RTCP XR Report Block for Measurement Identity
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Abstract

This document defines an RTCP XR Report Block carrying parameters which identify a measurement, to which one or more other RTCP XR Report Blocks may refer.

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This draft defines a new block type to augment those defined in
[RFC3611] (Friedman, T., "RTP Control Protocol Extended Reports (RTCP
XR)," November 2003.) for use in a range of RTP applications. This block
type does not itself contain any measurement results (metrics). However,
this new block type provides information relevant to a measurement
reported in one or more other block types, including

    *a tag or key by which other blocks (containing metrics
     information) may refer to this block

    *the SSRC of the measured stream,

    *a field for incorporation of an application-specific auxiliary
     identifier,

    *the sequence number of the first packet of the RTP session,

    *the extended sequence numbers of the first packet of the current
     measurement interval, and the last packet included in the
     measurement,

    *the duration of the most recent measurement interval and

*the duration of the interval applicable to cumulative measurements
      (which may be the duration of the RTP session to date).

The method for calculation of the extended RTP sequence number is
provide in [RFC3550] (Schulzrinne, H., "RTP: A Transport Protocol for
Real-Time Applications," July 2003.).
This block is intended to provide a single copy of the information
necessary to relate measurement data in other blocks to the stream, and
measurement period, to which they refer. Commonly, multiple other small
blocks contain measurement data for the same stream and period, and it
would be a large overhead if all of these blocks carried duplicated data
for measurement identification. Other blocks make a reference to this
block (by tag).
A Measurement Identity block is associated with the set of RTCP XR
metrics blocks which share its tag value. There MAY be several such sets
in an RTCP packet, up to a limit of 8 arising from the use of 3-bit
tags. There MAY also be RTCP XR blocks in the packet which are not
associated with a Measurement Identity block, for example blocks which
were defined before the Measurement Identity mechanism was introduced by
this document.

1.2. RTCP and RTCP XR Reports

The use of RTCP for reporting is defined in [RFC3550] (Schulzrinne, H.,
"RTP: A Transport Protocol for Real-Time Applications," July 2003.).
[RFC3611] (Friedman, T., "RTP Control Protocol Extended Reports (RTCP
XR)," November 2003.) defined an extensible structure for reporting
using an RTCP Extended Report (XR). This draft defines a new Extended
Report block that MUST be used as defined in [RFC3550] (Schulzrinne, H.,
"RTP: A Transport Protocol for Real-Time Applications," July 2003.) and
[RFC3611] (Friedman, T., "RTP Control Protocol Extended Reports (RTCP
XR)," November 2003.).

1.3. Performance Metrics Framework

The Performance Metrics Framework [PMOLFRAME] (Clark, A., "Framework for
Performance Metric Development," March 2009.) provides guidance on the
definition and specification of performance metrics. Metrics described
in this draft either reference external definitions or define metrics
generally in accordance with the guidelines in [PMOLFRAME] (Clark, A.,
"Framework for Performance Metric Development," March 2009.).

1.4. Applicability

This block provides identification information for members of a family
of RTCP XR metrics blocks which are designed to use it. To use the
mechanism defined here, a metrics block must be in the same RTCP packet
as the Measurement Identity block and must refer to the Measurement
Identity block via the 3-bit tag field defined below.

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2. Measurement Identity Block

2.1. Report Block Structure

```
 0                   1                   2                   3
 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|     BT=NMI    |0| tag | resv  |       block length = 7        |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                     SSRC of stream source                     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                       sub-identifier                          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|        reserved          |          first seq num             |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|       extended first sequence number of interval             |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|            extended last sequence number                     |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|        Measurement Duration (Cumulative) (ms)                |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|         Measurement Duration (Interval) (ms)                 |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```
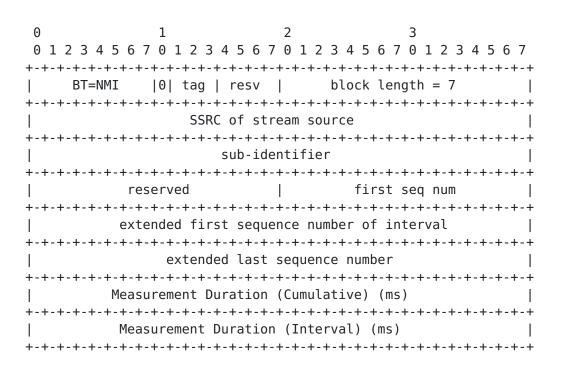
Figure 1: Report Block Structure

2.2. Definition of Fields in Measurement Identity Report Block

Bits shown as '0' in the figure SHOULD be set to zero.
block type (BT): 8 bits

> A Measurement Identity Report Block is identified by the constant
> NMI.

[Note to RFC Editor: please replace NMI with the IANA provided RTCP XR
block type for this block.]
tag: 3 bits

> This field is a tag or key which identifies this Measurement
> Identity block within the scope of an RTCP packet. If an RTCP packet
> contains more than one Measurement Identity block, each Measurement
> Identity block MUST have a unique tag field to enable metrics blocks
> in the same RTCP packet to refer unambiguously to the correct
> Measurement Identity block. The 3-bit field allows up to 8
> Measurement Identity blocks in each RTCP packet. If additional
> metrics must be sent at a given time, and they require more than 8
> blocks of Measurement Identity information, then the metrics must be
> sent in multiple RTCP packets.

resv: 4 bits

> These bits are reserved. They MUST be set to zero by senders. They
> MUST be ignored by receivers.

block length: 16 bits

> The length of this report block in 32-bit words minus one. For the
> Measurement Identity block, the block length is equal to 7.

SSRC of source: 32 bits

> The SSRC [RFC3550] (Schulzrinne, H., "RTP: A Transport Protocol for
> Real-Time Applications," July 2003.) of the source of the stream
> being reported. Note that the SSRC of the reporting RTP system (the
> originator of the report block) is present in the RTCP XR header
> defined in Section 2 of [RFC3611] (Friedman, T., "RTP Control
> Protocol Extended Reports (RTCP XR)," November 2003.).

sub-identifier: 32 bits

> An additional identifier which is useful in the context of a
> specific application, e.g. an MPEG-2 transport identifier [MPEG2]
> (ISO/IEC, "Standard 13818-1," December 2000.). Where the identifier
> is less than 32 bits, the identifier SHOULD be mapped into the most
> significant bits of the field. If no additional identifier is
> provided, all bits of the field MUST be set to zero. This field MUST
> be ignored by applications which are not configured to make use of
> it.

reserved: 16 bits

> These bits are reserved. They MUST be ignored by receivers. They MUST be set to zero by senders.

first seq num: 16 bits

> The RTP sequence number of the first received RTP packet of the session, used to determine the number of packets contributing to cumulative measurements.

extended first sequence number of interval: 32 bits

> The extended RTP sequence number of the first received RTP packet of the current measurement interval.

extended last sequence number: 32 bits

> The extended RTP sequence number of the last received RTP packet which contributed to this measurement.

Measurement Duration (Cumulative) (ms): 32 bits

> The duration in ms of the reporting interval applicable to Cumulative reports which use this Measurement Identity block.

Measurement Duration (Interval) (ms): 32 bits

> The duration in ms of the reporting interval applicable to Interval reports which use this Measurement Identity block.

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3. SDP Signaling

[RFC3611] (Friedman, T., "RTP Control Protocol Extended Reports (RTCP XR)," November 2003.) defines the use of SDP (Session Description Protocol) [RFC4566] (Handley, M., "SDP: Session Description Protocol," July 2006.) for signaling the use of XR blocks. XR blocks MAY be used without prior signaling.
No additional SDP signaling is defined for this block. Instead, the need for this block SHOULD be inferred from a request in SDP signalling for a block type (such as [DISCARD] (Hunt, G., "RTCP XR Report Block for Discard metric Reporting," May 2009.)) which depends on it.

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4. IANA Considerations

New block types for RTCP XR are subject to IANA registration. For
general guidelines on IANA considerations for RTCP XR, refer to
[RFC3611].

4.1. New RTCP XR Block Type value

This document assigns the block type value NMI in the IANA "RTCP XR
Block Type Registry" to the "Measurement Identity Block".
[Note to RFC Editor: please replace NMI with the IANA provided RTCP XR
block type for this block.]

4.2. Contact information for registration

The contact information for the registration is:
Geoff Hunt (geoff.hunt@bt.com)
Orion 2 PP3, Adastral Park, Martlesham Heath, Ipswich IP5 3RE, United
Kingdom

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5. Security Considerations

RTCP reports can contain sensitive information since they can provide
information about the nature and duration of a session established
between two or more endpoints.

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6. Changes since last version

Updated references.

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7. References

7.1. Normative References

[RFC2119]

	Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels," RFC 2119, BCP 14, March 1997.
[RFC3550]	Schulzrinne, H., "RTP: A Transport Protocol for Real-Time Applications," RFC 3550, July 2003.
[RFC3611]	Friedman, T., "RTP Control Protocol Extended Reports (RTCP XR)," RFC 3611, November 2003.
[RFC4566]	Handley, M., "SDP: Session Description Protocol," RFC 4566, July 2006.

7.2. Informative References

[DISCARD]	Hunt, G., "RTCP XR Report Block for Discard metric Reporting," ID draft-ietf-avt-rtcp-xr-discard-02, May 2009.
[MONARCH]	Hunt, G., "Monitoring Architectures for RTP," ID draft-hunt-avt-monarch-01, August 2008.
[MPEG2]	ISO/IEC, "Standard 13818-1," December 2000.
[PMOLFRAME]	Clark, A., "Framework for Performance Metric Development," ID draft-ietf-pmol-metrics-framework-02, March 2009.

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