

(Rapporteur's Group on part of Q.2&3/15)

Study Group 15 - CONTRIBUTION

Question: 2&3/15

SOURCE: IBM

Purpose: Discussion

TITLE: Use of Q.2931 Signaling by an H.310 Terminal

ABSTRACT:

Summary of the Q.2931 Signaling parameters and Information Elements that are necessary for various types of H.310 terminals and ATM Forum VOD.

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ATM SIGNALING INFORMATION ELEMENTS REQUIRED

The following Information Elements (IE) carried by ATM Signaling are required to establish communications.

Information Element	H.310 Control VC	H.310 RAST-5 A/V VC	H.310 ROT/SOT A/V VC	AMS VOD
Protocol discriminator				X
Call Reference	X	X	X	X
Message type	X	X	X	X
Message length	X	X	X	X
AAL Parameters	X	X	X	X
ATM Traffic descriptor	X	X	X	X
Broadband bearer capability	X	X	X	X
Broadband repeat indicator	X	X	X	X
Broadband low layer information	X	X	X	O
Generic Identifier Transport	X	X	X	X
Broadband Higher layer information	O	O	O	X
Notification Indicator	O	O	O	O
Cause	O	O	O	O
Call State	O	O	O	O
Called party number	X	X	X	X
Called party subaddress	X	X	X	X
Calling party number	O	O	O	O
Calling party subaddress	O	O	O	O
Connection identifier	X	X	X	X
QoS parameter	X	X	X	X
Broadband sending complete	C	C	C	C
Transit network selection	NA	NA	NA	NA
Endpoint reference	NA	NA	NA	NA

NA - Not Applicable

X - Required

O - Optional

C - Conditional (if appropriate for the network being used)

Figure 1 ATM Forum Signaling 4.0 Information Elements

INFORMATION ELEMENTS SPECIFIC TO H.310 OR ATM FORUM VOD

The following tables summarize the use of the information elements specific to H.310 and the ATM Forum VOD Specifications. The remaining Information Elements shall be coded in accordance with the requirements of ATM Forum UNI 3.1 or Signaling 4.0 (current ITU Q.2931).

Some of the Information Elements require the use of valid ATM network endpoint addresses. Valid ATM network endpoint addresses are defined in the ATM Forum UNI 3.1 and Signaling 4.0 Specifications. These address formats include native E.164 and the Designated Country Code (DCC), International Code Designator (ICD) and E.164 [13] versions of the ATM End System Address (AESAs) address format.

ATM Signaling

Information Element	H.310 Control VC	H.310 RAST-5 AV VC	H.310 ROT/SOT AV VC	AMS VOD
AAL Parameters	AAL Type = AAL5 Forward CPCS SDU size Backward CPCS SDU size SSCS Type = Frame Relay		AAL Type = AAL5 Forward CPCS SDU size Backward CPCS SDU size SSCS Type = Null	
ATM Traffic descriptor	Forward PCR and Backward PCR = 167 cells per second which corresponds to 64 kbit/s	Note: Forward and Backwards set according to which station sends the original setup message Forward PCR = Impl. Specific Backward PCR = Impl Specific		
Broadband bearer capability	Bearer Class = BCOB-C Traffic Type = CBR User Plane Conn = PTP	Bearer Class = BCOB-X Traffic Type = CBR User Plane Conn = PTP		
Broadband repeat indicator	Set			
Broadband low layer information	<u>BLLI #1</u> User Layer 3 = H.310 Terminal type = ROT/SOT/RAST Forward Mux = NO Backward Mux = NO	User Layer 3 = H.310 Terminal type = RAST Forward Mux = TS Backward Mux = TS	User Layer 3 = H.310 Terminal type = ROT/SOT Forward Mux = TS Backward Mux = Null	
	<u>BLLI #2</u> User Layer 2 = Q.922 User Layer 3 = Null			
Broadband Higher layer information				High Layer = Vendor-Specific OUI Type = ATM Forum Application ID = ATMF VOD
Generic Identifier Transport		H.245 Resource /Correlation #		H.245 Resource /Correlation # or DSM-CC Session/Resource ID

Figure 2 Q.2931 Information Elements

ATM SIGNALING REQUIRED FOR H.310 CONTROL

AAL Parameters I.E.

Information Element	Value	Notes
AAL type	AAL-5.	
Forward Maximum AAL-5 CPCS SDU size		Value sufficient for transporting H.245 messages up to 2048 octets
Backward Maximum AAL-5 CPCS-SDU size		Value sufficient for transporting H.245 messages up to 2048 octets
SSCS Type	'00000100'B	Frame Relay SSCS

ATM Traffic Descriptor I.E.

Information Element	Value	Notes
Forward Peak Cell Rate	implementation and program selection specific	Set to the Peak Cell Rate value required for the control connection
Backward Peak Cell Rate	implementation and program selection specific	Set to the Peak Cell Rate value required for the control connection

Broadband bearer capabilities I.E

Information Element	Value	Notes
Bearer Class	BCOB-C	
Traffic Type	Constant Bit Rate	Could use UBR or ABR
User Plane Connection configuration	Point-to-Point	

Broadband Low Layer Information I.E.

BLLI #1

Information Element	Value	Notes
User Information Layer 3 Protocol Field	'0001100'	ITU-T Recommendations H.310
Terminal Type	'0001' H.310 ROT '0010' H.310 SOT '0011' H.310 RAST	Specify the appropriate terminal type for the expected mode of operation
Forward Multiplexing Capability	'0000'	No Multiplex
Backward Multiplexing Capability	'0000'	No Multiplex

BLLI #2

Information Element	Value	Notes
User Information Layer 2 Protocol Field	'0110'	ITU-T Recommendations Q.922
User Information Layer 3 Protocol Field		No Layer 3 protocol specified

QoS Parameters I.E.

These QoS parameters shall be coded in accordance with the requirements of the network.

ATM SIGNALING REQUIRED FOR RAST-5 A/V VC

AAL Parameters I.E.

Information Element	Value	Notes
AAL type	AAL-5.	
Forward Maximum AAL-5 CPCS SDU size	N*188 bytes.	Default value for the video service component in this specification is 376 bytes. N is an integer.
Backward Maximum AAL-5 CPCS-SDU size	N*188 bytes.	Default value for the video service component in this specification is 376 bytes. N is an integer.
SSCS Type	Null	

ATM Traffic Descriptor I.E.

The video service component Peak Cell Rate is calculated with MPEG-2 encoded rate plus AAL5 overhead. The ATM Traffic Descriptor includes only the user plane information rate for the service components in that one VC.

The video service component PCR may be specified using CLP =0 and / or CLP=0+1.

Information Element	Value	Notes
Forward Peak Cell Rate	implementation and program selection specific	Set to the Peak Cell Rate value required for the video service component (MPEG-2 SPTS)
Backward Peak Cell Rate	implementation and program selection specific	Set to the Peak Cell Rate value required for the video service component (MPEG-2 SPTS)

Broadband bearer capabilities I.E

Information Element	Value	Notes
Bearer Class	BCOB-X	
Traffic Type	Constant Bit Rate	

User Plane Connection configuration	Point-to-Point	
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Broadband Low Layer information I.E.

Information Element	Value	Notes
User Information Layer 3 Protocol Field	'0001100'	ITU Recommendation H.310
Terminal Type	'0011' H.310 RAST	Receive and Send Terminal
Forward Multiplexing Capability	'001'	Transport Stream
Backward Multiplexing Capability	'001'	Transport Stream

QoS Parameters I.E.

These QoS parameters shall be coded in accordance with the requirements of the network.

Generic Identifier Transport I.E.

Generic Identifier Transport Information Element is a generic parameter that indicates the correspondence of the VC to a certain previously established request carried outside ATM signaling. There are two cases foreseen in the current signaling standards (based on the selection of session management protocol - DSM-CC [10] or H.245 [16]).

DSM-CC Case

Information Element	Value	Notes
session identifier	DSM-CC sessionId	
resource correlation number	DSM-CC resourceNum	

H.245 Case

Information Element	Value	Notes
virtual Channel ID	H.245 resource/correlation number	

ATM SIGNALING REQUIRED FOR H.310 SOT**AAL Parameters I.E.**

Information Element	Value	Notes
AAL type	AAL-5.	
Forward Maximum AAL-5 CPCS SDU size	N*188 bytes.	Default value for the video service component in this specification is 376 bytes. N is an integer.
Backward Maximum AAL-5 CPCS-SDU size	0 bytes if Video Service Component is unidirectional, otherwise Implementation Specific	
SSCS Type	Null	

ATM Traffic Descriptor I.E.

The video service component Peak Cell Rate is calculated with MPEG-2 encoded rate plus AAL5 overhead. The ATM Traffic Descriptor includes only the user plane information rate for the service components in that one VC.

The video service component PCR may be specified using CLP = 0 and / or CLP = 0+1.

Information Element	Value	Notes
Forward Peak Cell Rate	implementation and program selection specific	Set to the Peak Cell Rate value required for the video service component (MPEG-2 SPTS)
Backward Peak Cell Rate	0 cells/ sec if Video Service Component is unidirectional, otherwise Implementation Specific	

Broadband bearer capabilities I.E

Information Element	Value	Notes
Bearer Class	BCOB-X	
Traffic Type	Constant Bit Rate	
User Plane Connection configuration	Point-to-Point	

Broadband Low Layer information I.E.

Information Element	Value	Notes
User Information Layer 3 Protocol Field	'0001100'	ITU Recommendation H.310
Terminal Type	'0010' H.310 SOT	Send Only Terminal
Forward Multiplexing Capability	'001'	Transport Stream
Backward Multiplexing Capability	'000'	No Multiplex

QOS Parameters I.E.

These QoS parameters shall be coded in accordance with the requirements of the network.

Generic Identifier Transport I.E.

Generic Identifier Transport Information Element is a generic parameter that indicates the correspondence of the VC to a certain previously established request carried outside ATM signaling. There are two cases foreseen in the current signaling standards (based on the selection of session management protocol - DSM-CC [10] or H.245 [16]).

DSM-CC Case

Information Element	Value	Notes
session identifier	DSM-CC sessionId	
resource correlation number	DSM-CC resourceNum	

H.245 Case

Information Element	Value	Notes
virtual Channel ID	H.245 resource/correlation number	

ATM SIGNALING REQUIRED FOR H.310 ROT

AAL Parameters I.E.

Information Element	Value	Notes
AAL type	AAL-5.	
Forward Maximum AAL-5 CPCS SDU size	0 bytes if Video Service Component is unidirectional, otherwise Implementation Specific	
Backward Maximum AAL-5 CPCS-SDU size	N*188 bytes.	Default value for the video service component in this specification is 376 bytes.

		N is an integer.
SSCS Type	Null	

ATM Traffic Descriptor I.E.

The video service component Peak Cell Rate is calculated with MPEG-2 encoded rate plus AAL5 overhead.. The ATM Traffic Descriptor includes only the user plane information rate for the service components in that one VC.

The video service component PCR may be specified using CLP =0 and / or CLP=0+1.

Information Element	Value	Notes
Forward Peak Cell Rate	0 cells/ sec if Video Service Component is unidirectional, otherwise Implementation Specific	
Backward Peak Cell Rate	implementation and program selection specific	Set to the Peak Cell Rate value required for the video service component (MPEG-2 SPTS)

Broadband bearer capabilities I.E

Information Element	Value	Notes
Bearer Class	BCOB-X	
Traffic Type	Constant Bit Rate	
User Plane Connection configuration	Point-to-Point	

Broadband Low Layer information I.E.

Information Element	Value	Notes
User Information Layer 3 Protocol Field	'0001100'	ITU Recommendation H.310
Terminal Type	'0010' H.310 ROT	Receive Only Terminal
Forward Multiplexing Capability	'000'	No Multiplex
Backward Multiplexing Capability	'001'	Transport Stream

QOS Parameters I.E.

These QoS parameters shall be coded in accordance with the requirements of the network.

Generic Identifier Transport I.E.

Generic Identifier Transport Information Element is a generic parameter that indicates the correspondence of the VC to a certain previously established request carried outside ATM signaling. There are two cases foreseen in the current signaling standards (based on the selection of session management protocol - DSM-CC [10] or H.245 [16]).

DSM-CC Case

Information Element	Value	Notes
session identifier	DSM-CC sessionId	
resource correlation number	DSM-CC resourceNum	

H.245 Case

Information Element	Value	Notes
virtual Channel ID	H.245 resource/correlation number	

ATM SIGNALING REQUIRED FOR AMS VOD**AAL Parameters I.E.**

Information Element	Value	Notes
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AAL type	AAL-5.	
Forward Maximum AAL-5 CPCS SDU size	N*188 bytes.	Default value for the video service component in this specification is 376 bytes. N is an integer.
Backward Maximum AAL-5 CPCS-SDU size	0 bytes if Video Service Component is unidirectional, otherwise Implementation Specific	
SSCS Type	Null	

ATM Traffic Descriptor I.E.

The video service component Peak Cell Rate is calculated with MPEG-2 encoded rate plus AAL5 overhead. The ATM Traffic Descriptor includes only the user plane information rate for the service components in that one VC.

The video service component PCR may be specified using CLP =0 and / or CLP=0+1.

Information Element	Value	Notes
Forward Peak Cell Rate	Implementation and program selection specific	Set to the Peak Cell Rate value required for the video service component (MPEG-2 SPTS)
Backward Peak Cell Rate	0 cells/ sec if Video Service Component is unidirectional, otherwise Implementation Specific	

Broadband bearer capabilities I.E

Information Element	Value	Notes
Bearer Class	BCOB-X	
Traffic Type	Constant Bit Rate	
User Plane Connection configuration	Point-to-Point	

Broadband High Layer information I.E.

Information Element	Value	Notes
Higher Layer Information Type	'0000011'	Vendor-Specific Application ID
OUI Type	'00A03E'x	ATM Forum OUI
Application ID	'xxxxxxx'	ATM Forum VOD

QOS Parameters I.E.

These QoS parameters shall be coded in accordance with the requirements of the network.

Generic Identifier Transport I.E.

Generic Identifier Transport Information Element is a generic parameter that indicates the correspondence of the VC to a certain previously established request carried outside ATM signaling. There are two cases foreseen in the current signaling standards (based on the selection of session management protocol - DSM-CC [10] or H.245 [16]).

DSM-CC Case

Information Element	Value	Notes
session identifier	DSM-CC sessionId	
resource correlation number	DSM-CC resourceNum	

H.245 Case

Information Element	Value	Notes
virtual Channel ID	H.245 resource/correlation number	

References

- [1] ITU-T Recommendation H.310 (1996): "Broadband and audio-visual communications systems and terminal equipment".