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SERIES Q: SWITCHING AND SIGNALLING

Broadband ISDN – B-ISDN application protocols for access signalling

Digital subscriber signalling system No. 2 (DSS2) – Generic identifier transport extension for support of bearer independent call control

ITU-T Recommendation Q.2941.3

(Formerly CCITT Recommendation)

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ITU-T Recommendation Q.2941.3

Digital subscriber signalling system No. 2 (DSS2) – Generic identifier transport extension for support of bearer independent call control

Summary

This Recommendation defines the use of DSS2 Generic identifier transport signalling capability to carry the Backbone Network Connection Identifier that correlates ATM bearer connections with Bearer Independent Call Control signalled calls. Instances of these identifiers may be carried in the Generic identifier transport information element, as defined in ITU-T Q.2941.1.

Source

ITU-T Recommendation Q.2941.3 was prepared by ITU-T Study Group 11 (1997-2000) and approved under the WTSC Resolution 1 procedure on 15 June 2000.

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 Conference (WTSC), 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 WTSC 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.

INTELLECTUAL PROPERTY RIGHTS

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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.

CONTENTS

ITU-T Recommendation Q.2941.3

Digital subscriber signalling system No. 2 (DSS2) – Generic identifier transport extension for support of bearer independent call control

1 Scope

This Recommendation defines DSS2 signalling capability to carry identifiers relating to the support of Bearer Independent Call Control (BICC). These identifiers are coded in the Generic identifier transport information element defined for the Broadband Integrated Services Digital Network (B-ISDN) Digital Subscriber Signalling System No. 2 (DSS2) protocol.

This Recommendation is part of the DSS2 family of ITU-T Recommendations; it specifies extensions to ITU-T Q.2931 [1] and Q.2971 [2] and does not repeat states, information elements, messages and procedures contained therein, but only specifies extensions related to the use of the Generic identifier information element.

This Recommendation is applicable to equipment, supporting DSS2 signalling capabilities as defined, in particular, in ITU-T Q.2931 and Q.2971 and extends GIT to support the Backbone Network Connection Identifier (BNC-Id) required to coordinate ATM bearer connection establishment with calls established via signalling defined in ITU-T Q.1901.

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; all 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.

[1] ITU-T Q.2931 (1995), *Digital subscriber signalling system No. 2 – User-network interface (UNI) layer 3 specification for basic call/connection control*, and its Amendments 1 through 4.

[2] ITU-T Q.2971 (1995), *Digital subscriber signalling system No. 2 – User-network interface (UNI) layer 3 specification for point-to-multipoint call/connection control.*

[3] ITU-T Q.2941.1 (1997), *Digital subscriber signalling system No. 2 – Generic identifiers transport.*

[4] ITU-T Q.1901 (2000), *Bearer independent call control protocol*.

[5] ITU-T Q.765.5 (2000), *Signalling system No. 7 – Application transport mechanism: Bearer Independent Call Control (BICC)*.

[6] ITU-T Q-series Supplement 22 (1999), *Technical Report TRQ.3000: Operation of the bearer independent call control (BICC) protocol with digital subscriber signalling system No. 2 (DSS2)*.

[7] ITU-T Q-series Supplement 16 (1999), *Tecnical Report TRQ.2140: Signalling requirements for the support of narrow-band services via broadband transport technologies.*

3 Definitions

No new definitions are needed.

4 Abbreviations

This Recommendation uses the following abbreviations:

AAL ATM Adaptation Layer

ATM Asynchronous Transfer Mode

BCF Bearer Control Function

BICC Bearer Independent Call Control

B-ISDN Broadband Integrated Services Digital Network

BNC-Id Backbone Network Connection Identifier

DSS2 Digital Subscriber Signalling System No. 2

GIT Generic Identifier Transport

SVC Switched Virtual Connection

VCC Virtual Channel Connection

5 Description

The Generic identifier transport signalling capability allows the generation and transport by the B-ISDN of identifiers used by different distributed applications. The Generic identifier transport capability is a signalling capability for exchanging identifiers between an originating entity and an addressed peer entity. The transport of the following identifier is defined in this Recommendation:

– Backbone Network Connection Identifier (BNC-Id).

The BNC-Id binds or correlates a narrow-band call establishment with the corresponding ATM VCC establishment. The use of the BNC-Id in call control is defined in ITU-T Q.1901 [4]. The combination of BNC-Id and calling party number are unique for the duration of the connection.

6 Operational requirements

The use of this capability between networks is through bilateral agreement.

7 Primitives

No new primitives are required to support this capability.

8 Coding requirements

8.1 Messages

No additional message specification is required in this Recommendation. Refer to ITU-T Q.2941.1 [3] for a discussion of valid messages that carry the GIT information element.

8.2 Information element

For the sake of clarity, the Generic identifier transport information element defined in ITU-T Q.2941.1 [3] is reproduced in Appendix I. If an (unintended) discrepancy is found between Appendix I and ITU-T Q.2941.1, the material in ITU-T Q.2941.1 takes precedence. The identifier defined in this Recommendation requires the following additional coding:

Identifier related standard/application (octet 5) (Note 1)

Bits

8 7 6 5 4 3 2 1
0 0 0 0 1 0 1 0 BICC, ITU-T Q.1901 [4] (Note 2)

NOTE 1 – This field identifies a user of the DSS2 using the identifier(s) coded in octet group 6 and possibly the subsequent octet groups. An identifier type may be used by multiple standards/applications and a standard/application may require that multiple identifier types be carried in the same instance of the Generic identifier transport information element.

NOTE 2 – When the identifier related standard/application field refers BICC, a BNC-Id is coded in octet groups 6 according to this clause.

Identifier type (Octet 6, 7, ..., N)

Bits

8 7 6 5 4 3 2 1
0 0 0 0 1 0 1 0 BNC-Id (Note 3)

NOTE 3 – When the standard/application field (octet group 5) refers to ITU-T Q.1901 [4], a BNC-Id is coded in octet group 6 according to the rules defined below. The length of the BNC-Id value is 4 octets.

8	7	6	5	4	3	2	1	Octets
BNC-Id identifier								
0	0	0	0	1	0	1	0	6
Length of BNC-Id value								
0	0	0	0	0	1	0	0	6.1
BNC-Id value								6.2 6.3 6.4 6.5

Where, BNC-Id value (octets 6.2-6.5) is a code that expresses the 32-bit integer representation of the BNC-Id; its values range from 0 to $2^{32} - 1$.

9 Procedures

9.1 General procedures

No additional Q.2931 procedures are required. The procedures of ITU-T Q.2941.1 [3] apply.

9.2 Procedure for the use of the BNC-Id

Specific procedures for using the BNC-Id, for coordination of calls and ATM bearer connections established via Q.2931-based signalling are defined in this subclause.

When the ATM SVC is used between adjacent BCF nodes, the Generic identifier transport information element can be used for the transfer of the BNC-Id between BCF signalling peer entities.

In the SETUP message, the generic identifier transport information element shall be coded as follows:

– octet 5 shall be set to "0 0 0 0 1 0 1 0" to identify ITU-T Q.1901 [4];

– octet 6 shall be set to "0 0 0 0 1 0 1 0" to denote the BNC-Id identifier;

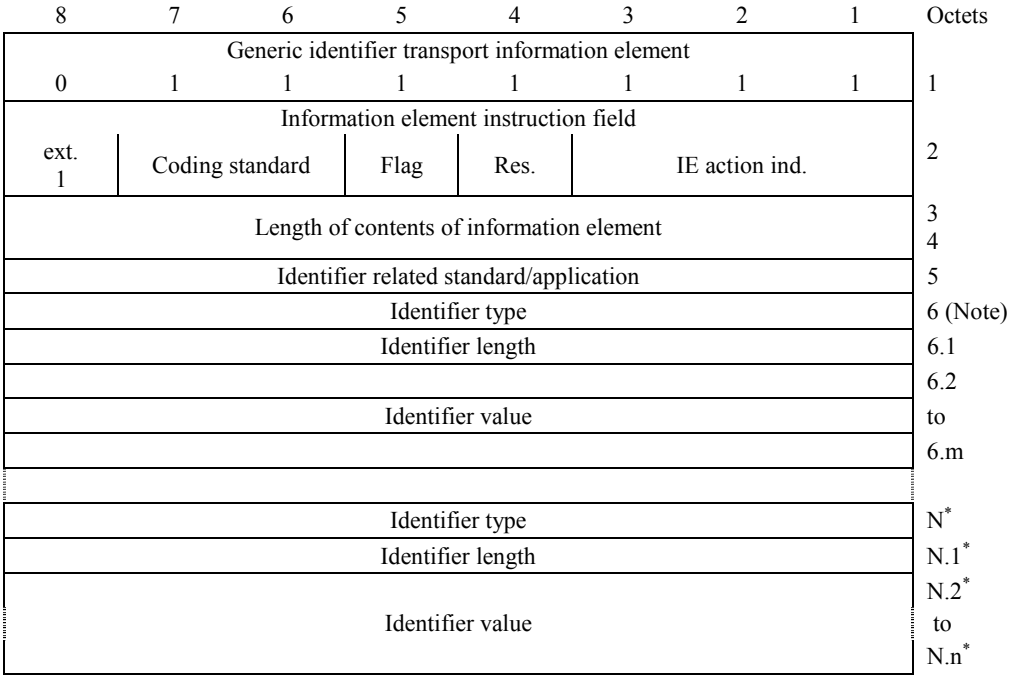
– octet 6.1 (identifier length) shall be set "0 0 0 0 0 1 0 0"; and

– octets 6.2 to 6.5 shall contain the BNC-Id as defined in 8.2.

The Calling party number information element may be used to identify the BCF node, as defined in ITU-T Q.1901 [4], initiating VCC establishment. The Called party number information element shall identify the BCF signalling entity terminating the VCC. If the information contained in octets 6.2 to 6.5 is not acceptable to the BCF node identified by the called party number information element, then VCC establishment shall be rejected by that BCF node.

APPENDIX I

This appendix reproduces the format of the Generic identifier transport information element defined in ITU-T Q.2941.1 [3]. It is provided for the sake of clarity and completeness.



NOTE – Octet group 6 can be repeated to form new octet groups numbered sequentially octet group 7, 8, ..., N.

Figure I.1/Q.2941.3 – Generic identifier transport information element

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