
**Information technology —
Telecommunications and information
exchange between systems — Corporate
Telecommunication Networks — Signalling
interworking between QSIG and H.323 —
Call completion supplementary services**

*Technologies de l'information — Télécommunications et échange
d'information entre systèmes — Réseaux de télécommunications de
corps — Travail de signalisation entre QSIG et H.323 — Compléments de
service d'achèvement d'appel*

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

© ISO/IEC 2002

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

Printed in Switzerland

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Conformance	1
3 Normative references	1
4 Definitions	2
4.1 External definitions	2
4.2 Other definitions	2
4.2.1 Entity A	2
4.2.2 Entity B	2
4.2.3 Gateway	2
4.2.4 IP network	2
4.2.5 Leg A	2
4.2.6 Scenario A1	2
4.2.7 Scenario A2	2
5 Acronyms	3
6 Service architecture	3
6.1 Service architecture for invocation and operation	3
6.1.1 ISO/IEC 13870 service architecture	3
6.1.2 H.450.9 service architecture	4
6.1.3 Scenarios for interworking	4
6.1.4 Selection of the same gateway for all phases	4
6.2 Options	4
7 Protocol interworking – General requirements	5
8 Protocol interworking – Messages and APDUs	5
8.1 Signalling phase 1 - invocation of call completion	5
8.1.1 Scenario A1	5
8.1.2 Scenario A2	6
8.2 Signalling phase 2 – user B available notification	6
8.2.1 Scenario A1	7
8.2.2 Scenario A2	8
8.3 Signalling phase 3 – CC call establishment	9
8.3.1 Scenario A1	9
8.3.2 Scenario A2	9
8.4 Signalling phase 4 – cancellation of SS-CC	9
8.4.1 Scenario A1	10
8.4.2 Scenario A2	10
9 Protocol interworking – content of APDUs	10
9.1 APDU content mapping from QSIG to H.323	11

ISO/IEC 21991:2002(E)

9.1.1	ccbsRequest/ccnrRequest invoke APDU mapping	11
9.1.2	ccbsRequest/ccnrRequest return result APDU mapping	11
9.1.3	ccCancel/ccExecPossible invoke APDU mapping	11
9.2	APDU content mapping from H.323 to QSIG	12
9.2.1	ccbsRequest/ccnrRequest invoke APDU mapping	12
9.2.2	ccbsRequest/ccnrRequest return result APDU mapping	12
9.2.3	ccCancel/ccExecPossible invoke APDU mapping	12
Annexes		
A - Implementation Conformance Statement (ICS) proforma		13
B - Message flow examples		20

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 21991 was prepared by ECMA (as ECMA-326) and was adopted, under a special “fast-track procedure”, by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

Annex A forms a normative part of this International Standard. Annex B is for information only.

Introduction

This International Standard is one of a series of Standards defining the interworking of services and signalling protocols deployed in Corporate telecommunication Networks (CNs). The series uses telecommunication concepts as developed by ITU-T and conforms to the framework of International Standards on Open Systems Interconnection as defined by ISO/IEC.

This International Standard defines the signalling protocol interworking for call completion supplementary services between a Private Integrated Services Network (PISN) and a packet-based private telecommunication network based on the Internet Protocol (IP). It is further assumed that the protocol for the PISN part is that defined for the Q reference point (QSIG) and that the protocols for the IP-based network are based on ITU-T Recommendation H.323.

This International Standard is based upon the practical experience of ECMA member companies and the results of their active and continuous participation in the work of ISO/IEC JTC 1, ITU-T, ETSI and other international and national standardization bodies. It represents a pragmatic and widely based consensus.

Information technology — Telecommunications and information exchange between systems — Corporate Telecommunication Networks — Signalling interworking between QSIG and H.323 — Call completion supplementary services

1 Scope

This International Standard specifies signalling interworking between “QSIG” and “H.323” in support of call completion supplementary services within a Corporate telecommunication Network (CN).

“QSIG” is a signalling protocol that operates at the Q reference point between Private Integrated services Network eXchanges (PINX) within a Private Integrated Services Network (PISN). The Q reference point is defined in ISO/IEC 11579-1. A PISN provides circuit-switched basic services and supplementary services to its users. QSIG is specified in other Standards, in particular ISO/IEC 11572 (call control in support of basic services), ISO/IEC 11582 (generic functional protocol for the support of supplementary services) and a number of standards specifying individual supplementary services. ISO/IEC 13870 specifies the QSIG protocol in support of call completion services.

“H.323” is a set of signalling protocols for the support of voice or multimedia communication within a packet network, in particular a packet network that uses the Internet Protocol (IP) as its network layer protocol (IP network). H.323 signalling protocols operate between endpoints in an IP network, either indirectly via one or more gatekeepers, or directly. An endpoint can be a terminal or a gateway to another network. H.323 is an “umbrella” recommendation referring to various ITU-T recommendations, in particular Recommendations H.225.0 and H.245 (basic communication capabilities) and Recommendation H.450.1 (generic functional protocol for the support of supplementary services). Recommendation H.450.9 specifies the H.323 protocol in support of call completion services.

NOTE - H.450.9 applies only to the 1998 version of H.323 (also known as H.323 version 2) and to later versions.

In both ISO/IEC 13870 (QSIG) and ITU-Recommendation H.450.9 (H.323), the call completion supplementary services are Completion of Calls to Busy Subscribers (SS-CCBS) and Completion of Calls on No Reply (SS-CCNR). These supplementary services apply after a call establishment attempt has failed because the called user was busy or not available, and provide means to re-establish the call when the called user becomes available.

Interworking between QSIG and H.323 permits a call originating at a user of a PISN to terminate at a user of a private IP network, or a call originating at a user of a private IP network to terminate at a user of a PISN. In such a scenario, this International Standard allows the completion of calls when the called user becomes available after having been busy (SS-CCBS), or having not answered the original call (SS-CCNR).

Interworking between a PISN employing QSIG and a public IP network employing H.323 is outside the scope of this International Standard. However, the functionality specified in this International Standard is in principle applicable to such a scenario when deployed in conjunction with other relevant functionality (e.g., number translation, security functions, etc.).

This International Standard is applicable to any interworking unit that can act as a gateway between a PISN employing QSIG and a private IP network employing H.323.

2 Conformance

In order to conform to this International Standard, a gateway shall satisfy the requirements identified in the Implementation Conformance Statement (ICS) proforma in annex A.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO/IEC 11572:2000, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Circuit mode bearer services — Inter-exchange signalling procedures and protocol*

ISO/IEC 11579-1:1994, *Information technology — Telecommunications and information exchange between systems — Private integrated services network — Part 1: Reference configuration for PISN Exchanges (PINX)*

ISO/IEC 21991:2002(E)

ISO/IEC 11582:1995, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Generic functional protocol for the support of supplementary services — Inter-exchange signalling procedures and protocol*

ISO/IEC 13870:2001, *Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Inter-exchange signalling protocol — Call completion supplementary services*

ISO/IEC 21409:2001, *Information technology — Telecommunications and information exchange between systems — Corporate telecommunication networks — Signalling interworking between QSIG and H.323 — Generic functional protocol for the support of supplementary services*

ITU-T Rec. H.225.0, *Call signalling protocols and media stream packetization for packet-based multimedia communication systems*

ITU-T Rec. H.245, *Control protocol for multimedia communication*

ITU-T Rec. H.323, *Packet-based multimedia communications systems*

ITU-T Rec. H.450.1:1998, *Generic functional protocol for the support of supplementary services in H.323*

ITU-T Rec. H.450.9:2000, *Call Completion Supplementary Services for H.323*