

**IANA registrations of SDP 'proto' attribute for transporting RTP Media
over TCP under various RTP profiles.
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Abstract

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 a 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 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 TCP using SDP with [RFC4571] defining a method for framing Real-time Transport Protocol (RTP) and RTP Control Protocol (RTCP) packets onto a connection-oriented transport (such as TCP). [RFC4572] extends [RFC4145] for describing TCP-based media streams that are protected using 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 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 DTLS-SRTP [RFC5764] 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> ...

An 'm' line that specifies these new proto identifiers MUST further qualify the application-layer protocol using an fmt identifier.

[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 on top of DTLS 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 on top of DTLS 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 ICE [\[RFC5245\]](#) candidates for a TCP transport, the framing mechanism from [\[RFC4571\]](#) is used for STUN keep-alive packets as well, 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:

- o "proto" subregistry in the "Session Description Protocol (SDP) Parameters" registry; and
- o "RTP Profile Names" subregistry in the "Real-Time Transport Protocol (RTP) Parameters" registry.

Additionally the following proto values described in [\[RFC5764\]](#) should be registered under the "RTP Profile Names" subregistry in the "Real-Time Transport Protocol (RTP) Parameters" registry: 'UDP/TLS/RTP/SAVP', 'DCCP/TLS/RTP/SAVP', 'UDP/TLS/RTP/SAVPF', 'DCCP/TLS/RTP/SAVPF'.

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

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