



INTERNATIONAL TELECOMMUNICATION UNION

**ITU-T**

# **H.248 Sub-series Implementors' Guide**

TELECOMMUNICATION  
STANDARDIZATION SECTOR  
OF ITU

(26 November 2004)

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

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**Implementors' Guide for the H.248 Sub-series of  
Recommendations (“Media Gateway Control  
Protocol”)**

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## Summary

This document is a compilation of reported defects identified in the ITU-T H.248 sub-series of Recommendations currently in force. It must be read in conjunction with the Recommendations to serve as an additional authoritative source of information for implementors. The changes, clarifications and corrections defined herein are expected to be included in future versions of affected H.248 sub-series Recommendations.

This revision contains all updates submitted up to and including those at Study Group 16 meeting in November 2004.

This document was approved by ITU-T Study Group 16 on 26 November 2004 and obsoletes the earlier version of this Implementors' Guide approved on 30 January 2004. Please note that the Implementors' Guide for H.248.1 Version 1 (03/2002) is published as a *separate* document.

## Change Log

(All changes that were included in corrigenda, amendments or revisions to the Recommendations in the H.248 sub-series are omitted here. Please note that H.248.1 V1 (2002-03) are )

### V16 (Beijing, May 2004)

New:

- 6.1 Error response when processing a ContextID
- 6.2 Support of packages
- 6.3 Mismatch between RFC2377 support and one “m=” line restriction
- 6.4 Annex C codepoints for RTCP
- 6.5 Clarification of PackageID and name for Annex C
- 8.1 Clarification of error code behavior for 430 and 435
- 9.1 Correction of typographical errors

### V17 (San Jose, September 2004)

New:

- 6.6 Clarification of ReserveGroup and ReserveValue Properties
- 6.7 Clarification of Provisional Response Timer Values
- 6.8 Clarification of NULL Context Usage

### V18 (Geneva, November 2004)

Removed items pertaining to H.248.2, as they are incorporated into new H.248.2 Revision 1.

Renumbered remaining sections.

Modified:

- 8.1 Correction of typographical errors (added a second correction to the same paragraph)

New:

- 6.9 Multiple Individual Auditing in ABNF
- 6.10 Loopback Usage Clarification
- 6.11 Commands in ServiceChange on Root Transaction
- 9.1 Correction of StatisticsID conflict

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# Revised Implementors' Guide for the H.248 Sub-series of Recommendations

## 1 Scope

This guide resolves defects in the following categories:

- editorial errors
- technical errors, such as omissions and inconsistencies
- ambiguities

In addition, the Implementors' Guide may include explanatory text found necessary as a result of interpretation difficulties apparent from the defect reports.

This Guide will not address proposed additions, deletions, or modifications to the Recommendations that are not strictly related to implementation difficulties in the above categories. Proposals for new features should be made through contributions to the ITU-T.

## 2 Introduction

The H.248 Implementors' Guide is a compilation of reported defects for all versions of the H.248.x sub-series of Recommendations, except H.248.1 Version 1 (03/2002). *For the defects in Version 1, see the H.248.1 Version 1 Implementors' Guide.*

In this edition of the Guide, reported defects identified as of 11/2004 are given for:

- H.248.1 version 2 (05/2002 plus corrections and editorial modifications of 03/2004)
- H.248.2 (11/2000)

The Guide must be read in conjunction with the H.248.x sub-series of Recommendations to serve as an additional source of information for implementors. The changes, clarifications and corrections defined herein are expected to be included in future versions of affected H.248.x Recommendations.

## 3 Defect Resolution Procedure

Upon discovering technical defects with any components of the H.248.x sub-series Recommendation, please provide a written description directly to the editors of the affected Recommendations with a copy to the Q.3/16 Rapporteur. The template for a defect report is located at the end of the Guide. Contact information for these parties is included at the front of the document. Return contact information should also be supplied so a dialogue can be established to resolve the matter and an appropriate reply to the defect report can be conveyed. This defect resolution process is open to any interested party. Formal membership in the ITU is not required to participate in this process.

## 4 References

This document refers to the following H.248.x sub-series Recommendations:

- ITU-T Recommendation H.248.1 Version 2 (05/2002) Corr.1 (03/2004), *Media Gateway Control Protocol*
- ITU-T Recommendation H.248.8 Amendment 1 (03/2004), *Gateway Control Protocol: Error code and servicechange reason description*
- ITU-T Recommendation H.248.22 (07/2003), *Gateway Control Protocol: Shared Risk Group Package*
- ITU-T Recommendation H.248.30 (03/2004), *Gateway Control Protocol: RTCP extended performance metrics packages*

## 5 Nomenclature

In addition to traditional revision marks, the following marks and symbols are used to indicate to the reader how changes to the text of a Recommendation should be applied:

Symbol	Description
<u>[Begin Correction]</u>	Identifies the start of revision marked text based on extractions from the published Recommendations affected by the correction being described.
<u>[End Correction]</u>	Identifies the end of revision marked text based on extractions from the published Recommendations affected by the correction being described.
...	Indicates that the portion of the Recommendation between the text appearing before and after this symbol has remained unaffected by the correction being described and has been omitted for brevity.
--- SPECIAL INSTRUCTIONS --- {instructions}	Indicates a set of special editing instructions to be followed.

## 6 Technical and Editorial Corrections to H.248.1 (05/2002) Corr.1 (03/2004)

### 6.1 Error response when processing a ContextID

<b>Description:</b>	H.248.1 § 8.2.2 discusses the action to be taken when a receiver encounters an error parsing a ContextID. It specifies that the ContextID is returned in an Action response with error code 422 "Syntax Error in action". It is very likely however that if a receiver cannot parse the context ID it will not be able to return the ContextID back to the sender. It is proposed below to allow sending of a response at a transaction level without including the ContextID.
<b>Reference:</b>	AVD-2467

[Begin Correction]

#### 8.2.2 TransactionReply

...

If the receiver encounters an error in processing a ContextID but can parse the ContextID, the requested Action response will consist of the Context ID and a single error descriptor, 422 (Syntax Error in Action). If the receiver cannot parse the ContextID, it shall return a TransactionReply consisting of the TransactionID and a single error descriptor, 422 (Syntax Error in Action).

...

[End Correction]

### 6.2 Support of packages

<b>Description:</b>	There has been some confusion of what is meant by the term "To support a particular package the MG must support all properties, signals, events and statistics defined in a package. It must also support all Signal and Event parameters." The term "Must Support" is different from "it is mandatory to implement all the functionality in the package." This term was added so that the MG had to support the reception of properties, signal, events and statistics. The MG must not return a syntax error or unknown ID for any of these elements. However the MG could give a meaningful response such as 501 not implemented. This
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	shows that the MG has at least considered the complete package. It is encouraged to support the complete functionality of a package however it is better to return error code 501 and using an existing package rather than creating new packages with the same functionality as contained in existing packages. It is proposed to clarify this.
<b>Reference:</b>	Subject: RE: [Megaco] Support of a H.248 package Date: Tue, 23 Mar 2004 14:39:43 -0500 From: Kevin Boyle <kboyle@nortelnetworks.com>  and AVD-2467

*[Begin Correction]*

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### 6.2.3 Packages

...

To support a particular package the MG must ~~support~~ recognize all properties, signals, events and statistics defined in a package. It must also support all Signal and Event parameters. If the functionality behind these properties, signals, events and statistics is not implemented, the MG shall not return a syntax error or unknown ID error for any of these elements but should return error 501 "Not implemented".

The MG may support a subset of the values listed in a package for a particular Property or Parameter. If an unsupported value is specified by the MGC, the MG shall return error 501 "Not implemented".

...

*[End Correction]*

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## 6.3 Mismatch between RFC2377 support and one "m=" line restriction

<b>Description:</b>	H.248.1 § 7.1.8 Local and Remote descriptor mandates that there shall only be one m= line per SDP. However further in the section it states that "Implementations shall accept session descriptions that are fully conformant to RFC 2327." There could be some confusion over whether or not multiple m=lines should be accepted if they conform to RFC2327. Multiple m=lines per SDP should not be accepted by the MG. This should be clarified.
<b>Reference:</b>	AVD-2467

*[Begin Correction]*

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### 7.1.8 Local and Remote descriptors

...

A Stream Descriptor specifies a single bidirectional media stream and so a single session description MUST NOT include more than one media description ("m = " line). A Stream Descriptor may contain additional session descriptions as alternatives. Each media stream for a termination must appear in distinct Stream Descriptors. When multiple session descriptions are provided in one descriptor, the "v = " lines are required as delimiters; otherwise they are optional in session descriptions sent to the MG. Implementations shall accept session descriptions that are fully conformant to RFC 2327 according to the above restrictions. When binary encoding the protocol, the descriptor consists of groups of properties (tag-value pairs) as specified in Annex C. Each such group may contain the parameters of a session description.

...

*[End Correction]*

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## 6.4 Annex C codepoints for RTCP

<b>Description:</b>	H.248.30 introduces a package for the support of RTCP XR. As part of the functioning of RTCP SDP bandwidth modifiers may be sent. This is currently supported in SDP but not in the Binary version of H.248.1. Thus the bandwidth modifiers RTCP(b=RS:xx, b=RR:xx) as defined in RFC3556 need to be added to H.248.1 Annex C.
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<b>Reference:</b>	Subject: [Megaco] RTCP bandwidth modifiers Date: Thursday, March 25, 2004 5:41 AM From: Kalleitner Franz [mailto:franz.kalleitner@siemens.com]
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*[Begin Correction]*

## C.6 IP

PropertyID	Property tag	Type	Value
IPv4	6001	32 bits Ipv4Address	Ipv4Address Ref.: IETF RFC 791
IPv6	6002	128 bits	IPv6 Address Ref.: IETF RFC 2460
Port	6003	Unsigned integer	0..65535
Porttype	6004	Enumerated	TCP(0), UDP(1), SCTP(2)
<u>RtcpbwRS</u>	<u>6005</u>	<u>Integer</u>	<u>RS RTCP bandwidth modifier indicates the RTCP bandwidth allocated to active data senders (as defined by the RTP spec)</u> <u>Ref.: IETF RFC 3556</u>
<u>RtcpbwRR</u>	<u>6006</u>	<u>Integer</u>	<u>RR RTCP bandwidth modifier indicates the RTCP bandwidth allocated to other participants in the RTP session (i.e., receivers)</u> <u>Ref.: IETF RFC 3556</u>

*[End Correction]*

## 6.5 Clarification of PackageID and name for Annex C

<b>Description:</b>	The binary encoding of H.248.1 uses Annex C for a number of local and remote properties. The identities of the Annex C properties use the normal package name/property id construct. It is not clear from reading Annex C what the Package name is. The Annex A ASN.1 syntax must be read to find out that the binary package name is H'0000. No text package name has been defined for Annex C for use with the H.248 property SDP element. Annex C should be modified to make the package name/id clear.
<b>Reference:</b>	----- Original Message ----- Subject: Re: Signaling of UDI rsp Clearmode Bearer Service; Re: TDM Hairpinning; Re: [Megaco] Hairpin case A/u Law conversion Date: Tue, 27 Apr 2004 13:55:12 +0200 From: Carsten Waitzmann <cwaitzmann@alcatel.de>

*[Begin Correction]*

### Annex C Tags for media stream properties

Parameters for Local, Remote and LocalControl descriptors are specified as tag-value pairs if binary encoding is used for the protocol. This annex contains the property names (PropertyID), the tags (Property tag), type of the property (Type) and the values (Value). Values presented in the Value field when the field contains references shall be regarded as "information". The reference contains the normative values. If a value field does not contain a reference, then the values in that field can be considered as "normative".

The referencing of Annex C properties follows the PackageID/PropertyID structure; however Annex C is not in itself a package. Annex C is considered to have PackageID 0x0000 for binary encoding and "anxc" for text encoding. For text encoding of H.248.1, Annex C shall only be used in the case that the required property is not already defined by a package or represented by SDP. The nesting of one Annex C property inside another is forbidden.

Tags are given as hexadecimal numbers in this annex. When setting the value of a property, a MGC may underspecify the value according to one of the mechanisms specified in 7.1.1.

...

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*[End Correction]*

## 6.6 Clarification of ReserveGroup and ReserveValue Properties

<b>Description:</b>	The use of the Reserve property is described in H.248.1 sections 7.1.7 and 7.1.8. Currently there is a mismatch between the stated behaviour of Reserve Group. Section 7.1.7 states: “If the value of a Reserve property is True, the MG SHALL reserve resources for all alternatives specified in the Local and/or Remote descriptors for which it currently has resources available.” however section 7.1.8 states “If ReserveGroup is True, the MG reserves the resources required to support any of the requested property group alternatives that it can currently support. If ReserveValue is True, the MG reserves the resources required to support any of the requested property value alternatives that it can currently support.” It is proposed to update 7.1.8 to align with the definition in 7.1.7.
<b>Reference:</b>	AVD-2569

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*[Begin Correction]*

### 7.1.8 Local and remote descriptors

...

If ReserveGroup is True, the MG reserves the resources required to support ~~any as many as possible~~ of the requested property group alternatives that it can currently support. If ReserveValue is True, the MG reserves the resources required to support ~~any as many as possible~~ of the requested property value alternatives that it can currently support.

...

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*[End Correction]*

## 6.7 Clarification of Provisional Response Timer Values

<b>Description:</b>	H.248.1 has 2 sections that discuss the setting of the (MG)provisionalResponseTimer value. Section D.1.4 states: “The root Termination has a property (ProvisionalResponseTimerValue), which can be set to the requested maximum number of milliseconds between receipt of a command and transmission of the TransactionPending response.” Section E.2.1 states: “Initially set to normalMGExecutionTime plus network delay, but may be lowered.” These two sections give conflicting advice of what to set the timer to, D.1.4 does not take into account network delay which may result in messages being repeated unnecessary. It is proposed to remove the text from D.1.4 and rely on the definition in E.2.1. Furthermore section 8.2.3 discusses procedures for the sending of Transaction Pending. It however has omitted the (MG/MGC)ProvisionalResponseTimerValue the use of which should be documented.
<b>Reference:</b>	AVD-2569

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*[Begin Correction]*

### 8.2.3 TransactionPending

...

TransactionPending(TransactionID { } )

The TransactionID parameter must be the same as that of the corresponding TransactionRequest. A property of root (normalMGExecutionTime) is settable by the MGC to indicate the interval within which the MGC expects a response to any transaction from the MG (exclusive of network delay). Another property (normalMGCEExecutionTime) is settable by the MGC to indicate the interval within which the MG should expect a response to any transaction from the MGC

(exclusive of network delay). MGProvisionalResponseTimerValue indicates the time within which the MGC should expect a Pending Response from the MG if a Transaction cannot be completed (initially set to normalMGExecutionTime plus network delay, but may be lowered). MGProvisionalResponseTimerValue has the corresponding meaning to the MG. Senders may receive more than one TransactionPending for a command. If a duplicate request is received when pending, the responder may send a duplicate pending immediately, or continue waiting for its timer to trigger another TransactionPending.

...

[End Correction]

[Begin Correction]

**D.1.4 Provisional responses**

Executing some transactions may require a long time. Long execution times may interact with the timer-based retransmission procedure. This may result either in an inordinate number of retransmissions, or in timer values that become too long to be efficient. Entities that can predict that a transaction will require a long execution time may send a provisional response, "Transaction Pending". They SHOULD send this response if they receive a repetition of a transaction that is still being executed.

Entities that receive a Transaction Pending shall switch to a different repetition timer for repeating requests. ~~The root Termination has a property (ProvisionalResponseTimerValue), which can be set to the requested maximum number of milliseconds between receipt of a command and transmission of the TransactionPending response.~~ Upon receipt of a final response following receipt of provisional responses, an immediate confirmation shall be sent, and normal repetition timers shall be used thereafter. An entity that sends a provisional response, SHALL include the immAckRequired field in the ensuing final response, indicating that an immediate confirmation is expected. Receipt of a Transaction Pending after receipt of a reply shall be ignored.

...

[End Correction]

**6.8 Clarification of NULL Context Usage**

<b>Description:</b>	<p>There has been some confusion over what terminations in the NULL context actually represent. H.248.1 § 6. Connection Model gives some guidance:</p> <p>“A Context is an association between a collection of Terminations. There is a special type of Context, the null Context, which contains all Terminations that are not associated to any other Termination. For instance, in a decomposed access gateway, all idle lines are represented by Terminations in the null Context.”</p> <p>Terminations in the NULL context typically have default descriptor values associated with them. For example: the termination may have an event detecting “off-hook”. Therefore according to the above text it could be stated that terminations with default descriptor values could be considered as IDLE lines.</p> <p>H.248.1 § 7.2.3 Subtract gives further guidance on what happens to property values when a termination is SUBTRACTED back to the NULL context:</p> <p>“When a provisioned Termination is Subtracted from a Context, its property values shall revert to:</p> <ul style="list-style-type: none"><li>• the default value, if specified for the property and not overridden by provisioning;</li><li>• otherwise, the provisioned value.”</li></ul> <p>It is the contributor’s contention that the term “property values” is a generic term and what is really meant is “descriptor values”. Therefore the conclusion that when a termination is subtracted back to the NULL context this represents an IDLE line.</p>
<b>Reference:</b>	AVD-2570

6.2.4 Termination properties and descriptors

[Begin Correction]

Terminations have properties. The properties have unique PropertyIDs. Most properties have default values, which are explicitly defined in this protocol specification or in a package (see clause 12) or set by provisioning. If not provisioned otherwise, the properties in all descriptors except TerminationState and LocalControl default to empty/"no value" when a Termination is first created or returned to the null Context. When a termination is first created or returned to the null context, this state represents an "idle" line, trunk or other entity. The default contents of the two exceptions are described in 7.1.5 and 7.1.7.

The provisioning of a property value in the MG will override any default value, be it supplied in this protocol specification or in a package. Therefore, if it is essential for the MGC to have full control over the property values of a Termination, it should supply explicit values when ADDing the Termination to a Context. Alternatively, for a physical Termination the MGC can determine any provisioned property values by auditing the Termination while it is in the NULL Context.

There are a number of common properties for Terminations and properties specific to media streams. The common properties are also called the Termination state properties. For each media stream, there are local properties and properties of the received and transmitted flows.

Properties not included in the base protocol are defined in Packages. These properties are referred to by a name consisting of the PackageName and a PropertyId. Most properties have default values described in the Package description. Properties may be read-only or read/write. The possible values of a property may be audited, as can their current values. For properties that are read/write, the MGC can set their values. A property may be declared as "Global" which has a single value shared by all Terminations realizing the package. Related properties are grouped into descriptors for convenience.

When a Termination is added to a Context, the value of its read/write properties can be set by including the appropriate descriptors as parameters to the Add command. Similarly, a property of a Termination in a Context may have its value changed by the Modify command. Properties may also have their values changed when a Termination is moved from one Context to another as a result of a Move command. In some cases, descriptors are returned as output from a command.

In general, if a Descriptor is completely omitted from one of the aforementioned Commands, the properties in that Descriptor retain their prior values for the Termination(s) upon which the Command acts. On the other hand, if some read/write properties are omitted from a Descriptor in a Command (i.e., the Descriptor is only partially specified), those properties will be reset to their default values for the Termination(s) upon which the Command acts, unless the package specifies other behavior. For more details, see 7.1 dealing with the individual Descriptors.

The above behavior applies equally to Signals, Events and their parameters.

...

[End Correction]

7.2.3 Subtract

[Begin Correction]

...

When a provisioned Termination is Subtracted from a Context, its descriptor values shall revert to:

- the default value, if specified for the descriptor and not overridden by provisioning;
- otherwise, the provisioned value.

...

[End Correction]

6.9 Multiple Individual Auditing in ABNF

<b>Description:</b>	In the ASN.1 specification of IndAudLocalControlDescriptor it is allowed to use one each of stream mode, reserve value and reserve group <u>plus</u> any number of package names: IndAudLocalControlDescriptor ::= SEQUENCE { streamMode            NULL OPTIONAL, reserveValue        NULL OPTIONAL, reserveGroup        NULL OPTIONAL,
---------------------	--

	<p>propertyParms       SEQUENCE OF IndAudPropertyParm OPTIONAL, ... }</p> <p>IndAudPropertyParm ::= SEQUENCE { name   PkgdName, ...}</p> <p>while in the ABNF specification of indAudlocalControlDescriptor it is limited to be exactly <u>one</u> of stream mode, reserve value, reserve group and package name: indAudlocalControlDescriptor = LocalControlToken LBRKT indAudlocalParm RBRKT ; at-most-once per item indAudlocalParm   = ( ModeToken / pkgdName / ReservedValueToken / ReservedGroupToken )</p> <p>For example this means that it is possible to have both stream mode and package name in ASN.1, while this is not allowed in ABNF. The ASN.1 encoding and ABNF encoding is not semantically equivalent in this case.</p> <p>H.248.1 sect 7.2.5 states: "It is possible to audit multiple individual items in one request."</p> <p>The ABNF should be changed to the following in order to be compliant with ASN.1: indAudlocalControlDescriptor = LocalControlToken LBRKT indAudlocalParm *(COMMA indAudlocalParm) RBRKT</p>
<b>Reference:</b>	<p>Date: Mon, 9 Aug 2004 17:55:26 +0200 (CEST) From: Hakan Mattsson &lt;<a href="mailto:hakan@cslab.ericsson.se">hakan@cslab.ericsson.se</a>&gt; To: <a href="mailto:megaco@ietf.org">megaco@ietf.org</a> Subject: IndAudlocalControlDescriptor inconsistency</p>

**[Begin Correction]**

## B.2 ABNF specification

...

```

; at-most-once
indAudstreamParm           = ( indAudlocalControlDescriptor )
; SDP too complex to pull out individual pieces for audit,
; hence no individual audit for Local and Remote

indAudstreamDescriptor     = StreamToken EQUAL StreamID
                           LBRKT indAudstreamParm RBRKT

indAudlocalControlDescriptor = LocalControlToken LBRKT indAudlocalParm
                           *(COMMA indAudlocalParm) RBRKT

```

...

**[End Correction]**

## 6.10 Loopback usage clarification

<b>Description:</b>	There are 4 stream mode properties in H.248.1: send, receive, inactive and loopback. Send, receive and inactive are described by section 7.1.7 however H.248.1 is largely silent on the operation of loopback. The use of loopback should be clarified.
<b>Reference:</b>	COM 16 D-44

**[Begin Correction]**

### 7.1.7 LocalControl Descriptor

The LocalControl descriptor contains the Mode property, the ReserveGroup and ReserveValue properties and properties of a Termination (defined in Packages) that are stream specific, and are of interest between the MG and the MGC. Values of properties may be specified as in 7.1.1.

The allowed values for the mode property are send-only, receive-only, send/receive, inactive and loop-back. "Send", ~~and "receive"~~ and "loopback" are with respect to the exterior of the Context, so that, for example, a stream set to mode = sendOnly does not pass received media into the Context. When a stream is set to "loop-back" on a termination, media received (local descriptor) on that termination will be looped back to the sending side (remote descriptor) of the termination and no media is passed between that termination and other terminations in the context. The looped back media shall be sent according to the remote descriptor. The default value for the mode property is "Inactive". Signals and Events are not affected by mode.

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*[End Correction]*

## 6.11 Commands in ServiceChange on root transaction

<b>Description:</b>	H.248.1 allows multiple commands to be grouped per Transaction. An exception to this is a transaction containing a ServiceChange command specifying the "Root" terminationID and ServiceChangeMethod equal to Restart or Failover. This is because subsequent transactions shall use any ServiceChangeAddress supplied in the transaction response and the negotiated protocol version. This is already implied in the H.248.1 text however the prevention of multiple commands in this scenario is not explicit and may lead to confusion. It is proposed to make this explicit in H.248.1.
<b>Reference:</b>	COM 16 D-44

---

*[Begin Correction]*

### 7.2.8 ServiceChange

...

A ServiceChange Command specifying the "Root" for the TerminationID and ServiceChangeMethod equal to Restart is a registration command by which a Media Gateway announces its existence to the Media Gateway Controller. The Media Gateway may register by specifying the "Root" for the TerminationID and ServiceChangeMethod equal to Failover when the MG detects MGC failures. The Media Gateway is expected to be provisioned with the name of one primary and optionally some number of alternate Media Gateway Controllers. Acknowledgement of the ServiceChange Command completes the registration process, except when the MGC has returned an alternative ServiceChangeMgcId as described in the following paragraph. The MG may specify the transport ServiceChangeAddress to be used by the MGC for sending messages in the ServiceChangeAddress parameter in the input ServiceChangeDescriptor. The MG may specify an address in the ServiceChangeAddress parameter of the ServiceChange request, and the MGC may also do so in the ServiceChange reply. In either case, the recipient must use the supplied address as the destination for all subsequent transaction requests within the association. At the same time, as indicated in clause 9, transaction replies and pending indications must be sent to the address from which the corresponding requests originated. This must be done even if it implies extra messaging because commands and responses cannot be packed together. The TimeStamp parameter shall be sent with a registration command and its response. A message containing a ServiceChange Command specifying "Root" for the TerminationID and a ServiceChangeMethod equal to Restart or Failover shall not contain other commands as these commands should use the new ServiceChangeAddress and negotiated protocol version.

...

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*[End Correction]*

## 7 Technical and Editorial Corrections to H.248.8 (2004)

### 7.1 Clarification of error code behavior for 430 and 435

<b>Description:</b>	Error codes 430 and 435 both pertain to unknown Termination Identities. There could be some confusion on when to return each error code. Ie. Should error 430 or 435 be returned if a valid Context ID is specified but the Termination Id is unknown?
<b>Reference:</b>	AVD-2467

...  
**4.2.11 Error Code #: 430 Name: Unknown TerminationID**

**Definition:** The TerminationID referred to by the command is unknown and the command is therefore disregarded. The termination ID is not anywhere in the (virtual) MG, including the NULL context. This is generated when the receiver doesn't know which termination the sender is trying to address.

**Package:** –

**Reference:** –

**Error Text in the error Descriptor:** The TerminationID is included in the error text in the error descriptor

**Comment:** –

...  
**4.2.16 Error Code #: 435 Name: Termination ID is not in specified Context**

**Definition:** A specific TerminationID specified in a Modify, Subtract, AuditValue, AuditCapabilities, or ServiceChange command does not exist in a specified context and therefore the command is disregarded. This error occurs when the sender sends a command with a valid TerminationID that is not in the specified contextID. This is used when the sender has a record of the termination but it is not where the sender says it is.

**Package:** –

**Reference:** –

**Error Text in error descriptor:** The ContextID where the termination is located are included in the error text in the error descriptor.

## 8 Technical and Editorial Corrections to H.248.22 (2003)

### 8.1 Correction of typographical errors

<b>Description:</b>	H.248.22 contains typographical errors in that the property “shrisk/srgi” is referenced however the correct property reference is “shrisk/srgir”.
	H.248.1 defines the “Include shared risk group” property with the values “on/off”. Eg. 5.1.1 Property Name: Include shared risk group PropertyID: incl, 0x0001 Description: The value of this property indicates if the shared risk group specified is requested to be used or to not be used (see 5.5.1.1 for further details). Type: Sublist of type Boolean Possible Values: "on" (TRUE) Use resources from the specified SRGI only [Default] "off" (FALSE) Use resources from any but the specified SRGI  However the procedures use yes/no instead of on/off in one place. The procedures should be corrected to align with 5.1.1.
<b>Reference:</b>	AVD-2467 and COM 16 D-44

#### 5.5.1.1 Usage of the “Include shared risk group” property

The "Include shared risk group" property shall be used to indicate to the MG if resources from the specified shared risk group identity (*shrisk/srgir*) must be used for the termination (*shrisk/incl* = yes~~on~~) or if resources from the specified risk group identity must not be used for the termination (*shrisk/incl* = ~~no~~off). If the MGC is not concerned with which shared risk groups are used then it should not include the *shrisk/incl* nor *shrisk/srgir* properties. The *shrisk/incl* and *shrisk/srgir* properties are valid only for the command that they are contained in. They cannot be read/audited after the execution of the command. Wildcarding values with CHOOSE (\$) or ALL (\*) shall not be used with *shrisk/incl* and/or *shrisk/srgir*. For example: in the case of a semi-permanent connection and a protective secondary link, by specifying

(*shrisk/incl* = on, *shrisk/srgir* = 1) for the primary link and (*shrisk/incl* = off, *shrisk/srgir* = 1) for the secondary, the MGC is assured that the primary and secondary links are not sharing the same groups of resources.

...

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[End Correction]

## 9 Technical and Editorial Corrections to H.248.30 (2004)

### 9.1 Correction of StatisticID conflicts

<b>Description:</b>	In RTCP XR Base Package defined in H.248.30(03/2004) the statisticsID are from 1 to 12. The IDs 4 to 8 of that coincides with the statisticsID of the base pkg, rtp version1. Also R Factor and External R Factor have ths same strings 'ns'
<b>Reference:</b>	From: Geetha [geetha@ccpu.com] Sent: Friday, November 12, 2004 5:07 PM To: megaco@ietf.org Subject: r: [Megaco] ToneID conflicts

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[Begin Correction]

#### 5.4.1 Network Packet Loss Rate

StatisticID: nplr (0x00094)

...

#### 5.4.2 Jitter Buffer Discard Rate

StatisticID: jdr (0x000a2)

...

#### 5.4.3 RTCP Round-Trip Delay

StatisticID: rtd (0x000b3)

...

#### 5.4.4 End System Delay

StatisticID: esd (0x000c4)

...

#### 5.4.5 Signal Level

StatisticID: sl (0x000d5)

...

#### 5.4.6 Noise Level

StatisticID: nl (0x000e6)

...

#### 5.4.7 Residual Echo Return Loss

StatisticID: rerl (0x000f7)

...

#### 5.4.8 R Factor

StatisticID: ns (0x001008)

...

#### 5.4.9 External R Factor

StatisticID: xns (0x001109)

...

#### 5.4.10 Estimated MOSLQ

StatisticID: lq (0x00120a)

...

#### 5.4.11 Estimated MOSCQ

StatisticID: cq (0x00130b)

...

#### 6.4.1 Burst Loss Density

StatisticID: bld (0x00140c)

...

#### 6.4.2 Burst Duration

StatisticID: bd (0x00150d)

...



**6.4.3 Gap Loss Density**

StatisticID: gld (0x00160e)

...

**6.4.4 Gap Duration**

StatisticID: gd (0x00170f)

...

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*[End Correction]*

<b>Annex: Defect Report Form for H.248 Sub-series of Recommendations</b>
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<b>DATE:</b>	
<b>CONTACT INFORMATION</b>  NAME: COMPANY: ADDRESS:  TEL: FAX: EMAIL:	
<b>AFFECTED RECOMMENDATIONS:</b>	
<b>DESCRIPTION OF PROBLEM:</b>	
<b>SUGGESTIONS FOR RESOLUTION:</b>	

NOTE - Attach additional pages if more space is required than is provided above.

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