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Supplement 9

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SERIES Q: SWITCHING AND SIGNALLING

Technical Report TRQ.2000: Roadmap for the TRQ.2xxx-series Technical Reports

ITU-T Q-series Recommendations – Supplement 9

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For further details, please refer to the list of ITU-T Recommendations.

Supplement 9 to ITU-T Q-series Recommendations

Technical Report TRQ.2000: Roadmap for the TRQ.2xxx-series Technical Reports

Summary

This Supplement specifies the index for the TRQ.2xxx-series Technical Reports.

Source

Supplement 9 to ITU-T Q-series Recommendations was agreed on 12 September 2003 by ITU-T Study Group 11 (2001-2004).

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.

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Technical Report TRQ.2000: Roadmap for the TRQ.2xxx-series Technical Reports

1 Scope

The scope of this Supplement is to provide an overall index for the TRQ.2xxx-series of Technical Reports which will be published as supplements to the Q series.

2 References

– ITU-T Q-series Recommendations – Supplement 7 (1999), *Technical Report TRQ.2001*: *General aspects for the development of unified signalling requirements*.

3 Definitions

This Supplement defines the following terms:

3.1 call: An end-to-end communications service between two or more call party end points, or between one call party end point and its serving node.

3.2 network connection: An ATM network connection of topology types 1 to 6 as defined in Table A.1/Supplement 7, ITU-T Q-series Recommendations (Technical Report TRQ.2001).

3.3 transport connection: An AAL type 2 connection of topology type 1 as defined in Table A.1/Supplement 7, ITU-T Q-series Recommendations (Technical Report TRQ.2001).

4 Abbreviations

This Supplement uses the following abbreviations:

AAL ATM Adaptation Layer

ATM Asynchronous Transfer Mode

5 Overview

This Supplement acts as an index or roadmap for the TRQ.2xxx series of technical reports. In addition, this Supplement provides a cross-index of supported capabilities against signalling requirement supplements.

6 Roadmap

The organization of the technical report Supplements within the scope of the TRQ.2xxx series are as follows:

TRQ. 200x General documents that are used to specify the common signalling requirement elements that are referenced in other TRQ-series reports.

TRQ.201x Interworking requirements between various signalling applications.

TRQ.21xx Coordinated call control and bearer control signalling requirements.

TRQ.22xx Call control signalling requirements.

TRQ.23xx Bearer control signalling requirements.

TRQ.24xx Transport control signalling requirements.

TRQ.25xx Vertical inter control domain signalling requirements.

TRQ.27xx Access Network Control Signalling Requirements.

TRQ.28xx Requirements for Signalling Interworking with IP Networks.

The detailed roadmap of the TRQ Supplements series is contained in Table 6-1.

Table 6-1 – Roadmap of technical reports

TRQ series No.	Title of Supplement
TRQ.2000	Roadmap for the TRQ.2xxx-series technical reports
TRQ.2001	General aspects for the development of unified signalling requirements
TRQ.2002	Information flow elements
TRQ.2003	Roadmap to the BICC protocol Recommendations, BICC interworking Recommendations, and BICC requirement Supplements
TRQ.2010	B-ISDN signalling interworking requirements
TRQ.210x	Coordinated call control and bearer control signalling requirements – Root-party coordinated call and bearer control
TRQ.211x	Coordinated call control and bearer control signalling requirements – Leaf-party coordinated call and bearer control
TRQ.212x	Coordinated call control and bearer control signalling requirements – Third-party coordinated call and bearer control
TRQ.213x	Coordinated call control and bearer control signalling requirements for leaf-initiated join service
TRQ.214x	Signalling requirements for the support of narrowband services via broadband transport technologies – Originating party call and bearer coordinated call and bearer control
TRQ.220x	Call control signalling requirements – Party call control
TRQ.223x	Call control signalling requirements – Join call service
TRQ.230x	Bearer control signalling requirements – Root-party bearer control
TRQ.231x	Bearer control signalling requirements – Leaf-party bearer control
TRQ.232x	Bearer control signalling requirements – Third-party bearer control
TRQ.240x	Transport control signalling requirements – Signalling requirements for AAL type 2 link control
TRQ.241x	Transport control signalling requirements – Signalling requirements for IP bearer control
TRQ.250x	Vertical inter control domain signalling requirements – Signalling requirements for Call Bearer Control Interface
TRQ.270x	BICC Access Network Requirements
TRQ.280x	Requirements for Signalling Interworking with IP Networks

7 Signalling capabilities to Supplement cross-reference

Mapping of signalling capabilities to TRQ Supplements of the 2000-series technical reports are as follows.

7.1 Coordinated call control and bearer control signalling requirements – Root-party coordinated call and bearer control

Table 7-1 describes the signalling capabilities that are contained in TRQ.2100.

Table 7-1 – Root-party call control capabilities

	Network connection type
Coordinated call and network connection establishment	
Two-party call establishment with one or more network connections	Types 1, 2, 3 and 5
Three- or more-party call establishment with one or more network connections	Types 2, 3, and 5
Multicast address establishment with one or more network connections	Types 2, 3 and 5
Any-cast address establishment with one or more network connections	Type 1
Addition of one or more new parties to an existing call with attachment to existing or new network connections	
Addition of one or more new parties with attachment to one or more existing connections	Types 2, 3 and 5
Addition of one or more new parties with attachment to one or more new network connections	Types 2, 3 and 5
Release of one or more parties and their associated network connection branches from the call	
Release of a party and its associated network connection branches from a two-party call	Types 1, 2, 3 and 5
Release of one or more parties and their associated network connection branches from a three- or more-party call	Types 1, 2, 3 and 5
Call release with one or more parties and their associated network connection	
Release of a single-party call and its associated connections, requested by call owner	Types 1, 2, 3 and 5
Release of a two-party call and its associated connections, requested by call owner	Types 1, 2, 3 and 5
Release of a multi-party call and its associated connections, requested by the call owner	Types 1, 2, 3 and 5
Release of a two-party call and its associated connections requested by a non-call owner party	Types 1, 2, 3 and 5
Release of a multi-party call and its associated connections, requested by a non-call owner party	Types 1, 2, 3 and 5

7.2 Coordinated call control and bearer control signalling requirements – Leaf-party coordinated call and bearer control

Table 7-2 describes the signalling capabilities that are contained in TRQ.2110.

Table 7-2 – Leaf-party call control capabilities

	Network connection type
Coordinated call and network connection establishment	
Two-party call establishment with one or more network connections	Types 1, 2, 3 and 5
Three- or more-party call establishment with one or more network connections	Types 2, 3, and 5
Multicast address establishment with one or more network connections	Types 2, 3 and 5
Addition of one or more new parties to an existing call with attachment to existing or new network connections	
Addition of one or more new parties with attachment to one or more existing connections	Types 2, 3 and 5
Addition of one or more new parties with attachment to one or more new network connections	Types 2, 3 and 5
Release of one or more parties and their associated network connection branches from the call	
Release of a party and its associated network connection branches from a two-party call	Types 1, 2, 3 and 5
Release of one or more parties and their associated network connection branches from a three- or more-party call	Types 1, 2, 3 and 5
Call release with one or more parties and their associated network connection	
Release of a single-party call and its associated connections, requested by the call owner	Types 1, 2, 3 and 5
Release of a two-party call and its associated connections, requested by the call owner	Types 1, 2, 3 and 5
Release of a multi-party call and its associated connections, requested by the call owner	Types 1, 2, 3 and 5
Release of a two-party call and its associated connections requested by a non-call owner party	Types 1, 2, 3 and 5
Release of a multi-party call and its associated connections, requested by a non-call owner party	Types 1, 2, 3 and 5

7.3 Coordinated call control and bearer control signalling requirements – Third-party coordinated call and bearer control

Table 7-3 describes the signalling capabilities that are contained in TRQ.2120.

Table 7-3 – Third-party call control capabilities

	Network connection type
Coordinated call and network connection establishment	
Two-party call establishment with one or more network connections	Types 1, 2, 3 and 5
Three- or more-party call establishment with one or more network connections	Types 2, 3 and 5
Multicast address establishment with one or more network connections	Types 2, 3 and 5
Addition of one or more new parties to an existing call with attachment to existing or new network connections	
Addition of one or more new parties with attachment to one or more existing connections	Types 2, 3 and 5
Addition of one or more new parties with attachment to one or more new network connections	Types 2, 3 and 5
Release of one or more parties and their associated network connection branches from the call	
Release of a party and its associated network connection branches from a two-party call	Types 1, 2, 3 and 5
Release of one or more parties and their associated network connection branches from a three- or more-party call	Types 1, 2, 3 and 5
Call release with one or more parties and their associated network connection	
Release of a single-party call and its associated connections, requested by the call owner	Types 1, 2, 3 and 5
Release of a two-party call and its associated connections, requested by the call owner	Types 1, 2, 3 and 5
Release of a multi-party call and its associated connections, requested by the call owner	Types 1, 2, 3 and 5
Release of a two-party call and its associated connections requested by a non-call owner party	Types 1, 2, 3 and 5
Release of a multi-party call and its associated connections, requested by a non-call owner party	Types 1, 2, 3 and 5

7.4 Coordinated call control and bearer control signalling requirements – Leaf-initiated join coordinated call and bearer control

Table 7-4 describes the signalling capabilities that are contained in TRQ.2130.

Table 7-4 – Leaf-initiated join call control capabilities

	Network connection type
Coordinated call and network connection establishment	
Leaf-initiated call registration	Types 1, 2, 3 and 5
Leaf-initiated call creation	Types 2, 3 and 5
Addition of one or more new parties to an existing call with attachment to existing connections	
Leaf-party request to join active Leaf-Initiated Joint (LIJ) call and bearer	Types 2, 3 and 5
Release of one or more parties and their associated network connection branches from the call	
Removal of leaf party requested by root party	Types 1, 2, 3 and 5
Leaf-party requests to be released from the LIJ call	Types 1, 2, 3 and 5
Call release with one or more parties and their associated network connection	
LIJ call and bearer clearing by root party	Types 1, 2, 3 and 5

7.5 Signalling requirements for the support of narrowband services via broadband transport technologies (CS-1)

Table 7-5 describes the signalling capabilities that are contained in TRQ.2140.

Table 7-5 – Originating-party call control capabilities

	Network connection type
Coordinated call and network connection establishment Two-party call establishment with one network connection. Establishment mode: Backwards and Forwards establishment of a new network connection or reuse of idle previously established connection	Type 1 (AAL Type 1, AAL Type 2 Bearer Transport)
Connection Codec Negotiation During call establishment with one network connection	Type 1 (AAL Type 1, AAL Type 2 Bearer Transport)
Connection Codec Modification After call and network connection have been established	Type 1 (AAL Type 1, AAL Type 2 Bearer Transport)
Call release and its associated network connection Release of a two-party call and its associated connection, requested by either party. Release of transport connection conditional on idle timer time-out. Idle timer time-out can be provisioned to have a value from zero to infinity	Type 1 (AAL Type 1, AAL Type 2, Bearer Transport)

7.6 Signalling requirements for the support of narrowband services via broadband transport technologies – General requirements and information flows (CS-2)

Table 7-6 describes the signalling capabilities that are contained in TRQ.2141. These requirements are contained in two documents: TRQ.2141.0 contains the General requirements while the Information flows are contained in TRQ.2141.1.

Table 7-6 – Originating-party call control capabilities

	Network connection type
Coordinated call and network connection establishment Two-party call establishment with one network connection. Establishment mode: Backwards and Forwards establishment of a new network connection or reuse of idle previously established connection	Type 1 (AAL Type 1, AAL Type 2, Structured AAL Type 1, IP Bearer Transport)
Connection Codec Negotiation During call establishment with one network connection After call and network connection have been established including capability of modifying the network connection characteristics	Type 1 (AAL Type 1, AAL Type 2, Structured AAL Type 1, IP Bearer Transport)
Connection Codec Modification After call and network connection have been established including capability of modifying the network connection characteristics	Type 1 (AAL Type 1, AAL Type 2, Structured AAL Type 1, IP Bearer Transport)
Mid-Connection Re-direction After call and connection have been completed, the connection may be re-routed to the same or a different Serving Node within the network After call and connection have been completed, the call and connection may be re-routed to a different party	Type 1 (AAL Type 1, AAL Type 2, Structured AAL Type 1, IP Bearer Transport)
Call release and its associated network connection Release of a two-party call and its associated connection, requested by either party. Release of transport connection conditional on idle timer time-out. Idle timer time-out can be provisioned to have a value from zero to infinity.	Type 1 (AAL Type 1, AAL Type 2, Structured AAL Type 1, IP Bearer Transport)
Creation of an open interface between call control and bearer control Bearer transport independent requests, notification, and responses associated with the implementation of the call and bearer services listed above Multiple Call Control Entities interaction with a single Bearer Interworking Function (BIWF) called a shared BIWF capability Delayed BIWF selection when Forward establishment is used	NA

7.7 Call control signalling requirements – Party call control

Table 7-7 describes the signalling capabilities that are contained in TRQ.2200.

Table 7-7 – Party call control capability

	Network connection type
Call establishment without any network connections	
Establishment of a call with two parties	NA
Establishment of a call with three or more parties	NA
Addition of one or more parties without network connections to an existing call	
Addition of one new party to an existing call requested by any party already associated with that call	NA
Addition of two or more new parties to an existing call requested by any party already associated with that call	NA
Release of a party without network connections from an existing call	
Release of a party from an existing two-party call	NA
Release of a party from an existing three- or more-party call	NA
Release of a call without network connections	
Release of a single-party call requested by the call owner	NA
Release of a two-party call requested by the call owner	NA
Release of a multi-party call requested by the call owner	NA
Release of a two-party call requested by a non-call owner party	NA
Release of a multi-party call requested by a non-call owner party	NA

7.8 Call control signalling requirements – Join call control

Table 7-8 describes the signalling capabilities that are contained in TRQ.2230.

Table 7-8 – Join call control capability

	Network connection type
Call establishment without any network connections	
Creation of a registered call	NA
Join a registered call with no active parties	NA
Join a call with one or more parties	NA
Release of a party without network connections from an existing call	
Release of a party from an existing registered call	NA

7.9 Bearer control signalling requirements – Root-party bearer control

Table 7-9 describes the signalling capabilities that are contained in TRQ.2300.

Table 7-9 – Root-party call control capabilities

	Network connection type
Addition of one or more new network connections to an existing call requested by the party that will be the root of the new network connection(s)	
Addition of one new network connection to an existing call	Types 1, 2, 3 and 5
Addition of one or more new network connections to an existing call	Types 1, 2, 3 and 5
Attachment of one or more existing parties to one or more existing network connections requested by the party associated with the root of the existing network connection	
Attachment of one or more existing parties to one or more existing connections	Types 1, 2, 3 and 5
Attachment of one or more existing parties to one or more new connections	Types 1, 2, 3 and 5
Detachment of one or more parties from one or more connections by either the call owner, network connection owner or the party owner	
Detachment of a party from its associated network connection branches in a two-party call	Types 1, 2, 3 and 5
Detachment of one or more parties from their associated network connection branches in a three- or more-party call	Types 1, 2, 3 and 5
Removal of one or more connections from a call requested by the network requested by either the connection owner or call owner	
Removal of one or more network connections from a two-party call	Types 1, 2, 3 and 5
Removal of one or more network connections from a three- or more-party call	Types 1, 2, 3 and 5

7.10 Bearer control signalling requirements – Leaf-party bearer control

Table 7-10 describes the signalling capabilities that are contained in TRQ.2310.

Table 7-10 – Leaf-party call control capabilities

	Network connection type
Addition of one or more new network connections to an existing call requested by the party that will be the leaf of the new network connection(s)	
Addition of one new network connection to an existing call	Types 1, 2, 3 and 5
Addition of one or more new network connections to an existing call	Types 1, 2, 3 and 5
Attachment of one or more existing parties to one or more existing network connections requested by the party associated with a leaf of the existing network connection	
Attachment of one or more existing parties to one or more existing connections	Types 1, 2, 3 and 5
Attachment of one or more existing parties to one or more new connections	Types 1, 2, 3 and 5
Detachment of one or more parties from one or more connections by either the call owner, network connection owner or the party owner	
Detachment of a party from its associated network connection branches in a two-party call	Types 1, 2, 3 and 5
Detachment of one or more parties from their associated network connection branches in a three- or more-party call	Types 1, 2, 3 and 5
Removal of one or more connections from a call requested by the network requested by either the connection owner or call owner	
Removal of one or more network connections from a two-party call	Types 1, 2, 3 and 5
Removal of one or more network connections from a three- or more-party call	Types 1, 2, 3 and 5

7.11 Bearer control signalling requirements – Third-party bearer control

Table 7-11 describes the signalling capabilities that are contained in TRQ.2320.

Table 7-11 – Third-party call control capabilities

	Network connection type
Addition of one or more new network connections to an existing call requested by a party that will not be attached to the new network connection(s)	
Addition of one new network connection to an existing call	Types 1, 2, 3 and 5
Addition of one or more new network connections to an existing call	Types 1, 2, 3 and 5
Attachment of one or more existing parties to one or more existing network connections requested by a party that is not attached to the existing network connection	
Attachment of one or more existing parties to one or more existing connections	Types 1, 2, 3 and 5
Attachment of one or more existing parties to one or more new connections	Types 1, 2, 3 and 5
Detachment of one or more parties from one or more connections by either the call owner, network connection owner or the party owner	
Detachment of a party from its associated network connection branches in a two-party call	Types 1, 2, 3 and 5
Detachment of one or more parties from their associated network connection branches in a three- or more-party call	Types 1, 2, 3 and 5
Removal of one or more connections from a call requested by the network requested by either the connection owner or call owner	
Removal of one or more network connections from a two-party call	Types 1, 2, 3 and 5
Removal of one or more network connections from a three- or more-party call	Types 1, 2, 3 and 5

7.12 Transport control signalling requirements – Signalling requirements for AAL type 2 link control (Capability Set 1)

Table 7-12 describes the signalling capabilities that are contained in TRQ.2400.

Table 7-12 – AAL type 2 link control capabilities (CS-1)

	Transport connection type
AAL type 2 connection establishment	
AAL type 2 connection establishment	Type 1
AAL type 2 connection release	
AAL type 2 connection release	Type 1

7.13 Transport control signalling requirements – Signalling requirements for AAL type 2 link control (Capability Set 2)

Table 7-13 describes the signalling capabilities that are contained in TRQ.2401.

Table 7-13 – AAL type 2 link control capabilities (CS-2)

	Transport connection type
AAL type 2 connection establishment	
AAL type 2 connection establishment	Type 1
AAL type 2 connection modification	
AAL type 2 connection modification of bandwidth characteristics	Type 1
AAL type 2 connection release	
AAL type 2 connection release	Type 1

7.14 Transport control signalling requirements – Signalling requirements for AAL type 2 link control (Capability Set 3)

Table 7-14 describes the signalling capabilities that are contained in TRQ.2402.

Table 7-14 – AAL type 2 link control capabilities (CS-3)

	Transport connection type
AAL type 2 connection establishment	
AAL type 2 connection establishment	Type 1
AAL type 2 connection modification	
AAL type 2 connection modification of bandwidth characteristics	Type 1
AAL type 2 connection release	
AAL type 2 connection release	Type 1

7.15 Transport control signalling requirements – Signalling requirements for the support of IP bearer control in BICC networks (Capability Set 1)

Table 7-15 describes the signalling capabilities that are contained in TRQ.2410.

Table 7-15 – IP Bearer Control Capabilities (CS-1)

	Transport connection type
IP connection establishment	
IP connection establishment via "tunnel" transported by BICC protocol	Type 1
IP connection modification	
IP connection modification of bandwidth characteristics via "tunnel" transported by BICC protocol	Type 1
IP connection release	
IP connection implicit release without any direct bearer control commands	Type 1

7.16 Transport control signalling requirements – signalling requirements for IP connection control in radio access networks (Capability Set 1)

Table 7-16 describes the signalling capabilities that are contained in TRQ.2415.

Table 7-16 – IP connection control in radio access networks capabilities (CS-1)

	Transport connection type
IP connection establishment	
IP connection establishment	Type 1
IP connection modification	
IP connection modification of bandwidth characteristics	Type 1
IP connection release	
IP connection release	Type 1

7.17 Vertical inter control domain signalling requirements – Signalling requirements for the support of the call-bearer control interface (CS-1)

Table 7-17 describes the signalling capabilities that are contained in TRQ.2500.

Table 7-17 – Call-bearer control capabilities (CS-1)

	Network connection type
Successful connection establishment procedures	
Prepare termination for connection establishment	NA
Establish connection between two external terminations	
Reserve bearer connection between two terminations	
Place termination into a send and receive communication configuration	
Modification of connection characteristics	
Conveyance of "tunnelled" information between two terminations	
Reuse of idle bearer connection	
Directive to reuse an idle connection in a new call and bearer action	NA
Establishment and modification of communication topologies between internal terminations	NA
Capability to isolate a termination from a context	
Capability to have a termination within a different context to another context	
Capability to modify the internal context communication arrangement	
Miscellaneous capabilities associated with a specified termination	
Echo canceller procedures	NA
Tone insertion procedures	
Digit insertion procedures	
Announcement insertion procedures	
Digit detection procedures	

Table 7-17 – Call-bearer control capabilities (CS-1)

	Network connection type
General BIWF-related procedures	
BIWF service change procedures	NA
Call Control Unit service change procedures	
BIWF or termination unavailable	
Auditing of BIWF service capabilities	
Network connection release capabilities	
Release of network connection associated with the originating termination	NA
Release of network connection associated with the terminating termination	

7.18 BICC access network requirements

TRQ.2700 is a technical report on the procedures, information flows and information elements needed for supporting Access Networks in Bearer Independent Call Control (BICC). It defines the requirements for signalling to control connections across the Access Network.

7.19 Transport control signalling requirements – Signalling requirements for AAL type 2 to IP interworking capability set 1

The signalling capabilities that TRQ.2800 requires to be interworked are given in the following list:

1) Addressing;
2) Mapping of AAL type 2 link characteristics to IP Connection Characteristics;
3) Control of AAL type 2 to IP Connection Conversion;
4) Served user information;
5) Support of AAL type 2 Service Specific Convergence Sublayers;
6) Connection Resource Modification;
7) QoS;
8) Delay and Efficiency Requirements.

7.20 Requirements for interworking BICC/ISUP network with originating/destination networks based on session initiation protocol and session description protocol

The signalling capabilities that TRQ.2815 requires to be supported by an interworking serving node are:

SIP profiles for interworking between SIP and BICC/ISUP:

1) Profile A: Mapping of call and bearer control protocols;
2) Profile B: Mapping of call and bearer control protocols;
3) Sip profile C (interworking between SIP with MIME encoding of ISUP and BICC/ISUP): Mapping of call and bearer control protocols.

7.21 ATM-MPLS network interworking signalling requirements

The signalling capabilities that TRQ.2830 requires to be supported are:

Table 7-18 – ATM-MPLS network interworking capabilities

	Transport connection type
ATM connection establishment	
Connection establishment	Type 1
ATM connection release	
Connection release	Type 1

7.22 Roadmap to the BICC protocol Recommendations, BICC interworking Recommendations, and BICC requirement Supplements

TRQ.2003 presents an overview of the ITU-T Recommendations and Supplements that have been produced in the context of the Bearer Independent Call Control (BICC) protocol. Included is an index of Recommendations, which provide the detailed protocol descriptions.

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Geneva, 2004