**TSGS#22(03)0726**

| | |
|---|---|
| **Source:** | **T-Mobile** |
| **Title:** | **Proposed CR to 32.005: Add inter-network accounting in the GMSC (only if CN#22 approved CN3 CR 29.007) (Rel-99)** |
| **Document for:** | **Approval** |
| **Agenda Item:** | **7.3.3** |

**Extract of e-mail received 10 December 2003 from J. Achter, T-Mobile:**

Please find attached the CR to be included in the package of SA5-CRs on 'Correction on inter-network accounting', Tdoc SP-030619, Agenda Item 7.5.3.

The CR is for Rel99 for the reason, that all other groups (SA1, CN3) prepared for approval at SA-Plenary. As the report stated only rel4 and Rel5 was prepared by SA5. Therefore this is a company contribution from T-Mobile.

Technical Specification Group Services and System Aspects
Meeting #22, Lahaina (Hawaii), USA, 15 - 18 December 2003

SP-030726

CR-Form-v7

# CHANGE REQUEST

⌘ **32.005** **CR** **011** ⌘ **rev** **-** ⌘ Current version: **3.6.0** ⌘

***Proposed change affects:*** UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

| | | |
|---|---|---|
| ***Title:*** | ⌘ | Add inter-network accounting in the GMSC (only if CN#22 approved CN3 CR 29.007) |
| ***Source:*** | ⌘ | T-Mobile |
| ***Work item code:*** | ⌘ | OAM-CH |
| ***Date:*** | ⌘ | 10/12/2003 |
| ***Category:*** | ⌘ | **B** |
| ***Release:*** | ⌘ | R99 |

*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)* |
| *Rel-6* | *(Release 6)* |

| | | |
|---|---|---|
| ***Reason for change:*** | ⌘ | Information on used services for MTCs is visible at the VMSC after negotiation with the UE, but not necessarily at the GMSC.<br><br>In order to perform service related functions at GMSC (e.g. accounting) this information has to be transferred from the VMSC to the GMSC and possibly moreover to the connected networks. |
| ***Summary of change:*** | ⌘ | The ISDN BC, LLC and HLC are added to the incoming Gateway CDR. |
| ***Consequences if not approved:*** | ⌘ | Inter-operator accounting is not possible for multimedia services in the CS domain. |

| | | | | | |
|---|---|---|---|---|---|
| ***Clauses affected:*** | ⌘ | 2, A.9, B.2.6 | | | |
| | | **Y** | **N** | | |
| ***Other specs affected:*** | ⌘ | **X** | | Other core specifications | ⌘ R99 29.007 (This CR is based on N3-030821) |
| | | | **X** | Test specifications | |
| | | **X** | | O&M Specifications | Rel-4/5 32.205 |
| ***Other comments:*** | ⌘ | This CR can be approved only if CN#22 has approved the CN3 R99 CR on 29.007.<br><br>Rel-4/5 Mirror CRs 32.205 are provided in SP-030619. | | | |

**How to create CRs using this form:**

**Change in clause 2**

# 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] ITU-T D.93 (1988): " Charging & Accounting in the international land mobile telephone service provided via cellular radio systems".

[2] ITU-T E.164 (1988): " Numbering Plan for the ISDN Era".

[3] ITU-T M.3010: " Principles for a telecommunications management network".

[4] ITU-T M.3200: " TMN Management Services: Overview".

[5] ITU-T X.721 (ISO/IEC 10165-2) (1992): " Information technology - Open Systems Interconnection - Structure of management information: Definition of management information".

[6] ITU-T X.722 (ISO/IEC 10165-4) (1992): " Information technology - Open Systems Interconnection - Structure of Management Information: Guidelines for the definition of managed objects".

[7] ITU-T X.730 (ISO/IEC 10164-1): "Information technology - Open Systems Interconnection - Systems Management: Object Management Function".

[8] ITU-T X.731 (ISO/IEC 10164-2): "Information technology - Open Systems Interconnection - Systems Management: State Management Function".

[9] ITU-T X.733: "Information technology - Open Systems Interconnection - Systems Management: Alarm reporting function".

[10] ITU-T X.734 (ISO/IEC 10164-5): "Information technology - Open Systems Interconnection - Systems Management: Event Report Management Function".

[11] ITU-T X.735 (ISO/IEC 10164-6): "Information technology - Open Systems Interconnection - Systems Management: Log Control Function".

[12] 3GPP TS 22.024: "Description of Charge Advice Information (CAI)".

[13] 3GPP TS 22.086: "Advice of charge (AoC) supplementary services - Stage 1".

[14] 3GPP TS 23.003: "Numbering, addressing and identification".

[15] 3GPP TS 23.040: "Technical realization of the Short Message Service (SMS) Point to Point (PP)".

[16] 3GPP TS 24.008: "Mobile radio interface layer 3 specification".

[17] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[18] GSM 12.00: "Digital cellular telecommunication system (Phase 2); Objectives and structure of Network Management (NM)".

[19] GSM 12.01: "Digital cellular telecommunication system (Phase 2); Common aspects of GSM Network Management (NM)".

[20] GSM 12.02: "Digital cellular telecommunication system (Phase 2+); Subscriber, Mobile Equipment (ME) and services data administration".

[21] 3GPP TS 32.015: "3G call and event data for the Packet Switched (PS) domain".

[22] ETS 300 196-1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

[23] 3GPP TS 23.078: "Customised Application for Mobile network Enhanced Logic (CAMEL) - Phase 2; Stage 2".

[24] 3GPP TS 29.078: "Customised Application for Mobile network Enhanced Logic (CAMEL); CAMEL Application Part (CAP) specification - Phase 2".

[25] ITU-T Rec. Q.763 (09/97) Signalling System No. 7 - ISDN user part formats and codes

[26] ITU-T Rec. Q.767 (02/91) Application of the ISDN user part of ITU-T Signalling System No. 7 for international ISDN interconnections

[27] 3GPP TS 25.413: "UTRAN Iu Interface RANAP Signalling".

[27] IETF RFC 959: "File Transfer Protocol (FTP)"; October 1985, J. Postel, J. Reynolds, ISI. (Status: Standard)

[28] IETF RFC 783: "Trivial File Transfer Protocol (TFTP)"; rev. 2, June 1981, K.R. Sollins MIT. (Status: Unknown)

[29] 3GPP TS 29.007: “General requirements on interworking between the Public Land Mobile Network (PLMN) and the Integrated Services Digital Network (ISDN) or Public Switched Telephone Network (PSTN)”

[30] ITU-T Recommendation Q.931: "DSS 1 - ISDN user network interface layer 3 specification for basic call control". (this must be the same version as the one referenced by TS 29.007 [29])

## End of Change

## Change in clause A.9

…

```
IncGatewayRecord        ::= SET
{
    recordType          [0] CallEventRecordType,
    callingNumber       [1] CallingNumber OPTIONAL,
    calledNumber        [2] CalledNumber,
    recordingEntity     [3] RecordingEntity,
    mscIncomingTKGP     [4] TrunkGroup OPTIONAL,
    mscOutgoingTKGP     [5] TrunkGroup OPTIONAL,
    seizureTime         [6] TimeStamp OPTIONAL,
    answerTime          [7] TimeStamp OPTIONAL,
    releaseTime         [8] TimeStamp OPTIONAL,
    callDuration        [9] CallDuration,
    dataVolume          [10] DataVolume OPTIONAL,
    causeForTerm        [11] CauseForTerm,
    diagnostics         [12] Diagnostics OPTIONAL,
    callReference       [13] CallReference,
    sequenceNumber      [14] INTEGER OPTIONAL,
    recordExtensions    [15] ManagementExtensions OPTIONAL,
    iSDN-BC             [23] ISDN-BC OPTIONAL,
    lLC                 [24] LLC OPTIONAL,
    hLC                 [25] HLC OPTIONAL
}
```

…

```
GenericNumber           ::= BCDDirectoryNumber

GenericNumbers          ::= SET OF GenericNumber

Gsm-SCFAddress          ::= ISDNAddressString
    --
    -- See TS 29.002
    --

HLC                     ::= OCTET STRING

-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the “high layer
compatibility” parameter of ITU-T Q.931 [30].

HLRIntResult            ::= Diagnostics

HSCSDParmsChange        ::= SEQUENCE
{
    changeTime              [0] TimeStamp,
    hSCSDChanAllocated      [1] NumOfHSCSDChanAllocated,
    initiatingParty         [2] InitiatingParty OPTIONAL,
    aiurRequested           [3] AiurRequested OPTIONAL,
    chanCodingUsed          [4] ChannelCoding,
    hSCSDChanRequested      [5] NumOfHSCSDChanRequested OPTIONAL,
}

IMEICheckEvent          ::= INTEGER
{
    mobileOriginatedCall    (0),
    mobileTerminatedCall    (1),
    smsMobileOriginating    (2),
    smsMobileTerminating    (3),
    ssAction                (4),
    locationUpdate          (5)
}

IMEIStatus              ::= ENUMERATED
{
    greyListedMobileEquipment   (0),
    blackListedMobileEquipment  (1),
    nonWhiteListedMobileEquipment   (2)
}

IMSIorIMEI              ::= CHOICE
{
    imsi                [0] IMSI,
    imei                [1] IMEI
}

InitiatingParty         ::= ENUMERATED
{
    network             (0),
    subscriber          (1)
}

ISDN-BC                 ::= OCTET STRING

-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the “bearer
capability” parameter of ITU-T Q.931 [30].

LevelOfCAMELService     ::= BIT STRING
{
    basic                   (0),
    callDurationSupervision (1),
    onlineCharging          (2)
}

LLC                     ::= OCTET STRING

-- this parameter is a 1:1 copy of the contents (i.e. starting with octet 3) of the “low layer
compatibility” parameter of ITU-T Q.931 [30].

LocationAreaAndCell     ::= SEQUENCE
{
    locationAreaCode    [0] LocationAreaCode,
    cellIdentifier      [1] CellId
--
```

```
-- For 2G the content of the Cell Identifier is defined by the Cell Id
-- refer TS 24.008 and for 3G by the Service Area Code refer TS 25.413.
--

}

LocationAreaCode        ::= OCTET STRING (SIZE(2))
    --
    -- See TS 24.008
    --

LocationChange          ::= SEQUENCE
{
    location            [0] LocationAreaAndCell,
    changeTime          [1] TimeStamp
}

Location-info           ::= SEQUENCE
{
    mscNumber           [1] MscNo OPTIONAL,
    location-area       [2] LocationAreaCode,
    cell-identification [3] CellId OPTIONAL
}

LocUpdResult            ::= Diagnostics
```

**End of Change**

**Change in clause B.2.6**

## B.2.6 Incoming gateway call attempt

If generation of these records is enabled, an incoming gateway record shall be created for each incoming call attempt received by a gateway MSC from another network. These records, produced in the gateway MSC, may be used to settle accounts with other networks. The generation of gateway records shall not be influenced by the production of MTC records i.e. even if the GMSC and terminating MSC are co-located a gateway record shall still be produced.

**Table B.6: Incoming gateway record**

| Field | | Description |
|---|---|---|
| Record Type | M | Incoming gateway record |
| Calling Number | C | The number of the calling party if available at this node. |
| Called Number | M | The address of the called party as seen by the GMSC. This is the number employed by the GMSC for routing. |
| Recording Entity | M | The E.164 number of the GMSC |
| Incoming TKGP | M | The incoming GMSC trunk group on which the call originated. |
| Outgoing TKGP | O | The trunk group on which the call left the GMSC. |
| Event time stamps: | M<br>C<br>O | Seizure of incoming trunk<br>Answer (successful calls only)<br>Release of incoming trunk |
| Call duration | M | The accountable duration (answer -> release of incoming trunk) of the connection if successful, the call holding time of the incoming trunk for call attempts. |
| Data Volume | C | If applicable and known at the GMSC |
| ISDN Bearer Capability | C | Present if this parameter is signalled back from the VMSC to the GMSC in the access transport parameter of the Answer message (ANM), see TS 29.007 [29]. |
| Low Layer Compatibility | C | Present if this parameter is signalled back from the VMSC to the GMSC in the access transport parameter of the Answer message (ANM), see TS 29.007 [29]. |
| High Layer Compatibility | C | Present if this parameter is signalled back from the VMSC to the GMSC in the access transport parameter of the Answer message (ANM), see TS 29.007 [29]. |
| Cause for term. | M | The reason for the release of the connection. |
| Diagnostics | O | A more detailed reason for the release of the connection. |
| Sequence no. | C | Partial record sequence number, if applicable. |
| Call Reference | M | A local identifier distinguishing between transactions. |
| Record extensions | O | A set of network/ manufacturer specific extensions to the record. |

**End of Change**

# Annex D (informative): Change history

| Change history | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **TSG #** | **TSG Doc.** | **CR** | **Rev** | **Subject/Comment** | **Old** | **New** |
| Dec 1999 | S_06 | -- | -- | -- | Transferred from GSM 12.05 v7.0.1 | -- | 3.0.0 |
| Jun 2000 | S_08 | SP-000240 | 001 | -- | Circuit domain charging enhancements on CAMEL phase 3 | 3.0.0 | 3.1.0 |
| -- | -- | SP-000240 | 001 | -- | Circuit domain charging enhancements on CAMEL phase 3 (complete implementation of CR001 in SP-000240; clause B.3 re-numbered in alphabetical order) | 3.1.0 | 3.2.0 |
| -- | -- | -- | -- | -- | Title Changed: “GSM call … into “3G call … | 3.1.0 | 3.2.0 |
| Dec 2000 | S_10 | SP-000523 | 003 | -- | Correction of parameter Location Area and Cell | 3.2.0 | 3.3.0 |
| Dec 2000 | S_10 | SP-000523 | 004 | -- | Correction of parameter CallEventRecord | 3.2.0 | 3.3.0 |
| | | - | | -- | Version number corrrected in document. | 3.3.0 | 3.3.1 |
| Mar 2001 | S_11 | SP-010023 | 005 | -- | Correction/completion of ASN.1 module | 3.3.1 | 3.4.0 |
| Mar 2001 | S_11 | SP-010023 | 006 | -- | Correction for bulk transfer | 3.3.1 | 3.4.0 |
| Sep 2001 | S_13 | SP-010462 | 007 | -- | Correction on Terminating CAMEL subscription information | 3.4.0 | 3.5.0 |
| Sep 2001 | S_13 | SP-010462 | 008 | -- | Corrections for the delivered dialog parameter for CAMEL Phase 3 | 3.4.0 | 3.5.0 |
| Sep 2001 | S_13 | SP-010462 | 009 | -- | Addition of "Rate Indication" and "FNUR" in the CDRs, and other Corrections | 3.4.0 | 3.5.0 |
| Mar 2002 | S_15 | SP-020022 | 010 | -- | Addition of CAMEL phase 3 extensions in SMS-MO CDR | 3.5.0 | 3.6.0 |
| | | | | | | | |

**End of document**