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OF ITU**

H.248 Sub-series Implementors' Guide

(02/15/2002)

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

Media Gateway Control Protocol
Implementors' Guide

Contact Information

ITU-T Study Group 16 /	Christian Groves	Tel:	+61 3 9911 6116
Question 3 Rapporteur	Ericsson Australia	Fax:	+61 3 9911 3887
	37/360 Elizabeth St	E-mail:	Christian.Groves@ericsson.com
	Melbourne, Victoria 3000		
	Australia		
Implementors' Guide ITU-T	Terry Anderson	Tel:	+1 908 582 7013
Recommendation H.248	Lucent Technologies, Rm 2B-121	Fax:	+1 908 582 6729
Editor	600 Mountain Ave	E-mail:	tla@lucent.com
	Murray Hill, NJ 07974-2006		
	USA		

1 Introduction

1 Introduction

1.1 In order to give a clearer understanding of the text components and versions of Recommendation H.248, the Recommendation including its annexes have been renumbered into a sub-series according to the table below.

Renumbering table for Recommendation H.248

Previous numbering	New numbering	Title
H.248 (Main body and Annexes A to E)	H.248.1	Gateway control protocol Version 1 *Note: This version 1 of H.248.1 is considered to be that of H.248 (Main body and Annexes A to E) of 06/2000, updated with changes, clarifications and corrections (but no new functionality) approved 03/2002. Available for sale but to be superseded by H.248.1 Version 2.*
H.248, Annex F	H.248.2	Facsimile, text conversation and call discrimination packages
H.248, Annex G	H.248.3	User interface elements and action packages
H.248, Annex H	H.248.4	Transport over SCTP
H.248, Annex I	H.248.5	Transport over ATM
H.248, Annex J	H.248.6	Dynamic tone definition package
H.248, Annex K	H.248.7	Generic announcement package
H.248, Annex L	H.248.8	Error codes and service change reason description
H.248, Annex M.1	H.248.9	Advanced media server packages
H.248, Annex M.2	H.248.10	Media gateway resource congestion handling package
H.248, Annex M.3 (*not yet available*)	H.248.11 (*not yet available*)	
H.248, Annex M.4	H.248.12	H.248 packages for H.323 and H.324 interworking
H.248, Annex M.5	H.248.13	Quality alert ceasing package
H.248, Annex M.6	H.248.14	Inactivity timer package
H.248, Annex N	H.248.15	SDP H.248 package

1.2 The H.248 Implementer's Guide is a compilation of reported defects for all versions of the H.248.x sub-series of Recommendations. In this edition of the Guide, reported defects identified as of 03/2002 are given for:

- H.248.1 version 1 (06/2000 plus corrections and editorial modifications of 03/2002)
- H.248.2 (11/2000)
- H.248.3 (11/2000)
- H.248.4 (11/2000)
- H.248.7 (11/2000)
- RFC3015

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.

2 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 in through contributions to the ITU-T.

3 Defect Resolution Procedure

Upon discovering technical defects with any components of the H.248 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 anyone interested in H.248 Recommendation. Formal membership in the ITU is not required to participate in this process.

4 References

ITU-T Recommendation H.248.1 Version 1 (03/2002), *Media Gateway Control Protocol*
ITU-T Recommendation H.248.2 (2000), *Facsimile, Text Conversation and Call Discrimination packages*
ITU-T Recommendation H.248.3 (2000), *User interface elements and action packages*
ITU-T Recommendation H.248.4 (2000), *Transport over Stream Control Transmission Protocol (SCTP)*
ITU-T Recommendation H.248.7 (2000), *Generic Announcement Package*

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
[Begin Correction]	Identifies the start of revision marked text based on extractions from the published Recommendations affected by the correction being described.
[End Correction]	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 Version 1 (03/2002)

None.

7   Technical and Editorial Corrections to H.248.2 (2000)[1]

7.1 Package ID of Text Telephone Package in H.248.2 shall be 0x0010

Description:	The numeric ID of the Text Telephone package in Section 7 of H.248.2 shall be changed to 0x0010 to match the IANA registration.

[Begin Correction]

F.7   Text Telephone package
PackageID: txp (0x00106)

…

[End Correction]

7.2 Value of NAK

Description:	The numeric value of NAK shall be 0x000D, in the V8bistype parameter of the dtone event in the Call Type Discrimination package.

[Begin Correction]

F.8.2.1 Discriminating tone detected
EventID: dtone (0x0001)

                ...
        ObservedEventDescriptor parameters:
....
        DiscriminatingToneValue
        ParameterID: dtvalue (0x0002)
                            ....
        V8bistype
        ParameterID: v8bist (0x0004)
        Type: enumeration
        Possible values:

ESi	(0x0001)	V.8bis signal ESi
ESr	(0x0002)	V.8bis signal ESr
MRe	(0x0003)	V.8bis signal MRe
MRdi	(0x0004)	V.8bis signal MRd from initiator
MRdr	(0x0005)	V.8bis signal MRd from responder
CRe	(0x0006)	V.8bis signal CRe
CRdi	(0x0007)	V.8bis signal CRd from initiator
CRdr	(0x0008)	V.8bis signal CRd from responder
MS	(0x0009)	V.8bis message MS with contents in "dtvalue"
CL	(0x000A)	V.8bis message CL with contents in "dtvalue"
CLR	(0x000B)	V.8bis message CLR with contents in "dtvalue"
ACK	(0x000C)	V.8bis message ACK with contents in "dtvalue"
NAK	(0x000DE)	V.8bis message NAK with contents in "dtvalue"

…

[End Correction]

---

[1] Formerly known as H.248 Annex F.

7.3 Correction in parameter values in Call Type Discrimination package in H.248.2

Description:	Correction of conflicting parameter values for MRdrh, MRdrl and CReh in the V8bsn parameter of the V8bisSignal signal in the Call Type Discrimination package.

[Begin Correction]

F.8.3.4 V8bisSignal
SignalID: v8bs (0x0004)
Signaltype: BR
Parameters:
V8bisSigname
    ParameterID: V8bsn (0x0001)
    Type: Enumeration
    Possible values:

ESi	(0x0001)	V.8bis signal ESi
ESr	(0x0002)	V.8bis signal ESr
MRe	(0x0003)	V.8bis signal MRe
MRdi	(0x0004)	V.8bis signal MRd from initiator
~~MRdrh~~	~~(0x0005)~~	~~V.8bis signal MRd from responder on high power~~
MRdrl	(0x0005)	V.8bis signal MRd from responder on low power
~~Creh~~	~~(0x0007)~~	~~V.8bis signal Cre on high power~~
CRel	(0x0006)	V.8bis signal CRe on low power
CRdi	(0x0007)	V.8bis signal CRd from initiator
CRdr	(0x0008)	V.8bis signal CRd from responder
MS	(0x0009)	V.8bis message MS with contents in signalvalue
CL	(0x000A)	V.8bis message CL with contents in signalvalue
CLR	(0x000B)	V.8bis message CLR with contents in signalvalue
ACK	(0x000C)	V.8bis message ACK with contents in signalvalue
NAK	(0x000D)	V.8bis message NAK with contents in signalvalue
MRdrh	(0x000E)	V.8bis signal MRd from responder on high power
CReh	(0x000F)	V.8bis signal CRe on high power

    Default may be provisioned

…

[End Correction]

7.4 Correction in parameter values in Call Type Discrimination package in H.248.2

Description:	Correction of conflicting parameter values for dtt parameter in dtone event. in the Call Type Discrimination package.

[Begin Correction]

F.8.2.1 Discriminating tone detected
    EventID: dtone (0x0001)
    Description:
    This event indicates that a signal valid for detection and discrimination of mode was detected. The signal name is given as a parameter. Further logic is needed in some cases to discriminate the call type from this information. The V.8bis related parameters are returned only when V.8bis is supported [5].

    Note that some textphones operate with DTMF tones. This package decodes initial DTMF signals according to the specification for text telephones in V.18 [6]. DTMF detection may be indicated also from the "dd" package if that is active.

    EventsDescriptor parameters:
        none

ObservedEventDescriptor parameters:
DiscriminatingToneType
ParameterID: dtt (0x0001)
Type: Enumeration
Possible values:
For FAX

CNG	(0x0001)	a T.30 fax calling tone
V21flag	(0x0002)	V21 tone and flags for fax answering

For TEXT

XCI	(0x0003)	a V.18 XCI
V18txp1	(0x0004)	a V.18 txp signal in channel V.21(1)
V18txp2	(0x0005)	a V.18 txp signal in channel V.21(2)
BellHi	(0x0006)	a Bell 103 carrier on the high channel
BellLo	(0x0007)	a Bell 103 low channel
Baudot45	(0x0008) characters	a Baudot45 initial carrier and
Baudot50	(0x0009)	a Baudot50 initial carrier and characters
Edt	(0x000A)	an EDT initial tone and characters
DTMF	(0x000B)	DTMF signals

For DATA

Sig	(0x000C~~B~~)	Modulation signal from a mode only used for data, i.e. not V.21, V.23 nor Bell 103

Common to TEXT and DATA:

CT	(0x000D~~C~~)	a V.25 calling tone
V21hi	(0x000E~~D~~)	a V.21 carrier on the higher frequency channel
V21lo	(0x000F~~E~~)	a V.21 carrier on the low frequency channel
V23hi	(0x0010~~0F~~)	a V.23 high carrier
V23lo	(0x0011~~0~~)	a V.23 low carrier
CI	(0x0012~~1~~)	a V.8 CI with contents in "dtvalue"

Common to FAX, TEXT and DATA:

ANS	(0x0013~~2~~)	V.25 ANS, equivalent to T.30 CED from answering terminal
ANSbar	(0x0014~~3~~)	V.25 ANS with phase reversals
ANSAM	(0x0015~~4~~)	V.8 ANSam
ANSAMbar	(0x0016~~5~~)	V.8 ANSam with phase reversals
CM	(0x0017~~6~~)	V.8 CM with contents in "dtvalue"
CJ	(0x0018~~7~~)	V.8 CJ
JM	(0x0019~~8~~)	V.8 JM with contents in "dtvalue"
ENDOFSIG	(0x001A~~19~~)	End of reported signal detected reported for continuous or repeated signals
V8BIS	(0x001B~~20~~)	V.8bis signal, with signal type in parameter V8bistype and value in "dtvalue"

…

[End Correction]

7.5 Missing Keywords in H.248.2 Clause 8.1.2 (ex-F.8.1.2)

Description:	[H.248.2|F.] 8.1.2 neglects to specify "Defined in:" or "Characteristics:"
Reference:	Subject: Re: H.248 Annex F typos Date: Wed, 02 May 2001 16:06:27 +1000 From: Christian Groves <Christian.Groves@ericsson.com> To: Troy Cauble <troy@bell-labs.com> CC: gunnar.hellstrom@era.ericsson.se, gparsons@nortelnetworks.com, jraff@brooktrout.com, rspitzer@telogy.com,MEGACO list <megaco@fore.com>

[Begin Correction]

F.8.1.2 Text Call Types

…

V18   (0x0008)

Description:

This parameter indicates for what text telephone modes the termination is monitored, used in TEXT mode.

Defined in: Termination State

Characteristics: Read / Write

…

[End Correction]

7.6 Duplicated propertyID in H.248.2 Clause 8.1 (ex-F.8.1)

Description:	[H.248.2|F.] 8.1.3 and [H.248.2|F.] 8.1.6 have the same PropertyID string (v8bsup). [CHG] Yes. The authors can specify an appropriate name.
Reference:	Subject: Re: H.248 Annex F typos Date: Wed, 02 May 2001 16:06:27 +1000 From: Christian Groves <Christian.Groves@ericsson.com> To: Troy Cauble <troy@bell-labs.com> CC: gunnar.hellstrom@era.ericsson.se, gparsons@nortelnetworks.com, jraff@brooktrout.com, rspitzer@telogy.com,MEGACO list <megaco@fore.com>

[Begin Correction]

F.8.1.6 PhasereversalDetect

PropertyID: phrevdetv8bsup (0x0006)
Type: Boolean

…

[End Correction]

7.7 Inconsistencies in Fax Transport property in H.248.2 Clause 9.1 (ex- F.9.1)

Description:	[H.248.2|F.] 9.1.1 and [H.248.2|F.] 9.1.2 have the same PropertyID number (0x01). [H.248.2|F.] 9.1.2 updated. There is also a spurious dot in one of the value names.
Reference:	Subject: Re: H.248 Annex F typos Date: Wed, 02 May 2001 16:06:27 +1000 From: Christian Groves <Christian.Groves@ericsson.com>

	To: Troy Cauble <troy@bell-labs.com> CC: gunnar.hellstrom@era.ericsson.se, gparsons@nortelnetworks.com, jraff@brooktrout.com, rspitzer@telogy.com,MEGACO list <megaco@fore.com>

[Begin Correction]

F.9.1.2 Fax Transport

PropertyID: ftrpt (0x0001~~4~~)
Type: Enumeration

Possible values:

T30	(0x0001)	for T.30 PSTN sessions without ECM
T30ECM	(0x0002)	for T.30 PSTN sessions with ECM (non-V.34)
T.30V34	(0x0003)	for T.30 PSTN sessions with V.34 (half-duplex)

[End Correction]

7.8 Duplicated PropertyID in H.248.2 Clause 10.1 (ex-F.10.1)

Description:	[H.248.2|F.] 10.1.1 and [H.248.2|F.] 10.1.2 have the same PropertyID number (0x01). [H.248.2|F.] 10.1.2 to be updated.
Reference:	Subject: Re: H.248 Annex F typos Date: Wed, 02 May 2001 16:06:27 +1000 From: Christian Groves <Christian.Groves@ericsson.com> To: Troy Cauble <troy@bell-labs.com> CC: gunnar.hellstrom@era.ericsson.se, gparsons@nortelnetworks.com, jraff@brooktrout.com, rspitzer@telogy.com,MEGACO list <megaco@fore.com>

[Begin Correction]

F.10.1.2 IPFaxTransport

PropertyID: ipftrpt (0x0007~~1~~)
Type: Enumeration

…

[End Correction]

8   Technical and Editorial Corrections to H.248.3 (2000)[2]

8.1 Correct Binary PropertyIDs in Soft Key Package

Description:	In the Soft Key Package (ks), H.248.3, the Property ID of Propery - nskeys (Number of softkeys) is given as 1. This package extends the Label Key package (labelkey) whose Property – keylist (Key List) also has the Property ID 1. Is the clash of the property IDs an oversight?
Reference:	Subject: [Megaco] Regarding Soft Key Package Date: Thu, 26 Jul 2001 16:49:50 -0700 From: "Anand, Rashim" <r_anand@trillium.com> To: "'megaco@ietf.org'" <megaco@ietf.org>

---

[2] Formerly known as H.248 Annex G.

[Begin Correction]

Soft Key Package

```
PackageID: ks, 0x001a
```

Properties

```
Number of softkeys

      PropertyID: nskeys (0x0002+)

      PropertyType: Integer

      Characteristics: read only

      Defined in: TerminationState

      Description: Maximum number of individual soft keys.


Display size

      PropertyID: sz (0x0003+)

      Type: Integer

      Characteristics: read only

      Defined in: TerminationState

      Description: Maximum number of characters that can be displayed in each
      softkey.


Supported unicode code pages

      PropertyID: cdpgs (0x0004+)

      Description: a list of supported unicode pages

      Type: list of enumerated type

      Defined in: TerminationState.

      Characteristics: read only
```

[End Correction]

8.2 Correct Binary DigitMap Completion EventID in Keypad Package

Description:	The Event ID ce (0x0001) of Keypad Package, which is derived from Key Package clashes with the Event ID kd (0x0001) of Key Package. What should be the Correct ID for the ce Event?
Reference:	From: Anand, Rashim [mailto:r_anand@trillium.com] Sent: August 30, 2001 18:41 To: 'megaco@ietf.org' Subject: [Megaco] Regarding H.248 Annex G

[Begin Correction]

Keypad Package

Events

DigitMap Completion Event

>   EventID: ce (0x000~~1~~3)
>
>>   Generated when a digit map completes as described in Megaco/H.248 Protocol section 7.1.14. Form of this event is identical to its definition in DTMF Detection Package (dd), Megaco/H.248 Protocol section E.6.2.

[End Correction]

9   Technical and Editorial Corrections to H.248.4 (2000)[3]

9.1 SCTP Streams

Description:	In clause [H.248.4|H.] 8, Stream Independence within H.248.4, it reads: "SCTP can provide up to 65536 unidirectional streams ... " this is correct there can be 65536 unique stream numbers (0-65535). Though the number of streams is limited to what is specified in the INIT / INITACK. There, according to the SCTP RFC 2960 variables: Number of Outbound Streams Number of Inbound Streams are represented by a 16 bit variables where the value of 0 (zero streams) is not allowed. Hence the actual number of streams which may ever be requested and accepted is 0xFFFF (65535). Therefore, the 65536 value in chapter H.8 in H.248.4 should be 65535.
Reference:	Editor

[Begin Correction]

~~H.~~8 Stream Independence
SCTP can provide up to 6553~~6~~5 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 may avoid head-of-line blocking by transmitting unrelated transactions on different streams. Reliability is still provided. Ordering of messages is available per-stream.

[End Correction]

---

[3] Formerly known as H.248 Annex H.

10 Technical and Editorial Corrections to H.248.7 (2000)[4]

10.1 Superfluous information

Description:	The Announcement Package H.248.7 contains fields which are superfluous and may lead to misinterpretation. The Notifycompletion indicator is a core H.248 element and does not need to be specified in a package. Also Signal type only needs one element i.e. TO. Several signal do not need to be specified as these may be overridden by the core protocol.
Reference:	Editor

[Begin Correction]

~~K.~~3 Signals

...

```
    SignalID: apf (0x0001)

    Description: Initiates the play of a fixed announcement.

    SignalType: ~~OO,~~ TO (default)
    SignalDuration: Provisioned.
    ~~NotifyCompletion: Provisioned (default false)~~
```

...

```
    SignalID: apv (0x0002)

    Description: Initiates the play of a variable announcement.

    SignalType: ~~OO,~~ TO (default)
    SignalDuration: Provisioned.
    ~~NotifyCompletion: Provisioned (default false)~~
```

[End Correction]

10.2 Announcement Playing Clarification

| Description: | H.248.7 defines a package for the support of Announcements. It defines that announcements should have a certain signal type. It also defines that signals have a duration and number of cycles. Signal Type, Duration and Number of Cycles all interact when determining how to play an announcement. It becomes even more complicated when using defaults for these values or the default values are overridden. The rules for determining how to play an announcement are quite confusing. Thus it is proposed to add a table to H.248.7 to show the possible combinations and how these relate to how the announcement is played.

H.248.7 also specifies Variable announcement playing. It mentions that additional data may be sent for a variable announcement however it does not say how this interacts with keepactive indication on a signal. It is proposed that this behaviour is clarified. |
|---|---|
| Reference: | AVD-2126 contribution to the Dublin 2001 Rapporteur's Meeting. |

---

[4] Formerly known as H.248 Annex K.

[Begin Correction]

10.3 H.248.7 Section ~~K.~~5, "Procedures"

…

If the signal duration is 0, the signal is played specified by the noc parameter only or when not included in the signal by the announcements number of cycle default.
If the parameter noc is 0, the signal is played specified by the signal duration only or when not included in the signal by the corresponding announcement default.

To provide additional information when an announcement is to be played, the MGC sends a play variable announcement signal to the MG. H.248 doesn't guarantee in sequence processing of transactions. To ensure sequential playing of an announcement, a transaction reply for a command that affects the announcement signal should be received by the Media Gateway Controller before it sends the additional variable announcement data. If the Media Gateway receives a signal with the keep active flag with additional variable announcement data for an already playing announcement it shall continue playing the announcement according to the additional data.

…

If the signal duration is 0, the signal is played specified by the noc parameter only or when not included in the signal by the announcements number of cycle default.
If the parameter noc is 0, the signal is played specified by the signal duration only or when not included in the signal by the corresponding announcement default.

Table 1 shows the possible combinations of Signal type, Duration, Number of Cycles and the resultant effect.

Table 1 / H.248.7 – Announcement Playing Result

Signal Type	Signal Duration	Number of Cycles (iterations)	Result
Brief	Not included	Not included	Plays message a number of times up to default duration or a default number of times which ever one is shorter. The message may be stopped part way through a signal.
		0	Plays the message n times up to the default duration.
		1	Plays message once or for the default duration which ever one is shorter. The message may be stopped part way through a signal.
		n times	Plays message a number of times up to default duration or n number of times which ever one is shorter. The message may be stopped part way through a signal.
	0	Not Included	Plays the message n times according to the default Number of Cycles.
		0	Plays multiple iterations (endless play)
		n times	Plays the message n times
	Duration > per-announcement Duration	Not included	Plays message a number of times for the specified duration or a default number of times which ever one is shorter. The message may be stopped part way through a signal.
		0	Plays the message a number of times up to the specified duration. The message may be stopped part way through a signal.

		1	Plays message once
		n times	Plays the message n times up to the specified duration. The message may be stopped part way through a signal.
	Duration <= per-announcement Duration	Not included, 0, 1 or n times	Plays message for the specified duration, message stops before being fully played.
Timeout	Not Included	Not included	Plays message a number of times for the default duration or a default number of times which ever one is shorter.
		0	Plays the message n times up to the default duration.
		1	Plays message once up to the default duration
		n times	Plays the message n times up to the default duration.
	0	Not Included	Plays the message n times according to the default Number of Cycles.
		0	Plays multiple iterations (endless play)
		n times	Plays the message n times
	Duration > per-announcement Duration	Not included	Plays message a number of times for the specified duration or a default number of times which ever one is shorter. The message may be stopped part way through a signal.
		0	Plays multiple iterations until the specified duration
		1	Plays message once, as 1 iteration is shorter than duration
		n times	Plays message a number of times for the specified duration or the specified number of times which ever one is shorter. The message may be stopped part way through a signal.
	Duration <= per-announcement Duration	Not included, 0, 1, n times	Plays for the specified duration, message stops before the message fully plays.
On/Off	Ignored	Not included or 0	Plays multiple iterations (endless play)
		once	Plays multiple iterations (endless play)
		n times	Plays multiple iterations (endless play)
Note: This table is only applicable to H.248.7. The behaviour of signal playing is modified by the use of the Number of Cycles parameter.			

…

[End Correction]

11 Technical and Editorial Corrections to RFC-3015

This section contains technical and editorial correction to RFC-3015 only, that the faults described in this section do not affect the published ITU-T Recommendation H.248.1 (06/2000).

11.1 Typographical Errors in the ASN.1 in RFC3015

Description:	When producing RFC3015 from Recommendation H.248.1 (06/2000), two lines were omitted. It missed out the line defining IP4Address, which should be before IP6Address and there is a missing "..." at the end of the ServiceChangeParm definition.
Reference:	Subject: FW: Typos in RFC 3015 Date: Tue, 9 Jan 2001 14:27:55 -0500 From: "Rosen, Brian" <Brian.Rosen@marconi.com> To: "Tom Taylor (E-mail)" <taylor@nortelnetworks.com>, "Christian Groves (E-mail)"

	<Christian.Groves@ericsson.com> CC: "'sob@harvard.edu'" <sob@harvard.edu>

[Begin Correction]

A.2 ASN.1 Syntax Specification

…

```
IP4Address ::= SEQUENCE
  {
    address      OCTET STRING (SIZE(4)),
    portNumber   INTEGER(0..65535) OPTIONAL
  }

IP6Address ::= SEQUENCE
  {
    address      OCTET STRING (SIZE(16)),
```

…

```
ServiceChangeParm ::= SEQUENCE
  {
    serviceChangeMethod    ServiceChangeMethod,
    serviceChangeAddress   ServiceChangeAddress OPTIONAL,
    serviceChangeVersion   INTEGER(0..99) OPTIONAL,
    serviceChangeProfile   ServiceChangeProfile OPTIONAL,
    serviceChangeReason    Value,
    serviceChangeDelay     INTEGER(0..4294967295) OPTIONAL,
                   -- 32 bit unsigned integer
    serviceChangeMgcId     MId OPTIONAL,
    timeStamp              TimeNotation OPTIONAL,
    nonStandardData        NonStandardData OPTIONAL,
    ...
  }
```

[End Correction]
---

12 Implementation Clarifications for H.248.1 Version 1 (03/2002)
None.

13 Implementation Clarifications for H.248.4 (2000)

13.1 MTP3 Interworking

Description:	When studying some network scenarios for a certain networks, there is a need to evolve the signalling transport from SS7 MTP3B in an ATM environment to the use of SCTP in IP environments. To provide this M3UA on top of SCTP can be used. It is also seen that M3UA supports flexible implementation scenarios. Therefore some addition indicating the use of M3UA on top of SCTP needs to specified in H.248.4.
Reference:	Subject: MTP 3 interworking Date: Thu, 3 May 2001 16:51:14 +0200 From: "Alf Heidermark (UAB)" <Alf.Heidermark@uab.ericsson.se> To: "'Megaco (E-mail)'" <megaco@fore.com>

[Begin Clarification]

To provide interworking between MTP3B and SCTP and to allow for flexible implementations of gateways and controllers in order to offer efficient use of SCTP associations the M3UA layer may be added on top of SCTP.

[End Clarification

14 H.248 Recommendation Sub-series Defect Report Form

DATE:	
CONTACT INFORMATION **NAME:** **COMPANY:** **ADDRESS:** **TEL:** **FAX:** **EMAIL:**	
AFFECTED RECOMMENDATIONS:	
DESCRIPTION OF PROBLEM:	
SUGGESTIONS FOR RESOLUTION:	

NOTE - ATTACH ADDITIONAL PAGES IF MORE SPACE IS REQUIRED THAN IS PROVIDED ABOVE.