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RTCP XR Report Block for Jitter Buffer Metric Reporting
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Abstract

This document defines an RTCP XR Report Block that allows the reporting of Jitter Buffer metrics for a range of RTP applications.

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Internet-Draft

RTCP XR Jitter Buffer

February 2009

[1.](#) Introduction

[1.1.](#) Jitter Buffer Metrics Block

This draft defines a new block type to augment those defined in [\[RFC3611\]](#), for use in a range of RTP applications.

The new block type provides information on jitter buffer configuration and performance.

The metric belongs to the class of transport-related terminal metrics defined in [\[MONARCH\]](#) (work in progress).

Instances of this Metrics Block refer by tag to the separate auxiliary Measurement Identity block [\[MEASIDENT\]](#) which contains information such as the SSRC of the measured stream, and RTP sequence numbers and time intervals indicating the span of the report.

[1.2.](#) RTCP and RTCP XR Reports

The use of RTCP for reporting is defined in [\[RFC3550\]](#). [\[RFC3611\]](#) 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 [\[RFC3550\]](#) and [\[RFC3611\]](#).

[1.3.](#) Performance Metrics Framework

The Performance Metrics Framework [\[PMOLFRAME\]](#) 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 [\[PMOLFRAME\]](#).

[1.4.](#) Applicability

These metrics are applicable to a range of RTP applications.

2. Jitter Buffer Metrics Block

This block describes the configuration and operating parameters of the jitter buffer in the receiver of the RTP end system or RTP mixer which sends the report.

2.1. Report Block Structure

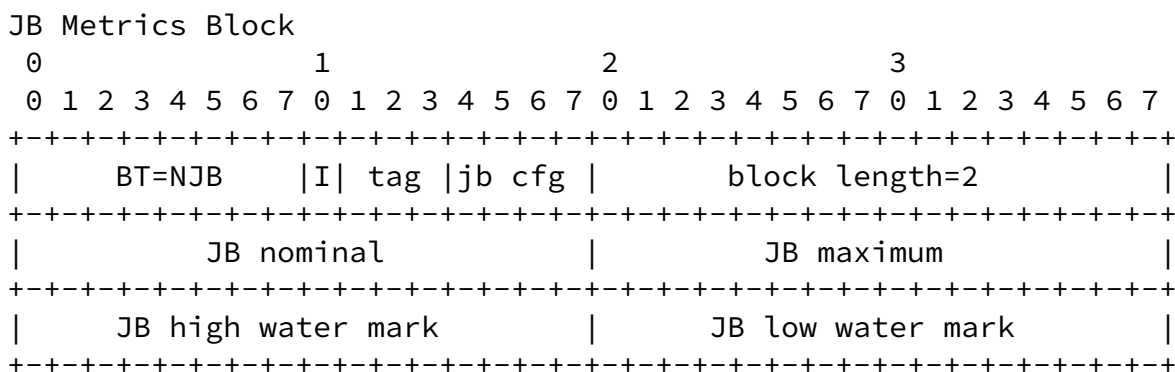


Figure 1: Report Block Structure

2.2. Definition of Fields in Jitter Buffer Metrics Block

block type (BT): 8 bits

A Jitter Buffer Metrics Report Block is identified by the constant NJB.

[Note to RFC Editor: please replace NJB with the IANA provided RTCP

XR block type for this block.]

Interval Metric flag (I): 1 bit

This field is used to indicate whether the Jitter Buffer Metrics block is an Interval or a Cumulative report, that is, whether the reported values apply to the most recent measurement interval duration between successive metrics reports (I=1) (the Interval Duration) or to the accumulation period characteristic of cumulative measurements (I=0) (the Cumulative Duration). Numerical values for both these intervals are provided in the Measurement Identifier block referenced by the tag field below.

Measurement Identifier association (tag): 3 bits

This field is used to identify the Measurement Identifier block [[MEASIDENT](#)] which describes this measurement. The relevant Measurement Identifier block has the same tag value as the Jitter Buffer Metrics block. Note that there may be more than one

Measurement Identifier block per RTCP packet.

Jitter Buffer Configuration (jb cfg): 4 bits

This field is used to identify the jitter buffer method in use at the receiver, according to the following code:

bits 014-017
0 = Fixed jitter buffer
1 = Adaptive jitter buffer
Other values reserved

block length: 16 bits

The length of this report block in 32-bit words, minus one. For the Jitter Buffer block, the block length is equal to 2.

jitter buffer nominal delay (JB nominal): 16 bits

This is the current nominal jitter buffer delay in milliseconds, which corresponds to the nominal jitter buffer delay for packets

that arrive exactly on time. This parameter MUST be provided for both fixed and adaptive jitter buffer implementations.

If the measured value exceeds 0xFFFFD, the value 0xFFFFE SHOULD be reported to indicate an over-range measurement. If the measurement is unavailable, the value 0xFFFF SHOULD be reported.

jitter buffer maximum delay (JB maximum): 16 bits

This is the current maximum jitter buffer delay in milliseconds which corresponds to the earliest arriving packet that would not be discarded. In simple queue implementations this may correspond to the nominal size. In adaptive jitter buffer implementations, this value may dynamically. This parameter MUST be provided for both fixed and adaptive jitter buffer implementations.

If the measured value exceeds 0xFFFFD, the value 0xFFFFE SHOULD be reported to indicate an over-range measurement. If the measurement is unavailable, the value 0xFFFF SHOULD be reported.

jitter buffer high water mark (JB high water mark): 16 bits

This is the highest value of the jitter buffer nominal delay which occurred at any time during the reporting interval.

If the measured value exceeds 0xFFFFD, the value 0xFFFFE SHOULD be reported to indicate an over-range measurement. If the measurement is unavailable, the value 0xFFFF SHOULD be reported.

jitter buffer low water mark (JB low water mark): 16 bits

This is the lowest value of the jitter buffer nominal delay which occurred at any time during the reporting interval.

If the measured value exceeds 0xFFFFD, the value 0xFFFFE SHOULD be reported to indicate an over-range measurement. If the measurement is unavailable, the value 0xFFFF SHOULD be reported.

3. SDP Signaling

[RFC3611] defines the use of SDP (Session Description Protocol) [RFC4566] for signaling the use of XR blocks. XR blocks MAY be used without prior signaling.

This section augments the SDP [RFC4566] attribute "rtcp-xr" defined in [RFC3611] by providing an additional value of "xr-format" to

signal the use of the report block defined in this document.

rtcp-xr-attrib = "a=" "rtcp-xr" ":" [xr-format *(SP xr-format)] CRLF

(defined in [[RFC3611](#)])

xr-format = xr-format / xr-jb-block

xr-jb-block = "jitter-bfr"

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 NJB in the IANA "RTCP XR Block Type Registry" to the "JB Metrics Block".

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

[4.2.](#) New RTCP XR SDP Parameter

This document also registers a new parameter "jitter-bfr" in the "RTCP XR SDP Parameters Registry".

[4.3.](#) Contact information for registrations

The contact information for the registrations is:

Geoff Hunt (geoff.hunt@bt.com)

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5. Security Considerations

It is believed that this proposed RTCP XR report block introduces no new security considerations beyond those described in [[RFC3611](#)]. This block does not provide per-packet statistics so the risk to confidentiality documented in [Section 7](#), paragraph 3 of [[RFC3611](#)] does not apply.

6. Contributors

The authors gratefully acknowledge the comments and contributions made by Bruce Adams, Philip Arden, Amit Arora, Bob Biskner, Kevin Connor, Claus Dahm, Randy Ethier, Roni Even, Jim Frauenthal, Albert Higashi, Tom Hock, Shane Holthaus, Paul Jones, Rajesh Kumar, Keith Lantz, Mohamed Mostafa, Amy Pendleton, Colin Perkins, Mike Ramalho, Ravi Raviraj, Albrecht Schwarz, Tom Taylor, and Hideaki Yamada.

[7.](#) Changes since previous version

Expanded and clarified IANA Considerations section

Changed SDP tag for block to "jitter-bfr"

[8.](#) References

[8.1.](#) Normative References

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