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Technical Report

**Universal Mobile Telecommunications System (UMTS);
Open Service Access (OSA);
Application Programming Interface (API);
Mapping for Open Service Access;
Part 6: User location - user status service mapping;
Supart 2: Mapping to Session Initiation Protocol (SIP)
(3GPP TR 29.998-06-2 version 7.0.0 Release 7)**

Reference

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Keywords

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Contents

Foreword

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1 presented to TSG for information;

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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 present document is part 6 of a multi-part deliverable covering the Open Service Access (OSA); Application Programming Interface (API) Mapping for OSA.

Table: Overview of the OSA APIs & Protocol Mappings 29.198 & 29.998-family

OSA API specifications 29.198-family						OSA API Mapping - 29.998-family	
29.198-01	Overview					29.998-01	Overview
29.198-02	Common Data Definitions					*29.998-02*	*Not Applicable*
29.198-03	Framework					*29.998-03*	*Not Applicable*
Call Control (CC) SCF	29.198-04-1 Common CC data definitions	29.198-04-2 Generic CC SCF	29.198-04-3 Multi-Party CC SCF	29.198-04-4 Multi-media CC SCF	29.198-04-5 Conf. CC SCF	29.998-04-1	Generic Call Control – CAP mapping
						29.998-04-2	*Generic Call Control – INAP mapping*
						29.998-04-3	*Generic Call Control – Megaco mapping*
						29.998-04-4	Multiparty Call Control – ISC mapping
29.198-05	User Interaction SCF					29.998-05-1	User Interaction – CAP mapping
						29.998-05-2	*User Interaction – INAP mapping*
						29.998-05-3	*User Interaction – Megaco mapping*
						29.998-05-4	User Interaction – SMS mapping
29.198-06	Mobility SCF					29.998-06-1	User Status and User Location – MAP mapping
						29.998-06-2	**User Status and User Location – SIP mapping**
29.198-07	Terminal Capabilities SCF					*29.998-07*	*Not Applicable*
29.198-08	Data Session Control SCF					29.998-08	Data Session Control – CAP mapping
29.198-09	*Generic Messaging SCF*					*29.998-09*	*Not Applicable*
29.198-10	*Connectivity Manager SCF*					*29.998-10*	*Not Applicable*
29.198-11	Account Management SCF					*29.998-11*	*Not Applicable*
29.198-12	Charging SCF					*29.998-12*	*Not Applicable*
29.198-13	Policy Management SCF					*29.998-13*	*Not Applicable*
29.198-14	Presence & Availability Management SCF					*29.998-14*	*Not Applicable*
29.198-15	Multi Media Messaging SCF					*29.998-15*	*Not Applicable*
29.198-16	Service Broker SCF					*29.998-16*	*Not Applicable*

1 Scope

The present document investigates how the OSA Mobility Interface Class methods defined in 3GPP TS 29.198-6 [5] can be mapped onto IMS ISC Interface (SIP) operations.
The mapping of the OSA API to the SIP 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 23.198 [3]. The requirements for OSA are defined in 3GPP TS 22.127 [2].

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

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

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

[3]   3GPP TS 29.198-2: "Open Service Access (OSA) Application Programming Interface (API); Part 2: Common data definitions".

[4]   3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[5]   3GPP TS 29.198-6: "Open Service Access (OSA); Application Programming Interface (API); Part 6: Mobility".

[6]   3GPP TS 24.229 : "IP multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP);",

[7]   3GPP TS 23.218 : "IP Multimedia (IM) session handling; IM call model; Stage 2"

[8]   3GPP TS 22.101: "Service Aspects; Service Principles".

[9]   IETF RFC 3261: "SIP:Session Initiation Protocol"

[10]   3GPP TR 29.998-1: "Open Service Access (OSA); Application Programming Interface (API) Mapping for OSA; 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   User Status Service SIP Flows

The User Status (US) interface class allows applications to obtain the status of mobile telephony users.

4.1   triggeredStatusReportingStartReq

TriggeredStatusReportingStartReq is a method that request for triggered status reports when one or several users' is registrered/re-registrerd from the IMS core network. The user status service will only send a report when the status changes (registred to de-registred and vice-versa).
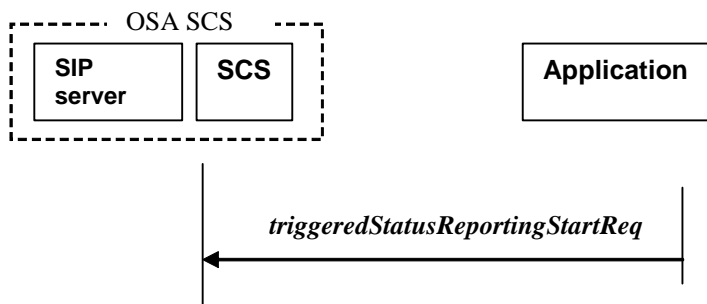

Figure 4-1: Call Flow for triggeredStatusReportingStartReq

Table 4-1: Normal Operation

Pre-conditions	An agreement is established between the network operator and the service provider for the status notification to be enabled
1	The application invokes the *triggeredStatusReportingStartReq* method for one or several users
2	The SCS requests the controlled SIP server to observe for 3rd Party SIP REGISTER to be notified to the application. The SCS reports the current available status to the application using **triggeredStatusReport()** (see section § 4.5)

Table 4-2: Parameter Mapping

From: triggeredStatusReportingStartReq	To: SIP	Remarks
appStatus (IpAppUserStatusRef)	N/A	
Users (TpAddressSet)	See table 6-1 TpAddress (Set) for mapping to SIP	
TpAssignmentID	N/A	Returns assignmentID to application, which specifies the ID assigned by the User Status manager interface for this newly trigger notification.

4.2 triggeredStatusReportingStop

triggeredStatusReportingStop is a method that is used by the application to disable triggered user status notifications.
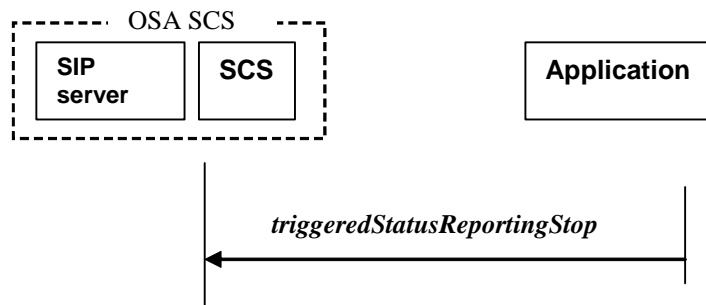

Figure 4-2: Call Flow for triggeredStatusReportingStop

Table 4-3: Normal Operation

Pre-condition	The application has invoked *triggeredStatusReportingReq()*
1	The application invokes the *triggeredStatusReportingStop()* method for one, several or all users within an assignment (i.e. requested with the corresponding *triggeredStatusReportingStartReq()*)
2	The trigger setting on the appropriate subscriber status is disabled.

Table 4-4: Parameter Mapping

From: triggeredStatusReportingStop	To: SIP	Remarks

stopRequest :
(TpMobilityStopAssignmentData)
 	
  - **stopScope** (TpMobilityStopScope)
  - **users** (TpAddressSet)
  - **assignmentID** (TpAssignmentID)
	stopScope not mapped to SIP
	
	See table 6-1 TpAddress (Set) for mapping to SIP
	
	TpAssignmentID not mapped to SIP	

4.3 statusReportReq

statusReportReq is a method that is used by the application to request a user status report (registered/unregistred in IMS core network). Note that this can be requested for multiple users at the same time.
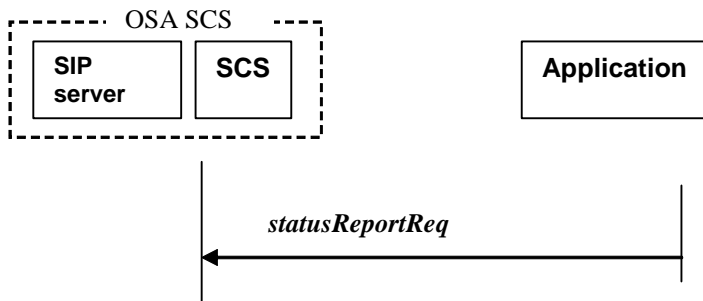

Figure 4-3: Call Flow for statusReportReq

Table 4-5: Normal Operation

Pre-conditions	
1	The application invokes the **statusReportReq()** method
2	The SCS checks the subscriber status and the current status is returned to the application via **statusReportRes()**. See section §4.4.

Table 4-6: Parameter Mapping

From: statusReportReq	To: SIP
appStatus (IpAppUserStatusRef)	N/A
Users (TpAddressSet)	See table 6-1 TpAddress (Set) for mapping to SIP
TpAssignmentID	N/A

4.4   statusReportRes

statusReportRes delivers a report indicating if a user has been registred or unregistred. Note that this can be requested for multiple users at the same time.
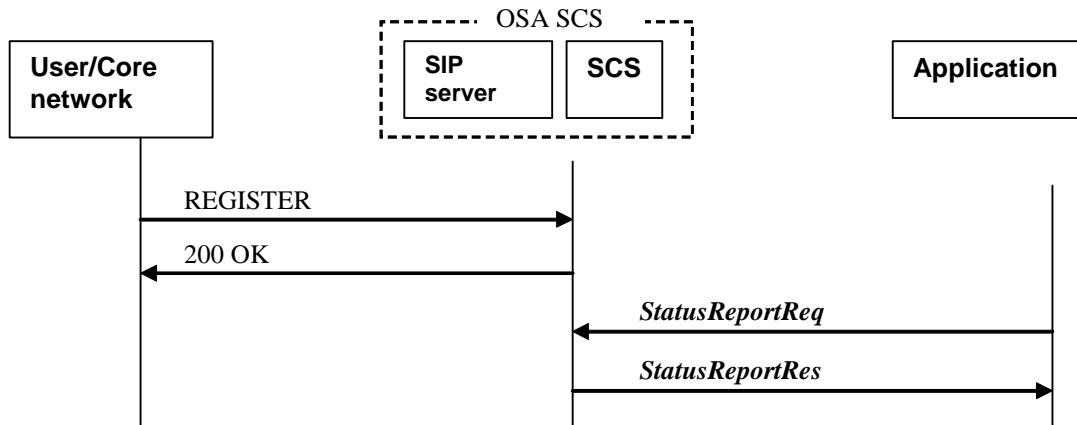

Figure 4-4: Call Flow for statusReportRes

Table 4-7: Normal Operation

Pre-condition	The application has invoked a *statusReportReq*
1	The OSA SCS has collected subscriber status based on REGISTER notifications received/or not received from the network. Note that several contact addresses can be registered for a subscriber Address-of-Record.
2	The current subscriber status is returned to the application using **statusReportRes()**. A subscriber is reachable if at least one valid SIP or TEL contact address is registered.

Table 4-8: Parameter Mapping

To: statusReportRes	From: SIP Register	Remarks
Status (TpUserStatus)		
userID (TpAddress)	SIP URL in the TO header See table 6-1 TpAddress for mapping to SIP	
statusCode (TpMobilityError)	Not mapped to SIP	
Status (TpUserStatusIndicator)	Not mapped to SIP	A subscriber is reachable if at least one valid SIP or TEL contact address is registered.
TerminalType (TpTerminalType)	Not mapped to SIP	
AssignmentID (TpAssignmentID)	N/A	

4.5 triggeredStatusReport

triggeredStatusReport is a method that is used to notify the application of the the change of the subscriber(s) status from Registred to Unregistred and vice-versa.
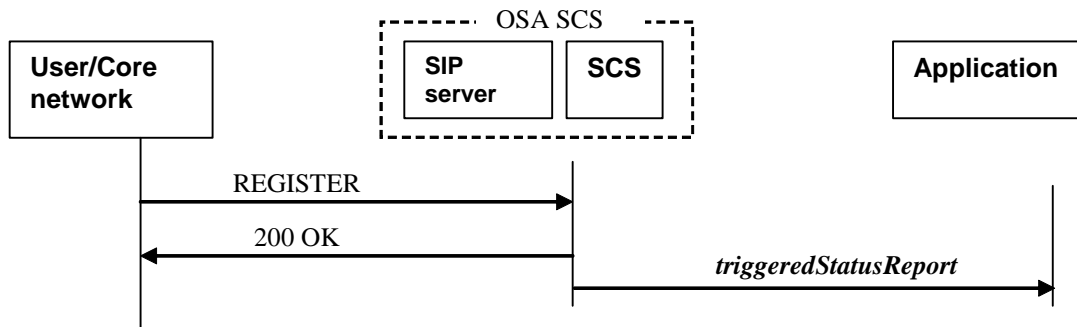

Figure 4-5: Call Flow for triggeredStatusReport, triggered by SIP REGISTER

Table 4-9: Normal Operation

Pre-conditions	Status repoting has been enabled by triggerStatusReportingStartReq
1	A third party **REGISTER** arrives from IMS core network. This request is detected by the SIP Server which determines if an overall status change has occurred for the subscriber
2	If the subscriber status has changed the OSA SCS identifies the application that requested these users status changes (from registred to un-registered and vice-versa) and invokes the **triggeredStatusReport** method appropriately.

Table 4-10: Parameter Mapping

To triggeredStatusReport	From: SIP Register	Remarks
Status (TpUserStatus)		
userID (TpAddress)	SIP URL in the TO header See table 6-1 TpAddress for mapping to SIP	
statusCode (TpMobilityError)	Not mapped to SIP	
Status (TpUserStatusIndicator)	Not mapped to SIP directly.	Only a change in the overall subscriber status is reported. A REGISTER could be an initial registration (status change to reachable), refresh an existing contact, add an additional contact or remove one, several or all contacts (removing the last contact would result in a status change to unreachable). Also the registration timer expiring for the last remaining contact would result in a status change to unreachable.
TerminalType (TpTerminalType)	Not mapped to SIP	
AssignmentID **(TpAssignmentID)**	N/A	

5 User Location Service Flows

5.1 locationReportReq

5.2 locationReportRes

5.3 locationReportErr

5.4 periodicLocationReportingStartReq

5.5 periodicLocationReportingStop

5.6 periodicLocationReport

5.7 periodicLocationReportErr

5.8 triggeredLocationReportingStartReq

5.9 triggeredLocationReportingStop

5.10 triggeredLocationReport

5.11 triggeredLocationReportErr

6 Detailed parameter mappings

6.1 TpAddress

Table 6-1: TpAddress Table mapping

From: TpAddress	To: SIP	Remark
Plan (TpAddressPlan)	SIP	Specifies the address plan in force. Here only all the address schemes which are allowed in SIP are applicable.
AddrString (TpString)	Any URL schemes allowed by RFC 3261	Contains a valid SIP address string. A few examples of SIP URLs: - A user of an online service: "sip:user@xxx.org" "sip:alice@10.1.1.1" - A PSTN phone number at a gateway service: "sip:1212@gateway.com", "sip: +1-212-555-1212:1234@gateway.com; user =phone" An example of tel URL: tel: +1-212-555-1212
Presentation (TpAddressPresentation)	N/A	
Screening (TpAddressScreeing)	N/A	
Name (TpString)	N/A	
SubAddressString (TpString)	N/A	
NOTE: The AddrString defines the actual address information and the structure of the string depends on the Plan. Further information can be found in the OSA API part covering common data definitions (TS 29.198-2 [3]).		

Annex A:
Change history

Change history							
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2007	CT_35	CP-070056	--	--	Submitted to TSG CT#35 for Approval.	1.0.0	7.0.0

History

Document history		
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