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Technical Specification

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Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

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The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

Contents

Foreword

This Technical Specification (TS) was been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN) and originally published as ETSI TS 183 016 [12]. It was transferred to the 3rd Generation Partnership Project (3GPP) in December 2007.

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

1 Scope

The present document specifies the, stage three, Protocol Description of the Malicious Call Communication Identification (MCID) service based on the stage one and two of ISDN Malicious Call Identification supplementary service. Within the Next Generation Network (NGN) the stage 3 description is specified using the IP-Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP). The MCID service will store session related information independent of the service requested.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

[1] ETSI TS 181 002: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Multimedia Telephony with PSTN/ISDN simulation services".

[2] ETSI ES 283 003: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3 [3GPP TS 24.229 (Release 7), modified]".

[3] Void.

[4] ETSI TS 181 006: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Direct Communication Service in NGN; Service Description [Endorsement of OMA-ERELD-PoC-V1]".

[5] Void.

[6] Void.

[7] Void.

[8] ETSI TR 180 000: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Terminology".

[9] ETSI TS 183 033: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia; Diameter based protocol for the interfaces between the Call Session Control Function and the User Profile Server Function/Subscription Locator Function; Signalling flows and protocol details [3GPP TS 29.228 and 3GPP TS 29.229, modified]".

[10] IETF RFC 3966: "The tel URI for Telephone Numbers".

[11] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".

[12] ETSI TS 183 016 V1.2.1: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); PSTN/ISDN simulation services; Malicious Communication Identification (MCID); Protocol specification".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 181 002 [1], TS 181 006 [4], TR 180 000 [8] and the following apply:

communication information: information collected and registered by the MCID service

identity information: includes all the information (RFC 3966 [10] / RFC 3986[11]) identifying a user, including trusted (network generated) and/or untrusted (user generated) identities

trusted identity: network generated user address information

untrusted identity: user generated user address information

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACR	Anonymous Communication Rejection
AS	Application Server
BGCF	Border Gateway Control Function
CB	Communication session Barring
CD	Communication Deflection
CDIV	Communication DIVersion Services
CFB	Communication Forwarding Busy
CFNL	Communication Forwarding on No Logged-in
CFNR	Communication Forwarding No Reply
CFU	Communication Forwarding Unconditional
CONF	CONFerence
CW	Call Waiting
ECT	Explicit Communication Transfer
HOLD	Communication HOLD
IBCF	Interconnection Border Control Function
I-CSCF	Interrogating - Call Service Control Function
IFC	Initial Filter Criteria
IM	IP Multimedia
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISDN	Integrated Service Digital Network
MCID	Malicious Call Identification
MGCF	Media Gateway Control Function
NGN	Next Generation Network
OIP	Originating Identification Presentation
OIR	Originating Identification Restriction
P-CSCF	Proxy - Call Service Control Function
PSTN	Public Switched Telephone Network
S-CSCF	Service - Call Session Control Function
SDP	Session Description Protocol
SIP	Session Initiation Protocol
TIP	Terminating Identification Presentation
TIR	Terminating Identification Restriction
UE	User Equipment
URI	Uniform Resource Identifier

4 Malicious Communication Identification (MCID)

4.1 Introduction

The MCID service will store session related information of incoming communications independent of the service requested. The following communication information shall be registered:

- Destination Party Identity Information;
- originating Party Identity Information; and
- local time and date of the invocation in the network serving the called user.

NOTE 1: The SDP information is not in the scope of Release 1.

The communication information shall not be available to the terminal equipment under the control of the called user nor the originating user. The communication information shall be stored at a location(s) under the control of the network operator.

A network subscription option may be provided which allows automatic invocation of MCID service on communications to the served user which are not answered.

NOTE 2: The purpose of this option is to allow for registration of communications that ring for a short time only.

4.2 Description

4.2.1 General description

The Malicious Communication Identification (MCID) service allows the service provider to trace the identity information of the source of an incoming communication on request of the destination user.

4.3 Operational requirements

4.3.1 Provision/withdrawal

This service shall be provided and withdrawn after pre-arrangement with the service provider, in accordance with national legal requirements.

4.3.2 Requirements on the originating network side

No specific requirements are needed in the originating network.

4.3.3 Requirements in the network

No specific requirements are needed in the network.

4.3.4 Requirements on the terminating network side

No specific requirements are needed in the terminating network.

4.4 Coding requirements

No specific MCID coding requirements exists.

4.5 Signalling requirements

4.5.1 Activation/deactivation/registration

The MCID service is provisioned only by the network operator as an automatic invocation (permanent) on all calls to the served user.

NOTE: On demand invocation by the user may be available in later releases.

4.5.2 Invocation and operation

4.5.2.1 Actions at the originating UE

Basic communication procedures according to ES 283 003 [2] shall apply.

4.5.2.2 Actions at the originating P-CSCF

Basic communication procedures according to ES 283 003 [2] shall apply.

4.5.2.3 Actions at the originating S-CSCF

Basic communication procedures according to ES 283 003 [2] shall apply.

4.5.2.4 Actions at the terminating S-CSCF

Basic communication procedures according to ES 283 003 [2] shall apply.

Based on Initial Filter Criteria (IFC) the INVITE request is forwarded to the AS that provides the MCID service. Annex B provides an example on how an Initial Filter Criteria (IFC) can be configured.

4.5.2.5 Actions at the AS of the terminating user

The AS shall at the minimum store the following elements of a received INVITE request:

- destination party identity information included in the Request-URI;
- originating Party Identity Information included in the P-Asserted-Identity header field, if the P-Asserted-Identity header field is included in the request;
- local time and date of the invocation in the network serving the called user;
- call diversion information received in the History-Info header, if the History-Info header filed is included in the request (escaped Reason);
- referred-By header field when available;
- contact header;
- to header;
- from header.

NOTE: The Originating Party Identity Information included in the P-Asserted-Identity header field is always present in the INVITE request if the request is originated in a trusted network.

4.5.2.5.1 Subscriber has a permanent supervision

The AS shall register stored information. The exact procedure to register the information is implementation dependent and out of scope of the present document.

4.5.2.6 Actions at the incoming I-CSCF

Basic communication procedures according to ES 283 003 [2] shall apply.

4.5.2.7 Actions at the outgoing IBCF

Basic communication procedures according to ES 283 003 [2] shall apply.

4.5.2.8 Actions at the incoming IBCF

Basic communication procedures according to ES 283 003 [2] shall apply.

4.5.2.9 Actions at the BGCF

Basic call procedures according to ES 283 003 [2] shall apply.

NOTE: The interworking with other NGN is described in clause 4.7.3.

4.5.2.10 Actions at the MGCF

Basic call procedures according to ES 283 003 [2] shall apply.

NOTE: The interworking with other NGN is described in clause 4.7.3.

4.5.2.11 Actions at the destination P-CSCF

Basic communication procedures according to ES 283 003 [2] shall apply.

4.5.2.12 Actions at the destination UE

Basic communication procedures according to ES 283 003 [2] shall apply.

4.6 Interaction with other services

4.6.1 Communication HOLD (HOLD)

No impact, i.e. neither service shall affect the operation of the other service.

4.6.2 Terminating Identity Presentation (TIP)

No impact, i.e. neither service shall affect the operation of the other service.

4.6.3 Terminating Identity Restriction (TIR)

No impact, i.e. neither service shall affect the operation of the other service.

4.6.4 Originating Identification Presentation (OIP)

No impact, i.e. neither service shall affect the operation of the other service.

4.6.5 Originating Identification Restriction (OIR)

Even if the originating identification is a secret (restricted) identification, MCID invocation is possible.

4.6.6 CONFerence (CONF)

No impact, i.e. neither service shall affect the operation of the other service.

4.6.7 Communication DIVersion Services (CDIV)

The MCID service can be invoked for a diverted communication. In addition to the normal operation of the MCID service, the identity of the first diverting user shall be registered and, as a network option, the last diverting user can be registered.

4.6.7.1 Communication Forwarding Unconditional (CFU)

If the served user has activated CFU service, once forwarding has taken place, the forwarding user cannot invoke the MCID service.

4.6.7.2 Communication Forwarding Busy (CFB)

If the served user has activated CFB, once forwarding has taken place, the forwarding user cannot invoke the MCID service.

4.6.7.3 Communication Forwarding No Reply (CFNR)

If the served user has activated CFNR, once forwarding has taken place, the forwarding user (served user) cannot invoke the MCID service.

The MCID service shall not be automatically invoked when an alerting communication is terminated due to the invocation of the communication forwarding no reply service.

4.6.7.4 Communication Forwarding on Not Logged-In (CFNL)

If the served user has activated CFNL, once forwarding has taken place, the forwarding user (served user) cannot invoke the MCID service even after a log-in procedure.

The MCID service shall not be automatically invoked when an alerting communication is terminated due to the invocation of the communication forwarding not logged in service.

4.6.7.5 Communication Deflection (CD)

If the served user has activated communication deflection, once deflection has taken place, the deflecting user cannot invoke the MCID service.

The MCID service shall not be automatically invoked when an alerting communication is terminated due to the invocation of the communication deflection service.

4.6.8 Call Waiting (CW)

No impact, i.e. neither service shall affect the operation of the other service.

4.6.9 Anonymous Communication Rejection and Communication Barring (ACR/CB)

No impact, i.e. neither service shall affect the operation of the other service.

4.6.10 Explicit Communication Transfer (ECT)

No impact, i.e. neither service shall affect the operation of the other service.

4.7 Interactions with other networks

4.7.1 Interworking with the PSTN/ISDN

No MCID service specific impact identified.

4.7.2 Interaction with PSTN/ISDN emulation

No MCID service specific impact identified.

4.7.3 Interaction with external IP network

If the other external IP network is supporting MCID regarding the present document no impact is seen.

4.8 Parameter values (timers)

No MCID service specific timer identified.

Annex A (informative): Signalling Flows

A.1 MCID invocation

The MCID invokes, in the destination, the storage of data.

Figure A.1 shows an example signalling flow for the scenario.

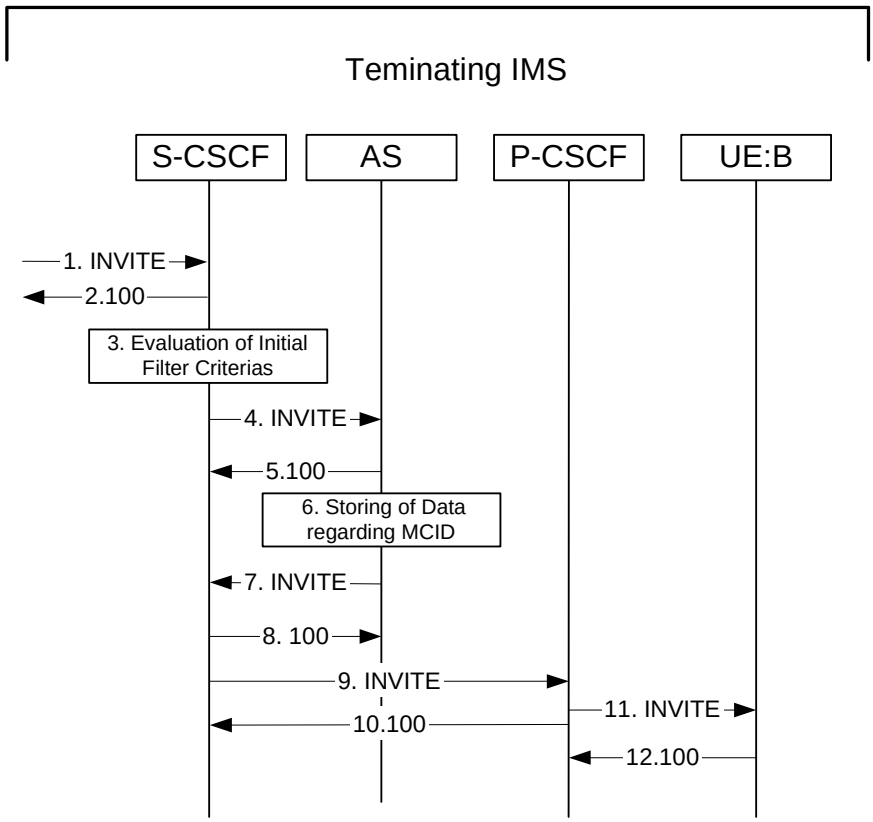

Figure A.1: MCID Permanent and triggered by the B user

The steps of the flow are as follows:

1. INVITE request (to S-CSCF).

The INVITE request is sent from the UE to S-CSCF The INVITE includes a P-Asserted-Identity as follows:

- P-Asserted-Identity: "John Doe" <tel:+1-212-555-1111> with Privacy: id or Privacy header or Privacy user

2. 100 (Trying) Response (from S-CSCF).

3. Evaluation of initial filter criteria.

The initial Filter criteria identifies that the requested URI is subscribed to the MCID service. Therefore the S-CSCF forwards the INVITE to the MCID AS.

4. INVITE request (S-CSCF to AS).

INVITE is send to the AS.

5. 100 Response from S-CSCF.

6. AS stores Data.

AS stores:

- Request URI.
- To header.
- P-Asserted-Identity header.
- From header.
- Contact header.
- Time and date.

7.-12. INVITE request(S-CSCF to AS)

INVITE is send towards the UE:B.

Annex B (informative): Example of filter criteria

This annex provides an example of a filter criterion that triggers SIP requests that are subject to initial filter criteria evaluation.

The coding of the Initial Filter Criteria (IFC) is described in TS 183 033 [9].

B.1 Terminating S-CSCF

If a user identified by the Request-URI is provided with the MCID service the IFC can be:

The S-CSCF forwards all INVITE requests to the AS providing the MCID service.

Annex C (informative): Bibliography

ETSI ETS 300 128: "Integrated Services Digital Network (ISDN); Malicious Call Identification (MCID) supplementary service; Service description".

ETSI EN 300 356-11: "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface; Part 11: Malicious Call Identification (MCID) supplementary service [ITU-T Recommendation Q.731, clause 7 (1997) modified]".

ETSI ES 283 027: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Endorsement of the SIP-ISUP Interworking between the IP Multimedia (IM) Core Network (CN) subsystem and Circuit Switched (CS) networks [3GPP TS 29.163 (Release 7), modified]".

IETF RFC 3265: "Session Initiation Protocol (SIP) Specific Event Notification".

Annex D (informative): Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
2006-04					Published as **ETSI TS 183 016**		1.1.1
2007-03					Published as ETSI TS 183 016		1.2.1
2007-12					Converted to **3GPP TS 24.416**		1.2.2
2008-03	CT#39	CP-080081			Version 1.2.2 approved in CT#39 and version 7.0.0 created by MCC	1.2.2	7.0.0

History

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