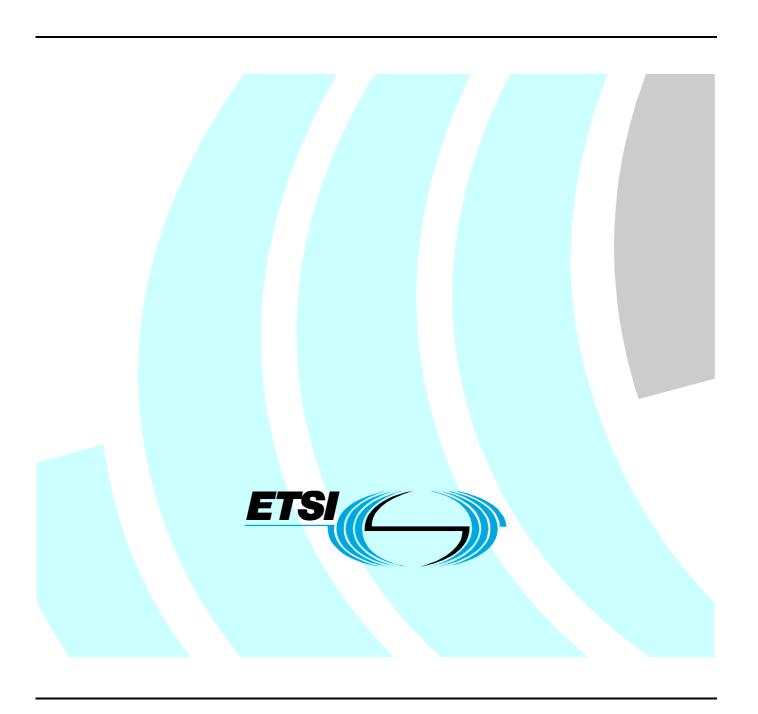# ETSI TS 102 332 V1.1.1 (2004-06)

Technical Specification

Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Bachauling of ISDN Q.921 (Transport of DSS1 over IP); ISDN Q.921-User Adaptation Layer (IUA)

[Endorsement of RFC 3057 (2001), modified]

ETSI

Reference

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

Introduction

The present document records the changes to the Internet Engineering Task Force (IETF) RFC 3057 [1]. This RFC specifies the ISDN Q.921-User Adaptation Layer (IUA), which is using the services of the Stream Control Transmission Protocol (SCTP), the common transport protocol used by all SIGTRAN adaptation layers.

1 Scope

The present document specifies the requirements for the ISDN Q.921-User Adaptation Layer (IUA) when used in conjunction with the SCTP layer for the transport of Digitals Subscriber Signalling System No.1 (DSS1) messages over the Internet Protocol (IP). The present document endorses and constrains where relevant the IUA defined in RFC 3057 [1].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

[1]   IETF RFC 3057 (2001): "ISDN Q.921-User Adaptation Layer".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

example 1: text used to clarify abstract rules by applying them literally

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ASPAC	ASP Active
ASPDN	ASP Down
ASPIA	ASP Inactive
ASPM	ASP State Maintenance
ASPSM	Application Server Process State Maintenance
ASPUP	ASP Up
BEAT	Heartbeat
ERR	Error
FAS	Facility Associated Signalling
IP	Internet Protocol
IUA	ISDN Q.921-User Adaptation Layer
NTFY	Notify
QPTM	Q.921/Q.931 Boundary Primitives Transport
RFC	Request For Comment
SCTP	Stream Control Transmission Protocol

4   Endorsement notice

The Elements of the Internet Engineering Task Force Request For Comments RFC 3057 [1] apply with the following modifications.

IUA protocol considerations

1.1   Scope

Only Facility Associated Signalling (FAS) shall be supported.

1.2   Terminology

The interface id type shall be limited to a 16 bit integer.

Interface Identifier parameter: only the integer format shall be supported.

1.3.1   Example - SG to MGC

The SCTP shall be used as the underlying reliable protocol.

1.3.3   Signalling Network Architecture

5th paragraph: Stable calls shall not be lost under failure or isolation of a particular ASP.

1.3.4   ASP Fail-over Model and Terminology

7th paragraph: In the process of fail-over or fail-back, stable calls shall not be lost.

1.5.3   SCTP Stream Management

The IUA layers shall ensure proper management of SCTP streams. A separate stream shall be used for each D channel.

1.5.4   Seamless Network Management Interworking

If an SCTP association fails, the IUA layer on the ASP side (S12MGC) shall generate Release primitives to take the data links out-of-service.

1.5.5   Congestion Management

The SCTP layer shall detect congestion and shall control/manage the congestion (e.g. Slow-Start and Congestion Avoidance).

3.1.2   Message Classes and Types

Following message classes shall be supported:

0	Management (MGMT) message [IUA]
3	ASP State Maintenance (ASPM) Messages [IUA]
4	ASP Traffic Maintenance (ASPTM) Message [IUA]
5	Q.921/Q.931 Boundary Primitives Transport (QPTM) Messages (IUA)

The Q.921/Q.931 Boundary Primitives Transport (QPTM) Messages shall be supported.

Application Server Process State Maintenance (ASPSM) messages shall be supported.

Application Server Process Traffic Maintenance (ASPTM) messages shall be supported.

Management (MGMT) Messages shall be supported.

3.1.3 Reserved

The reserved field shall be set to all "0" s by the sender and ignored by the receiver.

3.1.5 Variable Length Parameter Format

Not more than 3 bytes shall be padded.

3.2 IUA Message Header

The interface identifier parameter format shall be Integer.

Text format is not yet supported.

The interfaceId can only have values between 1 -> 65 535 (16 bits).

3.3.1.1 Establish Messages (Request, Indication, Confirmation)

When the MGC sends an IUA Establish message, the MGC shall start a timer t-establish.

The MGC shall continue to request the establishment of the data link on a periodic basis until the desired state is achieved.

3.3.1.2 Release Messages (Request, Indication, Confirmation)

The MGC shall resend the Release Request message, if a response to the Release Request is not received.

3.3.2.1 ASP Up (ASPUP)

INFO string shall not be used to carry ASCII characters.

3.3.2.2 ASP Up Ack

INFO string shall not be used to carry ASCII characters.

3.3.2.3 ASP Down (ASPDN)

INFO string shall not be used to carry ASCII characters.

3.3.2.4 APS Down Ack

INFO string shall not be used to carry ASCII characters.

3.3.2.5 ASP Active (ASPAC)

The interface identifier shall be coded as Integer.

3.3.2.7 ASP Inactive (ASPIA)

The interface identifier shall be coded as Integer.

3.3.2.9 Heartbeat (BEAT)

Heartbeat message shall not be used in IUA, as IUA runs over SCTP transport which has its own Heartbeat.

3.3.3.1 Error (ERR)

The "Unexpected Message" error shall be sent by an ASP (S12MGC) if it received an QPTM message from an SG while it was in the inactive state. The Diagnostic information shall not be used.

3.3.3.2   Notify (NTFY)

The interface identifier shall be coded as Integer.

The text formatted Interface identifier is not supported.

The interface id type is limited to a 16 bit integer.

INFO string shall not be used to carry ASCII characters.

4.2.1   Layer Management primitives procedures

5th paragraph: The M-NOTIFY indication and M-ERROR indication shall also be sent to Layer Management based on local IUA events.

4.2.2   Receipt of IUA Peer Management messages

2nd paragraph: The M-NOTIFY indication and M-ERROR indication shall also be sent to Layer Management based on local IUA events.

4.3.2   ASPM procedures for primitives

Last paragraph: At an ASP (S12MGC), the Layer Management shall try to re-establish the SCTP association using M-SCTP ESTABLISH request primitive.

4.3.3.1   ASP Up

4th paragraph: If the ASP does not receive a response from the SG, or an ASP-Down is received, the ASP shall resend ASP-Up messages every 2 seconds until it receives an ASP-Up Ack message from the SG. The ASP shall decide to reduce the frequency (say to every 5 seconds) if an ASP-Up Ack is not received after a few tries.

4.3.3.2   ASP Down

5th paragraph: If the ASP does not receive a response from the SG, the ASP shall send ASP-Down messages every 2 s until it receives a ASP-Down message from the SG or the SCTP association goes down. The ASP shall reduce the frequency (say to every 5 s) if an ASP-Down is not received after a few tries.

4.3.3.7   Heartbeat

The Heartbeat procedure is not supported by the ASP, as operating is over SCTP.

Annex A (informative):
Bibliography

- IETF RFC 2960 (2000): "Stream Control Transmission Protocol".

History

Document history		
V1.1.1	June 2004	Publication