

3GPP TSG CN Plenary Meeting #16
5th – 7th June 2002 Marco Island, USA.

NP-020251

Source: TSG CN WG4
Title: CRs on Rel-4 & Earlier "Handover"
Agenda item: 7.5
Document for: APPROVAL

Introduction:

This document contains 5 CRs on Rel-4 & earlier Work Item "Handover", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #16 for approval.

Spec	CR	Rev	Doc-2nd-Level	Phase	Subject	Cat	Ver_C
29.002	444	2	N4-020775	R99	Addition of Service Handover parameters to MAP Handover messages	F	3.12.0
29.002	445	1	N4-020749	Rel-4	Addition of Service Handover parameters to MAP Handover messages	A	4.7.0
29.002	446	1	N4-020750	Rel-5	Addition of Service Handover parameters to MAP Handover messages	A	5.1.0
29.010	053	1	N4-020751	R99	Addition of Service Handover parameters to MAP Handover messages	F	3.7.0
29.010	054	1	N4-020752	Rel-4	Addition of Service Handover parameters to MAP Handover messages	A	4.2.0

CHANGE REQUEST

⌘ **29.002 CR 444** ⌘ rev **2** ⌘ Current version: **3.12.0** ⌘

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 Radio Access Network Core Network

Title:	⌘ Addition of Service Handover parameters to MAP Handover messages		
Source:	⌘ CN4		
Work item code:	⌘ Handover	Date:	⌘ 17.05.02
Category:	⌘ F (Agreed by Consensus) Use <u>one</u> 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 .	Release:	⌘ R99 Use <u>one</u> 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: ⌘ Service based handover shall be possible after interMSC handover. However, in case of a GSM to UMTS interMSC handover, when MSC-A sends an encapsulated BSSMAP message HANDOVER REQUEST to MSC-B, it is currently not possible to include the RANAP-related Service Handover parameter; therefore, it is not possible to prevent a handover back to GSM.

Furthermore, in case of a subsequent intra-MSC-B inter-system handover, dependent on the target RAN, RANAP- or BSSMAP-related Service Handover information may be needed by MSC-B. Therefore, generally the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter.

Finally, if the subscriber uses Call Hold after an inter-MSC handover, it may be necessary to pass Service Handover information via the E-interface. Again, the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter.

The Service Based Handover functionality should be kept under control of Anchor-MSC for a number of reasons.

- Anchor MSC is by definition the MSC in control of the handed over call.
- The handed over call might be an Emergency Call. Non-anchor is not aware of this, and consequently may choose a “never perform” type of Service Based Handover resulting in a teardown of the emergency call in case an inter-system handover is necessary .
- The value of theService Based Handover parameter might be subscription dependent. For example an operator might want to allow own GSM subscribers to be handed over from GSM to UMTS but not roaming subscribers.

Summary of change: ⌘ Add Service Handover parameters to MAP Prepare Handover and MAP Forward

		Access Signalling	
Consequences if not approved:	⌘	Service Based Handover is not possible	
Clauses affected:	⌘	7.6, 8.4.1, 8.4.4, 17.7.1	
Other specs affected:	⌘	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ TS 29.010
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/specs/CR.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.

7.6 Definition of parameters

Following is an alphabetic list of parameters used in the common MAP-services in clause 7.3:

Application context name	7.3.1	Refuse reason	7.3.1
Destination address	7.3.1	Release method	7.3.2
Destination reference	7.3.1	Responding address	7.3.1
Diagnostic information	7.3.4	Result	7.3.1
Originating address	7.3.1	Source	7.3.5
Originating reference	7.3.1	Specific information	7.3.1/7.3.2/7.3.4
Problem diagnostic	7.3.6	User reason	7.3.4
Provider reason	7.3.5		

Following is an alphabetic list of parameters contained in this clause:

Absent Subscriber Diagnostic SM	7.6.8.9	Invoke Id	7.6.1.1
Access connection status	7.6.9.3	ISDN Bearer Capability	7.6.3.41
		IST Alert Timer	7.6.3.66
		IST Information Withdrawn	7.6.3.68
		IST Support Indicator	7.6.3.69
Access signalling information	7.6.9.5	Kc	7.6.7.4
Additional Absent Subscriber Diagnostic SM	7.6.8.12	Linked Id	7.6.1.2
Additional Location Estimate	7.6.11.21	LMSI	7.6.2.16
Additional number	7.6.2.46	Location Information	7.6.2.30
Additional signal info	7.6.9.10	Location update type	7.6.9.6
Additional SM Delivery Outcome	7.6.8.11	Long Forwarded-to Number	7.6.2.22A
		Long FTN Supported	7.6.2.22B
Age Indicator	7.6.3.72	Lower Layer Compatibility	7.6.3.42
		LSA Information	7.6.3.56
		LSA Information Withdraw	7.6.3.58
Alert Reason	7.6.8.8	MC Information	7.6.4.48
Alert Reason Indicator	7.6.8.10	MC Subscription Data	7.6.4.47
Alerting Pattern	7.6.3.44	Mobile Not Reachable Reason	7.6.3.51
All GPRS Data	7.6.3.53	Modification request for CSI	7.6.3.81
All Information Sent	7.6.1.5	Modification request for SS Information	7.6.3.82
AN-apdu	7.6.9.1	More Messages To Send	7.6.8.7
APN	7.6.2.42	MS ISDN	7.6.2.17
Authentication set list	7.6.7.1	MSC number	7.6.2.11
B-subscriber Address	7.6.2.36	MSIsdn-Alert	7.6.2.29
B subscriber Number	7.6.2.48	Multicall Bearer Information	7.6.2.52
B subscriber subaddress	7.6.2.49	Multiple Bearer Requested	7.6.2.53
Basic Service Group	7.6.4.40	Multiple Bearer Not Supported	7.6.2.54
Bearer service	7.6.4.38	MWD status	7.6.8.3
BSSMAP Service Handover	7.6.6.5		
Call Barring Data	7.6.3.83	NbrUser	7.6.4.45
Call barring feature	7.6.4.19	Network Access Mode	7.6.3.50
Call barring information	7.6.4.18	Network node number	7.6.2.43
Call Direction	7.6.5.8	Network resources	7.6.10.1
Call Forwarding Data	7.6.3.84	Network signal information	7.6.9.8
Call Info	7.6.9.9	New password	7.6.4.20
Call reference	7.6.5.1	No reply condition timer	7.6.4.7
Call Termination Indicator	7.6.3.67		
Called number	7.6.2.24	North American Equal Access preferred Carrier Id	7.6.2.34
		Number Portability Status	7.6.5.14
Calling number	7.6.2.25	ODB Data	7.6.3.85
CAMEL Subscription Info	7.6.3.78	ODB General Data	7.6.3.9
CAMEL Subscription Info Withdraw	7.6.3.38	ODB HPLMN Specific Data	7.6.3.10
Cancellation Type	7.6.3.52	OMC Id	7.6.2.18
Category	7.6.3.1	Originally dialled number	7.6.2.26
CCBS Feature	7.6.5.8	Originating entity number	7.6.2.10
CCBS Request State	7.6.4.49	Override Category	7.6.4.4
Channel Type	7.6.5.9	P-TMSI	7.6.2.47
Chosen Channel	7.6.5.10	PDP-Address	7.6.2.45
Chosen Radio Resource Information	7.6.6.10B	PDP-Context identifier	7.6.3.55
Ciphering mode	7.6.7.7	PDP-Type	7.6.2.44
Cksn	7.6.7.5	Pre-paging supported	7.6.5.15
CLI Restriction	7.6.4.5	Previous location area Id	7.6.2.4
CM service type	7.6.9.2	Protocol Id	7.6.9.7
Complete Data List Included	7.6.3.54	Provider error	7.6.1.3
CS Allocation Retention priority	7.6.3.87	QoS-Subscribed	7.6.3.47
CUG feature	7.6.3.26	Radio Resource Information	7.6.6.10
CUG index	7.6.3.25	Radio Resource List	7.6.6.10A
CUG info	7.6.3.22	RANAP Service Handover	7.6.6.6
		Rand	7.6.7.2
CUG interlock	7.6.3.24	Regional Subscription Data	7.6.3.11
CUG Outgoing Access indicator	7.6.3.8	Regional Subscription Response	7.6.3.12
CUG subscription	7.6.3.23	Relocation Number List	7.6.2.19A
CUG Subscription Flag	7.6.3.37	Requested Info	7.6.3.31
Current location area Id	7.6.2.6	Requested Subscription Info	7.6.3.86
Current password	7.6.4.21	Roaming number	7.6.2.19
eMLPP Information	7.6.4.41		

Encryption Information	7.6.6.9	Roaming Restricted In SGSN Due To Unsupported Feature	7.6.3.49
Equipment status	7.6.3.2	Roaming Restriction Due To Unsupported Feature	7.6.3.13
Extensible Basic Service Group	7.6.3.5	Current Security Context	7.6.7.8
Extensible Bearer service	7.6.3.3	Selected RAB ID	7.6.2.56
Extensible Call barring feature	7.6.3.21	Service centre address	7.6.2.27
Extensible Call barring information	7.6.3.20	Serving Cell Id	7.6.2.37
Extensible Call barring information for CSE	7.6.3.79	SGSN address	7.6.2.39
Extensible Forwarding feature	7.6.3.16	SGSN CAMEL Subscription Info	7.6.3.75
Extensible Forwarding info	7.6.3.15	SGSN number	7.6.2.38
Extensible Forwarding information for CSE	7.6.3.80	SIWF Number	7.6.2.35
Extensible Forwarding Options	7.6.3.18	SoLSA Support Indicator	7.6.3.57
Extensible No reply condition timer	7.6.3.19	SM Delivery Outcome	7.6.8.6
Extensible QoS-Subscribed	7.6.3.74	SM-RP-DA	7.6.8.1
Extensible SS-Data	7.6.3.29	SM-RP-MTI	7.6.8.16
Extensible SS-Info	7.6.3.14	SM-RP-OA	7.6.8.2
Extensible SS-Status	7.6.3.17	SM-RP-PRI	7.6.8.5
Extensible Teleservice	7.6.3.4	SM-RP-SMEA	7.6.8.17
External Signal Information	7.6.9.4	SM-RP-UI	7.6.8.4
Failure Cause	7.6.7.9	Sres	7.6.7.3
Forwarded-to number	7.6.2.22	SS-Code	7.6.4.1
Forwarded-to subaddress	7.6.2.23	SS-Data	7.6.4.3
Forwarding feature	7.6.4.16	SS-Event	7.6.4.42
Forwarding information	7.6.4.15	SS-Event-Data	7.6.4.43
Forwarding Options	7.6.4.6	SS-Info	7.6.4.24
GGSN address	7.6.2.40	SS-Status	7.6.4.2
GGSN number	7.6.2.41	Stored location area Id	7.6.2.5
GMSC CAMEL Subscription Info	7.6.3.34	Subscriber State	7.6.3.30
GPRS enhancements support indicator	7.6.3.73	Subscriber Status	7.6.3.7
GPRS Node Indicator	7.6.8.14	Super-Charger Supported in HLR	7.6.3.70
		Super-Charger Supported in Serving Network Entity	7.6.3.71
GPRS Subscription Data	7.6.3.46	Supported CAMEL Phases in VLR	7.6.3.36
GPRS Subscription Data Withdraw	7.6.3.45	Supported CAMEL Phases in SGSN	7.6.3.36A
GPRS Support Indicator	7.6.8.15	Supported GAD Shapes	7.6.11.20
Group Id	7.6.2.33	Suppress T-CSI	7.6.3.33
GSM bearer capability	7.6.3.6	Suppression of Announcement	7.6.3.32
Guidance information	7.6.4.22	Target cell Id	7.6.2.8
Handover number	7.6.2.21	Target location area Id	7.6.2.7
High Layer Compatibility	7.6.3.43	Target RNC Id	7.6.2.8A
HLR Id	7.6.2.15	Target MSC number	7.6.2.12
HLR number	7.6.2.13	Teleservice	7.6.4.39
HO-Number Not Required	7.6.6.7	TMSI	7.6.2.2
IMEI	7.6.2.3	Trace reference	7.6.10.2
IMSI	7.6.2.1	Trace type	7.6.10.3
Integrity Protection Information	7.6.6.8	User error	7.6.1.4
Inter CUG options	7.6.3.27	USSD Data Coding Scheme	7.6.4.36
Intra CUG restrictions	7.6.3.28	USSD String	7.6.4.37
		UU Data	7.6.5.12
		UUS CF Interaction	7.6.5.13
		VBS Data	7.6.3.40
		VGCS Data	7.6.3.39
		VLR CAMEL Subscription Info	7.6.3.35
		VLR number	7.6.2.14
		VPLMN address allowed	7.6.3.48
		Zone Code	7.6.2.28

**** NEXT MODIFIED SECTION ****

7.6.6.1 - 7.6.6.46 Void

7.6.6.5 BSSMAP Service Handover

This parameter refers to the Service Handover information element defined in GSM 08.08.

7.6.6.6 RANAP Service Handover

This parameter refers to the Service Handover information element defined in 3GPP TS 25.413.

****** NEXT MODIFIED SECTION ******

8.4.1 MAP_PREPARE_HANOVER service

8.4.1.1 Definition

This service is used between MSC-A and MSC-B (E-interface) when a call is to be handed over or relocated from MSC-A to MSC-B.

The MAP_PREPARE_HANOVER service is a confirmed service using the primitives from table 8.4/1.

8.4.1.2 Service primitives

Table 8.4/1: MAP_PREPARE_HANOVER

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
Target Cell Id	C	C(=)		
Target RNC Id	C	C(=)		
HO-NumberNotRequired	C	C(=)		
IMSI	C	C(=)		
Integrity Protection Information	C	C(=)		
Encryption Information	C	C(=)		
Radio Resource Information	C	C(=)		
AN-APDU	C	C(=)	C	C(=)
Allowed GSM Algorithms	C	C(=)		
Allowed UMTS Algorithms	C	C(=)		
Radio Resource List	C	C(=)		
RAB ID	C	C(=)		
BSSMAP Service Handover	<u>C</u>	<u>C(=)</u>		
RANAP Service Handover	<u>C</u>	<u>C(=)</u>		
Handover Number			C	C(=)
Relocation Number List			C	C(=)
Multicall Bearer Information			C	C(=)
Multiple Bearer Requested	C	C(=)		
Multiple Bearer Not Supported			C	C(=)
Selected UMTS Algorithms			C	C(=)
Chosen Radio Resource Information			C	C(=)
User error			C	C(=)
Provider error				O

8.4.1.3 Parameter use

Invoke Id

For definition of this parameter see clause 7.6.1.

Target Cell Id

For definition of this parameter see clause 7.6.2. This parameter is only included if the service is not in an ongoing transaction. This parameter shall also be excluded if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3G TS 23.009.

Target RNC Id

For definition of this parameter see clause 7.6.2. This parameter shall be included if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3G TS 23.009.

HO-Number Not Required

For definition of this parameter see clause 7.6.6.

IMSI

For definition of this parameter see clause 7.6.2. This UMTS parameter shall be included if:

- available and
- if the access network protocol is BSSAP and
- there is an indication that the MS also supports UMTS.

Integrity Protection Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Encryption Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Radio Resource Information

For definition of this parameter see clause 7.6.6. This GSM parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. If the parameter Radio Resource List is sent, the parameter Radio Resource Information shall not be sent.

AN-APDU

For definition of this parameter see clause 7.6.9.

Allowed GSM Algorithms

For definition of this parameter see clause 7.6.6. This parameter includes allowed GSM algorithms. This GSM parameter shall be included if:

- the service is a part of the Inter-MSC SRNS Relocation procedure and
- Ciphering or Security Mode Setting procedure has been performed and
- there is an indication that the UE also supports GSM.

Allowed UMTS Algorithms

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if all of the following conditions apply:

- access network protocol is BSSAP and
- Integrity Protection Information and Encryption Information are not available and Ciphering or Security Mode Setting procedure has been performed.

Radio Resource List

For definition of this parameter see clause 7.6.6. This parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B. If the parameter Radio Resource Information is sent, the parameter Radio Resource List shall not be sent.

RAB ID

For definition of this parameter see subclause 7.6.2. This parameter shall be included when MSC-A supports multiple bearers and access network protocol is BSSAP and the RAB ID has a value other than 1.

BSSMAP Service Handover

For definition of this parameter see clause 7.6.6. ~~This parameter refers to the Service Handover information element defined in 3GPP TS 48.008. It shall be present if it is available and the access network protocol is RANAP.~~

RANAP Service Handover

For definition of this parameter see clause 7.6.6. ~~This parameter refers to the Service Handover information element defined in 3GPP TS 25.413. It shall be present if it is available and the access network protocol is BSSMAP.~~

Handover Number

For definition of this parameter see clause 7.6.2. This parameter shall be returned at handover, unless the parameter HO-NumberNotRequired is sent. If the parameter Handover Number is returned, the parameter Relocation Number List shall not be returned.

Relocation Number List

For definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation, unless the parameter HO-NumberNotRequired is sent. If the parameter Relocation Number List is returned, the parameter Handover Number shall not be returned.

Multicall Bearer Information

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation in the case that MSC-B supports multiple bearers.

Multiple Bearer Requested

For a definition of this parameter see clause 7.6.2. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B.

Multiple Bearer Not Supported

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation when MSC-B receives Multiple Bearer Requested parameter and MSC-B does not support multiple bearers.

Selected UMTS Algorithms

For definition of this parameter see clause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the service is a part of the inter MSC inter system handover from GSM to UMTS.

Chosen Radio Resource Information

For definition of this parameter see clause 7.6.6. This parameter shall be returned at relocation if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

User error

For definition of this parameter see clause 7.6.1. The following errors defined in clause 7.6.1 may be used, depending on the nature of the fault:

- No handover number available.
- Target cell outside group call area;
- System failure.
- Unexpected data value.
- Data Missing.

Provider error

See definition of provider errors in clause 7.6.1.

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8.4.4 MAP_FORWARD_ACCESS_SIGNALLING service

8.4.4.1 Definition

This service is used between MSC-A and MSC-B (E-interface) to pass information to be forwarded to the A-interface or Iu-interface of MSC-B.

The MAP_FORWARD_ACCESS_SIGNALLING service is a non-confirmed service using the primitives from table 8.4/4.

8.4.4.2 Service primitives

Table 8.4/4: MAP_FORWARD_ACCESS_SIGNALLING

Parameter name	Request	Indication
Invoke Id	M	M(=)
Integrity Protection Information	C	C(=)
Encryption Information	C	C(=)
Key Status	C	C(=)
AN-APDU	M	M(=)
Allowed GSM Algorithms	C	C(=)
Allowed UMTS Algorithms	C	C(=)
Radio Resource Information	C	C(=)
BSSMAP Service Handover	C	C(=)
RANAP Service Handover	C	C(=)

8.4.4.3 Parameter use

For the definition and use of all parameters and errors, see clause 7.6.1.

Invoke Id

For definition of this parameter see clause 7.6.1.

Integrity Protection Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

Encryption Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

Key Status

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

AN-APDU

For definition of this parameter see clause 7.6.9.

Allowed GSM Algorithms

This parameters includes allowed GSM algorithms. This GSM parameter shall be included if the encapsulated PDU is RANAP Security Mode Command and there is an indication that the UE also supports GSM.

Allowed UMTS Algorithms

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if Integrity Protection Information and Encryption Information are not available and the encapsulated PDU is BSSMAP Cipher Mode Command.

Radio Resource Information

For definition of this parameter see clause 7.6.6. This parameter shall be sent if the encapsulated PDU is RANAP RAB Assignment Request.

BSSMAP Service Handover

For definition of this parameter see clause 7.6.6. ~~This parameter refers to the Service Handover information element defined in 3GPP TS 48.008.~~ It shall be present if it is available and the encapsulated PDU is RANAP RAB Assignment Request or BSSMAP Assignment Request.

RANAP Service Handover

For definition of this parameter see clause 7.6.6. ~~This parameter refers to the Service Handover information element defined in 3GPP TS 25.413.~~ It shall be present if it is available and the encapsulated PDU is BSSMAP Assignment Request or RANAP RAB Assignment Request.

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17.7.1 Mobile Service data types

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ForwardAccessSignalling-Arg	::= [3] SEQUENCE {
an-APDU	AccessNetworkSignalInfo,
integrityProtectionInfo	[0] IntegrityProtectionInformation
OPTIONAL,	
encryptionInfo	[1] EncryptionInformation
OPTIONAL,	
keyStatus	[2] KeyStatus
allowedGSM-Algorithms	[4] AllowedGSM-Algorithms
allowedUMTS-Algorithms	[5] AllowedUMTS-Algorithms
radioResourceInformation	[6] RadioResourceInformation
extensionContainer	[3] ExtensionContainer
.....	
<u>bssmap-ServiceHandover</u>	[7] <u>BSSMAP-ServiceHandover</u>
<u>ranap-ServiceHandover</u>	[8] <u>RANAP-ServiceHandover</u>
	OPTIONAL}

.....

```

PrepareHO-Arg ::= [3] SEQUENCE {
    targetCellId                [0] GlobalCellId                OPTIONAL,
    ho-NumberNotRequired        NULL                        OPTIONAL,
    targetRNCId                 [1] RNCId                        OPTIONAL,
    an-APDU                     [2] AccessNetworkSignalInfo    OPTIONAL,
    multipleBearerRequested     [3] NULL                        OPTIONAL,
    imsi                        [4] IMSI                        OPTIONAL,
    integrityProtectionInfo     [5] IntegrityProtectionInformation OPTIONAL,
    OPTIONAL,
    encryptionInfo              [6] EncryptionInformation
    OPTIONAL,
    radioResourceInformation     [7] RadioResourceInformation   OPTIONAL,
    allowedGSM-Algorithms       [9] AllowedGSM-Algorithms   OPTIONAL,
    allowedUMTS-Algorithms      [10] AllowedUMTS-Algorithms  OPTIONAL,
    radioResourceList           [11] RadioResourceList        OPTIONAL,
    extensionContainer           [8] ExtensionContainer        OPTIONAL,
    . . . ,
    rab-Id                      [12] RAB-Id                        OPTIONAL,
    bssmap-ServiceHandover      [13] BSSMAP-ServiceHandover  OPTIONAL,
    ranap-ServiceHandover       [14] RANAP-ServiceHandover  OPTIONAL
}

```

```

BSSMAP-ServiceHandover ::= OCTET STRING (SIZE (1))
-- Octets are coded according the Service Handover information element in
-- GSM3G-TS 0848.008.

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RANAP-ServiceHandover ::= OCTET STRING (SIZE (1))
-- Octets are coded according the Service Handover information element in
-- 3G TS 25.413, encoded according to the encoding scheme
-- mandated by 3G TS 25.413
-- Octet contains a complete Service-Handover data type
-- as defined in 3G TS 25.413, encoded according to the encoding scheme
-- mandated by 3G TS 25.413
-- Padding bits are included in the least significant bits.

```

CHANGE REQUEST

⌘ **29.002 CR 445** ⌘ rev **1** ⌘ Current version: **4.7.0** ⌘

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 Radio Access Network Core Network

Title:	⌘ Addition of Service Handover parameters to MAP Handover messages		
Source:	⌘ Siemens, Ericsson		
Work item code:	⌘ Handover	Date:	⌘ 15.05.02
Category:	⌘ A	Release:	⌘ Rel-4
	Use <u>one</u> 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 <u>one</u> 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: ⌘ Service based handover shall be possible after interMSC handover. However, in case of a GSM to UMTS interMSC handover, when MSC-A sends an encapsulated BSSMAP message HANDOVER REQUEST to MSC-B, it is currently not possible to include the RANAP-related Service Handover parameter; therefore, it is not possible to prevent a handover back to GSM.

Furthermore, in case of a subsequent intra-MSC-B inter-system handover, dependent on the target RAN, RANAP- or BSSMAP-related Service Handover information may be needed by MSC-B. Therefore, generally the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter.

Finally, if the subscriber uses Call Hold after an inter-MSC handover, it may be necessary to pass Service Handover information via the E-interface. Again, the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter.

The Service Based Handover functionality should be kept under control of Anchor-MSC for a number of reasons.

- Anchor MSC is by definition the MSC in control of the handed over call.
- The handed over call might be an Emergency Call. Non-anchor is not aware of this, and consequently may choose a “never perform” type of Service Based Handover resulting in a teardown of the emergency call in case an inter-system handover is necessary .
- The value of theService Based Handover parameter might be subscription dependent. For example an operator might want to allow own GSM subscribers to be handed over from GSM to UMTS but not roaming subscribers.

Summary of change: ⌘ Add Service Handover parameters to MAP Prepare Handover and MAP Forward

		Access Signalling	
Consequences if not approved:	⌘	Service Based Handover is not possible	
Clauses affected:	⌘	7.6, 8.4.1, 8.4.4, 17.7.1	
Other specs affected:	⌘	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ TS 29.010
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/specs/CR.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.

7.6 Definition of parameters

Following is an alphabetic list of parameters used in the common MAP-services in clause 7.3:

Application context name	7.3.1	Refuse reason	7.3.1
Destination address	7.3.1	Release method	7.3.2
Destination reference	7.3.1	Responding address	7.3.1
Diagnostic information	7.3.4	Result	7.3.1
Originating address	7.3.1	Source	7.3.5
Originating reference	7.3.1	Specific information	7.3.1/7.3.2/7.3.4
Problem diagnostic	7.3.6	User reason	7.3.4
Provider reason	7.3.5		

Following is an alphabetic list of parameters contained in this clause:

Absent Subscriber Diagnostic SM	7.6.8.9	Invoke Id	7.6.1.1
Access connection status	7.6.9.3	ISDN Bearer Capability	7.6.3.41
		IST Alert Timer	7.6.3.66
		IST Information Withdrawn	7.6.3.68
		IST Support Indicator	7.6.3.69
Access signalling information	7.6.9.5	Kc	7.6.7.4
Additional Absent Subscriber Diagnostic SM	7.6.8.12	Linked Id	7.6.1.2
Additional Location Estimate	7.6.11.21	LMSI	7.6.2.16
Additional number	7.6.2.46	Location Information	7.6.2.30
Additional signal info	7.6.9.10	Location update type	7.6.9.6
Additional SM Delivery Outcome	7.6.8.11	Long Forwarded-to Number	7.6.2.22A
		Long FTN Supported	7.6.2.22B
Age Indicator	7.6.3.72	Lower Layer Compatibility	7.6.3.42
		LSA Information	7.6.3.56
		LSA Information Withdraw	7.6.3.58
Alert Reason	7.6.8.8	MC Information	7.6.4.48
Alert Reason Indicator	7.6.8.10	MC Subscription Data	7.6.4.47
Alerting Pattern	7.6.3.44	Mobile Not Reachable Reason	7.6.3.51
All GPRS Data	7.6.3.53	Modification request for CSI	7.6.3.81
All Information Sent	7.6.1.5	Modification request for SS Information	7.6.3.82
AN-apdu	7.6.9.1	More Messages To Send	7.6.8.7
APN	7.6.2.42	MS ISDN	7.6.2.17
Authentication set list	7.6.7.1	MSC number	7.6.2.11
B-subscriber Address	7.6.2.36	MSIsdn-Alert	7.6.2.29
B subscriber Number	7.6.2.48	Multicall Bearer Information	7.6.2.52
B subscriber subaddress	7.6.2.49	Multiple Bearer Requested	7.6.2.53
Basic Service Group	7.6.4.40	Multiple Bearer Not Supported	7.6.2.54
Bearer service	7.6.4.38	MWD status	7.6.8.3
BSSMAP Service Handover	7.6.6.5		
Call Barring Data	7.6.3.83	NbrUser	7.6.4.45
Call barring feature	7.6.4.19	Network Access Mode	7.6.3.50
Call barring information	7.6.4.18	Network node number	7.6.2.43
Call Direction	7.6.5.8	Network resources	7.6.10.1
Call Forwarding Data	7.6.3.84	Network signal information	7.6.9.8
Call Info	7.6.9.9	New password	7.6.4.20
Call reference	7.6.5.1	No reply condition timer	7.6.4.7
Call Termination Indicator	7.6.3.67		
Called number	7.6.2.24	North American Equal Access preferred Carrier Id	7.6.2.34
		Number Portability Status	7.6.5.14
Calling number	7.6.2.25	ODB Data	7.6.3.85
CAMEL Subscription Info	7.6.3.78	ODB General Data	7.6.3.9
CAMEL Subscription Info Withdraw	7.6.3.38	ODB HPLMN Specific Data	7.6.3.10
Cancellation Type	7.6.3.52	OMC Id	7.6.2.18
Category	7.6.3.1	Originally dialled number	7.6.2.26
CCBS Feature	7.6.5.8	Originating entity number	7.6.2.10
CCBS Request State	7.6.4.49	Override Category	7.6.4.4
Channel Type	7.6.5.9	P-TMSI	7.6.2.47
Chosen Channel	7.6.5.10	PDP-Address	7.6.2.45
Chosen Radio Resource Information	7.6.6.10B	PDP-Context identifier	7.6.3.55
Ciphering mode	7.6.7.7	PDP-Type	7.6.2.44
Cksn	7.6.7.5	Pre-paging supported	7.6.5.15
CLI Restriction	7.6.4.5	Previous location area Id	7.6.2.4
CM service type	7.6.9.2	Protocol Id	7.6.9.7
Complete Data List Included	7.6.3.54	Provider error	7.6.1.3
CS Allocation Retention priority	7.6.3.87	QoS-Subscribed	7.6.3.47
CUG feature	7.6.3.26	Radio Resource Information	7.6.6.10
CUG index	7.6.3.25	Radio Resource List	7.6.6.10A
CUG info	7.6.3.22	RANAP Service Handover	7.6.6.6
		Rand	7.6.7.2
CUG interlock	7.6.3.24	Regional Subscription Data	7.6.3.11
CUG Outgoing Access indicator	7.6.3.8	Regional Subscription Response	7.6.3.12
CUG subscription	7.6.3.23	Relocation Number List	7.6.2.19A
CUG Subscription Flag	7.6.3.37	Requested Info	7.6.3.31
Current location area Id	7.6.2.6	Requested Subscription Info	7.6.3.86
Current password	7.6.4.21	Roaming number	7.6.2.19
eMLPP Information	7.6.4.41		

Encryption Information	7.6.6.9	Roaming Restricted In SGSN Due To Unsupported Feature	7.6.3.49
Equipment status	7.6.3.2	Roaming Restriction Due To Unsupported Feature	7.6.3.13
Extensible Basic Service Group	7.6.3.5	Current Security Context	7.6.7.8
Extensible Bearer service	7.6.3.3	Selected RAB ID	7.6.2.56
Extensible Call barring feature	7.6.3.21	Service centre address	7.6.2.27
Extensible Call barring information	7.6.3.20	Serving Cell Id	7.6.2.37
Extensible Call barring information for CSE	7.6.3.79	SGSN address	7.6.2.39
Extensible Forwarding feature	7.6.3.16	SGSN CAMEL Subscription Info	7.6.3.75
Extensible Forwarding info	7.6.3.15	SGSN number	7.6.2.38
Extensible Forwarding information for CSE	7.6.3.80	SIWF Number	7.6.2.35
Extensible Forwarding Options	7.6.3.18	SoLSA Support Indicator	7.6.3.57
Extensible No reply condition timer	7.6.3.19	SM Delivery Outcome	7.6.8.6
Extensible QoS-Subscribed	7.6.3.74	SM-RP-DA	7.6.8.1
Extensible SS-Data	7.6.3.29	SM-RP-MTI	7.6.8.16
Extensible SS-Info	7.6.3.14	SM-RP-OA	7.6.8.2
Extensible SS-Status	7.6.3.17	SM-RP-PRI	7.6.8.5
Extensible Teleservice	7.6.3.4	SM-RP-SMEA	7.6.8.17
External Signal Information	7.6.9.4	SM-RP-UI	7.6.8.4
Failure Cause	7.6.7.9	Sres	7.6.7.3
Forwarded-to number	7.6.2.22	SS-Code	7.6.4.1
Forwarded-to subaddress	7.6.2.23	SS-Data	7.6.4.3
Forwarding feature	7.6.4.16	SS-Event	7.6.4.42
Forwarding information	7.6.4.15	SS-Event-Data	7.6.4.43
Forwarding Options	7.6.4.6	SS-Info	7.6.4.24
GGSN address	7.6.2.40	SS-Status	7.6.4.2
GGSN number	7.6.2.41	Stored location area Id	7.6.2.5
GMSC CAMEL Subscription Info	7.6.3.34	Subscriber State	7.6.3.30
GPRS enhancements support indicator	7.6.3.73	Subscriber Status	7.6.3.7
GPRS Node Indicator	7.6.8.14	Super-Charger Supported in HLR	7.6.3.70
		Super-Charger Supported in Serving Network Entity	7.6.3.71
GPRS Subscription Data	7.6.3.46	Supported CAMEL Phases in VLR	7.6.3.36
GPRS Subscription Data Withdraw	7.6.3.45	Supported CAMEL Phases in SGSN	7.6.3.36A
GPRS Support Indicator	7.6.8.15	Supported GAD Shapes	7.6.11.20
Group Id	7.6.2.33	Suppress T-CSI	7.6.3.33
GSM bearer capability	7.6.3.6	Suppression of Announcement	7.6.3.32
Guidance information	7.6.4.22	Target cell Id	7.6.2.8
Handover number	7.6.2.21	Target location area Id	7.6.2.7
High Layer Compatibility	7.6.3.43	Target RNC Id	7.6.2.8A
HLR Id	7.6.2.15	Target MSC number	7.6.2.12
HLR number	7.6.2.13	Teleservice	7.6.4.39
HO-Number Not Required	7.6.6.7	TMSI	7.6.2.2
IMEI	7.6.2.3	Trace reference	7.6.10.2
IMSI	7.6.2.1	Trace type	7.6.10.3
Integrity Protection Information	7.6.6.8	User error	7.6.1.4
Inter CUG options	7.6.3.27	USSD Data Coding Scheme	7.6.4.36
Intra CUG restrictions	7.6.3.28	USSD String	7.6.4.37
		UU Data	7.6.5.12
		UUS CF Interaction	7.6.5.13
		VBS Data	7.6.3.40
		VGCS Data	7.6.3.39
		VLR CAMEL Subscription Info	7.6.3.35
		VLR number	7.6.2.14
		VPLMN address allowed	7.6.3.48
		Zone Code	7.6.2.28

**** NEXT MODIFIED SECTION ****

7.6.6.1 - 7.6.6.46 Void

[7.6.6.5 BSSMAP Service Handover](#)

[This parameter refers to the Service Handover information element defined in 3GPP TS 48.008](#)

[7.6.6.6 RANAP Service Handover](#)

[This parameter refers to the Service Handover information element defined in 3GPP TS 25.413.](#)

**** NEXT MODIFIED SECTION ****

8.4.1 MAP_PREPARE_HANOVER service

8.4.1.1 Definition

This service is used between MSC-A and MSC-B (E-interface) when a call is to be handed over or relocated from MSC-A to MSC-B.

The MAP_PREPARE_HANOVER service is a confirmed service using the primitives from table 8.4/1.

8.4.1.2 Service primitives

Table 8.4/1: MAP_PREPARE_HANOVER

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
Target Cell Id	C	C(=)		
Target RNC Id	C	C(=)		
HO-NumberNotRequired	C	C(=)		
IMSI	C	C(=)		
Integrity Protection Information	C	C(=)		
Encryption Information	C	C(=)		
Radio Resource Information	C	C(=)		
AN-APDU	C	C(=)	C	C(=)
Allowed GSM Algorithms	C	C(=)		
Allowed UMTS Algorithms	C	C(=)		
Radio Resource List	C	C(=)		
RAB ID	C	C(=)		
<u>BSSMAP Service Handover</u>	<u>C</u>	<u>C(=)</u>		
<u>RANAP Service Handover</u>	<u>C</u>	<u>C(=)</u>		
Handover Number			C	C(=)
Relocation Number List			C	C(=)
Multicall Bearer Information			C	C(=)
Multiple Bearer Requested	C	C(=)		
Multiple Bearer Not Supported			C	C(=)
Selected UMTS Algorithms			C	C(=)
Chosen Radio Resource Information			C	C(=)
User error			C	C(=)
Provider error				O

8.4.1.3 Parameter use

Invoke Id

For definition of this parameter see clause 7.6.1.

Target Cell Id

For definition of this parameter see clause 7.6.2. This parameter is only included if the service is not in an ongoing transaction. This parameter shall also be excluded if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3G TS 23.009.

Target RNC Id

For definition of this parameter see clause 7.6.2. This parameter shall be included if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3G TS 23.009.

HO-Number Not Required

For definition of this parameter see clause 7.6.6.

IMSI

For definition of this parameter see clause 7.6.2. This UMTS parameter shall be included if:

- available and
- if the access network protocol is BSSAP and
- there is an indication that the MS also supports UMTS.

Integrity Protection Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Encryption Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Radio Resource Information

For definition of this parameter see clause 7.6.6. This GSM parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. If the parameter Radio Resource List is sent, the parameter Radio Resource Information shall not be sent.

AN-APDU

For definition of this parameter see clause 7.6.9.

Allowed GSM Algorithms

For definition of this parameter see clause 7.6.6. This parameter includes allowed GSM algorithms. This GSM parameter shall be included if:

- the service is a part of the Inter-MSC SRNS Relocation procedure and
- Ciphering or Security Mode Setting procedure has been performed and
- there is an indication that the UE also supports GSM.

Allowed UMTS Algorithms

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if all of the following conditions apply:

- access network protocol is BSSAP and
- Integrity Protection Information and Encryption Information are not available and Ciphering or Security Mode Setting procedure has been performed.

Radio Resource List

For definition of this parameter see clause 7.6.6. This parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B. If the parameter Radio Resource Information is sent, the parameter Radio Resource List shall not be sent.

RAB ID

For definition of this parameter see subclause 7.6.2. This parameter shall be included when MSC-A supports multiple bearers and access network protocol is BSSAP and the RAB ID has a value other than 1.

BSSMAP Service Handover

~~For definition of this parameter see clause 7.6.6. This parameter refers to the Service Handover information element defined in 3GPP TS 48.008. It shall be present if it is available and the access network protocol is RANAP.~~

RANAP Service Handover

~~For definition of this parameter see clause 7.6.6. This parameter refers to the Service Handover information element defined in 3GPP TS 25.413. It shall be present if it is available and the access network protocol is BSSMAP.~~

Handover Number

For definition of this parameter see clause 7.6.2. This parameter shall be returned at handover, unless the parameter HO-NumberNotRequired is sent. If the parameter Handover Number is returned, the parameter Relocation Number List shall not be returned.

Relocation Number List

For definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation, unless the parameter HO-NumberNotRequired is sent. If the parameter Relocation Number List is returned, the parameter Handover Number shall not be returned.

Multicall Bearer Information

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation in the case that MSC-B supports multiple bearers.

Multiple Bearer Requested

For a definition of this parameter see clause 7.6.2. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B.

Multiple Bearer Not Supported

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation when MSC-B receives Multiple Bearer Requested parameter and MSC-B does not support multiple bearers.

Selected UMTS Algorithms

For definition of this parameter see clause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the service is a part of the inter MSC inter system handover from GSM to UMTS.

Chosen Radio Resource Information

For definition of this parameter see clause 7.6.6. This parameter shall be returned at relocation if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

User error

For definition of this parameter see clause 7.6.1. The following errors defined in clause 7.6.1 may be used, depending on the nature of the fault:

- No handover number available.
- Target cell outside group call area;
- System failure.
- Unexpected data value.
- Data Missing.

Provider error

See definition of provider errors in clause 7.6.1.

.....

8.4.4 MAP_FORWARD_ACCESS_SIGNALLING service

8.4.4.1 Definition

This service is used between MSC-A and MSC-B (E-interface) to pass information to be forwarded to the A-interface or Iu-interface of MSC-B.

The MAP_FORWARD_ACCESS_SIGNALLING service is a non-confirmed service using the primitives from table 8.4/4.

8.4.4.2 Service primitives

Table 8.4/4: MAP_FORWARD_ACCESS_SIGNALLING

Parameter name	Request	Indication
Invoke Id	M	M(=)
Integrity Protection Information	C	C(=)
Encryption Information	C	C(=)
Key Status	C	C(=)
AN-APDU	M	M(=)
Allowed GSM Algorithms	C	C(=)
Allowed UMTS Algorithms	C	C(=)
Radio Resource Information	C	C(=)
BSSMAP Service Handover	C	C(=)
RANAP Service Handover	C	C(=)

8.4.4.3 Parameter use

For the definition and use of all parameters and errors, see clause 7.6.1.

Invoke Id

For definition of this parameter see clause 7.6.1.

Integrity Protection Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

Encryption Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

Key Status

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

AN-APDU

For definition of this parameter see clause 7.6.9.

Allowed GSM Algorithms

This parameters includes allowed GSM algorithms. This GSM parameter shall be included if the encapsulated PDU is RANAP Security Mode Command and there is an indication that the UE also supports GSM.

Allowed UMTS Algorithms

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if Integrity Protection Information and Encryption Information are not available and the encapsulated PDU is BSSMAP Cipher Mode Command.

Radio Resource Information

For definition of this parameter see clause 7.6.6. This parameter shall be sent if the encapsulated PDU is RANAP RAB Assignment Request.

BSSMAP Service Handover

For definition of this parameter see clause 7.6.6. ~~This parameter refers to the Service Handover information element defined in 3GPP TS 48.008.~~ It shall be present if it is available and the encapsulated PDU is RANAP RAB Assignment Request or BSSMAP Assignment Request.

RANAP Service Handover

For definition of this parameter see clause 7.6.6. ~~This parameter refers to the Service Handover information element defined in 3GPP TS 25.413.~~ It shall be present if it is available and the encapsulated PDU is BSSMAP Assignment Request or RANAP RAB Assignment Request.

.....

17.7.1 Mobile Service data types

.....

ForwardAccessSignalling-Arg	::= [3] SEQUENCE {
an-APDU	AccessNetworkSignalInfo,
integrityProtectionInfo	[0] IntegrityProtectionInformation
OPTIONAL,	
encryptionInfo	[1] EncryptionInformation
OPTIONAL,	
keyStatus	[2] KeyStatus
OPTIONAL,	
allowedGSM-Algorithms	[4] AllowedGSM-Algorithms
OPTIONAL,	
allowedUMTS-Algorithms	[5] AllowedUMTS-Algorithms
OPTIONAL,	
radioResourceInformation	[6] RadioResourceInformation
OPTIONAL,	
extensionContainer	[3] ExtensionContainer
OPTIONAL,	
.....	
<u>bssmap-ServiceHandover</u>	[7] <u>BSSMAP-ServiceHandover</u>
OPTIONAL,	
<u>ranap-ServiceHandover</u>	[8] <u>RANAP-ServiceHandover</u>
OPTIONAL}	

.....

```

PrepareHO-Arg ::= [3] SEQUENCE {
    targetCellId                [0] GlobalCellId                OPTIONAL,
    ho-NumberNotRequired        NULL                        OPTIONAL,
    targetRNCId                 [1] RNCId                        OPTIONAL,
    an-APDU                     [2] AccessNetworkSignalInfo    OPTIONAL,
    multipleBearerRequested     [3] NULL                        OPTIONAL,
    imsi                        [4] IMSI                        OPTIONAL,
    integrityProtectionInfo     [5] IntegrityProtectionInformation OPTIONAL,
    OPTIONAL,
    encryptionInfo              [6] EncryptionInformation
    OPTIONAL,
    radioResourceInformation     [7] RadioResourceInformation    OPTIONAL,
    allowedGSM-Algorithms       [9] AllowedGSM-Algorithms    OPTIONAL,
    allowedUMTS-Algorithms      [10] AllowedUMTS-Algorithms   OPTIONAL,
    radioResourceList           [11] RadioResourceList         OPTIONAL,
    extensionContainer           [8] ExtensionContainer         OPTIONAL,
    . . . ,
    rab-Id                      [12] RAB-Id                        OPTIONAL,
    bssmap-ServiceHandover      [13] BSSMAP-ServiceHandover    OPTIONAL,
    ranap-ServiceHandover       [14] RANAP-ServiceHandover    OPTIONAL
}

```

```

BSSMAP-ServiceHandover ::= OCTET STRING (SIZE (1))
-- Octets are coded according the Service Handover information element in
-- 3G TS 48.008.

```

```

RANAP-ServiceHandover ::= OCTET STRING (SIZE (1))
-- Octets are coded according the Service Handover information element in
-- 3G TS 25.413, encoded according to the encoding scheme
-- mandated by 3G TS 25.413
-- Octet contains a complete Service-Handover data type
-- as defined in 3G TS 25.413, encoded according to the encoding scheme
-- mandated by 3G TS 25.413
-- Padding bits are included in the least significant bits.

```

CHANGE REQUEST

⌘ **29.002 CR 446** ⌘ rev **1** ⌘ Current version: **5.1.0** ⌘

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 Radio Access Network Core Network

Title:	⌘ Addition of Service Handover parameters to MAP Handover messages		
Source:	⌘ Siemens, Ericsson		
Work item code:	⌘ Handover	Date:	⌘ 15.05.02
Category:	⌘ A	Release:	⌘ Rel-5
	Use <u>one</u> 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 <u>one</u> 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: ⌘ Service based handover shall be possible after interMSC handover. However, in case of a GSM to UMTS interMSC handover, when MSC-A sends an encapsulated BSSMAP message HANDOVER REQUEST to MSC-B, it is currently not possible to include the RANAP-related Service Handover parameter; therefore, it is not possible to prevent a handover back to GSM.

Furthermore, in case of a subsequent intra-MSC-B inter-system handover, dependent on the target RAN, RANAP- or BSSMAP-related Service Handover information may be needed by MSC-B. Therefore, generally the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter.

Finally, if the subscriber uses Call Hold after an inter-MSC handover, it may be necessary to pass Service Handover information via the E-interface. Again, the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter.

The Service Based Handover functionality should be kept under control of Anchor-MSC for a number of reasons.

- Anchor MSC is by definition the MSC in control of the handed over call.
- The handed over call might be an Emergency Call. Non-anchor is not aware of this, and consequently may choose a “never perform” type of Service Based Handover resulting in a teardown of the emergency call in case an inter-system handover is necessary .
- The value of theService Based Handover parameter might be subscription dependent. For example an operator might want to allow own GSM subscribers to be handed over from GSM to UMTS but not roaming subscribers.

Summary of change: ⌘ Add Service Handover parameters to MAP Prepare Handover and MAP Forward

		Access Signalling	
Consequences if not approved:	⌘	Service Based Handover is not possible	
Clauses affected:	⌘	7.6, 8.4.1, 8.4.4, 17.7.1	
Other specs affected:	⌘	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ TS 29.010
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/specs/CR.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.

7.6 Definition of parameters

Following is an alphabetic list of parameters used in the common MAP-services in clause 7.3:

Application context name	7.3.1	Refuse reason	7.3.1
Destination address	7.3.1	Release method	7.3.2
Destination reference	7.3.1	Responding address	7.3.1
Diagnostic information	7.3.4	Result	7.3.1
Originating address	7.3.1	Source	7.3.5
Originating reference	7.3.1	Specific information	7.3.1/7.3.2/7.3.4
Problem diagnostic	7.3.6	User reason	7.3.4
Provider reason	7.3.5		

Following is an alphabetic list of parameters contained in this clause:

Absent Subscriber Diagnostic SM	7.6.8.9	Invoke Id	7.6.1.1
Access connection status	7.6.9.3	ISDN Bearer Capability	7.6.3.41
		IST Alert Timer	7.6.3.66
		IST Information Withdrawn	7.6.3.68
		IST Support Indicator	7.6.3.69
Access signalling information	7.6.9.5	Kc	7.6.7.4
Additional Absent Subscriber Diagnostic SM	7.6.8.12	Linked Id	7.6.1.2
Additional Location Estimate	7.6.11.21	LMSI	7.6.2.16
Additional number	7.6.2.46	Location Information	7.6.2.30
Additional signal info	7.6.9.10	Location update type	7.6.9.6
Additional SM Delivery Outcome	7.6.8.11	Long Forwarded-to Number	7.6.2.22A
		Long FTN Supported	7.6.2.22B
Age Indicator	7.6.3.72	Lower Layer Compatibility	7.6.3.42
		LSA Information	7.6.3.56
		LSA Information Withdraw	7.6.3.58
Alert Reason	7.6.8.8	MC Information	7.6.4.48
Alert Reason Indicator	7.6.8.10	MC Subscription Data	7.6.4.47
Alerting Pattern	7.6.3.44	Mobile Not Reachable Reason	7.6.3.51
All GPRS Data	7.6.3.53	Modification request for CSI	7.6.3.81
All Information Sent	7.6.1.5	Modification request for SS Information	7.6.3.82
AN-apdu	7.6.9.1	More Messages To Send	7.6.8.7
APN	7.6.2.42	MS ISDN	7.6.2.17
Authentication set list	7.6.7.1	MSC number	7.6.2.11
B-subscriber Address	7.6.2.36	MSIsdn-Alert	7.6.2.29
B subscriber Number	7.6.2.48	Multicall Bearer Information	7.6.2.52
B subscriber subaddress	7.6.2.49	Multiple Bearer Requested	7.6.2.53
Basic Service Group	7.6.4.40	Multiple Bearer Not Supported	7.6.2.54
Bearer service	7.6.4.38	MWD status	7.6.8.3
BSSMAP Service Handover	7.6.6.5		
Call Barring Data	7.6.3.83	NbrUser	7.6.4.45
Call barring feature	7.6.4.19	Network Access Mode	7.6.3.50
Call barring information	7.6.4.18	Network node number	7.6.2.43
Call Direction	7.6.5.8	Network resources	7.6.10.1
Call Forwarding Data	7.6.3.84	Network signal information	7.6.9.8
Call Info	7.6.9.9	New password	7.6.4.20
Call reference	7.6.5.1	No reply condition timer	7.6.4.7
Call Termination Indicator	7.6.3.67		
Called number	7.6.2.24	North American Equal Access preferred Carrier Id	7.6.2.34
		Number Portability Status	7.6.5.14
Calling number	7.6.2.25	ODB Data	7.6.3.85
CAMEL Subscription Info	7.6.3.78	ODB General Data	7.6.3.9
CAMEL Subscription Info Withdraw	7.6.3.38	ODB HPLMN Specific Data	7.6.3.10
Cancellation Type	7.6.3.52	OMC Id	7.6.2.18
Category	7.6.3.1	Originally dialled number	7.6.2.26
CCBS Feature	7.6.5.8	Originating entity number	7.6.2.10
CCBS Request State	7.6.4.49	Override Category	7.6.4.4
Channel Type	7.6.5.9	P-TMSI	7.6.2.47
Chosen Channel	7.6.5.10	PDP-Address	7.6.2.45
Chosen Radio Resource Information	7.6.6.10B	PDP-Context identifier	7.6.3.55
Ciphering mode	7.6.7.7	PDP-Type	7.6.2.44
Cksn	7.6.7.5	Pre-paging supported	7.6.5.15
CLI Restriction	7.6.4.5	Previous location area Id	7.6.2.4
CM service type	7.6.9.2	Protocol Id	7.6.9.7
Complete Data List Included	7.6.3.54	Provider error	7.6.1.3
CS Allocation Retention priority	7.6.3.87	QoS-Subscribed	7.6.3.47
CUG feature	7.6.3.26	Radio Resource Information	7.6.6.10
CUG index	7.6.3.25	Radio Resource List	7.6.6.10A
CUG info	7.6.3.22	RANAP Service Handover	7.6.6.6
		Rand	7.6.7.2
CUG interlock	7.6.3.24	Regional Subscription Data	7.6.3.11
CUG Outgoing Access indicator	7.6.3.8	Regional Subscription Response	7.6.3.12
CUG subscription	7.6.3.23	Relocation Number List	7.6.2.19A
CUG Subscription Flag	7.6.3.37	Requested Info	7.6.3.31
Current location area Id	7.6.2.6	Requested Subscription Info	7.6.3.86
Current password	7.6.4.21	Roaming number	7.6.2.19
eMLPP Information	7.6.4.41		

Encryption Information	7.6.6.9	Roaming Restricted In SGSN Due To Unsupported Feature	7.6.3.49
Equipment status	7.6.3.2	Roaming Restriction Due To Unsupported Feature	7.6.3.13
Extensible Basic Service Group	7.6.3.5	Current Security Context	7.6.7.8
Extensible Bearer service	7.6.3.3	Selected RAB ID	7.6.2.56
Extensible Call barring feature	7.6.3.21	Service centre address	7.6.2.27
Extensible Call barring information	7.6.3.20	Serving Cell Id	7.6.2.37
Extensible Call barring information for CSE	7.6.3.79	SGSN address	7.6.2.39
Extensible Forwarding feature	7.6.3.16	SGSN CAMEL Subscription Info	7.6.3.75
Extensible Forwarding info	7.6.3.15	SGSN number	7.6.2.38
Extensible Forwarding information for CSE	7.6.3.80	SIWF Number	7.6.2.35
Extensible Forwarding Options	7.6.3.18	SoLSA Support Indicator	7.6.3.57
Extensible No reply condition timer	7.6.3.19	SM Delivery Outcome	7.6.8.6
Extensible QoS-Subscribed	7.6.3.74	SM-RP-DA	7.6.8.1
Extensible SS-Data	7.6.3.29	SM-RP-MTI	7.6.8.16
Extensible SS-Info	7.6.3.14	SM-RP-OA	7.6.8.2
Extensible SS-Status	7.6.3.17	SM-RP-PRI	7.6.8.5
Extensible Teleservice	7.6.3.4	SM-RP-SMEA	7.6.8.17
External Signal Information	7.6.9.4	SM-RP-UI	7.6.8.4
Failure Cause	7.6.7.9	Sres	7.6.7.3
Forwarded-to number	7.6.2.22	SS-Code	7.6.4.1
Forwarded-to subaddress	7.6.2.23	SS-Data	7.6.4.3
Forwarding feature	7.6.4.16	SS-Event	7.6.4.42
Forwarding information	7.6.4.15	SS-Event-Data	7.6.4.43
Forwarding Options	7.6.4.6	SS-Info	7.6.4.24
GGSN address	7.6.2.40	SS-Status	7.6.4.2
GGSN number	7.6.2.41	Stored location area Id	7.6.2.5
GMSC CAMEL Subscription Info	7.6.3.34	Subscriber State	7.6.3.30
GPRS enhancements support indicator	7.6.3.73	Subscriber Status	7.6.3.7
GPRS Node Indicator	7.6.8.14	Super-Charger Supported in HLR	7.6.3.70
		Super-Charger Supported in Serving Network Entity	7.6.3.71
GPRS Subscription Data	7.6.3.46	Supported CAMEL Phases in VLR	7.6.3.36
GPRS Subscription Data Withdraw	7.6.3.45	Supported CAMEL Phases in SGSN	7.6.3.36A
GPRS Support Indicator	7.6.8.15	Supported GAD Shapes	7.6.11.20
Group Id	7.6.2.33	Suppress T-CSI	7.6.3.33
GSM bearer capability	7.6.3.6	Suppression of Announcement	7.6.3.32
Guidance information	7.6.4.22	Target cell Id	7.6.2.8
Handover number	7.6.2.21	Target location area Id	7.6.2.7
High Layer Compatibility	7.6.3.43	Target RNC Id	7.6.2.8A
HLR Id	7.6.2.15	Target MSC number	7.6.2.12
HLR number	7.6.2.13	Teleservice	7.6.4.39
HO-Number Not Required	7.6.6.7	TMSI	7.6.2.2
IMEI	7.6.2.3	Trace reference	7.6.10.2
IMSI	7.6.2.1	Trace type	7.6.10.3
Integrity Protection Information	7.6.6.8	User error	7.6.1.4
Inter CUG options	7.6.3.27	USSD Data Coding Scheme	7.6.4.36
Intra CUG restrictions	7.6.3.28	USSD String	7.6.4.37
		UU Data	7.6.5.12
		UUS CF Interaction	7.6.5.13
		VBS Data	7.6.3.40
		VGCS Data	7.6.3.39
		VLR CAMEL Subscription Info	7.6.3.35
		VLR number	7.6.2.14
		VPLMN address allowed	7.6.3.48
		Zone Code	7.6.2.28

**** NEXT MODIFIED SECTION ****

7.6.6.1 - 7.6.6.46 Void

[7.6.6.5 BSSMAP Service Handover](#)

[This parameter refers to the Service Handover information element defined in 3GPP TS 48.008](#)

[7.6.6.6 RANAP Service Handover](#)

[This parameter refers to the Service Handover information element defined in 3GPP TS 25.413.](#)

**** **NEXT MODIFIED SECTION** ****

8.4.1 MAP_PREPARE_HANOVER service

8.4.1.1 Definition

This service is used between MSC-A and MSC-B (E-interface) when a call is to be handed over or relocated from MSC-A to MSC-B.

The MAP_PREPARE_HANOVER service is a confirmed service using the primitives from table 8.4/1.

8.4.1.2 Service primitives

Table 8.4/1: MAP_PREPARE_HANOVER

Parameter name	Request	Indication	Response	Confirm
Invoke Id	M	M(=)	M(=)	M(=)
Target Cell Id	C	C(=)		
Target RNC Id	C	C(=)		
HO-NumberNotRequired	C	C(=)		
IMSI	C	C(=)		
Integrity Protection Information	C	C(=)		
Encryption Information	C	C(=)		
Radio Resource Information	C	C(=)		
AN-APDU	C	C(=)	C	C(=)
Allowed GSM Algorithms	C	C(=)		
Allowed UMTS Algorithms	C	C(=)		
Radio Resource List	C	C(=)		
RAB ID	C	C(=)		
<u>BSSMAP Service Handover</u>	<u>C</u>	<u>C(=)</u>		
<u>RANAP Service Handover</u>	<u>C</u>	<u>C(=)</u>		
Handover Number			C	C(=)
Relocation Number List			C	C(=)
Multicall Bearer Information			C	C(=)
Multiple Bearer Requested	C	C(=)		
Multiple Bearer Not Supported			C	C(=)
Selected UMTS Algorithms			C	C(=)
Chosen Radio Resource Information			C	C(=)
User error			C	C(=)
Provider error				O

8.4.1.3 Parameter use

Invoke Id

For definition of this parameter see clause 7.6.1.

Target Cell Id

For definition of this parameter see clause 7.6.2. This parameter is only included if the service is not in an ongoing transaction. This parameter shall also be excluded if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3G TS 23.009.

Target RNC Id

For definition of this parameter see clause 7.6.2. This parameter shall be included if the service is a part of the Inter-MSC SRNS Relocation procedure or the inter-system handover GSM to UMTS procedure described in 3G TS 23.009.

HO-Number Not Required

For definition of this parameter see clause 7.6.6.

IMSI

For definition of this parameter see clause 7.6.2. This UMTS parameter shall be included if:

- available and
- if the access network protocol is BSSAP and
- there is an indication that the MS also supports UMTS.

Integrity Protection Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Encryption Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the access network protocol is BSSAP.

Radio Resource Information

For definition of this parameter see clause 7.6.6. This GSM parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. If the parameter Radio Resource List is sent, the parameter Radio Resource Information shall not be sent.

AN-APDU

For definition of this parameter see clause 7.6.9.

Allowed GSM Algorithms

For definition of this parameter see clause 7.6.6. This parameter includes allowed GSM algorithms. This GSM parameter shall be included if:

- the service is a part of the Inter-MSC SRNS Relocation procedure and
- Ciphering or Security Mode Setting procedure has been performed and
- there is an indication that the UE also supports GSM.

Allowed UMTS Algorithms

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if all of the following conditions apply:

- access network protocol is BSSAP and
- Integrity Protection Information and Encryption Information are not available and Ciphering or Security Mode Setting procedure has been performed.

Radio Resource List

For definition of this parameter see clause 7.6.6. This parameter shall be included if the access network protocol is RANAP and there is an indication that the UE also supports GSM. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B. If the parameter Radio Resource Information is sent, the parameter Radio Resource List shall not be sent.

RAB ID

For definition of this parameter see subclause 7.6.2. This parameter shall be included when MSC-A supports multiple bearers and access network protocol is BSSAP and the RAB ID has a value other than 1.

BSSMAP Service Handover

~~For definition of this parameter see clause 7.6.6. This parameter refers to the Service Handover information element defined in 3GPP TS 48.008. It shall be present if it is available and the access network protocol is RANAP.~~

RANAP Service Handover

~~For definition of this parameter see clause 7.6.6. This parameter refers to the Service Handover information element defined in 3GPP TS 25.413. It shall be present if it is available and the access network protocol is BSSMAP.~~

Handover Number

For definition of this parameter see clause 7.6.2. This parameter shall be returned at handover, unless the parameter HO-NumberNotRequired is sent. If the parameter Handover Number is returned, the parameter Relocation Number List shall not be returned.

Relocation Number List

For definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation, unless the parameter HO-NumberNotRequired is sent. If the parameter Relocation Number List is returned, the parameter Handover Number shall not be returned.

Multicall Bearer Information

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation in the case that MSC-B supports multiple bearers.

Multiple Bearer Requested

For a definition of this parameter see clause 7.6.2. This parameter shall be sent when MSC-A requests multiple bearers to MSC-B.

Multiple Bearer Not Supported

For a definition of this parameter see clause 7.6.2. This parameter shall be returned at relocation when MSC-B receives Multiple Bearer Requested parameter and MSC-B does not support multiple bearers.

Selected UMTS Algorithms

For definition of this parameter see clause 7.6.6. This parameters includes the UMTS integrity and optionally encryption algorithms selected by RNC under the control of MSC-B. This UMTS parameter shall be included if the service is a part of the inter MSC inter system handover from GSM to UMTS.

Chosen Radio Resource Information

For definition of this parameter see clause 7.6.6. This parameter shall be returned at relocation if the encapsulated PDU is RANAP RAB Assignment Response and MS is in GSM access.

User error

For definition of this parameter see clause 7.6.1. The following errors defined in clause 7.6.1 may be used, depending on the nature of the fault:

- No handover number available.
- Target cell outside group call area;
- System failure.
- Unexpected data value.
- Data Missing.

Provider error

See definition of provider errors in clause 7.6.1.

.....

8.4.4 MAP_FORWARD_ACCESS_SIGNALLING service

8.4.4.1 Definition

This service is used between MSC-A and MSC-B (E-interface) to pass information to be forwarded to the A-interface or Iu-interface of MSC-B.

The MAP_FORWARD_ACCESS_SIGNALLING service is a non-confirmed service using the primitives from table 8.4/4.

8.4.4.2 Service primitives

Table 8.4/4: MAP_FORWARD_ACCESS_SIGNALLING

Parameter name	Request	Indication
Invoke Id	M	M(=)
Integrity Protection Information	C	C(=)
Encryption Information	C	C(=)
Key Status	C	C(=)
AN-APDU	M	M(=)
Allowed GSM Algorithms	C	C(=)
Allowed UMTS Algorithms	C	C(=)
Radio Resource Information	C	C(=)
BSSMAP Service Handover	C	C(=)
RANAP Service Handover	C	C(=)

8.4.4.3 Parameter use

For the definition and use of all parameters and errors, see clause 7.6.1.

Invoke Id

For definition of this parameter see clause 7.6.1.

Integrity Protection Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

Encryption Information

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

Key Status

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if available and if the encapsulated PDU is BSSMAP Cipher Mode Command.

AN-APDU

For definition of this parameter see clause 7.6.9.

Allowed GSM Algorithms

This parameters includes allowed GSM algorithms. This GSM parameter shall be included if the encapsulated PDU is RANAP Security Mode Command and there is an indication that the UE also supports GSM.

Allowed UMTS Algorithms

For definition of this parameter see clause 7.6.6. This UMTS parameter shall be included if Integrity Protection Information and Encryption Information are not available and the encapsulated PDU is BSSMAP Cipher Mode Command.

Radio Resource Information

For definition of this parameter see clause 7.6.6. This parameter shall be sent if the encapsulated PDU is RANAP RAB Assignment Request.

BSSMAP Service Handover

For definition of this parameter see clause 7.6.6. ~~This parameter refers to the Service Handover information element defined in 3GPP TS 48.008.~~ It shall be present if it is available and the encapsulated PDU is RANAP RAB Assignment Request or BSSMAP Assignment Request.

RANAP Service Handover

For definition of this parameter see clause 7.6.6. ~~This parameter refers to the Service Handover information element defined in 3GPP TS 25.413.~~ It shall be present if it is available and the encapsulated PDU is BSSMAP Assignment Request or RANAP RAB Assignment Request.

.....

17.7.1 Mobile Service data types

.....

ForwardAccessSignalling-Arg	::= [3] SEQUENCE {
an-APDU	AccessNetworkSignalInfo,
integrityProtectionInfo	[0] IntegrityProtectionInformation
OPTIONAL,	
encryptionInfo	[1] EncryptionInformation
OPTIONAL,	
keyStatus	[2] KeyStatus
OPTIONAL,	
allowedGSM-Algorithms	[4] AllowedGSM-Algorithms
OPTIONAL,	
allowedUMTS-Algorithms	[5] AllowedUMTS-Algorithms
OPTIONAL,	
radioResourceInformation	[6] RadioResourceInformation
OPTIONAL,	
extensionContainer	[3] ExtensionContainer
OPTIONAL,	
.....	
<u>bssmap-ServiceHandover</u>	[7] <u>BSSMAP-ServiceHandover</u>
OPTIONAL,	
<u>ranap-ServiceHandover</u>	[8] <u>RANAP-ServiceHandover</u>
OPTIONAL}	

.....

```

PrepareHO-Arg ::= [3] SEQUENCE {
    targetCellId                [0] GlobalCellId                OPTIONAL,
    ho-NumberNotRequired        NULL                        OPTIONAL,
    targetRNCId                 [1] RNCId                        OPTIONAL,
    an-APDU                     [2] AccessNetworkSignalInfo    OPTIONAL,
    multipleBearerRequested     [3] NULL                        OPTIONAL,
    imsi                        [4] IMSI                        OPTIONAL,
    integrityProtectionInfo     [5] IntegrityProtectionInformation
    OPTIONAL,
    encryptionInfo              [6] EncryptionInformation
    OPTIONAL,
    radioResourceInformation     [7] RadioResourceInformation    OPTIONAL,
    allowedGSM-Algorithms       [9] AllowedGSM-Algorithms        OPTIONAL,
    allowedUMTS-Algorithms      [10] AllowedUMTS-Algorithms    OPTIONAL,
    radioResourceList           [11] RadioResourceList         OPTIONAL,
    extensionContainer           [8] ExtensionContainer         OPTIONAL,
    . . . ,
    rab-Id                      [12] RAB-Id                      OPTIONAL,
    bssmap-ServiceHandover      [13] BSSMAP-ServiceHandover    OPTIONAL,
    ranap-ServiceHandover       [14] RANAP-ServiceHandover     OPTIONAL
}

```

```

BSSMAP-ServiceHandover ::= OCTET STRING (SIZE (1))
-- Octets are coded according the Service Handover information element in
-- 3G TS 48.008.

```

```

RANAP-ServiceHandover ::= OCTET STRING (SIZE (1))
-- Octets are coded according the Service Handover information element in
-- 3G TS 25.413, encoded according to the encoding scheme
-- mandated by 3G TS 25.413
-- Octet contains a complete Service-Handover data type
-- as defined in 3G TS 25.413, encoded according to the encoding scheme
-- mandated by 3G TS 25.413
-- Padding bits are included in the least significant bits.

```

CHANGE REQUEST

⌘ **29.010 CR 53** ⌘ rev **1** ⌘ Current version: **3.7.0** ⌘

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 Radio Access Network Core Network

Title:	⌘ Addition of Service Handover parameters to MAP Handover messages		
Source:	⌘ CN4		
Work item code:	⌘ Handover	Date:	⌘ 30.04.02
Category:	⌘ F	Release:	⌘ R99
	Use <u>one</u> 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 <u>one</u> 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:	⌘ Service based handover shall be possible after interMSC handover. However, in case of a GSM to UMTS interMSC handover, when MSC-A sends an encapsulated BSSMAP message HANDOVER REQUEST to MSC-B, it is currently not possible to include the RANAP-related Service Handover parameter; therefore, it is not possible to prevent a handover back to GSM. Furthermore, in case of a subsequent intra-MSC-B inter-system handover, dependent on the target RAN, RANAP- or BSSMAP-related Service Handover information may be needed by MSC-B. Therefore, generally the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter. Finally, if the subscriber uses Call Hold after an inter-MSC handover, it may be necessary to pass Service Handover information via the E-interface. Again, the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter.
Summary of change:	⌘ Add Service Handover parameters to MAP Prepare Handover and MAP Forward Access Signalling
Consequences if not approved:	⌘ Service Based Handover is not possible

Clauses affected:	⌘ 4.5.5, 4.5.5.10 (new), 4.5.5.11, 4.7.1, 4.7.4.1, 4.7.5.8 (new), 4.7.5.9 (new), 4.8.5.8 (new), 4.8.5.9 (new)		
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ TS 29.002	
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/specs/CR.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.

4.5 Inter-MSC Handover

...

4.5.5 Processing in MSC-B, and information transfer on E-interface

The following parameters require processing (e.g. to store the parameter, to internally generate the parameter) in MSC-B. The relevant BSSMAP procedures are mentioned to ease the comprehension, their detailed description is the scope of 3GPP TS 48.008. Each BSSMAP message listed in 3GPP TS 49.008 being transferred on E-interface shall use the mechanisms given in subclause 4.5.4 and is described in 3GPP TS 48.008.

~~In case of~~For intra-~~MSC-B~~ handover/relocation and security interworking, after inter-~~MSC~~ handover from GSM to GSM, the 3G_MSC-B needs additional information to be able to perform security mode and integrity protection procedures. These RANAP informations are transferred between MSC-A and 3G-MSC-B in MAP messages, defined in 3GPP TS 29.002.

For subsequent handover/relocation, after inter-~~MSC~~ handover from GSM to GSM, the 3G_MSC-B needs additional information to be able to perform service handover procedures. The relevant information is transferred between MSC-A and 3G-MSC-B in MAP messages, defined in 3GPP TS 29.002.

***** NEXT MODIFIED SECTION *****

4.5.5.10 BSSMAP Service Handover

This information shall be stored by 3G_MSC-B and sent to a BSS in Handover Request, when 3G_MSC-B performs ~~intra-~~MSC~~~~ handover to GSM.

Transfer of information:

The BSSMAP Service Handover information is transferred to 3G_MSC-B in:

– the Prepare Handover Request MAP message.

~~the Handover Request BSSMAP message.~~

If a new assignment of a TCH after an inter-~~MSC~~ handover is to be performed, the BSSMAP Service Handover information is transferred to 3G_MSC-B in:

– the Forward Access Signalling Request MAP message

~~the BSSMAP Assignment procedure.~~

4.5.5.11 RANAP Service Handover

This information shall be stored by 3G_MSC-B and sent to an RNS in Relocation Request, when 3G_MSC-B performs ~~intra-~~MSC~~~~ relocation or handover to UMTS.

Transfer of information:

The RANAP Service Handover information is transferred to 3G_MSC-B in:

– the Prepare Handover Request MAP message.

If a new assignment of a Radio Access Bearer after an inter-~~MSC~~ handover is to be performed, the information is transferred to 3G_MSC-B in:

– the Forward Access Signalling Request MAP message and sent by 3G MSC-B to the RNS in RAB Assignment Request.

***** NEXT MODIFIED SECTION *****

4.7 Inter-MSC Handover (GSM to UMTS)

...

4.7.1 Basic Inter-MSC Handover

...

The interworking between Prepare Handover and HANOVER REQUIRED is as follows:

	08.08	29.002	Notes
Forward message	HANOVER REQUIRED	MAP PREPARE HANOVER request	
	BSSMAP information elements	-ho-NumberNotRequired	1
		-target RNC Id	
		-IMSI	2
		-Integrity protection info	
		-Encryption info	3
		-an-APDU(HANOVER REQUEST, MSC INVOKE TRACE)	4
Positive result		MAP PREPARE HANOVER response	5
		-handover number	
Negative result	HANOVER REQUIRED REJECT	MAP PREPARE HANOVER	6
	equipment failure	System Failure	
	equipment failure	No Handover Number available	
	equipment failure	UnexpectedDataValue	
	equipment failure	Data Missing	
	equipment failure	MAP CLOSE	
	equipment failure	MAP U/P -ABORT	

NOTE 1: The ho-NumberNotRequired parameter is included by MSC-A, when MSC-A decides not to use any circuit connection with 3G_MSC-B. No handover number shall be present in the positive result. Any negative response from 3G_MSC-B shall not be due to handover number allocation problem.

NOTE 2: Integrity protection information, encryption information and IMSI parameters are included by MSC-A, only when the MSC-A uses 29.002 as per release 99. These IEs are not included if the MSC-A is R98 or earlier.

NOTE 3: The process performed on the BSSMAP information elements received in the HANOVER REQUIRED message is described in the GSM Recommendation 08.08.

NOTE 4: The process performed on the BSSMAP information elements received in the MSC INVOKE TRACE message is described in subclause 4.5.5.6.

NOTE 5: The response to the Prepare-Handover request can include in its an-APDU parameter, identifying the GSM 08.06 protocol, either a BSSMAP HANDOVER REQUEST ACKNOWLEDGE or a BSSMAP HANDOVER FAILURE.

In the first case, the positive result triggers in MSC-A the sending on A-Interface of the HANDOVER COMMAND.

In the second case, the positive result triggers in MSC-A optionally the sending of the HANDOVER REQUIRED REJECT.

(The possible sending of the HANDOVER REQUIRED REJECT message upon receipt of the HANDOVER FAILURE is out of the scope of 3GPP TS 29.010 and lies in 3GPP TS 48.008).

NOTE 6: The possible sending of the HANDOVER REQUIRED REJECT message is described in 3GPP TS 48.008.

The interworking between Prepare Handover and RELOCATION REQUEST in 3G_MSC-B is as follows:

	29.002	25.413	Notes
Forward message	MAP PREPARE HANDOVER request	RELOCATION REQUEST	
	-ho-NumberNotRequired -target RNC Id -IMSI -Integrity protection info -Encryption info -RANAP service handover		1
	-an-APDU(HANDOVER REQUEST, MSC INVOKE TRACE)		
	BSSMAP information elements:	RANAP information elements:	
	Channel Type Cause sRNC to tRNC container	RAB parameters Cause sRNC to tRNC container	
		info stored/generated in/by 3G_MSC-B: CN domain indicator	
Positive result	MAP PREPARE HANDOVER response	RELOCATION REQUEST ACK	
	-an-APDU(HANDOVER REQUEST ACK)		
	BSSMAP information elements:	RANAP information elements:	
	Layer 3 info	tRNC to sRNC container	
Negative result	MAP PREPARE HANDOVER response	RELOCATION FAILURE	
	-an-APDU(HANDOVER FAILURE)		

NOTE 1: Integrity protection information, encryption information, [IMSI](#) and [RANAP service handover](#) parameters are included by MSC-A, only when the MSC-A uses 29.002 as per release 99. These IEs are not included if the MSC-A is R98 or earlier.

The interworking between Send End Signal and RELOCATION COMPLETE in 3G_MSC-B is as follows:

	25.413	29.002	Notes
Forward message	RELOCATION COMPLETE MAP SEND END SIGNAL request	-an-APDU(HANDOVER COMPLETE)	
Positive result	IU RELEASE COMMAND MAP SEND END SIGNAL response -Normal release		1
Negative result	IU RELEASE COMMAND -Normal release -Normal release	MAP CLOSE MAP U/P -ABORT	2

NOTE 1: The positive empty result triggers the clearing of the Radio Resources on the Iu-Interface and the release of the SCCP connection between 3G_MSC-B and RNS-B. If a circuit connection is used between MSC-A and 3G_MSC-B, the 'Normal release' clearing cause shall only be given to RNS-B when 3G_MSC-B has received a clearing indication on its circuit connection with MSC-A.

NOTE 2: The abortion of the dialogue or the rejection of the component triggers in 3G_MSC-B the clearing of its circuit connection with MSC-A, if any, of the Radio Resources on the Iu-Interface and the release of the SCCP connection between 3G_MSC-B and RNS-B.

The interworking between Send End Signal and CLEAR COMMAND in MSC-A is as follows:

	29.002	08.08	Notes
Forward message	MAP SEND END SIGNAL request -an-APDU(HANDOVER COMPLETE)	CLEAR COMMAND - Handover Successful	
Positive result			
Negative result			

The interworking between HANDOVER FAILURE in case of reversion to old channel of the MS and User Abort in MSC-A is as follows:

	08.08	29.002	Notes
Forward message	HANDOVER FAILURE - Reversion to old channel	MAP U -ABORT	
Positive result			
Negative result			

***** NEXT MODIFIED SECTION *****

4.7.4 BSSAP Messages transfer on E-Interface

The handling is described in chapter 4.5.4, additional cases are described in this chapter.

4.7.4.1 Assignment

The interworking between the BSSMAP assignment messages in MAP and the RANAP RAB assignment messages is as follows:

	29.002	25.413	Notes
Forward message	MAP PREPARE HANDOVER request <u>-RANAP service handover</u>	RAB ASSIGNMENT REQ <u>Service handover</u>	
	-an-APDU (ASSIGNMENT REQUEST)		
	BSSMAP information elements: Channel Type	RANAP information elements: RAB parameters	
Positive result	MAP PREPARE HANDOVER request -an-APDU (ASSIGNMENT COMPLETE or ASSIGNMENT FAILURE)	RAB ASSIGNMENT RESPONSE (positive result) RAB ASSIGNMENT RESPONSE (negative result)	
	BSSMAP information elements: Cause	RANAP information elements: Cause	1
Negative result		MAP U/P -ABORT	

***** NEXT MODIFIED SECTION *****

4.7.5 Processing in 3G_MSC-B, and information transfer on E-interface

...

4.7.5.8 BSSMAP Service Handover

This information shall be stored by 3G_MSC-B and sent to a BSS in Handover Request, when 3G_MSC-B performs ~~intra-MSC~~ handover to GSM.

Transfer of information:

The BSSMAP Service Handover information is transferred to 3G_MSC-B in:

- the Prepare Handover Request MAP message.

~~the Handover Request BSSMAP message.~~

If a new assignment of a TCH after an inter-MSC handover is to be performed, the BSSMAP Service Handover information is transferred to 3G_MSC-B in:

- the Forward Access Signalling Request MAP message

~~the BSSMAP Assignment procedure.~~

4.7.5.9 RANAP Service Handover

This information shall be stored by 3G MSC-B and sent to an RNS in Relocation Request during the basic inter-MSC handover or when 3G MSC-B performs a subsequent ~~intra-MSC~~ relocation or handover to UMTS.

Transfer of information:

The RANAP Service Handover information is transferred to 3G MSC-B in:

- the Prepare Handover Request MAP message.

If a new assignment of a Radio Access Bearer after an inter-MSC handover is to be performed, the information is transferred to 3G MSC-B in:

- the Forward Access Signalling Request MAP message

and sent by 3G MSC-B to the RNS in RAB Assignment Request.

***** NEXT MODIFIED SECTION *****

4.8 Inter-MSC Relocation

...

4.8.5 Processing in 3G_MSC-B, and information transfer on E-interface

...

4.8.5.8 BSSMAP Service Handover

This information shall be stored by 3G MSC-B and sent to a BSS in Handover Request, when 3G MSC-B performs ~~intra-MSC~~ handover to GSM.

Transfer of information:

The BSSMAP Service Handover information is transferred to 3G MSC-B in:

- the Prepare Handover Request MAP message.

If a new assignment of a TCH after an inter-MSC relocation is to be performed, the BSSMAP Service Handover information is transferred to 3G MSC-B in:

- the Forward Access Signalling Request MAP message

and sent by 3G MSC-B to the BSS in the Assignment Request BSSMAP message.

4.8.5.9 RANAP Service Handover

This information shall be stored by 3G MSC-B and sent to an RNS in Relocation Request during the basic inter-MSC relocation or when 3G MSC-B performs a subsequent intra-MSC relocation or handover to UMTS.

Transfer of information:

The RANAP Service Handover information is transferred to 3G MSC-B in:

– the Prepare Handover Request MAP message.

~~the Relocation Request RANAP message.~~

If a new assignment of a Radio Access Bearer after an inter-MSC relocation is to be performed, the information is transferred to 3G MSC-B in:

– the Forward Access Signalling Request MAP message

– ~~the RANAP RAB Assignment procedure.~~

CHANGE REQUEST

⌘ **29.010 CR 054** ⌘ rev **1** ⌘ Current version: **4.2.0** ⌘

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 Radio Access Network Core Network

Title:	⌘ Addition of Service Handover parameters to MAP Handover messages		
Source:	⌘ Siemens		
Work item code:	⌘ Handover	Date:	⌘ 30.04.02
Category:	⌘ A	Release:	⌘ Rel-4
	Use <u>one</u> 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 <u>one</u> 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:	⌘ Service based handover shall be possible after interMSC handover. However, in case of a GSM to UMTS interMSC handover, when MSC-A sends an encapsulated BSSMAP message HANDOVER REQUEST to MSC-B, it is currently not possible to include the RANAP-related Service Handover parameter; therefore, it is not possible to prevent a handover back to GSM. Furthermore, in case of a subsequent intra-MSC-B inter-system handover, dependent on the target RAN, RANAP- or BSSMAP-related Service Handover information may be needed by MSC-B. Therefore, generally the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter. Finally, if the subscriber uses Call Hold after an inter-MSC handover, it may be necessary to pass Service Handover information via the E-interface. Again, the Service Handover parameter which cannot be included in the RAN-APDU has to be included as MAP parameter.
Summary of change:	⌘ Add Service Handover parameters to MAP Prepare Handover and MAP Forward Access Signalling
Consequences if not approved:	⌘ Service Based Handover is not possible

Clauses affected:	⌘ 4.5.5, 4.5.5.10 (new), 4.5.5.11, 4.7.1, 4.7.4.1, 4.7.5.8 (new), 4.7.5.9 (new), 4.8.5.8 (new), 4.8.5.9 (new)		
Other specs affected:	⌘ <input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⌘ TS 29.002	
Other comments:	⌘		

How to create CRs using this form:

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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.

4.5 Inter-MSC Handover

...

4.5.5 Processing in MSC-B, and information transfer on E-interface

The following parameters require processing (e.g. to store the parameter, to internally generate the parameter) in MSC-B. The relevant BSSMAP procedures are mentioned to ease the comprehension, their detailed description is the scope of 3GPP TS 48.008. Each BSSMAP message listed in 3GPP TS 49.008 being transferred on E-interface shall use the mechanisms given in subclause 4.5.4 and is described in 3GPP TS 48.008.

~~In case~~For of intra-MSC-B handover/relocation and security interworking, after inter-MSC handover from GSM to GSM, the 3G_MSC-B needs additional information to be able to perform security mode and integrity protection procedures. These RANAP informations are transferred between MSC-A and 3G-MSC-B in MAP messages, defined in 3GPP TS 29.002.

For subsequent handover/relocation, after inter-MSC handover from GSM to GSM, the 3G_MSC-B needs additional information to be able to perform service handover procedures. The relevant information is transferred between MSC-A and 3G-MSC-B in MAP messages, defined in 3GPP TS 29.002.

***** NEXT MODIFIED SECTION *****

4.5.5.10 BSSMAP Service Handover

This information shall be stored by 3G_MSC-B and sent to a BSS in Handover Request, when 3G_MSC-B performs ~~intra-MSC~~ handover to GSM.

Transfer of information:

The BSSMAP Service Handover information is transferred to 3G_MSC-B in:

- the Prepare Handover Request MAP message.

~~the Handover Request BSSMAP message.~~

If a new assignment of a TCH after an inter-MSC handover is to be performed, the BSSMAP Service Handover information is transferred to 3G_MSC-B in:

- the Forward Access Signalling Request MAP message

~~the BSSMAP Assignment procedure.~~

4.5.5.11 RANAP Service Handover

This information shall be stored by 3G_MSC-B and sent to an RNS in Relocation Request, when 3G_MSC-B performs ~~intra-MSC~~ relocation or handover to UMTS.

Transfer of information:

The RANAP Service Handover information is transferred to 3G_MSC-B in:

- the Prepare Handover Request MAP message.

If a new assignment of a Radio Access Bearer after an inter-MSC handover is to be performed, the information is transferred to 3G_MSC-B in:

- the Forward Access Signalling Request MAP message
 and sent by 3G MSC-B to the RNS in RAB Assignment Request.

***** NEXT MODIFIED SECTION *****

4.7 Inter-MSC Handover (GSM to UMTS)

...

4.7.1 Basic Inter-MSC Handover

...

The interworking between Prepare Handover and HANOVER REQUIRED is as follows:

	08.08	29.002	Notes
Forward message	HANOVER REQUIRED	MAP PREPARE HANOVER request	
	BSSMAP information elements	-ho-NumberNotRequired	1
		-target RNC Id	
		-IMSI	
		-Integrity protection info	2
		-Encryption info	
		-an-APDU(HANOVER REQUEST, MSC INVOKE TRACE)	3
			4
Positive result		MAP PREPARE HANOVER response	
		-handover number	5
		-an-APDU(HANOVER REQUEST ACKNOWLEDGE or HANOVER FAILURE)	
Negative result	HANOVER REQUIRED REJECT	MAP PREPARE HANOVER	6
	equipment failure	System Failure	
	equipment failure	No Handover Number available	
	equipment failure	UnexpectedDataValue	
	equipment failure	Data Missing	
	equipment failure	MAP CLOSE	
	equipment failure	MAP U/P -ABORT	

NOTE 1: The ho-NumberNotRequired parameter is included by MSC-A, when MSC-A decides not to use any circuit connection with 3G_MSC-B. No handover number shall be present in the positive result. Any negative response from 3G_MSC-B shall not be due to handover number allocation problem.

NOTE 2: Integrity protection information, encryption information and IMSI parameters are included by MSC-A, only when the MSC-A uses 29.002 as per release 99. These IEs are not included if the MSC-A is R98 or earlier.

NOTE 3: The process performed on the BSSMAP information elements received in the HANOVER REQUIRED message is described in the GSM Recommendation 08.08.

NOTE 4: The process performed on the BSSMAP information elements received in the MSC INVOKE TRACE message is described in subclause 4.5.5.6.

NOTE 5: The response to the Prepare-Handover request can include in its an-APDU parameter, identifying the GSM 08.06 protocol, either a BSSMAP HANDOVER REQUEST ACKNOWLEDGE or a BSSMAP HANDOVER FAILURE.

In the first case, the positive result triggers in MSC-A the sending on A-Interface of the HANDOVER COMMAND.

In the second case, the positive result triggers in MSC-A optionally the sending of the HANDOVER REQUIRED REJECT.

(The possible sending of the HANDOVER REQUIRED REJECT message upon receipt of the HANDOVER FAILURE is out of the scope of 3GPP TS 29.010 and lies in 3GPP TS 48.008).

NOTE 6: The possible sending of the HANDOVER REQUIRED REJECT message is described in 3GPP TS 48.008.

The interworking between Prepare Handover and RELOCATION REQUEST in 3G_MSC-B is as follows:

	29.002	25.413	Notes
Forward message	MAP PREPARE HANDOVER request -ho-NumberNotRequired -target RNC Id -IMSI -Integrity protection info -Encryption info <u>-RANAP service handover</u> -an-APDU(HANDOVER REQUEST, MSC INVOKE TRACE)	RELOCATION REQUEST	1
	BSSMAP information elements: Channel Type Cause sRNC to tRNC container	RANAP information elements: RAB parameters Cause sRNC to tRNC container info stored/generated in/by 3G_MSC-B: CN domain indicator	
Positive result	MAP PREPARE HANDOVER response -an-APDU(HANDOVER REQUEST ACK)	RELOCATION REQUEST ACK	
	BSSMAP information elements: Layer 3 info	RANAP information elements: tRNC to sRNC container	
Negative result	MAP PREPARE HANDOVER response -an-APDU(HANDOVER FAILURE)	RELOCATION FAILURE	

NOTE 1: Integrity protection information, encryption information, IMSI and RANAP service handover ~~IMSI~~ parameters are included by MSC-A, only when the MSC-A uses 29.002 as per release 99. These IEs are not included if the MSC-A is R98 or earlier.

The interworking between Send End Signal and RELOCATION COMPLETE in 3G_MSC-B is as follows:

	25.413	29.002	Notes
Forward message	RELOCATION COMPLETE MAP SEND END SIGNAL request	-an-APDU (HANDOVER COMPLETE)	
Positive result	IU RELEASE COMMAND -Normal release	MAP SEND END SIGNAL response	1
Negative result	IU RELEASE COMMAND -Normal release -Normal release	MAP CLOSE MAP U/P -ABORT	2

NOTE 1: The positive empty result triggers the clearing of the Radio Resources on the Iu-Interface and the release of the SCCP connection between 3G_MSC-B and RNS-B. If a circuit connection is used between MSC-A and 3G_MSC-B, the 'Normal release' clearing cause shall only be given to RNS-B when 3G_MSC-B has received a clearing indication on its circuit connection with MSC-A.

NOTE 2: The abortion of the dialogue or the rejection of the component triggers in 3G_MSC-B the clearing of its circuit connection with MSC-A, if any, of the Radio Resources on the Iu-Interface and the release of the SCCP connection between 3G_MSC-B and RNS-B.

The interworking between Send End Signal and CLEAR COMMAND in MSC-A is as follows:

	29.002	08.08	Notes
Forward message	MAP SEND END SIGNAL request	CLEAR COMMAND	
	-an-APDU (HANDOVER COMPLETE)	- Handover Successful	
Positive result			
Negative result			

The interworking between HANOVER FAILURE in case of reversion to old channel of the MS and User Abort in MSC-A is as follows:

	08.08	29.002	Notes
Forward message	HANOVER FAILURE	MAP U -ABORT	
	- Reversion to old channel		
Positive result			
Negative result			

***** NEXT MODIFIED SECTION *****

4.7.4 BSSAP Messages transfer on E-Interface

The handling is described in chapter 4.5.4, additional cases are described in this chapter.

4.7.4.1 Assignment

The interworking between the BSSMAP assignment messages in MAP and the RANAP RAB assignment messages is as follows:

	29.002	25.413	Notes
Forward message	MAP PREPARE HANDOVER request -RANAP service handover -an-APDU(ASSIGNMENT REQUEST)	RAB ASSIGNMENT REQ Service handover	
	BSSMAP information elements: Channel Type	RANAP information elements: RAB parameters	
Positive result	MAP PREPARE HANDOVER request -an-APDU(ASSIGNMENT COMPLETE or ASSIGNMENT FAILURE)	RAB ASSIGNMENT RESPONSE (positive result) RAB ASSIGNMENT RESPONSE (negative result)	
	BSSMAP information elements: Cause	RANAP information elements: Cause	1
Negative result		MAP U/P -ABORT	

***** NEXT MODIFIED SECTION *****

4.7.5 Processing in 3G_MSC-B, and information transfer on E-interface

...

4.7.5.8 BSSMAP Service Handover

This information shall be stored by 3G_MSC-B and sent to a BSS in Handover Request, when 3G_MSC-B performs ~~intra-MSC~~ handover to GSM.

Transfer of information:

The BSSMAP Service Handover information is transferred to 3G_MSC-B in:

- the Prepare Handover Request MAP message.

~~the Handover Request BSSMAP message.~~

If a new assignment of a TCH after an inter-MSC handover is to be performed, the BSSMAP Service Handover information is transferred to 3G_MSC-B in:

- the Forward Access Signalling Request MAP message

~~the BSSMAP Assignment procedure.~~

4.7.5.9 RANAP Service Handover

This information shall be stored by 3G_MSC-B and sent to an RNS in Relocation Request during the basic inter-MSC handover or when 3G_MSC-B performs a subsequent ~~intra-MSC~~ relocation or handover to UMTS.

Transfer of information:

The RANAP Service Handover information is transferred to 3G_MSC-B in:

- the Prepare Handover Request MAP message.

If a new assignment of a Radio Access Bearer after an inter-~~MSC~~ handover is to be performed, the information is transferred to 3G_MSC-B in:

- the Forward Access Signalling Request MAP message

and sent by 3G_MSC-B to the RNS in RAB Assignment Request.

***** NEXT MODIFIED SECTION *****

4.8 Inter-MSC Relocation

...

4.8.5 Processing in 3G_MSC-B, and information transfer on E-interface

...

4.8.5.8 BSSMAP Service Handover

This information shall be stored by 3G_MSC-B and sent to a BSS in Handover Request, when 3G_MSC-B performs ~~intra-MSC~~ handover to GSM.

Transfer of information:

The BSSMAP Service Handover information is transferred to 3G_MSC-B in:

- the Prepare Handover Request MAP message.

If a new assignment of a TCH after an inter-~~MSC~~ relocation is to be performed, the BSSMAP Service Handover information is transferred to 3G_MSC-B in:

- the Forward Access Signalling Request MAP message

and sent by 3G_MSC-B to the BSS in the Assignment Request BSSMAP message.

4.8.5.9 RANAP Service Handover

This information shall be stored by 3G_MSC-B and sent to an RNS in Relocation Request during the basic inter-~~MSC~~ relocation or when 3G_MSC-B performs a subsequent intra-~~MSC~~ relocation or handover to UMTS.

Transfer of information:

The RANAP Service Handover information is transferred to 3G_MSC-B in:

- the Prepare Handover Request MAP message.

~~the Relocation Request RANAP message.~~

If a new assignment of a Radio Access Bearer after an inter-~~MSC~~ relocation is to be performed, the information is transferred to 3G_MSC-B in:

Error! No text specified in the document. File name: 3GPP-Keim-Exhibit-Forwarding-Form-Dokument-Dokument.

– [the Forward Access Signalling Request MAP message](#)

~~[the RANAP RAB Assignment procedure.](#)~~