

An IEC 61883-based Transport Protocol for Time- Sensitive Audio/Video Streams over IEEE 802 Networks

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Changes from version 0.15 in red text.
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Title (2.1)

- IEEE Standard Transport Protocol for time-sensitive audio/video streams over IEEE 802 networks.

Misc.

- Number of people expected to work on standard (5.1)
 - 30
- Stakeholders (5.6)
 - Developers and users of bridged LAN and end-point systems supporting audio/video applications.

PAR Scope (5.2)

- This standard specifies the protocol, data encapsulations, connection management and presentation time procedures used to ensure interoperability between audio and video based end stations that use standard networking services provided by all IEEE 802 networks meeting QoS requirements for time-sensitive applications by leveraging concepts of IEC 61883 streams as currently defined for IEEE 1394 networks.

PAR Scope (5.3)

- Is the completion of this document contingent upon the completion of another document?
 - Yes this standard **will rely upon**:
 - IEEE standard for Local and Metropolitan Area Networks: Timing and Synchronization for Time-Sensitive Applications in Bridged Local Area Networks (P802.1AS)
 - IEEE standard for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks - Amendment 9: Stream Reservation Protocol (SRP) (P802.1Qat)
 - IEEE standard for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks - Amendment 11: Forwarding and Queuing for Time-Sensitive Streams (P802.1Qav)

PAR Purpose (14)

- To facilitate interoperability between stations that stream time-sensitive audio and/or video across LANs providing time synchronization and latency/bandwidth services, this standard defines the packet format and stream setup, control, and teardown protocols.

PAR Reason (5.4)

- A great deal of work and effort of late has been applied to the development and specification of IEEE 802 based networks that provide networking services for real time applications. To further the work and to provide maximum interoperability of real-time audio and video streaming applications, we must define common media packet formats and how they are structured within IEEE 802 frames. Additionally, there must be standardized approaches for the use of synchronization/presentation time stamps and use of 802.1Qat connection management procedures.
- Unfortunately, some of the protocol mechanisms and formats utilized by applications providing streaming audio and video are entangled with low level network layers. This makes them unsuitable for adoption in a layered networking application.
- For IEEE 1394 bus based networks, a working implementation exists today that meets most of the needs for real-time audio and video streams and that is embodied in the IEC 61883 series standards.
- Unfortunately for IEEE 802, the IEC 61883 series of standards uses mechanisms, formats, specific low level services and functions provided by IEEE 1394 that are not provided by IEEE 802.
- For the reasons stated above, a new standard is needed to provide a common set of protocol encapsulations and mechanisms by starting with IEC 61883 protocol encapsulations and mechanisms, and modifying them to accommodate alternate IEEE LLC and MAC layer protocols.

5.5 Need for the Project

- Increasingly, entertainment media is digitally transported. Streaming audio/video and interactive applications over bridged LANs need to have comparable real-time performance with legacy analog distribution. There is significant end-user and vendor interest in defining a simple yet common method for handling real-time audio/video suitable for consumer electronics, professional A/V applications, etc.
- Technologies such as IEEE 1394, Bluetooth and USB exist today but each has their own encapsulation, protocols, timing control, etc. such that building interworking functions is difficult. The use of a common audio/video transport over multiple IEEE 802 network types will realize operational and equipment cost benefits.
- By ensuring that all IEEE 802 wired and wireless devices share a common set of transport mechanisms for time-sensitive audio/video streams, we lessen the effort of producing interworking units between IEEE 802 and other digital networks.