**3GPP TSG CN Plenary Meeting #12** **Tdoc NP-010329**
**Stockholm, Sweden, 13th - 15th June 2001**

**Source:** CN5

**Title:** Draft 3GPP TR 29.998-5-4 V2.0.0 (2001-06): Open Service Access (OSA); Application Programming Interface (API) Mapping for OSA; Part 5: User Interaction Service Mapping; Subpart 4: API to SMS Mapping (Release 4)

**Agenda item:** **8.5 OSA enhancements [OSA1]**

**Document for:** APPROVAL

---

This draft was submitted at the last CN plenary (CN#11) for INFORMATION and it is now submitted to CN#12 for APPROVAL and placement under TSG change control (CR regime).

## 3GPP Release 4 deliverables from CN5 (OSA) are highlighted in yellow

| OSA API specifications 29.198-family | | OSA API Mapping - 29.998-family | |
|---|---|---|---|
| **29.198-1** | **Part 1: Overview** | **29.998-1** | **Part 1: Overview** |
| **29.198-2** | **Part 2: Common Data Definitions** | 29.998-2 | Not Applicable |
| **29.198-3** | **Part 3: Framework** | 29.998-3 | Not Applicable |
| **29.198-4** | **Part 4: Call Control SCF** | **29.998-4-1** | **Subpart 1: Generic Call Control – CAP mapping** |
| | | 29.998-4-2 | |
| **29.198-5** | **Part 5: User Interaction SCF** | **29.998-5-1** | **Subpart 1: User Interaction – CAP mapping** |
| | | 29.998-5-2 | |
| | | 29.998-5-3 | |
| | | **29.998-5-4** | **Subpart 4: User Interaction – SMS mapping** |
| **29.198-6** | **Part 6: Mobility SCF** | **29.998-6** | **User Status and User Location – MAP mapping** |
| **29.198-7** | **Part 7: Terminal Capabilities SCF** | 29.998-7 | Not Applicable |
| **29.198-8** | **Part 8: Data Session Control SCF** | **29.998-8** | **Data Session Control – CAP mapping** |
| 29.198-9 | Part 9: Generic Messaging SCF | 29.998-9 | Not Applicable |
| 29.198-10 | Part 10: Connectivity Manager SCF | 29.998-10 | Not Applicable |
| **29.198-11** | **Part 11: Account Management SCF** | 29.998-11 | Not Applicable |
| **29.198-12** | **Part 12: Charging SCF** | 29.998-12 | Not Applicable |

NOTE: The blinking background shows the parts which were submitted at the last CN plenary (CN#11) for INFORMATION and are now submitted to CN#12 for APPROVAL and placement under TSG change control (CR regime).

**Attachment:** **29.998-5-4 V2.0.0** (29998-05-04-200.doc)

# 3GPP TR 29.998-5-4 V2.0.0 (2001-06)

*Technical Specification*

# 3rd Generation Partnership Project; Technical Specification Group Core Network; Open Service Access (OSA); Application Programming Interface (API) Mapping for OSA; Part 5: User Interaction Service Mapping; Subpart 4: API to SMS Mapping (Release 4)

Keywords
API, OSA, User Interaction, UI, SMS

***3GPP***

Postal address

3GPP support office address
650 Route des Lucioles - Sophia Antipolis
Valbonne - FRANCE
Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Internet
http://www.3gpp.org

# Contents

# Foreword

This Technical Report has been produced by the 3rd Generation Partnership Project (3GPP).

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

Version x.y.z

where:

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

# Introduction

**Structure of the OSA API Mapping (3GPP TR 29.998)**

The Technical Report 3GPP TR 29.998 consists of a series of parts and subparts. An effort has been made to ensure that the part numbers used in the mapping TR correspond to the part numbers of the base OSA specification in 3GPP TS 29.198. For this reason, certain parts, for which no suitable mapping could be suggested, have not been delivered. At a later stage a mapping to a new protocol may become evident, in which case these missing parts will be developed.

The OSA documentation was defined jointly between 3GPP TSG CN WG5, ETSI SPAN 12 and the Parlay Consortium, in co-operation with the JAIN consortium. The 3GPP TR 29.998 is based on a mapping document with a wider scope, developed as part of this co-operation. Certain mappings defined in the course of this joint development are not applicable for 3GPP Release 4, which is why not all sub-parts have been delivered as part of 3GPP Release 4. However, it is expected that some will become applicable within the scope of 3GPP Release 5, which is why a common sub-part numbering is being retained, albeit with gaps for 3GPP Release 4.

If mapping for a certain Part is "Not Applicable" it can either indicate that a mapping does not exist (e.g. Part 2 Common Data), or the API is considered to be implemented directly on a physical entity, or via a proprietary mechanism.

The present document is part 5 subpart 4 of a multi-part TR covering the 3rd Generation Partnership Project: Technical Specification Group Core Network; Open Service Access (OSA); Application Programming Interface (API) Mapping for OSA, as identified below.

29.998-1: General Issues on API Mapping
*29.998-2: Not Applicable*
*29.998-3: Not Applicable*
29.998-4-1: Call Control Service Mapping; Subpart: API to CAP Mapping
29.998-4-2: Call Control Service Mapping; Subpart 2 generic call control INAP (not Rel-4)
29.998-4-3: Call Control Service Mapping; Subpart 3 multiparty call control INAP (not Rel-4)
29.998-4-4: Call Control Service Mapping; Subpart 4 multiparty call control SIP (not Rel-4)
29.998-4-5: Call Control Service Mapping; Subpart 5 multimedia call control extensions mapping to SIP (not Rel-4)
29.998-5-1: User Interaction Service Mapping; Subpart 1: API to CAP Mapping
29.998-5-2: User Interaction Service Mapping; Subpart 2 user interaction INAP (not Rel-4)
29.998-5-3: User Interaction Service Mapping; Subpart 3 user interaction Megacop (not Rel-4)
**29.998-5-4: User Interaction Service Mapping; Subpart 4: API to SMS Mapping**

29.998-6: User Location – User Status Service Mapping to MAP
*29.998-7: Not Applicable*
29.998-8: Data Session Control Service Mapping to CAP

| OSA API specifications 29.198-family | | OSA API Mapping - 29.998-family | |
|---|---|---|---|
| **29.198-1** | **Part 1: Overview** | **29.998-1** | **Part 1: Overview** |
| **29.198-2** | **Part 2: Common Data Definitions** | 29.998-2 | Not Applicable |
| **29.198-3** | **Part 3: Framework** | 29.998-3 | Not Applicable |
| **29.198-4** | **Part 4: Call Control SCF** | **29.998-4-1** | **Subpart 1: Generic Call Control – CAP mapping** |
| | | 29.998-4-2 | |
| **29.198-5** | **Part 5: User Interaction SCF** | **29.998-5-1** | **Subpart 1: User Interaction – CAP mapping** |
| | | 29.998-5-2 | |
| | | 29.998-5-3 | |
| | | **29.998-5-4** | **Subpart 4: User Interaction – SMS mapping** |
| **29.198-6** | **Part 6: Mobility SCF** | **29.998-6** | **User Status and User Location – MAP mapping** |
| **29.198-7** | **Part 7: Terminal Capabilities SCF** | 29.998-7 | Not Applicable |
| **29.198-8** | **Part 8: Data Session Control SCF** | **29.998-8** | **Data Session Control – CAP mapping** |
| 29.198-9 | Part 9: Generic Messaging SCF | 29.998-9 | Not Applicable |
| 29.198-10 | Part 10: Connectivity Manager SCF | 29.998-10 | Not Applicable |
| **29.198-11** | **Part 11: Account Management SCF** | 29.998-11 | Not Applicable |
| **29.198-12** | **Part 12: Charging SCF** | 29.998-12 | Not Applicable |

# 1 Scope

The present document investigates how the OSA User Interaction Interface Class methods defined in 3GPP TS 29.198-5 [5] can be mapped onto CAMEL Application Part operations and Mobile Application Part operations, within the context of SMS. The mapping of the OSA API to the CAP and relevant MAP operations is considered informative, and not normative. An overview of the mapping TR is contained in the introduction of the present document as well as in 3GPP TR 29.998-1 [10].

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardised interface, i.e. the OSA API's. The API specification is contained in the 3GPP TS 29.198 series of specifications. An overview of these is available in the introduction of the present document as well as in 3GPP TS 29.198-1 [1]. The concepts and the functional architecture for the Open Service Access (OSA) are described by 3GPP TS 23.127 [3]. The requirements for OSA are defined in 3GPP TS 22.127 [2].

This document has been defined jointly between 3GPP TSG CN WG5, ETSI SPAN 12 and the Parlay Consortium, in co-operation with the JAIN consortium.

# 2 References

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


[1] 3GPP TS 29.198-1: "Open Service Access; Application Programming Interface; Part 1: Overview".

[2] 3GPP TS 22.127: "Stage 1 Service Requirement for the Open Service Access (OSA) (Release 4)".

[3] 3GPP TS 23.127: "Virtual Home Environment (Release 4)".

[4] 3GPP TR 22.905: "3GPP Vocabulary".

[5] 3GPP TS 29.198-5: "Open Service Access; Application Programming Interface - Part 5: Generic User Interaction".

[6] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

[7] 3GPP TS 29.078: "CAMEL Application Part (CAP) specification – Phase 3".

[8] 3GPP TS 22.101: "Universal Mobile Telecommunications System (UMTS): Service Aspects; Service Principles".

[9] ITU-T Q.850: “Usage of cause and location in the Digital Subscriber Signalling System No. 1 and the Signalling System No. 7 ISDN User Part.”

[10] 3GPP TR 29.998-1 "API Mapping for Open Service Access; Part 1: General Issues on API Mapping"


# 3 Definitions and abbreviations

## 3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 29.198-1 [1] apply.

## 3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TS 29.198-1 [1] apply.

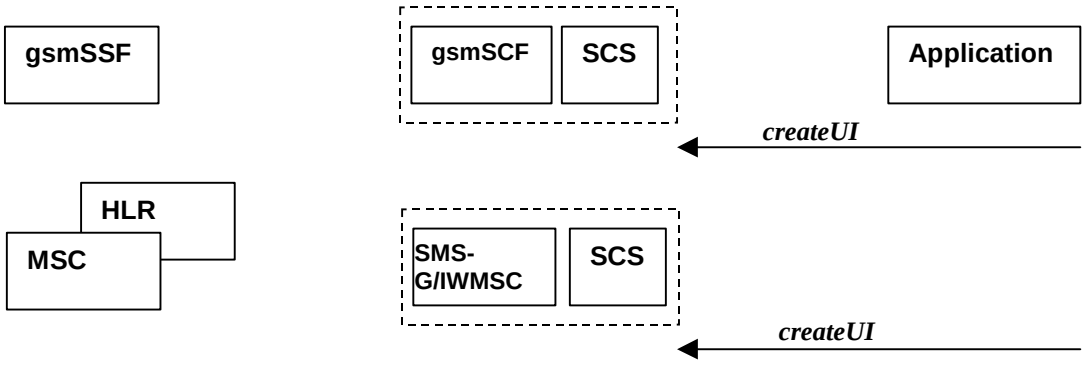
# 4 Generic Message Transfer Service SMS Call Flows

## 4.1 User Interaction

The User Interaction interface is used by applications to interact with end users. The API supports call and non-call related User Interaction. In mapping the User Interaction interface to SMS call flows, only non-call related User Interaction is applicable.

### 4.1.1 createUI

***createUI*** is a method that is used to create a new (non call related) user interaction object.




Note: There are no associated CAP or MAP, SMS call flows.

**Figure 4-1: Call Flow for createUI**

**Table 4-1: Normal Operation**

| Pre-conditions | The application has been instructed to initiate a non call related User Interaction |
|---|---|
| 1 | The application invokes the ***createUI*** method |
| 2 | The SCS creates a new UI object |

**Parameter Mapping**

None.

### 4.1.2 createUICall

***createUICall*** is a method that does not map to SMS delivery.

### 4.1.3 enableUINotification

***enableUINotification*** is a method that enables the reception of a user initiated user interaction. The user initiates this interaction by means of a CAMEL Phase 3 enabled MO SMS.

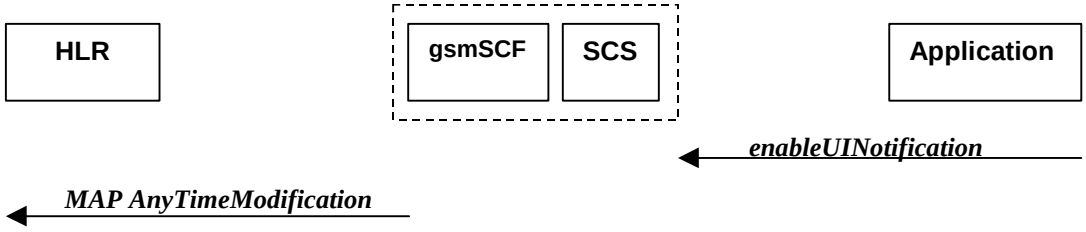



**Figure 4-2: Call Flow for enableUINotification**

**Table 4-2: Normal Operation**

Two alternatives have been identified.

1 The application requests notifications to be enabled.

| Pre-conditions | An agreement is established between the network operator and the service provider for the event notification to be enabled |
|---|---|
| 1 | The application invokes the ***enableUINotification*** method |
| 2 | The gsmSCF sends a MAP ***AnyTimeModification*** to the HLR in order to Activate the necessary CAMEL Subscription Information (SMS-CSI). See Note. |
| NOTE: CAMEL phase 3 only allows for activation/deactivation of the CSI and not modification of the contents of the CSIs. As the SMS-CSI relates only to MO messaging, only originating addresses are considered. For SMS-CSI only DP SMS_Collected_Info is supported. | |

**Table 4-3: Error condition**

2 HLR rejects CSI updates

| Pre-conditions | gsmSCF had previously sent a MAP *AnyTimeModification* message to the HLR as a result of an *enableUINotification* request from the application |
|---|---|
| 1 | HLR rejects the request to update the CSI |
| 2 | The gsmSCF sends an internal message to the SCS to indicate the up date failure |
| 3 | The SCS invokes the exception on ***enableUINotification*** |

**Table 4-4: Parameter Mapping**

| From: enableUINotification | To: MAP AnyTimeModification |
|---|---|
| appInterface | |
| | gsmSCFAddress |
| eventCriteria (TpUIEventCriteria) : | |
| OriginatingAddress | subscriberIdentity (see Note) |
| DestinationAddress | |
| ServiceCode | |
| assignmentID | |
| | modificationRequestFor-CallForwardingSS-Data |
| | modificationRequestFor-CallBarringSS-Data |
| | modificationRequestFor-CSI<br>Requested CSI = SMS-CSI<br>ModifyNotificationFlag<br>Modify CSI State = Activate |
| NOTE: In case an address range is used, a separate MAP AnyTimeModificationRequest shall be sent for every address in the range | |

### 4.1.4 disableUINotification

***disableUINotification*** is a method that allows the application to remove notification for UI related actions previously set.

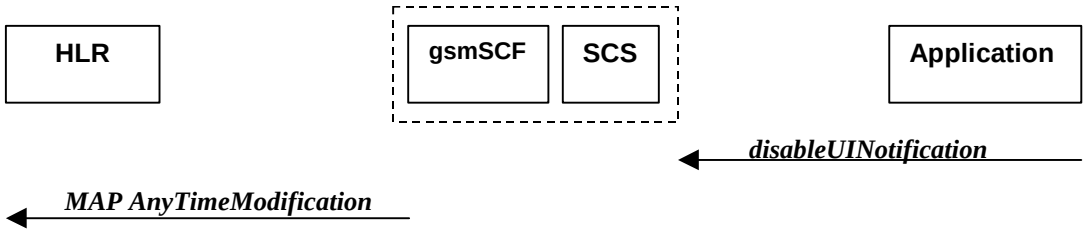



**Figure 4-3: Call Flow for disableUINotification**

**Table 4-5: Normal Operation**

| Pre-conditions | An agreement is established between the network operator and the service provider for the event notification to be disabled |
|---|---|
| 1 | The application invokes the ***disableUINotification*** method |
| 2 | The gsmSCF sends a MAP ***AnyTimeModification*** to the HLR in order to de-activate the CAMEL subscription Information (SMS-CSI). Note that CAMEL Phase 3 only allows the capability to activate/deactivate CSI and not to modify the triggering information. |

**Table 4-6: Parameter Mapping**

| From: disableUINotification | To: MAP AnyTimeModification |
|---|---|
| assignmentID | |
| | gsmSCFAddress |
| | subscriberIdentity (see Note) |
| | modificationRequestFor-CallForwardingSS-Data |
| | modificationRequestFor-CallBarringSS-Data |
| | modificationRequestFor-CSI<br>- Requested CSI = SMS-CSI<br>- ModifyNotificationFlag<br>- Modify CSI State = Deactivate |
| NOTE: A separate MAP AnyTimeModificationRequest shall be sent for every originating address in the prior enableUINotification and known to the IpUIManager. | |

### 4.1.5 userInteractionEventNotify

***userInteractionEventNotify*** is a method that notifies the application of a user initiated request for user interaction.

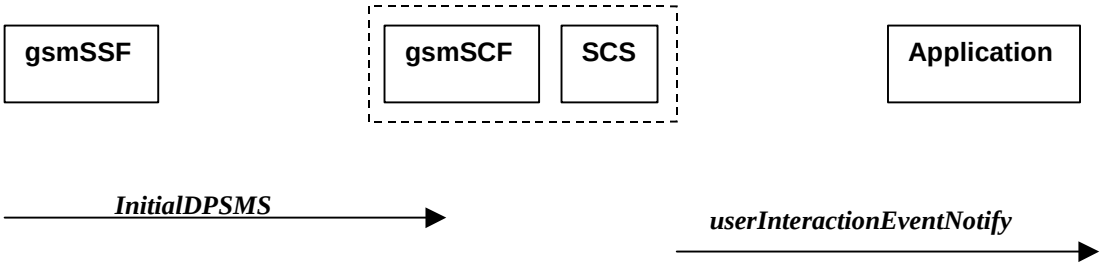



**Figure 4-4: Call Flow for userInteractionEventNotify**

**Table 4-7:**

1. CAMEL MO SMS interaction between gsmSSF and gsmSCF.

| Pre-conditions | |
|---|---|
| 1 | The gsmSCF has previously enabled the SMS-CSI DP triggers using the MAP AnyTimeModification for the origination mobile subscriber address |
| 2 | The gsmSCF receives the CAP ***InitialDPSMS*** from the gsmSSF. |
| 2 | The gsmSCF sends an equivalent internal message to the SCS |
| 3 | The SCS identified the correct application that enable the notification request from the subscriber and invokes the ***userInteractionEventNotify*** method |

**Table 4-8: Parameter Mapping**

| From: initialDPSMS | To: *userInteractionEventNotify* |
|---|---|
| | ui |
| | eventInfo (TpUIEventInfo) : |
| CallingPartyNumber | OriginatingAddress |
| DestinationSubscriberNumber | DestinationAddress |
| ServiceKey | ServiceCode |
| | DataTypeIndication (= TP-DataCodingScheme) |
| EventType | DataString |
| | assignmentID |
| | appInterface (output) |
| IMSI | |
| LocationInfo in MSC ( C ) | |
| LocationInfor in SGSN ( C ) | |
| Time&Timezone | |
| TP-ShortMessageSubmissionSpecificInfo | |
| TP-ProtocolIdentifier | |
| TP-DataCodingScheme (=DataTypeIndication in eventInfo above) | |
| TP-ValidityPeriod ( C ) | |
| SMSC Address | |
| NOTE: C = Conditional, supplied if available. | |

## 4.1.6 userInteractionAborted

***userInteractionAborted*** is a method that indicates to the application that the User Interaction service instance has terminated or closed abnormally. No further communication will be possible between the User Interaction service instance and the application.

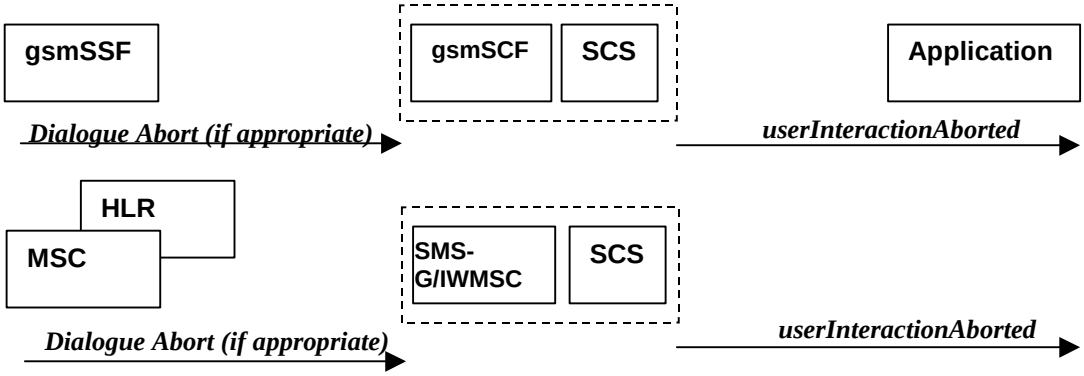


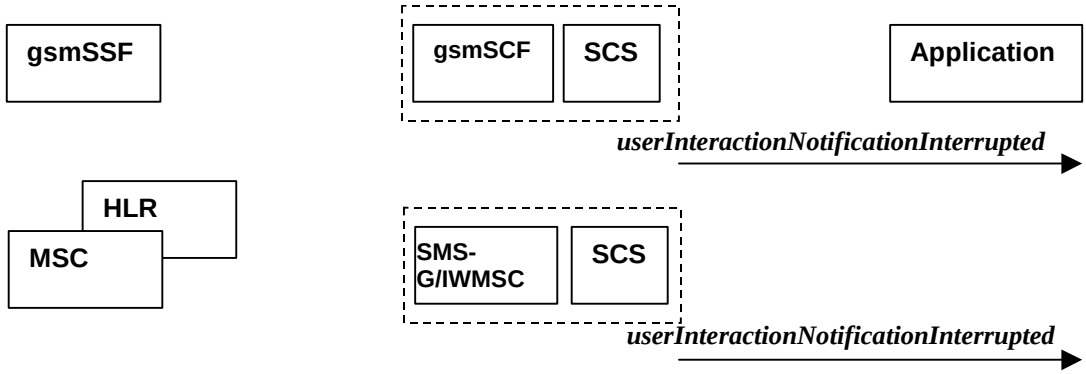

**Figure 4-5: Call Flow for userInteractionAborted**

**Parameter Mapping**

None.

### 4.1.7 userInteractionNotificationInterrupted

***userInteractionNotificationInterrupted*** is a method that indicates to the application that all user interaction event notifications have been temporarily interrupted.




Note: There are no associated CAP or MAP, SMS Call Flows.

**Figure 4-6: Call Flow for userInteractionNotificationInterrupted**

**Table 4-9: Normal Operation**

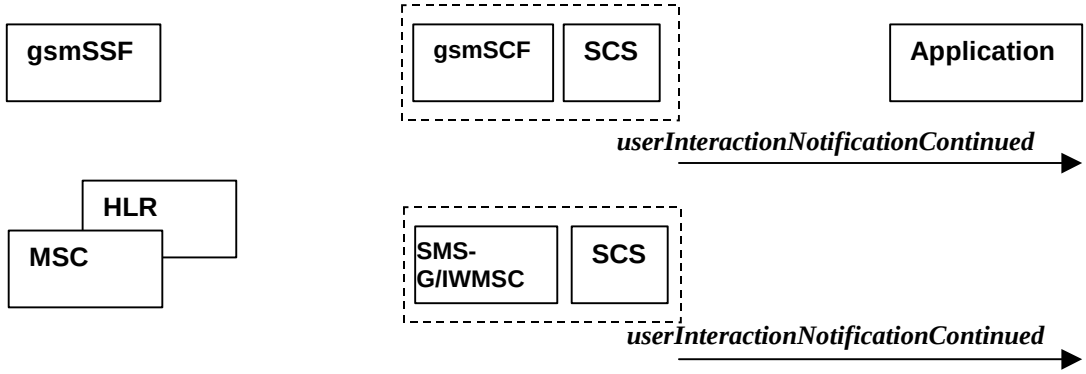
| Pre-conditions | User interaction event notifications have been enabled using the *enableUINotification* method on the UIManager interface |
|---|---|
| 1 | The SCS has detected, or has been informed of, a fault which prevents further user interaction events from being notified |
| 2 | The SCS invokes the ***userInteractionNotificationInterrupted*** method |

**Parameter Mapping**

None.

### 4.1.8 userInteractionNotificationContinued

***userInteractionNotificationContinued*** is a method that indicates to the application that user interaction event notifications will again be possible.




Note: There are no associated CAP or MAP, SMS Call Flows.

**Figure 4-7: Call Flow for userInteractionNotificationContinued**

**Table 4-10: Normal Operation**

| Pre-conditions | User interaction event notifications have been interrupted and *userInteractionNotificationInterrupted* **method has been invoked**. |
|---|---|
| 1 | The SCS detects that user interaction event notifications are again possible. |
| 2 | The SCS invokes the ***userInteractionNotificationContinued*** method. |

**Parameter Mapping**

None.

## 4.1.9 userInteractionFaultDetected

***userInteractionFaultDetected*** is a method that indicates to the application that a fault has been detected in the user interaction. This method is invoked e.g. if the call has been deassigned.

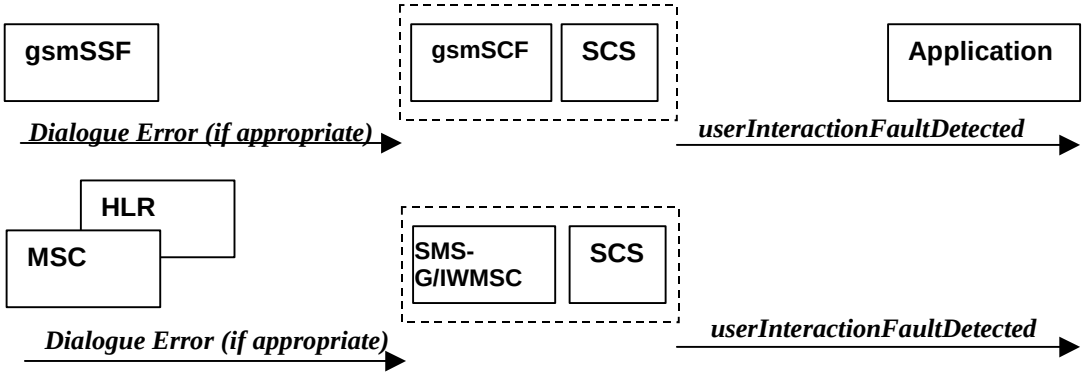



**Figure 4-8: Call Flow for userInteractionFaultDetected**

**Table 4-11: Normal Operation**

Two scenarios have been identified.

1. Interaction between a gsmSSF and gsmSCF

| Pre-conditions | User interaction is in progress between the gsmSSF and gsmSCF |
|---|---|
| 1 | The gsmSCF detects or receives an indication that there is an error in the user interaction |
| 2 | The gsmSCF sends an equivalent internal message to the SCS |
| 3 | The SCS invokes the ***userInteractionFaultDetected*** method to the appropriate application |

**Table 4-12:**

2. Interaction between a HLR or MSC and SMS-G/IWMSC.

| Pre-conditions | User interaction is in progress between the HLR or MSC and the SMS-G/IWMSC |
|---|---|
| 1 | The SMS-G/IWMSC detects or receives an indication that there is an error in the user interaction |
| 2 | The SMS-G/IWMSC sends an equivalent internal message to the SCS |
| 3 | The SCS invokes the ***userInteractionFaultDetected*** method to the appropriate application |

**Table 4-13: Parameter Mapping**

| From: Dialogue Error | To: *userInteractionFaultDetected* |
|---|---|
| | userInteractionIdentifier |
| | fault |
| ReturnError | |

### 4.1.10 sendInfoReq

***sendInfoReq*** is an asynchronous method that sends information to the user.

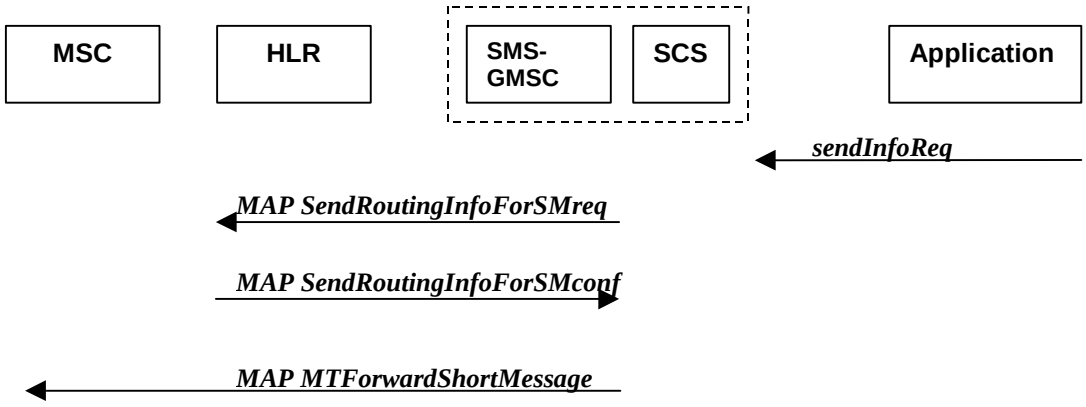



**Figure 4-9: Call Flow for sendInfoReq (scenario 1)**

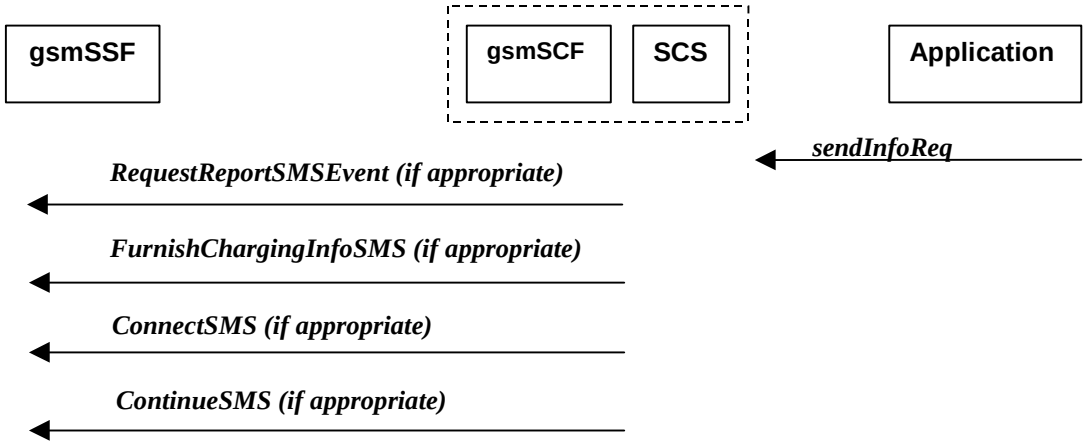



**Figure 4-10: Call Flow for sendInfoReq (scenario 2)**

**Table 4-14: Normal Operation**

Two Alternatives have been identified

1. MT SMS based interaction between the SMS-GMSC and MS

| Pre-conditions | SMS interaction required by application |
|---|---|
| 1 | The application invokes the sendInfoReq method |
| 2 | The SCS sends an equivalent internal message to the SMS-GMSC |
| 3 | The SMS-GMSC sends a MAP ***SendRoutinginfoForSM*** message to the HLR to obtain the serving MSC . If the MSC address is returned the SMS-GMSC will send one or more MAP ***MTForwardShortMessage*** messages. |

**Table 4-15:**

2. CAMEL MO SMS based interaction between the gsmSCF and gsmSSF

| **Pre-conditions** | **A control relationship exists between the gsmSCF and gsmSSF as a result of a prior *InitialDPSMS* message being received by the gsmSCF.** |
|---|---|
| 1 | The application invokes the ***sendInfoReq*** method |
| 2 | The SCS sends an equivalent internal message to the gsmSCF |
| 3 | The gsmSCF sends a ***RequestReportSMS*** message to the gsmSSF if the application requested a response in order to request an ***EventReportSMS*** message at a future point in time indicating SMS submission or failure. If the application logic has specified cost in the ***sendInfoReq***, the gsmSCF shall send a ***FurnishChargingInfoSMS*** to the gsmSSF. If the application modifies the target address for the original MO SMS, the gsmSCF shall send a ***ConnectSMS*** message to the gsmSSF, and if no address modification has been carried out by the application, a ***ContinueSMS*** message is sent from the gsmSCF to gsmSSF. |

**Table 4-16: Parameter Mapping**

Scenario 1

| **From: sendInfoReq** | **To: MAP SendRoutingInfoForSM** |
|---|---|
| userInteractionSessionID | |
| info (choice) | |
| infoID | |
| InfoData | |
| infoAddress | |
| variableInfoSet | |
| variablePartInteger | |
| variablePartAddress | MSISDN |
| variablePartTime | |
| variablePartDate | |
| variablePartPrice | |
| repeatIndicator | |
| responseRequested | |
| assignmentID | |
| | SM-PRI –(Note set enabled for direct SMS service) |
| | ServiceCentreAddress |

**Table 4-17:**

| From: sendInfoReq | To: MAP MTForwardShortMessage |
|---|---|
| userInteractionSessionID | |
| | SM RP DA = IMSI/LMSI from SRI Conf |
| | SM RP OA = SMS-GMSC Address (Not used in Reply) |
| | SM RP UI = 03.40 SMS-Deliver |
| | MessageTypeIndicator |
| | MoreMessagesToSend = RepeatIndicator |
| | ReplyPath = Not set for SendInfoReq (see Note) |
| | StatusReportInd = ResponseRequested |
| | OrigAddress (application SME) |
| info (choice) | |
| infoID | |
| infoData | Encoded in ShortMessagePDU; DataCoding Scheme,UserDataLength & UserData |
| infoAddress | |
| variableInfoSet | |
| variablePartInteger | |
| variablePartAddress | |
| variablePartTime | SC Time Stamp |
| variablePartDate | SC Time Stamp |
| variablePartPrice | |
| RepeatIndicator = MMS in UI above | |
| ResponseRequested = SRI in UI above | |
| assignmentID | |
| NOTE: SendInfoReq does not request a reply message, therefore the reply path shall be disabled. Replies to the message from the handset should be returned to the enabled SMSC for the handset. The SMSC can either discard replies or be configured to contact the application SME. | |

**Table 4-18: Scenario 2**

| From: sendInfoReq | To: RequestReportSMSEvent |
|---|---|
| userInteractionSessionID | |
| info (choice) | |
| infoID | |
| infoData | |
| infoAddress | |
| variableInfoSet | |
| repeatIndicator | |
| responseRequested | SMSEvent ; Enable an event if a sendInfoRes is needed |
| assignmentID | |

**Table 4-19:**

| From: sendInfoReq | To: FurnishChargingInfoSMS |
|---|---|
| userInteractionSessionID | |
| info (choice) | |
| infoID | |
| infoData | |
| infoAddress | |
| variableInfoSet | |
| variablePartInteger | |
| variablePartAddress | |
| variablePartTime | |
| variablePartDate | |
| variablePartPrice | FCI Billing Charging Characteristics |
| repeatIndicator | |
| responseRequested | |
| assignmentID | |

**Table 4-20:**

| From: sendInfoReq | To: ConnectSMS |
|---|---|
| userInteractionSessionID | |
| | CallingPartysNumber |
| info (choice) | |
| infoID | |
| infoData | |
| infoAddress | |
| variableInfoSet | |
| variablePartInteger | |
| variablePartAddress | DestinationSubscriberNumber |
| variablePartTime | |
| variablePartDate | |
| variablePartPrice | |
| repeatIndicator | |
| responseRequested | |
| assignmentID | |
| | SMSCAddress |

**No mapping exists between *sendInfoReq* and *continueSMS*.**

## 4.1.11 sendInfoRes

***sendInfoRes*** is an asynchronous method that informs the application about the start or the completion of a ***sendInfoReq()***. This response is called only if the application has requested a response.

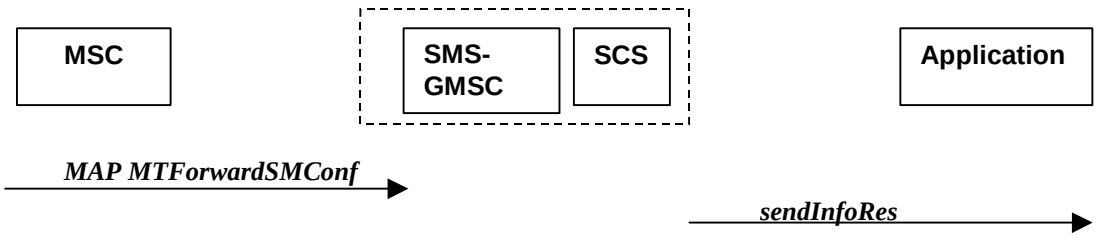



**Figure 4-11: Call Flow for sendInfoRes (scenario 1)**

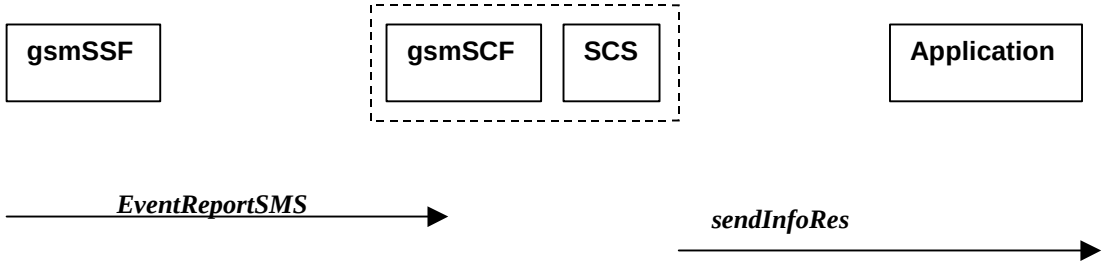



**Figure 4-12: Call Flow for sendInfoRes (scenario 2)**

**Table 4-21: Normal Operation**

Two alternatives have been identified

1. SMS based interaction between the MS and the SMS-GMSC

| Pre-conditions | The application has previously invoked the *sendInfoReq* method and has requested a notification |
|---|---|
| 1 | The SMS-GMSC receives a MAP ***MT-ForwardShortMessage confirmation*** message from the MSC |
| 2 | The SMS-GMSC sends an equivalent internal message to the SCS |
| 3 | The SCS identifies the correct application and invokes the ***sendInfoRes*** method |

**Table 4-22:**

2. Notification from gsmSSF to gsmSCF of an event previously requested by a RequestReportSMSEvent.

| Pre-conditions | |
|---|---|
| 1 | The gsmSCF has previously requested the gsmSSF to monitor for a particular SMS related event (e.g. SMS_Submitted, SMS_Failure) using the CAP ***RequestReportSMSEvent*** method. |
| 2 | The gsmSSF detects the SMS event and forwards the CAP ***EventReportSMS*** message to the gsmSCF. |
| 2 | The gsmSCF sends an equivalent internal message to the SCS |
| 3 | The SCS identified the correct application that previously requested notification of the event, and invokes the ***sendInfoRes*** method |

**Table 4-23: Parameter Mapping**

Scenario 1

| From: MAP MT-ForwardShortMessage | To: sendInfoRes |
|---|---|
| | userInteractionSessionID |
| | assignmentID |
| | response |

**Table 4-24:**

Scenario 2

| From: CAP EventReportSMS | To: sendInfoRes |
|---|---|
| | userInteractionSessionID |
| | assignmentID |
| EventType<br>smsSubmitted | Response = P_UI_MESSAGE_STORED |
| EventSpecificInfo | |
| MISC SMS Info | |

## 4.1.12 sendInfoErr

***sendInfoErr*** is an asynchronous method that indicates that the request to send information was unsuccessful.

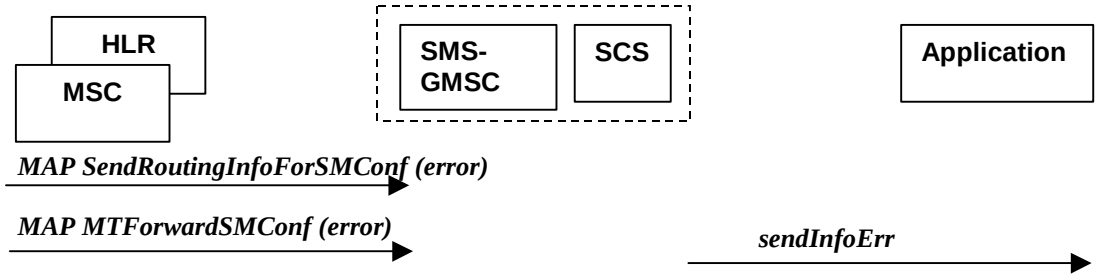



**Figure 4-13: Call Flow for sendInfoErr (scenario 1)**

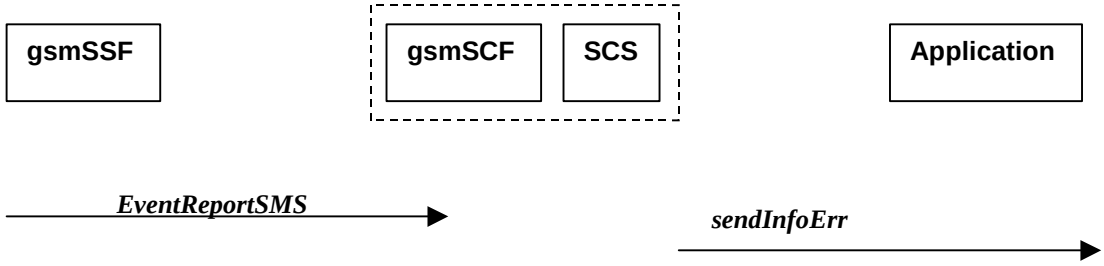



**Figure 4-14: Call Flow for sendInfoErr (scenario 2)**

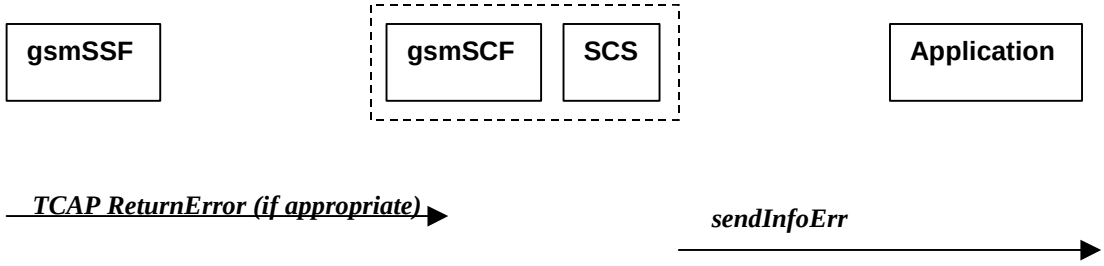



**Figure 4-15: Call Flow for sendInfoErr (scenario 3)**

**Table 4-25: Normal Operation**

Three alternatives have been identified.

1. MT SMS based interaction between the SMS-GMSC and MSC

| Pre-conditions | The application has previously invoked the *sendInfoReq* **method** |
|---|---|
| 1 | As part of the MT SMS delivery dialogue the SMS-GMSC is returned an error from either the HLR originated **sendRoutingInfoForSMConf**, or MSC originated **MTForwardSMConf.** |
| 2 | The SMS-GMSC sends an equivalent internal message to the SCS |
| 3 | The SCS identifies the correct application and invokes the ***sendInfoErr*** method |

**Table 4-26:**

2. MO SMS, notification from gsmSSF to gsmSCF of an event previously requested by a RequestReportSMSEvent.

| Pre-conditions | The application has previously invoked the *sendInfoReq* **method. Note:** responseRequested **shall be required in order to request notification of the subsequent event.** |
|---|---|
| 1 | The gsmSCF has previously requested the gsmSSF to monitor for a particular SMS related event (e.g. SMS_Submitted, SMS_Failure) using the CAP ***RequestReportSMSEvent*** method. |
| 2 | The gsmSSF detects the SMS event and forwards the CAP ***EventReportSMS*** message to the gsmSCF. |
| 3 | The gsmSCF sends an equivalent internal message to the SCS |
| 4 | The SCS identified the correct application that previously requested notification of the event, and invokes the ***sendInfoErr*** method |

**Table 4-27:**

3. MO SMS, dialogue error returned from gsmSSF to gsmSCF in response to prior message attempt required in relation to a ***sendInfoReq***.

| Pre-conditions | The application has previously invoked the *sendInfoReq* **method. Note:** responseRequested **may or may not be required.** |
|---|---|
| 1 | As a result of the contents of the ***sendInfoReq***, the gsmSCF has sent one of the following messages to the gsmSSF, RequestReportSMSEvent, FurnishChargingInfoSMS, ConnectSMS, ContinueSMS.. |
| 2 | If any individual message fails, a TCAP dialogue error shall be returned from gsmSSF to gsmSCF. |
| 3 | The gsmSCF sends an equivalent internal message to the SCS |
| 4 | The SCS identified the correct application that previously requested notification of the event, and invokes the ***sendInfoErr*** method |
| 5 | Depending on the message in error, the application may be required to release the SMS processing using the ***release*** method. |

**Table 4-28: Parameter Mapping**

Scenario 1

| From: MAP SendRoutingInfoForSM | To: sendInfoErr |
|---|---|
| | userInteractionSessionID |
| InvokeID | assignmentID |
| UserError | error |

**Table 4-29:**

| From: MAP ***MTForwardSM*** | To: ***sendInfoErr*** |
|---|---|
| | **userInteractionSessionID** |

| | |
|---|---|
| **InvokeID** | **assignmentID** |
| **UserError** | **error** |

**Table 4-30:**

Scenario 2

| From: CAP EventReportSMS | To: sendInfoErr |
|---|---|
| | userInteractionSessionID |
| | assignmentID |
| EventType<br>smsFailure | |
| EventSpecificInfo<br>FailureSpecificInfo | error |
| MISC SMS Info | |

**Table 4-31:**

Scenario 3

| From: TCAP Return Error | To: sendInfoErr |
|---|---|
| | userInteractionSessionID |
| InvokeID | assignmentID |
| Error | error |

## 4.1.13 sendInfoAndCollectReq

***sendInfoAndCollectReq*** is an asynchronous method that plays an announcement or sends other information to the user and collects some information from the user. The announcement usually prompts for a number of characters (for example, these are digits or text strings such as "YES" if the user's terminal device is a phone).

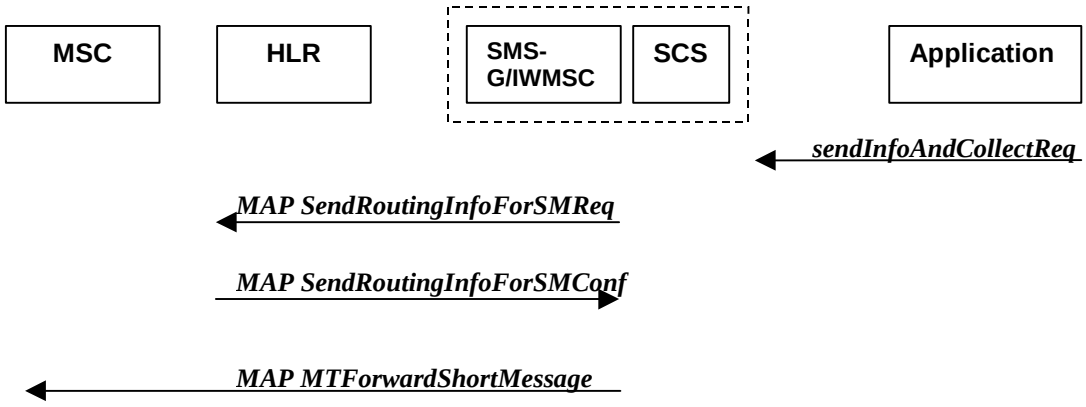



**Figure 4-16: Call Flow for sendInfoAndCollectReq (scenario 1)**

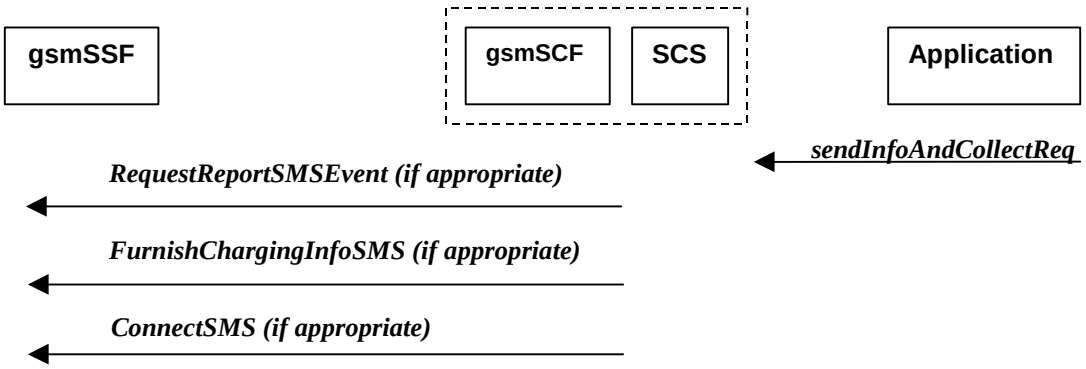



**Figure 4-17: Call Flow for sendInfoAndCollectReq (scenario 2)**

**Table 4-32: Normal Operation**

Two Alternatives have been identified.

1. MT SMS based interaction between the SMS-G/IWMSC and the MS

| Pre-conditions | SMS interaction requierd by application. SMS Gateway and Interworking MSC functionality supported on the same node. |
|---|---|
| 1 | The application invokes the ***sendInfoAndCollectReq*** method |
| 2 | The SCS sends an equivalent internal message to the SMS-GMSC |
| 3 | The SMS-GMSC sends a MAP ***SendRoutinginfoForSM*** message to the HLR to obtain the serving MSC . If the MSC address is returned the SMS-GMSC will send one or more MAP ***MTForwardShortMessage*** messages with the address of the SMS-GMSC as the service centre address for this message (SM_RP_OA), **and** the ReplyPath Flag in the SM_RP_UI enabled. This ensures that SMS replies are returned to the collocated SMS-IWMSC. |

**Table 4-33:**

2. CAMEL MO SMS based interaction between the gsmSCF and gsmSSF

| Pre-conditions | A control relationship exists between the gsmSCF and gsmSSF as a result of a prior *InitialDPSMS* **message being received by the gsmSCF.** |
|---|---|
| 1 | The application invokes the ***sendInfoAndCollectReq*** method |
| 2 | The SCS sends an equivalent internal message to the gsmSCF |
| 3 | The gsmSCF sends a ***RequestReportSMS*** message to the gsmSSF if the application requested a response in order to request an ***EventReportSMS*** message at a future point in time indicating SMS submission or failure. If the application logic has specified cost in the ***sendInfoAndCollectReq***, the gsmSCF shall send a ***FurnishChargingInfoSMS*** to the gsmSSF. |
| 4 | Whether modification of the destination of the original MO SMS takes place or not, the gsmSCF shall send a ***ConnectSMS*** message to the gsmSSF in order to set the calling party address to be used when replying to the SMS to the address of the gsmSCF. |

**NOTE:** **t**he ***ContinueSMS*** method does not map to the ***SendInfoAndCollectReq*** operation. Also the SMS-CSI triggers enabled in the network, ensure that the reply SMS results in an ***InitialDPSMS*** being delivered to the gsmSCF. See 4.1.14. This ***InitialDPSMS*** shall contain the collected information in response to the ***sendInfoAndCollectReq*** – this is limited to the first octet of the SMS-SUBMIT PDU, and indicates that a response message has been returned to the original message.

**Table 4-34: Parameter Mapping**

Scenario 1

| From: sendInfoAndCollectReq | To: MAP SendRoutingInfoForSM |
|---|---|
| userInteractionSessionID | |
| info (choice) | |
| infoID | |
| InfoData | |
| infoAddress | |
| variableInfoSet | |
| variablePartInteger | |
| variablePartAddress | MSISDN |
| variablePartTime | |
| variablePartDate | |
| variablePartPrice | |
| criteria | |
| repeatIndicator | |
| responseRequested | |
| assignmentID | |
| | SM-PRI –(Note set enabled for direct SMS service) |
| | ServiceCentreAddress |

**Table 4-35:**

| From: sendInfoAndCollectReq | To: MAP MTForwardShortMessage |
|---|---|
| userInteractionSessionID | |
| | SM RP DA = IMSI/LMSI from SRI Conf |
| | SM RP OA = SMS-GMSC Address USED in reply |
| | SM RP UI = 03.40 SMS-Deliver |
| | MessageTypeIndicator |
| | MoreMessagesToSend = RepeatIndicator |
| | ReplyPath = Set for SendInfoAndCollectReq (see Note) |
| | StatusReportInd = ResponseRequested |
| | OrigAddress (application SME) |
| info (choice) | |
| infoID | |
| infoData | Encoded in ShortMessagePDU; DataCoding Scheme,UserDataLength & UserData |
| infoAddress | |
| variableInfoSet | |
| variablePartInteger | |
| variablePartAddress | |
| variablePartTime | SC Time Stamp |
| variablePartDate | SC Time Stamp |
| variablePartPrice | |
| criteria | |
| RepeatIndicator = MMS in UI above | |
| ResponseRequested = SRI in UI above | |
| assignmentID | |
| NOTE: SendInfoAndCollectReq requests a reply SMS message, therefore the reply path shall be enabled. Replies to the message from the handset should be returned to the SMS-G/IWMSC. | |

**Table 4-36:**

Scenario 2

| From: sendInfoAndCollectReq | To: RequestReportSMSEvent |
|---|---|
| userInteractionSessionID | |
| info (choice) | |
| infoID | |
| infoData | |
| infoAddress | |
| variableInfoSet | |
| criteria | |
| repeatIndicator | |
| responseRequested | SMSEvent ; Enable an event if a sendInfoAndCollectRes is needed to confirm message delivered. |
| assignmentID | |

**Table 4-37:**

| From: sendInfoAndCollectReq | To: FurnishChargingInfoSMS |
|---|---|
| userInteractionSessionID | |
| info (choice) | |
| infoID | |
| infoData | |
| infoAddress | |
| variableInfoSet | |
| variablePartInteger | |
| variablePartAddress | |
| variablePartTime | |
| variablePartDate | |
| variablePartPrice | FCI Billing Charging Characteristics |
| criteria | |
| repeatIndicator | |
| responseRequested | |
| assignmentID | |

**Table 4-38:**

| From: sendInfoAndCollectReq | To: ConnectSMS |
|---|---|
| userInteractionSessionID | |
| | CallingPartysNumber = gsmSCF Address |
| info (choice) | |
| infoID | |
| infoData | |
| infoAddress | |
| variableInfoSet | |
| variablePartInteger | |
| variablePartAddress | DestinationSubscriberNumber |
| variablePartTime | |
| variablePartDate | |
| variablePartPrice | |
| criteria | |
| repeatIndicator | |
| responseRequested | |
| assignmentID | |
| | SMSCAddress |

NOTE: Modification of the SMSCAddress in the connectSMS above should not influence the reply path, as the parameter in the connectSMS is the target SMSC for the MO message prior to MT delivery attempt.

### 4.1.14 sendInfoAndCollectRes

***sendInfoAndCollectRes*** is an asynchronous method that returns the information collected to the application.

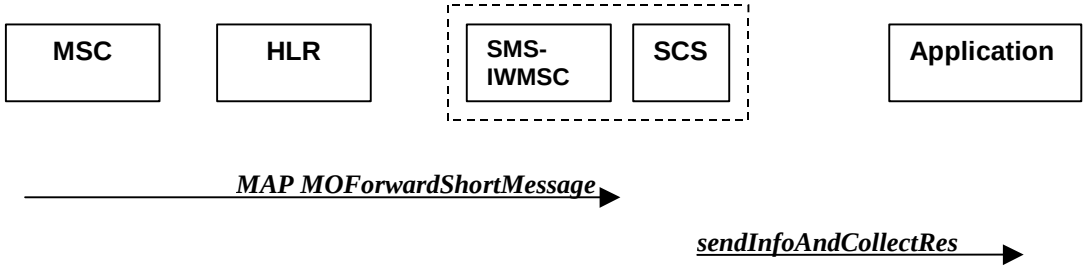



**Figure 4-18: Call Flow for sendInfoAndCollectRes (scenario 1)**

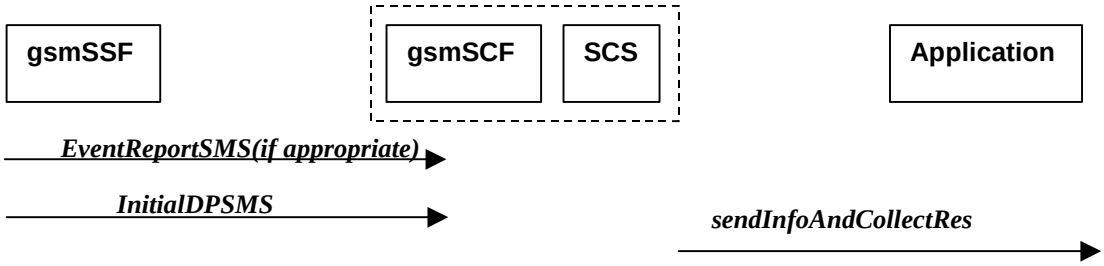



**Figure 4-19: Call Flow for sendInfoAndCollectRes (scenario 2)**

**Table 4-39: Normal Operation**

Two alternatives have been identified.

1. SMS based interaction between the SMS-G/IWMSC and MS

| **Pre-conditions** | **The application has invoked a** *sendInfoAndCollectReq***()** |
|---|---|
| 1 | The SMS-IWMSC receives a MAP ***MOForwardShortMessage*** message from the MSC |
| 2 | The SMS-IWMSC sends an equivalent internal message to the SCS |
| 3 | The SCS invokes the ***sendInfoAndCollectRes*** method to the correct applications |

**Table 4-40:**

2. CAMEL MO SMS interaction between gsmSSF and gsmSCF.

| Pre-conditions | The gsmSCF has previously enabled the SMS-CSI DP triggers using the MAP *AnyTimeModification* **for the origination mobile subscriber address** |
|---|---|
| 1 | The gsmSCF may have previously requested the gsmSSF to monitor for a particular SMS related event (e.g. SMS_Submitted, SMS_Failure) using the CAP ***RequestReportSMSEvent*** method.<br><br>This shall result in the ***EventReportSMS*** method being sent to the gsmSCF. |
| 2 | The gsmSCF has previously issued a ***ConnectSMS*** for a previous MO SMS delivery and modified the Calling Parties Number to the address of the gsmSCF so that reply SMS messages addressed to the gsmSCF are considered in response to the original MO SMS.<br><br>The delivery of an ***InitialDPSMS*** where the destinationSunscriberNumber is the gsmSCF is an indication that the related MO SMS is in response to a prior message delivered as a result of the **sendInfoAndCollectReq**. |
| 3 | The gsmSCF sends an equivalent internal message to the SCS when either ***EventReportSMS*** or ***InitialDPSMS*** are received. |
| 4 | The SCS identified that the messages are in response to a prior ***sendInfoAndCollectReq*** and invokes the ***sendInfoAndCollectRes*** method |

**Post condition**

After the application has been informed of the *sendInfoAndCollectRes* method. It shall continue to handle the SMS as outlined in 4.1.5.

**Table 4-41: Parameter Mapping**

Scenario 1

| From: MAP MO ForwardShortMessage | To: sendInfoAndCollectRes |
|---|---|
| | userInteractionSessionID |
| | assignmentID |
| | response |
| SMS-SUBMIT PDU | Info (only the User data component is mapped) |

**Table 4-42:**

Scenario 2

| From: CAP EventReportSMS | To: sendInfoAndCollectRes |
|---|---|
| | userInteractionSessionID |
| | assignmentID |
| EventType<br>smsSubmitted | response = P_UI_MESSAGE_STORED |
| EventSpecificInfo | |
| MISC SMS Info | |
| | info |

**Table 4-43:**

| From: initialDPSMS | To: *sendInfoAndCollectRes* |
|---|---|
| | userInteractionSessionID |
| | assignmentID |
| | response |
| CallingPartyNumber | |
| DestinationSubscriberNumber | |
| ServiceKey | |
| EventType | |
| IMSI | |
| LocationInfo in MSC ( C ) | |
| LocationInfor in SGSN ( C ) | |
| Time&Timezone | |
| TP-ShortMessageSubmissionSpecificInfo | info |
| TP-ProtocolIdentifier | |
| TP-DataCodingScheme | |
| TP-ValidityPeriod ( C ) | |
| SMSC Address | |
| NOTE: C = Conditional, supplied if available | |

## 4.1.15 sendInfoAndCollectErr

***sendInfoAndCollectErr*** is an asynchronous method that indicates that the request to send information and collect a response was unsuccessful.

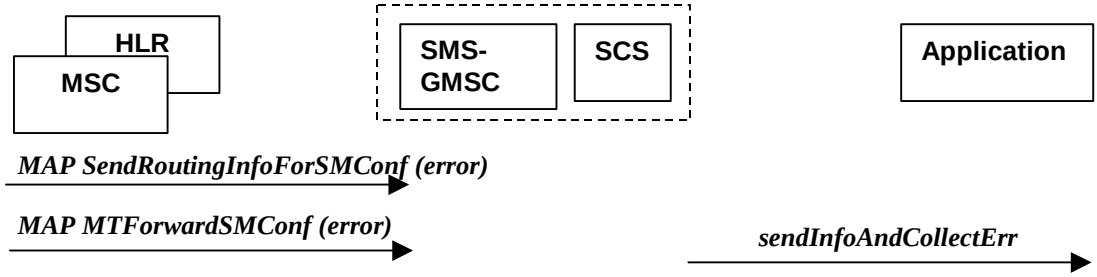



**Figure 4-20: Call Flow for sendInfoAndCollectErr (scenario 1)**

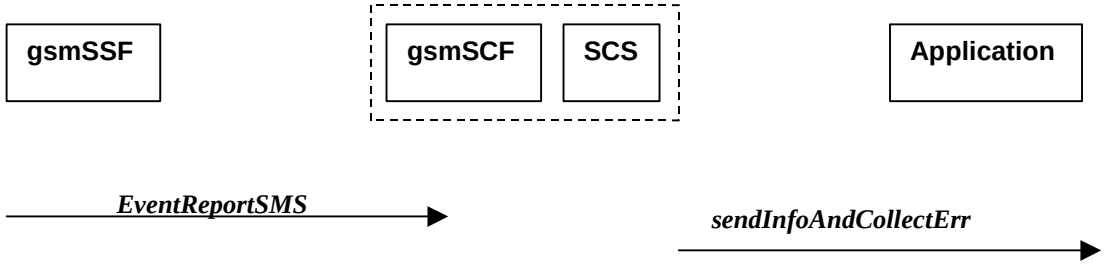



**Figure 4-21: Call Flow for sendInfoAndCollectErr (scenario 2)**

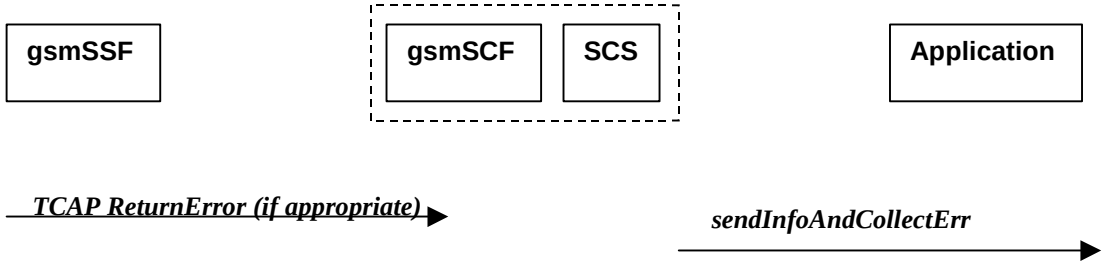



**Figure 4-22: Call Flow for sendInfoAndCollectErr (scenario 3)**

**Table 4-44: Normal Operation**

Three Alternatives have been identified

1 MT SMS based interaction between the SMS-GMSC and MS

| Pre-conditions | The application has previously invoked the *sendInfoAndCollectReq* method |
|---|---|
| 1 | As part of the MT SMS delivery dialogue the SMS-GMSC is returned an error from either the HLR originated **sendRoutingInfoForSMConf**, or MSC originated **MTForwardSMConf.** |
| 2 | The SMS-GMSC sends an equivalent internal message to the SCS |
| 3 | The SCS identifies the correct application and invokes the ***sendInfoAndCollectErr*** method |

**Table 4-45:**

2. MO SMS, notification from gsmSSF to gsmSCF of an event previously requested by a RequestReportSMSEvent.

| Pre-conditions | The application has previously invoked the *sendInfoAndCollectReq* method. Note: responseRequested **shall be required in order to request notification of the subsequent event.** |
|---|---|
| 1 | The gsmSCF has previously requested the gsmSSF to monitor for a particular SMS related event (e.g. SMS_Submitted, SMS_Failure) using the CAP ***RequestReportSMSEvent*** method. |
| 2 | The gsmSSF detects the SMS event and forwards the CAP ***EventReportSMS*** message to the gsmSCF. |
| 3 | The gsmSCF sends an equivalent internal message to the SCS |
| 4 | The SCS identified the correct application that previously requested notification of the event, and invokes the ***sendInfoAndCollectErr*** method |

**Table 4-46:**

3. MO SMS, dialogue error returned from gsmSSF to gsmSCF in response to prior message attempt required in relation to a ***sendInfoAndCollectReq***.

| Pre-conditions | The application has previously invoked the *sendInfoAndCollectReq* method. Note: responseRequested **may or may not be required.** |
|---|---|
| 1 | As a result of the contents of the ***sendInfoAndCollectReq***, the gsmSCF has sent one of the following messages to the gsmSSF, RequestReportSMSEvent, FurnishChargingInfoSMS, ConnectSMS. |
| 2 | If any individual message fails, a TCAP dialogue error shall be returned from gsmSSF to gsmSCF. |
| 3 | The gsmSCF sends an equivalent internal message to the SCS |
| 4 | The SCS identified the correct application that previously requested notification of the event, and invokes the ***sendInfoAndCollectErr*** method |
| 5 | Depending on the message in error, the application may be required to release the SMS processing using the ***release*** method. |

**Table 4-47: Parameter Mapping**

Scenario 1

| From: MAP SendRoutingInfoForSM | To: sendInfoAndCollectErr |
|---|---|
| | userInteractionSessionID |
| InvokeID | assignmentID |
| UserError | error |

**Table 4-48:**

| From: MAP MTForwardSM | To: sendInfoAndCollectErr |
|---|---|
| | userInteractionSessionID |
| InvokeID | assignmentID |
| UserError | error |

**Table 4-49:**

Scenario 2

| From: CAP EventReportSMS | To: sendInfoAndCollectErr |
|---|---|
| | userInteractionSessionID |
| | assignmentID |
| EventType<br>smsFailure | |
| EventSpecificInfo<br>FailureSpecificInfo | error |
| MISC SMS Info | |

**Table 4-50:**

Scenario 3

| From: **TCAP** Return Error | To: *sendInfoAndCollectErr* |
|---|---|
| | userInteractionSessionID |
| | assignmentID |
| error | error |

## 4.1.16 release

***release*** is a method that requests that the relationship between the application and the user interaction object be released. It causes the release of the used user interaction resources and interrupts any ongoing user interaction.

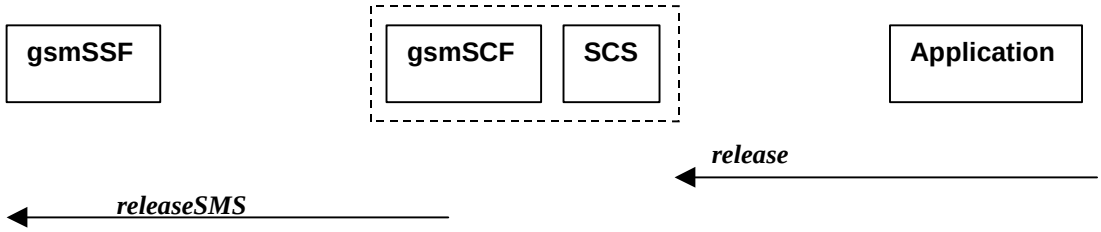



**Figure 4-23: Call Flow for release**

**Table 4-51: Normal Operation**

Interaction between gsmSSf and gsmSCF as a result of receiving InitialDPSMS

| Pre-conditions | The gsmSSF has previously delivered a InitialDPSMS to the gsmSCF |
|---|---|
| 1 | The application invokes a release |
| 2 | The SCS sends an equivalent internal message to the gsmSCF |
| 3 | The gsmSCF sends a CAP ***releaseSMS***to the gsmSSF |

**Table 4-52: Parameter Mapping**

| **From:** release | **To: CAP** releaseSMS |
|---|---|
| userInteractionSessionID | |
| | Cause |

## 4.1.17 abortActionReq

***abortActionReq*** is an asynchronous method that aborts a user interaction operation. This is a method that does not map to SMS.

## 4.1.18 abortActionRes

***abortActionRes*** is an asynchronous method that confirms that the request to abort a user interaction operation on a call was successful. This is a method that does not map to SMS

## 4.1.19 abortActionErr

***abortActionErr*** is an asynchronous method that indicates that the request to abort a user interaction on a call resulted in an error. This is a method that does not map to SMS

# Annex A (informative): Change history

| Change history | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Date** | **TSG #** | **TSG Doc.** | **CR** | **Rev** | **Subject/Comment** | **Old** | **New** |
| 16 Mar 2001 | CN_11 | NP-010131 | 011 | - | CR 29.998: for moving TR 29.998 from R99 to Rel 4 (N5-010159) | 3.2.0 | 1.0.1 |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

# History

| Document history | | |
|---|---|---|
| 1.0.0 | 10 March 2001 | Submitted by CN5 to CN#11 for Information |
| 1.0.1 | 16 March 2001 | Noted by CN#11. Editorial clean-up my MCC. |
| 2.0.0 | 6 June 2001 | No change at all from the previous version (V1.0.1). Updated version number, date and history box for submission to CN#12 for Approval and placement under TSG change control (CR regime). |
| | | |
| | | |
| | | |