

flvAnalyser 使用说明书

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软件核心功能概述

- 1) FLV 文件分析 (Tag 列表、时间戳、码率、音视频同步等), [HEVC\(12\)/AV1\(13\)](#)
- 2) FLV 文件提取 ES 文件;
- 3) H.264/HEVC/AVS3 ES 数据分析 (picture 列表, NAL unit 列表, GOP 列表等)

具体内容请参考第二章

一、最新版本说明 (v0.0.3.002)

1、增加 flv AV1 (type=0xD (13)) 格式支持

108_av1_aac_no_packet_size.flv

输出信息 ES流导出信息 视图(V) 图表信息 FLV-AV1配置 工具 帮助(H)

H264/H265/AVS3 PICTURE

偏移地址	数据大小	图像	编码格式	时间(HH:MM:SS.ms)(ms)	帧间隔(ms)	备注
header	0x00000000					FLV file header(include previous tag len: always 0)
0x0000000d	368			[00:00:00.000] (0)		
0x00000018	32	I	av1	[00:00:00.000] (0)	0	AV1 sequence header
0x0000001bb	7		aac	[00:00:00.000] (0)	0	AAC: audio specific config
0x0000001d1	51		aac	[00:00:00.000] (0)	0	
0x000000213	61	I	av1	[00:00:00.021] (21)	21	SeqHdr
0x00000025f	76		aac	[00:00:00.021] (21)	21	
0x0000002ba	73		aac			
0x000000312	100	P	av1			
0x000000385	92		aac			
0x0000003f0	148		aac			
0x000000493	8	P	av1			
0x0000004aa	140		aac			
0x000000545	581		aac			
0x000000799	37	P	av1			
0x0000007cd	538		aac			
0x0000009f6	670		aac			
0x000000ca3	8	P	av1			
0x000000c8a	442		aac			
0x000000e83	586		aac			
0x0000010dc	92	P	av1			
0x000001147	245		aac			
0x00000124b	719		aac			
0x000001529	8	P	av1			
0x000001540	451		aac			
0x000001712	721		aac			
0x0000019f2	32	P	av1			
0x000001a21	221		aac			
0x000001b0d	596		aac			
0x000001d70	8	P	av1			
0x000001d87	367		aac			
0x000001f05	519		aac			
0x00000211b	85	P	av1			
0x00000217f	539		aac			

Tag's hex analysis

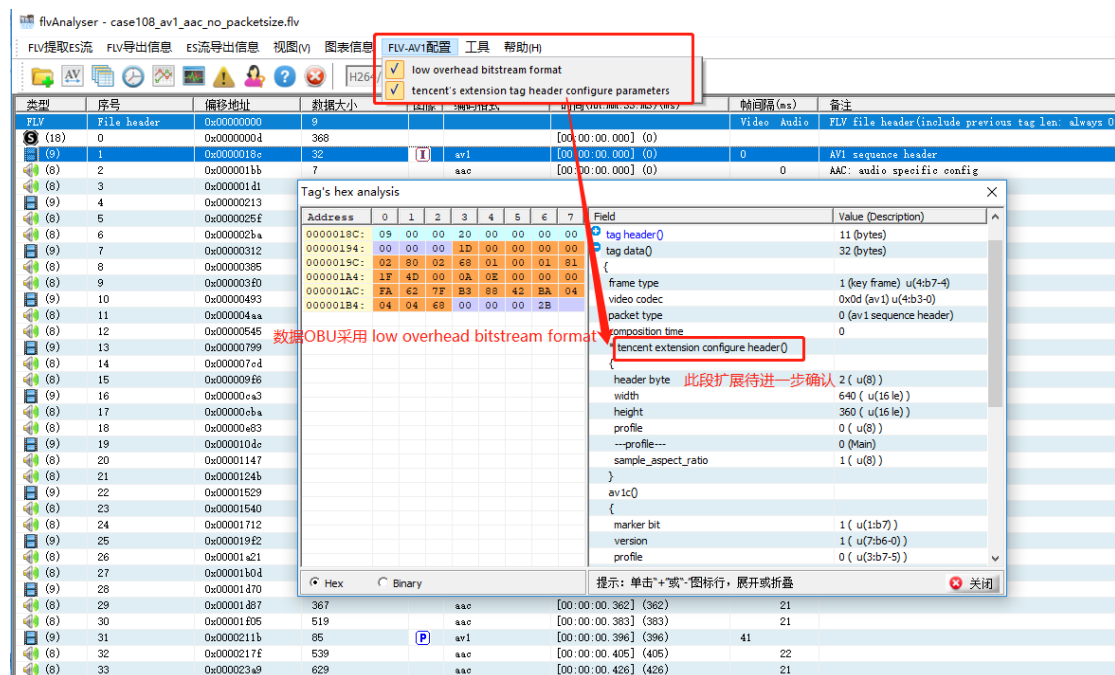
Address	0	1	2	3	4	5	6	7	Field	Value (Description)
00000213:	09	00	00	3d	00	00	15	00	flv video tag() <tag NO.4>	
0000021B:	00	00	00	1d	01	00	00	00	{	
00000223:	0A	0E	00	00	00	FA	62	7F	tag header()	11 (bytes)
0000022B:	B3	88	42	BA	04	04	04	E8	tag data()	61 (bytes)
00000233:	32	2E	10	02	28	47	E2	3E	{	
0000023B:	FB	F9	C0	09	02	08	22	AA	frame type	1 (key frame) u(4b7-4)
00000243:	00	22	7F	DB	98	9F	E1	B9	video codec	0x0d (av1) u(4b3-0)
0000024B:	8E	BD	64	85	B6	58	5D	2F	packet type	1 (av1 OBU)s
00000253:	EB	C8	DB	27	1E	00	7E	40	composition-time	0
0000025B:	00	00	00	48					obu[0]: type=1 (sequence header)	16 (bytes)
									obu[1]: type=6 (frame)	40 (bytes)
									obu_header()	
									obu_forbidden_bit	0
									obu_type	6 (frame)
									obu_extension_flag	0
									obu_has_size_field	1
									obu_reserved_bit	0
									if (has_size_field) {	
									size_field_bytes	1

type=0xD (13)

Hex Binary

提示: 单击 "+" 或 "-" 图标行, 展开或折叠

其中 av1 sequence header config 参考如下



该格式参考来源地址：（如果有错误，欢迎及时指正）
<https://blog.csdn.net/karamos/article/details/103508790>

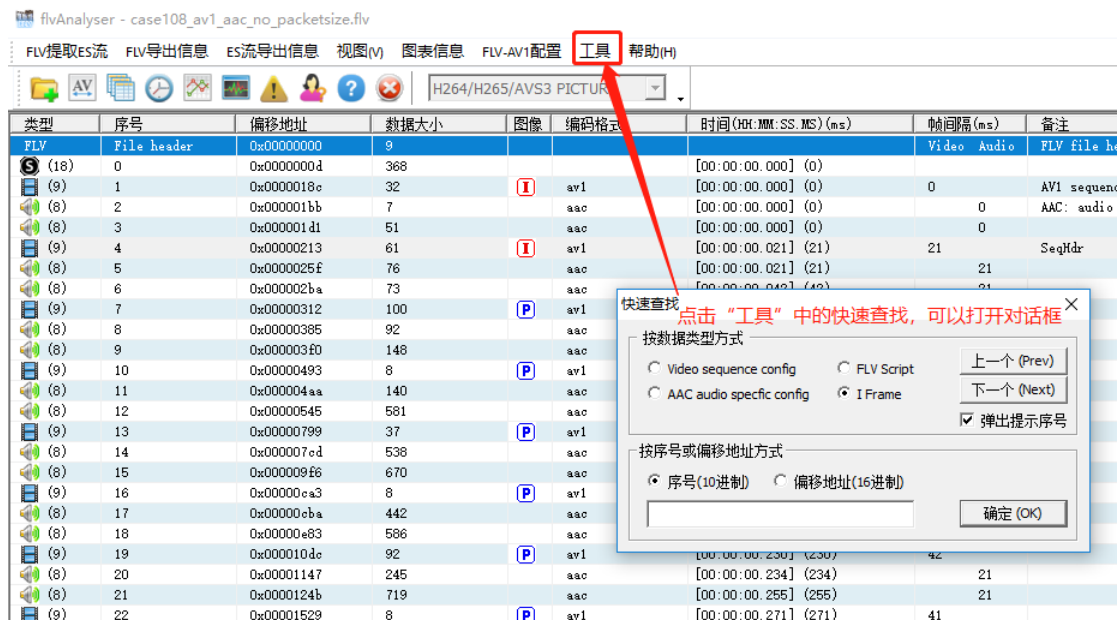
2、Tag 列表中快速查找功能：

Video sequence header config

AAC ASC(Audio specific config)

FLV script

video Key frame 等



3、按序号或偏移地址快速定位：（如上图所示）

历史版本更新记录

v0.0.3.001 版本更新说明

1、支持 AVS3 ES 分析

v0.0.2.004 版本更新说明（相对于 v0.0.2.003 而言）

1、提升 flv 文件最大到 36GB

v0.0.2.003 版本更新说明（相对于 v0.0.2.002 而言）

1、支持 flv H265（HEVC）解析和提取 ES；

v0.0.2.002 版本更新说明（相对于 v0.0.1.002 而言）

- 1、支持二进制显示，和十六进制能相互切换；
- 2、支持数据标注，便于快速定位；
- 3、补充了 H264、AAC 两种常用格式的语法解析详情结果；
- 4、在 tag 列表中，增加了音频和视频各自独立的帧时间间隔；
- 5、界面上的一些优化，修复一些发现 bug；
- 6、[试用功能]基于 GOP、Picture、NALU 三种列表方式的 H.264/H.265 ES 详情分析及 H.264/H.265 ES 预览视频，并支持导出所需数据；（可以参考后面的介绍）

二、基本功能点

1 文件概况



flvAnalyser - case103_h264_aac_720p.flv

FLV提取ES流 FLV导出信息 H264S导出信息 视图(V) 图表信息 帮助(H)

AV [H264/H265 PICTURE]

Summary

File name	: E:\material_utfiles_flvAnalyser\case_flv\case103_h264_aac_720p.flv
File size	: 14.643 MB
Bit rate	: 3.004 Mbps
Duration	: [40 s 896 ms]

Details

Service count	: 1 Program
ES count	: 2 ES
Video ES count	: 1 Video ES
Audio ES count	: 1 Audio ES

Video [1]

Format codec	: H.264 / AVC / MPEG-4 AVC / MPEG-4 part 10
Format profile@level	: Main@L3.1
Format reference frames	: 1 frame
Format B frames	: 1 frame
Duration	: 40 s 896 ms (total 40896 ms)
Display resolution	: 1280 x 720
Coded resolution	: 1280 x 720
Video pixel format	: yuv420p
Pixel bit depth	: 8 bit
Frame rate	: 25.0000 fps
Average bit rate	: 0 Kbps
Scan type	: Progressive
GOP size	: 12
Chroma sample location	: left
Time base	: 1 / 1000
Dummy line	: nothing

Audio [1]

Format codec	: AAC (Advanced Audio Coding)
Format profile@level	: LC
Duration	: 40 s 896 ms (total 40896 ms)
Sample rate	: 44100 Hz
Sample bits	: 32 bit (fltp)
Channel number	: 2 channels
Channel layout	: stereo
Start video delay	: 0 ms
Current video delay	: 21 ms
Average bit rate	: 131 Kbps

2 flv tag 列表（含数据分析）

FlvAnalyser - case104_aac_h264.flv

FLV提取ES流 FLV导出信息 H264导出信息 视图(V) 图表信息 帮助(H) 提取es流 导出时间戳等详情到文件

类型	序号	偏移地址	数据大小	图像	编码格式	时间(00:MM:SS.ms)(ms)	帧间隔(ms)	备注
FLV	File header	0x00000000	9					
(S)	0	0x0000000d	6		aac	[00:00:00.000] (0)	0	AAC: audio specific config
(9)	1	0x00000022	29	I	h264	[00:00:00.000] (0)	0	H264: avc sequence header
(9)	2	0x0000004e	22682	I	h264	[00:00:00.000] (0)	0	SFS PPS
(S)	3	0x000058f7	280		aac	[00:00:00.005] (5)	5	
(9)	4	0x00005a1e	5362	P	h264	[00:00:00.034] (34)	34	
(9)	5	0x00006f1f	3693	P	h264	[00:00:00.060] (60)	26	
(S)	6	0x00007d9b	281		aac	[00:00:00.081] (81)	76	
(9)	7	0x00007ee3	3693	P	h264	[00:00:00.102] (102)	42	

Tag's hex analysis

nalul0[0] type=7 (SPS)

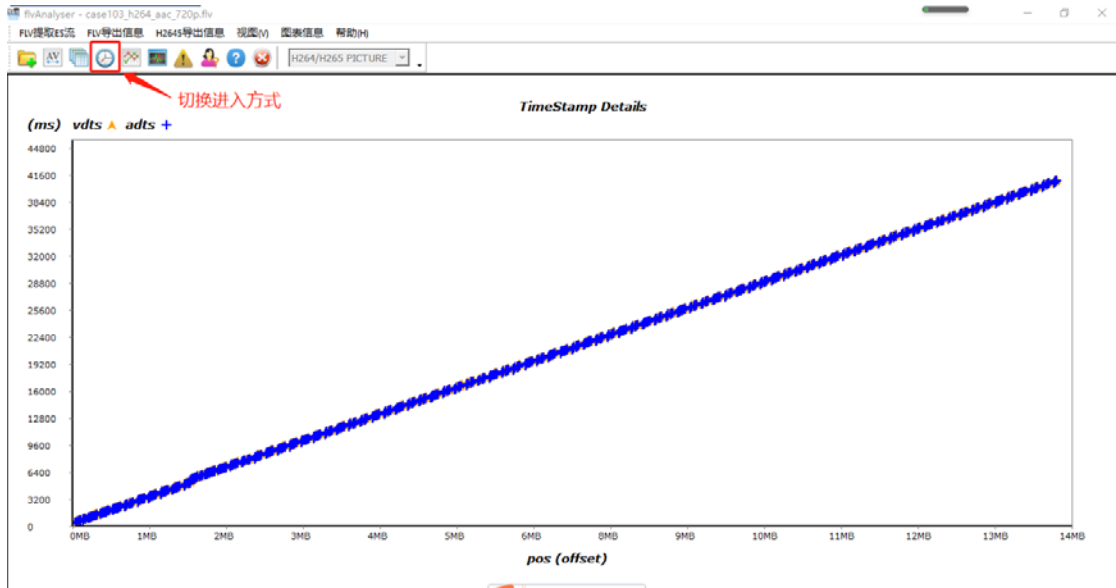
语法详情

分析跟踪帧时间间隔

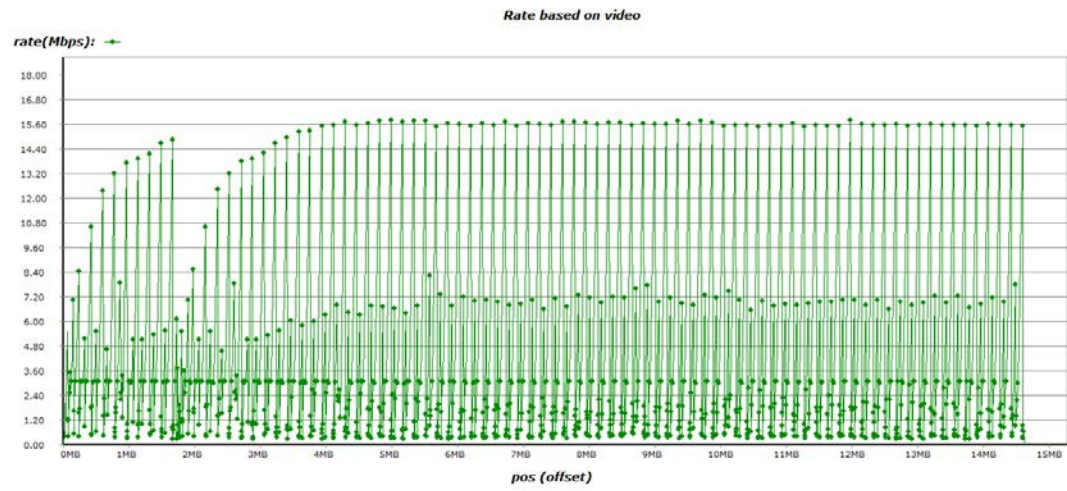
提示: 单击 "+" 或 "-" 图标行, 展开或折叠

您好! 双击鼠标可查看FLV Tag解析详情! 进入数据对话框方式

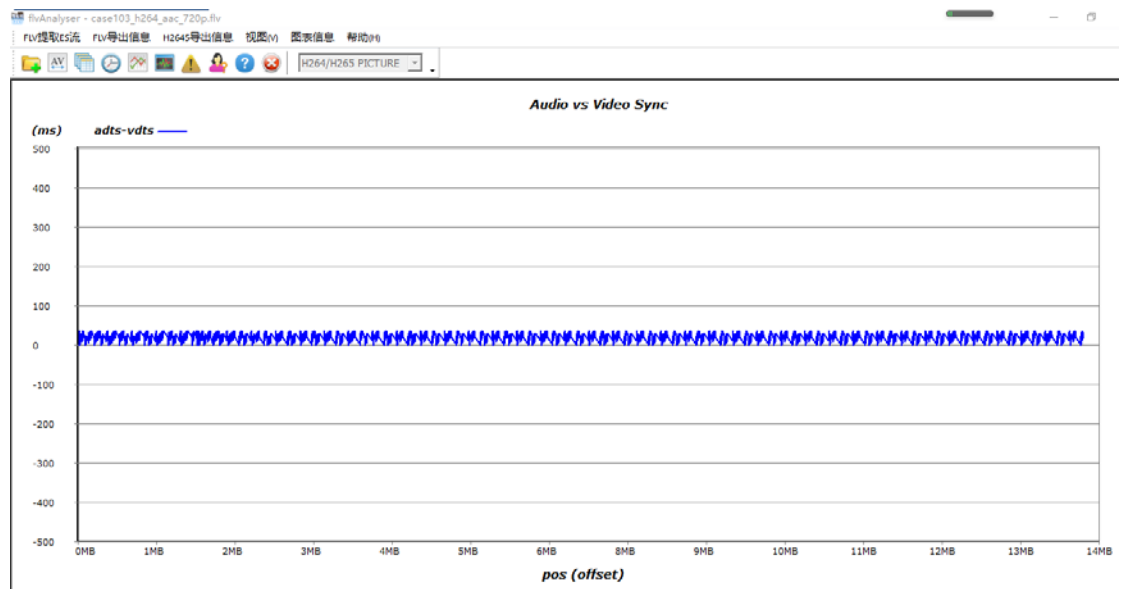
3 时间分析



4 码率分析

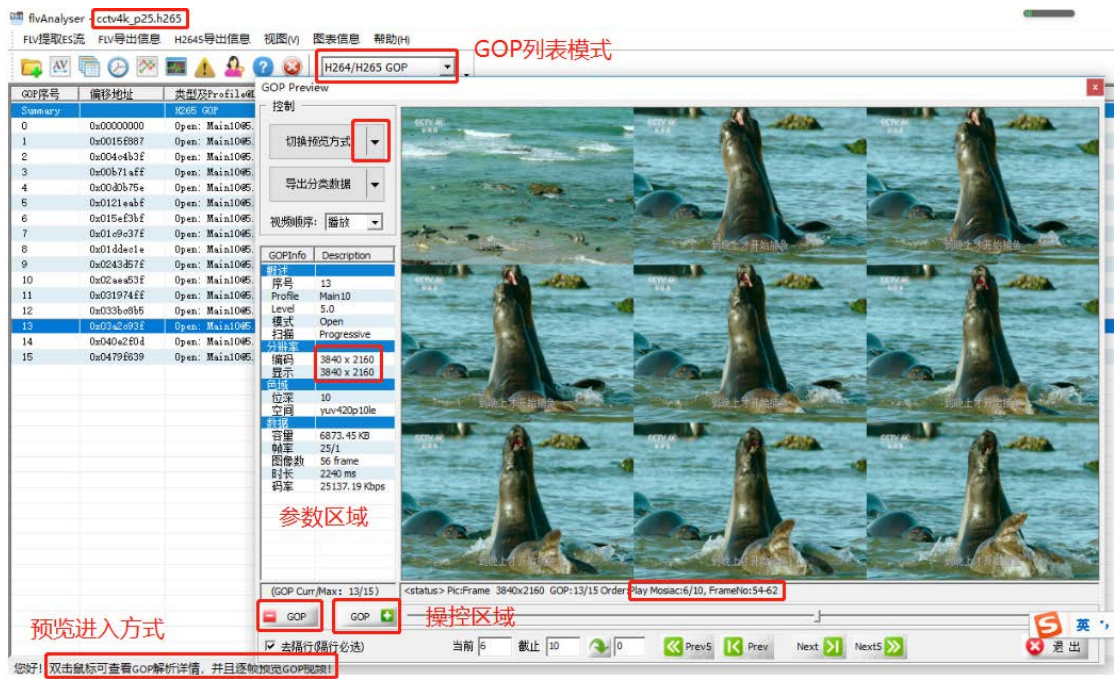


5 音视频同步分析



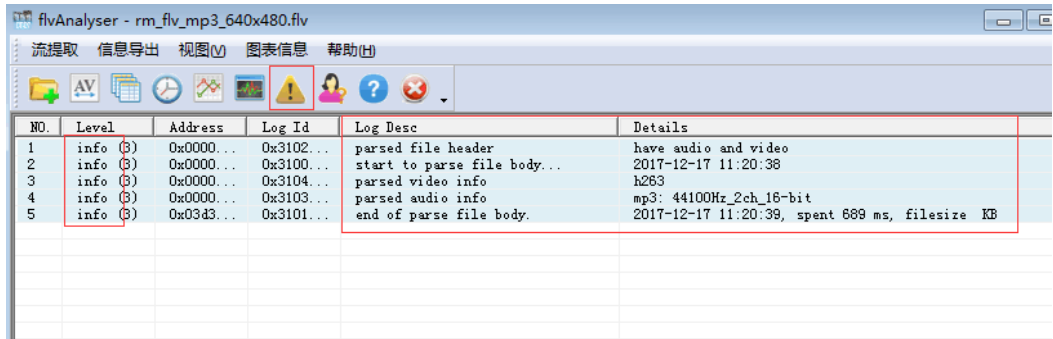
[illegible]

6.3 GOP 列表



7 日志记录

正常文件 INFO 级别为主



遇到错误, 黄色, 红色, 橙色提示

flvAnalyser - case009_not_found_avc_seq_hdr_aac_asc.flv

FLV提取ES流 FLV导出信息 H264导出信息 视图(V) 图表信息 帮助(H) 进入日志

H264/H265 PICTURE

类型	序号	日志Id	偏移地址	日志描述	详情
FLV	(0)	1	0x020b(523)	Summary info	fatal=2 err=3100 warning=0 info=0
FLV	(0)	2	0x020a(522)	not found h264 seq header	
FLV	(3)	3	0x3102(12546)	not found aac audio specific config	
FLV	(3)	4	0x3100(12544)	parsed file header	have audio and video
FLV	(1)	5	0x120e(4622)	start to parse file body...	2019-9-20 17:40:34
FLV	(1)	6	0x120e(4622)	invalid AAC audio specific configuration	
FLV	(1)	7	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	8	0x1213(4627)	err h264 nalu data	data not enough, nal len=32
FLV	(1)	9	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	10	0x1213(4627)	err h264 nalu data	data not enough, nal len=208
FLV	(1)	11	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	12	0x1213(4627)	err h264 nalu data	data not enough, nal len=219
FLV	(1)	13	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	14	0x1213(4627)	err h264 nalu data	data not enough, nal len=224
FLV	(1)	15	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	16	0x1213(4627)	err h264 nalu data	data not enough, nal len=224
FLV	(1)	17	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	18	0x1213(4627)	err h264 nalu data	data not enough, nal len=224
FLV	(1)	19	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	20	0x1213(4627)	err h264 nalu data	data not enough, nal len=224
FLV	(1)	21	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	22	0x1213(4627)	err h264 nalu data	data not enough, nal len=80
FLV	(1)	23	0x120f(4623)	not avc data format	meet unexpected H264 start code 00 00 00 01
FLV	(1)	24	0x1213(4627)	err h264 nalu data	data not enough, nal len=224

8 语法指南（FLV 基本语法）

flvAnalyser - rm_flv_mp3_640x480.flv

流提取 信息导出 视图(V) 图表信息 帮助(H)

Flv File Header | Flv File Body | Flv Tag Header | Flv Audio Tag | Flv Video Tag | Flv AAC Data | Flv H264 Data Packet

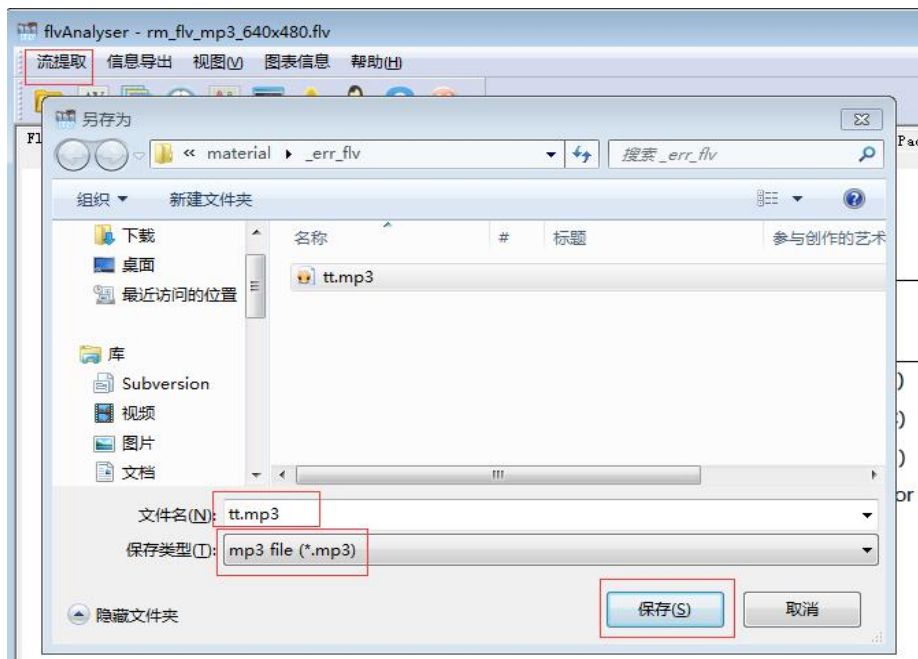
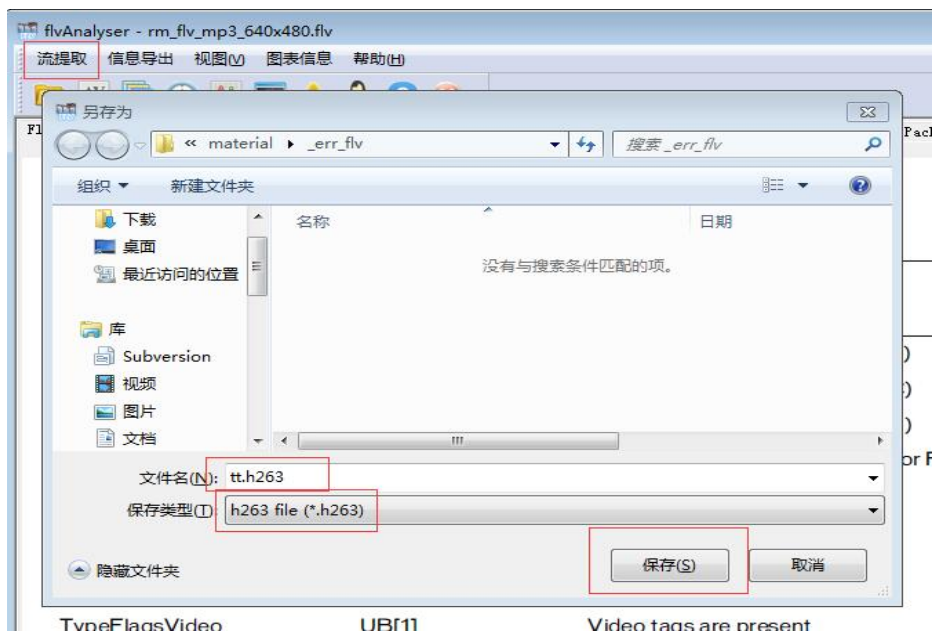
The FLV header

All FLV files begin with the following header:

Field	Type	Comment
Signature	UI8	Signature byte always 'F' (0x46)
Signature	UI8	Signature byte always 'L' (0x4C)
Signature	UI8	Signature byte always 'V' (0x56)
Version	UI8	File version (for example, 0x01 for FLV version 1)
TypeFlagsReserved	UB[5]	Must be 0
TypeFlagsAudio	UB[1]	Audio tags are present
TypeFlagsReserved	UB[1]	Must be 0
TypeFlagsVideo	UB[1]	Video tags are present
DataOffset	UI32	Offset in bytes from start of file to start of body (that is, size of header)

The DataOffset field usually has a value of 9 for FLV version 1. This field is present to accommodate larger headers in future versions.

9 视频、音频 ES 提取存文件：



10 时间信息提取存文件;
[可选纯视频, 纯音频, 音视频交叉]

tt.log x

0102030405060708090100110120130

1
2 Author : hybase@qq.com (QQ: 23207689)
3 Date : 2017-12-17 12:23:09
4 ===== [Start] =====
5
6 文件名称: E:\material_err_flv_rm_flv_mp3_640x480.flv
7 视频: 1 h263 音频: 1 mp3
8
9
10 ===== start video =====
11 pts 数目: 5492
12
13 video idx= 0 offset= 348 (0x 15c) KF pts= 0 (ms) 0 (ms) avsync= 0 (ms)
14 video idx= 1 offset= 49370 (0x c0da) pts= 80 (ms) 80 (ms) avsync= 1 (ms)
15 video idx= 2 offset= 106245 (0x 19f05) pts= 120 (ms) 40 (ms) avsync= 15 (ms)
16 video idx= 3 offset= 150517 (0x 24bf5) pts= 160 (ms) 40 (ms) avsync= 2 (ms)
17 video idx= 4 offset= 193149 (0x 2f27d) pts= 200 (ms) 40 (ms) avsync= 16 (ms)
18 video idx= 5 offset= 234591 (0x 3945f) pts= 240 (ms) 40 (ms) avsync= 4 (ms)
19 video idx= 6 offset= 260257 (0x 3f8a1) pts= 280 (ms) 40 (ms) avsync= 18 (ms)
20 video idx= 7 offset= 278954 (0x 441aa) pts= 320 (ms) 40 (ms) avsync= 6 (ms)
21 video idx= 8 offset= 293900 (0x 47c0c) pts= 360 (ms) 40 (ms) avsync= 20 (ms)
22 video idx= 9 offset= 306500 (0x 4ad44) pts= 400 (ms) 40 (ms) avsync= 7 (ms)
23 video idx= 10 offset= 318343 (0x 4db87) pts= 440 (ms) 40 (ms) avsync= 21 (ms)
24 video idx= 11 offset= 329635 (0x 5086b) pts= 480 (ms) 40 (ms) avsync= 9 (ms)
25 video idx= 12 offset= 347171 (0x 54c23) KF pts= 520 (ms) 40 (ms) avsync= 23 (ms)
26 video idx= 13 offset= 378833 (0x 5c7d1) pts= 560 (ms) 40 (ms) avsync= 11 (ms)
27 video idx= 14 offset= 386643 (0x 5e653) pts= 600 (ms) 40 (ms) avsync= 24 (ms)
28 video idx= 15 offset= 393638 (0x 601a6) pts= 640 (ms) 40 (ms) avsync= 12 (ms)
29 video idx= 16 offset= 398293 (0x 613d5) pts= 680 (ms) 40 (ms) avsync= 26 (ms)
30 video idx= 17 offset= 406714 (0x 634ba) pts= 720 (ms) 40 (ms) avsync= 14 (ms)
31 video idx= 18 offset= 414632 (0x 653a8) pts= 760 (ms) 40 (ms) avsync= 2 (ms)
32 video idx= 19 offset= 422719 (0x 6733f) pts= 800 (ms) 40 (ms) avsync= 15 (ms)
33 video idx= 20 offset= 433621 (0x 69dd5) pts= 840 (ms) 40 (ms) avsync= 3 (ms)
34 video idx= 21 offset= 440894 (0x 6ba3e) pts= 880 (ms) 40 (ms) avsync= 17 (ms)
35 video idx= 22 offset= 451199 (0x 6e27f) pts= 920 (ms) 40 (ms) avsync= 5 (ms)



三、软件 bug 和改进建议

为了改进工具使用体验，热切盼望使用工具的您，将遇到的问题，反馈给笔者。另外，如果您有新的建议，也可以通过以下步骤反馈问题。保证网络畅通下，笔者承诺 48 小时以内，一定响应并回馈您。(E-mail: hybase@qq.com QQ: 23207689 微信 hybase)

在沟通充分的情况下，评估实施修改或开发的工作量，并做出实质性的修改，最终更新版本给大家。

1，问题说明

如果能提供抓图，匹配文字补充最佳；

2，测试素材

如果遇到的 bug，是特定的媒体文件，还请能提供对应的分析文件；

3, 联系回馈方式

请留下您的快捷联系方式, 方便及时反馈和沟通。

4, 期望更新时间;

请留下期望更新的时间, 以便做出及时安排;

四、下载软件的途径

发布地址一

<https://blog.csdn.net/zymill>

发布地址二

<https://github.com/zymill/flvAnalyser>

也可以直接通过百度等 搜索关键词 flvAnalyser 查询。