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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS  
Infrastructure of audiovisual services – Communication  
procedures

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**Gateway control protocol: Transport over  
Stream Control Transmission Protocol (SCTP)**

ITU-T Recommendation H.248.4

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## **ITU-T Recommendation H.248.4**

### **Gateway control protocol: Transport over Stream Control Transmission Protocol (SCTP)**

#### **Summary**

This Recommendation defines the transport of H.248.1 Gateway Control Protocol messages over the Stream Control Transmission Protocol (SCTP). SCTP is an alternative to UDP or TCP. Transport of H.248.1 over UDP or TCP is defined in Annex D/H.248.1.

NOTE – This Recommendation has been renumbered. It was formerly known as ITU-T Rec. H.248, Annex H.

#### **Source**

ITU-T Recommendation H.248.4 was prepared by ITU-T Study Group 16 (2001-2004) and approved under the WTSA Resolution 1 procedure on 17 November 2000.

## FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

## NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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# ITU-T Recommendation H.248.4

## Gateway control protocol: Transport over Stream Control Transmission Protocol (SCTP)

### 1 Overview

This Recommendation defines a package that extends the applicability of ITU-T H.248.1, Gateway control protocol. In particular, this Recommendation defines the transport of H.248.1 Gateway Control Protocol messages over the Stream Control Transmission Protocol (SCTP).

Protocol messages may be transmitted over the Stream Control Transmission Protocol (SCTP).

In a transaction-oriented protocol like H.248.1, there are still ways for transaction requests or responses to be lost, e.g. caused by entity/component failure. As such, it is recommended that entities using SCTP transport implement application level timers for each request.

Commands should be sent to the default port number, 2944 for text-encoded operation, or 2945 for binary-encoded operation. Responses must be sent to the address and port from which the corresponding commands were sent, except if the response is to a handoff or failover, in which case the procedures of 11.5/H.248.1 apply. SCTP payload protocol identifier shall be 7.

### 2 Normative Reference

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.

- IETF RFC 2960 (2000), *Stream Control Transmission Protocol*.

### 3 Providing the At-Most-Once functionality

SCTP is designed to recover from transport losses or duplications, but loss of a transaction request or its reply may nonetheless be noted in real implementations. In the absence of a timely response, H.248.1 may repeat commands. Most H.248.1 commands are not idempotent. The state of the Media Gateway (MG) would become unpredictable if, for example, Add commands were executed several times.

To guard against such losses, it is recommended that entities follow the procedures in Annex D.1.1/H.248.1 with two exceptions:

- LONG-TIMER shall not used;
- the TransactionResponseAck parameter shall not be used.

### 4 Transaction identifiers and three-way handshake

#### 4.1 Transaction identifiers

It is recommended that D.1.2.1/H.248.1 be followed.

#### 4.2 Three-way handshake

D.1.2.2 /H.248.1 is not applicable.

## **5 Computing retransmission timers**

With reliable non-duplicate delivery guaranteed by SCTP, application level timers are only used to guard against entity/component failure. Therefore, only simple timer mechanisms are required. The first retransmission of a request can occur after a short interval. If additional retransmissions are required, a longer time interval is recommended between the retransmissions.

## **6 Provisional responses**

The procedures in 8.2.3/H.248.1 apply. If an entity receives a repetition of a transaction that is still being executed, a TransactionPending should be sent.

## **7 Ordering of commands**

SCTP provides both ordered and unordered reliable delivery, settable on a per-transaction basis. Therefore, H.248.1 can take advantage of the ordered capability of SCTP. High priority transactions can get expedited treatment by properly using unordered delivery. No special procedures are therefore required.

## **8 Stream independence**

SCTP can provide up to 65536 unidirectional streams in each direction of an MGC-MG association. SCTP transmits messages and processes received messages in one stream, independent to the order or status of messages in any other streams. H.248.1 may avoid head-of-line blocking by transmitting unrelated transactions on different streams. Reliability is still provided. Ordering of messages is available per-stream.

It is recommended that transactions related to one context are transported over the same stream.



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