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## **Registration of the text/red MIME Sub-Type**

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### Abstract

This document defines the text/red MIME sub-type. The actual RTP packetization for this MIME type is specified in [RFC 2198](#).

[Note to RFC Editor: All references to RFC XXXX are to be replaced by references to the RFC number of this memo when published.]

## **1. Introduction**

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Text is an important component of any multimedia communication system. Like audio, the transport of text can benefit from the use of redundancy in order to improve reliability and end-user experience.

[RFC 2198](#) [1] defines an RTP [2] payload format for redundant audio data. The format defined in that document is quite suitable for providing redundancy for text, as well as audio.

[RFC 2793](#) [7] specifies one usage of [RFC 2198](#) and the text/red MIME type for the transport of redundant text data.

This memo provides the MIME sub-type registration information for text/red. While this document focuses on the use of this MIME sub-type in SDP [5], the application of this MIME sub-type is not restricted to SDP.

## **2. Conventions used in this document**

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](#) [3].

## **3. IANA Considerations**

One new MIME sub-type is to be registered, as described below:

MIME media type name: text

MIME subtype name: RED

Required parameters:

rate: the RTP clock rate of the payload carried within the RTP packet. Typically, this rate is 1000, but other rates MAY be specified. This parameter MUST be set equal to the clock rate of the text payload format carried as the primary encoding.

pt: a comma-separated ordered list of RTP payload types enumerating the primary, secondary, etc., in accordance with [RFC 2198](#). Because comma is a special character, the list MUST be a quoted-string (enclosed in double quotes). For static payload types, each list element is simply the type number. For dynamic payload types, each list element is a mapping of the dynamic payload type number to an embedded MIME content-type specification for the payload format corresponding to the dynamic payload type. The format of the mapping is:

dynamic-payload-type "=3D" content-type

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If the content-type string includes a comma, then the content-type string MUST be a quoted-string. If the content-type string does not include a comma, it MAY still be quoted. Since it is part of the list which must itself be a quoted-string, that means the quotation marks MUST be quoted with backslash quoting as specified in [RFC 2045](#) [4]. If the content-type string itself contains a quoted-string, then the requirement for backslash quoting is recursively applied.

Optional parameters: ptime, maxptime

Encoding considerations:

This type is only defined for transfer via RTP.

Security considerations: Refer to [section 5](#) of RFC XXXX.

Interoperability considerations: none

Published specification: [RFC 2198](#)

Applications which use this media type:

Text streaming and conferencing tools.

Additional information: none

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Intended usage: COMMON

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#### [4.](#) Mapping to SDP Parameters

The information carried in the MIME media type specification has a specific mapping to fields in the Session Description Protocol (SDP) [5], which is commonly used to describe RTP sessions. When SDP is used to specify sessions employing the [RFC 2198](#) in a text session, the mapping is as follows:

- The MIME type ("text") goes in SDP "m=3D" as the media name.
- The value of the parameter "rate" goes in SDP "a=3Drtpmap".
- The MIME subtype (RED) goes in SDP "a=3Drtpmap"

as the encoding name.

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- The parameters "ptime" and "maxptime" go in the SDP "a=3Dptime" and "a=3Dmaxptime" attributes, respectively.
- The pt parameter is mapped to an a=3Dfmtpt attribute by eliminating the parameter name (pt) and changing the commas to slashes. For example, 'pt=3D"101,102"' maps to 'a=3Dfmtpt:99 101/102', where = '99' is the payload type of the redundancy frames. Note that the single quote marks (') used in this example is not present in the actual message encoding, but is present here only for readability. The level of redundancy is shown by the number of elements in the payload type list.

Any dynamic payload type in the list MUST be represented by its payload type number and not by its content-type. The mapping of payload types to the content-type is done using the normal SDP procedures with "a=3Drtpmap".

An example of SDP is:

```
m=3Dtext 11000 RTP/AVP 98 100
a=3Drtpmap:98 t140/1000
a=3Drtpmap:100 red/1000
a=3Dfmtpt:100 98/98
```

For each redundancy payload type defined, the ordering of the primary and redundancy encoding(s) is fixed. If more than one combination of primary and redundancy encoding(s) is desired, multiple redundancy payload types needs to be defined.

## **5. Security Considerations**

The security considerations listed in [RFC 2198](#) apply. Further, it should be understood that text data, perhaps even more so than audio data, is susceptible to unwanted modification that may lead to undesired results. To prevent modification of the primary, secondary or header information, payload integrity protection over at least the complete RTP packet is RECOMMENDED, for example using SRTP [\[8\]](#).

## **6. Normative References**

- [1] Perkins, C., et al., "RTP Payload for Redundant Audio Data", [RFC 2198](#), September 1997.
- [2] Schulzrinne, et al., "RTP: A Transport Protocol for Real-Time Applications", [RFC 3550](#), July 2003.

- [3] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [RFC 2119](#), March 1997.



- [4] Freed, N., Borenstein, N., "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies", [RFC 2045](#), November 1996.
- [5] Handley, M., Jackson, V., "SDP: Session Description Protocol", [RFC 2327](#), April 1998.
- [6] Casner, S., Hoschka, P., "MIME Type Registration of RTP Payload Formats", [RFC 3555](#), July 2003.

## **7. Informative References**

- [7] Hellstrom, G., "RTP Payload for Text Conversation", [RFC 2793](#), May 2000.
- [8] Baugher, et al., "The Secure Real-time Transport Protocol", [RFC 3711](#), March 2004.

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