

ETSI TS 123 506 V8.1.0 (2008-10)

Technical Specification

**Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
TISPAN;
IP Multimedia Subsystem (IMS);
Stage 2 description**
[3GPP TS 23.228 Release 7, modified]
(3GPP TS 23.506 version 8.1.0 Release 8)



GLOBAL SYSTEM FOR
MOBILE COMMUNICATIONS



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Foreword

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The present document may refer to technical specifications or reports using their 3GPP identities, UMTS identities or GSM identities. These should be interpreted as being references to the corresponding ETSI deliverables.

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Foreword

This Technical Specification (TS) was produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN) and originally published as ETSI TS 182 006 [ii]. 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:

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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.

Introduction

This clause is optional. If it exists, it is always the second unnumbered clause.

1 Scope

The present document provides the ETSI endorsement of the 3GPP TS 23.228 "IP Multimedia Subsystem; Stage 2, Release 7".

The present document provides the necessary adaptations to the 3GPP IP Multimedia Core Network Subsystem (IMS), in order to support the Access Networks and terminals in the scope of the present NGN Release. The present document also includes certain elements from 3GPP Release 8 (TS 23.228 v8.2.0)

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*.

- [1] 3GPP TS 23.228: "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; IP Multimedia Subsystem (IMS); Stage 2 (Release 7)".
- [ii] ETSI TS 182 006 v2.0.3: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia Subsystem (IMS); Stage 2 description [3GPP TS 23.228 Release 7, modified]".

Endorsement notice

The elements of 3GPP TS 23.228 [1] apply, with the following modifications.

NOTE: Underlining and/or strike-out are used to highlight detailed modifications where necessary.

3 Global modifications to 3GPP TS 23.228

3GPP TS 23.228 [1] was originally written specifically with mobile terminals in mind accessing the IMS using GPRS. Unless otherwise specified in the present document, requirements indicating mobile terminals should be taken as also being applicable to all terminals accessing the NGN.

Additionally replace items in 3GPP TS 23.228 [1] as follows:

- "HSS" with "UPSF".
- "IM CN Subsystem" with "IMS Core".

NOTE: Those changes are assumed globally for the present document.

Clause 2 "References"

Insert the following references at the end of clause 2:

- [57] IETF RFC 4769 (November 2006): "IANA Registration for an Enumservice Containing Public Switched Telephone Network (PSTN) Signaling Information".

Editor's note: The gap in the references number series is intentional, to avoid reference number collisions with reference number that 3GPP may allocate in the future.

- [96] IETF RFC 3022: "Traditional IP Network Address Translator (Traditional NAT)".
- [97] ETSI ES 282 003: "TISPAN NGN; Resource and Admission Control Subsystem (RACS)".
- [98] ETSI TS 183 017: "TISPAN NGN; Gq' interface based on DIAMETER protocol".
- [99] 3GPP TR 23.981 (Release 6): "3rd Generation Partnership Project; Technical Specification Group Services and System Aspects; Interworking aspects and migration scenarios for IPv4 based IMS Implementations (Release 6)".

4 Modifications to the main body of 3GPP TS 23.228

Replace the references in 3GPP TS 23.228 [1] as shown in the table below.

	Reference in 3GPP TS 23.228 [1]	Applicability to the present document
1	3GPP TS 23.002: "Network Architecture".	ETSI ES 282 001: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); NGN Functional Architecture Release 1". (note 1)
5	GSM 03.64: "Digital cellular telecommunication system (Phase 2+); Overall Description of the General Packet Radio Service (GPRS) Radio Interface; Stage 2".	(note 2)
6	GSM 01.04: "Digital cellular telecommunications system (Phase 2+); Abbreviations and acronyms".	(note 2)
7	3GPP TS 23.221: "Architectural Requirements".	(note 2)
8	3GPP TS 22.228: "Service requirements for the IP multimedia core network subsystem".	ETSI TS 181 005 "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Service and Capability Requirements" (note 1)
9	3GPP TS 23.207: "End-to-end QoS concept and architecture".	(note 2)
10	3GPP TS 24.228: "Signalling flows for the IP multimedia call control based on SIP and SDP".	(note 2)
10a	3GPP TS 24.229: "IP Multimedia Call Control based on SIP and SDP; Stage 3".	ETSI ES 283 003: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Endorsement of "IP Multimedia Call Control Protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP) Stage 3 (Release 6) for NGN Release 1". (note 1)
11	3GPP TS 25.301: "Radio interface protocol architecture".	(note 2)
19	3GPP TS 33.203: "Access Security for IP-based services".	(note 2)
21	3GPP TS 26.235: "Packet Switched Multimedia Applications; Default Codecs".	ETSI TS 181 005 "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Service and Capability Requirements" (note 1)
23	3GPP TS 23.060: "General Packet Radio Service (GPRS); Service description; Stage 2".	(note 2)
24	3GPP TS 23.003: "Technical Specification Group Core Network; Numbering, addressing and identification".	(note 2)
25	3GPP TS 32.240: "Telecommunication management; Charging management; Charging architecture and principles".	ETSI ES 282 010: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Charging (Endorsement of 3GPP TS 32.240 v6.3.0, 3GPP TS 32.260 v6.3.0, 3GPP TS 32.297 v6.1.0, 3GPP TS 32.298 v6.1.0 and 3GPP TS 32.299 v6.4.0 modified)". (note 1)

	Reference in 3GPP TS 23.228 [1]	Applicability to the present document
26	3GPP TS 32.260: "Telecommunication Management; Charging Management; IP Multimedia Subsystem (IMS) charging".	ETSI ES 282 010: "Telecommunications and Internet Converged Services and Protocols for Advanced Networking (TISPAN); Charging (Endorsement of 3GPP TS 32.240 v6.3.0, 3GPP TS 32.260 v6.3.0, 3GPP TS 32.297 v6.1.0, 3GPP TS 32.298 v6.1.0 and 3GPP TS 32.299 v6.4.0 modified)". (note 1)
27	3GPP TS 22.071: "Technical Specification Group Services and System Aspects, Location Services (LCS); Service description, Stage 1".	(note 2)
28	3GPP TS 23.271: "Technical Specification Group Services and System Aspects, Functional stage 2 description of LCS".	(note 2)
29	3GPP TS 23.078: "Customised Applications for Mobile network Enhanced Logic (CAMEL) Phase 3 - Stage 2".	(note 2)
29a	3GPP TS 22.340: "IMS Messaging; Stage 1".	(note 2)
30	3GPP TS 29.228: "IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Signalling flows and message contents".	ETSI TS 183 033: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); IP Multimedia: IP Multimedia Subsystem (IMS) Cx and Dx Interfaces; Signalling flows and message contents & IP Multimedia (IM) Subsystem Cx and Dx Interfaces; Cx and Dx interfaces based on the Diameter protocol [3GPP TS 29.228 v.6.8.0 and 3GPP TS.29.229 v.6.6.0, modified]". (note 1)
31	3GPP TS 23.240: "3GPP Generic User Profile - Architecture; Stage 2".	(note 2)
32	3GPP TS 22.250: "IP Multimedia Subsystem (IMS) group management; Stage 1".	(note 2)
36	3GPP TS 23.141: "Technical Specification Group Services and System Aspects, Presence Service".	ETSI TS 182 008: "Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN); Presence Service; Architecture and functional description (Endorsement of 3GPP TS 23.141 and OMA-AD-Presence_SIMPLE-V1_0)". (note 1)
37	3GPP TS 26.141: "IMS messaging and Presence; Media formats and codecs".	(note 2)
NOTE 1: The reference in 3GPP TS 23.228 [1] is replaced by the document listed on the right column. This replacement is applicable to all occurrences of the reference throughout the present endorsement.		
NOTE 2: The reference in 3GPP TS 23.228 [1] contains 3GPP specific requirements and is not generally applicable to the present endorsement.		

3.1 Definitions

Add the following definition:

Network Address Translation (NA(P)T): method by which IP addresses are mapped from one group to another, transparently to end users. Network Address Port Translation, or NA(P)T is a method by which many network addresses and their TCP/UDP (Transmission Control Protocol/User Datagram Protocol) ports are translated into a single network address and its TCP/UDP ports. See RFC 3022 [96] for further details.

Replace the definition of "ALG" as follows:

Application Level Gateway (ALG): application specific functional entity that allows communication between disparate address realm or IP versions when certain applications carry network addresses in the payloads like SIP/SDP. NA(P)T-PT or NA(P)T is application unaware whereas ALGs are application specific translation entities that allow a host running an application to communicate transparently with another host running the same application but in a different IP version or IP address realm.

For IMS, an **IMS ALG** provides the necessary application function for SIP/SDP protocols in order to communicate between different address realms or IP versions.

3.2 Symbols

Add the following symbols or notes to the symbols in 3GPP TS 23.228 [1] as shown below:

Gq' Reference Point between an IBCF and the SPDF

3.3 Abbreviations

Modify the following abbreviation:

HSS Home Subscriber Server (Not relevant in NGN Release 1)

Add the following abbreviations:

IN Intelligent Network
 NAPT Network Address Port Translation
 NAT Network Address Translation
 NASS Network Attachment SubSystem
 RACS Resource and Admission Control Subsystem
 SPDF Service Policy Decision Function
 UPSF User Profile Server Function

NP Number portability

4.0 General

Modify as shown below:

- figure 4.0 is not endorsed

4.1 Relationship to CS domain and the IP-Connectivity Access Network

Modify the following sentence:

~~The IP-CANs, that maintains the service while the terminal moves, and hides these moves from the IP multimedia subsystem.~~

4.2.1.1 Support for CAMEL

Modify the title and the text as follows:

- replace "CAMEL" with "CAMEL or IN"
- replace "CSE" with "CSE or IN Service Environment"

4.6.1 Proxy-CSCF

Add the following above the paragraph starting 'The functions performed by the P-CSCF'

The Service Policy Decision Function (SPDF) may be a logical entity of the P-CSCF or a separate physical node. If the SPDF is implemented in a separate physical node, the interface between the SPDF and the P-CSCF is the Gq' interface standardised in TS 183 017 [98].

Modify as shown below

- ~~If required for certain users, m~~If required for certain users, maintain a Security Association between itself and each UE, as defined in TS 33.203 [19].
- ~~Should p~~Should performs SIP message compression/decompression depending on the resources provided by the access technology in use and local policy.
- Authorisation of bearer resources and QoS management. For details see TS 23.203 [54] and ES 282 003 [97].

NOTE: TS 23.203 [54] is not applicable when RACS is used.

Add the following clause.

4.18 Support of Number portability

NOTE: The text of clause 4.18. is except for this note identical to the text of clause 4.18 of TS 23.228 version 8.2.0

4.18.1 Number portability

Number portability (NP) allows a user to retain their E.164 number when changing subscriptions from one network operator to another. As such, NP applies to TEL URIs and SIP URI with user=phone parameters. NP is subject to regional requirements and is accomplished through the retrieval of ported data from those data bases. The specification of these data bases is out of scope of this document, but the NP data may be accessed through ENUM/DNS or accessed via existing (PSTN- and CS-domain) NP databases using the legacy PSTN/CS-domain protocols, such as TCAP.

Support of NP within a network and the exact means to make the number portability data available to IMS, is subject to and configured per operator policy. NP is not mandated by this specification on any network operator.

As configured per operator policy, IMS ENUM interfaces can be updated to support handling of the PSTN ENUM service per RFC 4769 [57], which provides a URI containing an E.164 number with NP routing information and NP dip indicators. The IMS entity receiving NP information as a result of an ENUM/DNS query, the S-CSCF as an example, needs to support, or not remove, NP protocol parameters retrieved as part of ENUM/DNS procedures contained in this specification. Subsequent network elements used to process the call to the PSTN do not remove the NP protocol parameters inserted in SIP messaging as part of the NP data retrieval procedure.

NP data can also be made available by means of direct access to PSTN/CS-domain NP Databases using the legacy PSTN/CS-Domain interfaces and protocols. To support this existing interface within the network, the requesting and subsequent network elements need to support, or not remove, NP protocol parameters within SIP messages that result from the NP data retrieval procedures. The procedures to retrieve the NP data using the legacy PSTN/CS-domain interfaces are out of scope of this specification.

Alternatively, per operator policy, the BGCF can retrieve NP data as part of the procedures to select an MGCF for PSTN connection. The interface used at the BGCF to retrieve the NP data is out of scope of this specification.

Alternatively, per operator policy, the MGCF may support legacy interfaces to retrieve number portability data.

NOTE: Although legacy protocols are used to access the number portability database, this does not imply that the IMS nodes (CSCFs, BGCFs) need to implement such protocols.

5.0 General

Modify the text as follows:

This section documents the main procedures that are used for the provision of services in the IP multimedia subsystem. These procedures are described using text description as well as information flow diagrams. The procedures described in this document are meant to provide a high level description and are not intended to be exhaustive. ~~Additional procedures and details are provided in TS 24.228 [10].~~

5.2.2.5 Stored information

Modify the text as follows:

Table 5.1 provides an indication of some of the information stored in the indicated nodes during and after the registration process. Note that Table 5.1 is not an exhaustive list of stored information, i.e. there can be additional information stored due to registration.