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RTP Payload Format for Portable Network Graphics (PNG) image
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Abstract

This document describes how to carry Portable Network Graphics (PNG) images in RTP packets.

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1. Introduction

PNG is a bitmapped image format that employs lossless data compression. PNG is standartized in ISO/IEC 15948:2003 and the W3C's PNG (Second Edition) Recommendation [W3C.REC-PNG-20031110]. Client applications may display PNG images carried in RTP as a slideshow. Application and desktop sharing systems MAY use PNG images to carry screen updates.

2. Requirements Notation

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 [RFC2119].

3. Payload Format

For RTP-based transport of PNG images, the standard RTP header is followed by the payload data. There is no payload header. The payload data contains the PNG image. Each RTP packets carries a single PNG image or a fragment of a PNG image.

3.1. RTP Header Usage

Marker Bit: The marker bit is used to indicate the last packet part of a PNG image. PNG images may not fit into a single RTP packet. This enables the client to finish decoding the image, where it otherwise may need to wait for the next packet to explicitly know that. The M bit is set to one to indicate that the RTP packet payload contains a complete PNG image or contains the final fragment of a PNG image.

Timestamp: For PNG image streams, the RTP timestamp is based on a 90-kHz clock. If a PNG image occupies more than one packet, the timestamp SHALL be the same on all of those packets. Furthermore, the initial value of the timestamp MUST be random (unpredictable) to make known-plaintext attacks on encryption more difficult; see RTP [RFC3550].

The remaining RTP header fields are used as specified in RFC 3550.

4. SDP Parameters

The MIME media type image/png string is mapped to fields in the Session Description Protocol (SDP) as follows:

The media name in the "m=" line of SDP MUST be image.

The encoding name in the "a=rtpmap" line of SDP MUST be png (the MIME subtype).

5. Security Considerations

RTP packets using the payload format defined in this specification are subject to the security considerations discussed in the RTP specification [RFC3550].

6. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC3550] Schulzrinne, H., Casner, S., Frederick, R., and V. Jacobson, "RTP: A Transport Protocol for Real-Time Applications", STD 64, RFC 3550, July 2003.

[W3C.REC-PNG-20031110] Duce, D., "Portable Network Graphics (PNG) Specification (Second Edition)", World Wide Web Consortium Recommendation REC-PNG-20031110, November 2003, <http://www.w3.org/TR/2003/REC-PNG-20031110>.

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