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SERIES Q: SWITCHING AND SIGNALLING

**Broadband ISDN – Signalling ATM adaptation layer
(SAAL)**

**Signalling Transport Converter on SSCOP and
SSCOPMCE**

ITU-T Recommendation Q.2150.2

(Formerly CCITT Recommendation)

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Signalling Transport Converter on SSCOP and SSCOPMCE

Summary

This Recommendation specifies the Signalling Transport Converter on SSCOP and SSCOPMCE. This Signalling Transport Converter on SSCOP (see ITU-T Q.2110 [2]) and SSCOPMCE (see ITU-T Q.2111 [3]) utilizes the Service Specific Connection Oriented Protocol for assured data transfer. This Signalling Transport Converter can be deployed on any protocol stack that supports SSCOP (e.g. AAL type 2 or AAL type 5) or SSCOPMCE (e.g. multiple AAL type 5 connections or IP with DIFFSERV). The sublayer structure, the PDU structures of the signalling transport converter sublayer, and the mechanisms for the provision of the generic signalling transport service are defined in depth.

The intent of this Recommendation is to provide a protocol specification that can be used either in the B-ISDN ATM environment or a connectionless environment for the provision of a signalling transport service. In particular, this protocol provides a Generic Signalling Transport Service that is used by AAL type 2 and Bearer Independent Call Control (BICC) signalling protocols.

Source

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ATM Adaptation Layer (AAL), Asynchronous Transfer Mode (ATM), Bearer Independent Call Control (BICC), Broadband Integrated Services Network (B-ISDN), Signalling AAL (SAAL), Service Specific Coordination Function (SSCF), Service Specific Connection Oriented Protocol (SSCOP), Service Specific Convergence Sublayer (SSCS), Signalling Transport Converter (STC).

FOREWORD

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ITU-T Recommendation Q.2150.2

Signalling transport converter on SSCOP and SSCOPMCE

1 Scope

This Recommendation specifies the Signalling Transport Converter sublayer directly on top of SSCOP (which specifies the peer-to-peer protocol for the transfer of information and control between any pair of SSCOP entities). Operation of SSCOP in a point-to-point environment is specified in ITU-T Q.2110 [2]. In a multi-link or connectionless environment, its operation (SSCOPMCE) is specified in ITU-T Q.2111 [3]. Since the service provided by either of these Recommendations is the same, this Recommendation only describes the actions in terms of ITU-T Q.2110 for clarity of expression. The Signalling Transport Converter on SSCOP can be deployed on any protocol stack that supports SSCOP (see 5.1). This Recommendation covers the specification of the sublayer structure, the PDU structures of the Signalling Transport Converter sublayer, and the mechanisms for the provision of the Generic Signalling Transport Service.

When this Signalling Transport Converter on SSCOP is applied for a signalling protocol entity, that entity is liberated from considering peculiarities of the underlying signalling transport service. This is achieved by relying on a Generic Signalling Transport Service that is provided, for example, by the sublayer specified in this Recommendation.

This Recommendation describes the interactions between the Signalling Transport Converter (STC) and the next higher layer, e.g. the AAL type 2 or BICC signalling protocol entities, between the STC and the Service Specific Connection Oriented Protocol (SSCOP), and between the STC and layer management.

2 References

2.1 Normative 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.

- [1] ITU-T Q.2150.0 (2001), *Generic signalling transport service*.
- [2] ITU-T Q.2110 (1994), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol (SSCOP)*.
- [3] ITU-T Q.2111 (1999), *B-ISDN ATM adaptation layer – Service specific connection oriented protocol in a multi-link and connectionless environment (SSCOPMCE)*.
- [4] ITU-T X.200 (1994), *Information technology – Open Systems Interconnection – Basic reference model: The basic model*.
- [5] ITU-T X.210 (1993), *Information technology – Open Systems Interconnection – Basic reference model: Conventions for the definition of OSI services*.

2.2 Bibliography

The following ITU-T Recommendations and other publications contain information that may be useful to understanding the usage of this Recommendation. There are no additional provisions of this Recommendation derived from these publications.

- [6] ITU-T Q.2630.1 (1999), *AAL type 2 signalling protocol – Capability Set 1*.
- [7] ITU-T Q.2630.2 (2000), *AAL type 2 signalling protocol – Capability Set 2*.
- [8] ITU-T Q.1901 (2000), *Bearer independent call control protocol*.
- [9] ITU-T Q.1902.1 (2001), *Bearer independent call control protocol (CS2) functional description*.
- [10] ITU-T I.363.2 (2000), *B-ISDN ATM Adaptation Layer specification Type 2 AAL*.
- [11] ITU-T I.363.5 (1996), *B-ISDN ATM Adaptation Layer specification Type 5 AAL*.
- [12] ITU-T I.366.1 (1998), *Segmentation and Reassembly Service Specific Convergence Sublayer for the AAL Type 2*.
- [13] ITU-T Q.704 (1996), *Signalling network functions and messages*.
- [14] ITU-T Q.2210 (1996), *Message transfer part level 3 functions and messages using the services of ITU-T Recommendation Q.2140*.
- [15] IETF RFC 791 (1981), *Internet Protocol*.
- [16] IETF RFC 2474 (1998), *Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers*.

3 Definitions

This Recommendation is based upon the concepts developed in ITU-T X.200 [4], X.210 [5] and in ITU-T Q.2110 [2]; in particular, this Recommendation makes use of the following terms defined in ITU-T Q.2110 [2]:

- a) Service Specific Coordination Function;
- b) Service Specific Connection Oriented Protocol.

4 Abbreviations

This Recommendation uses the following abbreviations:

AAL	ATM Adaptation Layer
ATM	Asynchronous Transfer Mode
B-ISDN	Broadband Integrated Services Network
BR	Buffer Release
CPCS	Common Part Convergence Sublayer
MU	Message Unit
PDU	Protocol Data Unit
PICS	Protocol Implementation Conformance Statement
SAAL	Signalling AAL
SAP	Service Access Point
SAR	Segmentation and Reassembly Sublayer

SC	Sequence Control
SDL	Specification and Description Language
SDU	Service Data Unit
SN	Sequence Number
SSCF	Service Specific Coordination Function
SSCF-UNI	Service Specific Coordination Function for Support of Signalling at the User Network Interface
SSCOP	Service Specific Connection Oriented Protocol (ITU-T Q.2110 [2])
SSCOPMCE	Service Specific Connection Oriented Protocol in a Multi-link or Connectionless Environment (ITU-T Q.2111 [3])
SSCOP-UU	SSCOP User-to-User Information
SSCS	Service Specific Convergence Sublayer
SSSAR	Service Specific Segmentation and Reassembly sublayer
SSTED	Service Specific Transmission Error Detection sublayer
STC	Signalling Transport Converter
SUD	STC User Data
UNI	User Network Interface

5 General description of the signalling transport converter on SSCOP

5.1 Structure of the signalling transport converter on SSCOP sublayer

The sublayer providing the Signalling Transport Converter (STC) resides on top of the Service Specific Convergence Sublayer (SSCS) of the ATM Adaptation Layer (AAL). It uses the services provided by the Service Specific Connection-Oriented Protocol (SSCOP) defined in ITU-T Q.2110 [2] and ITU-T Q.2111 [3]. SSCOP also resides in the SSCS.

In the SSCS, the Service Specific Coordination Function is "Null" in the sense that the primitives for the AAL are equivalent to the SSCOP primitives (see 6.2) but identified as AAL-primitives instead of AA-signals consistent with the primitive naming convention at a SAP (see 6.1/Q.2110 [2]).

The STC provides the service that is requested by the Generic Signalling Transport Service defined in ITU-T Q.2150.0 [1], where the signalling protocol makes use of this service. The STC is relying on the assured data transfer service of SSCOP; it may utilize any protocol stack that provides the SSCOP service; this is illustrated in Figure 5-1.

This Recommendation specifies:

- the interactions between the STC and the signalling protocol entity,
- the interactions between the STC and the SSCOP sublayer, and
- the interactions between the STC and layer management.