

# RTP Synchronization

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# RTP Timestamps

- Represents the sampling instant of the first octet of data in the frame
- Increments at a media-dependent rate
- Starts from a random initial value
- The clock from which the RTP timestamp is derived must increase in a continuous and monotonic fashion.

# RTP Timestamps

- For most audio payload formats the RTP timestamp increment for each frame is equal to the number of samples read from the capture device
- MPEG audio, including MP3, use a 90kHz clock
- Majority of video formats use a 90kHz clock

# RTCP SR

- RTCP Sender Report
  - NTP Timestamp
    - 64-bit unsigned value that indicates the time at which this RTCP SR packet was sent
    - Formatted as fractional seconds since Jan 1, 1900
  - RTP Timestamp
    - RTP timestamp corresponds to the same instant as the NTP timestamp
    - Expressed in the units of the RTP media clock

# RTP Time

- RTP uses the format of an NTP timestamp
- The RTP clock is NOT required to be synchronized with NTP
- For a receiver to synchronize two media streams those streams must be related to the same clock

# RTP and 1722

	RTP	1722
Wall time	NTP	802.1AS
Media Clock	Timestamp	DBC
Cross Timestamp	RTCP SR	SYT Interval Avbtp Timestamp

# References

- “RTP Audio and Video for the Internet”  
Colin Perkins
- RFC 3550 - RTP: A Transport Protocol for  
Real-Time Applications