

AVT Working Group
Internet Draft
Intended status: Standards Track
Expires: July 24, 2008

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January 24, 2008

Media Type Registration of GSM-HR payload Format
draft-rocky-avt-rtp-gsm-hr-00.txt

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Abstract

This document registers a media type for the Real-time Transport protocol (RTP) payload format, which is used for the Group Special Mobile half-rate speech transcoding.

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[1](#). Introduction

Global System for Mobile Communication (GSM) network has been widely deployed in the last several years to provide mobile communication services. GSM half rate codec (GSM-HR) is one of the compressed audio codecs which are used for the basic speech service in the GSM mobile networks.

GSM-HR denotes GSM 06.20 half-rate speech transcoding, specified in ETS 300 969 which is available from ETSI at the address given in [RFC 3551](#) [[1](#)] [Section 4.5.8](#). This codec has a frame length of 112 bits. For transmission in RTP, each codec frame is packed into a 14 octet(112 bit). The packing is specified in ETSI Technical Specification TS 101 318.

This document registers a media type for the Real-time Transport protocol (RTP) payload format for the GSM-HR codec to enabling the use of the codec in the Voice over IP (VoIP) application.

1.1. 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](#) [[2](#)].

[2](#). Registration of Media Type audio/GSM-HR

Type name: audio

Subtype name: GSM-HR

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Required parameters: none

Optional parameters:

ptime: the recommended length of time (in milliseconds) represented by the media in a packet and the default value is 20 milliseconds. See [Section 6 of RFC 4566](#) [3].

Encoding considerations:

This media type is framed binary data (see [Section 4.8 in RFC4288](#) [4]).

Security consideration:

This media type does not carry active content. It does transfer compressed data. See [Section 4](#).

Interoperability considerations: none

Published specification: RFC XXXX

Applications that use this media type:

Audio and video streaming and conferencing tools

Additional information: none

Person & email address to contact for further information:

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Intended usage: COMMON

Restrictions on usage:

This media type depends on RTP framing, and hence is only defined for transfer via RTP ([RFC 3550](#) [5]). Transfer within other framing protocols is not defined at this time.

Author:

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Change controller:

IETF Audio/Video Transport working group delegated from the IESG.

3. Mapping MIME Parameters into SDP

The information carried in the MIME media type specification has a specific mapping to fields in the Session Description Protocol (SDP) [3], which is commonly used to describe RTP sessions. When SDP is used to specify sessions employing the compact bundled format for GSM half-rate speech, the mapping is as follows:

The MIME type ("audio") goes in SDP "m=" as the media name.

The MIME subtype ("GSM-HR") goes in SDP "a=rtpmap" as the encoding name and the sampling rate for the GSM-HR codec is 8 KHz.

The optional parameters "ptime" goes in the SDP "a=ptime" attributes, respectively.

The payload type value for GSM-HR is created dynamically and is used in the PT field of the RTP data header.

4. Security Considerations

RTP packets using the GSM-HR payload format are subject to the security considerations discussed in the RTP specification [5].

A potential denial-of-service threat exists for data encodings using compression techniques that have non-uniform receiver-end computational load. The attacker can inject pathological datagrams into the stream which are complex to decode and cause the receiver to be overloaded. However, this encoding does not exhibit any significant non-uniformity.

As with any IP-based protocol, in some circumstances a receiver may be overloaded simply by the receipt of too many packets, either desired or undesired. Network-layer authentication MAY be used to discard packets from undesired sources, but the processing cost of the authentication itself may be too high.

5. IANA Considerations

It is requested that one new media subtype (audio/GSM-HR) is registered by IANA. For details, see [Section 2](#).

6. References

6.1. Normative References

- [1] Schulzrinne, H. and S. Casner, "RTP Profile for Audio and Video Conferences with Minimal Control", [RFC 3551](#), July 2003.
- [2] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [3] Handley, M., Jacobson, V., and C. Perkins, "SDP: Session Description Protocol", [RFC 4566](#), July 2006.
- [4] Freed, N. and J. Klensin, "Media Type Specifications and Registration Procedures", [BCP 13](#), [RFC 4288](#), December 2005.
- [5] Schulzrinne, H., Casner, S., Frederick, R. and V. Jacobson, "RTP: A Transport Protocol for Real-Time Applications", [RFC 3550](#), July 2003.

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Acknowledgment

Funding for the RFC Editor function is currently provided by the Internet Society.