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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication procedures

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Gateway control protocol: International CAS packages

ITU-T Recommendation H.248.28

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ITU-T Recommendation H.248.28

Gateway control protocol: International CAS packages

Summary

The International CAS package (icas) provides an extension to the Basic CAS packages, defining additional line signals and events required for international signalling protocols.

For some international protocols, such as some variants of the R2 Signalling System, it would typically be necessary to implement the bcas, icas and casblk packages to fully support the interface. In addition, register signalling will require support of either the bcasaddr package for non-compelled signalling, or a package to perform compelled signalling.

Source

ITU-T Recommendation H.248.28 was approved on 15 March 2004 by ITU-T Study Group 16 (2001-2004) under the ITU-T Recommendation A.8 procedure.

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.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g. interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not 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.248.28

Gateway control protocol: International CAS packages

1 Scope

The icas package presented in this Recommendation is an extension of the bcas package (as per definition of package extensions in ITU-T Rec. H.248.1). Any termination supporting this package must also support the bcas package.

Only signals and events related to generic international CAS signalling operation, both for automatic or semi-automatic working, have been considered for inclusion in the icas package. Some international signalling systems may require new supervisory (line) and call set-up control (register) signals to introduce features such as re-answering, trunk offering, re-ring, operator break-in, etc. As there is no single standard mechanism to implement such features (they vary from country to country), they have not been considered in this package. If these are required, it is expected they would be implemented by defining additional signals and events in new packages that either extend the bcas package or this icas package.

These packages are intended for use in analogue (one-way operation) or digital transmission systems (one-way or both-ways operations). The MGC should be unaware of the transmission details at the physical layer. The MG shall be provisioned with the actual signalling frequencies for inter-register signalling (for example 2-out-of-n in-band multi-frequency code with forward and backward compelled signalling for R2) along with their properties such as amplitude, tone duration, cadence, etc., and also their logical significance. Any timers that dictate the inter-register compelling actions shall be provisioned in the MG. For example in R2 the SF, E&M (for analogue) and "abcd" bits (for digital) line signalling parameters generated at the physical layer, along with their logical significance, are also assumed to be provisioned at the MG.

The support of these packages is optional.

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 Recommendation H.248.1 (2002), *Gateway control protocol: Version 2*.

– ITU-T Recommendation H.248.25 (2003), *Gateway control protocol: Basic CAS packages*.

3 Definitions

None.

4 Abbreviations

This Recommendation uses the following abbreviations:

CAS Channel Associated Signalling

E&M Ear and Mouth

MG Media Gateway

MGC Media Gateway Controller

PDN Packet Data Network

R2 Signalling System R2

SF Single Frequency

5 International CAS Package

PackageID: icas (0x007b)

Version: 1

Extends: bcas version 1

This package provides event and signal handling for terminations that support International CAS signalling.

5.1 Properties

5.1.1 Trunk Direction

PropertyID: trdir (0x0001)

Description:

Specifies whether the icas termination is an incoming, outgoing or both way trunk circuit.

Type: Enumeration

Possible values:

"IC"	(0x0001) Incoming.
"OG"	(0x0002) Outgoing.
"BW"	(0x0003) Both ways.

(default is provisioned)

Defined in: TerminationState

Characteristics: Read

5.2 Events

5.2.1 Subscriber Line Status

EventID: sls (0x0006)

Description:

Reports the line status of the called subscriber.

EventsDescriptor parameters: None

ObservedEventsDescriptor parameters:

Subscriber Line Condition

ParameterID: lsts (0x0001)

Type: Enumeration

Possible values:

"SLB"	(0x0001) Subscriber line busy.
"SLFC"	(0x0002) Subscriber line free, charge.

Description:

Line conditions of the called subscriber.

5.2.2 Clear Forward

EventID: cf (0x0007)

Description:

This event applies to an incoming interface and is reported when a "Clear" line signal occurs on the termination. The event is reported by the MG if either the timed transition to this line signal is detected or the line signal already exists. The condition against which the signal is verified is provisioned in the MG. The parameter "clear guard timing" can optionally be included.

EventsDescriptor parameters:

Clear Guard Timing

ParameterID: clgdt (0x0001)

Type: Boolean

Possible values: On when the clear guard timing is requested.
Off when the clear guard timing is turned off.

Description:

Specifies whether the MG shall start a clear guard timer for the receipt of the "clear forward" signal. If the clear guard timer expires prior to the detection of clear forward signal and the CAS Failure event is active, the MG shall report a CAS Failure event with a "cfto" error code. The timer value is provisioned on the MG. If the clgdt parameter is not provided, the MG does not perform timing by default.

ObservedEventsDescriptor parameters: None

5.2.3 Clear Back

EventID: cb (0x0008)

Description:

This event applies to an outgoing interface and is reported when a "Clear Back" line signal occurs on the termination. The event is reported by the MG if either the timed transition to this line signal is detected or the line signal already exists. The condition against which the signal is verified is provisioned in the MG. The parameter "clear guard timing" can optionally be included.

EventsDescriptor parameters:

Clear Guard Timing

ParameterID: clgdt (0x0001)

Type: Boolean

Possible values: On when the clear guard timing is requested.
Off when the clear guard timing is turned off.

Description:

Specifies whether the MG shall start a clear guard timer for the receipt of the "clear back" signal. If the clear guard timer expires prior to the detection of clear back signal and the CAS Failure event is active, the MG shall report a CAS Failure event with a "cbto" error code. The timer value is provisioned on the MG. If the clgdt parameter is not provided, the MG does not perform timing by default.

ObservedEventsDescriptor parameters: None

5.2.4 CAS Failure

EventID: casf (0x0005)

Description:

Extends the bcas casf event to handle general failure or abnormal line and register signalling conditions associated with this package.

EventsDescriptor parameters: None

ObservedEventsDescriptor parameters:

Error Code

ParameterID:	ec (0x0001)	
Type:	Enumeration	
Possible values:	"CFTO"	(0x0006) Clear forward time out.
	"CBTO"	(0x0007) Clear back time out.
	"CNG"	(0x0008) Congestion: Encountered Network congestion.
	"DISC"	(0x0009) Information signalled by the MGC is inappropriate at the compelling stage at MG and hence discarded.

Description:

Describes the failure reason.

5.2.5 Release Guard

EventID: rlg (0x0009)

Description:

This event applies to an incoming interface and is reported when a "Release Guard" line signal occurs on the termination. The event is reported by the MG if either the timed transition to this line signal is detected or the line signal already exists. The condition against which the signal is verified is provisioned in the MG.

EventsDescriptor parameters: None

ObservedEventsDescriptor parameters: None

5.2.6 Congestion

EventID: cng (0x000a)

Description:

This event applies to an outgoing interface and is reported when a "network congestion" line signal occurs on the termination. The event is reported by the MG if either the timed transition to this line signal is detected or the line signal already exists. The condition against which the signal is verified is provisioned in the MG.

EventsDescriptor parameters: None

ObservedEventsDescriptor parameters: None

5.3 Signals

5.3.1 Congestion

SignalID: cng (0x0005)

Description:

This signal applies to the network congestion signal on a termination. It arises when at the MGC the call setup attempt fails owing to unavailability of PDN resources or encounters network congestion while routing on PDN.

Signal Type: Brief

Duration: Provisioned

Additional parameters: None

5.3.2 Clear Forward

SignalID: cf (0x0006)

Description:

This signal applies to an outgoing interface and is used to clear a call in the forward direction. The signal that is actually sent on the physical termination is provisioned in the MG.

Signal Type: Brief

Duration: Provisioned

Additional parameters: None

5.3.3 Clear Back

SignalID: cb (0x0007)

Description:

This signal applies to an incoming interface and is used to clear a call in the backward direction. The signal that is actually sent on the physical termination is provisioned in the MG.

Signal Type: Brief

Duration: Provisioned

Additional parameters: None

5.3.4 Subscriber Line Status

SignalID: sls (0x0008)

Description:

Applies to the called subscriber line status information signal.

Signal Type: Brief

Duration: Provisioned

Additional parameters:

Subscriber Line Condition

ParameterID:	lsts (0x0001)	
Type:	Enumeration	
Possible values:	"SLB"	(0x0001) Subscriber line busy.
	"SLFC"	(0x0002) Subscriber line free, charge.

Description:

Line conditions of the called subscriber.

5.3.5 Release Guard

SignalID: rlg (0x0009)

Description:

This signal applies to an outgoing interface and is used to apply a release guard signal on the trunk. The signal that is actually sent on the physical termination is provisioned in the MG.

Signal Type: Brief

Duration: Provisioned

Additional parameters: None

5.4 Statistics

5.4.1 Call Duration

StatisticID: cd (0x0001)

Description:

Provides the cumulative duration of time the termination is in an active call context, i.e., from the point of applying or receiving the "Answered" signal until the point of release ("Clear-forward" or "Clear-back") initiation.

Units: Seconds

5.5 Procedures

5.5.1 Glare mitigation

Glare conditions shall be resolved as stated in 6.5.1/H.248.25.

5.5.2 Signal Procedures

A line signal must always be present on a CAS interface. Therefore the icas signals defined here, as with the bcas signals, shall be considered to be state changes in the line signal state rather than as persistent signals in themselves. The state change shall be considered to be completed

instantaneously by the MG. Consequently there is no active signal to be terminated by any subsequent event detection.

The MG shall maintain the existing line signal on the CAS interface until such a time as the MGC sends a new bcas or icas signal to the MG.

6 CAS Blocking Package

PackageID: casblk (0x007c)

Version: 1

Extends: None

This package provides the capability of exchanging maintenance state between the MGC and the MG for terminations realizing any CAS protocol.

6.1 Properties

None.

6.2 Events

6.2.1 Block

EventID: blk (0x0001)

Description:

Indicates that the remote end has blocked the termination.

EventsDescriptor parameters: None

ObservedEventsDescriptor parameters: None

6.2.2 Unblock

EventID: ublk (0x0002)

Description:

Indicates that the remote end has unblocked the termination, removing the busy condition.

EventsDescriptor parameters: None

ObservedEventsDescriptor parameters: None

6.3 Signals

6.3.1 Block

SignalID: blk (0x0001)

Description:

This signal indicates that the MG should render the termination blocked for the remote end. Removal of this signal results in the termination being idled.

Signal Type: Brief

Duration: Provisioned

Additional parameters: None

6.4 Statistics

None.

6.5 Procedures

None.

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