

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: March 12, 2009

O. Boyaci
H. Schulzrinne
Columbia U.
September 8, 2008

**RTP Payload Format for Portable Network Graphics (PNG) image
draft-boyaci-avt-png-00**

Status of this Memo

By submitting this Internet-Draft, each author represents that any applicable patent or other IPR claims of which he or she is aware have been or will be disclosed, and any of which he or she becomes aware will be disclosed, in accordance with [Section 6 of BCP 79](#).

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on March 12, 2009.

Abstract

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

Table of Contents

1.	Introduction	3
2.	Requirements Notation	4
3.	Payload Format	5
3.1.	RTP Header Usage	5
4.	SDP Parameters	6
5.	Security Considerations	7
6.	Normative References	8
	Authors' Addresses	9
	Intellectual Property and Copyright Statements	10

1. Introduction

PNG is a bitmapped image format that employs lossless data compression. PNG is standardized in ISO/IEC 15948:2003 and the W3C's PNG (Second Edition) Recommendation [[W3C.REC-PNG-20031110](http://www.w3.org/TR/2003/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>>.

Authors' Addresses

Omer Boyaci
Columbia University
Dept. of Computer Science
1214 Amsterdam Avenue
New York, NY 10027
US

Email: boyaci@cs.columbia.edu

Henning Schulzrinne
Columbia University
Dept. of Computer Science
1214 Amsterdam Avenue
New York, NY 10027
US

Email: schulzrinne@cs.columbia.edu

Full Copyright Statement

Copyright (C) The IETF Trust (2008).

This document is subject to the rights, licenses and restrictions contained in [BCP 78](#), and except as set forth therein, the authors retain all their rights.

This document and the information contained herein are provided on an "AS IS" basis and THE CONTRIBUTOR, THE ORGANIZATION HE/SHE REPRESENTS OR IS SPONSORED BY (IF ANY), THE INTERNET SOCIETY, THE IETF TRUST AND THE INTERNET ENGINEERING TASK FORCE DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTY THAT THE USE OF THE INFORMATION HEREIN WILL NOT INFRINGE ANY RIGHTS OR ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Intellectual Property

The IETF takes no position regarding the validity or scope of any Intellectual Property Rights or other rights that might be claimed to pertain to the implementation or use of the technology described in this document or the extent to which any license under such rights might or might not be available; nor does it represent that it has made any independent effort to identify any such rights. Information on the procedures with respect to rights in RFC documents can be found in [BCP 78](#) and [BCP 79](#).

Copies of IPR disclosures made to the IETF Secretariat and any assurances of licenses to be made available, or the result of an attempt made to obtain a general license or permission for the use of such proprietary rights by implementers or users of this specification can be obtained from the IETF on-line IPR repository at <http://www.ietf.org/ipr>.

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights that may cover technology that may be required to implement this standard. Please address the information to the IETF at ietf-ipr@ietf.org.

