



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

I.253.4

(07/96)

SERIES I: INTEGRATED SERVICES DIGITAL
NETWORK

Service capabilities – Supplementary services in ISDN

**Call completion supplementary services:
Completion of calls on no reply**

ITU-T Recommendation I.253-4

(Previously CCITT Recommendations)

ITU-T - I SERIES RECOMMENDATIONS
INTEGRATED SERVICES DIGITAL NETWORK

GENERAL STRUCTURE	I.100-I.199
Terminology	I.110-I.119
Description of ISDNs	I.120-I.129
General modelling methods	I.130-I.139
Telecommunication network and service attributes	I.140-I.149
General description of asynchronous transfer mode	I.150-I.199
SERVICE CAPABILITIES	I.200-I.299
Scope	I.200-I.209
General aspects of services in ISDN	I.210-I.219
Common aspects of services in the ISDN	I.220-I.229
Bearer services supported by an ISDN	I.230-I.239
Teleservices supported by an ISDN	I.240-I.249
Supplementary services in ISDN	I.250-I.299
OVERALL NETWORK ASPECTS AND FUNCTIONS	I.300-I.399
Network functional principles	I.310-I.319
Reference models	I.320-I.329
Numbering, addressing and routing	I.330-I.339
Connection types	I.340-I.349
Performance objectives	I.350-I.359
Protocol layer requirements	I.360-I.369
General network requirements and functions	I.370-I.399
ISDN USER-NETWORK INTERFACES	I.400-I.499
Application of I-series Recommendations to ISDN user-network interfaces	I.420-I.429
Layer 1 Recommendations	I.430-I.439
Layer 2 Recommendations	I.440-I.449
Layer 3 Recommendations	I.450-I.459
Multiplexing, rate adaption and support of existing interfaces	I.460-I.469
Aspects of ISDN affecting terminal requirements	I.470-I.499
INTERNETWORK INTERFACES	I.500-I.599
MAINTENANCE PRINCIPLES	I.600-I.699
B-ISDN EQUIPMENT ASPECTS	I.700-I.799
ATM equipment	I.730-I.749
Management of ATM equipment	I.750-I.799

For further details, please refer to ITU-T List of Recommendations

ITU-T RECOMMENDATION I.253.4**CALL COMPLETION SUPPLEMENTARY SERVICES:
COMPLETION OF CALLS ON NO REPLY****Summary**

Completion of Calls on No Reply (CCNR) is an ISDN supplementary service offered to the calling user. The CCNR supplementary service enables the calling user A, upon encountering destination B, which does not answer the call (no reply), to be notified when destination B becomes free after having terminated an activity. If user A desires, then the network will reinitiate the call to the specified destination B.

Source

ITU-T Recommendation I.253.4 was prepared by ITU-T Study Group 1 (1993-1996) and was approved under the WTSC Resolution N° 1 procedure on the 19th of July 1996.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. Some 179 member countries, 84 telecom operating entities, 145 scientific and industrial organizations and 38 international organizations participate in ITU-T which is the body which sets world telecommunications standards (Recommendations).

The approval of Recommendations by the Members of ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, 1993). In addition, the World Telecommunication Standardization Conference (WTSC), which meets every four years, approves Recommendations submitted to it and establishes the study programme for the following period.

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.

© ITU 1996

All rights reserved. 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 the ITU.

CONTENTS

	Page
1 Definition.....	1
2 Description	1
2.1 General description.....	1
2.2 Specific terminology	1
2.3 Qualifications on the applicability to telecommunication services	2
3 Procedures	2
3.1 Provision/withdrawal.....	2
3.2 Normal procedures	3
3.2.1 Activation/deactivation/registration	3
3.2.2 Erasure.....	4
3.2.3 Invocation and operation	4
3.2.4 Interrogation	5
3.3 Exceptional procedures.....	5
3.3.1 Activation/deactivation/registration	5
3.3.2 Erasure.....	6
3.3.3 Invocation and operation	6
3.3.4 Interrogation	8
3.4 Alternate procedures.....	8
3.4.1 Activation/deactivation/registration	8
3.4.2 Invocation and operation	8
4 Network capabilities for charging	8
5 Interworking considerations	8
5.1 Interworking with non-ISDNs.....	8
5.2 Interworking with private ISDNs	8
6 Interaction with other supplementary services	9
6.1 Advice of charge services.....	9
6.1.1 Charging information at call set-up time (AOC-S).....	9
6.1.2 Charging information during the call (AOC-D).....	9
6.1.3 Charging information at the end of the call (AOC-E).....	9
6.2 Call hold (HOLD).....	9
6.3 Call transfer services	9
6.3.1 Normal Call Transfer (NCT).....	9
6.3.2 Explicit Call Transfer (ECT).....	9
6.4 Call Waiting (CW)	9
6.5 Closed User Group (CUG)	10

	Page
6.6 Completion of calls services.....	10
6.6.1 Completion of Calls on No Reply (CCNR)	10
6.6.2 Completion of Calls to Busy Subscriber (CCBS)	10
6.7 Conference services	11
6.7.1 Conference calling (CONF)	11
6.7.2 Meet-Me Conference (MMC)	11
6.7.3 Preset Conference Calling (PCC).....	11
6.7.4 Three-Party Service (3PTY).....	11
6.8 Diversion services.....	11
6.8.1 Call Deflection (CD)	11
6.8.2 Call Forwarding Busy (CFB)	11
6.8.3 Call Forwarding No Reply (CFNR)	12
6.8.4 Call Forwarding Unconditional (CFU)	12
6.8.5 Selective Call Forwarding (SCF)	13
6.9 Direct-Dialling-In (DDI)	13
6.10 In-call modification (IM).....	13
6.11 ISDN Freephone Service (IFS).....	13
6.12 Line Hunting (LH).....	13
6.13 Malicious Call Identification (MCID).....	13
6.14 Multi-Level Precedence and Preemption (MLPP)	13
6.15 Multiple Subscriber Number (MSN).....	14
6.16 Name identification services	14
6.16.1 Calling Name identification Presentation (CNIP).....	14
6.16.2 Calling Name Identification Restriction (CNIR)	14
6.17 Number identification services	14
6.17.1 Calling Line Identification Presentation (CLIP)	14
6.17.2 Calling Line Identification Restriction (CLIR).....	14
6.17.3 Connected Line Identification Presentation (COLP)	14
6.17.4 Connected Line Identification Restriction (COLR).....	14
6.18 Outgoing Call Barring (OCB)	14
6.19 Reverse charging (REV).....	15
6.20 Sub-addressing (SUB)	15
6.21 Support of Private Numbering Plan (SPNP)	15
6.22 Terminal Portability (TP)	15
6.23 User-to-User Signalling (UUS)	15
7 SDL description.....	15

Recommendation I.253.4**CALL COMPLETION SUPPLEMENTARY SERVICES:
COMPLETION OF CALLS ON NO REPLY***(Geneva, 1996)***1 Definition**

completion of Calls on No Reply (CCNR) enables a calling user A, encountering a destination B, which does not answer the call (no reply), to be notified when the destination B becomes free after having terminated an activity, and to have the network reinitiate the call to the specified destination B if user A desires.

2 Description**2.1 General description**

The CCNR supplementary service is applicable to users who are connected to the network via a basic access or a primary rate access.

When user A encounters a destination B, which does not answer the call (no reply), user A may request CCNR on destination B.

When user A requests the CCNR supplementary service, the network will monitor for destination B's becoming free after having terminated an activity.

When destination B becomes free after having terminated an activity, the network will wait a short time (as defined by the destination B idle guard timer) in order to allow the resources to be reused for originating a call. If resources are not reused by destination B within this time, then the network will automatically recall user A.

When user A accepts the CCNR recall, then the network will automatically generate a CCNR call to destination B.

2.2 Specific terminology

For the purposes of this Recommendation, the following definitions apply.

2.2.1 user A: The user who originated the call and to whom the CCNR supplementary service is provided.

2.2.2 destination B: The entity that was addressed in the original call set-up.

2.2.3 CCNR request: An instance of an activation of the CCNR supplementary service which is held in a queue pending the correct conditions for the CCNR supplementary service to be completed.

2.2.4 CCNR recall: A network to user indication, informing user A that the network is ready to initiate a CCNR call to destination B and that the network is awaiting a response to this indication.

2.2.5 CCNR call: Call set-up by the network from user A to destination B resulting from user A's acceptance of a CCNR recall.

2.2.6 busy: See clause 3/I.221.

2.2.7 free: Destination B is free when it is neither busy nor channels busy.

2.2.8 CCNR busy: Any one of the following conditions will cause user A to be considered as CCNR busy:

- maximum number of calls reached at user A;
- no B-channels available at user A;
- CCNR recall pending on user A.

2.2.9 retention timer: This timer specifies the amount of time the network retains all of the information supplied by the calling user if the call is terminated while destination B is being informed of the call. Although this timer is optional for the basic call procedures it is needed for the operation of the CCNR supplementary service. The minimum value of the timer shall be 15 seconds.

2.2.10 CCNR service duration timer: This timer specifies the maximum time the CCNR supplementary service will remain active for user A within the network. The value of this timer is a network option, typically 60-180 minutes.

2.2.11 CCNR recall timer: This timer specifies the maximum time the network shall wait for a user A response to a CCNR recall. The value of this timer is between 10 and 20 seconds.

2.2.12 destination B idle guard timer: This timer specifies the amount of time the network will delay after destination B has become free, after having terminated an activity, before informing user A. The value of this timer is between 0 and 15 seconds.

2.2.13 compatible terminal: A terminal which can support the bearer service or teleservice requested for the original call to destination B and which can accept calls to the ISDN number and subaddress identifying the called user in the original call to destination B.

2.2.14 activity: Answering an incoming call or originating an outgoing call.

2.3 Qualifications on the applicability to telecommunication services

The CCNR supplementary service may be applicable to all circuit-mode bearer services defined in Recommendation I.230, and all teleservices defined in Recommendation I.240 with the following exceptions:

- a) call 2 of the videotelephony teleservice (see Recommendation F.721);
- b) all other circuit-switched telecommunications services requiring the use of more than one B-channel.

3 Procedures

3.1 Provision/withdrawal

The CCNR supplementary service may be provided to user A after prior arrangement with the service provider or may be generally available.

The CCNR supplementary service shall be withdrawn by the service provider upon request of the subscriber or for service provider reasons.

As a service provider option, the CCNR supplementary service can be offered with a subscription option which may apply to the whole access of the user A. The subscription option is detailed in Table 1.

TABLE 1/I.253.4

Subscription option	Values
Recall mode	– CCNR recall offered to all terminals on the access – CCNR recall offered to the terminal that has activated the CCNR supplementary service

If the subscription option is not offered, one of the two values shall be chosen by the service provider.

As a network option, the presence of compatible terminals at the destination may be verified.

3.2 Normal procedures

3.2.1 Activation/deactivation/registration

3.2.1.1 Activation

When user A encounters a destination B, which does not answer the call (no reply) and the CCNR supplementary service can be requested against this destination, the network shall retain the call information. User A can activate the CCNR supplementary service while the called user is being informed of the call and after the call is terminated before the retention timer is expired.

Upon receipt of a request for the activation of the CCNR supplementary service, the network shall stop informing destination B of the call and shall store the identification of the destination contained in the original call request. User A shall be informed that the activation was successful. Multiple requests against destination B shall be queued.

When the activation of the CCNR supplementary service is accepted, the CCNR service duration timer is started. The network shall monitor for destination B's becoming free after having terminated an activity.

User A can have a limited number of CCNR requests outstanding. This limit is a service provider option with a maximum value of five. The requests can be to different destinations, or can be to the same destination with different service requirements (e.g. bearer service or teleservice requirements) or as a service provider option with the same service requirements.

Destination B can have a limited number of incoming CCNR requests outstanding. This limit is a service provider option with a maximum value of five.

Having activated the CCNR supplementary service, user A can originate calls and receive calls as normal.

3.2.1.2 Deactivation

The following deactivation requests shall be made available to user A:

- 1) deactivate a specific user A CCNR request. This request may contain enough information to correlate with the initial activation;
- 2) deactivate all outstanding CCNR requests.

Upon successful deactivation, the corresponding CCNR request shall be discarded.

User A shall be informed that the deactivation has been successful. If a specific CCNR request is deactivated, the network may indicate which specific CCNR request has been deactivated.