mind:

Segmentation is supported on both mobile and desktop browsers.

Because WebRTC does not support alpha channels, you can only use transparent backgrounds locally. Background transparency will not work after publishing.

Background transparency is supported on desktop Chrome and Firefox, but not supported on desktop or mobile Safari.

Starting from version 1.0.19 and above, switching background segmentation models is supported, with parameters: 0, 1, 2.

Level 0 has the best performance but relatively average segmentation results.

Level 1 has a moderate performance and effect.

Level 2 has the best segmentation results and the longest inference time, suitable for applications with high requirements for segmentation effects and low performance requirements.

Using Animojis and Virtual Avatars

Last updated：2024-05-08 16:34:16

The Tencent Effect SDK supports animojis and VR virtual avatars starting from v0.3.0.

Checking Support

Animojis and VR virtual avatars rely on a WebGL2 environment. The SDK offers a static method for you to check whether a browser supports the capability.

```
import {ArSdk} from 'tencentcloud-webar'
if (ArSdk.isAvatarSupported()) {
    // Initialize the feature

} else {
    alert('This browser does not support virtual avatars')
    // Hide the feature
}
```

Animojis

Getting models

After initialization, you can get the built-in models. Currently, the SDK offers four built-in animoji models.

```
const avatarARList = await sdk.getAvatarList('AR')
```

Note:

Configuring animojis and virtual avatars will automatically remove other effects such as makeup and stickers, and vice versa.

Setting a model

After you get the list of built-in models, you can select one by specifying the `EffectId` parameter.

```
ar.setAvatar({
  mode: 'AR', // Set the mode to `VR`
  effectId: avatarARList[0].EffectId// Pass in the built-in ID
}, () => {
  // success callback
```

```
});
```

Customizing a model

If you need to customize a model, feel free to contact us.

VR Virtual Avatars

Getting models

The list of built-in models can be obtained after the SDK is initialized. Currently, the SDK offers 10 virtual avatars.

```
const avatarVRList = await sdk.getAvatarList('VR')
```

Setting a scene

```
ar.setAvatar({
  mode: 'VR', // Set `mode` to `VR`
  effectId: avatarVRList[0].EffectId, // Pass in the built-in ID
  backgroundUrl: 'https://webar-static.tencent-cloud.com/assets/background/1.jpg',
}, () => {
    // success callback


});
```

Note:

To set a VR scene, you need to set the background image URL, or the black background will be used by default.

Customizing a model

You can quickly customize a virtual avatar in two ways and directly use it in the SDK.

Option 1. `readyplayer.me`

Option 2. Vroid

With either option, you need to upload the exported model to CDN and use the URL to set the SDK.

```
ar.setAvatar({
  mode: 'VR', // Set `mode` to `VR`
  url: 'https://xxxx.glb', // Pass in the built-in ID
  backgroundUrl: 'https://webar-static.tencent-cloud.com/assets/background/1.jpg',
}, () => {
    // success callback
```

```
});
```

Currently, a custom model can be either in GLB or VRM format.

Using Gesture Recognition

Last updated：2025-04-18 15:07:23

The Tencent Effect SDK supports Hand Gesture Recognize starting from v1.0.23.

Enable Hand Gesture Module

Enable the hand gesture module when initializing the SDK.

```
import { ArSdk } from 'tencentcloud-webar';
const sdk = new ArSdk(
 {
   module: {
     beautify: true, // Beauty, Makeup, Face Effects module
     handGesture: true // Hand gesture recognition module
   },
   auth: { // The authentication information
     licenseKey: 'xxxxxxxxx',
     appId: 'xxx',
     authFunc: authFunc
   },
   camera: { // Pass in the camera parameters
        width: 1280,
        height: 720
   },
   beautify: {
      whiten: 0.1,
      dermabrasion: 0.3,
      eye: 0.2,
      chin: 0,
      lift: 0.1,
      shave: 0.2
   },
   …… // For more config settings, please refer to the「API Documentation」
 }
)
```

Listen for Gesture Changes.

After enabling gesture recognition, trigger `handGesture` when a gesture change occurs.

```
// After enabling gesture recognition, it will trigger when a gesture change is det
sdk.on('handGesture',(hands)=>{
    console.log('handGesture', hands) // Refer to the following "Hand Object Struct
    …… // Other business code, such as setting effects through the SDK's setEffect
})
```

Hand Object Structure

```
Hand: {
    gesture: string // Gesture names, optional values include: None, Thumb_Up, Thum
    handedness: string // Recognized as left hand or right hand, values are Left, R
}
Hands: Array<Hand>
```

List of supported Gestures.

Hand gesture value	Detail
None	No valid gesture recognized
Thumb_Up	Thumbs up
Thumb_Down	Thumb down
Victory	victory
Pointing_Up	pointing up
Open_Palm	open palm

ILoveYou	i love you
Closed_Fist	close fist

Integration into Mini Program

Last updated：2023-04-21 15:36:13

For how to develop a Mini Program, see Weixin Mini Program documentation.

Integrating the SDK

Step 1. Configure a domain allowlist

As the SDK will request the backend to perform authentication and load resources, you need to configure a domain allowlist on the Mini Program backend.

1. Open the Mini Program backend and go to **Development** > **Development Management** > **Development Settings** > **Server Domain Name**.
2. Click **Modify**, configure the following domain names and save them.

Request domain names:

```
https://webar.qcloud.com;
https://webar-static.tencent-cloud.com;
https://aegis.qq.com;
The URL of the authentication signature API (`get-ar-sign`)
```

downloadFile domain name:

```
https://webar-static.tencent-cloud.com
```

Step 2. Install and build the npm package

1. Install:

```
npm install tencentcloud-webar
```

2. Open Weixin DevTools and select **Tools** > **Build npm** on the topbar.
3. Configure the path of `workers` in `app.json`:

```
"workers": "miniprogram_npm/tencentcloud-webar/worker"
```

Step 3. Import the files

```
// The import method for versions earlier than 0.3.0 (one file)
// import "../../miniprogram_npm/tencentcloud-webar/lib.js";
// The import method for v0.3.0 or later (two files and the 3D module (optional))
```

```
import '../../miniprogram_npm/tencentcloud-webar/lib.js';
import '../../miniprogram_npm/tencentcloud-webar/core.js';
// Initialize the 3D plugin (optional)
import '../../miniprogram_npm/tencentcloud-webar/lib-3d.js';
import { plugin3d } from '../../miniprogram_npm/tencentcloud-webar/plugin-3d'
// Import `ArSdk`
import { ArSdk } from "../../miniprogram_npm/tencentcloud-webar/index.js";
```

Note

Because Mini Program has a 500 KB limit for file size, the SDK is provided as multiple JS files.

Starting from v0.3.0, the SDK is further split to support 3D. The 3D module can be loaded as needed. Before import, check your SDK version and use the corresponding import method.

Step 4. Initialize an instance

```
// wxml
//Open the camera
<camera
    device-position="{{'front'}}"
    frame-size="large" flash="off" resolution="medium"
    style="width: 750rpx; height: 134rpx;position:absolute;top:-9999px;"
/>
// The SDK outputs the processed image to the canvas in real time.
<canvas
    type="webgl"
    canvas-id="main-canvas"
    id="main-canvas"
    style="width: 750rpx; height: 1334rpx;">
</canvas>
// Take a photo and draw the `ImageData` object onto the canvas
<canvas
    type="2d"
    canvas-id="photo-canvas"
    id="photo-canvas"
    style="position:absolute;width:720px;height:1280px;top:-9999px;left:-9999px;">
</canvas>
// js
Component({
    methods: {
        async getCanvasNode(id) {
            return new Promise((resolve) => {
                this.createSelectorQuery()
                    .select(`#${id}`)
                    .node()
                    .exec((res) => {
                        const canvasNode = res[0].node;
```

```
                        resolve(canvasNode);
                    });
            });
        },

        // Initialize the camera type
        async initSdkCamera() {
            // Get the onscreen canvas. The SDK will output the processed image to
            const outputCanvas = await this.getCanvasNode("main-canvas");
            const sdk = new ArSdk({
                camera: {
                    width:720,
                    height:1280,
                },
                output: outputCanvas,
                loading: {
                    enable: false,
                },
                auth: {
                    licenseKey: LICENSE_KEY,
                    appId: APP_ID,
                    authFunc: authFunc
                },
                plugin3d: plugin3d // You can ignore this parameter (only available
            });
            this.sdk = sdk
            sdk.setBeautify({
                whiten: 0.2
            });
            sdk.on('created', () => {
                // You can add your business logic in this callback. For details, s
            })
        }
    }
})
```

Note

Before initializing the SDK, you need to configure the Mini Program `APPID` in the RT-Cube console

Unlike web, for Mini Programs, the `input` parameter must be an image URL string.

Camera configuration is the same as that for web. Pass in the camera parameters instead of `input` . Make sure you have already inserted a camera tag in your page.

Mini Program does not support `getOutput` , so you need to pass in an onscreen WebGL canvas. The SDK will output images onto this canvas.

Photo Taking and Shooting

The SDK works for both photo taking and shooting in a Mini Program.

Photo

Shooting

The SDK will return an object containing the width, height, and buffer data. You can draw the data onto the 2D canvas on your page and export it as an image file.

```
Component({
    ...
    async takePhoto() {
        const {uint8ArrayData, width, height} = this.sdk.takePhoto(); // The `takeP
        const photoCanvasNode = await this.getCanvasNode('photo-canvas');
        photoCanvasNode.width = parseInt(width);
        photoCanvasNode.height = parseInt(height);
        const ctx = photoCanvasNode.getContext('2d');
        // Create an `ImageData` object with the data returned by the SDK
        const imageData = photoCanvasNode.createImageData(uint8ArrayData, width, he
        // Draw the `ImageData` object onto the canvas
        ctx.putImageData(imageData,0,0,0,0,width,height);
        // Save the canvas as a local image
        wx.canvasToTempFilePath({
            canvas: photoCanvasNode,
            x: 0,
            y: 0,
            width: width,
            height: height,
            destWidth: width,
            destHeight: height,
            success: (res) => {
                // Save the photo
                wx.saveImageToPhotosAlbum({
                    filePath: res.tempFilePath
                });
            }
        })
    }
})
```

Note

When the Mini Program is switched to the background or the screen is locked, call `stopRecord` to stop shooting. If you don't do this, an error may occur.

```
Component({
    methods: {
```

```
        // Start shooting
        startRecord() {
            this.sdk.startRecord()
        }
        // Stop shooting
        async stopRecord() {
            const res = await this.sdk.stopRecord();
            // Save the video
            wx.saveVideoToPhotosAlbum({
                filePath: res.tempFilePath
            })
        }
    }
})
```

Release Notes

Last updated：2025-05-16 15:46:43

SDK Version 1.0.26 @ 2025-04-29

Improve the log reporting system.
The language parameter in the SDK supports Japanese (jp).
Fixed other issues.

SDK Version 1.0.25 @ 2025-03-21

Virtual background supports setting the edge blur level.
Input supports the HTMLVideoElement type.
Supports dynamic configuration for enabling browser worker capabilities.
Fixed other issues.

SDK Version 1.0.24 @ 2024-12-13

Added image processing interface, supporting high-resolution image processing.
Fixed an error issue when switching virtual background levels.
Resolved the issue where calling setBeautify had no effect in the ready callback.
Fixed the screen stuck issue when switching between landscape and portrait modes on iOS.
Addressed issues with black screens and ineffective beauty effects when using TRTC on iOS 16.

SDK Version 1.0.23 @ 2024-10-15

Added support for dynamic backgrounds.
Added support for full-screen foregrounds.
Introduced gesture recognition interface.
Added "isWebGL2Supported" interface to check if the browser supports WebGL2.
Optimized performance issues.
Fixed pre-initialization error issues in some browsers.
Resolved the issue where closing the beauty effect caused the virtual background to freeze.
Fixed the problem of incomplete display when switching input stream resolutions.
Fixed other issues.

SDK Version 1.0.22 @ 2024-05-07

Added support for internal network proxy mode.
Optimized beauty effects.
Improved edge smoothing for virtual backgrounds.
Optimized performance issues.

Fixed issues in some browsers where changing resolution led to misalignment of 3D sticker positions and loss of beauty effects.
Resolved issues with beauty stickers being obstructed.
Fixed the mirroring issue in Camera mode on Firefox.
Fixed the non-functional mirror parameter in Input Mediastream mode on Firefox.
Fixed other issues.

SDK Version 1.0.21 @ 2023-12-2

Optimized performance issues.
Fixed other issues.

SDK Version 1.0.19 @ 2023-11-20

Supported Segmentation level.
Optimized performance issues.
Fixed other issues.

SDK Version 1.0.16 @ 2023-10-24

Optimized performance issues.
Fixed other issues.

SDK Version 1.0.11 @ 2023-07-17

Add hairline, clarity and other beauty parameters.
Optimized performance issues.
Fixed other issues.

SDK Version 1.0.0 @ 2023-02-27

Launched commercial editions.

SDK Version 0.3.0 @ 2022-10-14

Added animoji and virtual avatars for web.
Fixed a memory leak issue.
Fixed other issues.

SDK Version 0.2.5 @ 2022-08-01

Fixed the forced quit of the Weixin browser on Android.
Fixed the bug where the background did not disappear after being disabled.
Fixed other issues.

SDK Version 0.2.3 @ 2022-07-20

Fixed the adaptation failure when the input source was switched.
Added support for starting and stopping face detection.
Fixed other issues.

SDK Version 0.2.0 @ 2022-06-29

Added support for keying on web.
Optimized the integration experience.

SDK Version 0.1.18 @ 2022-06-17

Optimized the built-in camera configuration, improved camera management capabilities, and added the local player.
Added the configuration of delayed initialization.
Optimized the filter strength settings and overlay effects.

SDK Version 0.1.12 @ 2022-05-11

Optimized the SDK performance.
Added the FPS attribute, which can be used to set the rendering frame rate.

SDK Version 0.1.9 @ 2022-04-28

Added built-in stickers.
Fixed the black screen issue which occurred while switching to the background on mobile web.

SDK Version 0.1.1 @ 2022-04-13

Officially released the SDK.

API Error Codes

Last updated：2024-05-08 16:34:16

Built-in API Error Codes

Error codes of APIs such as `https://webar.qcloud.com/sdk/xxx`.

The response structure is as follows:

```
{
    "Code": xxx,
    "Message": "xxx"
}
```

Successful requests

If `Code` is 0, a request is successful, and information will be returned in `Data`.

```
{
    Code: 0,
    Data:{...}
}
```

Authentication errors

If `Code` is a value from 100 to 104, an authentication error occurred. The response status code is `401`.

```
{
  "100":{
    en: "Missing authentication parameter."
  },
  "101":{
    en: "Signature timeout."
  },
  "102":{
    en: "Unable to find the user."
  },
  "103":{
    en: "Signature error."
  },
  "104":{
    en: "Mismatch of referer or WeChatAppId."
  }
}
```

Request parameter errors

If `Code` is -2, a request parameter error occurred. For details, see the value of `Message` .

```
{
    "Code": -2,
    "Message": "LicenseKey must be a string."
}
```

Business verification errors

If `Code` is greater than 1000, a business verification error occurred. For details, see the value of `Message` .

```
{
    "Code": 2007,
    "Message": "The project does not exist."
}
```

Unknown errors

If `Code` is -1, an unknown error occurred.

```
{
    "Code": -1,
    "Message": "Unknown error."
}
```

Parameters and APIs

Last updated：2025-05-16 15:47:18

This document describes the core parameters and methods of the Beauty AR Web SDK.

Note:

The Beauty AR Web SDK relies on hardware acceleration to achieve smooth rendering. The SDK allows you to check whether a browser supports hardware acceleration. You can block the browser if it does not support hardware acceleration.

```
import {ArSdk, isWebGLSupported} from 'tencentcloud-webar'

if(isWebGLSupported()) {
    const sdk = new ArSdk({
    ...
})
} else {
    // The browser blocking logic
}
```

Initialization Parameters

```
import { ArSdk } from 'tencentcloud-webar'
// Initialize the SDK
const sdk = new ArSdk({
... // Refer to the following Config definition
})
```

`Config` of the SDK supports the following initialization parameters:

Parameters	Description	Type

module	The module configuration	`type SegmentationLevel = 0 | 1 | 2 // since version 1.0.`
		`type ModuleConfig = {`
		`  beautify: boolean // The default is `true`.`
		`  segmentation: boolean // The default is `false``
		`  segmentationLevel: SegmentationLevel // The default is`
		`  handGesture: boolean // Whether to enable gesture reco`
		`  handLandmark: boolean // Whether to enable hand tracki`
		`}`

auth	The authentication parameter	`type AuthConfig = { licenseKey: string // It can be obtained on the **Web appId: string // It can be viewed in **Account Info** authFunc:() => Promise<{ signature:string, timestamp:string }> // Refer to the license configuration. }`
input	Source	MediaStream | HTMLImageElement | String | HTMLVideoElement
camera	Built-in Camera	`type CameraConfig = { width: number, // The video width. height: number, // The video height. mirror: boolean, // Whether to horizontally flip the frameRate: number // The capturing frame rate. }`
mirror	Mirrored or not, mirroring of input streams is supported. (supported since 1.0.19)	Boolean
beautify	The beauty filter parameter	`type BeautifyOptions = { whiten?: number, // The brightening effect. Value dermabrasion?: number // The smooth skin effect. V lift?: number // The slim face effect. Value range shave?: number // The face width. Value range: 0-1 eye?: number // The big eyes effect. Value range: chin?: number // The chin effect. Value range: 0-1 // The following parameters are only available since darkCircle?: number; // The dark circle effect. Va nasolabialFolds?: number; // The nasolabial folds cheekbone?: number; // The cheek bone effect. Valu head?: number; // The head effect. Value range: 0- eyeBrightness?: number; // The eye brightness effe lip?: number; // The lip effect. Value range: 0-1. forehead?: number; // The forehead effect. Value r nose?: number; // The nose effect. Value range: 0- usm?: number; // The distinct effect. Value range: }`

background	The background parameter	`type BackgroundOptions = { type: 'image' | 'blur' | 'transparent' | 'video', / src?: string, // image | video file address edgeBlur ?: number, // supported from version 1.0.25 }`
loading	The configuration of the built-in loading icon	`type loadingConfig = { enable: boolean, size?: number lineWidth?: number strokeColor?: number }`
language	i18n, 'jp' supported form 1.0.26 version	String: zh | en | jp
logLevel	Print console log level	'OFF' | 'ERROR' | 'WARN' | 'DEBUG' | 'TRACE' | 'INFO'
initReport	Whether to initialize the log reporting module	Boolean
worker	Whether to disable the browser worker to optimize performance in specific scenarios.	String: auto | disable
proxyServer	Intranet Proxy Mode Utilization	`type proxyServeConfig = { webarProxy: string; // Intranet address of the interfa staticProxy: string; // Intranet address of the resour }`

Callbacks

```
let effectList = [];
let filterList = [];
// Using the callbacks of the SDK
sdk.on('created', () => {
    // Pull and display the filter and effect list in the `created` callback
    sdk.getEffectList({
        Type: 'Preset',
        Label: 'Makeup',
    }).then(res => {
        effectList = res
    });
    sdk.getCommonFilter().then(res => {
        filterList = res
    })
})
sdk.on('cameraReady', async () => {
    // By getting the output stream in the `cameraReady` callback, you can display
    // You can choose this method if you want to display a video image as soon as p
    // You don’t need to update the stream after the effects start to work.
    const arStream = await ar.getOutput();
    // Play the stream locally
    // localVideo.srcObject = arStream

})
sdk.on('ready', () => {
    // Get the output stream in the `ready` callback. The initialization parameters
    // You can get the output stream in `ready` if you want your video to show effe
    // Between the two methods, choose the one that fits your needs.
    const arStream = await ar.getOutput();
    // Play the stream locally
    // localVideo.srcObject = arStream

    // Call `setBeautify`, `setEffect`, or `setFilter` in the `ready` callback
    sdk.setBeautify({
        whiten: 0.3
    });
    sdk.setEffect({
        id: effectList[0].EffectId,
        intensity: 0.7
    });
    sdk.setEffect({
        id: effectList[0].EffectId,
        intensity: 0.7,
```

```
        filterIntensity: 0.5 // In v0.1.18 and later, you can use this parameter to
    });
    sdk.setFilter(filterList[0].EffectId, 0.5)
})

// Triggered when a change in gesture is detected after enabling gesture recognitio
sdk.on('handGesture',(hands)=>{
    // none, thumb_up, thumb_down, victory, pointing_up, open_palm, iloveyou
})
// Error callback that affects the occurrence of errors during SDK usage
sdk.on('error', (data)=>{
    console.log('error', data.code, data.message)
})
// Warning callback, commonly triggered by the SDK when it detects an increase in t
sdk.on('warning', (data)=>{
    console.log('warning', data.code, data.message)
})
```

Events	Description	Callback Parameter
created	The SDK authentication was completed and the instance was created successfully.	-
cameraReady	The SDK generated a video output (the video is not yet processed).	-
ready	Detection has been initialized. Effects are now applied to the output video. You can change the effect settings.	-
error	This callback is triggered when the SDK encounters an error.	The `error` object
warning	This callback is triggered when the SDK encounters a warning.	The `warning` object
handGesture	Triggered when a change in gesture is detected after enabling gesture recognition	Recognized gesture
detectStatusChange	Triggered when the face detection status changes.	Boolean, Whether a face is detected

APIs

API	Parameters

setBeautify(options)	`type BeautifyOptions = {`
	`  whiten?: number, // The brightening effect`
	`  dermabrasion?: number // The smooth skin e`
	`  lift?: number // The slim face effect. Valu`
	`  shave?: number // The face width. Value ra`
	`  eye?: number // The big eyes effect. Value`
	`  chin?: number // The chin shaping effect.`
	`  darkCircle?: number; // The dark circle ef`
	`  nasolabialFolds?: number; // The nasolabia`
	`  cheekbone?: number; // The cheek bone effe`
	`  head?: number; // The head effect. Value ra`
	`  eyeBrightness?: number; // The eye brightne`
	`  lip?: number; // The lip effect. Value ran`
	`  forehead?: number; // The forehead effect.`
	`  nose?: number; // The nose effect. Value ra`
	`  usm?: number; // The distinct effect. Value`
	`}`

setEffect(effects, callback)	effects: Effect ID | Effect object | (Effect ID | Effect object) array
	`type Effect = {`
	`  id: string,`
	`  intensity: number, // The effect strengt`
	`  filterIntensity: number // The filter st`
	`}`
	callback: The callback for successful configuration

setAvatar(params)	`{` `  mode: 'AR' | 'VR',` `  effectId?: string, // Pass through `effe` ` url?: string, // Pass through `url` to u` ` backgroundUrl?: string, // Background im` `}`

setBackground(options)	`{ type: 'image|video|blur|transparent', // src: string, // This parameter is require edgeBlur: number, // supported from vers: }`
setForeground(options)（**Since v1.0.23**）	`{ type: 'image|video', src: string // Resource Path: Base64 or ( }`
setSegmentationLevel(level)	level: 0 | 1 | 2
setFilter(id, intensity, callback)	id: The filter ID intensity: The filter strength. Value range: 0 - 1. callback: The callback for successful configuration.
getEffectList(params)	`{ PageNumber: number, // page number, defau PageSize: number,// page size,default is Name: '', // effect name Label: string | Array, // effect label Type: 'Custom' | 'Preset' // Custom effe }`
getAvatarList(type)	`type = 'AR' | 'VR'`
getEffect(effectId)	effectId: The effect ID

getCommonFilter()	-
async initCore()	`{ input?:MediaStream|HTMLImageElement|String, camera?:CameraConfig; // Only for camera mo mirror?:boolean; // Mirror or not }`
async updateInputStream(src, stopOldTracks)	src: New input stream (`MediaStream`) stopOldTracks: stop the old MediaTrack or not, default is true
updateInputImage(options)（**since v1.0.24**）	`{ width: number;// image render width height: number; // image render height input: string;// image src }`
async getOutput(fps:number,type:OUTPUT_TYPES)	`enum OUTPUT_TYPES { IMAGE = 3, MEDIA_STREAM = 4, }` fps (optional): The output frame rate, default is consistent with th type(optional): 3 | 4 // 3 for image, 4 for media stream. The outpu
disable()	-

enable()	-
stop()	-
resume()	-
async takePhoto()	-
async initLocalPlayer(id)	id: string // HTML DOM id for local preview.
async resetCore(input)	input: MediaStream|HTMLImageElement|String

destroy()	-

Error Handling

The error object returned by the error callback includes the error code and error message, which facilitate troubleshooting.

```
sdk.on('error', (error) => {
    // Handle an error in the error callback
    const {code, message} = error
    ...
})
```

Error Code	Description	Remarks
10000001	The current browser environment is incompatible.	Recommend the user to use Chrome, Firefox, Safari, or the Weixin browser.
10000002	The render context is missing.	-
10000003	The rendering is slow.	Consider reducing the video resolution or disabling the feature.
10000005	An error occurred while parsing the input source.	-
10000006	Lag may occur due to insufficient browser support.	Recommend the user to use Chrome, Firefox, Safari, or the Weixin browser.
10001101	An error occurred while configuring the effect.	-
10001102	An error occurred while configuring the filter.	-

10001103	The effect strength parameter is incorrect.	-
10001104	sdk disabled, Cannot set effects	-
10001105	Invalid effect ID	-
10001201	Failed to turn on the camera.	-
10001202	The camera stopped.	-
10001203	Failed to get the camera permission.	The user needs to enable the camera permission by going to **Settings** > **Privacy** > **Camera**.
10001204	Cannot access media devices (despite being authorized).	Cannot find a media type that satisfies the request parameters, or a system error is preventing access to the device.
10001205	Microphone permission not allowed	The user needs to enable the microphone permission by going to **Settings** > **Privacy** > **Microphone**.
10001206	Some browsers may have discrepancies between the width and height returned by the getUserMedia interface and the user's settings.	-
10004001	Camera and microphone permission issues require a page refresh to continue using.	-
20002001	The authentication parameter is missing.	-
20001001	Authentication failed	Make sure you have created a license and the signature is correct.
20001002	The API request failed.	The error callback will return the data returned by the API. For details, see API Error Codes.
20001003	Failed to authenticate the effects setting interface	Access to this effect is denied; the Standard License cannot use features of the Advanced License.
20001004	Signature timeout	Signature timeout, and an error still occurs after retrying.
20001005	Authorize timeout	Authorize timeout, and an error still occurs after retrying.

40000000	An uncaught exception occurred.	-
40000001	As the current SDK version is too low, certain effects cannot be correctly displayed. Upgrade the SDK version.	-
50000002	The effect is lost due to the resolution change.	The effect needs to be reconfigured.

Warning Handling

The object returned in the warning callback contains a warning code and a warning message.

```
sdk.on('warning', (warning) => {
    // Handle a warning in the warning callback
    const {code, message} = warning
    ...
})
```

Error Code	Description	Remarks
50005	Detection took too long.	Dynamic monitoring: A warning is issued when the processing time for a single frame exceeds 150ms, indicating that the rendering frame rate drops below 10fps, resulting in stuttering.

Handling the missing render context error

On some computers, if the SDK is in the background for a long time, the `contextlost` error may occur. In such cases, you can call `ArSdk.prototype.resetCore(input: MediaStream)` to resume rendering.

```
sdk.on('error', async (error) => {
    if (error.code === 10000002) {
        const newInput = await navigator.mediaDevices.getUserMedia({...})
        await sdk.resetCore(newInput)
    }
})
```

Console Guide
Customizing Materials
3D Effects

Last updated：2022-12-01 17:32:04

The SDK has supported 3D effects since v0.3.0. Please check your SDK version before using this capability.
Based on our standard head model, you can create more realistic 3D models using software such as Blender or 3ds Max and upload them to the console.

Limits

To produce more applicable and realistic effects, we recommend you make 3D models based on our standard head model.

Type	Limit
Format	GLB file or GLTF folder
Size	Keep the size of a model within 5 MB; otherwise it may take a long time to load.
Polygons	Keep the polygon count of a model within 100,000; otherwise the output file may be too large.
Texture maps	Use square textures in PNG format and keep the size of each map within 1024 x 1024. Commonly used dimensions include 256, 512, and 1024. Keep the size as small as possible without compromising the quality.
Materials	Make sure you use Principled BSDF materials for the surfaces; otherwise a rendering error will occur.

Directions

Step 1. Create a material

Download our standard head model and import it into your software (Blender is used as an example in this document). Create a material based on the model and export it in GLB or GLTF format.

Note:

To ensure that the materials created fit the user's view, please do not modify the model's transform options such as location and scale.

To keep the size of the output file small and the loading time short, we recommend you generate your model in GLB format.

Step 2. Import the model into the console

1. Go to the material customization page of the console. A built-in 2D effect model is displayed by default. Click **3D effects** at the top to switch to a 3D model, which is the same as the standard head model mentioned above.
2. Click **Import model** on the right and select a model format (GLB is selected in this example).

Note:

You can edit only one 3D effect scenario at a time. To import multiple 3D models, click **+** on the left.
During editing, you can switch among different models by clicking them in the list on the left.

Step 3. Modify parameters

Normally, because your 3D model is already built based on our standard head model, it should be ready to use after being imported into the console. If you need to modify the parameters of your model, select an editing mode at the top and drag elements in the editing area to change the settings or directly modify the parameters on the right.

Note:

If your model is not created based on our standard head model, you can adjust the tracking points to better track your model. For example, you can set nose bridge as the tracking point for a glass model and set philtrum as the tracking point for a mustache model.

Step 4. Preview the material

You can preview your material on the built-in model. You can also switch to camera to view the effect in videos captured by the camera.

Step 5. Export the material

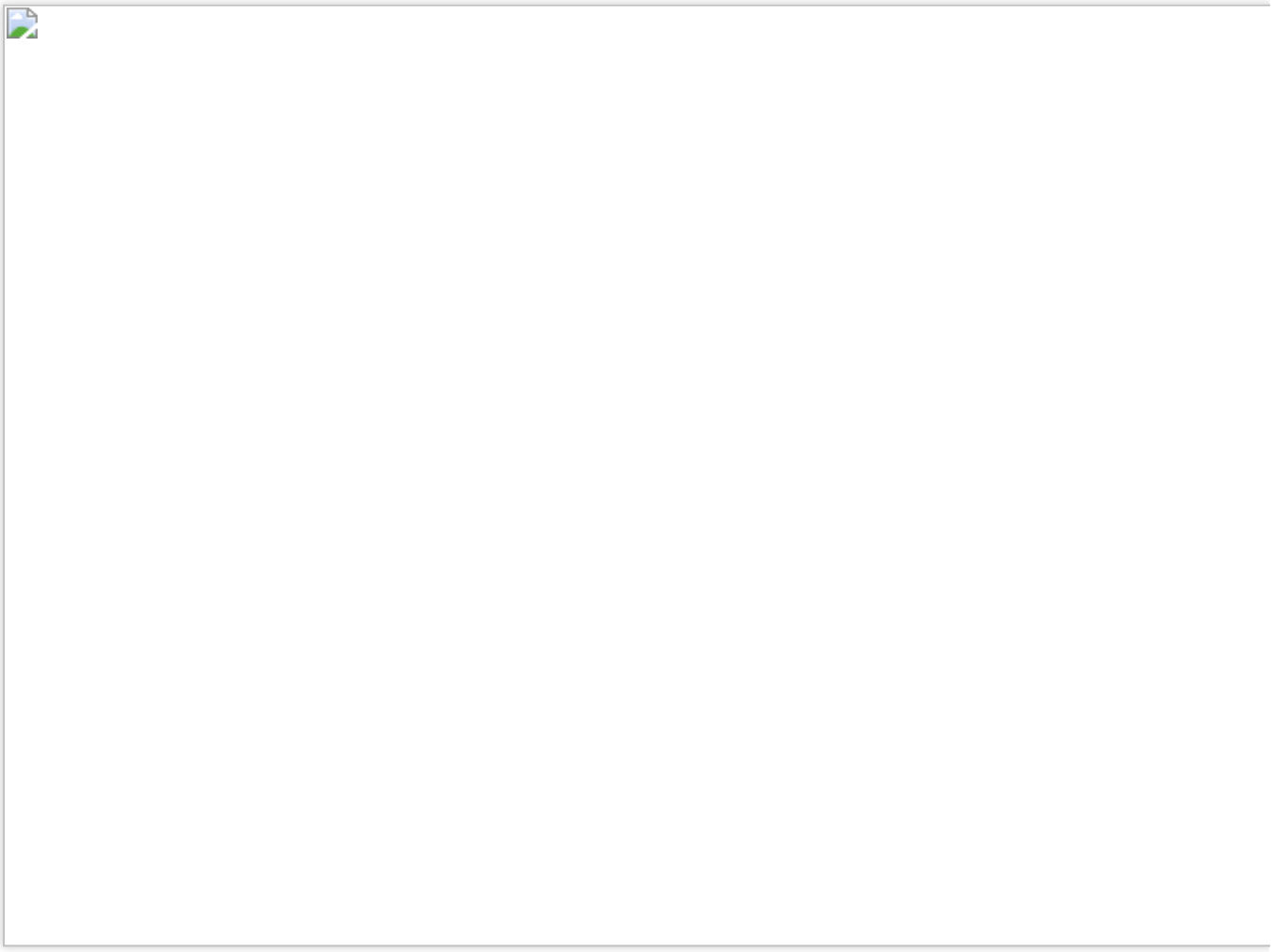
Click **Export** in the top right corner. In the pop-up window, select a thumbnail and enter information such as the effect name, and click **Publish**. You can view published materials on the **Manage materials** page.

Material Customization Guide

Last updated：2023-03-28 16:37:22

Panel Introduction

After binding a web license, you can start making your own effects in the console.

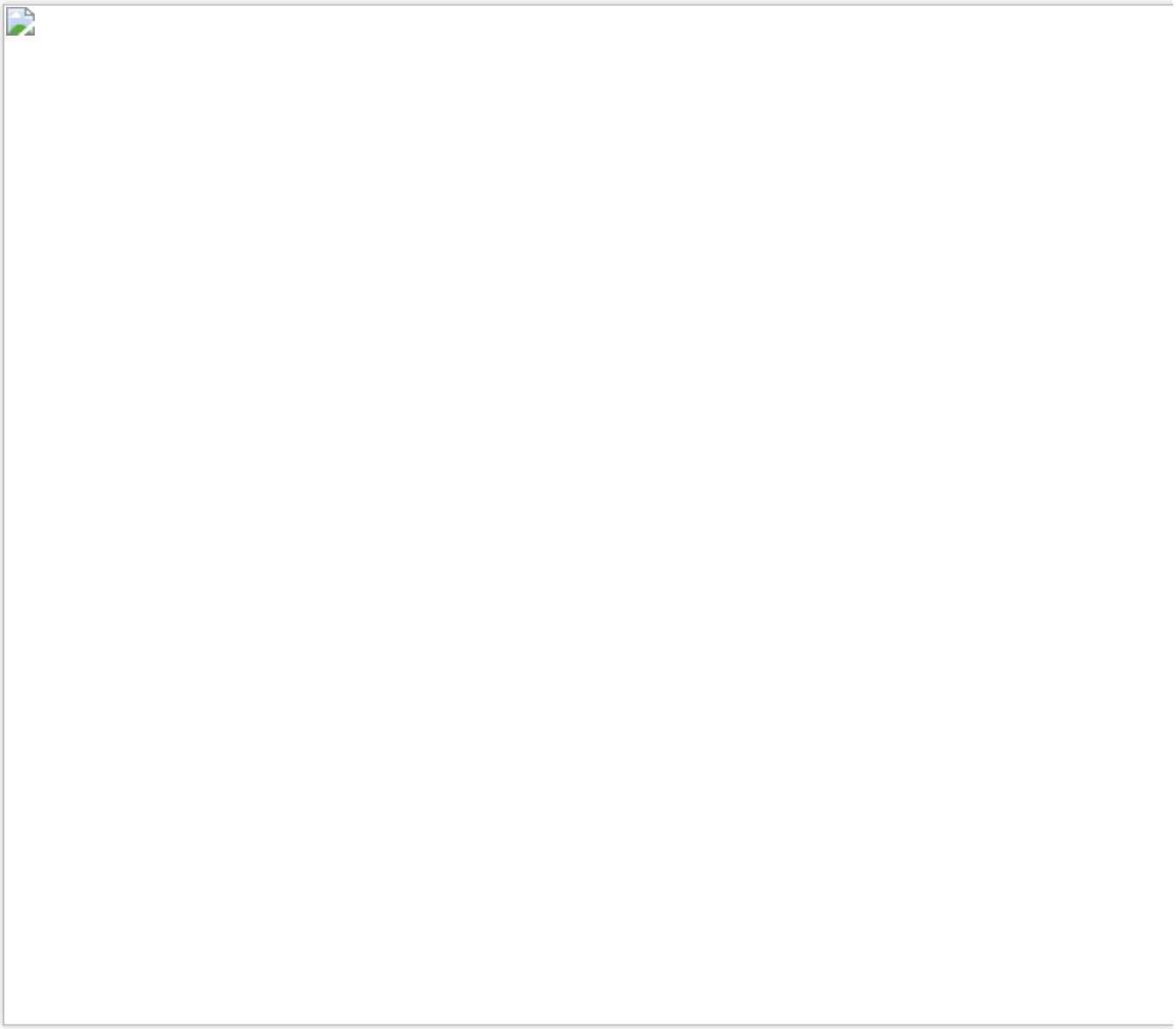


The material customization page is divided into two sections. There are a set of buttons at the top, and the area below is the main design area, which is further divided into (from left to right) the effect list area, the main panel, the parameter configuration area, and the preview area.

Effect list

This area displays the effects currently used. You can use the right-click menu as well as shortcuts to perform common commands such as copy and paste. The **Group** command allows you to group multiple materials into one folder. You can click the

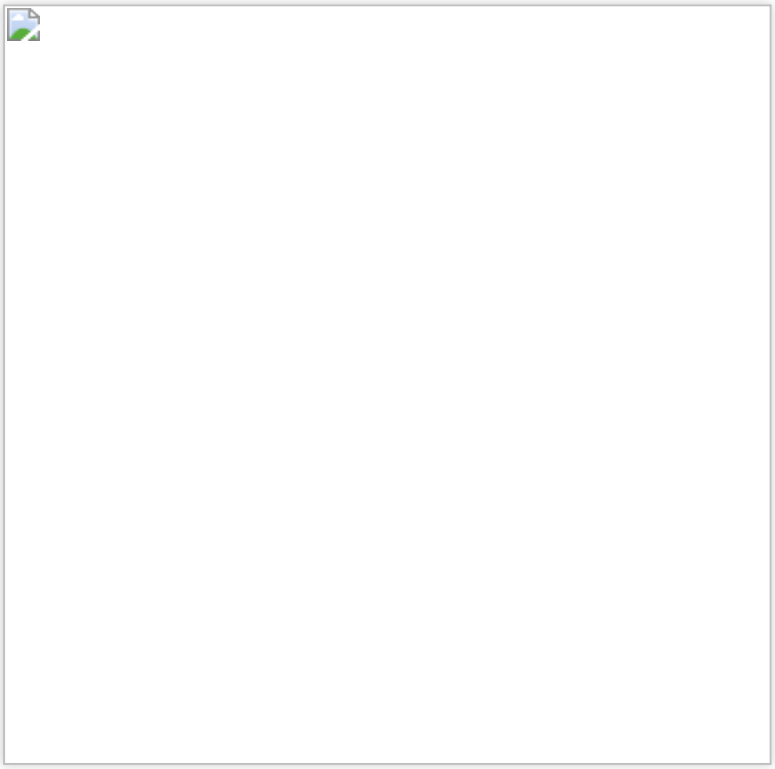
button next to an effect to enable or disable it. You can also drag the effect to change their sequence in the list.



Main panel

The main panel visualizes your settings in the **Parameter configuration** area. You can zoom in/out and drag to move the panel.

For stickers, you can resize the sticker images by dragging the corners of the image frames. You can also drag to relocate the stickers.



Parameter configuration

This area allows you to configure the properties of the selected material, such as transparency and the blend mode. For a sticker material, you can also adjust its location, size, and anchor point.
We offer a PSD template for each type of material. You can mouse over the icon next to **Choose material** to download the template.

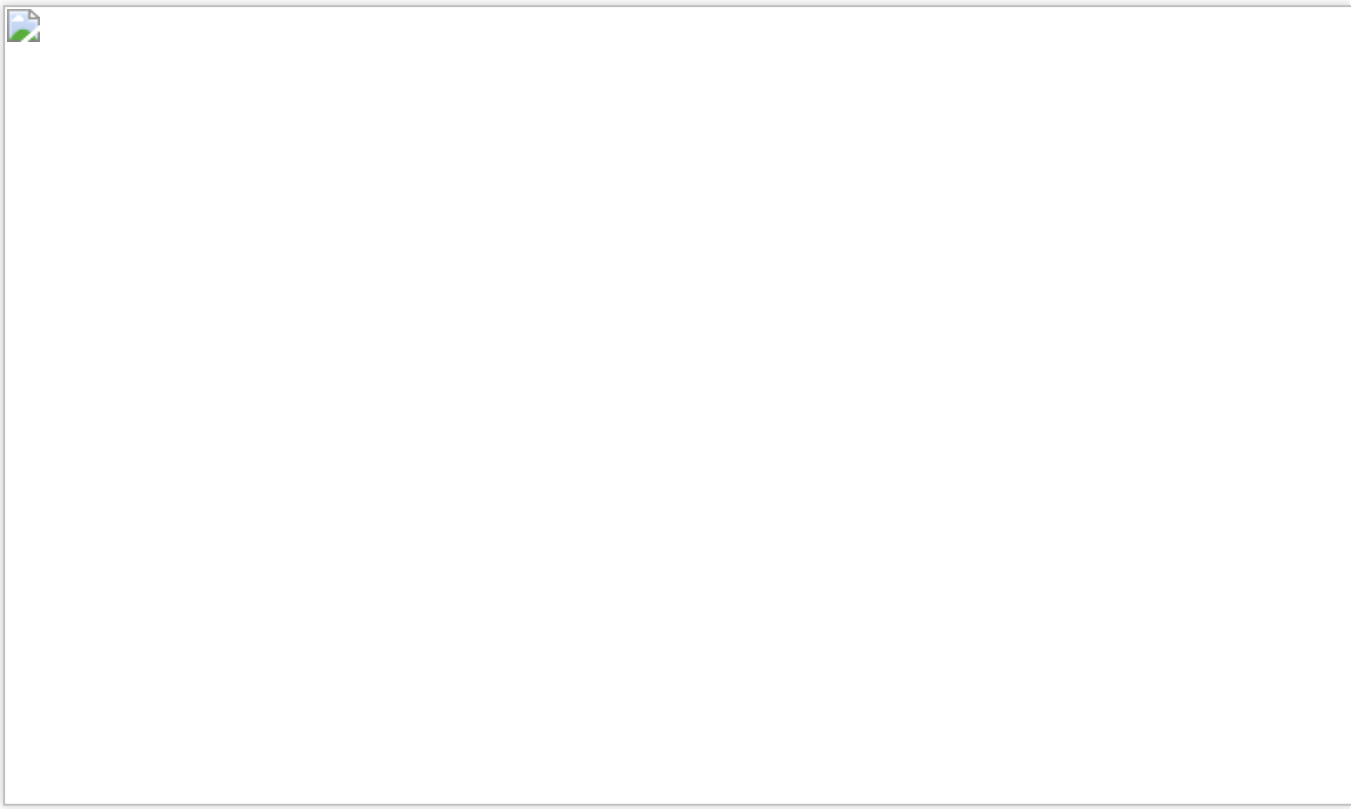
Preview

The preview area shows the effects you configure in real time. You can preview the effects either on the built-in models (man and woman) or on images captured by your camera.

Customizing Materials

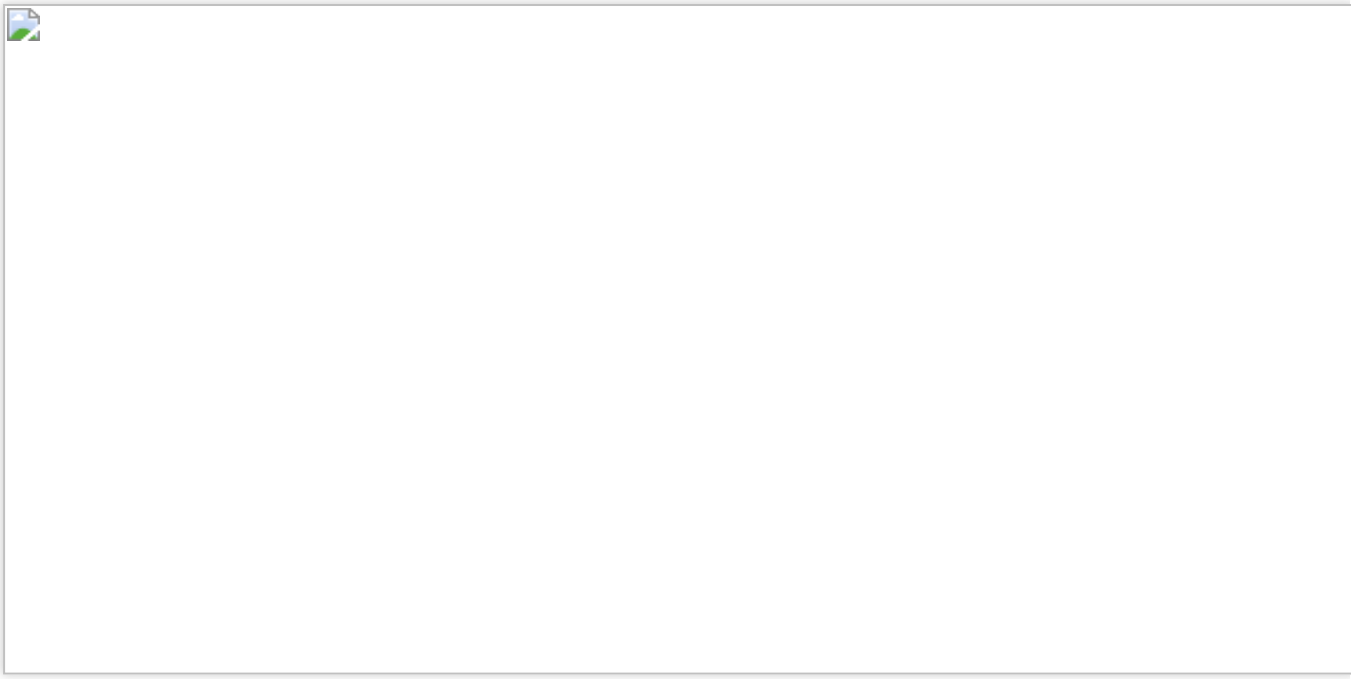
Step 1. Download the template

1. To ensure that your effect applies well to the human face, you need to download our **human face model** and import it into Photoshop or After Effects to design your effect.
2. Click **Makeup > Eyebrows/Eyes** at the top and, in the **Parameter configuration** area, click **Download template**.



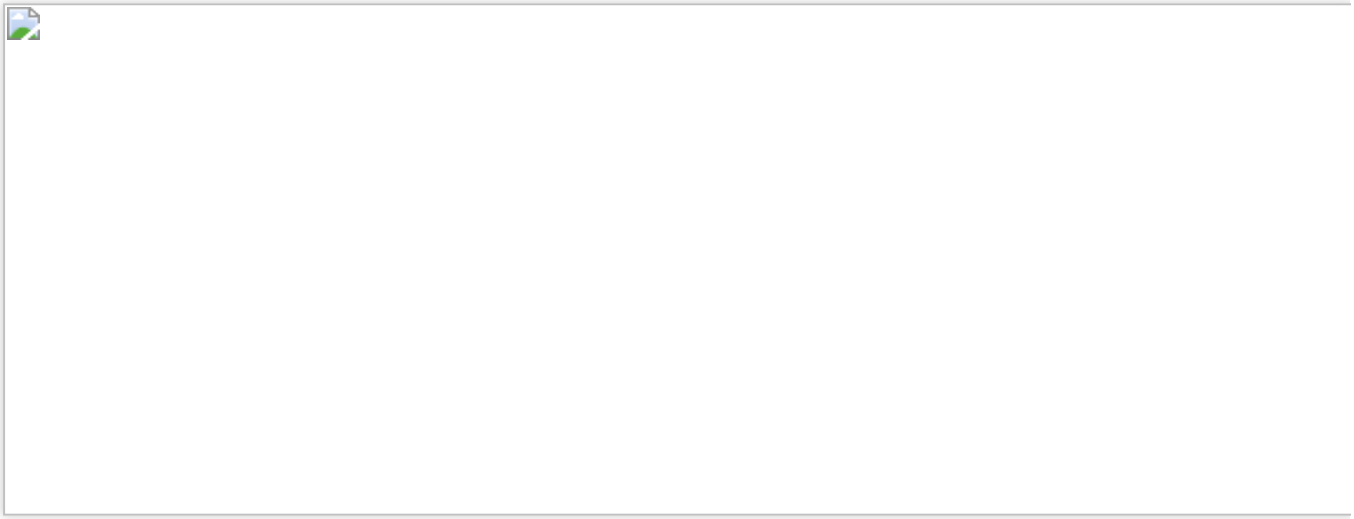
Note

A standard human face PSD file includes two parts – a model and a mask.

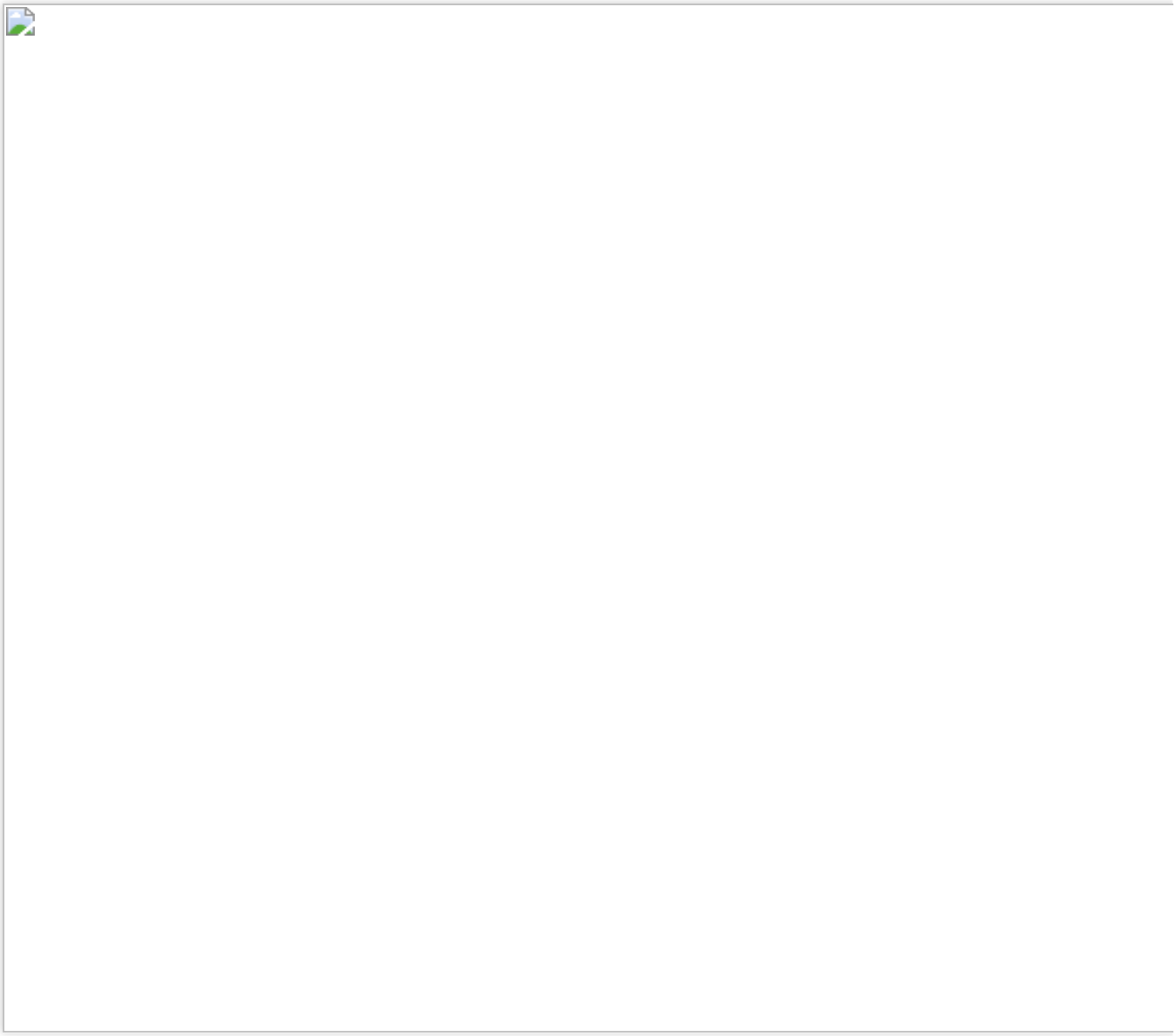


Step 2. Design your material

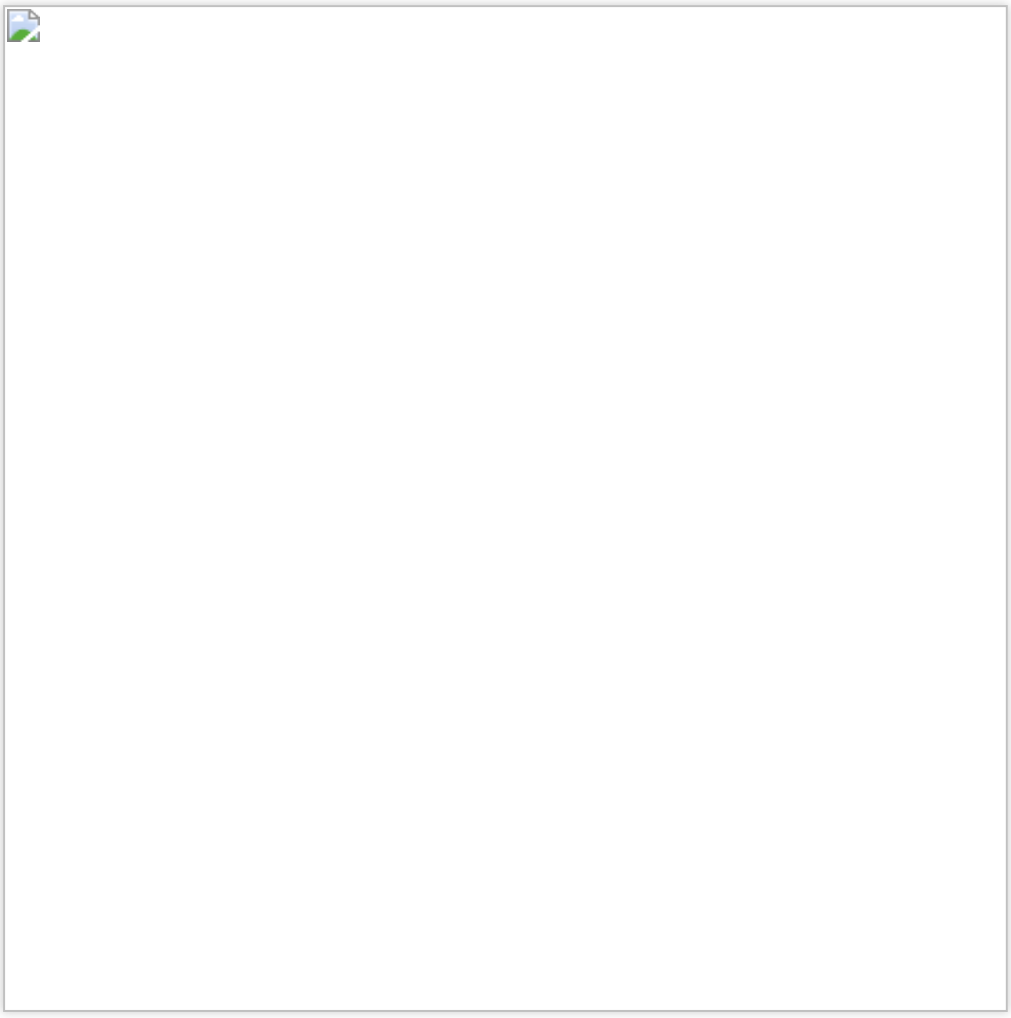
A typical effect material usually includes makeup effects, stickers, and filters.



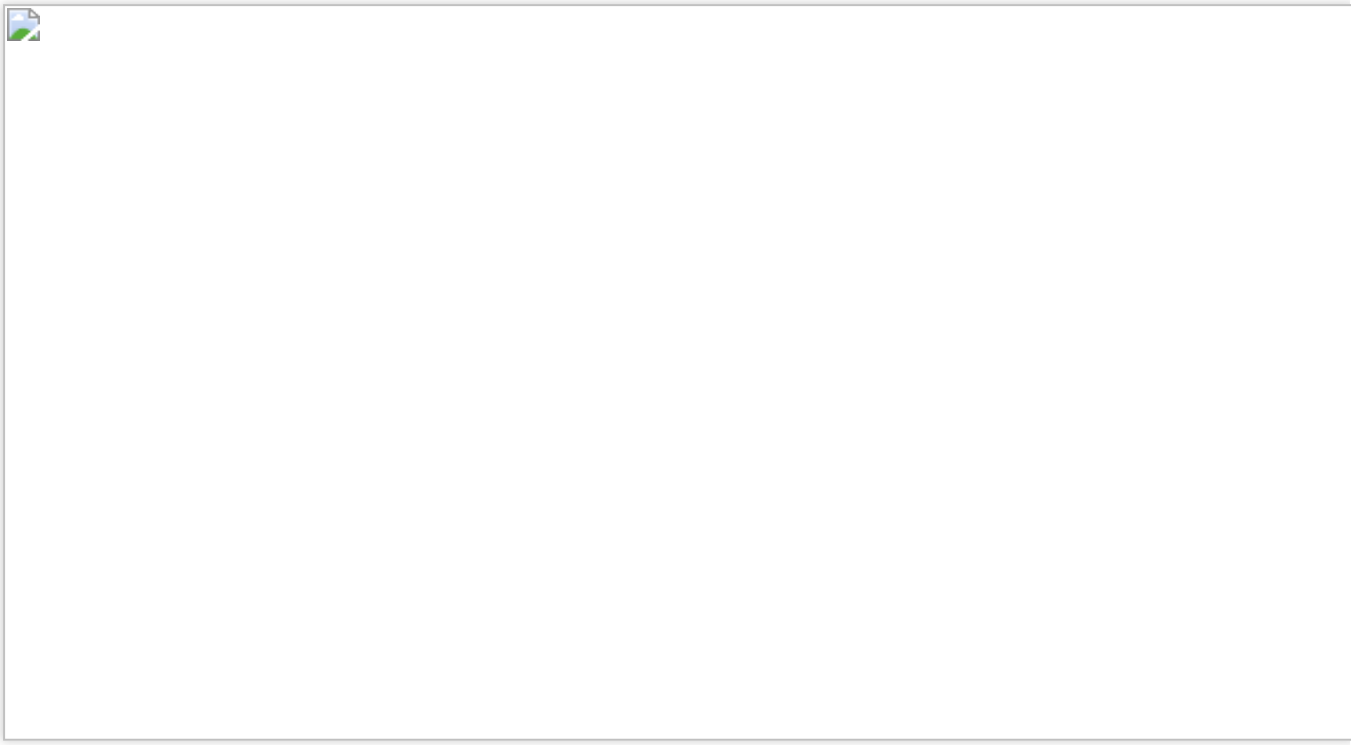
In addition to the **human face model**, we offer different PSD templates for different effect types (eye color, filters). To download the templates, just select the makeup effect you want to use at the top and then click **Download template** in the **Parameter configuration** area.



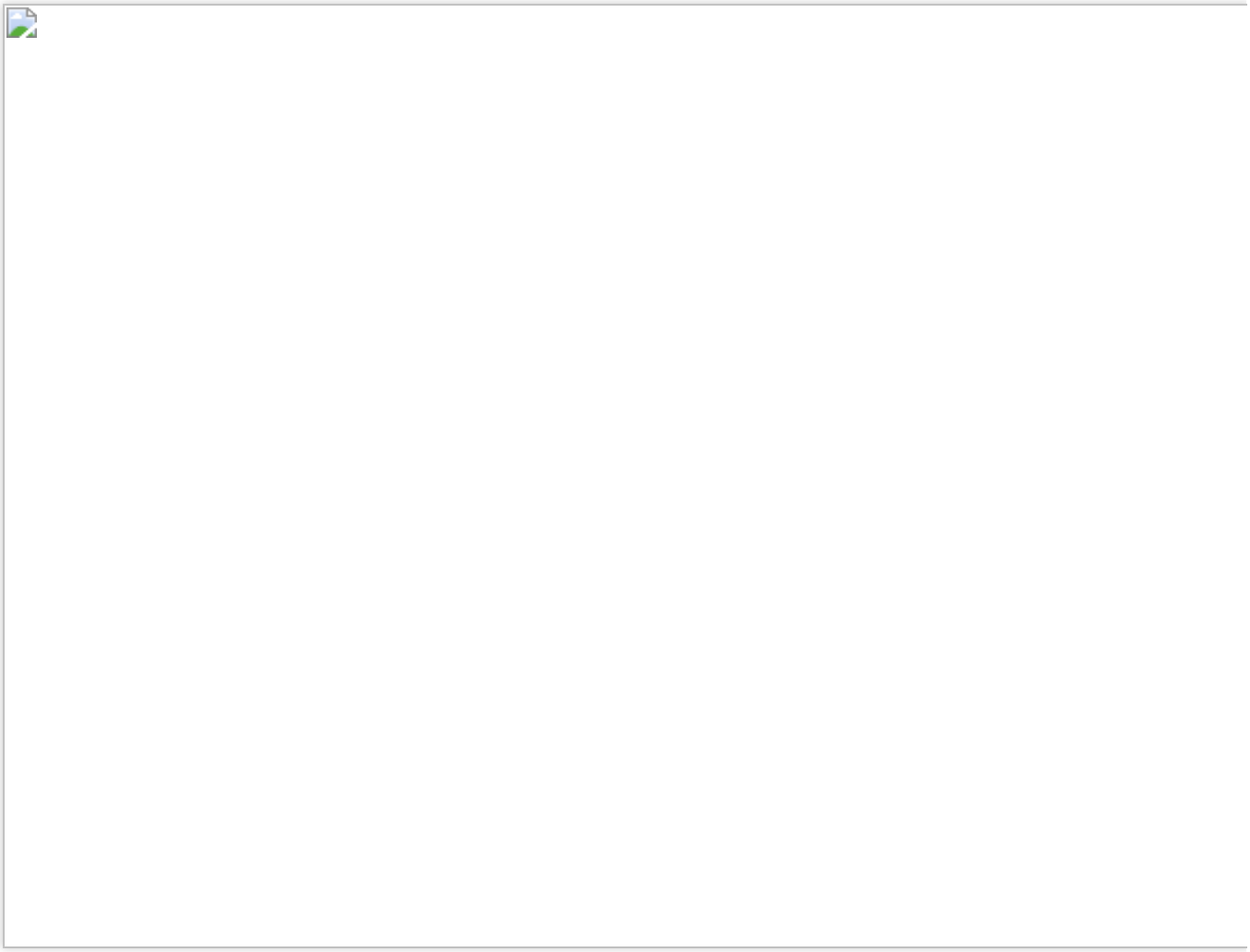
For example, after you open the PSD template with Photoshop, you can design effects for the following points of the face. The template offers different reference points. To ensure that your effect applies well to the face, you should align your material closely to the reference points.



PSD template for eye color effects:



PSD template for filters:



We do not offer a template for stickers. You can customize your own template.

Note

Please make sure your materials comply with the following requirements:

For makeup effects including lips, eyes, eyebrows, face mask, use an 800 x 800 PNG image.

For eye color, use an image with an aspect ratio of 1:1 (150 x 150 is recommended).

For stickers, the total frame count cannot exceed 100. An image smaller than 1000 x 1000 is recommended. Images larger than this will be compressed.

For filters, use the standard color card in the template. You can adjust the parameters of your filter using photo editing mobile apps such as VSCO, export the color card, and convert it to a standard LUT file in PNG format in your computer. If you are familiar with color adjustments, you can also make your filter directly in Photoshop. In either case, the final output file should be a 512 x 512 LUT file.

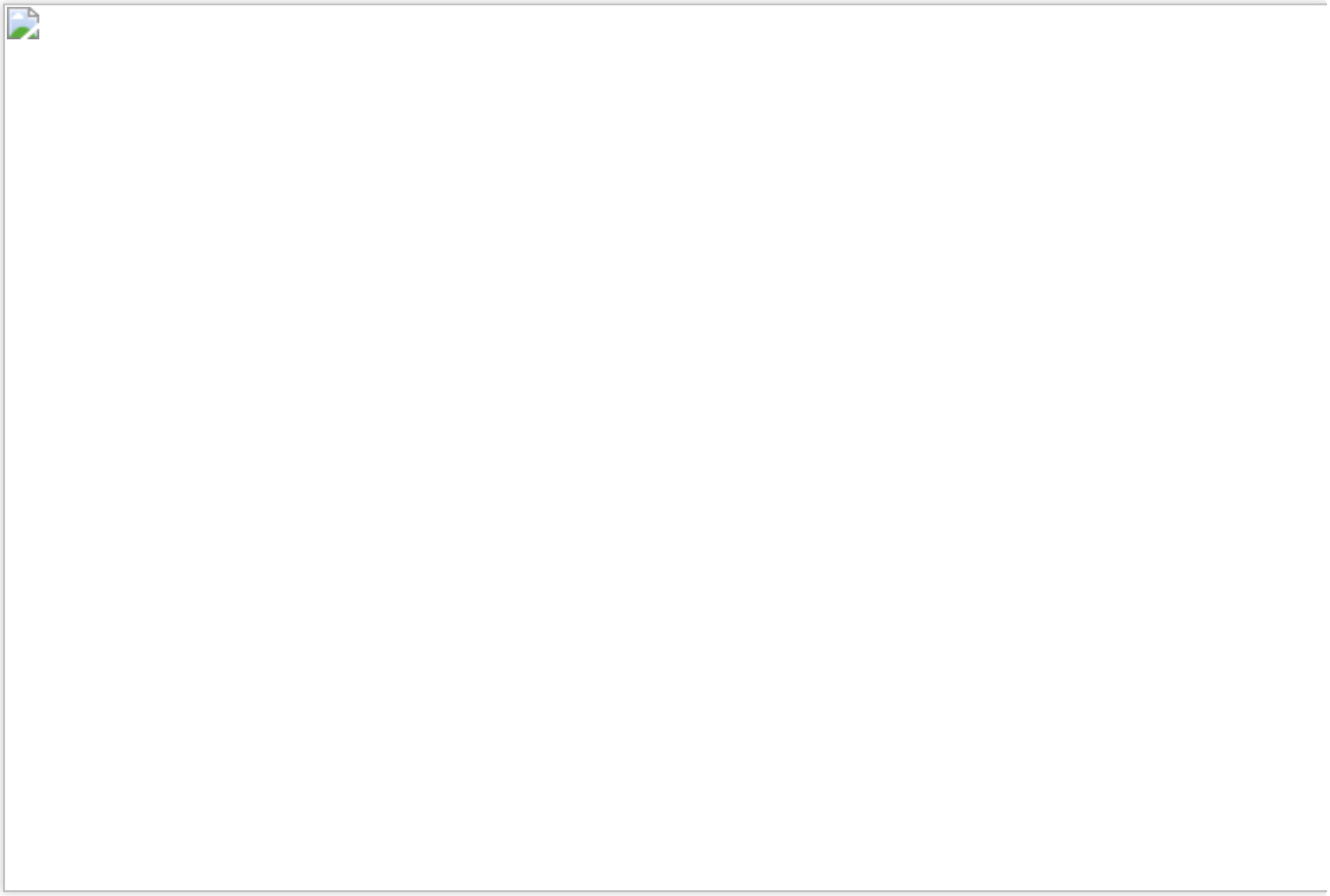
Step 3. Import your material

1. After you are finished making your material, import it to the console.

Click **Makeup** at the top, select an effect type, and upload your material in the **Parameter configuration** area.

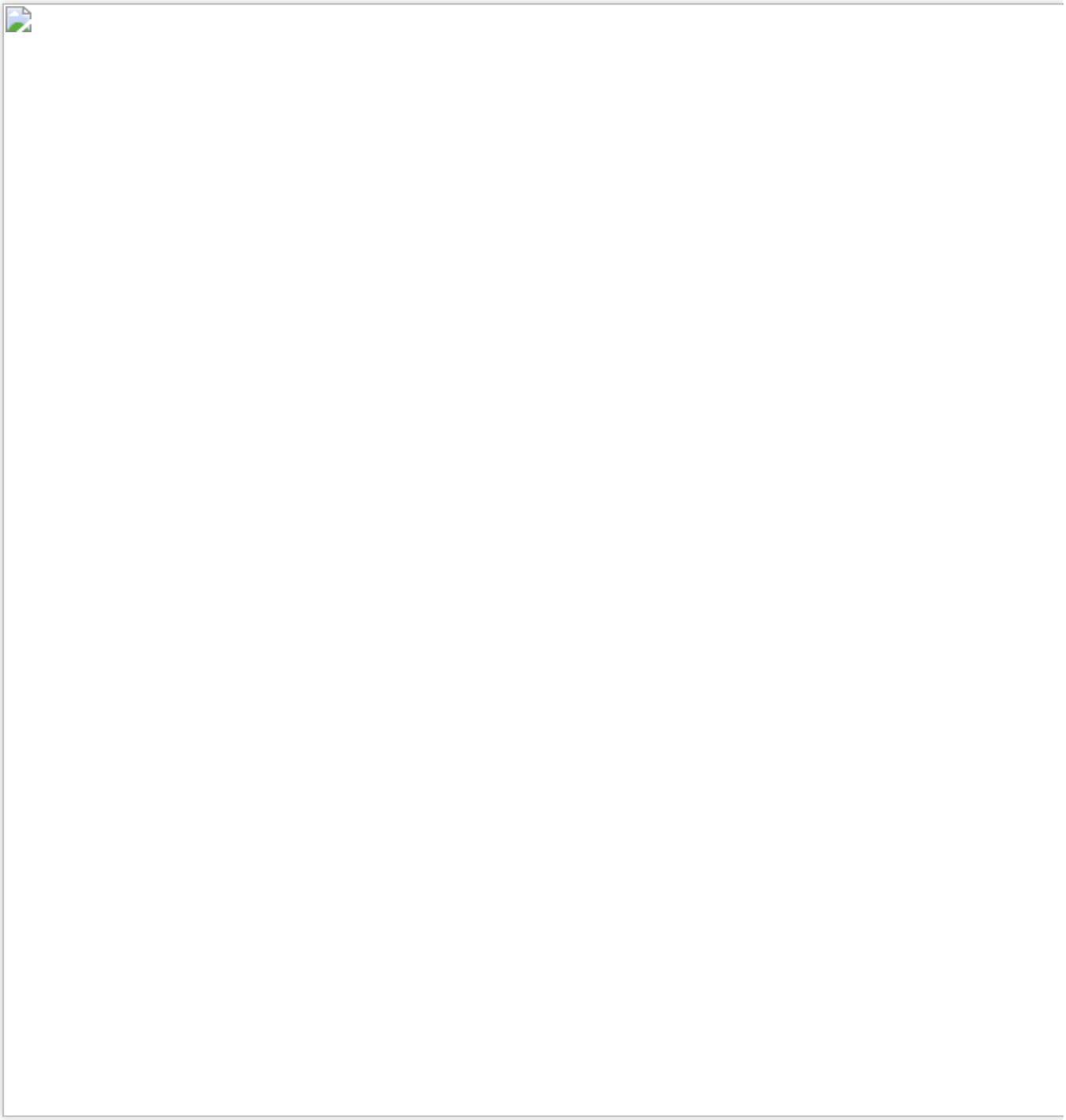
Click **Filter** at the top and upload your LUT file in the **Parameter configuration** area.

Click **Face sticker** at the top and upload the sequential frame images in the **Parameter configuration** area.
For example, if you want to replace the default eye makeup effect, select **Eyes** in the effect list, and upload your material.

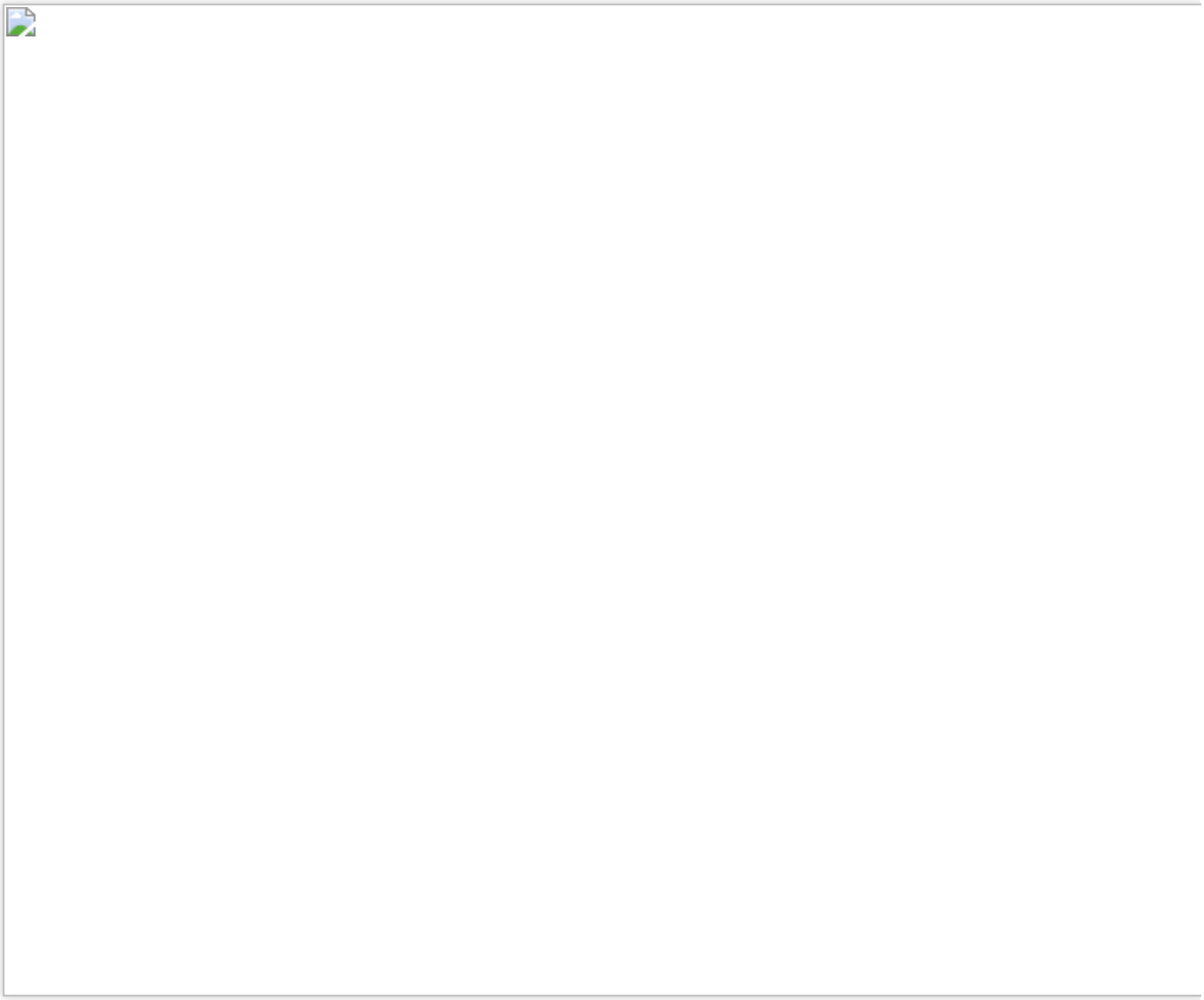


Note

We offer a **library** of common filters and makeup effects which you can use directly in your material.

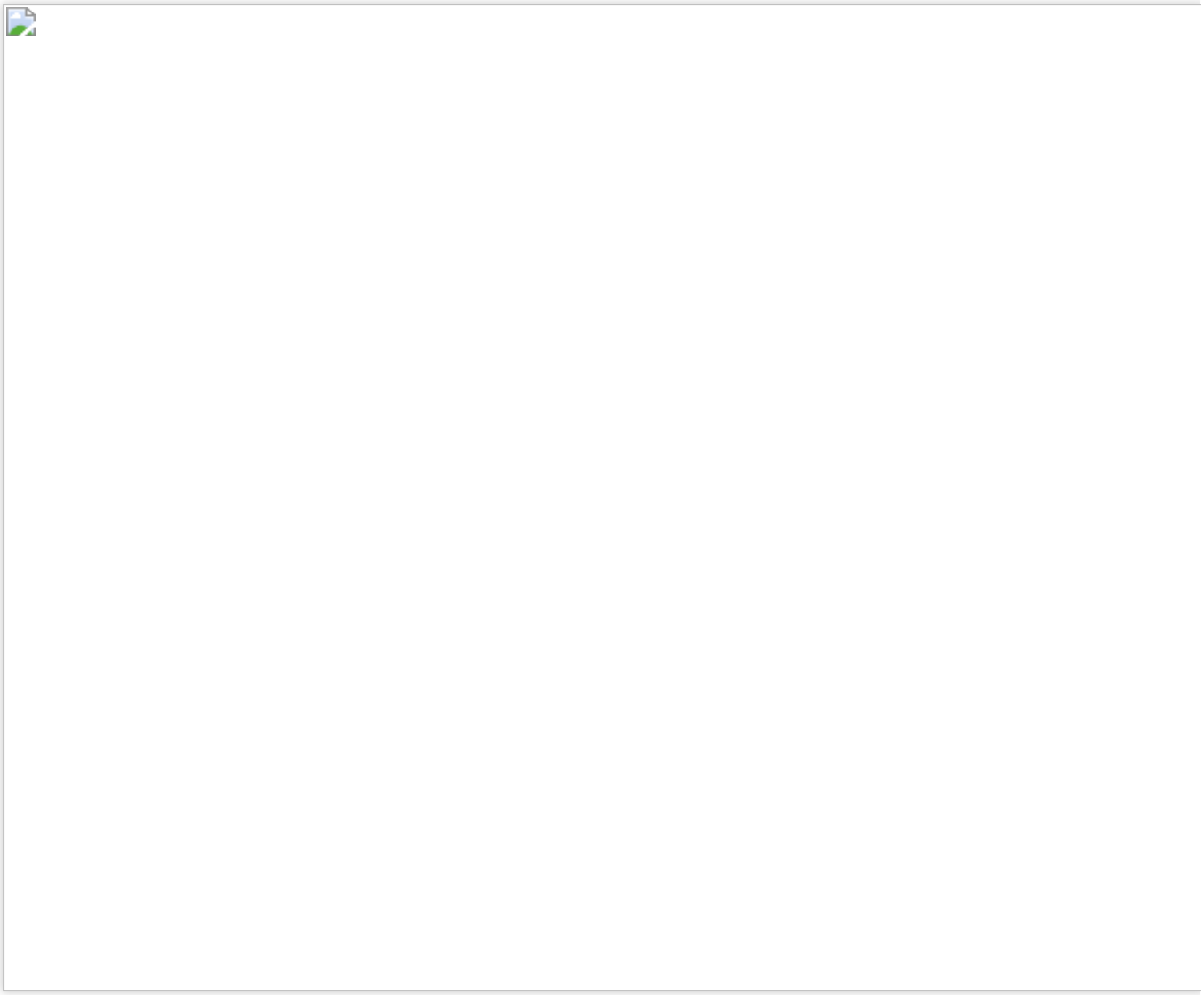


2. After you add an effect, you will find the details of the effect in the **Parameter configuration** area. You can change the parameters of the effect here, such as the **blend mode** (the same as those in Photoshop) and strength (transparency). For a sticker effect, you can also adjust its location, size, and playback speed (fps).
3.



Step 4. Export the material

1. After you are finished configuring your custom material, you can select a built-in model on the right or use the camera to preview the material.
2. If you are satisfied with the effect, click **Export** in the top right, complete the following settings, and click **Publish**.
Upload a thumbnail image for your material.
Name your material.
Select or enter labels for your material. Labels help you categorize your materials and can be used as filter conditions. For example, you can add labels according to a material's project type (`Web project` , `Mini Program project`).



Face Stickers

Last updated：2023-04-21 15:37:24

You can upload a PNG file or PNG sequence frames to the console to create your own face-tracking stickers.

Limits

We do not provide a PSD template for stickers. Just make sure your materials meet the following requirements.

Requirement	Description
Format	For static stickers, upload a single PNG image. For animated stickers, upload a sequence of **numbered** PNG images, such as `001.PNG`, `002.PNG`.
Dimensions	1000 x 1000 px or smaller is recommended.

Frame count	100 frames or fewer.
Size	A single image should not exceed 1 MB.

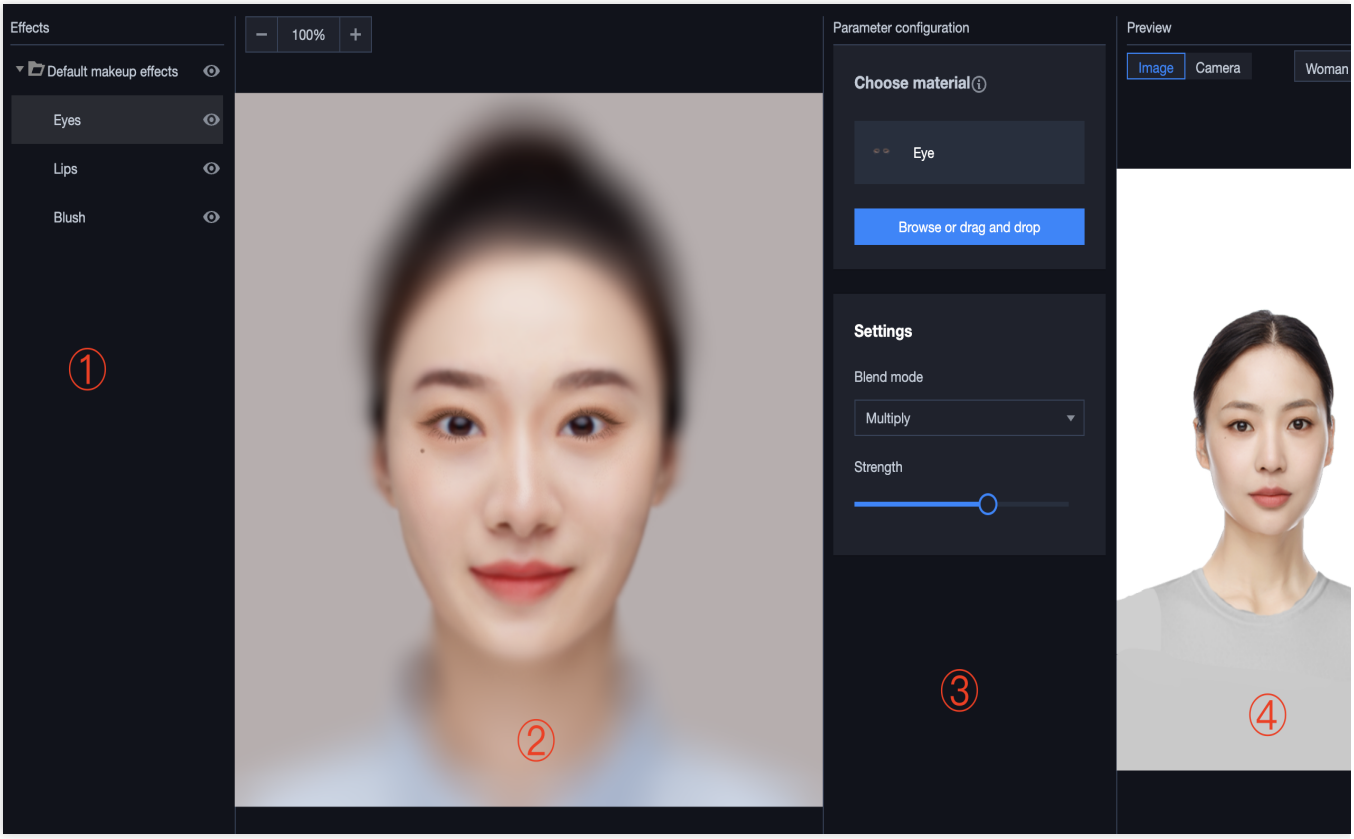
Directions

Step 1. Create your material

Create a PNG image or PNG sequence frames that meet the above requirements.

Step 2. Import the material to the console

1. Log in to the console and go to **Customize Materials**. Click **Face sticker** at the top to add a default sticker.
2. In the **Choose material** area of the **Parameter configuration** panel on the right, upload your material by either drag & drop or browse.



Step 3. Modify the parameters

You can modify the parameters of your material in two ways:

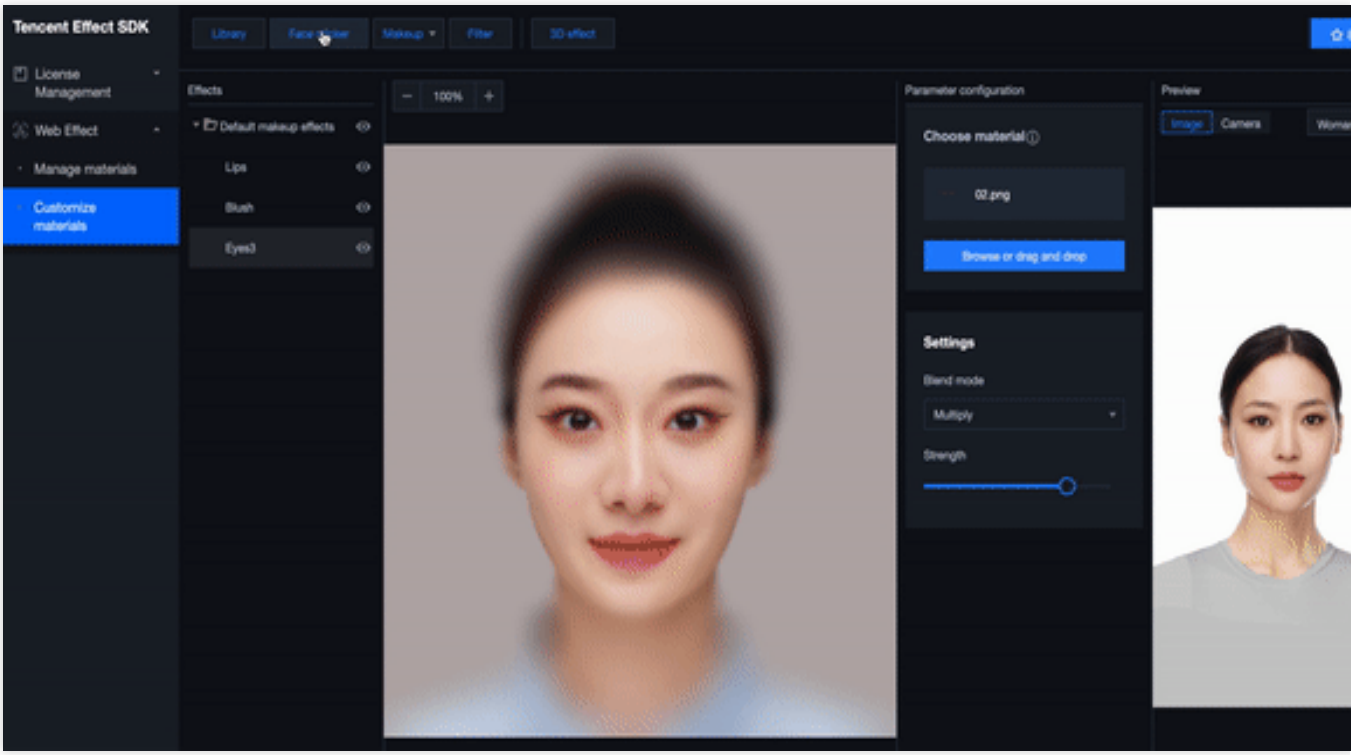
In the main panel, drag the sticker image to position it in relation to the face.

In the parameter configuration panel on the right, change settings including the **blend mode**, **strength**, **playback speed** (for sequence frames), and **anchor point**.

Note

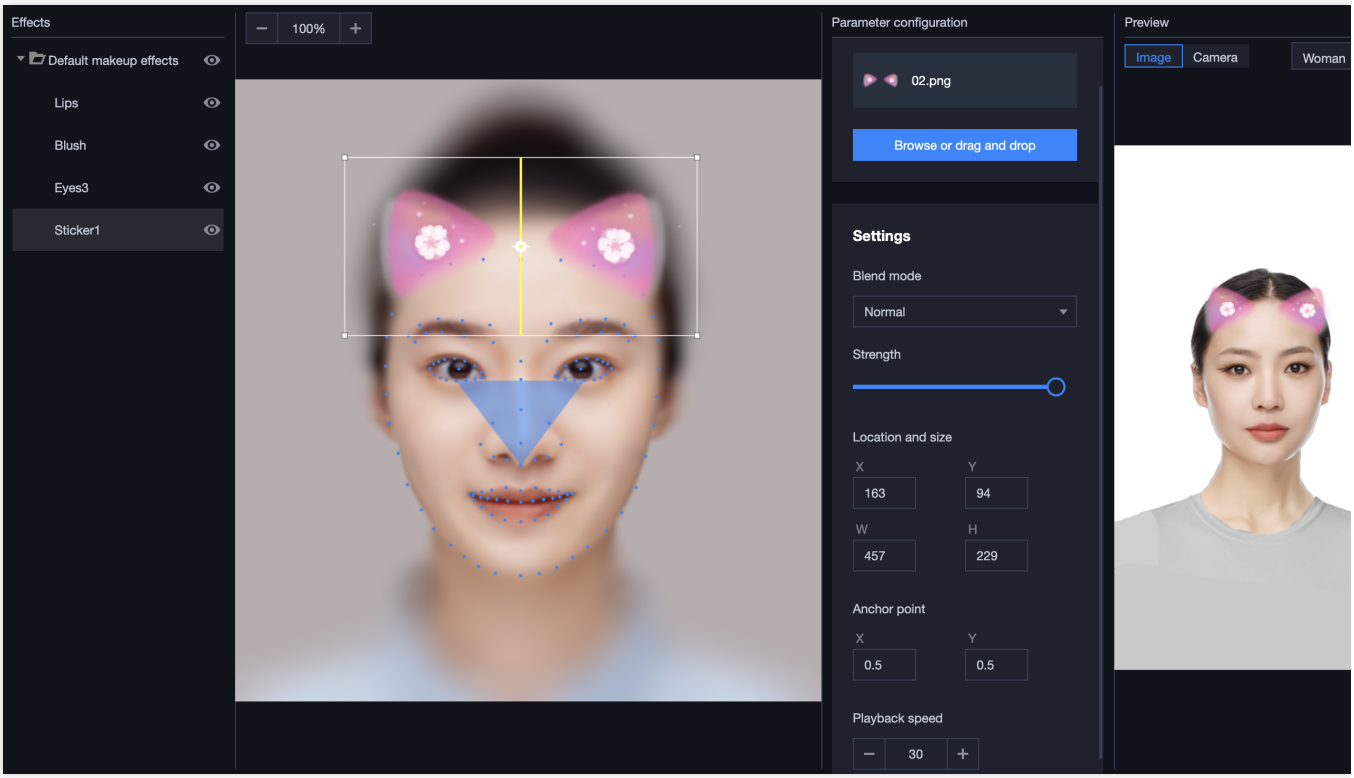
We do not recommend setting the playback speed higher than 30 fps.

Anchor point is the reference point for the sticker, which is the center of the sticker image by default. X and Y indicate the horizontal and vertical distances (in percentage) of the anchor point from the top left corner of the sticker image. For example, the default anchor point is (0.5, 0.5). If you want to use the top left corner of the sticker as the anchor point, set the parameter to (0, 0). A well-chosen anchor point makes for better tracking effects. For example, for headdress stickers, an anchor point in the forehead is recommended, and for stickers such as glasses, an anchor point along the nose bridge is recommended. You can keep exploring to find the best anchor point for your sticker.



Step 4. Preview the material

In the preview window on the right, you can preview your sticker on a built-in photo or on your device's camera.


Effects
Default makeup effects
Lips
Blush
Eyes3
Sticker1
100%
Parameter configuration
02.png
Browse or drag and drop
Settings
Blend mode
Normal
Strength
Location and size
X
Y
163
94
W
H
457
229
Anchor point
X
Y
0.5
0.5
Playback speed
30
Preview
Image
Camera
Woman

Makeup

Last updated：2024-11-12 17:47:38

Makeup feature means that the designer uploads the created PNG makeup materials to the console based on the standard reference model PSD template, thereby achieving a full-face makeup beautification effect.
Common materials include eyebrows, eyes, pupils, lips, blush, or facial contouring.

Material Specification

All materials must be created according to the standard model template. There is a separate PSD template for materials related to eye color. Various materials need to meet the following specifications:

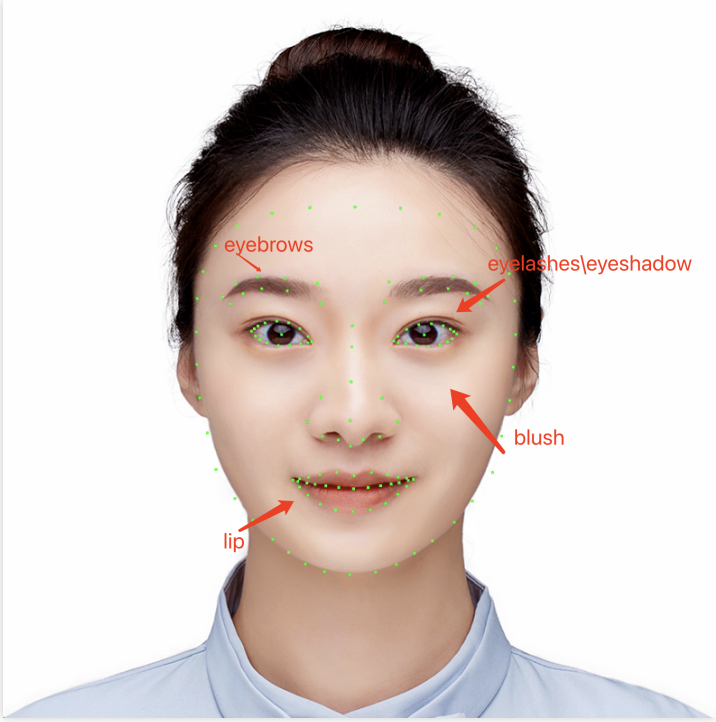
Type	Specification
Format	Transparent background PNG image

Dimensions	Standard 800 *800 square. Materials related to eye color only need to be square, with no dimensional limit. It is recommended to be less than 150* 150.
Size	A single image material shall not exceed 1 M.

Directions

Step 1: Creating Materials

1. After the standard template is downloaded, open it with PS to see the facial features and contours marked with key facial recognition points.



2. Create a new layer. After the parts of the material to be drawn are determined, draw the relevant material along the key points, such as eyebrow makeup and eye makeup, with each material on a separate layer.
3. Hide other layers including the template face, keep only the layer where the current material is located, and export a PNG image that meets the above Material Specification.

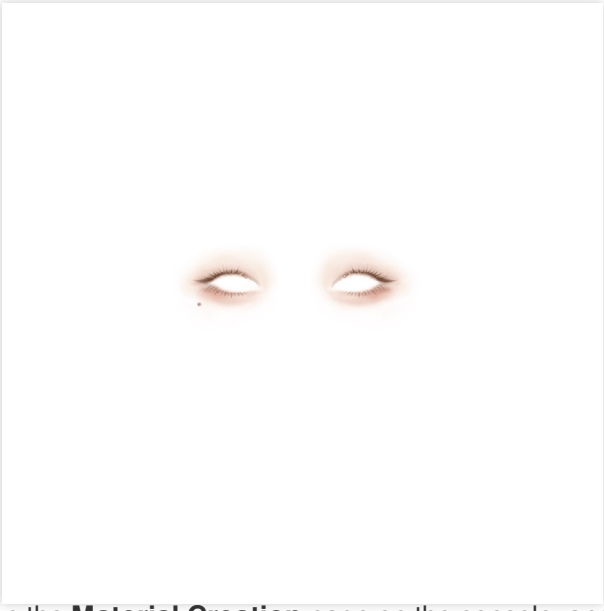
Note:

When exporting the material, restore the **Blending Mode** to **Normal**, set the transparency to **100%**, and then export the PNG material for use in the console. This is because the blending mode and transparency of the final material are uniformly set in the console.

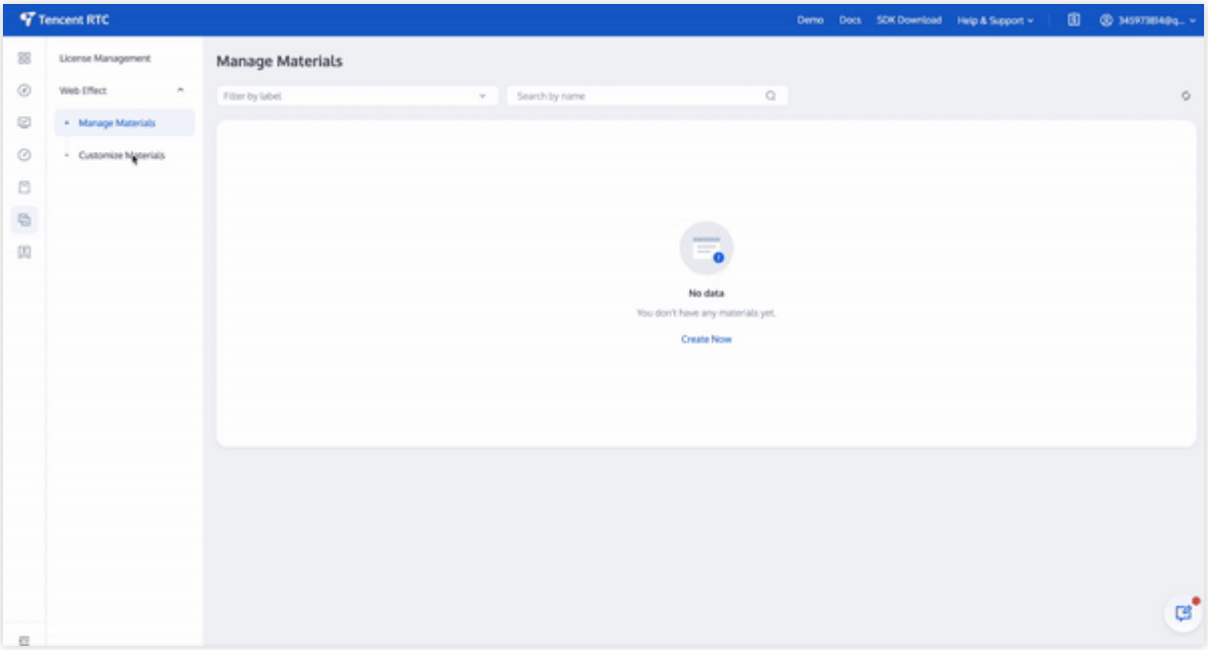
Material creation requires a high level of PS skill usage. It is recommended that professional designers create the materials.

Step 2: Importing into the Console

Taking **Makeup - Eye Makeup** as an example, a created eye makeup material is shown below:



1. Open the **Material Creation** page on the console, and select **Eye Makeup** in the **Material Information** area on the left.
2. In the **Material Resources** section of the **Parameter Panel** on the right, drag in or click **Select** to upload the PNG material image you created and import it into the console.



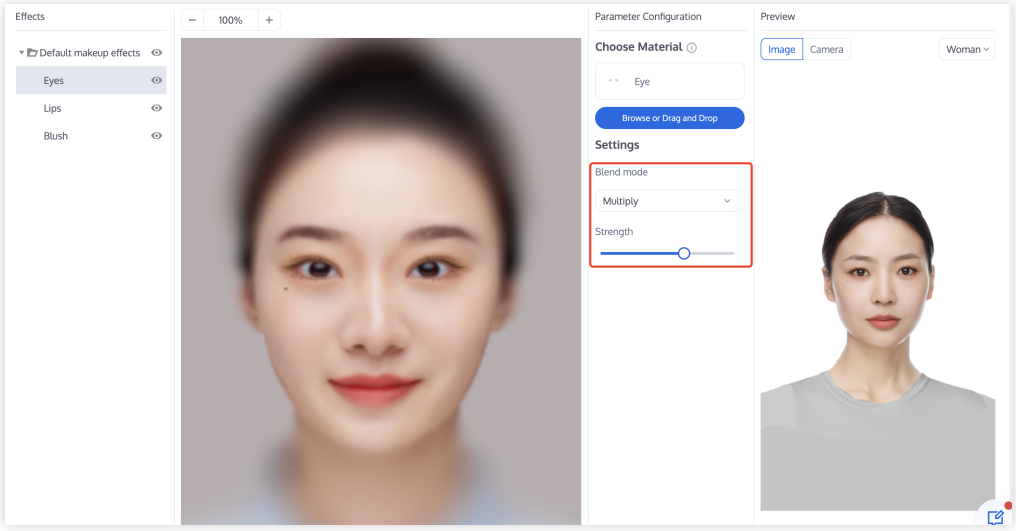
Note:

If the mask sticker involves the mouth, there is no effect of opening or closing the mouth. If you want to achieve the effect of opening or closing the mouth, the mask has a similar action effect, such as an animal mask, and you need to

use the **Lip Makeup** effect to achieve it. The method of creating materials does not change. Just choose **Lip Makeup** when importing the material.

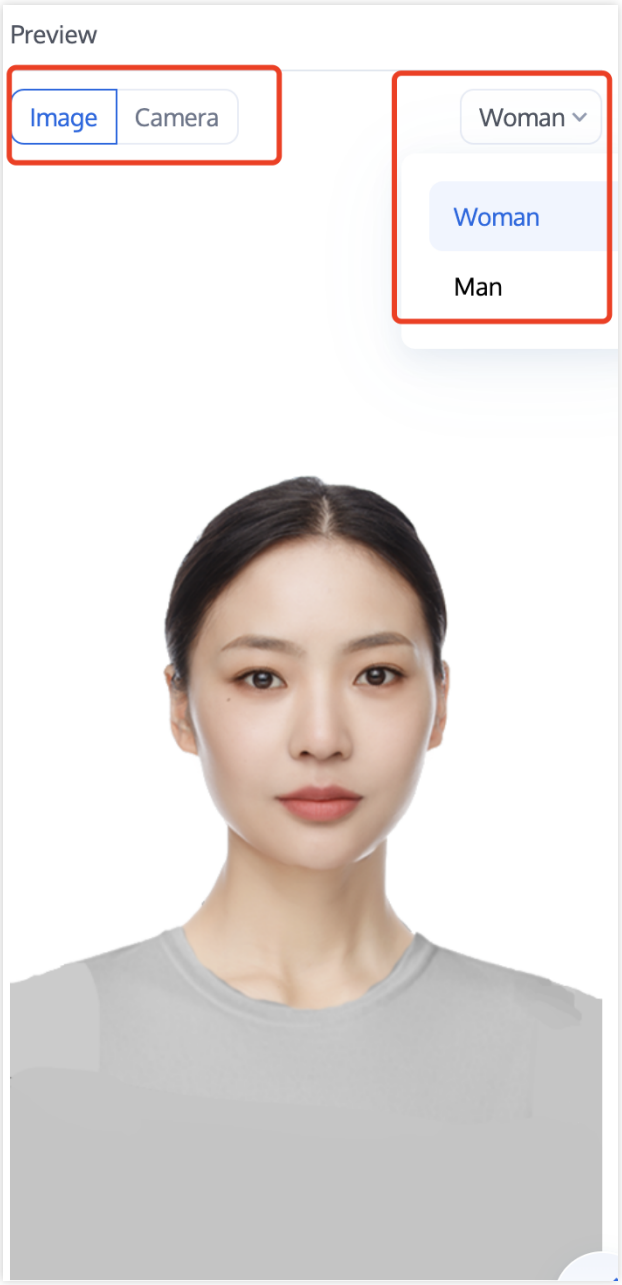
Step 3: Adjusting Material Parameters

You can adjust the material's **Blending Mode** and **Intensity (Transparency)** parameters in the **Parameter Panel** area to achieve the desired effect.



Step 4: Previewing the Effect

In the preview window on the right, you can preview the effect of materials overlaid on the built-in model face, and you can also switch to the computer camera to view the effect on your own face.



Material management

Last updated：2023-06-21 16:56:21

The Manage materials page of **Beauty AR Web** in the **RT-Cube console** displays the effect materials customized in the console and allows you to view, filter, add, delete, and edit materials.

Viewing materials

The material form allows you to preview thumbnails of materials and displays attributes such as name, label, and creation time.

Filtering materials

The material form allows you to filter materials by attribute. You can filter materials by **name** and **label**. Fuzzy match is supported when filtering by name.

Editing labels

You can add multiple labels to materials and edit labels of custom materials on the **Manage materials** page. When you hover over a material display card, the edit icon will be visible in the top-right corner, and you can click it to add or delete labels. Labels help you manage materials more easily, and good label settings help you better display materials and use them through the SDK more conveniently.

Deleting a material

Custom materials can be deleted. When you hover over a material display card, the delete icon will appear in the top-right corner of the card. To delete the material, click **Delete** and then confirm the operation. Please be cautious when deleting materials, as a material cannot be recovered after you delete it.

Demos

Last updated：2024-05-08 16:34:16

The Beauty AR Web SDK is supported on multiple platforms such as PC web, mobile browser. You can click the link below to try out the demo.

Platform	Address	Runtime Environment
Web	Click here to try	We recommend that you use desktop Chrome 90 or later in a PC environment. For mobile, we recommend that you use the latest version of Safari or Chrome.

Practical Tutorial
Publishing with Cloud Streaming Service(CSS) and WebRTC

Last updated：2024-09-09 10:28:23

Before You Start

Please read the integration guide for Beauty AR Web.
Please read Getting Started and WebRTC Push to complete the basic settings and learn how to publish streams over WebRTC.

Directions

Step 1. Import the Beauty AR Web SDK

Add the following JavaScript script into the webpage (desktop) from which streams are to be published:

```
<script charset="utf-8" src="https://webar-static.tencent-cloud.com/ar-sdk/resource
```

Note:
The above example uses a script tag to import the SDK. You can also import it using an npm package.

Step 2. Import the WebRTC publishing resources

Add the following JavaScript script into the webpage (desktop) from which streams are to be published:

```
<script src="https://video.sdk.qcloudecdn.com/web/TXLivePusher-2.0.0.min.js" charse
```

Note:
Make sure you add the script to the body of the HTML. Adding it to the head may cause an error.

Step 3. Initialize the Beauty AR Web SDK

Sample code:

```
const { ArSdk } = window.AR;

/** ----- Authentication configuration ----- */

/**
```

```
 Tencent Cloud account's APPID
 *
 * You can view your APPID in the [Account Center](https://console.tencentcloud.com
 */
const APPID = ''; // Set it to your Tencent Cloud account APPID.

/**
 * Web LicenseKey
 *
 * Log in to the RT-Cube console and click [Web Licenses](https://console.tencentcl
 */
const LICENSE_KEY = ''; // Set it to your license key.

/**
 * The token used to calculate the signature.
 *
 * Note: This method is only suitable for debugging. In a production environment, y
 * [Signature](https://cloud.tencent.com/document/product/616/71370#.E7.AD.BE.E5.90
 */
const token = ''; // Set it to your token.

/** ---------------------- */

/**
 * Get the signature
 *
 * Note: This method is only suitable for debugging. In a production environment, y
 * Example:
 * async function () {
 *  return fetch('http://xxx.com/get-ar-sign').then(res => res.json());
 * };
 */
const getSignature = function () {
    const timestamp = Math.round(new Date().getTime() / 1000);
    const signature = sha256(timestamp + token + APPID + timestamp).toUpperCase();
    return { signature, timestamp };
};

let w = 720;
let h = 480;

// Get the input stream
const stream = await navigator.mediaDevices.getUserMedia({
    audio: true,
    video: { width: w, height: h }
})
```

```
// The basic settings for the Tencent Effect SDK
const config = {
    input: stream,
    auth: {
        licenseKey: LICENSE_KEY,
        appId: APPID,
        authFunc: getSignature
    },
    // Configure the initial effects (optional)
    beautify: {
        whiten: 0.1, // The brightening effect. Value range: 0-1.
        dermabrasion: 0.5, // The smooth skin effect. Value range: 0-1.
        lift: 0.3, // The slim face effect. Value range: 0-1.
        shave: 0, // The V shape effect. Value range: 0-1.
        eye: 0, // The big eyes effect. Value range: 0-1.
        chin: 0, // The chin effect. Value range: 0-1.
        ……
    },
    language: 'en',
    ……
}

// Pass `config` to the Tencent Effect SDK
const ar = new ArSdk(config);

// You can display the effect and filter list in the `created` callback.
ar.on('created', () => {
    // Get the built-in makeup effects and stickers
    ar.getEffectList({
        Type: 'Preset'
    }).then((res) => {
        const list = res.map(item => ({
            "name": *item.Name,
            id: item.EffectId,
            cover: item.CoverUrl,
            url: item.Url,
            label: item.Label,
            type: item.PresetType,
        }));

        const makeupList = list.filter(item=>item.label.indexOf('Makeup')>=0)
        const stickerList = list.filter(item=>item.label.indexOf('Sticker')>=0)
        // Show the makeup and sticker lists
        renderMakeupList(makeupList);
        renderStickerList(stickerList);

    }).catch((e) => {
```

```
        console.log(e);
    });
    // Get the built-in filters
    ar.getCommonFilter().then((res) => {
        const list = res.map(item => ({
            "name": *item.Name,
            id: item.EffectId,
            cover: item.CoverUrl,
            url: item.Url,
            label: item.Label,
            type: item.PresetType,
        }));

        // Show the filter list
        renderFilterList(list);

    }).catch((e) => {
        console.log(e);
    });
});

ar.on('ready', async (e) => {

    // After receiving the `ready` callback, you can call `setBeautify`, `setEffect

    // For example, you can use `range input` to set the smooth skin effect:
    $('#dermabrasion_range_input').change((e) => {
        ar.setBeautify({
            dermabrasion: e.target.value, // The smooth skin effect. Value range: 0
        });
    });

    // In the `created` callback, apply the effects based on user interactions with
    $('#makeup_list li').click(() => {
        ar.setEffect([{id: effect.id, intensity: 1}]);
    });
    $('#sticker_list li').click(() => {
        ar.setEffect([{id: effect.id, intensity: 1}]);
    });

    // In the `created` callback, apply the filter based on user interactions with
    ar.setFilter(filterList[0].id, 1);
    $('#filter_list li').click(() => {
        ar.setFilter(filter.id, 1);
    });

    // Get the output stream of the Tencent Effect SDK
```

```
    const arStream = await ar.getOutput();

});

ar.on('error', (e) => {
    console.log(e);
});
```

To learn more about UI control, you can download our code package at the end of this document.

Step 4. Publish the stream

After getting the output stream in the `ready` callback of the SDK, publish it over WebRTC:

```
let livePusher = new TXLivePusher()
// Set the basic stream publishing parameters (begin)
let DOMAIN = 'Your push domain'
let AppName = 'Your app name'
let StreamName = 'Your stream name'
let txSecret = 'Your txSecret'
let txTime = 'Your txTime'
// Set the basic stream publishing parameters (end)

let pushUrl = `webrtc://${DOMAIN}/${AppName}/${StreamName}?txSecret=${txSecret}&txT

// Set the preview (optional)
livePusher.setRenderView('id_local_video')
// Capture the stream
livePusher.startCustomCapture(arStream).then(()=>{
    // Publish the stream immediately (you can also use another API to control when
    livePusher.startPush(pushUrl)
})
```

In the above code, both `txSecret` and `txTime` need to be calculated. You can use the **address generator** of the **CSS console** to quickly generate the parameters and get the publishing URL. For detailed directions, see Address Generator.

After the stream is successfully published (`startPush), you should be able to see the video with effects applied.

Step 5. Play the stream

Note:

For the example project, you need to start the web service of your device and make sure that the HTML file can be accessed via the specified port.

If you have an available playback domain, follow the steps in Live Playback to play the stream.
If you don't have a playback domain, you can preview the stream in Stream Management of the **CSS console**.

Sample Code Package

You can download our sample code package here. The code for publishing over WebRTC is in `AR_LEB_WEB` .

Publishing with Cloud Streaming Service(CSS) and WebRTC (Preinitialization Scheme)

Last updated：2024-07-09 16:06:24

Preparations

Read Overview to learn about how to use the Beauty AR Web SDK.
For more information on WebRTC publishing, see Publishing over WebRTC. This document describes the differences in the code and process when the preinitialization scheme is used.
For more information on the preinitialization scheme, see Loading Optimization.

Getting Started

The preinitialization scheme differs from the general loading scheme mainly in that you don't need to specify the `input` or `camera` attribute when initializing the SDK; that is, instead of specifying the input data for the SDK during initialization, you later call the `initCore` API to specify the data at an appropriate location based on your needs. In this way, the resources depended on by the SDK are loaded in advance, and the `ready` event of the SDK will be triggered more quickly after `initCore` is later called, making it easier to get and display the output stream. Below is the key sample code:

Initializing SDK

```
...
let resourceReady = false
// Basic configuration parameters of the Beauty AR SDK
const config = {
    // input: stream, // Do not specify `input`.
    auth: {
        licenseKey: LICENSE_KEY,
        appId: APPID,
        authFunc: getSignature
    },
    // Initial beauty effects (optional parameters)
    beautify: {
        whiten: 0.1, // The brightening effect. Value range: 0-1.
        dermabrasion: 0.5, // The smooth skin effect. Value range: 0-1.
```

```
        lift: 0.3, // The slim face effect. Value range: 0-1.
        shave: 0, // The V shape effect. Value range: 0-1.
        eye: 0, // The big eyes effect. Value range: 0-1.
        chin: 0, // The chin shaping effect. Value range: 0-1.
        ……
    },
    language: 'en'
}

// Pass in `ar sdk` for `config`.
const ar = new ArSdk(config);
// If the `resourceReady` callback event is triggered, the resources have been comp
ar.on('resourceReady', () => {
    resourceReady = true
})
// The `ready` event will be triggered after `initCore` is called.
ar.on('ready', () => {
    // Get the output stream data of the Beauty AR SDK
    const arStream = await ar.getOutput();
    // Process the output stream
    ...
})
...
```

Triggering the `initCore` event with a user operation

```
// The following describes how to set the input stream for the preinitialization sc
function onClickStartCamera(){
    let w = 1280;
    let h = 720;

    // Get the device's input stream
    const arInputStream = await navigator.mediaDevices.getUserMedia({
        audio: true,
        video: {
            width: w,
            height: h
        }
    });
    if(!resourceReady){ // In this mode, calling `initCore` will have no effect if
        return
    }
    // Set the input stream data of the Beauty AR SDK
    ar.initCore({
        input: arInputStream
    })
```

```
}
```

Sample Code

You can download the sample code, decompress it, and view the `AR_and_LEB_Preload.html` file in the `AR_LEB_WEB` code directory.

Publishing Using TRTC (Version 4.x)

Last updated：2024-12-20 17:00:27

Note：

This tutorial is based on the 4.x TRTC Web SDK. If you are using the 5.x version of the SDK, please refer to this tutorial.

Before You Start

Please read the integration guide for Beauty AR Web.

Follow the steps in Integration (No UI) to integrate the TRTC web SDK.

Try running a TRTC web demo in your local project.

Directions

Step 1. Import the Beauty AR Web SDK

You can import the Beauty AR Web SDK by making some minor changes to the import method in the TRTC web demo.

Add the following JavaScript script to your webpage (desktop):

```
<script charset="utf-8" src="https://webar-static.tencent-cloud.com/ar-sdk/resource
```

Note:

The above example uses a script tag to import the SDK. You can also import it using an npm package.

Step 2. Understand the stream initialization logic of TRTC

1. TRTC's demo project shows you how a local stream is initialized. The API `createStream` is used to create a stream object. In the example below, the SDK's default capturing mode is used.

```
// Capture audio and video from the mic and camera for the local stream
const localStream = TRTC.createStream({ userId, audio: true, video: true });
localStream.initialize().then(() => {
 console.log('initialize localStream success');
 // The local stream was initialized successfully. You can call `Client.publish(loc
.catch(error => {
 console.error('failed initialize localStream ' + error);
});
```

This is the most common local stream initialization method.

2. `TRTC.createStream` also allows you to use an external audio/video source for the local stream so that you can use your own custom processing on the stream (such as applying beautification effects to the video). Below is an example:

```
// Get the custom stream
const stream = await this.ar.getOutput();

// Use the audio/video source to create a local stream object
const audioTrack = stream.getAudioTracks()[0];
const videoTrack = stream.getVideoTracks()[0];
const localStream = TRTC.createStream({ userId, audioSource: audioTrack, videoSourc
localStream.initialize().then(() => {
 console.log('initialize localStream success');
 // The local stream was initialized successfully. You can call `Client.publish(loc
.catch(error => {
 console.error('failed initialize localStream ' + error);
});
```

For detailed directions on how to use `createStream`, see TRTC SDK documentation.

3. To process the local stream using Tencent Effect, you need to use the second method above. Before you call `getMyStream`, initialize the Beauty AR Web SDK first.

Step 3. Initialize the Beauty AR Web SDK

Sample code:

```
const { ArSdk } = window.AR

/** ----- Authentication configuration ----- */

/**
 * The APPID of your Tencent Cloud account.
 *
 * You can view your APPID in the [Account Center](https://console.tencentcloud.com
 */
const APPID = ''; // Set it to your Tencent Cloud account APPID.

/**
 * Web LicenseKey
 *
 * Log in to the RT-Cube console and click [Web Licenses](https://console.tencentcl
 */
const LICENSE_KEY = ''; // Set it to your license key.

/**
```

```
 * The token used to calculate the signature.
 *
 * Note: This method is only suitable for debugging. In a production environment, y
 * [Signature](https://cloud.tencent.com/document/product/616/71370#.E7.AD.BE.E5.90
 */
const token = ''; // Set it to your token.

/** ---------------------- */

/**
 * Get the signature
 *
 * Note: This method is only suitable for debugging. In a production environment, y
 ** Example:
 * async function () {
 *  return fetch('http://xxx.com/get-ar-sign').then(res => res.json());
 * };
 */
const getSignature = function () {
    const timestamp = Math.round(new Date().getTime() / 1000);
    const signature = sha256(timestamp + token + APPID + timestamp).toUpperCase();
    return { signature, timestamp };
};

let w = 1280;
let h = 720;

// The basic settings for the Tencent Effect SDK
const config = {
    camera: { //This indicates that the SDK will capture streams from the camera.
        width: 1280,
        height:720
    },
    auth: {
        licenseKey: LICENSE_KEY,
        appId: APPID,
        authFunc: getSignature
    },
    // Configure the initial effects (optional)
    beautify: {
        whiten: 0.1, // The brightening effect. Value range: 0-1.
        dermabrasion: 0.5, // The smooth skin effect. Value range: 0-1.
        lift: 0.3, // The slim face effect. Value range: 0-1.
        shave: 0, // The V shape effect. Value range: 0-1.
        eye: 0, // The big eyes effect. Value range: 0-1.
        chin: 0, // The chin effect. Value range: 0-1.
    },
```

```
    language: 'en',
    ……
}

// Pass `config` to the Tencent Effect SDK
const ar = new ArSdk(config);

// You can display the effect and filter list in the `created` callback.
ar.on('created', () => {
    // Get the built-in makeup effects and stickers
    ar.getEffectList({
        Type: 'Preset'
    }).then((res) => {
        const list = res.map(item => ({
            name: item.Name,
            id: item.EffectId,
            cover: item.CoverUrl,
            url: item.Url,
            label: item.Label,
            type: item.PresetType,
        }));
        const makeupList = list.filter(item=>item.label.indexOf('Makeup')>=0)
        const stickerList = list.filter(item=>item.label.indexOf('Sticker')>=0)
        // Show the makeup and sticker lists
        renderMakeupList(makeupList);
        renderStickerList(stickerList);

    }).catch((e) => {
        console.log(e);
    });
    // Get the built-in filters
    ar.getCommonFilter().then((res) => {
        const list = res.map(item => ({
            name: item.Name,
            id: item.EffectId,
            cover: item.CoverUrl,
            url: item.Url,
            label: item.Label,
            type: item.PresetType,
        }));

        // Show the filter list
        renderFilterList(list);

    }).catch((e) => {
        console.log(e);
    });
```

```
});

ar.on('ready', (e) => {

    // After receiving the `ready` callback, you can call `setBeautify`, `setEffect

    //  For example, you can use `range input` to set the smooth skin effect:
    $('#dermabrasion_range_input').change((e) => {
        ar.setBeautify({
            dermabrasion: e.target.value, // The smooth skin effect. Value range: 0
        });
    });

    // In the `created` callback, apply the effects based on user interactions with
    $('#makeup_list li').click(() => {
        ar.setEffect([{id: effect.id, intensity: 1}]);
    });
    $('#sticker_list li').click(() => {
        ar.setEffect([{id: effect.id, intensity: 1}]);
    });

    // In the `created` callback, apply the filter based on user interactions with
    ar.setFilter(filterList[0].id, 1);
    $('#filter_list li').click(() => {
        ar.setFilter(filter.id, 1);
    });
});

ar.on('error', (e) => {
    console.log(e);
});
```

The code above shows you how to initialize the Beauty AR Web SDK, as well as how to respond to user interactions in the `ready` callback. To learn more about UI interactions, you can download the code package at the end of this document.

Step 4. Initialize a TRTC stream

After initializing the Beauty AR Web SDK, you can use `getOutput` to get the stream processed by Tencent Effect and use it to initialize a TRTC stream as described in step 2. Below is an example:

```
// Get the output stream of the Tencent Effect SDK
const arStream = await this.ar.getOutput();

const audioSource = arStream.getAudioTracks()[0];
const videoSource = arStream.getVideoTracks()[0];
```

```
// create a local stream with audio/video from custom source
this.localStream_ = TRTC.createStream({
    audioSource,
    videoSource
});
```

Step 5. Play the stream

Note:

For the example project, you need to start the web service of your device and make sure that the HTML file can be accessed via the specified port.

After entering the room, you should be able to view the stream with effects applied (`index_AR.html` in the sample code). After that, you can open a new browser tab and enter the room to simulate the entry of a new user.

Step 6. Control devices

If you use the camera video as the input stream, the Beauty AR Web SDK also offers APIs for you to control the camera.

```
const cameraApi = this.ar.camera;
// Get the device list
const devices = await cameraApi.getDevices()
console.log(devices)
// Switch to a different camera
// await cameraApi.switchDevice('video', 'your-video-device-id')
// Disable the video track
// cameraApi.muteVideo()
// Enable the video track
// cameraApi.unmuteVideo()
// Disable the audio track
// cameraApi.muteAudio()
// Enable the audio track
// cameraApi.unmuteAudio()
// Stop the camera
// cameraApi.stop()
// Restart the camera
// await cameraApi.restart()
```

Step 7. Preview effects locally

If you use the camera video as the input stream, the Beauty AR Web SDK also supports local preview.

```
// Use the built-in player of the SDK. `my-dom-id` is the ID of the player's contai
const player = await sdk.initLocalPlayer('my-dom-id')
```

```
// Play the video
await player.play()
// Pause the video
player.pause()
```

Sample Code Package

You can download our sample code package here, Sample code is located in the **TRTC_Web(4.x)** folder, The main changes are in `index_AR.html` and `rtc-client-with-webar.js` . The code for the interaction logic of Tencent Effect is in `base-js/js/ar_interact.js` . The configuration of TRTC key information is in `base-js/js/debug/GenerateTestUserSig.js` .

Publishing Using TRTC (Version 5.x)

Last updated：2024-12-20 16:58:40

Note:

This tutorial is based on the 5.x TRTC Web SDK. If you are using the 4.x version of the SDK, please refer to this tutorial.

Before You Start

Please read the integration guide for Beauty AR Web.

Follow the steps in Integration (No UI) to integrate the TRTC web SDK.

Try running a TRTC web demo in your local project.

Directions

Step 1. Import the Beauty AR Web SDK

You can import the Beauty AR Web SDK by making some minor changes to the import method in the TRTC web demo.

Add the following JavaScript script to your webpage (desktop):

```
<script charset="utf-8" src="https://webar-static.tencent-cloud.com/ar-sdk/resource
```

Note:

The above example uses a script tag to import the SDK. You can also import it using an npm package.

Step 2. Understand the stream initialization logic of TRTC

1. In the TRTC demo project, you can observe the process of joining a TRTC room. After entering the room, TRTC captures local device input using the startLocalVideo and startLocalAudio methods, creating stream objects and publishing them to the room：

```
const trtc = TRTC.create();
await trtc.enterRoom({ roomId: 8888, sdkAppId, userId, userSig });
// Collect the default microphone and publish
await trtc.startLocalAudio();
// Collect the default camera and publish
await trtc.startLocalVideo({
  view: document.getElementById("localVideo"), // Preview the video on the element
});
```

The above code describes the most basic method of capturing local audio and video streams and publishing them to a specified room.

2. TRTC provides the updateLocalVideo interface for updating video streams. We can use custom capture methods to obtain beauty-enhanced streams and pass them to this interface for use.

```
// Get the custom stream
const stream = await ar.getOutput();

// update trtc video track
await trtc.updateLocalVideo({
  option: { videoTrack: mediaStream.getVideoTracks()[0] },
});
```

3. To process the local stream using Tencent Effect, you need to initialize the Beauty AR Web SDK first.

Step 3. Initialize the Beauty AR Web SDK

Sample code:

```
const { ArSdk } = window.AR

/** ----- Authentication configuration ----- */

/**
 * The APPID of your Tencent Cloud account.
 *
 * You can view your APPID in the [Account Center](https://console.tencentcloud.com
 */
const APPID = ''; // Set it to your Tencent Cloud account APPID.

/**
 * Web LicenseKey
 *
 * Log in to the RT-Cube console and click [Web Licenses](https://console.tencentcl
 */
const LICENSE_KEY = ''; // Set it to your license key.

/**
 * The token used to calculate the signature.
 *
 * Note: This method is only suitable for debugging. In a production environment, y
 * [Signature](https://cloud.tencent.com/document/product/616/71370#.E7.AD.BE.E5.90
 */
const token = ''; // Set it to your token.

/** ---------------------- */
```

```
/**
 * Get the signature
 *
 * Note: This method is only suitable for debugging. In a production environment, y
 ** Example:
 * async function () {
 *  return fetch('http://xxx.com/get-ar-sign').then(res => res.json());
 * };
 */
const getSignature = function () {
    const timestamp = Math.round(new Date().getTime() / 1000);
    const signature = sha256(timestamp + token + APPID + timestamp).toUpperCase();
    return { signature, timestamp };
};

// get trtc video track(original)
const arInputStream = new MediaStream([trtc.getVideoTrack()]);

// The basic settings for the Tencent Effect SDK
const config = {
    input: arInputStream,
    auth: {
        licenseKey: LICENSE_KEY,
        appId: APPID,
        authFunc: getSignature
    },
    // Configure the initial effects (optional)
    beautify: {
        whiten: 0.1, // The brightening effect. Value range: 0-1.
        dermabrasion: 0.5, // The smooth skin effect. Value range: 0-1.
        lift: 0.3, // The slim face effect. Value range: 0-1.
        shave: 0, // The V shape effect. Value range: 0-1.
        eye: 0, // The big eyes effect. Value range: 0-1.
        chin: 0, // The chin effect. Value range: 0-1.
    },
    language: 'en',
    ……
}

// Pass `config` to the Tencent Effect SDK
const ar = new ArSdk(config);

// You can display the effect and filter list in the `created` callback.
ar.on('created', () => {
    // Get the built-in makeup effects and stickers
    ar.getEffectList({
        Type: 'Preset'
```

```
    }).then((res) => {
        const list = res.map(item => ({
            name: item.Name,
            id: item.EffectId,
            cover: item.CoverUrl,
            url: item.Url,
            label: item.Label,
            type: item.PresetType,
        }));
        const makeupList = list.filter(item=>item.label.indexOf('Makeup')>=0)
        const stickerList = list.filter(item=>item.label.indexOf('Sticker')>=0)
        // Show the makeup and sticker lists

    }).catch((e) => {
        console.log(e);
    });
    // Get the built-in filters
    ar.getCommonFilter().then((res) => {
        const filterList = res.map(item => ({
            name: item.Name,
            id: item.EffectId,
            cover: item.CoverUrl,
            url: item.Url,
            label: item.Label,
            type: item.PresetType,
        }));
        // Show the filter list

    }).catch((e) => {
        console.log(e);
    });
});

ar.on('ready', (e) => {

    // After receiving the `ready` callback, you can call `setBeautify`, `setEffect
    // ar.setBeautify()
    // ar.setEffect()
    // ar.setFilter()

    // update trtc video track (with AR effect)
    const mediaStream = await ar.getOutput();
    await trtc.updateLocalVideo({
      option: { videoTrack: mediaStream.getVideoTracks()[0] },
    });
});
```

```
ar.on('error', (e) => {
    console.log(e);
});
```

The above code initializes the configuration for the Web beauty effect SDK. The input for the beauty SDK is the unprocessed video stream obtained from the TRTC object's getVideoTrack interface.

Step 4. Update the TRTC stream

Once the Web beauty effect SDK is initialized, you can use the getOutput method to obtain the output stream. Then, call the TRTC instance's updateLocalVideo interface to update the local stream and publish it to the room.

```
const mediaStream = await ar.getOutput();
// update trtc video track (with AR effect)
await trtc.updateLocalVideo({
  option: { videoTrack: mediaStream.getVideoTracks()[0] },
});
```

Step 5: Run the demo to experience the effects

Note:

The example project requires you to start a local web server and ensure that the HTML file is accessible through the specified port number (the sample code is located in the **TRTC_Web(5.x)** folder, run quick-demo-js/index.html). After entering the room, you will need to wait a short moment for the beauty effect to initialize. Once initialized, you can see the actual beauty effects in action. If successful, you can open a new browser tab and enter the room you just created to simulate the effect of other participants joining the room.

Sample Code Package

You can download our sample code package here, Sample code is located in the **TRTC_Web(5.x)** folder, The main changes related to the beauty effects can be found in the **TRTC_Web(5.x)** folder, specifically in quick-demo-js/index.html and quick-demo-js/js/index.js. Please ensure you have applied for the TRTC key and the Web beauty effect license information in advance.

Using Beauty Special Effects to Process Images

Last updated：2025-04-18 15:10:03

This tutorial guides you on how to use the SDK to beautify images, apply effects, download processed images, and perform other operations in a browser.

Before You Start

Please read the Activate the Service to familiarize yourself with the license application and usage, and prepare the license.
Please read the Start Integration guide to understand the basic usage of the SDK.

Directions

Step 1. Import the Beauty AR Web SDK

Create an ar-demo.html file and include the following dependency JavaScript files.

```
<script charset="utf-8" src="https://webar-static.tencent-cloud.com/ar-sdk/resource
<script src="https://webar-static.tencent-cloud.com/docs/examples/js-sha256/0.9.0/s
```

Note：
Demo use the script tag method for inclusion. You can also refer to the methods in the integration guide to include it Start Integration.
webar-sdk.umd.js is the main package and is required.
sha256.min.js is the package used for obtaining the Signature signature, and it is included here only for demonstration purposes in the demo project.

Step 2. Initialize the Beauty AR Web SDK

Fill in the APPID, LICENSE_KEY, and token obtained from the preparation work into the example code below:

```
<img id="inputImageElement" src="https://webar-static.tencent-cloud.com/docs/test/m
<canvas id="arOutputElement" style="width: 400px;display: inline-block;margin-left:
```

```
/** ----- Authentication configuration ----- */

/**
```

```
 * Tencent Cloud account's APPID
 *
 * You can view your APPID in the [Account Center](https://console.tencentcloud.com
 */
const APPID = ''; // Set it to your Tencent Cloud account APPID.

/**
 * Web LicenseKey
 *
 * obtained from Before You Start
 */
const LICENSE_KEY = ''; // Set it to your license key.

/**
 * The token used to calculate the signature.
 *
 * Note: This method is only suitable for debugging. In a production environment, y
 * https://trtc.io/zh/document/68777?platform=web&product=beautyar#cf3401f9-e22e-4f
 */
const token = ''; // Set it to your token.

/** ---------------------- */

/**
 * Get the signature
 *
 * Note: This method is only suitable for debugging. In a production environment, y
 * https://trtc.io/zh/document/68777?platform=web&product=beautyar#e4ce3483-41f7-43
 */
const getSignature = function () {
    const timestamp = Math.round(new Date().getTime() / 1000);
    const signature = sha256(timestamp + token + APPID + timestamp).toUpperCase();
    return { signature, timestamp };
};
const inputImageElement = document.getElementById('inputImageElement');
const arOutputElement = document.getElementById('arOutputElement');
// ar sdk config
const config = {
    module: {
        beautify: true,
    },
    auth: {
        licenseKey: LICENSE_KEY,
        appId: APPID,
        authFunc: getSignature
    },
    input: inputImageElement, // input image element
```

```
    output: arOutputElement, // output canvas element
    beautify: { // default Beautify config
        "eye": 0.5,
        "whiten": 0.4,
        "dermabrasion": 0.6,
        "lift": 0.1,
        "shave": 0.2,
    },
}

// init ArSdk
const { ArSdk } = window.AR;
const arSdk = new ArSdk(config);
arSdk.on('error', (e) => {
    console.log(e);
});
```

Step 3. Update Input Image

you can select an image file using the input tag and call the `updateInputImage` interface to update the image.

```
<input type="file" id="imageInput" accept="image/*" style="display: none;">
```

```
const imageInput = document.getElementById('imageInput');
imageInput.addEventListener('change', function () {
    const file = this.files[0];
    if (file) {
        const reader = new FileReader();
        reader.onload = function (event) {
            inputImageElement.src = event.target.result;
            inputImageElement.onload = function () {
                arSdk.updateInputImage({
                    width: inputImageElement.width,
                    height: inputImageElement.height,
                    input: inputImageElement,
                })
            };
        };
        reader.readAsDataURL(file);
    }
});
```

Step 4. Set Beautify、Makeup、Effect

Use the `setBeautify` interface to apply beauty effects, and the `setEffect` interface to apply makeup, face stickers, and other effect.

```
// set effect
function setMakeUp() {
    if (!arSdk) return
    arSdk.setEffect([{
        id: 'CE82819618A6CDA3', // makeup、effect id
        intensity: 0.8
    }])
}
// clear effect
function clearMakeUp() {
    if (!arSdk) return
    arSdk.setEffect(null)
}

// set beautify
function setBeautify() {
    if (!arSdk) return
    arSdk.setBeautify({
        "eye": Math.random() * 1,
        "whiten": Math.random() * 1,
        "dermabrasion": Math.random() * 1,
        "lift": Math.random() * 1,
        "shave": Math.random() * 1,
    })
}
// clear beautify
function clearBeautify() {
    if (!arSdk) return
    arSdk.setBeautify({
        "eye": 0,
        "whiten": 0,
        "dermabrasion": 0,
        "lift": 0,
        "shave": 0,
    })
}
```

Step 5. Download Image

Use the `takePhoto` interface to obtain the processed image ImageData, render it to the canvas, and download it.

```
<canvas id="photoCanvas" style="display: none;"></canvas>
<button id="downloadImage">Download Image</button>
```

```
const downloadImage = document.getElementById('downloadImage');
downloadImage.addEventListener('click', async () => {
    if (!arSdk) {
        alert('Please initAR first～')
        return
    }
    const imageData = await arSdk.takePhoto();
    photoCanvas.width = imageData.width;
    photoCanvas.height = imageData.height;

    const context = photoCanvas.getContext("2d");
    context.putImageData(imageData, 0, 0);
    const base64Image = photoCanvas.toDataURL("image/png");
    const a = document.createElement("a");
    a.href = base64Image;
    a.download = "downloadedImage.png";
    document.body.appendChild(a);
    a.click();
    document.body.removeChild(a);
})
```

Step 6. Run Demo

Start a local server service and access the specified port.

Here, we use the serve module as an example. Run `serve .` in the directory where the demo is located.

Seeing the following output indicates that the local server service has started successfully.

```
    Serving!                                          |
   |                                                  |
   |   - Local:            http://localhost:57965     |
   |   - On Your Network:  http://10.91.28.94:57965   |
   |                                                  |
   |   This port was picked because 5000 is in use.   |
   |                                                  |
   |   Copied local address to clipboard!
```

Access the specified port in Chrome to preview the effect.

Note:

The demo requires access to the browser's **camera** and **microphone** permissions. Please ensure that the page you are accessing has been granted these permissions.

The complete code snippet is as follows. Before running, please fill in the APPID, LICENSE_KEY, and token-related information in the code.

```
<!DOCTYPE html>
<html lang="en">

<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Image Upload and Display</title>
</head>

<body>
    <div>
        step1: <button id="initAR">Init AR SDK</button>
        </br>
        step2: <button id="selectAndProcess">Update Input Image</button>
    </div>
    <div>
        step3: <button onclick="setMakeUp()">Set Makeup</button>
        <button onclick="clearMakeUp()">Clear Makeup</button>
        <button onclick="setBeautify()">Set Beautify</button>
        <button onclick="clearBeautify()">Clear Beautify</button>
    </div>
    <div>
        step4: <button id="downloadImage">Download Image</button>
    </div>
    <input type="file" id="imageInput" accept="image/*" style="display: none;">
    <br>
    <img id="inputImageElement" src="https://webar-static.tencent-cloud.com/docs/te
    <canvas id="arOutputElement" style="display: inline-block;"></canvas>
    <canvas id="photoCanvas" style="display: none;"></canvas>
    <script charset="utf-8" src="https://webar-static.tencent-cloud.com/ar-sdk/reso
    </script>
    <script src="https://webar-static.tencent-cloud.com/docs/examples/js-sha256/0.9
    <script>
        let arSdk;
        // todo：Enter the license information
        const APPID = "";
        const LICENSE_KEY = "";
        const token = "";
        const getSignature = function () {
            const timestamp = Math.round(new Date().getTime() / 1000);
            const signature = sha256(timestamp + token + APPID + timestamp).toUpper
            return {
                signature,
                timestamp
```

```
        };
    };
    const selectAndProcess = document.getElementById('selectAndProcess');
    const imageInput = document.getElementById('imageInput');
    const downloadImage = document.getElementById('downloadImage');
    const inputImageElement = document.getElementById('inputImageElement');
    const initArBtn = document.getElementById('initAR');
    const arOutputElement = document.getElementById('arOutputElement');
    const photoCanvas = document.getElementById('photoCanvas');
    initArBtn.addEventListener('click', async () => {
        arSdk = await getInstance();
        alert('Init AR SDK Success!!!')
    })
    selectAndProcess.addEventListener('click', () => {
        if (!arSdk) {
            alert('Please click initAR to init AR SDK')
            return
        }
        imageInput.click();
    })
    downloadImage.addEventListener('click', async () => {
        if (!arSdk) {
            alert('Please click initAR to init AR SDK')
            return
        }
        const imageData = await arSdk.takePhoto();
        photoCanvas.width = imageData.width;
        photoCanvas.height = imageData.height;

        const context = photoCanvas.getContext("2d");
        context.putImageData(imageData, 0, 0);
        const base64Image = photoCanvas.toDataURL("image/png");
        const a = document.createElement("a");
        a.href = base64Image;
        a.download = "downloadedImage.png";
        document.body.appendChild(a);
        a.click();
        document.body.removeChild(a);
    })
    imageInput.addEventListener('change', function () {
        const file = this.files[0];
        if (file) {
            const reader = new FileReader();
            reader.onload = function (event) {
                inputImageElement.src = event.target.result;
                inputImageElement.onload = function () {
                    arSdk.updateInputImage({
```

```
                        width: inputImageElement.width,
                        height: inputImageElement.height,
                        input: inputImageElement,
                    })
                };

            };
            reader.readAsDataURL(file);
        }
    });

    function setMakeUp() {
        if (!arSdk) return
        arSdk.setEffect([{
            id: 'CE82819618A6CDA3', // makeup、effect id
            intensity: 0.8
        }])
    }

    function clearMakeUp() {
        if (!arSdk) return
        arSdk.setEffect(null)
    }

    function clearBeautify() {
        if (!arSdk) return
        arSdk.setBeautify({
            "eye": 0,
            "whiten": 0,
            "dermabrasion": 0,
            "lift": 0,
            "shave": 0,
        })
    }

    function setBeautify() {
        if (!arSdk) return
        arSdk.setBeautify({
            "eye": Math.random() * 1,
            "whiten": Math.random() * 1,
            "dermabrasion": Math.random() * 1,
            "lift": Math.random() * 1,
            "shave": Math.random() * 1,
        })
    }
    async function getInstance() {
        if (arSdk) {
```

```
            return Promise.resolve(arSdk)
        }
        const config = {
            module: {
                beautify: true,
                segmentation: false
            },
            auth: {
                licenseKey: LICENSE_KEY,
                appId: APPID,
                authFunc: getSignature
            },
            input: inputImageElement,
            output: arOutputElement,
            beautify: {
                "eye": Math.random() * 1,
                "whiten": Math.random() * 1,
                "dermabrasion": Math.random() * 1,
                "lift": Math.random() * 1,
                "shave": Math.random() * 1,
            },
        }
        return new Promise((resolve) => {
            const sdk = new window.AR.ArSdk(config)
            sdk.on('resourceReady', async () => {
                // get makeuplist
                sdk.getEffectList({
                    Type: 'Preset',
                    Label: 'Makeup',
                }).then((res) => {
                    const list = res.map(item => ({
                        name: item.Name,
                        id: item.EffectId,
                        cover: item.CoverUrl,
                        url: item.Url,
                        label: item.Label,
                        type: item.PresetType,
                    }));
                    console.log('makeuplist', list)
                })
                resolve(sdk)
            })
            sdk.on('ready', () => {

            })
            sdk.on('error', (e) => {
                console.log(e);
```

```
                    });
                })
            }
        </script>

</body>

</html>
```

Using Beauty AR Web with Mini Program

Last updated：2023-04-21 15:34:37

Preparations

For how to get started with Mini Program development, see the Weixin Mini Program document.
Read Overview to learn about how to use the Beauty AR Web SDK.

Directions

Step 1. Configure a domain allowlist on the Mini Program backend

As the SDK will request the backend to perform authentication and load resources, after creating your Mini Program, you need to configure a domain allowlist on the backend.
1. Open the Mini Program backend and go to **Development** > **Development Management** > **Development Settings** > **Server Domain Name**.
2. Click **Modify**, configure the following domain names and save them.
Request domain names:

```
https://webar.qcloud.com;
https://webar-static.tencent-cloud.com;
https://aegis.qq.com;
The URL of the authentication signature API (`get-ar-sign`)
```

downloadFile domain name:

```
https://webar-static.tencent-cloud.com
```

Step 2. Install and build the npm package

For information about Mini Program npm packages, see Using npm in Mini Program.
1. Install:

```
npm install tencentcloud-webar
```

2. Build:
Open Weixin DevTools and select **Tools** > **Build npm** on the topbar.
3. Configure the path of `workers` in `app.json`:

```
"workers": "miniprogram_npm/tencentcloud-webar/worker"
```

Step 3. Import the files

```
// The import method for versions earlier than 0.3.0 (one file)
// import "../../miniprogram_npm/tencentcloud-webar/lib.js";
// The import method for v0.3.0 or later (two files and the 3D module (optional))
import '../../miniprogram_npm/tencentcloud-webar/lib.js';
import '../../miniprogram_npm/tencentcloud-webar/core.js';
// Initialize the 3D plugin (optional)
import '../../miniprogram_npm/tencentcloud-webar/lib-3d.js';
import { plugin3d } from '../../miniprogram_npm/tencentcloud-webar/plugin-3d'
// Import `ArSdk`
import { ArSdk } from "../../miniprogram_npm/tencentcloud-webar/index.js";
```

Note

Because Mini Program has a 500 KB limit for file size, the SDK is provided as two JS files.

Starting from v0.3.0, the SDK is further split to support 3D. The 3D module can be loaded as needed. Before import, check your SDK version and use the corresponding import method.

Step 4. Initialize the SDK

Note

Before initializing the SDK, you need to configure the Mini Program `APPID` in the RT-Cube console as instructed in Getting Started.

You need to insert the `camera` tag to open the camera and then set the camera parameters as detailed in Overview.

Mini Program does not support `getOutput`, so you need to pass in an onscreen WebGL canvas. The SDK will output images onto this canvas.

Sample code:

```
// wxml
// Open the camera and hide it by setting `position`
<camera
  device-position="{{'front'}}"
  frame-size="large" flash="off" resolution="medium"
  style="width: 750rpx; height: 134rpx;position:absolute;top:-9999px;"
/>
// The SDK outputs the processed image to the canvas in real time.
<canvas
  type="webgl"
  canvas-id="main-canvas"
  id="main-canvas"
  style="width: 750rpx; height: 1334rpx;">
</canvas>
```

```
// Take a photo and draw the `ImageData` object onto the canvas
<canvas
  type="2d"
  canvas-id="photo-canvas"
  id="photo-canvas"
  style="position:absolute;width:720px;height:1280px;top:-9999px;left:-9999px;">
</canvas>
// js
/** ----- Authentication configuration ----- */

/**
 * Your Tencent Cloud account's APPID
 *
 * You can view your APPID in the [Account Center](https://console.cloud.tencent.co
 */
const APPID = ''; // Enter your APPID

/**
 * Web LicenseKey
 *
 * On the [Web Licenses](https://console.cloud.tencent.com/vcube/web) page of the R
 */
const LICENSE_KEY = ''; // Enter the license key of your project

/**
 * The token used to calculate the signature
 *
 * Note: The sample code is for demo debugging only. In the production environment,
 * [Signature algorithm](https://cloud.tencent.com/document/product/616/71370#.E7.A
 */
const token = ''; // Enter your token

Component({
    data: {
        makeupList: [],
        stickerList: [],
        filterList: [],
        recording: false
    },
    methods: {
        async getCanvasNode(id) {
            return new Promise((resolve) => {
                this.createSelectorQuery()
                    .select(`#${id}`)
                    .node()
                    .exec((res) => {
                        const canvasNode = res[0].node;
```

```
                    resolve(canvasNode);
                });
        });
    },
    getSignature() {
        const timestamp = Math.round(new Date().getTime() / 1000);
        const signature = sha256(timestamp + token + APPID + timestamp).toUpper
        return { signature, timestamp };
    },
    // Initialize the camera type
    async initSdkCamera() {
        // Get the onscreen canvas. The SDK will output the processed image to
        const outputCanvas = await this.getCanvasNode("main-canvas");
        // Get the authentication information
        const auth = {
            licenseKey: LICENSE_KEY,
            appId: APP_ID,
            authFunc: this.getSignature
        };
        // Construct SDK initialization parameters
        const config = {
            auth,
            camera: {
                width:720,
                height:1280,
            },
            output: outputCanvas,
            // Initial beauty effects (optional)
            beautify: {
                whiten: 0.1, // The brightening effect. Value range: 0-1.
                dermabrasion: 0.3, // The smooth skin effect. Value range: 0-1.
                lift: 0, // The slim face effect. Value range: 0-1.
                shave: 0, // The V shape effect. Value range: 0-1.
                eye: 0.2, // The big eyes effect. Value range: 0-1.
                chin: 0, // The chin effect. Value range: 0-1.
            }
        };
        const ar = new ArSdk(config);
        // The list of built-in effects and filters can be obtained in the `cre
        ar.on('created', () => {
            // Get the list of built-in makeup effects and stickers
            ar.getEffectList({
                Type: 'Preset'
            }).then((res) => {
                const list = res.map(item => ({
                    "name": *item.Name,
                    id: item.EffectId,
```

```
                    cover: item.CoverUrl,
                    url: item.Url,
                    label: item.Label,
                    type: item.PresetType,
                }));
                const makeupList = list.filter(item=>item.label.indexOf('makeup
                const stickerList = list.filter(item=>item.label.indexOf('stick
                // Render the list of effects
                this.setData({
                    makeupList,
                    stickerList
                });
            }).catch((e) => {
                console.log(e);
            });
            // Built-in filters
            ar.getCommonFilter().then((res) => {
                const list = res.map(item => ({
                    "name": *item.Name,
                    id: item.EffectId,
                    cover: item.CoverUrl,
                    url: item.Url,
                    label: item.Label,
                    type: item.PresetType,
                }));
                // Render the list of filters
                this.setData({
                    filterList: list
                });
            }).catch((e) => {
                console.log(e);
            });
        });
        // You can set beauty filters and effects in the `ready` callback.
        ar.on('ready', (e) => {
            this._sdkReady = true
        });

        ar.on('error', (e) => {
            console.log(e);
        });

        this.ar = ar
    },
    // Change the beauty effects. Make sure the SDK is ready.
    onChangeBeauty(val){
        if(!this._sdkReady) return
```

```
            // You can set beauty effects through `setBeautify`. Six attributes are
            this.ar.setBeautify({
                dermabrasion: val.dermabrasion, // The smooth skin effect. Value ra
            });
        },
        // Change the makeup style. Make sure the SDK is ready.
        onChangeMakeup(id, intensity){
            if(!this._sdkReady) return
            // Use `setEffect` to configure the effect. Its input parameters can be
            this.ar.setEffect([{id, intensity}]);
        },
        // Change the sticker. Make sure the SDK is ready.
        onChangeSticker(id, intensity){
            if(!this._sdkReady) return
            // Use `setEffect` to configure the effect. Its input parameters can be
            this.ar.setEffect([{id, intensity}]);
        },
        // Change the filter. Make sure the SDK is ready.
        onChangeFilter(id, intensity){
            if(!this._sdkReady) return
            // Use `setFilter` to configure the filter. The second parameter indica
            this.ar.setFilter(id, 1);
        }
    }
})
```

Step 5. Implement the photo capturing and shooting features

Sample code:

Photo

Shooting

The SDK will return an object containing the width, height, and buffer data, and you can draw the data on the preset 2D canvas (in the above code, `id` is `photo-canvas`.) on your page and export it as an image file.

```
async takePhoto() {
    const {uint8ArrayData, width, height} = this.ar.takePhoto(); // The `takePhoto`
    const photoCanvasNode = await this.getCanvasNode('photo-canvas');
    photoCanvasNode.width = parseInt(width);
    photoCanvasNode.height = parseInt(height);
    const ctx = photoCanvasNode.getContext('2d');
    // Create an `ImageData` object with the data returned by the SDK
    const imageData = photoCanvasNode.createImageData(uint8ArrayData, width, height
    // Draw the `ImageData` object onto the canvas
    ctx.putImageData(imageData,0,0,0,0,width,height);
    // Save the canvas as a local image
    wx.canvasToTempFilePath({
```

```
            canvas: photoCanvasNode,
            x: 0,
            y: 0,
            width: width,
            height: height,
            destWidth: width,
            destHeight: height,
            success: (res) => {
                // Save the photo
                wx.saveImageToPhotosAlbum({
                    filePath: res.tempFilePath
                });
            }
        })
    }
```

```
Component({
    methods: {
        // Start shooting
        startRecord() {
            this.setData({
                recording: true
            });
            this.ar.startRecord()
        }
        // Stop shooting
        async stopRecord() {
            const res = await this.ar.stopRecord();
            // Save the video
            wx.saveVideoToPhotosAlbum({
                filePath: res.tempFilePath
            });
            this.setData({
                recording: false
            });
        }
    }
})
```

When the Mini Program is switched to the background or the screen is locked, call `stopRecord` to stop shooting. When the page is opened again, start the SDK again.

```
onShow() {
    this.ar && this.ar.start();
},
onHide() {
```

```
    this.ar && this.ar.stop();
},
async onUnload() {
    try {
        this.ar && this.ar.stop();
        if (this.data.recording) {
            await this.ar.stopRecord({
                destroy: true,
            });
        }
    } catch (e) {
    }
    this.ar && this.ar.destroy();
}
```

Sample Code Package

You can download our sample code package here. The code for Mini Program is in `ar-miniprogram` .

FAQs

Last updated：2024-05-08 16:34:16

This document answers questions you may encounter when using Beauty AR Web.

What should I do if the image is upside down and lags when I run the demo in Chrome?

As the SDK uses the GPU for acceleration, you need to toggle on **Use hardware acceleration when available** in the browser's settings.

Can I use the Beauty AR Web SDK to beautify live streams published in a web live streaming application?

Yes. The SDK can work as an intermediate rendering processor for live streaming. It supports multiple input/output sources. For information about how to easily extend your web application and quickly implement beauty filters and effects, see Publishing over WebRTC and Publishing with TRTC.

Will my signature service be frequently called?

No, because the SDK internally has a signature caching mechanism. You can also customize the return logic in your own `getSignature` method, as long as the signature algorithm is compliant.

Will the effect displayed after the call to the SDK differ from the effect previewed in the customization tool in the console?

No. The effect that is rendered from the SDK is the same as the effect previewed in the customization tool; in other words, what you see in the preview is the same effect you will see in the actual production environment.

How do I use the `localhost` for local development?

You can create a trial license and specify the `localhost` and port number in the domain (with a port limit). Alternatively, you can purchase an official license. During the validity period of the official license, you can use the `localhost` for local development (with no port limit).

Why is "streamurl authentication failed" displayed in the console after LEB publishing failed?

This is usually because the signature expired. You need to generate a new signature for publishing. For details about the format of publishing URLs, see Splicing Live Streaming URLs.

Why is an error reported when I call `getEffectList` to pull material resources?

This is usually because the timing of the call is incorrect. Be sure to **call** `getEffectList` **when or after the** `created` **API of the SDK is called back**. At that point, the business interaction logic can be implemented based

on the material data. For the specific use cases, see Best Practices.

Why does echo occur when I preview the video effect after web is connected to the built-in camera of the SDK?

When audio is turned on for local preview and played back, the audio will be captured by the mic and used as the audio source of the built-in camera, which causes echo. To solve this problem, mute the preview video.

```
const output = await sdk.getOutput()
const video = document.createElement('video')
document.body.appendChild(video)

video.setAttribute('muted', '')
video.volume = 0
video.srcObject = output
```

Why does the SDK report an authentication failure and the API returns 401?

The SDK internally requests a signature through the `getSignature` method passed through by the parameter and authentication from the backend. It will automatically retry once after the timestamp of the signature expires and will report an error and block all subsequent processes if the retry fails. You can check the logic of `getSignature` to see if the timestamp (valid for five minutes) expires or the signature generation logic is incorrect.