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Registering Values of the SDP 'proto' Field for Transporting RTP Media over TCP under Various RTP Profiles

Abstract

The Real-time Transport Protocol (RTP) specification 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', and 'TCP/TLS/RTP/AVPF'.

Status of This Memo

This is an Internet Standards Track document.

This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Further information on Internet Standards is available in Section 2 of RFC 5741.

Information about the current status of this document, any errata, and how to provide feedback on it may be obtained at http://www.rfc-editor.org/info/rfc7850.

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1. Overview

The Real-time Transport Protocol (RTP) provides end-to-end network transport functions suitable for applications transmitting real-time data such as audio or video over multicast or unicast network services. The data transport is augmented by the 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.

"SDP: Session Description Protocol" [RFC4566] provides a general-purpose format for describing multimedia sessions in announcements or invitations. "TCP-Based Media Transport in the Session Description Protocol (SDP)" [RFC4145] specifies a general mechanism for describing media transport over TCP using SDP with [RFC4571] defining a method for framing RTP and RTCP packets [RFC3550] onto a connection-oriented transport (such as TCP). "Connection-Oriented Media Transport over the Transport Layer Security (TLS) Protocol in the Session Description Protocol (SDP)" [RFC4572] extends [RFC4145] for describing TCP-based media streams that are protected using TLS [RFC5246].

This specification describes additional SDP transport protocol identifiers for transporting RTP media over TCP as defined in Section 3.

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 (identified via the "proto" field) to be used for the media in the session. See Section 5.14 (Media Descriptions) 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> ...
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3.1. TCP/RTP/AVPF Transport Realization

The TCP/RTP/AVPF transport describes RTP media with RTCP-based feedback [RFC4585] over TCP.

The RTP/AVPF stream over TCP is realized using the framing method defined in [RFC4571].

3.2. TCP/RTP/SAVP Transport Realization

The TCP/RTP/SAVP transport describes Secure RTP (SRTP) media [RFC3711] over TCP.

The RTP/SAVP stream over TCP is realized using the framing method defined in [RFC4571].

3.3. TCP/RTP/SAVPF Transport Realization

The TCP/RTP/SAVPF transport describes Secure RTP media with RTCP-based feedback [RFC5124] over TCP.

The RTP/SAVPF stream over TCP is realized using the framing method defined in [RFC4571].

3.4. TCP/DTLS/RTP/SAVP Transport Realization

The TCP/DTLS/RTP/SAVP transport describes Secure RTP media [RFC3711] using Datagram Transport Layer Security SRTP (DTLS-SRTP) [RFC5764] over TCP.

RTP/SAVP using DTLS-based key establishment is realized according to the procedures defined in [RFC5764]. Also, the framing specified in [RFC4571] is used to transport DTLS-SRTP packets over TCP.

3.5. TCP/DTLS/RTP/SAVPF Transport Realization

The TCP/DTLS/RTP/SAVPF transport describes Secure RTP media with RTCP-based feedback [RFC5124] using DTLS-SRTP over TCP.

RTP/SAVPF using DTLS-based key establishment is realized according to the procedures defined in [RFC5764]. Also, the framing specified in [RFC4571] is used to transport DTLS-SRTP packets over TCP.

3.6. TCP/TLS/RTP/AVP Transport Realization

The TCP/TLS/RTP/AVP transport describes RTP Media on top of TLS over TCP.

RTP/AVP packets are framed using the procedures from [RFC4571] and 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 transport describes RTP media with RTCP-based feedback [RFC5124] on top of TLS over TCP.

RTP/AVPF packets are framed using the procedures from [RFC4571] and 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 set up 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 keepalives and 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', and 'TCP/TLS/RTP/AVPF', as defined in Section 3. These values have been registered by the IANA under the "proto" subregistry in the "Session Description Protocol (SDP) Parameters" registry.

Type	SDP Name	Reference
proto	TCP/RTP/AVPF	RFC 7850
proto	TCP/RTP/SAVP	RFC 7850
proto	TCP/RTP/SAVPF	RFC 7850
proto	TCP/DTLS/RTP/SAVP	RFC 7850
proto	TCP/DTLS/RTP/SAVPF	RFC 7850
proto	TCP/TLS/RTP/AVP	RFC 7850
proto	TCP/TLS/RTP/AVPF	RFC 7850

6. Security Considerations

The new "proto" identifiers registered by this document in the SDP parameters registry maintained by IANA are 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. This specification doesn't introduce any additional security considerations beyond those specified by the individual transport protocols identified in the "proto" identifiers and those detailed in Section 7 of [RFC4566].

7. References

7.1. Normative References

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7.2. Informative References

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