3GPP TSG CN Plenary Meeting #17
4 - 6 September 2002, Biarritz, FRANCE

NP-020436

Source:	**CN5 (OSA)**								

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Title: **Rel-5 CR 29.198-11 OSA API Part 11: Account management**

Agenda item: **8.2**

Document for: **APPROVAL**

Doc-1st-Level	Spec	CR	Rev	Phase	Subject	Cat	Version -Current	Doc-2nd-Level	Workitem
NP-020436	29.198-11	011	-	Rel-5	Correction of IpAccountManager STD to permit multiple notifications	F	5.0.0	N5-020702	OSA2
NP-020436	29.198-11	012	-	Rel-5	Add text to clarify requirements on support of methods	F	5.0.0	N5-020724	OSA2
NP-020436	29.198-11	013	-	Rel-5	Add missing callback interface for notifications in Account Management	F	5.0.0	N5-020757	OSA2

CR-Form-v5

CHANGE REQUEST

| ⌘ | **29.198-11** CR **011** | ⌘ **rev** | **-** | ⌘ | Current version: | **5.0.0** | ⌘ |

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

Title: ⌘	Correction of IpAccountManager STD to permit multiple notifications	
Source: ⌘	CN5	
Work item code: ⌘	OSA2	***Date:*** ⌘ 12/07/2002
Category: ⌘	**F**	***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 <u>TR 21.900</u>.

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: ⌘	The State Transition Diagram for IpAccountManager clearly permits only one set of Notifications to be active at a time, i.e. no second or subsequent createNotifications may be invoked until the first set of notifications has been destroyed. This behaviour contradicts the notifications-related behaviour of the other SCFs, and makes the assignmentID parameter redundant. Therefore it is assumed that this is not the intended behaviour.
Summary of change: ⌘	Correct the STD for IpAccountManager to permit more than one set of notifications to be active at any given time.
Consequences if not approved: ⌘	The assignmentID parameter should be removed from the Notifications methods, since it is redundant. The descriptions of createNotifications should be updated to make clear that the intended behaviour deviates from that of the other SCFs, allowing only one set of notifications at a time.

Clauses affected: ⌘	9		
Other specs affected: ⌘	☐ Other core specifications ⌘		
	☐ Test specifications		
	☐ O&M Specifications		
Other comments: ⌘			

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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.

9 State Transition Diagrams

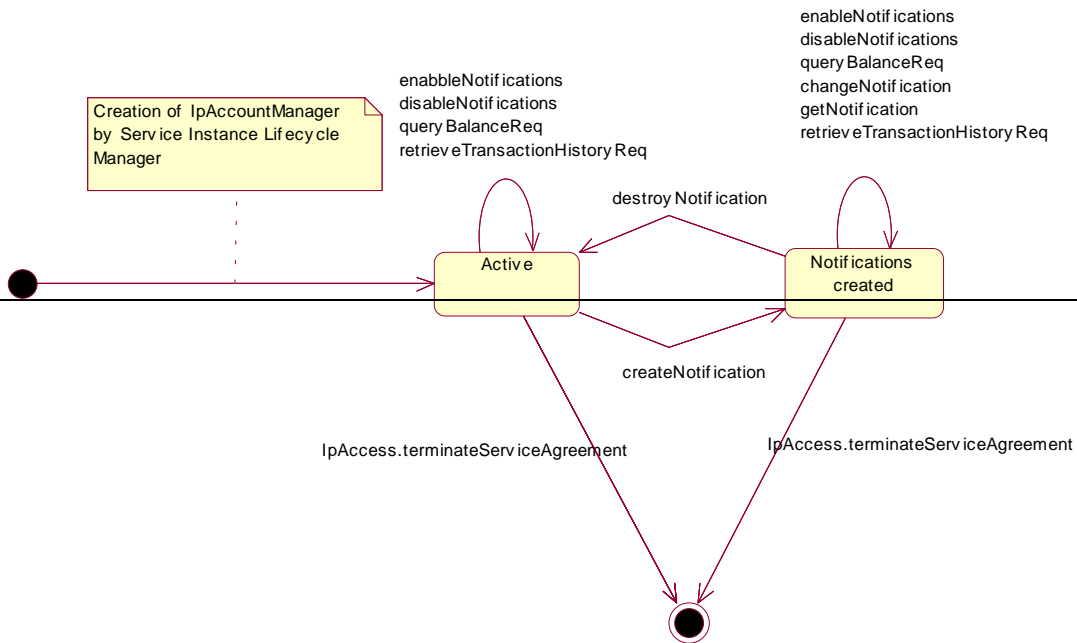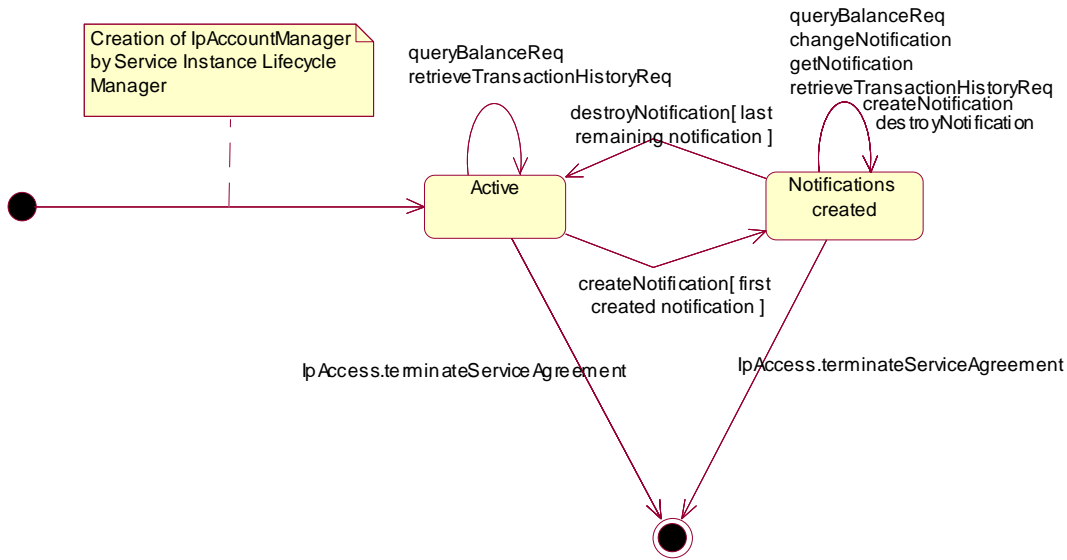## 9.1 State Transition Diagrams for IpAccountManager

Figure : Application view on the IpAccountManager

9.1.1   Active State

In this state a relation between the Application and the Account Management has been established. The state allows the application to indicate that it is interested in charging related events, by calling createNotification/enableNotifications. In case such an event occurs, Account Manager will inform the application by invoking the operation reportNotification() on the IpAppAccountManager interface. The application can also indicate it is no longer interested in certain charging related events by calling destroyNotification/disableNotifications.

9.1.2   Notifications created State

When the Account Manager is in the Notifications created state, events requested with createNotification/enableNotifications will be forwarded to the application. In this state the application can request to change the notifications or query the Account Manager for the notifications currently set.

CR-Form-v5

CHANGE REQUEST

⌘ **29.198-11 CR 012** ⌘ **rev** **-** ⌘ Current version: **5.0.0** ⌘

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

Title: ⌘	Add text to clarify requirements on support of methods	
Source: ⌘	CN5	
Work item code: ⌘	OSA2	***Date:*** ⌘ 12/07/2002

Category: ⌘ **F**

Use <u>one</u> of the following categories:
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Release: ⌘ *REL-5*

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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: ⌘	It is not clear in the OSA Specifications what exactly is meant by support of a method: is it sufficient to include such code as to respond correctly to a method invocation with the exception P_METHOD_NOT_SUPPORTED, or is it required to support the functionality described and defined by the method?
Summary of change: ⌘	Add text to clause 4 to indicate that support or implementation of a method requires that the functionality of the method be supported or implemented.
Consequences if not approved: ⌘	Different vendors and application developers will each build equipment and applications which they claim to be conformant, but which will never interwork.

Clauses affected: ⌘	4
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments: ⌘	

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4 Account Management SCF

The following clauses describe each aspect of the Account Management Service Capability Feature (SCF).

The order is as follows:

- The Sequence diagrams give the reader a practical idea of how each of the SCFs is implemented.

- The Class relationships clause shows how each of the interfaces applicable to the SCF, relate to one another

- The Interface specification clause describes in detail each of the interfaces shown within the Class diagram part.

- The State Transition Diagrams (STD) show the progression of internal processes either in the application, or Gateway.

- The Data definitions section shows a detailed expansion of each of the data types associated with the methods within the classes. Note that some data types are used in other methods and classes and are therefore defined within the Common Data types part of this specification.

An implementation of this API which supports or implements a method described in the present document, shall support or implement the functionality described for that method, for at least one valid set of values for the parameters of that method. Where a method is not supported by an implementation of a Service interface, the exception P_METHOD_NOT_SUPPORTED shall be returned to any call of that method.

CR-Form-v5

CHANGE REQUEST

| ⌘ | **29.198-11** CR **013** | ⌘**rev** | **-** | ⌘ | Current version: | **5.0.0** | ⌘ |

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

Title: ⌘	Add missing callback interface for notifications in Account Management	
Source: ⌘	CN5	
Work item code: ⌘	OSA2	***Date:*** ⌘ 12/07/2002
Category: ⌘ **F**		***Release:*** ⌘ REL-5

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   R98   *(Release 1998)*
   R99   *(Release 1999)*
   REL-4 *(Release 4)*
   REL-5 *(Release 5)*

Reason for change: ⌘	The notification mechanism of Account Management is not aligned with that of other APIs. This is confusing for application developers.	
Summary of change: ⌘	Added a callback parameter to createNotification() and related descriptions.	
Consequences if not approved: ⌘	APIs will be less understandable.	

Clauses affected: ⌘	8.1		
Other specs affected: ⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications		
Other comments: ⌘			

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Introduction

All Parlay/OSA APIs that contain a mechanism for creating and reporting notifications allow a callback interface to be specified by the application on which the notifications shall be reported. This callback is however missing from the Account Management API.

Furthermore, as was already been discussed during the meeting in Budapest, the sequence diagrams in AM do not show the use of setCallback() which is required if no callback can be specified with createNotification().

To align AM with other APIs it is proposed to introduce the callback for notifications.

Proposed Changes

The following changes are proposed to 29.198-11:

8.1 Interface Class IpAccountManager

Inherits from: IpService.

The account manager interface provides methods for monitoring accounts. Applications can use this interface to enable or disable charging-related event notifications and to query account balances.

<<Interface>>
IpAccountManager
createNotification (<u>appAccountManager : in IpAppAccountManagerRef,</u> chargingEventCriteria : in TpChargingEventCriteria) : TpAssignmentID
destroyNotification (assignmentId : in TpAssignmentID) : void
queryBalanceReq (users : in TpAddressSet) : TpAssignmentID
changeNotification (assignmentID : in TpAssignmentID, eventCriteria : in TpChargingEventCriteria) : void
getNotification () : TpChargingEventCriteriaResultSet
retrieveTransactionHistoryReq (user : in TpAddress, transactionInterval : in TpTimeInterval) : TpAssignmentID
enableNotifications (<u>appAccountManager : in IpAppAccountManagerRef</u>) : TpAssignmentID
disableNotifications () : void

Method
createNotification()

This method is used by the application to enable charging event notifications to be sent to the application.

<u>If the same application requests two notifications with exactly the same criteria but different callback references, the second callback will be treated as an additional callback. Both notifications will share the same assignmentID. The gateway will always use the most recent callback. In case this most recent callback fails the second most recent is used. In case the enableCallNotification contains no callback, at the moment the application needs to be informed the gateway will use as callback the callback that has been registered by setCallback().</u>

Returns assignmentId : Specifies the ID assigned by the account management object for this newly enabled event notification.

Parameters

appAccountManager : in IpAppAccountManagerRef

If this parameter is set (i.e. not NULL) it specifies a reference to the application interface, which is used for callbacks. If set to NULL, the application interface defaults to the interface specified via the setCallback() method.

chargingEventCriteria : in TpChargingEventCriteria

Specifies the event specific criteria used by the application to define the charging event required. Individual addresses or address ranges may be specified for subscriber accounts. Example of events are "charging" and "recharging".

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INVALID_ADDRESS, P_INVALID_CRITERIA, P_INVALID_EVENT_TYPE, P_UNKNOWN_SUBSCRIBER

Method
destroyNotification()

This method is used by the application to disable charging notifications.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID that was given by the account management object when the application enabled the charging notification.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

Method
queryBalanceReq()

This method is used by the application to query the balance of an account for one or several users.

Returns queryId : Specifies the ID of the balance query request.

Parameters

users : in TpAddressSet

Specifies the user(s) for which the balance is queried.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_UNAUTHORIZED_APPLICATION

Method
changeNotification()

This method is used by the application to change the event criteria introduced with createNotification. Any stored criteria associated with the specified assignmentID will be replaced with the specified criteria.

Parameters

assignmentID : in TpAssignmentID
Specifies the ID assigned by the manager interface for the event notification.

eventCriteria : in TpChargingEventCriteria
Specifies the new set of event criteria used by the application to define the event required. Only events that meet these criteria are reported

Raises

**TpCommonExceptions, P_INVALID_ASSIGNMENT_ID, P_INVALID_CRITERIA,
P_INVALID_EVENT_TYPE, P_UNKNOWN_SUBSCRIBER, P_INVALID_ADDRESS**

Method
getNotification()

This method is used by the application to query the event criteria set with createNotification or changeNotification.

Returns eventCriteria : Specifies the event criteria used by the application to define the event required. Only events that meet these criteria are reported.

Parameters
No Parameters were identified for this method

Returns

TpChargingEventCriteriaResultSet

Raises

TpCommonExceptions

Method
retrieveTransactionHistoryReq()

This asynchronous method is used by the application to retrieve a transaction history of a subscriber's account. The history is a set of Detailed Records.

Returns retrievalID : Specifies the retrieval ID of the transaction history retrieval request.

Parameters

user : in TpAddress

Specifies the subscriber for whose account the transaction history is to be retrieved.

transactionInterval : in TpTimeInterval

Specifies the time interval for which the application history is to be retrieved.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_UNAUTHORIZED_APPLICATION, P_INVALID_TIME_AND_DATE_FORMAT

Method
enableNotifications()

This method is used to indicate that the application is able to receive which are provisioned from within the network (i.e. these notifications are NOT set using createNotification() but via, for instance, a network management system). If notifications provisioned for this application are created or changed, the application is unaware of this until the notification is reported.

If the same application requests to enable notifications for a second time with a different IpAppAccountManager reference (i.e. without first disabling them), the second callback will be treated as an additional callback. This means that the callback will only be used in cases when the first callback specified by the application is unable to handle the reportNotification (e.g. due to overload or failure).

When this method is used, it is still possible to use createNotification() for service provider provisioned notifications on the same interface as long as the criteria in the network and provided by createNotification() do not overlap. However, it is NOT recommended to use both mechanisms on the same service manager.

The methods changeNotification(), getNotification(), and destroyNotification() do not apply to notifications provisoned in the network and enabled using enableNotifications(). These only apply to notifications created using createNotification().

Returns assignmentID: Specifies the ID assigned by the manager interface for this operation. This ID is contained in any reportNotification() that relates to notifications provisioned from within the network Repeated calls to enableNotifications() return the same assignment ID.

Parameters

~~No parameters are identified for this method.~~

appAccountManager : in IpAppAccountManagerRef

If this parameter is set (i.e. not NULL) it specifies a reference to the application interface, which is used for callbacks. If set to NULL, the application interface defaults to the interface specified via the setCallback() method.

Returns

`TpAssignmentID`

Raises
TpCommonExceptions

Method
`disableNotifications()`

This method is used to indicate that the application is not able to receive notifications for which the provisioning has been done from within the network. (i.e. these notifications that are NOT set using createNotification() but via, for instance, a network management system). After this method is called, no such notifications are reported anymore.

Parameters

`No parameters are identified for this method.`

Raises
TpCommonExceptions