



1722 Simple Audio Format

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What is Simple Audio Format

- Simplest format for transmitting audio
- Higher channel counts than IEC 61883
- Samples can be integers or floating point
- All packets within a stream are the same size
- Permits any 802.1Qav-compliant packet rate

The Sample Types

- Floating Point (IEEE 754-2008)
 - 32-bit float
- Linear Integer
 - 4-byte (1 to 32 bits)
 - 3-byte (1 to 24 bits) “packed”
 - 2-byte (1 to 16 bits)

Packet Format

- Time stamp
 - There is one in every packet
 - Always corresponds to first sample in packet
- Payload-specific header flags
 - 10 bits indicating channels per frame
 - 2 bits for synchronized event markers
 - 4 bits reserved for future use
- Interleaved or non-interleaved sample data

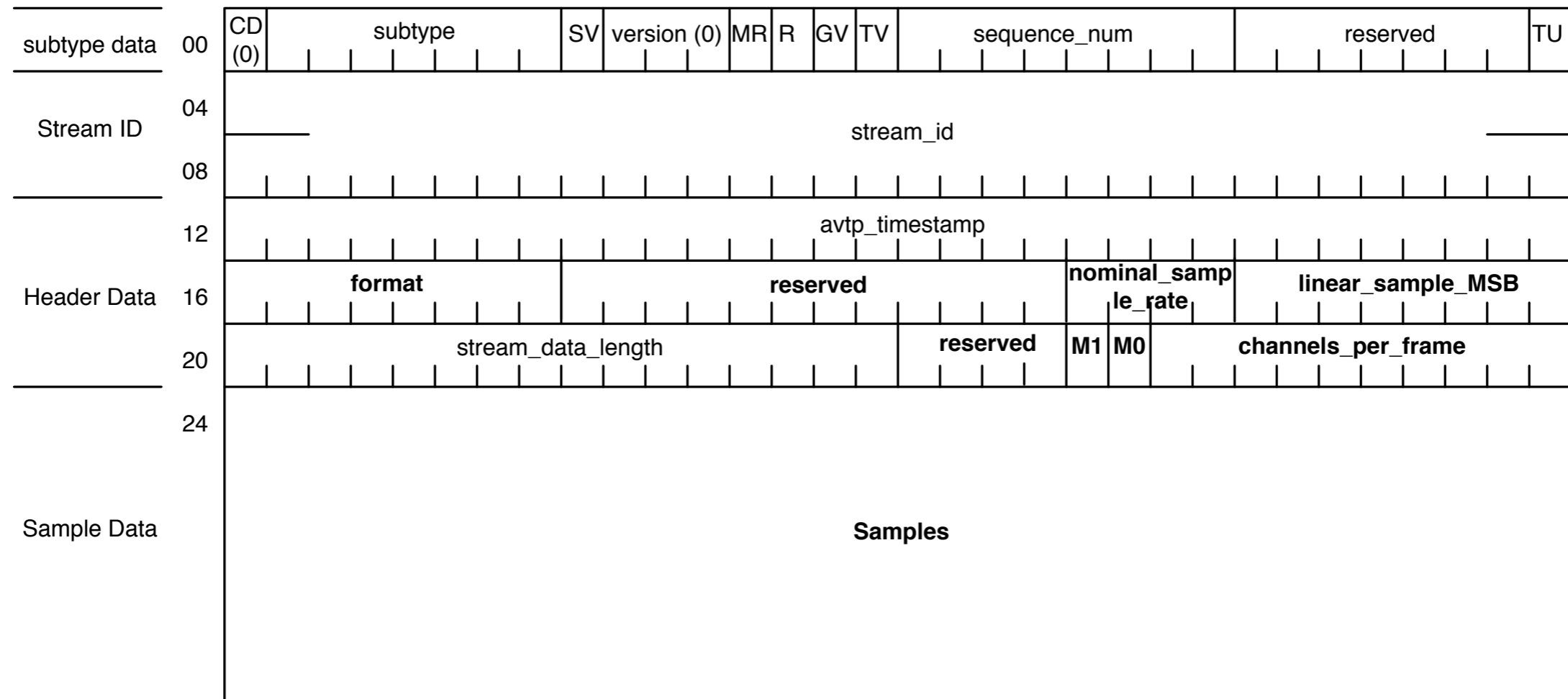
Sample Format

- Network byte order (big-endian)
- Linear integers are LSB zero padded
 - allows easy conversion between various bit widths

Interoperability

- All end stations that support simple audio format are required to implement interleaved, 4-byte linear integer format.
- Generally, a discovery protocol (such as 1722.1) will fully describe a simple audio stream.
- However, header contains enough info for an end station to determine the payload format.

Frame Format



“Gateway Info”

- format
 - Sample format (float/linear integer)
- nominal_sample_rate
 - Predefined sample rate or unspecified
- linear_sample_MSB
 - Number of MSBs that are used
 - 0 = 256
 - Only applies to integer formats

nominal_sample_rate

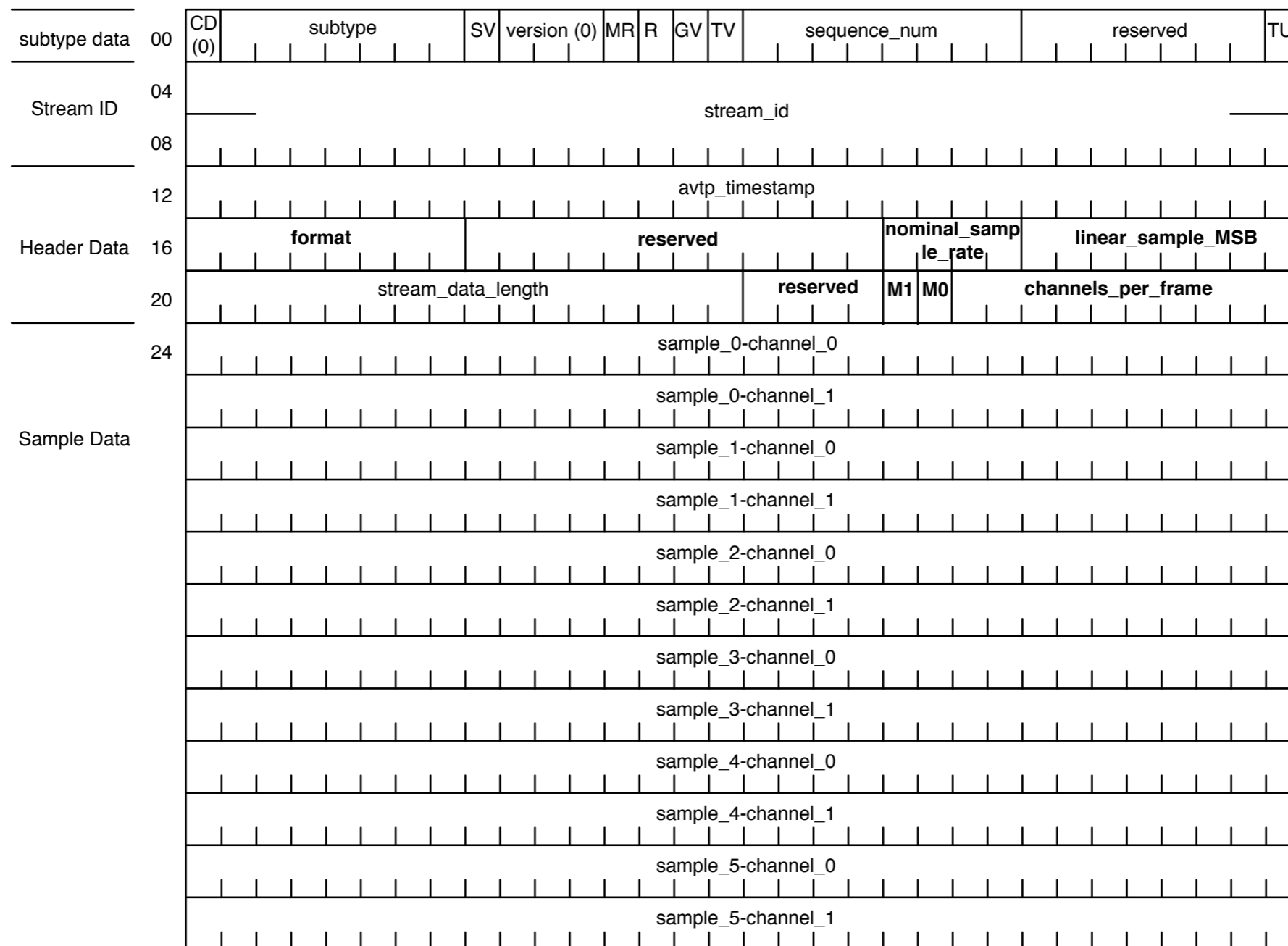
- 0 = Not specified
- 1-3 = 8, 16, 32
- 4-8 = 11.025, 22.05, 44.1, 88.2, 176.4
- 9-11 = 48, 96, 192
- 15 = Extended

Protocol Specific Header

- M1, M0
 - Marker bits for “synchronized” events
- channels_per_frame
 - The number of audio channels represented in the frame

Frame Format Example

- 4-byte integer, stereo, interleaved, 6 samples/frame



Pros of SAF

- Supports 24-bit packed
- Removes CIP header
- Removes 61883 depacketization rules
- No MIDI, tags or non audio data
- Increases max channel count beyond 256
 - 729 channels at 48kHz, 16bit samples

Cons of SAF

- Another format to support for 1722
- Not an industry standard
- Can't transport encoded formats