

视频点播

服务端 SDK 参考

文档版本 01
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1 SDK 概述

VOD SDK 概述

VOD SDK是对点播服务接口请求的封装，请您在使用SDK前务必先查看点播服务的接口文档，了解相关接口的功能、参数、规则和使用方法。

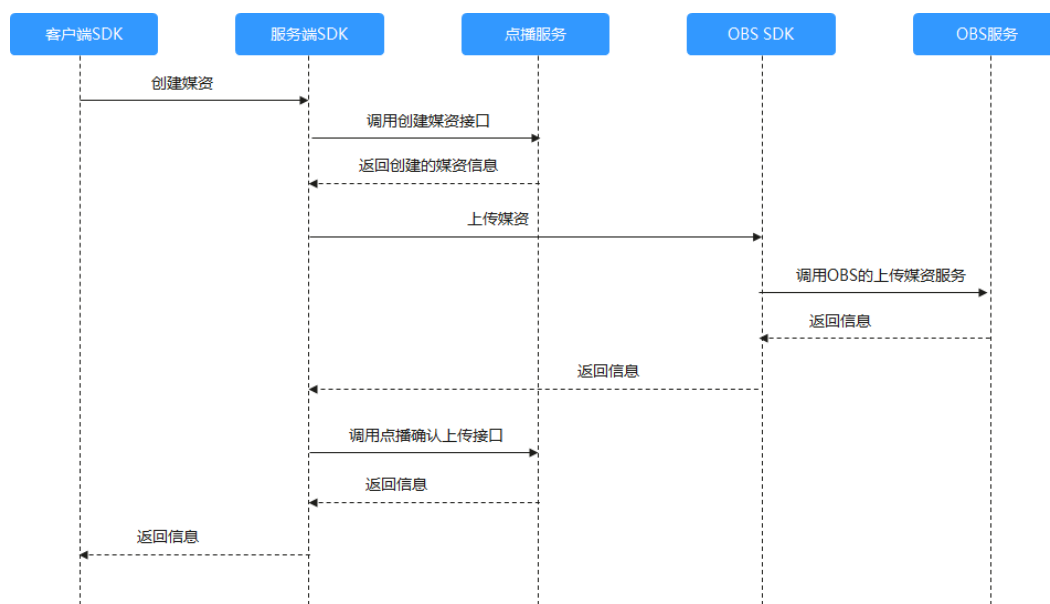
原SDK 2.x版本已全面下线，现推出全新设计的V3版本SDK。最新版本的SDK支持 **Java、Python、Go、NodeJs、.Net、PHP和C++**开发语言，您可以登录[SDK中心](#)下载对应开发语言的SDK。

集成开发流程



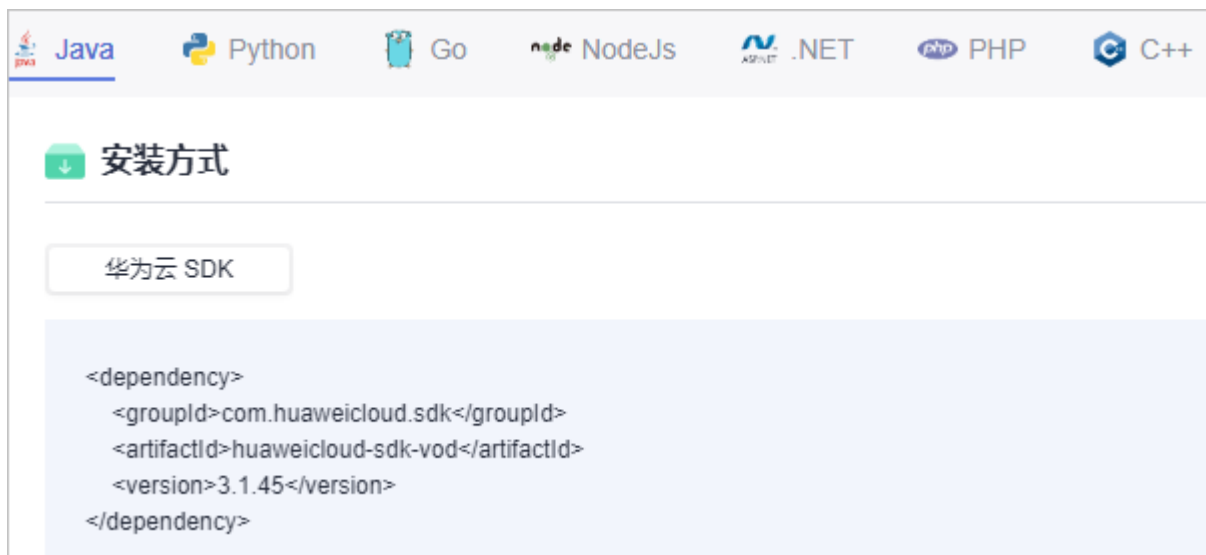
SDK 工作流程

除点播服务SDK外，服务端SDK与其它SDK的交互关系如下：



2 SDK 下载

华为云视频点播服务提供了Java、Python、Go、NodeJs、.Net、PHP和C++语言版本的服务端SDK，您可以在[SDK中心](#)下载如下对应语言的SDK。



The screenshot shows a web interface for downloading SDKs. At the top, there are navigation tabs for various programming languages: Java, Python, Go, NodeJs, .NET, PHP, and C++. The 'Java' tab is currently selected. Below the tabs, there is a section titled '安装方式' (Installation Method) with a green download icon. Underneath, there is a button labeled '华为云 SDK' (Huawei Cloud SDK). Below the button, there is a code block containing XML dependency information for the SDK.

```
<dependency>  
  <groupId>com.huaweicloud.sdk</groupId>  
  <artifactId>huaweicloud-sdk-vod</artifactId>  
  <version>3.1.45</version>  
</dependency>
```

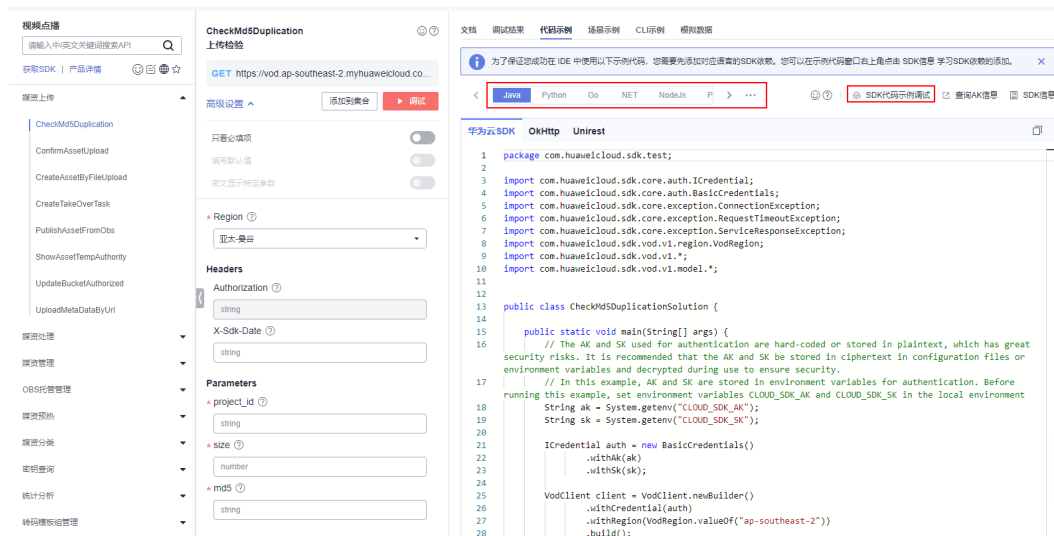
3 SDK 开发说明

V3版本SDK对点播服务提供的所有API进行了封装，您可以通过点播[API Explorer](#)调试接口。同时在代码示例处，会生成各种语言的demo供您参考。

📖 说明

在使用SDK V3版本过程中，如您有进一步疑问和建议，欢迎您[提交工单](#)进行交流反馈。

图 3-1 API Explorer



媒资上传

当您需要使用服务端SDK上传本地媒资时，可参考《视频点播 API参考》中的[应用示例 1](#)或[应用示例2](#)进行操作。其中，应用示例中对应的“创建媒资：上传方式”和“确认媒资上传”步骤，可参考SDK中的[创建媒资：上传方式](#)和[确认媒资上传方法](#)。在PUT媒资文件时，您可以使用HTTP PUT方式，将媒资文件PUT到对应的URL中即可。

生成鉴权 URL

若您使用SDK时需要生成鉴权URL，可在点播控制台中使用[Key防盗链](#)算法生成，也可以参考以下Demo生成。

```
package AuthUrlDemo;
import org.apache.commons.codec.binary.Hex;
```

```

import org.apache.commons.codec.digest.DigestUtils;
import org.apache.commons.lang3.StringUtils;

import javax.crypto.Cipher;
import javax.crypto.spec.IvParameterSpec;
import javax.crypto.spec.SecretKeySpec;
import java.security.MessageDigest;
import java.security.NoSuchAlgorithmException;
import java.security.SecureRandom;

import java.net.URL;
import java.net.URLEncoder;
import java.nio.charset.StandardCharsets;
import java.text.SimpleDateFormat;

import java.time.Instant;
import java.time.LocalDateTime;
import java.time.format.DateTimeFormatter;
import java.util.*;

class AuthUrlDemo {
    // url是未带加密信息的原始播放url, key是在点播控制台配置的Key值
    // 加密算法A
    public static String createAuthInfoUrlByAlgorithmA(String url, String key, String method) {
        try {
            checkParam(url, key);

            long timestamp = Instant.now().getEpochSecond();
            String randUid = UUID.randomUUID().toString().replaceAll("-", "");
            String uid = "0";
            String tmpRandKey = timestamp + "-" + randUid + "-" + uid;

            URL originUrl = new URL(url);
            String originHashStr = originUrl.getPath() + "-" + tmpRandKey + "-" + key;
            String hashStr = hashString(originHashStr, method);
            String authInfo = "auth_key=" + tmpRandKey + "-" + hashStr;

            return StringUtils.isEmpty(originUrl.getQuery()) ? url + "?" + authInfo : url + "&" + authInfo;
        } catch (Exception e) {
            e.printStackTrace();
        }
        return null;
    }
    // 加密算法B
    public static String createAuthInfoUrlByAlgorithmB(String url, String key, String method) {
        try {
            checkParam(url, key);

            URL originUrl = new URL(url);
            String filePath = originUrl.getPath();
            String dateStr = LocalDateTime.now().format(DateTimeFormatter.ofPattern("yyyyMMddHHmm"));
            String originHashStr = key + dateStr + filePath;
            String hashStr = hashString(originHashStr, method);

            return originUrl.getProtocol() + "://" + originUrl.getHost() + "/"
                + dateStr + "/" + hashStr + originUrl.getFile();
        } catch (Exception e) {
            e.printStackTrace();
        }
        return null;
    }
    // 加密算法C
    public static String createAuthInfoUrlByAlgorithmC(String url, String key, String method) {
        try {
            checkParam(url, key);

            URL originUrl = new URL(url);
            String filePath = originUrl.getPath();
            String hexTime = Long.toHexString(Instant.now().getEpochSecond()).toUpperCase(Locale.ENGLISH);

```

```

        String originHashStr = key + filePath + hexTime;
        String hashStr = hashString(originHashStr, method);

        return originUrl.getProtocol() + "://" + originUrl.getHost() + "/" + hashStr + "/" + hexTime +
originUrl.getFile();
    } catch (Exception e) {
        e.printStackTrace();
    }
    }
    return null;
}
// 加密算法D
public static String createAuthInfoUrlByAlgorithmD(String url, String key, String pliveDuration, String
previewDuration) {
    try {
        isDigital("试看时长", previewDuration);
        isDigital("伪直播开始时间", pliveDuration);
        checkParam(url, key, previewDuration, pliveDuration);

        String authArg = "";

        URL originUrl = new URL(url);
        String urlPath = originUrl.getPath();
        String pathInUrl = urlPath.substring(0, urlPath.lastIndexOf("/") + 1);
        String data = encodeUrl(pathInUrl) + "$" + getUtcTime();

        if (previewDuration != null && !previewDuration.isEmpty()) {
            data += "$" + previewDuration;
            authArg = "&exper=" + previewDuration;
        }

        if (pliveDuration != null && !pliveDuration.isEmpty()) {
            data += "$" + pliveDuration;
            authArg = "&plive=" + pliveDuration;
        }
        String encryptInfo = aesCbcEncrypt(data, key, true);

        String authInfoStr = "auth_info=" + URLEncoder.encode(encryptInfo, StandardCharsets.UTF_8);
        if (url.contains("?")) {
            return originUrl + "&" + authInfoStr + authArg;
        }
        return originUrl + "?" + authInfoStr + authArg;
    } catch (Exception e) {
        e.printStackTrace();
    }
    }
    return null;
}

public static String createAuthInfoUrlByAlgorithmE(String url, String key, String pliveDuration, String
previewDuration) {
    try {
        isDigital("试看时长", previewDuration);
        isDigital("伪直播开始时间", pliveDuration);
        checkParam(url, key, previewDuration, pliveDuration);

        URL originUrl = new URL(url);
        String urlPath = originUrl.getPath();

        String currentTimestamp = String.valueOf(new Date().getTime() / 1000);

        String authArg = "";
        String authStr = key + urlPath + currentTimestamp;

        if (previewDuration != null && !previewDuration.isEmpty()) {
            authArg = "&exper=" + previewDuration;
            authStr = authStr + previewDuration;
        }

        if (pliveDuration != null && !pliveDuration.isEmpty()) {
            authArg = "&plive=" + pliveDuration + authArg;
        }
    }
}

```

```

        authStr = authStr + pliveDuration;
    }

    authStr = sha256DigestAsHex(authStr);
    authArg = "auth_key=" + authStr + "&timestamp=" + currentTimestamp + authArg;

    return url.contains("?") ? originUrl + "&" + authArg : originUrl + "?" + authArg;

} catch (Exception e) {
    e.printStackTrace();
}
return null;
}

private static void checkParam(String url, String key) {
    if (StringUtils.isEmpty(url, key)) {
        throw new IllegalArgumentException("url or key is illegal");
    }
}

private static void checkParam(String url, String key, String preview, String plive) {
    if (StringUtils.isEmpty(url, key)) {
        throw new IllegalArgumentException("url or key is illegal");
    }

    if (StringUtils.isNoneEmpty(preview, plive)) {
        throw new IllegalArgumentException("preview and plive cannot be enabled all ");
    }
}

private static String aesCbcEncrypt(String data, String key, boolean hasPoint) throws Exception {
    checkParam(data, key);

    byte[] realKey = get128BitKey(key);
    SecureRandom secureRand = new SecureRandom();
    byte[] ivBytes = new byte[16];
    secureRand.nextBytes(ivBytes);

    if (hasPoint) {
        return aesCbcEncrypt(data, ivBytes, realKey) + "." + bytesToHexString(ivBytes);
    } else {
        return aesCbcEncrypt(data, ivBytes, realKey) + bytesToHexString(ivBytes);
    }
}

private static String aesCbcEncrypt(String data, byte[] ivBytes, byte[] key) throws Exception {
    SecretKeySpec sk = new SecretKeySpec(key, "AES");
    Cipher cipher = Cipher.getInstance("AES/CBC/PKCS5Padding");

    if (ivBytes != null) {
        cipher.init(Cipher.ENCRYPT_MODE, sk, new IvParameterSpec(ivBytes));
    } else {
        cipher.init(Cipher.ENCRYPT_MODE, sk);
    }

    return Base64.getEncoder().encodeToString(cipher.doFinal(data.getBytes(StandardCharsets.UTF_8)));
}

private static byte[] get128BitKey(String key) {
    byte[] result = null;

    if (key != null) {
        result = new byte[16];
        byte[] origin = key.getBytes();

        System.arraycopy(origin, 0, result, 0, Math.min(origin.length, 16));
    }

    return result;
}

```

```

    }

    private static String encodeUrl(String str) {
        try {
            if (StringUtils.isNotEmpty(str)) {
                StringBuilder encodeStr = new StringBuilder(32);
                String[] tmpArray = str.split("/");
                for (String s : tmpArray) {
                    encodeStr.append(URLEncoder.encode(s, StandardCharsets.UTF_8)).append("/");
                }
                return encodeStr.toString();
            }
        } catch (Exception e) {
            throw new RuntimeException(String.format("Encode fail %s", e.getMessage()));
        }
        return str;
    }

    public static String sha256DigestAsHex(String plainText) {
        MessageDigest messageDigest;
        String encodeStr;
        try {
            messageDigest = MessageDigest.getInstance("SHA-256");
            byte[] hash = messageDigest.digest(plainText.getBytes(StandardCharsets.UTF_8));
            encodeStr = Hex.encodeHexString(hash);
        } catch (NoSuchAlgorithmException e) {
            throw new IllegalStateException("Could not find MessageDigest with algorithm SHA-256", e);
        }
        return encodeStr;
    }

    private static String getUtcTime() {
        SimpleDateFormat foo = new SimpleDateFormat("yyyyMMddHHmmss");
        java.util.Calendar cal = java.util.Calendar.getInstance();
        int zoneOffset = cal.get(java.util.Calendar.ZONE_OFFSET);
        int dstOffset = cal.get(java.util.Calendar.DST_OFFSET);
        cal.add(java.util.Calendar.MILLISECOND, -(zoneOffset + dstOffset));

        return foo.format(new Date(cal.getTimeInMillis()));
    }

    private static String bytesToHexString(byte[] src) {
        StringBuilder stringBuilder = new StringBuilder();
        if (src == null || src.length == 0) {
            return null;
        }
        for (byte b : src) {
            int v = b & 0xFF;
            String hv = Integer.toHexString(v);
            if (hv.length() < 2) {
                stringBuilder.append(0);
            }
            stringBuilder.append(hv);
        }
        return stringBuilder.toString();
    }

    private static void isDigital(String paramName, String value) throws Exception {
        if (value != null && !value.isEmpty() && !value.matches("\\d+")) {
            throw new Exception(paramName + "仅支持数字");
        }
    }

    private static String hashString(String oriStr, String algorithm) {
        return algorithm.equals("MD5") ? DigestUtils.md5Hex(oriStr.getBytes(StandardCharsets.UTF_8))
            : sha256DigestAsHex(oriStr);
    }
}

```