

MMUSIC
Internet-Draft
Intended status: Standards Track
Expires: July 7, 2016

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January 4, 2016

**IANA registrations of SDP 'proto' attribute for transporting RTP Media
over TCP under various RTP profiles.
draft-ietf-mmusic-proto-iana-registration-03**

Abstract

Real-time Transport Protocol (RTP) provides end-to-end network transport functions suitable for applications transmitting real-time data such as audio, video or simulation data, over multicast or unicast network services. The data transport is augmented by RTP Control Protocol (RTCP), to allow monitoring of the data delivery in a manner scalable to large multicast networks, and to provide minimal control and identification functionality.

The RTP specification [[RFC3550](#)] establishes a registry of profile names for use by higher-level control protocols, such as the Session Description Protocol (SDP), to refer to the transport methods. This specification describes the following new SDP transport protocol identifiers for transporting RTP Media over TCP: 'TCP/RTP/AVPF', 'TCP/RTP/SAVP', 'TCP/RTP/SAVPF', 'TCP/DTLS/RTP/SAVP', 'TCP/DTLS/RTP/SAVPF', 'TCP/TLS/RTP/AVP', 'TCP/TLS/RTP/AVPF'.

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[1.](#) Overview

SDP [[RFC4566](#)] provides a general-purpose format for describing multimedia sessions in announcements or invitations. [[RFC4145](#)] specifies a general mechanism for describing media transport over Transmission Control Protocol (TCP) using SDP with [[RFC4571](#)] defining a method for framing RTP and RTCP packets onto a connection-oriented transport (such as TCP) . [[RFC4572](#)] extends [[RFC4145](#)] for describing TCP-based media streams that are protected using Transport Layer Security (TLS) [[RFC5246](#)].

This specification describes the following new SDP transport protocol identifiers for transporting RTP Media over TCP:

TCP/RTP/AVPF: to describe RTP Media with RTCP-based Feedback [[RFC4585](#)] over TCP, as defined in [Section 3.1](#).

TCP/RTP/SAVP: to describe Secure RTP (SRTP) Media [[RFC3711](#)] over TCP, as defined in [Section 3.2](#).

TCP/RTP/SAVPF: to describe Secure RTP Media with RTCP-based Feedback [[RFC5124](#)] over TCP, as defined in [Section 3.3](#).

TCP/DTLS/RTP/SAVP: to describe Secure RTP Media [[RFC3711](#)] using Datagram Transport Layer Security (DTLS) SRTP [[RFC5764](#)] (DTLS-SRTP) over TCP, as defined in [Section 3.4](#).

TCP/DTLS/RTP/SAVPF: to describe Secure RTP Media with RTCP-based Feedback [[RFC5124](#)] using DTLS-SRTP over TCP, as defined in [Section 3.5](#).

TCP/TLS/RTP/AVP: to describe RTP Media on top of TLS over TCP, as defined in [Section 3.6](#).

TCP/TLS/RTP/AVPF: to describe RTP Media with RTCP-based Feedback [[RFC5124](#)] on top of TLS over TCP, as defined in [Section 3.7](#).

2. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC 2119](#) [[RFC2119](#)].

3. Protocol Identifiers

The 'm=' line in SDP specifies, among other items, the transport protocol to be used for the media in the session. See the "Media Descriptions" section of SDP [[RFC4566](#)] for a discussion on transport protocol identifiers.

The following is the format for an 'm=' line, as specified in [[RFC4566](#)]:

m=<media> <port> <proto> <fmt> ...

3.1. TCP/RTP/AVPF Transport Realization

The TCP/RTP/AVPF is realized as described below:

- o RTP/AVPF stream over the TCP transport is realized using the framing method defined in [[RFC4571](#)].

3.2. TCP/RTP/SAVP Transport Realization

The TCP/RTP/SAVP is realized as described below:

- o RTP/SAVP stream over the TCP transport is realized using the framing method defined in [[RFC4571](#)].

3.3. TCP/RTP/SAVPF Transport Realization

The TCP/RTP/SAVPF is realized as described below:

- o RTP/SAVPF stream over the TCP transport is realized using the framing method defined in [[RFC4571](#)].

3.4. TCP/DTLS/RTP/SAVP Transport Realization

The TCP/DTLS/RTP/SAVP is realized as described below:

- o RTP/SAVP using DTLS-based key establishment is realized according to the procedures defined in [[RFC5764](#)]; and
- o [[RFC4571](#)] framing is used to transport DTLS-SRTP packets over TCP.

3.5. TCP/DTLS/RTP/SAVPF Transport Realization

The TCP/DTLS/RTP/SAVPF is realized as described below:

- o RTP/SAVPF using DTLS-based key establishment is realized according to the procedures defined in [[RFC5764](#)]; and
- o [[RFC4571](#)] framing is used to transport DTLS-SRTP packets over TCP.

3.6. TCP/TLS/RTP/AVP Transport Realization

The TCP/TLS/RTP/AVP is realized as described below:

- o RTP/AVP packets are framed using the procedures from [[RFC4571](#)]; and

- o [\[RFC4571\]](#) framed RTP/AVP packets are transported as Application data messages over the TLS association setup using the procedures from [\[RFC4572\]](#).

3.7. TCP/TLS/RTP/AVPF Transport Realization

The TCP/TLS/RTP/AVPF is realized as described below:

- o RTP/AVPF packets are framed using the procedures from [\[RFC4571\]](#); and
- o [\[RFC4571\]](#) framed RTP/AVPF packets are transported as Application data messages over the TLS association setup using the procedures from [\[RFC4572\]](#).

4. ICE Considerations

When procedures from [\[RFC6544\]](#) are used to setup Interactive Connectivity Establishment (ICE) [\[RFC5245\]](#) candidates for a TCP transport, the framing mechanism from [\[RFC4571\]](#) MUST be used for framing Session Traversal Utilities for NAT (STUN) packets (for keep-alives, consent checks), as defined in [section 3 of \[RFC6544\]](#).

5. IANA Considerations

This specification describes the following new SDP transport protocol identifiers: 'TCP/RTP/AVPF', 'TCP/RTP/SAVP', 'TCP/RTP/SAVPF', 'TCP/DTLS/RTP/SAVP', 'TCP/DTLS/RTP/SAVPF', 'TCP/TLS/RTP/AVP', 'TCP/TLS/RTP/AVPF', as defined in the [Section 3](#). These proto values should be registered by the IANA under the "proto" subregistry in the "Session Description Protocol (SDP) Parameters" registry.

[To RFC Editor: Remove this note prior to publication. This registration should take place at the following location: <http://www.iana.org/assignments/sdp-parameters/sdp-parameters.xhtml#sdp-parameters-2>. Replace XXXX in the table below with the assigned number of this RFC]

Type	SDP Name	Reference
proto	TCP/RTP/AVPF	RFCXXXX
proto	TCP/RTP/SAVP	RFCXXXX
proto	TCP/RTP/SAVPF	RFCXXXX
proto	TCP/DTLS/RTP/SAVP	RFCXXXX
proto	TCP/DTLS/RTP/SAVPF	RFCXXXX
proto	TCP/TLS/RTP/AVP	RFCXXXX
proto	TCP/TLS/RTP/AVPF	RFCXXXX

6. Security Considerations

The new "proto" identifiers registered by this document in the SDP parameters registry maintained by IANA is primarily for use by the offer/answer model of the Session Description Protocol [[RFC3264](#)] for the negotiation and establishment of RTP based Media over the TCP transport. These additional SDP "proto" identifiers does not introduce any security considerations beyond those detailed in [Section 7 of \[RFC4566\]](#).

7. Acknowledgements

Author would like to thank Cullen Jennings, Alissa Cooper, Justin Uberti, Mo Zanaty, Christer Holmberg, Jonathan Lennox, Flemming Andreason, Roni Even and Bo Burman for their reviews and suggested improvements.

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