RTP Payload Format for Uncompressed Video

draft-ietf-avt-uncomp-video-02

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Changes since -01:

Modified:

- The payload header: extended the sequence number to 32 bits to accommodate high data rates.
  - At 1 Gbps 16 bit sequence wraps around in 0.5 second, 32 bits will wrap around ~9 hours

Added:

- 4:1:1 color coding
- 4:2:0 interlaced and progressive packetization
- Separate timestamps for interlaced fields
  - to accommodate reversing 3:2 pulldown
- Defined required and optional SDP parameters
- Discussed congestion control in Security Considerations

RTP Payload Header

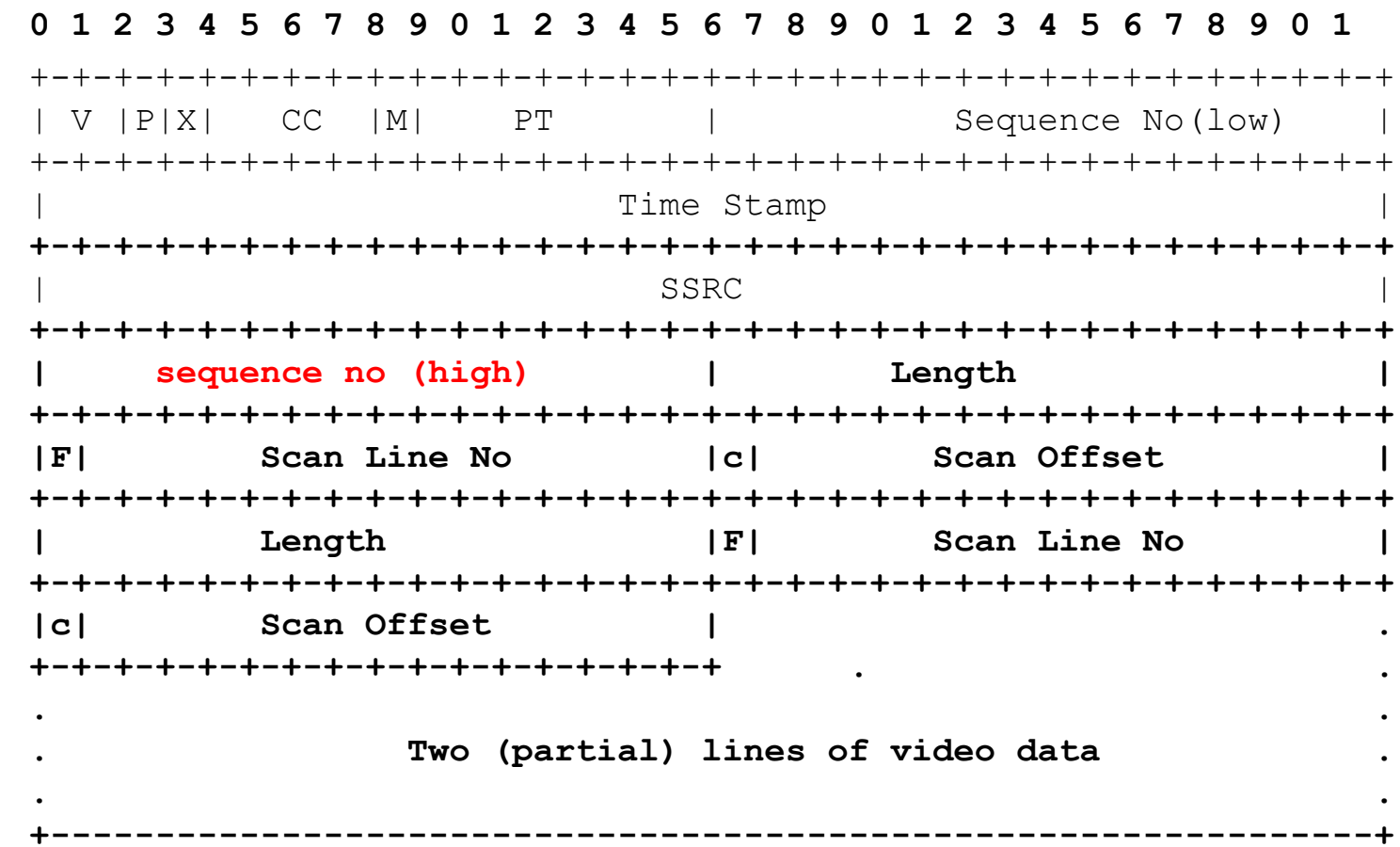
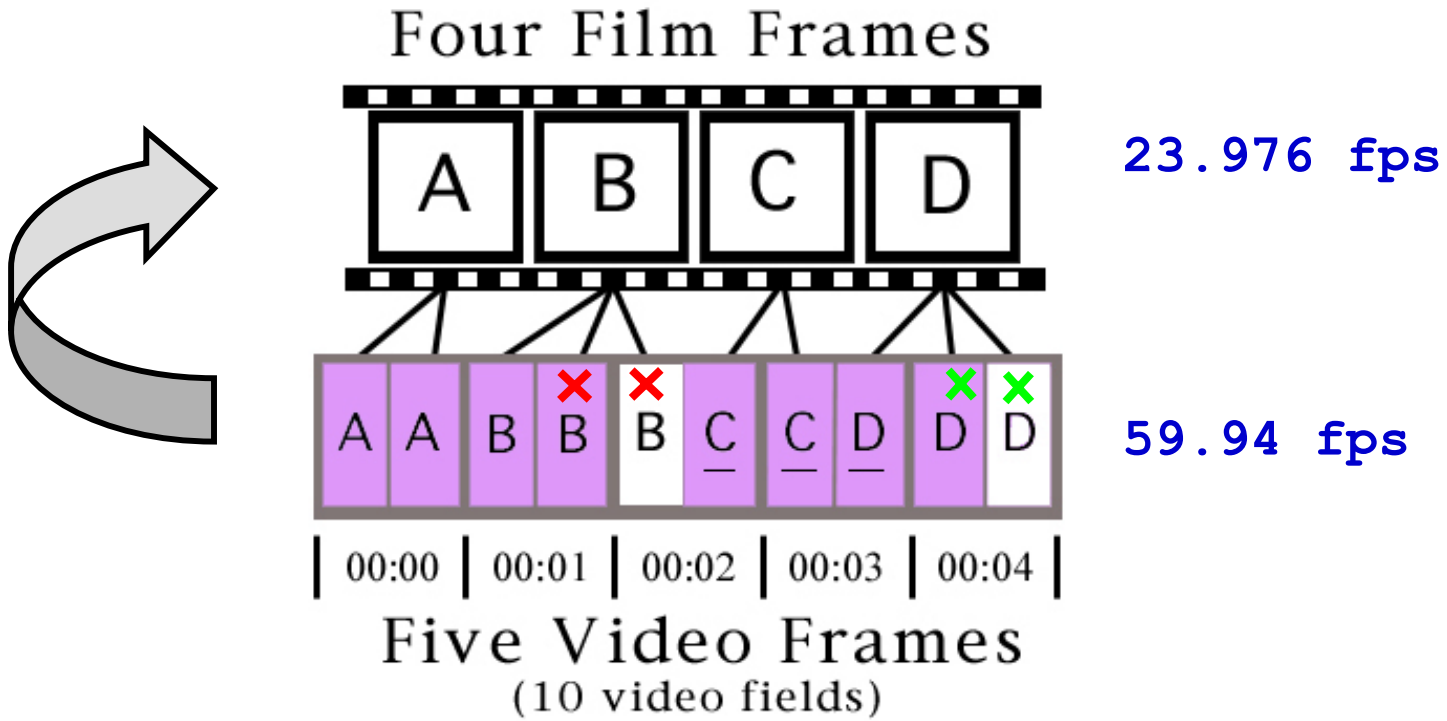


Figure 1: RTP Payload Format showing two (partial) lines of video

Distinct time stamps for interlaced fields

- Timestamps are derivable from bit field and frame rate, however with distinct timestamps reversing 3:2 pulldowns can be accommodated



SDP Parameters:

Required:

- rate,
- pgroup,
- color-mode,
- sub-sampling,
- width, height, depth,
- colorimetry

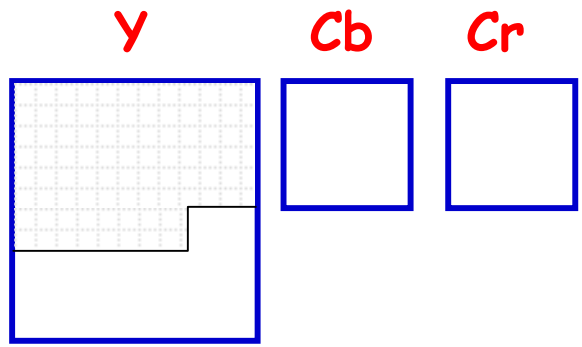
Optional:

- interlaced

```
m=video 30000 RTP/AVP 112
a=rtpmap:112 raw/90000
a=fmtp:112 pgroup=4; color-mode=YUV;  sub-sampling=4:2:0;
   width=1280; height=720; depth=10; colorimetry=BT.709-2
```

Open Issues

1. should planar video be added to this draft?
   - must add 2bits to header to indicate planes
   - pgroups are meaningless.




```
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     sequence no (high)        | T |        Length                 |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|F|         Scan Line No         |c|         Scan Offset           |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| T |        Length              |F|         Scan Line No          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|c|         Scan Offset          |                                 .
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+     .                           .
.                                                                 .
+-----------------------------------------------------------------+
```

Open Issues (cont.)

2. Is explicitly listing pgroups for all color sub-samplings really necessary?

3. Are there any other color-subsampling we should add?
   - Recent suggestion: 4:2:2:0

4. Are the values for the SDP colorimetry parameter sufficient?
   - BT601-5
   - BT709-2
   - SMPTE240M
   - NTSC
   - PAL

5. Should timecodes have independent representation? Or are RTP timestamps and RTCP SR timestamps sufficient?