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SERIES Q: SWITCHING AND SIGNALLING

Digital subscriber Signalling System No. 1 – Stage 3
description for supplementary services using DSS 1

**Stage 3 description for number identification
supplementary services using DSS 1: Malicious
Call Identification (MCID)**

ITU-T Recommendation Q.951.7

(Previously CCITT Recommendation)

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ITU-T RECOMMENDATION Q.951.7

STAGE 3 DESCRIPTION FOR NUMBER IDENTIFICATION SUPPLEMENTARY SERVICES USING DSS 1: MALICIOUS CALL IDENTIFICATION (MCID)

Summary

The Malicious Call Identification (MCID) supplementary service enables a user to request that the source of an incoming call is identified and registered in the network.

Source

ITU-T Recommendation Q.951.7 was prepared by ITU-T Study Group 11 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 5th of June 1997.

FOREWORD

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NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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Recommendation Q.951.7

STAGE 3 DESCRIPTION FOR NUMBER IDENTIFICATION SUPPLEMENTARY SERVICES USING DSS 1: MALICIOUS CALL IDENTIFICATION (MCID)

(Geneva, 1997)

7 Malicious Call Identification (MCID)

7.1 Scope

This Recommendation specifies the stage 3 of the Malicious Call Identification (MCID) supplementary service for the Integrated Services Digital Network (ISDN) at the T reference point or coincident S and T reference point (as defined in Recommendation I.411 [1]) by means of the Digital Subscriber Signalling System No. 1 (DSS 1) protocol. Stage 3 identifies the protocol procedures and switching functions needed to support a telecommunications service (see Recommendation I.130 [2]).

In addition, this Recommendation specifies the protocol requirements at the T reference point where the service is provided to the user via a private ISDN.

This Recommendation does not specify the additional protocol requirements where the service is provided to the user via a telecommunications network that is not an ISDN.

This supplementary service enables a user to request that the source of an incoming call is identified and registered in the network.

The MCID supplementary services is applicable to all circuit-switched telecommunication services.

This Recommendation is applicable to equipment, supporting the MCID supplementary service, to be attached at either side of a T reference point or coincident S and T reference point when used as an access to the public ISDN.

7.2 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; all 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 Recommendation I.411 (1993), *ISDN user-network interfaces – Reference configurations*.
- [2] CCITT Recommendation I.130 (1988), *Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN*.
- [3] ITU-T Recommendation I.112 (1993), *Vocabulary of terms for ISDNs*.
- [4] ITU-T Recommendation I.210 (1993), *Principles of telecommunication services supported by an ISDN and the means to describe them*.
- [5] CCITT Recommendation I.330 (1988), *ISDN numbering and addressing principles*.

- [6] ITU-T Recommendation Q.932 (1993), *Generic procedures for the control of ISDN supplementary services*.
- [7] CCITT Recommendation X.219 (1988), *Remote operations: Model, notation and service definition*.
- [8] ITU-T Recommendation Q.931 (1993), *Digital Subscriber Signalling System No. 1 (DSS 1) ISDN user-network interface layer 3 specification for basic call control*.
- [9] CCITT Recommendation X.208 (1988), *Specification of Abstract Syntax Notation One (ASN.1)*.
- [10] CCITT Recommendation I.251.7 (1992), *Malicious call identification*.
- [11] ITU-T Recommendation Q.81.7 (1997), *Stage 2 description for number identification supplementary services: Malicious Call Identification (MCID)*.
- [12] ITU-T Recommendation Q.731.7 (1997), *Stage 3 description for number identification supplementary services using Signalling System No. 7: Malicious Call Identification (MCID)*.
- [13] ITU-T Recommendation Z.100 (1993), *CCITT Specification and Description Language (SDL)*.

7.3 Definitions

This Recommendation defines the following terms

7.3.1 call information: Call information consists of the called party number, the calling party number, the time and the date of the request, and as a network option, the calling party subaddress, if provided by the calling user.

7.3.2 calling party number: This a public network provided number which identifies either the calling party's number or at least the access into the public network of the call from the calling party.

7.3.3 network: The DSS 1 protocol entity at the network side of the user-network interface.

7.3.4 user: The DSS 1 protocol entity at the user side of the user-network interface.

7.3.5 integrated service digital network (ISDN): See 2.3/I.112 [3], definition 308.

7.3.6 service; telecommunication service: See 2.2/I.112 [3], definition 201.

7.3.7 supplementary service: See 2.4/I.210 [4].

7.3.8 subaddress: See 5.4/I.330 [5].

7.3.9 invoke component: See 6.3/Q.932 [6] for the application of this component as defined in Recommendation X.219 [7]. Where reference is made to "xxxx" invoke component, an invoke component is meant with its operation value set to the value of the operation "xxxx".

7.3.10 return result component: See 6.3/Q.932 [6] for the application of this component as defined in Recommendation X.219 [7]. Where reference is made to "xxxx" return result component, a return result component is meant which is related to an "xxxx" invoke component.

7.3.11 return error component: See 6.3/Q.932 [6] for the application of this component as defined in Recommendation X.219 [7]. Where reference is made to "xxxx" return error component, a return error component is meant which is related to an "xxxx" invoke component.

7.3.12 reject component: See 6.3/Q.932 [6] for the application of this component as defined in Recommendation X.219 [7].

7.3.13 no impact: The interaction between the two identified supplementary services contains no requirements for the protocol over and above the requirements of the Recommendation for each individual supplementary service.

NOTE – Other aspects of interactions that do not affect the DSS 1 protocol are covered in the service description for the relevant supplementary services.

7.3.14 not applicable: The interaction between the two identified supplementary services is outside the scope of this Recommendation, e.g. the interaction is between the supplementary service and itself, and is therefore covered in the Recommendation for the individual supplementary service.

7.4 Abbreviations

This Recommendation uses the following abbreviations:

ASN.1	Abstract Syntax Notation One
DSS 1	Digital Subscriber Signalling System No. 1
ISDN	Integrated Services Digital Network
MCID	Malicious Call Identification
SDL	Specification and Description Language

7.5 Description

The malicious call identification supplementary service gives the possibility for the called user to obtain, by an appropriate request, the storage and registration of the call information.

7.6 Operational requirements

7.6.1 Provision/withdrawal

This service shall be provided and withdrawn after prearrangement with the service provider in accordance with national legal requirements.

7.6.2 Requirements on the originating network side

Not applicable.

7.6.3 Requirements on the terminating network side

Not applicable.

7.7 Coding requirements

Table 7-1 shows the definition of the operations required for MCID supplementary service using ASN.1 as specified in Recommendation X.208 [9] and using the OPERATION macro as defined in Figure 4/X.219 [7].

Table 7-1/Q.951.7 – Definitions of operations

mcidOperations {itu recommendation q 951 mcid (7) operations-and-errors (1)}	
DEFINITIONS ::=	
BEGIN	
EXPORTS	McidRequest;
IMPORTS	OPERATION FROM Remote-Operation-Notation {joint-iso-ccitt remote-operations(4) notation(0)}
	notAvailable, userNotSubscribed, invalidCallState, notIncomingCall, supplementaryServiceInteractionNotAllowed, FROM General-Error-List {itu recommendation q 950 general-error-list (1)};
McidRequest	::= OPERATION
	RESULT
	ERRORS{ notAvailable, userNotSubscribed, invalidCallState, supplementaryServiceInteractionNotAllowed } notIncomingCall
mcidRequest McidRequest ::=3	
END	

7.8 State definitions

The call states as specified in 2.1/Q.931 [8] shall apply.

7.9 Signalling requirements

7.9.1 Activation/deactivation/registration

Not applicable.

7.9.2 Invocation and operation

7.9.2.1 Normal operation

To invoke the MCID supplementary service, the called user shall send a McidRequest invoke component carried by a Facility information element in a FACILITY message. This invocation can only be sent during the Active state (N10) or during the Disconnect Indication state (N12).

To indicate that the service invocation has been accepted, the network shall send a McidRequest return result component carried by a Facility information element in a FACILITY message.

The FACILITY message shall be sent using a call reference as used for the previous call control messages for the call for which the MCID service is to be invoked.

7.9.2.2 Exceptional procedures

If the McidRequest invoke component is received from the called party in any other state than the Active state (N10) or Disconnect Indication state (N12), then the network shall not invoke the MCID service and shall return a McidRequest return error component carried by a Facility information element in a FACILITY message. The error shall indicate "invalidCallState".

If the MCID supplementary service is not subscribed to, the network shall return a McidRequest return error component carried by a Facility information element in a FACILITY message. The error shall indicate "userNotSubscribed".

If the MCID supplementary service is invoked for an outgoing call, the network shall return a McidRequest return error component carried by a Facility information element in a FACILITY message. The error shall indicate "notIncomingCall".

If the network receives from the user a RELEASE message before sending a McidRequest return result or return error component in response to the previous invoke component, the network shall process the McidRequest invoke component as appropriate; however, the network may send an indication of the result of the invocation by including the appropriate component carried by a Facility information element in the RELEASE COMPLETE message.

If it is not possible to register any MCID call information, the network shall return a McidRequest return error component carried by a Facility information element in a FACILITY message. The error shall indicate "notAvailable".

If the MCID supplementary service is invoked when another supplementary service is already activated, and the network does not allow this MCID supplementary service invocation in combination with the other supplementary service, the network shall return a McidRequest return error component carried by a Facility information element in a FACILITY message. The error shall indicate "supplementaryServiceInteractionNotAllowed".

If a user has already successfully invoked the MCID supplementary service on a call and the information has been registered, then subsequent invocations of the MCID supplementary service by the user shall be responded to by the network with a McidRequest return result component carried by a Facility information element in a FACILITY message.

NOTE – In case of multiple invocations of the MCID supplementary service within the same call, registration will be done only once.

7.10 Procedures for interworking with private ISDNs

The procedures as specified in 7.9.2 are applicable.

NOTE – The requirements for invocation of MCID after complete clearing of the malicious call on the access between the public and private network are not specified in this Recommendation.

7.11 Interactions with other networks

7.11.1 Interactions with non-ISDNs

Not applicable.

7.12 Interactions with other supplementary services

7.12.1 Call waiting

No impact.

7.12.2 Explicit call transfer

If a user invokes the MCID supplementary service, according to 7.9.2.1, after the call has been transferred (local interaction for the same call), then the network shall reject the request according to 7.9.2.2. The error shall indicate "supplementaryServiceInteractionNotAllowed".

7.12.3 Connected line identification presentation

No impact.

7.12.4 Connected line identification restriction

No impact.

7.12.5 Calling line identification presentation

No impact.

7.12.6 Calling line identification restriction

No impact.

7.12.7 Closed user group

No impact.

7.12.8 Conference calling

If, within the MCID supplementary service, the network is unable to identify and register the source of the incoming call, because this call is a conference call controlled by the same served user (local interaction for the call), the network shall send a `McidRequest` return error component to the served user, indicating the error "supplementaryServiceInteractionNotAllowed".

NOTE – Other error values are possible if supplementary service interactions are not checked first (e.g. a check for an incoming call is performed prior to any supplementary service interaction check).

7.12.9 Direct dialling in

No impact.

7.12.10 Call diversion (call forwarding) services

7.12.10.1 Call forwarding busy

The MCID supplementary service may also be invoked for forwarded calls. In addition to the normal operation of the MCID supplementary service, the numbers of the calling and forwarding parties (originally called number and redirecting number) are registered.

7.12.10.2 Call forwarding no reply

The MCID supplementary service may also be invoked for forwarded calls. In addition to the normal operation of the MCID supplementary service, the numbers of the calling and forwarding parties (originally called number and redirecting number) are registered.

7.12.10.3 Call forwarding unconditional

The MCID supplementary service may also be invoked for forwarded calls. In addition to the normal operation of the MCID supplementary service, the numbers of the calling and forwarding parties (originally called number and redirecting number) are registered.

7.12.10.4 Call deflection

The MCID supplementary service may also be invoked for forwarded calls. In addition to the normal operation of the MCID supplementary service, the numbers of the calling and forwarding parties (originally called number and redirecting number) are registered.

7.12.11 Line hunting

No impact.

7.12.12 Three-Party service

No impact.

7.12.13 User-to-user signalling

7.12.13.1 Service 1

No impact.

7.12.13.2 Service 2

No impact.

7.12.13.3 Service 3

No impact.

7.12.14 Multiple subscriber number

No impact.

7.12.15 Call hold

No impact.

7.12.16 Advice of charge

No impact.

7.12.17 Subaddressing

No impact.

7.12.18 Terminal portability

It is not possible to invoke MCID for a call which is suspended by the called user.

7.12.19 Completion of calls to busy subscribers

No impact.

7.12.20 Malicious call identification

Not applicable.

7.12.21 Reverse charging

No applicable interaction at this time.

7.12.22 Multilevel precedence and preemption

No applicable interaction at this time.

7.12.23 Support of private numbering plan

No applicable interaction at this time.

7.12.24 International telecommunication charge card

No applicable interaction at this time.

7.12.25 Global virtual network services

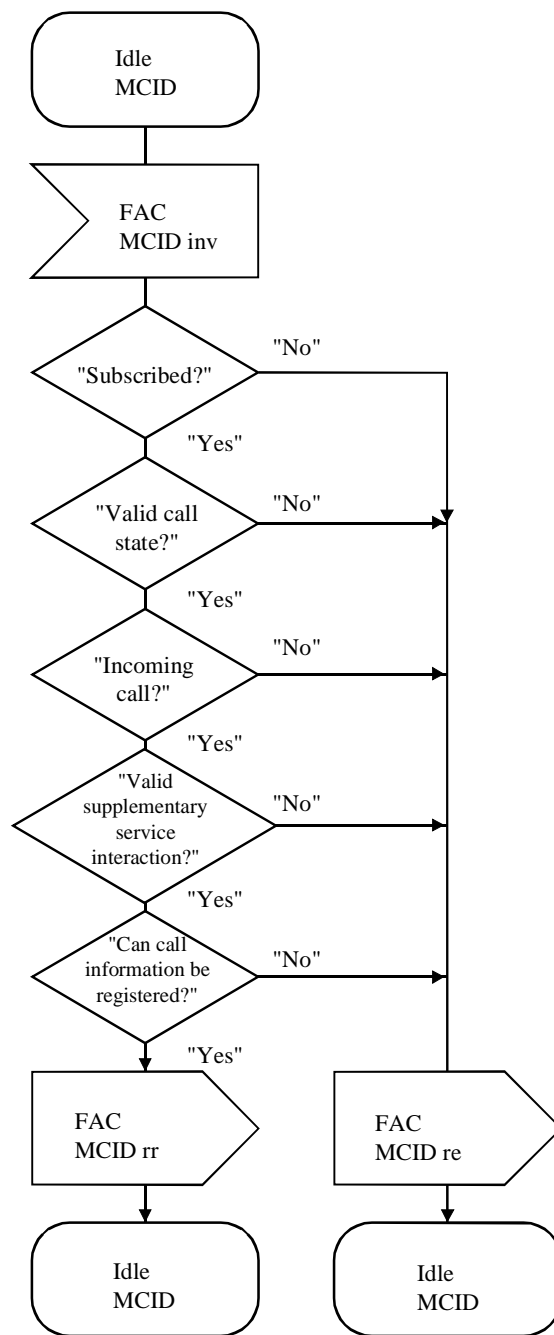
No applicable interaction at this time.

7.13 Parameter values (timers)

No new specific timers are required.

7.14 Dynamic description (SDLs)

The dynamic description of the MCID supplementary service shall be as shown in Figure 7-1, according to the Specification and Description Language (SDL) specified in Recommendation Z.100 [13].



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Figure 7-1/Q.951.7 – MCID supplementary service network side dynamic description

APPENDIX I

Signalling flows

This appendix contains examples of flow diagrams for the malicious call identification supplementary service.

The following scenarios are shown:

Figure I.7-1/Q.951.7: MCID invocation during the Active state.

Figure I.7-2/Q.951.7: MCID invocation during the Disconnect indication state.

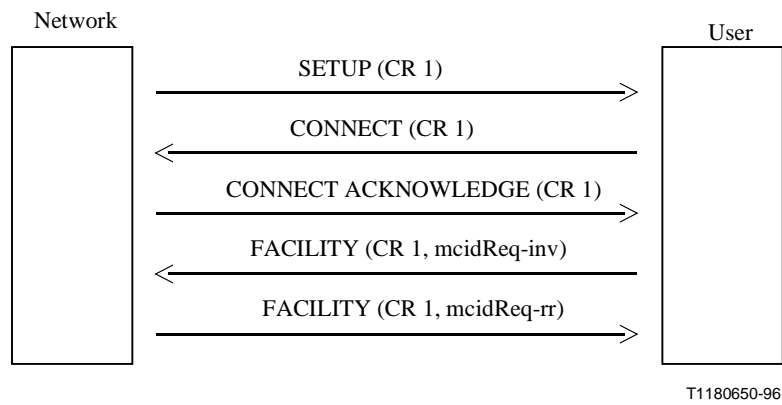


Figure I.7-1/Q.951.7 – MCID invocation during the Active state (N/U10)

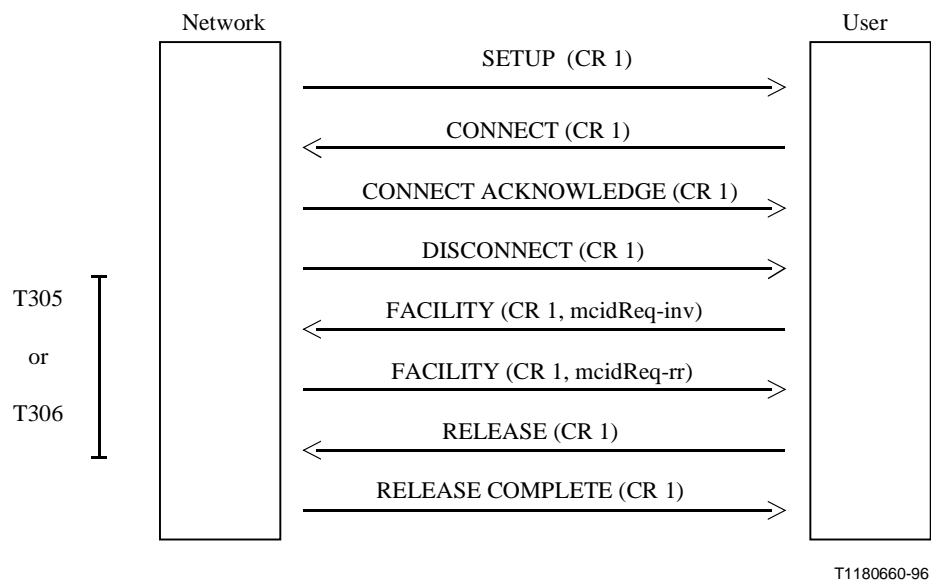


Figure I.7-2/Q.951.7 – MCID invocation during the Disconnect indication state

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