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RTCP XR Report Block for TS Decodability Statistics Metric reporting
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Abstract

This document defines an RTCP XR Report Block that allows the reporting of Decodability Statistics Metric used for Transport Stream.

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Internet-Draft

RTCP XR Decodability Report Blocks

October 2010

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RTCP XR Decodability Report Blocks

October 2010

[1.](#) Introduction

This draft defines a new block type to augment those defined in [\[RFC3611\]](#) for use in Transport Stream. The new block type supports the reporting of consistency of Transport Stream [\[ETSI\]](#). This new block type can be useful for identifying the existence, and characterising the severity, of a packet transport problem which may affect users' perception of a service delivered over RTP, also useful for Verifying the continued correct operation of an existing system management and providing accurate measures of Transport Stream quality for operators.

The metric is applicable to any other types of RTP application that use TS standard format for transmission and storage of audio, video, and data.

[2.](#) Terminology

[2.1.](#) Standards Language

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](#) [\[RFC2119\]](#).

In addition, the following terms are defined:

[2.2.](#) Acronyms

SSRC

Synchronization Source [\[RFC3550\]](#)

TS

Transport Stream [\[ISO-IEC.13818-1.2007\]](#)

3. TR 101 290 Decodability Statistics Metric Report Block

This block reports decodability statistics metric beyond the information carried in the standard RTP packet format. Information is recorded about the number of Transport Stream Synchronization Losses, Sync byte errors, Continuity count errors, Transport errors, Program Clock Reference (PCR) errors, PCR repetition errors, PCR discontinuity indicator errors, and Presentation Time Stamp (PTS) errors [ETSI]. Such information can be useful for network management and video quality monitoring.

Note that this is not only applicable to MPEG-2 RTP streams

[RFC2250], but also applicable to any other video codec using Transport Stream as input.

The report block contents are dependent upon a series of flag bits carried in the first part of the header. Not all parameters need to be reported in each block. Flags indicate which are and which are not reported. The fields corresponding to unreported parameters MUST be present, but are set to zero. The receiver MUST ignore any Decodability Metrics Block with a non-zero value in any field flagged as unreported.

The Decodability Metrics Block has the following format:

0																1																2																3															
0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9	0	1																																
BT=TBD																L B C T P S rvd																block length																															
SSRC of source																																																															
begin_seq																end_seq																																															
Number of packets																Number of TSs																																															
Transport Stream Synchronization Losses																																																															
Sync byte errors																																																															
Continuity count errors																																																															

```

+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                                     Transport errors                                     |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                                     PCR errors                                       |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                                     PCR repetition errors                           |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                                     PCR discontinuity indicator errors               |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|                                     PTS errors                                       |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

block type (BT): 8 bits

A TR 101 290 decodability metrics report block is identified by the constant <TDM>.

Transport Stream Synchronization Loss flag (L): 1 bit

Bit set to 1 if the Transport Stream Synchronization Loss field contains a report, 0 otherwise.

Sync byte error flag (B): 1 bit

Bit set to 1 if the Sync byte error field contains a report, 0 otherwise.

Continuity count error flag (C): 1 bit

Bit set to 1 if the Continuity count error field contains a report, 0 otherwise.

Transport error flag (T): 1 bit

Bit set to 1 if the Transport error field contains a report, 0 otherwise.

PCR related error flag (P): 1 bit

Bit set to 1 if the PCR error field, PCR repetition error field and PCR discontinuity indicator error fields contain a report, 0 otherwise.

PTS error flag (S): 1 bit

Bit set to 1 if the PTS error field contains a report, 0 otherwise.

rvd: 2 bits

This field is reserved for future definition. In the absence of such a definition, the bits in this field MUST be set to zero and MUST be ignored by the receiver.

block length: 16 bits

The constant 10, in accordance with the definition of this field in [Section 3 of RFC 3611](#) [RFC3611].

SSRC of source: 32 bits

As defined in [Section 4.1 of \[RFC3611\]](#).

begin_seq: 16 bits

As defined in [Section 4.1 of \[RFC3611\]](#).

end_seq: 16 bits

As defined in [Section 4.1 of \[RFC3611\]](#).

Number of Packets: 16 bits

Number of RTP packets in the above sequence number interval.

Number of TSs: 16 bits

Number of Transport Streams in the above sequence number interval.

Transport Stream Synchronization Losses: 32 bits

Number of Transport Stream Synchronization Losses in the above sequence number interval.

Sync byte errors: 32 bits

Number of Transport sync byte errors in the above sequence number interval.

Continuity count error: 32 bits

Number of Transport Continuity count errors in the above sequence number interval.

Transport errors: 32 bits

Number of Transport errors in the above sequence number interval.

PCR errors: 32 bits

Number of PCR errors in the above sequence number interval.

PCR repetition errors: 32 bits

Number of Transport PCR repetition errors in the above sequence number interval.

PCR discontinuity indicator errors: 32 bits

Number of PCR discontinuity indicator errors in the above sequence number interval.

PTS errors: 32 bits

Number of PTS errors in the above sequence number interval.

[4.](#) SDP Signaling

One new parameters are defined for the one report blocks defined in this document to be used with Session Description Protocol (SDP) [[RFC4566](#)] using the Augmented Backus-Naur Form (ABNF) [[RFC5234](#)]. They have the following syntax within the "rtcp-xr" attribute [[RFC3611](#)]:

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

```
xr-format = decodability-metrics
```

```
decodability-metrics = "decodability-metrics"  
                      ["=" stat-flag *(", " stat-flag)]
```

```
stat-flag = "TS Synchronization Loss "
```

```
    / "Sync byte error "  
    / "Continuity count error "  
    / "Transport error"  
    / "PCR related error"  
    / "PTS error"
```

Refer to [Section 5.1 of RFC 3611](#) [[RFC3611](#)] for a detailed description and the full syntax of the "rtcp-xr" attribute.

[5.](#) IANA Considerations

New report block types for RTCP XR are subject to IANA registration. For general guidelines on IANA allocations for RTCP XR, refer to [Section 6.2 of \[RFC3611\]](#).

This document assigns one new block type values in the RTCP XR Block Type Registry:

Name: TDM
Long Name: TR 101 290 Decodability Metrics
Value <TDM>
Reference: [section 3](#)

This document also registers one SDP [[RFC4566](#)] parameters for the "rtcp-xr" attribute in the RTCP XR SDP Parameters Registry:

* "decodability-metrics"

The contact information for the registrations is:

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[6.](#) Security Considerations

[7.](#) References

[7.1.](#) Normative References

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