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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Coding of moving
video

**Video back-channel messages for conveyance
of status information and requests from a video
receiver to a video sender**

ITU-T Recommendation H.271



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ITU-T Recommendation H.271

Video back-channel messages for conveyance of status information and requests from a video receiver to a video sender

Summary

This Recommendation specifies the format of back-channel messages for conveyance of status information and requests from a video receiver to a video sender.

The message syntax has been designed in a generic way to make it applicable for use with the majority of the existing international video coding standards. The application of the generic messages to ITU-T Recs H.261, H.263, and H.264 | ISO/IEC 14496-10 is specified.

Source

ITU-T Recommendation H.271 was approved on 29 May 2006 by ITU-T Study Group 16 (2005-2008) under the ITU-T Recommendation A.8 procedure.

Keywords

Back-channel message, receiver feedback, reference picture selection, video.

FOREWORD

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Introduction

0.1 Purpose

For some applications, the transmission of additional data (in-band or out-of-band) is useful for improving video quality of service. This Recommendation specifies data payloads for use with a variety of video coding technologies. The data payloads are specified in a generic way to make them applicable to prevalent existing video coding standards. The application of the generic messages to ITU-T Recs H.261, H.263, and H.264 is specified.

0.2 Overview

The following information can be signalled from a video receiver to a video sender using the back-channel message(s) defined in this Recommendation:

- Status reports:
 - One or more pictures that are without detected bitstream error mismatch;
 - Picture-level and/or macroblock-level losses;
 - Information of important header information.
- Update requests:
 - A "reset" request indicating that the sender should completely refresh the video bitstream as if no prior bitstream data had been received.

The application of the back-channel messages to ITU-T Recs H.261, H.263, and H.264 is specified.

ITU-T Recommendation H.271

Video back-channel messages for conveyance of status information and requests from a video receiver to a video sender

1 Scope

This Recommendation specifies back-channel messages for block-based video coding.

2 Normative references

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- ITU-T Recommendation H.261 (1993), *Video codec for audiovisual services at $p \times 64$ kbit/s*.
- ITU-T Recommendation H.263 (2005), *Video coding for low bit rate communication*.
- ITU-T Recommendation H.264 (2005), *Advanced video coding for generic audiovisual services*.

ISO/IEC 14496-10:2005, *Information technology – Coding of audio-visual objects – Part 10: Advanced Video Coding*.

3 Definitions

This Recommendation defines the following terms:

- 3.1 back channel:** A means to convey back-channel messages from a receiver of a video bitstream to a sender of a video bitstream.
- 3.2 back-channel message:** A message that is generated by a receiver of a video *bitstream* that conveys receiver status information or requests.
- 3.3 bitstream:** A sequence of bits that forms the representation of coded *pictures* and associated data forming one or more coded video sequences.
- 3.4 bitstream error:** A corrupted or incomplete *bitstream*.
- 3.5 bitstream error mismatch:** A difference between the values or quantity of decoded *pictures* caused by one or more *bitstream errors* versus the values or quantity of decoded *pictures* generated by the decoding process with a *bitstream* without *bitstream errors*.
- 3.6 block:** An $M \times N$ (M-column by N-row) array of luma samples and the associated chroma samples.
- 3.7 detected bitstream error:** A *bitstream error* that is detected by the receiver.
- 3.8 detected bitstream error mismatch:** A *bitstream error mismatch* that may be present because of *bitstream errors*.
- 3.9 decoding order:** The order in which *syntax elements* are processed by the decoding process specified by a video coding technology.