



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

H.248.4

(11/2000)

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

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

ITU-T Recommendation H.248.4

ITU-T H-SERIES RECOMMENDATIONS
AUDIOVISUAL AND MULTIMEDIA SYSTEMS

CHARACTERISTICS OF VISUAL TELEPHONE SYSTEMS	H.100–H.199
INFRASTRUCTURE OF AUDIOVISUAL SERVICES	
General	H.200–H.219
Transmission multiplexing and synchronization	H.220–H.229
Systems aspects	H.230–H.239
Communication procedures	H.240–H.259
Coding of moving video	H.260–H.279
Related systems aspects	H.280–H.299
SYSTEMS AND TERMINAL EQUIPMENT FOR AUDIOVISUAL SERVICES	H.300–H.399
SUPPLEMENTARY SERVICES FOR MULTIMEDIA	H.450–H.499
MOBILITY AND COLLABORATION PROCEDURES	
Overview of Mobility and Collaboration, definitions, protocols and procedures	H.500–H.509
Mobility for H-Series multimedia systems and services	H.510–H.519
Mobile multimedia collaboration applications and services	H.520–H.529
Security for mobile multimedia systems and services	H.530–H.539
Security for mobile multimedia collaboration applications and services	H.540–H.549
Mobility interworking procedures	H.550–H.559
Mobile multimedia collaboration inter-working procedures	H.560–H.569

For further details, please refer to the list of ITU-T Recommendations.

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.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

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.

© ITU 2002

All rights reserved. No part of this publication may be reproduced, by any means whatsoever, without the prior written permission of ITU.

CONTENTS

	Page
1 Overview	1
2 Normative Reference.....	1
3 Providing the At-Most-Once functionality.....	1
4 Transaction identifiers and three-way handshake	1
4.1 Transaction identifiers.....	1
4.2 Three-way handshake.....	1
5 Computing retransmission timers.....	2
6 Provisional responses	2
7 Ordering of commands.....	2
8 Stream independence.....	2

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.

SERIES OF ITU-T RECOMMENDATIONS

Series A	Organization of the work of ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communications
Series Y	Global information infrastructure and Internet protocol aspects
Series Z	Languages and general software aspects for telecommunication systems