3GPP TSG CN Plenary Meeting #16 **NP-020155**
5th - 7th June 2002. Marco Island, USA.

Title:	**Liaison Statement on 3GPP Network Domain Name usage for IMS**
Source:	**CN1**
Agenda item:	**5.1**
Document for:	**INFORMATION**

3GPP TSG-CN1 Meeting #24 **Tdoc N1-021455**
Budapest, Hungary, 13. – 17. May 2002

To:	GSMA SerG, GSMA IREG
Cc:	CN4, SA2, CN
Response to:	

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Attachments: N4-020774[CR to TS 23.003]

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1. Overall Description:

To help operators in the rollout process of the IMS IP Multimedia capability, R99 and Rel-4 SIM/UICC cards may be used in new Rel-5 mobiles supporting IMS.

It has been identified that a (root) domain is needed by 3GPP for MCC/MNC based address resolution for Rel-5 IMS. ETSI MCC has reserved the domain name **3gppnetwork.org** for 3GPP for this purpose. The GSMA is informed about this domain name. This information will be stored in Rel-5 IMS Mobile Stations (UE) and used if an IMS UE has a R99 or Rel-4 SIM/UICC card.

A UE supporting IMS will send a SIP REGISTER request to the P-CSCF. The P-CSCF needs to be able to route SIP messages to the next hop I-CSCF located in the home network. A DNS lookup is required in the P-CSCF to obtain the IP address of a SIP based I-CSCF server located in the home network associated with the MCC and MNC.

The domain 3gppnetwork.org will be used to enable the DNS look up to obtain the I-CSCF IP address based on the Mobile Country Code (MCC) and Mobile Network Code (MNC) information derived from the IMSI. This information is used by the DNS database queries from P-CSCF.

GSMA needs to consider the roaming impacts on the DNS infrastructure when the mobile is roaming outside the home network and where the P-CSCF is located in the visited network.

The DNS database will need to contain basic addressing information of Mobile Country Codes and Mobile Network Codes and the associated call server (I-CSCF) IP address to support IMS Rel-5. . This is similar to the current GPRS networks where the SGSN performs a DNS lookup to obtain the IP address of the GPRS GGSN node located in the home network associated with the MCC and MNC . It should be noted that this capability defined for IMS may also be reused for other services (for example MMS) that require similar DNS lookups to obtain IP addresses of a (MMS) server located in the network associated with the MCC and MNC.

The attached Change Request to TS 23.003 provides further details on the addressing aspects for IMS.

2. Actions:

To GSMA SerG, GSM A IREG.

ACTION: CN1 request GSMA to note that domain name **IMSI.3gppnetwork.org** has been reserved for 3GPP to support MCC/MNC based address resolution as reflected in TS 23.003 for Release 5. GSMA is kindly asked to progress the relevant practical issues associated in the DNS database management aspects to help in the rollout process of the IMS

3. Date of Next CN1 Meetings:

CN1_25	29th July – 2nd August 2002	Helsinki, Finland
CN1_26	23rd – 27th September 2002	?, USA

3GPP TSG CN WG4 Meeting #14 ***N4-020774***
Budapest, Hungary, 13th – 17th May 2002 **revision of N1-021445 (N4-020757)**

3GPP TSG-CN1 Meeting #24 ***Tdoc N1-021461***
Budapest, Hungary, 13. – 17. May 2002 **revision of N1-021445 (N1-021329)**

CR-Form-v5

CHANGE REQUEST

⌘ **23.003** **CR** **041** ⌘ **rev** **2** ⌘ Current version: **5.2.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network **X**

Title:	⌘	Use of a temporary public user identity
Source:	⌘	Vodafone, Ericsson
Work item code:	⌘	IMS-CCR
Date:	⌘	1st May 2002
Category:	⌘	**F**
Release:	⌘	REL-5

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	SA2 have agreed the stage two for IMS access with a R99/Rel-4 USIM. In order to align with the stage two, it is now necessary to add the procedures to derive domain name, private user identity and public user identity from the IMSI.
Summary of change:	⌘	Addition of conversion procedures in a new section on IMS.
Consequences if not approved:	⌘	Pre-Release-5 USIMs not supported by IMS

Clauses affected:	⌘	
Other specs affected:	⌘	☐ Other core specifications ⌘
		☐ Test specifications
		☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

1.1 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 21.905: "3G Vocabulary".

[2] 3GPP TS 23.008: "Organization of subscriber data".

[3] Void.

[4] 3GPP TS 23.070: "Routeing of calls to/from Public Data Networks (PDN)".

[5] 3GPP TS 24.008: "Mobile Radio Interface Layer 3 specification; Core Network Protocols; Stage 3".

[6] 3GPP TS 29.060: "GPRS Tunnelling protocol (GPT) across the Gn and Gp interface".

[7] GSM 03.20: "Digital cellular telecommunications system (Phase 2+); Security related network functions".

[8] GSM 09.03: "Digital cellular telecommunications system (Phase 2+); Signalling requirements on interworking between the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN) and the Public Land Mobile Network (PLMN)".

[9] GSM 11.11: "Digital cellular telecommunications system (Phase 2+); Specification of the Subscriber Identity Module - Mobile Equipment (SIM - ME) interface".

[10] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[11] ITU-T Recommendation E.212: "The international identification plan for mobile terminals and mobile users".

[12] ITU-T Recommendation E.213: "Telephone and ISDN numbering plan for land Mobile Stations in public land mobile networks (PLMN)".

[13] ITU-T Recommendation X.121: "International numbering plan for public data networks".

[14] RFC 791: "Internet Protocol".

[15] RFC 1883: "Internet Protocol, Version 6 (IPv6) Specification".

[16] 3GPP TS 25.401: "UTRAN Overall Description".

[17] 3GPP TS 25.413: "UTRAN Iu Interface RANAP Signalling".

[18] RFC 2181: “Clarifications to the DNS Specification”.

[19] RFC 1035: “Domain Names - Implementation and Specification”.

[20] RFC 1123: “Requirements for Internet Hosts -- Application and Support”.

[21] 3GPP TS 23.236: "Intra Domain Connection of RAN Nodes to Multiple CN Nodes".

[22] 3GPP TS 23.228: "IP Multimedia (IM) Subsystem – Stage 2"

[23] RFC 2486: "The Network Access Identifier"

[24] RFC 3261: "SIP: Session Initiation Protocol"

[25] 3GPP TS 31.102: "Characteristics of the USIM Application."

[26] RFC 1035: "Domain names – imnplementation and specification"

*** Proposed New Section ***

13 Numbering, addressing and identification within the IP multimedia core network subsystem

13.1 Introduction

This clause describes the format of the parameters needed to access the IP multimedia core network subsystem. For further information on the use of the parameters see 3GPP TS 23.228 [22].

13.2 Home network domain name

The home network domain name shall be in the form of an Internet domain name, e.g. operator.com, as specified in RFC 1035 [26].

If there is no ISIM application, the UE shall derive the home network domain name from the IMSI as described in the following steps:

1. ~~remove any non-decimal digits from the IMSI, leaving a string of 15 or less digits;~~

2. take the first 5 or 6 digits, depending on whether a 2 or 3 digit MNC is used (see 3GPP TS 31.102 [25]) and separate them into MCC and MNC with "."; and

3. reverse the order of the MCC and MNC. Append to the result: ".IMSI.3gppnetwork.org"

An example of a home network domain name is:

EXAMPLE: IMSI in use: 234150999999999;

where;

MCC: 234;

MNC: 15;

MSIN: 0999999999; and

home domain name: 15.234.IMSI.3gppnetwork.org.

13.3 Private user identity

The private user identity shall take the form of an NAI, and shall have the form user@realm as specified in clause 3 of RFC2486 [23].

NOTE: It is possible for a representation of the IMSI to be contained within the NAI for the private identity.

If there is no ISIM application, the private user identity is not known. In this case, the private user identity is derived from the IMSI.

The following steps show how to build the private user identity out of the IMSI:

~~1. remove any non-decimal digits from the IMSI, leaving a string of 15 or less digits;~~

1~~2~~. use ~~the result from step 1, i.e.~~ the whole string of digits~~,~~ as the user part of the private user identity; and

2~~3~~. the first digits of the IMSI, i.e. MNC and MCC, will be converted into a domain name, as described in subclause 13.2~~1~~.

The result will be a private user identity of the form imsi@mnc.mcc."IMSI.3gppnetwork.org". For example: If the IMSI is 234150999999999 (MCC = 234, MNC = 15), the private user identity then takes the form 234150999999999@15.234.IMSI.3gppnetwork.org

13.4 Public user identity

The public user identity shall take the form of either a SIP URI, see RFC3261[24] or an E.164 number. A SIP URI shall take the form "sip:user@domain".

~~In case~~If there is no ISIM application to host the public user identity, a temporary public user identity shall be derived, based on the IMSI. The temporary public user identity shall be of the form "user@domain" and shall therefore be equal to the private user identity. The private user identity is derived as per subclause 13.2. That is, the private user identity will be appended to the string "sip:"

EXAMPLE: "sip:234150999999999@15.234.IMSI.3gppnetwork.org".