

I n t e r n a t i o n a l   T e l e c o m m u n i c a t i o n   U n i o n

**ITU-T**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

**H.248.5**

(12/2009)

SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication  
procedures

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## **Gateway control protocol: Transport over ATM**

Recommendation ITU-T H.248.5



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# **Recommendation ITU-T H.248.5**

## **Gateway control protocol: Transport over ATM**

### **Summary**

Recommendation ITU-T H.248.5 defines the transport of ITU-T H.248.1 gateway control protocol messages over ATM. ATM transport is an alternative to UDP or TCP. Transport of ITU-T H.248.1 over UDP or TCP is defined in Annex D of Recommendation ITU-T H.248.1.

This revision specifies the use of the LONG-TIMER to remove a Transaction Identity from the list of responses.

### **History**

Edition	Recommendation	Approval	Study Group
1.0	ITU-T H.248 Annex I	2000-11-17	16
1.0	ITU-T H.248.5	2000-11-17	16
2.0	ITU-T H.248.5	2009-12-14	16

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# Recommendation ITU-T H.248.5

## Gateway control protocol: Transport over ATM

### 1 Scope

This Recommendation defines a package that extends the applicability of the ITU-T H.248.1 gateway control protocol Recommendation. Specifically, this Recommendation defines the transport of ITU-T H.248.1 gateway control protocol messages over ATM. ATM transport is an alternative to UDP or TCP. Transport of ITU-T H.248.1 over UDP or TCP is defined in Annex D of [ITU-T H.248.1].

### 2 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 H.248.1] Recommendation ITU-T H.248.1 (2005), *Gateway control protocol: Version 3*.
- [ITU-T I.361] Recommendation ITU-T I.361 (1999), *B-ISDN ATM layer specification*.
- [ITU-T I.363.5] Recommendation ITU-T I.363.5 (1996), *B-ISDN ATM Adaptation Layer specification: Type S AAL*.
- [ITU-T Q.703] Recommendation ITU-T Q.703 (1996), *Signalling link*.
- [ITU-T Q.704] Recommendation ITU-T Q.704 (1996), *Signalling network functions and messages*.
- [ITU-T Q.2110] Recommendation ITU-T Q.2110 (1994), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol (SSCOP)*.
- [ITU-T Q.2140] Recommendation ITU-T Q.2140 (1995), *B-ISDN ATM adaptation layer – Service specific coordination function for signalling at the network node interface (SSCF at NNI)*.
- [ITU-T Q.2210] Recommendation ITU-T Q.2210 (1996), *Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140*.

### 3 Definitions

None.

### 4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

AAL	Asynchronous transfer mode Adaptation Layer
ALF	Application Level Framing
ATM	Asynchronous Transfer Mode
MG	Media Gateway

MTP3b	Message Transfer Part level 3 using the services of [ITU-T Q.2140]
NNI-SAAL	Network-to-Network Interface Signalling Asynchronous transfer mode Adaptation Layer
SSCOP	Service Specific Connection Oriented Protocol
UDP	User Datagram Protocol

## **5 Conventions**

None.

## **6 Transport over MTP3b/NNI-SAAL/type 5 AAL**

Protocol messages defined in this Recommendation may be transmitted over an SS7 network. Service indicator value 14, as defined in clause 14.2.1 of [ITU-T Q.704], shall be used. The value corresponds to the bits DCBA equalling 1110. These protocol messages use the services of MTP3b as described in [ITU-T Q.2210].

In a transaction-oriented protocol, there are still ways for transaction requests or responses to be lost. As such, it is recommended that entities using MTP3b transport implement application timers for each TransactionRequest.

### **6.1 Providing at-most-once functionality**

Messages being carried over MTP3b may be subject to losses. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the MG would become unpredictable if, for example, Add commands were executed several times. The transmission procedures shall thus provide an "at-most-once" functionality.

The procedures in clause D.1.1 of [ITU-T H.248.1] shall be followed with one exception:

- The TransactionResponseAck parameter shall not be used.

NOTE – The use of MTP3b information, instead of the LONG-TIMER, to remove a Transaction Identity from the list of responses is deprecated, as this method does not ensure the at-most-once functionality.

### **6.2 Transaction identifiers and three-way handshake**

#### **6.2.1 Transaction identifiers**

Clause D.1.2.1 of [ITU-T H.248.1] is recommended to be followed.

#### **6.2.2 Three-way handshake**

Clause D.1.2.2 of [ITU-T H.248.1] is not applicable.

### **6.3 Computing retransmission timers**

With reliable delivery, as MTP3b provides, the incidence of loss of a transaction request or reply is expected to be very low. Therefore, only simple timer mechanisms are required, e.g., 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.

### **6.4 Provisional responses**

The procedures in clause 8.2.3 of [ITU-T H.248.1] apply. If an entity receives a repetition of a transaction that is still being executed, a TransactionPending should be sent.



## **6.5 Ordering of commands**

MTP3b provides ordered delivery of transactions, therefore no special procedures are required.

## **7 Transport using SSCOP/type 5 AAL**

Protocol messages described in this Recommendation may be transmitted via SSCOP links. These protocol messages use the services of SSCOP as described in [ITU-T Q.2110].

In a transaction-oriented protocol, there are still ways for transaction requests or responses to be lost. As such, it is recommended that entities using SSCOP transport implement application timers for each request and response.

### **7.1 Providing the at-most-once functionality**

Messages being carried over SSCOP are not subject to transport losses, but loss of a transaction request or its reply may nonetheless be noted in real implementations. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the 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 clause D.1.1 of [ITU-T H.248.1].

### **7.2 Transaction identifiers and three-way handshake**

#### **7.2.1 Transaction identifiers**

Clause D.1.2.1 of [ITU-T H.248.1] applies.

#### **7.2.2 Three-way handshake**

It is possible that transaction replies may be lost even with a reliable delivery protocol such as SSCOP. Entities using SSCOP shall follow the procedures in clause D.1.2.2 of [ITU-T H.248.1].

### **7.3 Computing retransmission timers**

With reliable delivery, the incidence of loss of a transaction request or reply is expected to be very low. Therefore, only simple timer mechanisms are required.

### **7.4 Provisional responses**

The procedure of clause 8.2.3 of [ITU-T H.248.1] applies.

Entities that receive a TransactionPending shall switch to a longer repetition timer for that transaction. Entities shall retain transactions and replies until they are confirmed. The procedure of clause D.2.4 of [ITU-T H.248.1] should be followed, but simple timer values should be sufficient.

### **7.5 Ordering of commands**

SSCOP provided ordered delivery of transactions. No special procedures are required.

## **8 Transport using type 5 AAL with ALF**

Protocol messages defined in this Recommendation may be transmitted via type 5 AAL links. These messages use the services of type 5 AAL as described in [ITU-T I.363.5].

In a transaction-oriented protocol, there are still ways for transaction requests or responses to be lost. As such, it is recommended that entities using type 5 AAL with ALF transport implement application level timers for each request and each response, similar to those specified for application level framing over UDP.

## **8.1 Providing the at-most-once functionality**

Messages being carried over type 5 AAL with ALF may be subject to losses. In the absence of a timely response, commands are repeated. Most commands are not idempotent. The state of the MG would become unpredictable if, for example, Add commands were executed several times. The transmission procedures shall thus provide an "at-most-once" functionality.

To guard against such losses, it is recommended that entities follow the procedures in clause D.1.1 of [ITU-T H.248.1].

## **8.2 Transaction identifiers and three-way handshake**

### **8.2.1 Transaction identifiers**

Clause D.1.2.1 of [ITU-T H.248.1] applies.

### **8.2.2 Three-way handshake**

When type 5 AAL with ALF is used as transport, the entities shall follow the procedures in clause D.1.2.2 of [ITU-T H.248.1].

## **8.3 Computing retransmission timers**

When type 5 AAL with ALF is used as transport, the entities shall provide the same type of calculation as described in clause D.1.3 of [ITU-T H.248.1].

## **8.4 Provisional responses**

When type 5 AAL with ALF is used as transport, the entities shall follow the procedures in clause D.1.4 of [ITU-T H.248.1].

## **8.5 Ordering of commands**

When type 5 AAL with ALF is used as transport, the entities shall follow the procedures in clause 9.1 of [ITU-T H.248.1].



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