3GPP TSG CN Plenary Meeting #19 **NP-030021**
12- 14 March 2003, Birmingham, UK

Source: **CN5 (OSA)**

Title: **Rel-4 CRs 29.198-05 OSA API Part 5: Generic user interaction**

Agenda item: **7.10**

Document for: **APPROVAL**

Doc-1st-Level	Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Doc-2nd-Level	Workitem
NP-030021	29.198-05	022	-	Rel-4	Correction to User Interaction Prepaid Sequence Diagrams	F	4.5.0	N5-021066	OSA1
NP-030021	29.198-05	023	-	Rel-5	Correction to User Interaction Prepaid Sequence Diagrams	A	5.1.0	N5-021067	OSA2
NP-030021	29.198-05	024	-	Rel-4	Correction to getNotification to remove P_INVALID_CRITERIA exception	F	4.5.0	N5-021072	OSA1
NP-030021	29.198-05	025	-	Rel-5	Correction to getNotification to remove P_INVALID_CRITERIA exception	A	5.1.0	N5-021073	OSA2
NP-030021	29.198-05	026	-	Rel-4	Inconsistent description of use of secondary callback	F	4.5.0	N5-021133	OSA1
NP-030021	29.198-05	027	-	Rel-4	Correction of status of methods to User Interaction interfaces	F	4.5.0	N5-021145	OSA1
NP-030021	29.198-05	028	-	Rel-5	Addition of status of methods to User Interaction interfaces	A	5.1.0	N5-021147	OSA2
NP-030021	29.198-05	030	-	Rel-4	Corrections to User Interaction	F	4.5.0	N5-030051	OSA1
NP-030021	29.198-05	031	-	Rel-5	Corrections to User Interaction	A	5.1.0	N5-030052	OSA2
NP-030021	29.198-05	032	-	Rel-4	Correction of User Interaction Event Notification to support non text encodings	F	4.5.0	N5-030077	OSA1
NP-030021	29.198-05	033	-	Rel-5	Correction of User Interaction Event Notification to support non text encodings	A	5.1.0	N5-030078	OSA2

CR-Form-v7

CHANGE REQUEST

⌘ 29.198-05 CR 022 ⌘rev - ⌘ Current version: 4.5.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Correction to User Interaction Prepaid Sequence Diagrams
Source:	⌘	N5
Work item code:	⌘	OSA1
Date:	⌘	31/10/2002
Category:	⌘	**F**
Release:	⌘	*REL-4*

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The description of the Prepaid and Prepaid with Advice of Charge sequence diagrams in User Interaction is incorrect. They both indicate that an announcement is played only to party A in a call controlled by a GCC application, when both A and B parties are connected. The announcement will in fact be played to both parties, since there is no means in GCC to separate the two parties in the call. This error has been partially corrected in UI for Release 5 (N5-020501). This CR introduces the changes made in N5-020501 for Release 4, and completes them. This CR also corrects indications that call-control related events are received on the Framework.
Summary of change:	⌘	Change the Prepaid and Prepaid with Advice of Charge sequence diagrams to indicate that the announcement is played to both parties. Correct references to events being received by the Framework.
Consequences if not approved:	⌘	Developers use these sequence diagrams as examples of how OSA/Parlay really behaves. Since they consider that these examples are provided by the real experts, they consider they must be right and should be followed. If we don't correct such errors, we are deliberately misleading developers, and can only expect interoperability problems at later stages.

Clauses affected:	⌘	5.2, 5.3, 5.4			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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Below is a brief summary:

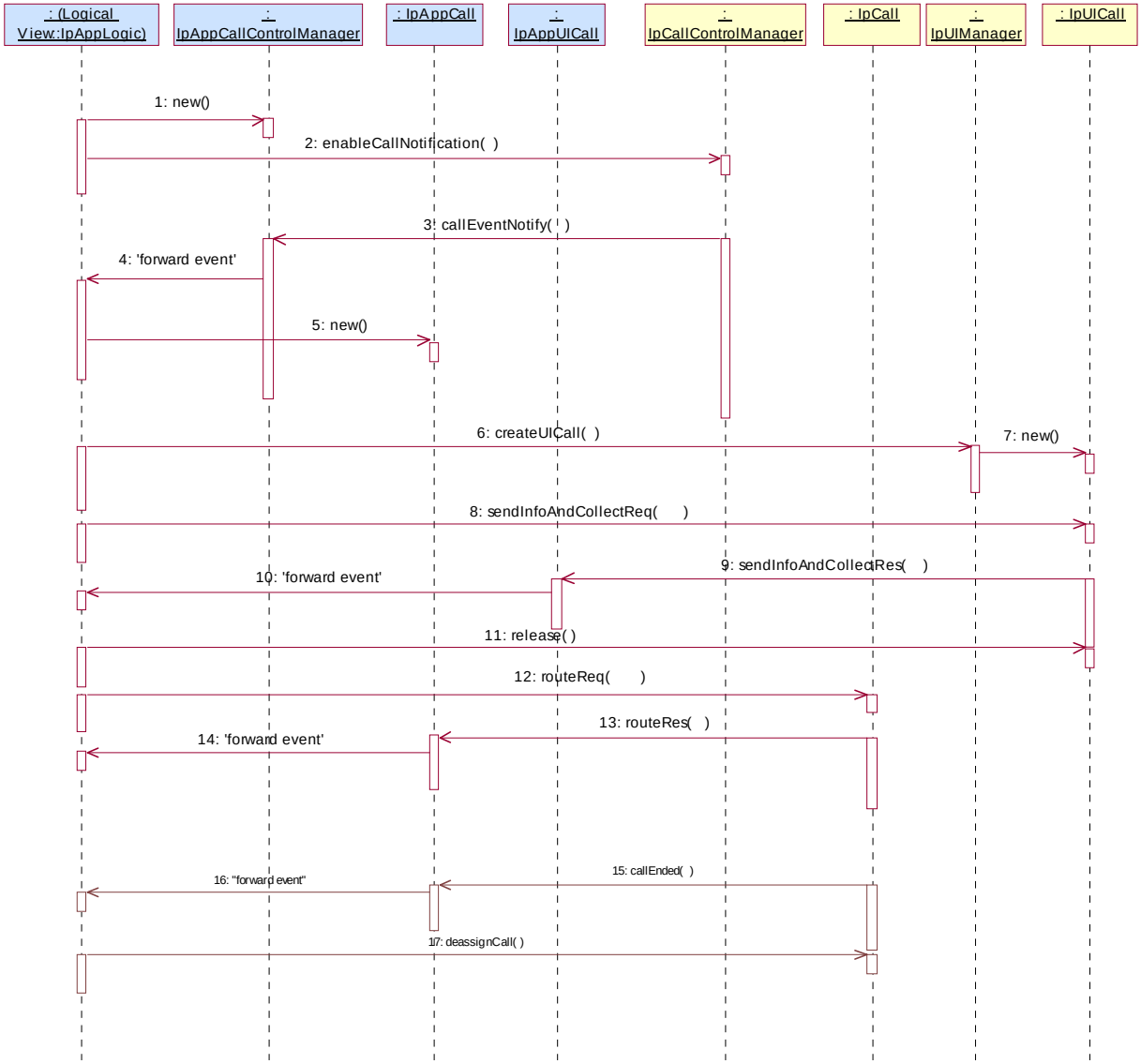
1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

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.

5.2 Call Barring 1

The following sequence diagram shows a call barring service, initiated as a result of a prearranged event being received by the call control service~~framework~~. Before the call is routed to the destination number, the calling party is asked for a PIN code. The code is accepted and the call is routed to the original called party.



1: This message is used by the application to create an object implementing the IpAppCallControlManager interface.

2: This message is sent by the application to enable notifications on new call events. As this sequence diagram depicts a call barring service, it is likely that all new call events destined for a particular address or address range prompted for a password before the call is allowed to progress. When a new call, that matches the event criteria set, arrives, a message (not shown) is directed to the object implementing the IpCallControlManager. Assuming that the criteria for creating an object implementing the IpCall interface (e.g. load control values not exceeded) are met, other messages (not shown) are used to create the call and associated call leg object.

3: This message is used to pass the new call event to the object implementing the IpAppCallControlManager interface.

4: This message is used to forward the previous message to the IpAppLogic.

5: This message is used by the application to create an object implementing the IpAppCall interface. The reference to this object is passed back to the object implementing the IpCallControlManager using the return parameter of the callEventNotify.

6: This message is used to create a new UICall object. The reference to the call object is given when creating the UICall.

7: Provided all the criteria are fulfilled, a new UICall object is created.

8: The call barring service dialogue is invoked.

9: The result of the dialogue, which in this case is the PIN code, is returned to its callback object.

10: This message is used to forward the previous message to the IpAppLogic.

11: This message releases the UICall object.

12: Assuming the correct PIN is entered, the call is forward routed to the destination party.

13: This message passes the result of the call being answered to its callback object.

14: This message is used to forward the previous message to the IpAppLogic

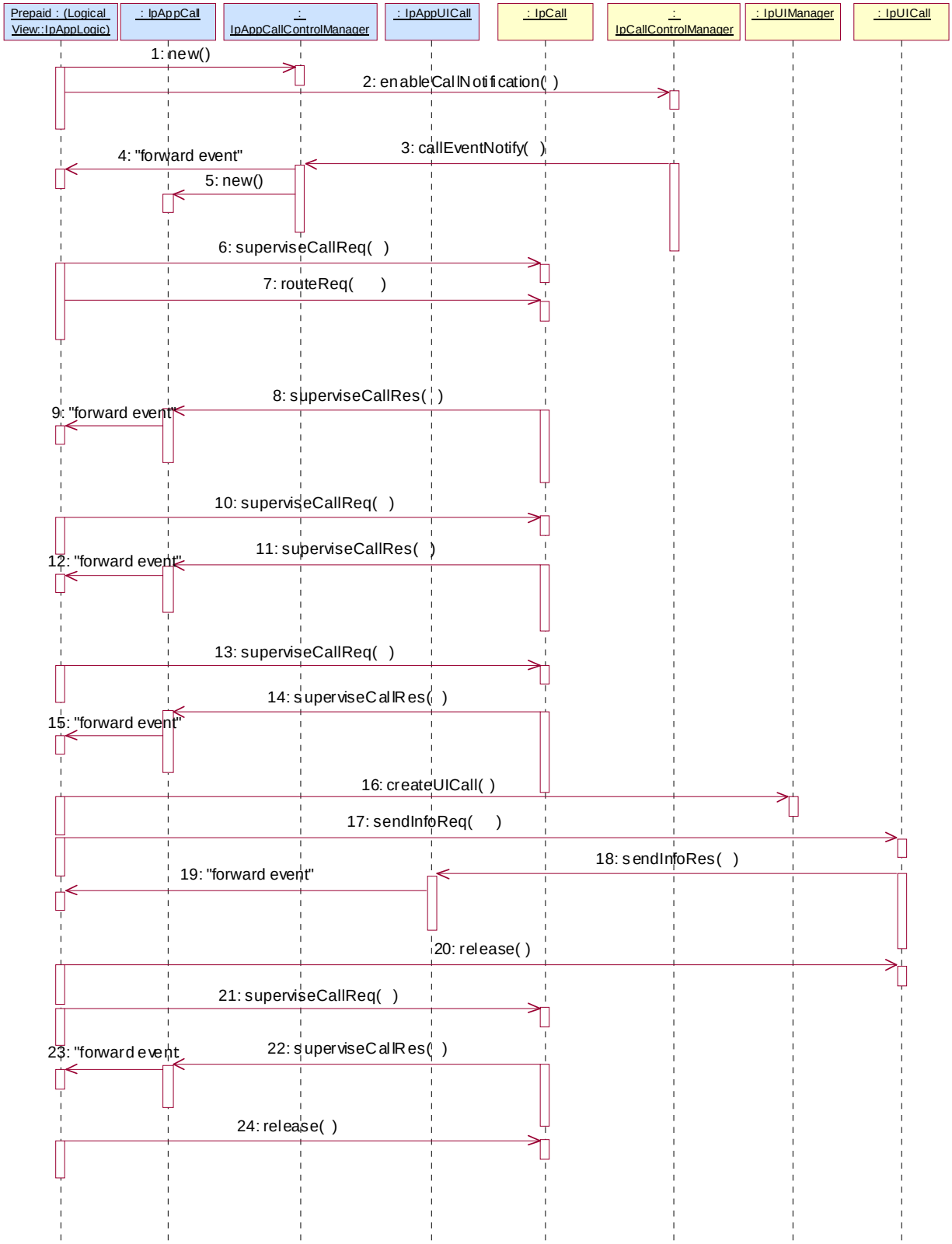
15: When the call is terminated in the network, the application will receive a notification. This notification will always be received when the call is terminated by the network in a normal way, the application does not have to request this event explicitly.

16: The event is forwarded to the application.

17: The application must free the call related resources in the gateway by calling deassignCall.

5.3 Pre-paid

This sequence shows a Pre-paid application. The subscriber is using a pre-paid card or credit card to pay for the call. The application each time allows a certain timeslice for the call. After the timeslice, a new timeslice can be started or the application can terminate the call. In the following sequence the end-user will received an announcement before his final timeslice.


Prepaid : (Logical View::IpAppLogic)
: IpAppCall
: IpAppCallControlManager
: IpAppUICall
: IpCall
: IpCallControlManager
: IpUIManager
: IpUICall
1: new()
2: enableCallNotification( )
3: callEventNotify( )
4: "forward event"
5: new()
6: superviseCallReq( )
7: routeReq( )
8: superviseCallRes( )
9: "forward event"
10: superviseCallReq( )
11: superviseCallRes( )
12: "forward event"
13: superviseCallReq( )
14: superviseCallRes( )
15: "forward event"
16: createUICall( )
17: sendInfoReq( )
18: sendInfoRes( )
19: "forward event"
20: release( )
21: superviseCallReq( )
22: superviseCallRes( )
23: "forward event"
24: release( )

1: This message is used by the application to create an object implementing the IpAppCallControlManager interface.

2: This message is sent by the application to enable notifications on new call events. As this sequence diagram depicts a pre-paid service, it is likely that only new call events within a certain address range will be enabled. When a new call, that matches the event criteria, arrives a message (not shown) is directed to the object implementing the IpCallControlManager. Assuming that the criteria for creating an object implementing the IpCall interface (e.g. load control values not exceeded) are met, other messages (not shown) are used to create the call and associated call leg object.

3: The incoming call triggers the Pre-Paid Application (PPA).

4: The message is forwarded to the application.

5: A new object on the application side for the Generic Call object is created

6: The Pre-Paid Application (PPA) requests to supervise the call. The application will be informed after the period indicated in the message. This period is related to the credits left on the account of the pre-paid subscriber.

7: Before continuation of the call, PPA sends all charging information, a possible tariff switch time and the call duration supervision period, towards the GW which forwards it to the network.

8: At the end of each supervision period the application is informed and a new period is started.

9: The message is forwarded to the application.

10: The Pre-Paid Application (PPA) requests to supervise the call for another call duration.

11: At the end of each supervision period the application is informed and a new period is started.

12: The message is forwarded to the application.

13: The Pre-Paid Application (PPA) requests to supervise the call for another call duration. When the timer expires it will indicate that the user is almost out of credit.

14: When the user is almost out of credit ~~an announcement is played to inform about this. The announcement is played only to the leg of the A-party, the B-party will not hear the announcement~~the application is informed.

15: The message is forwarded to the application.

16: The application decides to play an announcement to the parties in this call. A new UICall object is created and associated with the call~~controlling leg~~.

17: An announcement is played ~~to the controlling leg~~ informing the user about the near-expiration of his credit limit. ~~The B-subscriber will not hear the announcement.~~

18: When the announcement is completed the application is informed.

19: The message is forwarded to the application.

20: The application releases the UICall object.

21: The user does not terminate so the application terminates the call after the next supervision period.

22: The supervision period ends

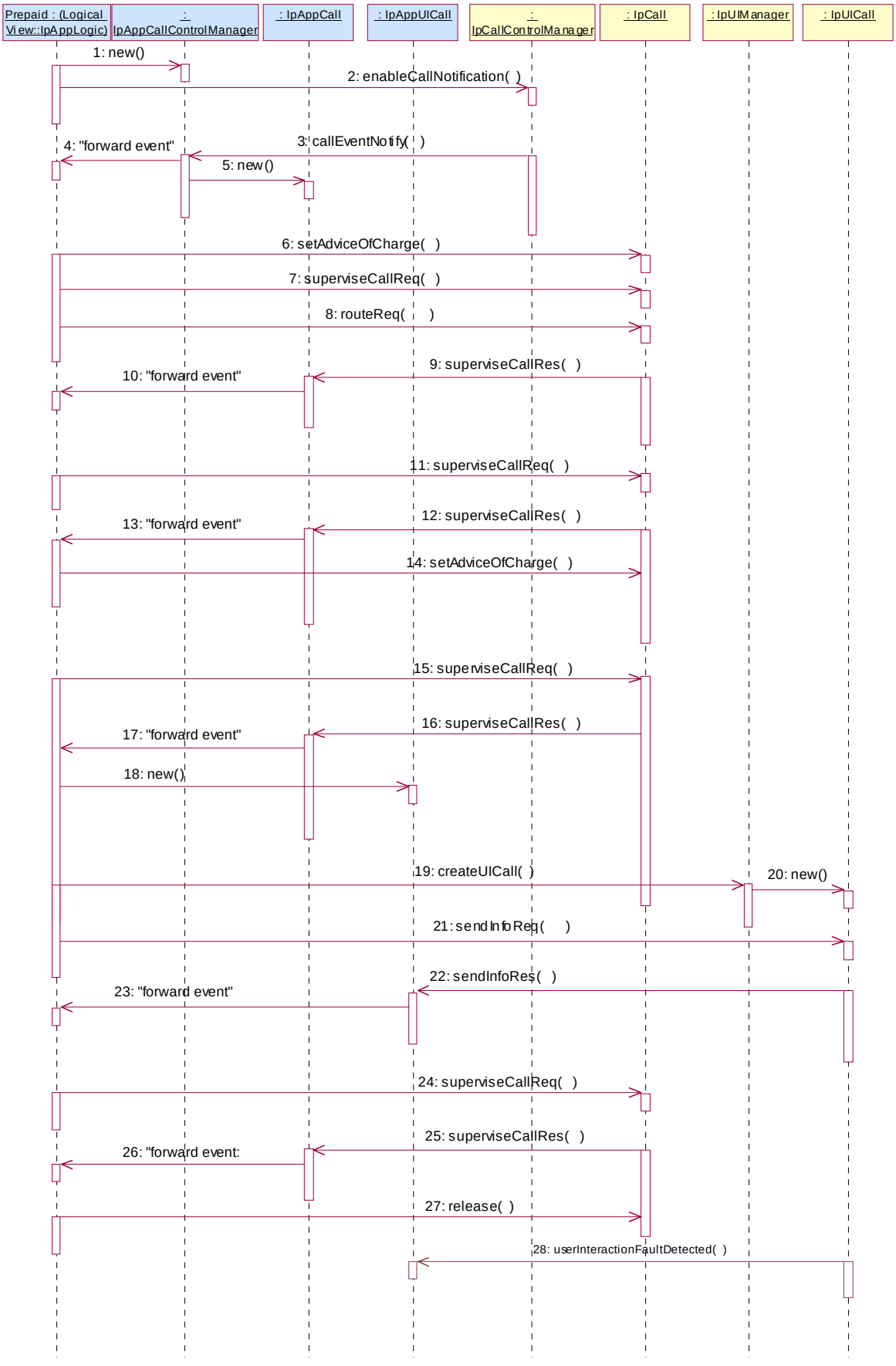
23: The event is forwarded to the logic.

24: The application terminates the call. Since the user interaction is already explicitly terminated no userInteractionFaultDetected is sent to the application.

5.4 Pre-Paid with Advice of Charge (AoC)

This sequence shows a Pre-paid application that uses the Advice of Charge feature. The application will send the charging information before the actual call setup and when during the call the charging changes new information is sent

in order to update the end-user. Note that the Advice of Charge feature requires an application in the end-user terminal to display the charges for the call, depending on the information received from the application.


Prepaid : (Logical View::IpAppLogic)
: IpAppCallControlManager
: IpAppCall
: IpAppUICall
: IpCallControlManager
: IpCall
: IpUIManager
: IpUICall
1: new()
2: enableCallNotification( )
3: callEventNotify( )
4: "forward event"
5: new()
6: setAdviceOfCharge( )
7: superviseCallReq( )
8: routeReq( )
9: superviseCallRes( )
10: "forward event"
11: superviseCallReq( )
12: superviseCallRes( )
13: "forward event"
14: setAdviceOfCharge( )
15: superviseCallReq( )
16: superviseCallRes( )
17: "forward event"
18: new()
19: createUICall( )
20: new()
21: sendInfoReq( )
22: sendInfoRes( )
23: "forward event"
24: superviseCallReq( )
25: superviseCallRes( )
26: "forward event:
27: release( )
28: userInteractionFaultDetected( )

1: This message is used by the application to create an object implementing the IpAppCallControlManager interface.

2: This message is sent by the application to enable notifications on new call events. As this sequence diagram depicts a pre-paid service, it is likely that only new call events within a certain address range will be enabled. When a new call, that matches the event criteria, arrives a message (not shown) is directed to the object implementing the IpCallControlManager. Assuming that the criteria for creating an object implementing the IpCall interface (e.g. load control values not exceeded) are met, other messages (not shown) are used to create the call and associated call leg object.

3: The incoming call triggers the Pre-Paid Application (PPA).

4: The message is forwarded to the application.

5: A new object on the application side for the Call object is created

6: The Pre-Paid Application (PPA) sends the AoC information (e.g. the tariff switch time). (it shall be noted the PPA contains ALL the tariff information and knows how to charge the user).

During this call sequence 2 tariff changes take place. The call starts with tariff 1, and at the tariff switch time (e.g., 18:00 hours) switches to tariff 2. The application is not informed about this (but the end-user is!)

7: The Pre-Paid Application (PPA) requests to supervise the call. The application will be informed after the period indicated in the message. This period is related to the credits left on the account of the pre-paid subscriber.

8: The application requests to route the call to the destination address.

9: At the end of each supervision period the application is informed and a new period is started.

10: The message is forwarded to the application.

11: The Pre-Paid Application (PPA) requests to supervise the call for another call duration.

12: At the end of each supervision period the application is informed and a new period is started.

13: The message is forwarded to the application.

14: Before the next tariff switch (e.g., 19:00 hours) the application sends a new AOC with the tariff switch time. Again, at the tariff switch time, the network will send AoC information to the end-user.

15: The Pre-Paid Application (PPA) requests to supervise the call for another call duration. When the timer expires it will indicate that the user is almost out of credit.

16: When the user is almost out of credit the application is informed ~~an announcement is played to inform about this (19-21). The announcement is played only to the leg of the A-party, the B-party will not hear the announcement~~.

17: The message is forwarded to the application.

18: The application creates a new call back interface for the User interaction messages.

19: A new UI Call object that will handle playing of the announcement needs to be created

20: The Gateway creates a new UI call object that will handle playing of the announcement.

21: With this message the announcement is played to the parties in the call~~calling party~~.

22: The user indicates that the call should continue.

23: The message is forwarded to the application.

24: The user does not terminate so the application terminates the call after the next supervision period.

25: The user is out of credit and the application is informed.

26: The message is forwarded to the application.

27: With this message the application requests to release the call.

28: Terminating the call which has still a UICall object associated will result in a userInteractionFaultDetected. The UICall object is terminated in the gateway and no further communication is possible between the UICall and the application.

CR-Form-v7

CHANGE REQUEST

⌘ **29.198-05** **CR** **033** ⌘ **rev** **-** ⌘ 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: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Correction of User Interaction Event Notification to support non text encodings
Source:	⌘	N5
Work item code:	⌘	OSA2
Date:	⌘	14/02/2003
Category:	⌘	**A**
Release:	⌘	*REL-5*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The reportNotification method on IpAppUIManager interface uses the TpUIEventInfo parameter to pass the notification data to the application. The current data type restricts this data to a TpString encoding thereby making it unsuitable for USSD or Binary encoded data notifications.
Summary of change:	⌘	Introduce a new method reportEventNotification that uses a new data type, TpUIEventNotificationInfo that supports flexible User Interaction notification encoding using a TpOctetSet
Consequences if not approved:	⌘	User Interaction notifications incorrectly restricted to text encoding only

Clauses affected:	⌘	8.2, 11
Other specs affected:	⌘	Y N ☐ ✓ Other core specifications ☐ ✓ Test specifications ☐ ✓ O&M Specifications
	⌘	
Other comments:	⌘	

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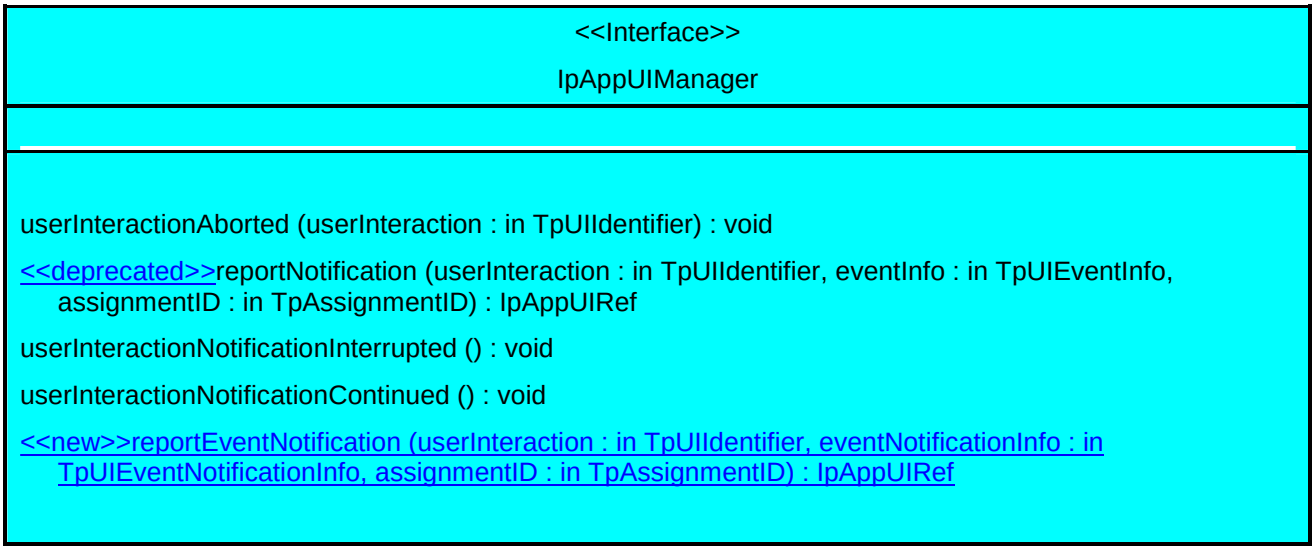
********** Start of Change # 1 **********

8.2 Interface Class IpAppUIManager

Inherits from: IpInterface.

The Generic User Interaction Service manager application interface provides the application callback functions to the Generic User Interaction Service.



8.2.4 Method userInteractionAborted()

This method 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 application.

Parameters

`userInteraction : in TpUIIdentifier`

Specifies the interface and sessionID of the user interaction service that has terminated.

8.2.5 Method <<deprecated>> reportNotification()

This method notifies the application of an occurred network event which matches the criteria installed by the createNotification method.

Returns: appUI

Specifies a reference to the application interface, which implements the callback interface for the new user interaction.

Parameters

`userInteraction : in TpUIIdentifier`

Specifies the reference to the interface and the sessionID to which the notification relates.

`eventInfo : in TpUIEventInfo`

Specifies data associated with this event.

assignmentID : in TpAssignmentID

Specifies the assignment id which was returned by the createNotification() method. The application can use assignment id to associate events with event specific criteria and to act accordingly.

Returns

IpAppUIRef

8.2.6 Method userInteractionNotificationInterrupted()

This method indicates to the application that all event notifications have been temporarily interrupted (for example, due to faults detected). Note that more permanent failures are reported via the Framework (integrity management).

Parameters

No Parameters were identified for this method

8.2.7 Method userInteractionNotificationContinued()

This method indicates to the application that event notifications will again be possible.

Parameters

No Parameters were identified for this method

8.2.8 Method <<new>> reportEventNotification()

This method notifies the application of an occurred network event which matches the criteria installed by the createNotification method.

Returns: appUI

Specifies a reference to the application interface, which implements the callback interface for the new user interaction.

Parameters

userInteraction : in TpUIIdentifier

Specifies the reference to the interface and the sessionID to which the notification relates.

eventNotificationInfo : in TpUIEventNotificationInfo

Specifies data associated with this event.

assignmentID : in TpAssignmentID

Specifies the assignment id which was returned by the createNotification() method. The application can use assignment id to associate events with event specific criteria and to act accordingly.

Returns

IpAppUIRef

********** End of Change # 1 **********

********** Start of Change # 2 **********

11 Data Definitions

The following data types referenced in this clause are defined in 3GPP TS 29.198-4:

`TpCallIdentifier`
`TpMultiPartyCallIdentifier`
`TpCallLegIdentifier`

All other data types referenced but not defined in this clause are common data definitions which may be found in 3GPP TS 29.198-2.

11.1 TpUIFault

Defines the cause of the UI fault detected.

Name	Value	Description
`P_UI_FAULT_UNDEFINED`	0	Undefined
`P_UI_CALL_ENDED`	1	The related Call object has been terminated. Therefore, the UICall object is also terminated. No further interaction is possible with this object.

11.2 IpUI

Defines the address of an `IpUI` Interface.

11.3 IpUIRef

Defines a `Reference` to type `IpUI`.

11.4 IpAppUI

Defines the address of an `IpAppUI` Interface.

11.5 IpAppUIRef

Defines a `Reference` to type `IpAppUI`.

11.6 IpAppUIManager

Defines the address of an `IpAppUIManager` Interface.

11.7 IpAppUIManagerRef

Defines a `Reference` to type `IpAppUIManager`.

11.8 TpUICallIdentifier

Defines the Sequence of Data Elements that unambiguously specify the UICall object.

Structure Element Name	Structure Element Type	Structure Element Description
UICallRef	IpUICallRef	This element specifies the interface reference for the UICall object.
UserInteractionSessionID	TpSessionID	This element specifies the User Interaction session ID.

11.9 TpUICollectCriteria

Defines the Sequence of Data Elements that specify the additional properties for the collection of information, such as the end character, first character timeout, inter-character timeout, and maximum interaction time.

Structure Element Name	Structure Element Type
MinLength	TpInt32
MaxLength	TpInt32
EndSequence	TpString
StartTimeout	TpDuration
InterCharTimeout	TpDuration

The structure elements specify the following criteria:

MinLength: Defines the minimum number of characters (e.g. digits) to collect.

MaxLength: Defines the maximum number of characters (e.g. digits) to collect.

EndSequence: Defines the character or characters which terminate an input of variable length, e.g. phone numbers.

StartTimeout: specifies the value for the first character time-out timer. The timer is started when the announcement has been completed or has been interrupted. The user should enter the start of the response (e.g. first digit) before the timer expires. If the start of the response is not entered before the timer expires, the input is regarded to be erroneous. After receipt of the start of the response, which may be valid or invalid, the timer is stopped.

InterCharTimeOut: specifies the value for the inter-character time-out timer. The timer is started when a response (e.g. digit) is received, and is reset and restarted when a subsequent response is received. The responses may be valid or invalid. the announcement has been completed or has been interrupted.

Input is considered successful if the following applies:

If the EndSequence is not present (i.e. an empty string):

- when the InterCharTimeOut timer expires; or
- when the number of valid digits received equals the MaxLength.

If the EndSequence is present:

- when the InterCharTimeOut timer expires; or
- when the EndSequence is received; or
- when the number of valid digits received equals the MaxLength.

In the case the number of valid characters received is less than the MinLength when the InterCharTimeOut timer expires or when the EndSequence is received, the input is considered erroneous.

The collected characters (including the EndSequence) are sent to the client application when input has been successful.

11.10 TpUIError

Defines the UI error codes.

Name	Value	Description
P_UI_ERROR_UNDEFINED	0	Undefined error
P_UI_ERROR_ILLEGAL_INFO	1	The specified information (InfoId, InfoData, or InfoAddress) is invalid
P_UI_ERROR_ID_NOT_FOUND	2	A legal InfoId is not known to the User Interaction service
P_UI_ERROR_RESOURCE_UNAVAILABLE	3	The information resources used by the User Interaction service are unavailable, e.g. due to an overload situation.
P_UI_ERROR_ILLEGAL_RANGE	4	The values for minimum and maximum collection length are out of range
P_UI_ERROR_IMPROPER_USER_RESPONSE	5	Improper user response
P_UI_ERROR_ABANDON	6	The specified leg is disconnected before the send information completed
P_UI_ERROR_NO_OPERATION_ACTIVE	7	There is no active User Interaction for the specified leg. Either the application did not start any User Interaction or the User Interaction was already finished when the abortActionReq() was called.
P_UI_ERROR_NO_SPACE_AVAILABLE	8	There is no more storage capacity to record the message when the recordMessageReq() operation was called
P_UI_ERROR_RESOURCE_TIMEOUT	9	The request has been accepted by the resource but it did not report a result.

The call User Interaction object will be automatically de-assigned if the error P_UI_ERROR_ABANDON is reported, as a corresponding call or call leg object no longer exists.

11.11 TpUIEventCriteria

Defines the Sequence of Data Elements that specify the additional criteria for receiving a UI notification

Structure Element Name	Structure Element Type	Description
OriginatingAddress	TpAddressRange	Defines the originating address for which the notification is requested.
DestinationAddress	TpAddressRange	Defines the destination address or address range for which the notification is requested.
ServiceCode	TpString	Defines a 2-digit code indicating the UI to be triggered. The value is operator specific.

11.12 TpUIEventCriteriaResultSet

Defines a set of TpUIEventCriteriaResult.

11.13 TpUIEventCriteriaResult

Defines a sequence of data elements that specify a requested event notification criteria with the associated assignmentID.

Structure Element Name	Structure Element Type	Structure Element Description
EventCriteria	TpUIEventCriteria	The event criteria that were specified by the application.
AssignmentID	TpInt32	The associated assignmentID. This can be used to disable the notification.

11.14 TpUIEventInfo

Defines the Sequence of Data Elements that specify a UI notification

Structure Element Name	Structure Element Type	Structure Element Description
OriginatingAddress	TpAddress	Defines the originating address.
DestinationAddress	TpAddress	Defines the destination address.
ServiceCode	TpString	Defines a 2-digit code indicating the UI to be triggered. The value is operator specific.
DataTypeIndication	TpUIEventInfoDataType	Identifies the type of contents in DataString.
DataString	TpString	Freely defined data string with a limited length e.g. 160 bytes according to the network policy.

11.15 TpUIEventInfoDataType

Defines the type of the dataString parameter in the method userInteractionEventNotify.

Name	Value	Description
P_UI_EVENT_DATA_TYPE_UNDEFINED	0	Undefined (e.g. binary data)
P_UI_EVENT_DATA_TYPE_UNSPECIFIED	1	Unspecified data
P_UI_EVENT_DATA_TYPE_TEXT	2	Text
P_UI_EVENT_DATA_TYPE_USSD_DATA	3	USSD data starting with coding scheme

11.16 TpUIIdentifier

Defines the Sequence of Data Elements that unambiguously specify the UI object

Structure Element Name	Structure Element Type	Structure Element Description
UIRef	IpUIRef	This element specifies the interface reference for the UI object.
UserInteractionSessionID	TpSessionID	This element specifies the User Interaction session ID.

11.17 TpUIInfo

Defines the Tagged Choice of Data Elements that specify the information to send to the user.

	Tag Element Type	
	TpUIInfoType	

Tag Element Value	Choice Element Type	Choice Element Name
P_UI_INFO_ID	TpInt32	InfoId
P_UI_INFO_DATA	TpString	InfoData
P_UI_INFO_ADDRESS	TpURL	InfoAddress
P_UI_INFO_BIN_DATA	TpOctetSet	InfoBinData

The choice elements represent the following:

InfoID: defines the ID of the user information script or stream to send to an end-user. The values of this data type are operator specific.

InfoData: defines the data to be sent to an end-user's terminal. The data is free-format and the encoding is depending on the resources being used..

InfoAddress: defines the URL of the text or stream to be sent to an end-user's terminal.

InfoBinData: defines the binary data to be sent to an end-user's terminal. The data is a free-format, 8-bit quantity that is guaranteed not to undergo any conversion when transmitted.

11.18 TpUIInfoType

Defines the type of the information to be sent to the user.

Name	Value	Description
P_UI_INFO_ID	0	The information to be send to an end-user consists of an ID
P_UI_INFO_DATA	1	The information to be send to an end-user consists of a data string
P_UI_INFO_ADDRESS	2	The information to be send to an end-user consists of a URL.
P_UI_INFO_BIN_DATA	3	The information to be sent to an end-user consists of a 8 bit binary data set

11.19 TpUIMessageCriteria

Defines the Sequence of Data Elements that specify the additional properties for the recording of a message.

Structure Element Name	Structure Element Type
EndSequence	TpString
MaxMessageTime	TpDuration
MaxMessageSize	TpInt32

The structure elements specify the following criteria:

EndSequence: Defines the character or characters which terminate an input of variable length, e.g. phone numbers.

MaxMessageTime: specifies the maximum duration in seconds of the message that is to be recorded.

MaxMessageSize: If this parameter is non-zero, it specifies the maximum size in bytes of the message that is to be recorded.

11.20 TpUIReport

Defines the UI reports if a response was requested.

Name	Value	Description
P_UI_REPORT_UNDEFINED	0	Undefined report
P_UI_REPORT_INFO_SENT	1	Confirmation that the information has been sent
P_UI_REPORT_INFO_COLLECTED	2	Information collected., meeting the specified criteria.
P_UI_REPORT_NO_INPUT	3	No information collected. The user immediately entered the delimiter character. No valid information has been returned
P_UI_REPORT_TIMEOUT	4	No information collected. The user did not input any response before the input timeout expired
P_UI_REPORT_MESSAGE_STORED	5	A message has been stored successfully
P_UI_REPORT_MESSAGE_NOT_STORED	6	The message has not been stored successfully
P_UI_REPORT_MESSAGE_DELETED	7	A message has been deleted successfully
P_UI_REPORT_MESSAGE_NOT_DELETED	8	A message has not been deleted successfully

11.21 TpUIResponseRequest

Defines the situations for which a response is expected following the User Interaction.

Name	Value	Description
P_UI_RESPONSE_REQUIRED	1	The User Interaction Call shall send a response when the request has completed.
P_UI_LAST_ANNOUNCEMENT_IN_A_ROW	2	This is the final announcement within a sequence. It might, however, be that additional announcements will be requested at a later moment. The User Interaction Call service may release any used resources in the network. The UI object will not be released.
P_UI_FINAL_REQUEST	4	This is the final request. The UI object will be released after the information has been presented to the user.

This parameter represents a so-called bitmask, i.e. the values can be added to derived the final meaning.

11.22 TpUITargetObjectType

Defines the type of object where User Interaction should be performed upon.

Name	Value	Description
P_UI_TARGET_OBJECT_CALL	0	User-interaction will be performed on a complete Call.
P_UI_TARGET_OBJECT_MULTI_PARTY_CALL	1	User-interaction will be performed on a complete Multi-party Call.
P_UI_TARGET_OBJECT_CALL_LEG	2	User-interaction will be performed on a single Call Leg.

11.23 TpUITargetObject

Defines the Tagged Choice of Data Elements that specify the object to perform User Interaction on.

	Tag Element Type	
	TpUITargetObjectType	

Tag Element Value	Choice Element Type	Choice Element Name
P_UI_TARGET_OBJECT_CALL	TpCallIdentifier	Call
P_UI_TARGET_OBJECT_MULTI_PARTY_CALL	TpMultiPartyCallIdentifier	MultiPartyCall
P_UI_TARGET_OBJECT_CALL_LEG	TpCallLegIdentifier	CallLeg

11.24 TpUIVariableInfo

Defines the Tagged Choice of Data Elements that specify the variable parts in the information to send to the user.

	Tag Element Type	
	TpUIVariablePartType	

Tag Element Value	Choice Element Type	Choice Element Name
P_UI_VARIABLE_PART_INT	TpInt32	VariablePartInteger
P_UI_VARIABLE_PART_ADDRESS	TpString	VariablePartAddress
P_UI_VARIABLE_PART_TIME	TpTime	VariablePartTime
P_UI_VARIABLE_PART_DATE	TpDate	VariablePartDate
P_UI_VARIABLE_PART_PRICE	TpPrice	VariablePartPrice

11.25 TpUIVariableInfoSet

Defines a Numbered Set of Data Elements of TpUIVariableInfo.

11.26 TpUIVariablePartType

Defines the type of the variable parts in the information to send to the user.

Name	Value	Description
P_UI_VARIABLE_PART_INT	0	Variable part is of type integer
P_UI_VARIABLE_PART_ADDRESS	1	Variable part is of type address
P_UI_VARIABLE_PART_TIME	2	Variable part is of type time
P_UI_VARIABLE_PART_DATE	3	Variable part is of type date
P_UI_VARIABLE_PART_PRICE	4	Variable part is of type price

11.27 TpUIEventNotificationInfo

Defines the Sequence of Data Elements that specify a UI event notification

Structure Element Name	Structure Element Type	Structure Element Description
OriginatingAddress	TpAddress	Defines the originating address.
DestinationAddress	TpAddress	Defines the destination address.
ServiceCode	TpString	Defines a 2-digit code indicating the UI to be triggered. The value is operator specific.
DataTypeIndication	TpUIEventInfoDataType	Identifies the type of contents in UIEventData
UIEventData	TpOctetSet	Freely defined data according to the network policy. e.g 7 bit USSD encoded

********** End of Change # 2 **********

CR-Form-v7

CHANGE REQUEST

⌘ **29.198-05** **CR** **032** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Correction of User Interaction Event Notification to support non text encodings
Source:	⌘	N5
Work item code:	⌘	OSA1
Date:	⌘	14/02/2003
Category:	⌘	**F**
Release:	⌘	*REL-4*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	The reportNotification method on IpAppUIManager interface uses the TpUIEventInfo parameter to pass the notification data to the application. The current data type restricts this data to a TpString encoding thereby making it unsuitable for USSD or Binary encoded data notifications.
Summary of change:	⌘	Introduce a new method reportEventNotification that uses a new data type, TpUIEventNotificationInfo that supports flexible User Interaction notification encoding using a TpOctetSet
Consequences if not approved:	⌘	User Interaction notifications incorrectly restricted to text encoding only

Clauses affected:	⌘	8.2, 11
Other specs affected:	⌘	Y N ☐ ✓ Other core specifications ☐ ✓ Test specifications ☐ ✓ O&M Specifications
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.

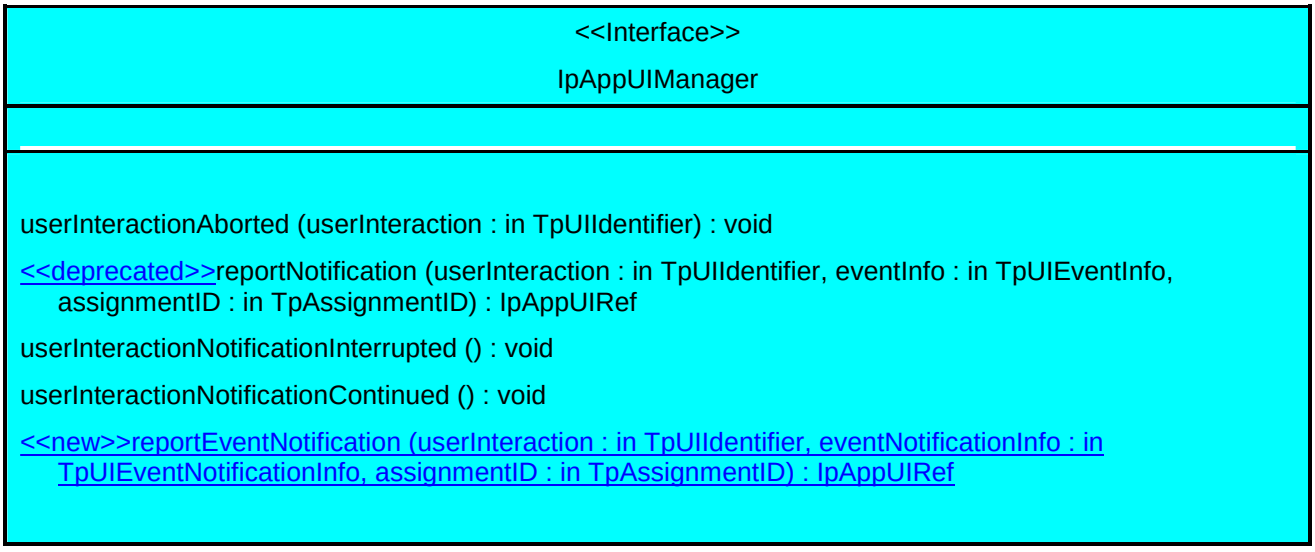
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

********** Start of Change # 1 **********

8.2 Interface Class IpAppUIManager

Inherits from: IpInterface.

The Generic User Interaction Service manager application interface provides the application callback functions to the Generic User Interaction Service.



Method

`userInteractionAborted()`

This method 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 application.

Parameters

`userInteraction : in TpUIIdentifier`

Specifies the interface and sessionID of the user interaction service that has terminated.

Method

`<< deprecated>> reportNotification()`

This method notifies the application of an occurred network event which matches the criteria installed by the createNotification method.

Returns: appUI

Specifies a reference to the application interface, which implements the callback interface for the new user interaction.

Parameters

`userInteraction : in TpUIIdentifier`

Specifies the reference to the interface and the sessionID to which the notification relates.

eventInfo : in TpUIEventInfo

Specifies data associated with this event.

assignmentID : in TpAssignmentID

Specifies the assignment id which was returned by the createNotification() method. The application can use assignment id to associate events with event specific criteria and to act accordingly.

Returns

IpAppUIRef

Method

userInteractionNotificationInterrupted()

This method indicates to the application that all event notifications have been temporarily interrupted (for example, due to faults detected). Note that more permanent failures are reported via the Framework (integrity management).

Parameters

No Parameters were identified for this method

Method

userInteractionNotificationContinued()

This method indicates to the application that event notifications will again be possible.

Parameters

No Parameters were identified for this method

Method

<<new>> reportEventNotification()

This method notifies the application of an occurred network event which matches the criteria installed by the createNotification method.

Returns: appUI

Specifies a reference to the application interface, which implements the callback interface for the new user interaction.

Parameters

userInteraction : in TpUIIdentifier

Specifies the reference to the interface and the sessionID to which the notification relates.

eventNotificationInfo : in TpUIEventNotificationInfo

Specifies data associated with this event.

assignmentID : in TpAssignmentID

Specifies the assignment id which was returned by the createNotification() method. The application can use assignment id to associate events with event specific criteria and to act accordingly.

Returns

IpAppUIRef

********** End of Change # 1 **********

********** Start of Change # 2 **********

11 Data Definitions

The following data types referenced in this clause are defined in 3GPP TS 29.198-4:

`TpCallIdentifier`
`TpMultiPartyCallIdentifier`
`TpCallLegIdentifier`

All other data types referenced but not defined in this clause are common data definitions which may be found in 3GPP TS 29.198-2.

11.1 TpUIFault

Defines the cause of the UI fault detected.

Name	Value	Description
`P_UI_FAULT_UNDEFINED`	0	Undefined
`P_UI_CALL_ENDED`	1	The related Call object has been terminated. Therefore, the UICall object is also terminated. No further interaction is possible with this object.

11.2 IpUI

Defines the address of an `IpUI` Interface.

11.3 IpUIRef

Defines a `Reference` to type `IpUI`.

11.4 IpAppUI

Defines the address of an `IpAppUI` Interface.

11.5 IpAppUIRef

Defines a `Reference` to type `IpAppUI`.

11.6 IpAppUIManager

Defines the address of an `IpAppUIManager` Interface.

11.7 IpAppUIManagerRef

Defines a Reference to type IpAppUIManager.

11.8 TpUICallIdentifier

Defines the Sequence of Data Elements that unambiguously specify the UICall object.

Structure Element Name	Structure Element Type	Structure Element Description
UICallRef	IpUICallRef	This element specifies the interface reference for the UICall object.
UserInteractionSessionID	TpSessionID	This element specifies the User Interaction session ID.

11.9 TpUICollectCriteria

Defines the Sequence of Data Elements that specify the additional properties for the collection of information, such as the end character, first character timeout, inter-character timeout, and maximum interaction time.

Structure Element Name	Structure Element Type
MinLength	TpInt32
MaxLength	TpInt32
EndSequence	TpString
StartTimeout	TpDuration
InterCharTimeout	TpDuration

The structure elements specify the following criteria:

MinLength: Defines the minimum number of characters (e.g. digits) to collect.

MaxLength: Defines the maximum number of characters (e.g. digits) to collect.

EndSequence: Defines the character or characters which terminate an input of variable length, e.g. phone numbers.

StartTimeout: specifies the value for the first character time-out timer. The timer is started when the announcement has been completed or has been interrupted. The user should enter the start of the response (e.g. first digit) before the timer expires. If the start of the response is not entered before the timer expires, the input is regarded to be erroneous. After receipt of the start of the response, which may be valid or invalid, the timer is stopped.

InterCharTimeOut: specifies the value for the inter-character time-out timer. The timer is started when a response (e.g. digit) is received, and is reset and restarted when a subsequent response is received. The responses may be valid or invalid. the announcement has been completed or has been interrupted.

Input is considered successful if the following applies:

If the EndSequence is not present (i.e. an empty string):

- when the InterCharTimeOut timer expires; or
- when the number of valid digits received equals the MaxLength.

If the EndSequence is present:

- when the InterCharTimeOut timer expires; or
- when the EndSequence is received; or

- when the number of valid digits received equals the MaxLength.

In the case the number of valid characters received is less than the MinLength when the InterCharTimeOut timer expires or when the EndSequence is received, the input is considered erroneous.

The collected characters (including the EndSequence) are sent to the client application when input has been successful.

11.10 TpUIError

Defines the UI error codes.

Name	Value	Description
P_UI_ERROR_UNDEFINED	0	Undefined error
P_UI_ERROR_ILLEGAL_INFO	1	The specified information (InfoId, InfoData, or InfoAddress) is invalid
P_UI_ERROR_ID_NOT_FOUND	2	A legal InfoId is not known to the User Interaction service
P_UI_ERROR_RESOURCE_UNAVAILABLE	3	The information resources used by the User Interaction service are unavailable, e.g. due to an overload situation.
P_UI_ERROR_ILLEGAL_RANGE	4	The values for minimum and maximum collection length are out of range
P_UI_ERROR_IMPROPER_USER_RESPONSE	5	Improper user response
P_UI_ERROR_ABANDON	6	The specified leg is disconnected before the send information completed
P_UI_ERROR_NO_OPERATION_ACTIVE	7	There is no active User Interaction for the specified leg. Either the application did not start any User Interaction or the User Interaction was already finished when the abortActionReq() was called.
P_UI_ERROR_NO_SPACE_AVAILABLE	8	There is no more storage capacity to record the message when the recordMessageReq() operation was called
P_UI_ERROR_RESOURCE_TIMEOUT	9	The request has been accepted by the resource but it did not report a result.

The call User Interaction object will be automatically de-assigned if the error P_UI_ERROR_ABANDON is reported, as a corresponding call or call leg object no longer exists.

11.11 TpUIEventCriteria

Defines the Sequence of Data Elements that specify the additional criteria for receiving a UI notification

Structure Element Name	Structure Element Type	Description
OriginatingAddress	TpAddressRange	Defines the originating address for which the notification is requested.
DestinationAddress	TpAddressRange	Defines the destination address or address range for which the notification is requested.
ServiceCode	TpString	Defines a 2-digit code indicating the UI to be triggered. The value is operator specific.

11.12 TpUIEventCriteriaResultSet

Defines a set of TpUIEventCriteriaResult.

11.13 TpUIEventCriteriaResult

Defines a sequence of data elements that specify a requested event notification criteria with the associated assignmentID.

Structure Element Name	Structure Element Type	Structure Element Description
EventCriteria	TpUIEventCriteria	The event criteria that were specified by the application.
AssignmentID	TpInt32	The associated assignmentID. This can be used to disable the notification.

11.14 TpUIEventInfo

Defines the Sequence of Data Elements that specify a UI notification

Structure Element Name	Structure Element Type	Structure Element Description
OriginatingAddress	TpAddress	Defines the originating address.
DestinationAddress	TpAddress	Defines the destination address.
ServiceCode	TpString	Defines a 2-digit code indicating the UI to be triggered. The value is operator specific.
DataTypeIndication	TpUIEventInfoDataType	Identifies the type of contents in DataString.
DataString	TpString	Freely defined data string with a limited length e.g. 160 bytes according to the network policy.

11.15 TpUIEventInfoDataType

Defines the type of the dataString parameter in the method userInteractionEventNotify.

Name	Value	Description
P_UI_EVENT_DATA_TYPE_UNDEFINED	0	Undefined (e.g. binary data)
P_UI_EVENT_DATA_TYPE_UNSPECIFIED	1	Unspecified data
P_UI_EVENT_DATA_TYPE_TEXT	2	Text
P_UI_EVENT_DATA_TYPE_USSD_DATA	3	USSD data starting with coding scheme

11.16 TpUIIdentifier

Defines the Sequence of Data Elements that unambiguously specify the UI object

Structure Element Name	Structure Element Type	Structure Element Description
UIRef	IpUIRef	This element specifies the interface reference for the UI object.
UserInteractionSessionID	TpSessionID	This element specifies the User Interaction session ID.

11.17 TpUIInfo

Defines the Tagged Choice of Data Elements that specify the information to send to the user.

	Tag Element Type	
	TpUIInfoType	

Tag Element Value	Choice Element Type	Choice Element Name
P_UI_INFO_ID	TpInt32	InfoId
P_UI_INFO_DATA	TpString	InfoData
P_UI_INFO_ADDRESS	TpURL	InfoAddress
P_UI_INFO_BIN_DATA	TpOctetSet	InfoBinData

The choice elements represent the following:

InfoID: defines the ID of the user information script or stream to send to an end-user. The values of this data type are operator specific.

`InfoData:` defines the data to be sent to an end-user's terminal. The data is free-format and the encoding is depending on the resources being used..

`InfoAddress:` defines the URL of the text or stream to be sent to an end-user's terminal.

`InfoBinData:` defines the binary data to be sent to an end-user's terminal. The data is a free-format, 8-bit quantity that is guaranteed not to undergo any conversion when transmitted.

11.18 TpUIInfoType

Defines the type of the information to be sent to the user.

Name	Value	Description
P_UI_INFO_ID	0	The information to be send to an end-user consists of an ID
P_UI_INFO_DATA	1	The information to be send to an end-user consists of a data string
P_UI_INFO_ADDRESS	2	The information to be send to an end-user consists of a URL.
P_UI_INFO_BIN_DATA	3	The information to be sent to an end-user consists of a 8 bit binary data set

11.19 TpUIMessageCriteria

Defines the `Sequence of Data Elements` that specify the additional properties for the recording of a message.

Structure Element Name	Structure Element Type
EndSequence	TpString
MaxMessageTime	TpDuration
MaxMessageSize	TpInt32

The structure elements specify the following criteria:

`EndSequence:` Defines the character or characters which terminate an input of variable length, e.g. phone numbers.

`MaxMessageTime:` specifies the maximum duration in seconds of the message that is to be recorded.

`MaxMessageSize:` If this parameter is non-zero, it specifies the maximum size in bytes of the message that is to be recorded.

11.20 TpUIReport

Defines the UI reports if a response was requested.

Name	Value	Description
P_UI_REPORT_UNDEFINED	0	Undefined report
P_UI_REPORT_INFO_SENT	1	Confirmation that the information has been sent
P_UI_REPORT_INFO_COLLECTED	2	Information collected., meeting the specified criteria.
P_UI_REPORT_NO_INPUT	3	No information collected. The user immediately entered the delimiter character. No valid information has been returned
P_UI_REPORT_TIMEOUT	4	No information collected. The user did not input any response before the input timeout expired
P_UI_REPORT_MESSAGE_STORED	5	A message has been stored successfully
P_UI_REPORT_MESSAGE_NOT_STORED	6	The message has not been stored successfully
P_UI_REPORT_MESSAGE_DELETED	7	A message has been deleted successfully
P_UI_REPORT_MESSAGE_NOT_DELETED	8	A message has not been deleted successfully

11.21 TpUIResponseRequest

Defines the situations for which a response is expected following the User Interaction.

Name	Value	Description
P_UI_RESPONSE_REQUIRED	1	The User Interaction Call shall send a response when the request has completed.
P_UI_LAST_ANNOUNCEMENT_IN_A_ROW	2	This is the final announcement within a sequence. It might, however, be that additional announcements will be requested at a later moment. The User Interaction Call service may release any used resources in the network. The UI object will not be released.
P_UI_FINAL_REQUEST	4	This is the final request. The UI object will be released after the information has been presented to the user.

This parameter represents a so-called bitmask, i.e. the values can be added to derived the final meaning.

11.22 TpUITargetObjectType

Defines the type of object where User Interaction should be performed upon.

Name	Value	Description
P_UI_TARGET_OBJECT_CALL	0	User-interaction will be performed on a complete Call.
P_UI_TARGET_OBJECT_MULTI_PARTY_CALL	1	User-interaction will be performed on a complete Multi-party Call.
P_UI_TARGET_OBJECT_CALL_LEG	2	User-interaction will be performed on a single Call Leg.

11.23 TpUITargetObject

Defines the Tagged Choice of Data Elements that specify the object to perform User Interaction on.

	Tag Element Type	
	TpUITargetObjectType	

Tag Element Value	Choice Element Type	Choice Element Name
P_UI_TARGET_OBJECT_CALL	TpCallIdentifier	Call
P_UI_TARGET_OBJECT_MULTI_PARTY_CALL	TpMultiPartyCallIdentifier	MultiPartyCall
P_UI_TARGET_OBJECT_CALL_LEG	TpCallLegIdentifier	CallLeg

11.24 TpUIVariableInfo

Defines the Tagged Choice of Data Elements that specify the variable parts in the information to send to the user.

	Tag Element Type	
	TpUIVariablePartType	

Tag Element Value	Choice Element Type	Choice Element Name
P_UI_VARIABLE_PART_INT	TpInt32	VariablePartInteger
P_UI_VARIABLE_PART_ADDRESS	TpString	VariablePartAddress
P_UI_VARIABLE_PART_TIME	TpTime	VariablePartTime
P_UI_VARIABLE_PART_DATE	TpDate	VariablePartDate
P_UI_VARIABLE_PART_PRICE	TpPrice	VariablePartPrice

11.25 TpUIVariableInfoSet

Defines a Numbered Set of Data Elements of TpUIVariableInfo.

11.26 TpUIVariablePartType

Defines the type of the variable parts in the information to send to the user.

Name	Value	Description
P_UI_VARIABLE_PART_INT	0	Variable part is of type integer
P_UI_VARIABLE_PART_ADDRESS	1	Variable part is of type address
P_UI_VARIABLE_PART_TIME	2	Variable part is of type time
P_UI_VARIABLE_PART_DATE	3	Variable part is of type date
P_UI_VARIABLE_PART_PRICE	4	Variable part is of type price

11.27 TpUIEventNotificationInfo

Defines the Sequence of Data Elements that specify a UI event notification

Structure Element Name	Structure Element Type	Structure Element Description
OriginatingAddress	TpAddress	Defines the originating address.
DestinationAddress	TpAddress	Defines the destination address.
ServiceCode	TpString	Defines a 2-digit code indicating the UI to be triggered. The value is operator specific.
DataTypeIndication	TpUIEventInfoDataType	Identifies the type of contents in UIEventData
UIEventData	TpOctetSet	Freely defined data according to the network policy. e.g 7 bit USSD encoded

********** End of Change # 2 **********

CR-Form-v7

CHANGE REQUEST

⌘ **29.198-05** **CR** **031** ⌘ **rev** **-** ⌘ 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: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Corrections to User Interaction
Source:	⌘	N5
Work item code:	⌘	OSA2
Date:	⌘	22/01/2003
Category:	⌘	**A**
Release:	⌘	*REL-5*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	1) Clause 4 of TS 29.198-05 refers to there being only 2 interfaces in UI, when in fact there are 3. 2) The STD for IpUIManager still refers to the Service Factory, which has been replaced in the Framework
Summary of change:	⌘	1) Introduce text in clause 4 to describe IpUICall 2) Correct STD to refer to Service Instance Lifecycle Manager
Consequences if not approved:	⌘	Developers are currently implementing this specification. They might believe, however mistakenly, that what we have written in it, we have written intentionally. Yet we also don't want developers to 'interpret' these specifications in a way other than they are written. These errors must be corrected, as they are either misleading, or worse still may be corrected by different developers in different ways, with interoperability difficulties resulting.

Clauses affected:	⌘	4, 9.1			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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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

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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.

←========== FIRST MODIFIED SECTION ==========→

4 Generic and Call User Interaction SCF

The Generic User Interaction service capability feature is used by applications to interact with end users. It consists of ~~two~~ three interfaces:

1) User Interaction Manager, containing management functions for User Interaction related issues;

2) Generic User Interaction, containing methods to interact with an end-user.

3) Call User Interaction, containing methods to interact with an end-user engaged in a call.

The Generic User Interaction service capability feature is described in terms of the methods in the Generic User Interaction interfaces.

The following table gives an overview of the Generic User Interaction methods and to which interfaces these methods belong.

Table 1: Overview of Generic User Interaction interfaces and their methods

User Interaction Manager	Generic User Interaction
createUI	sendInfoReq
createUICall	sendInfoRes
createNotification	sendInfoErr
destroyUINotification	sendInfoAndCollectReq
reportNotification	sendInfoAndCollectRes
userInteractionAborted	sendInfoAndCollectErr
userInteractionNotificationInterrupted	release
userInteractionNotificationContinued	UserInteractionFaultDetected
changeNotification	
getNotification	
enableNotifications	
disableNotifications	

The following table gives an overview of the Call User Interaction methods and to which interfaces these methods belong.

Table 2: Overview of Call User Interaction interfaces and their methods

User Interaction Manager	Call User Interaction
As defined for the Generic User Interaction SCF	Inherits from Generic User Interaction and adds:
	recordMessageReq
	recordMessageRes
	recordMessageErr
	deleteMessageReq
	deleteMessageRes
	deleteMessageErr
	abortActionReq
	abortActionRes
	abortActionErr

The IpUI Interface provides functions to send information to, or gather information from the user, i.e. this interface allows applications to send SMS and USSD messages. An application can use this interface independently of other SCFs. The IpUICall Interface provides functions to send information to, or gather information from the user (or call party) attached to a call.

The following clauses describe each aspect of the Generic User Interaction Service Capability Feature (SCF).

The order is as follows:

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

3) The Class relationships clause show how each of the interfaces applicable to the SCF, relate to one another

4) The Interface specification clause describes in detail each of the interfaces shown within the Class diagram part. This clause also includes Call User interaction.

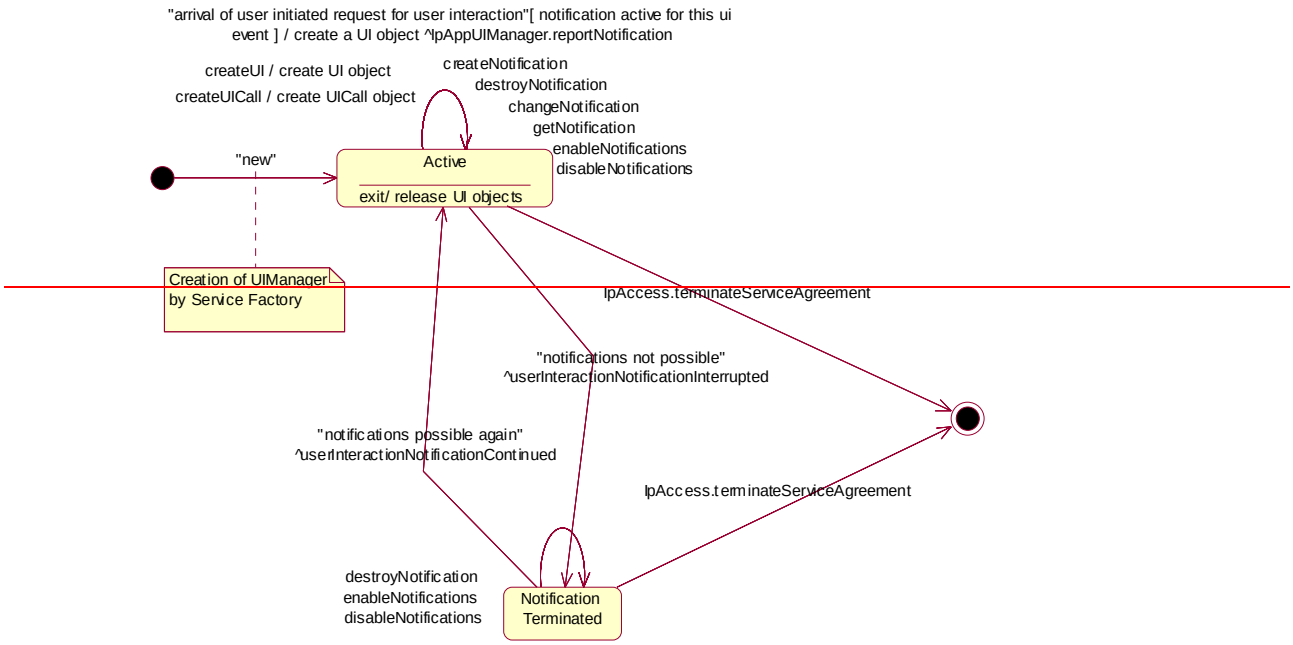
5) The State Transition Diagrams (STD) show the transition between states in the SCF. The states and transitions are well-defined; either methods specified in the Interface specification or events occurring in the underlying networks cause state transitions.

6) The Data Definitions clause show 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..

←========== NEXT MODIFIED SECTION ==========→

9.1 State Transition Diagrams for IpUIManager



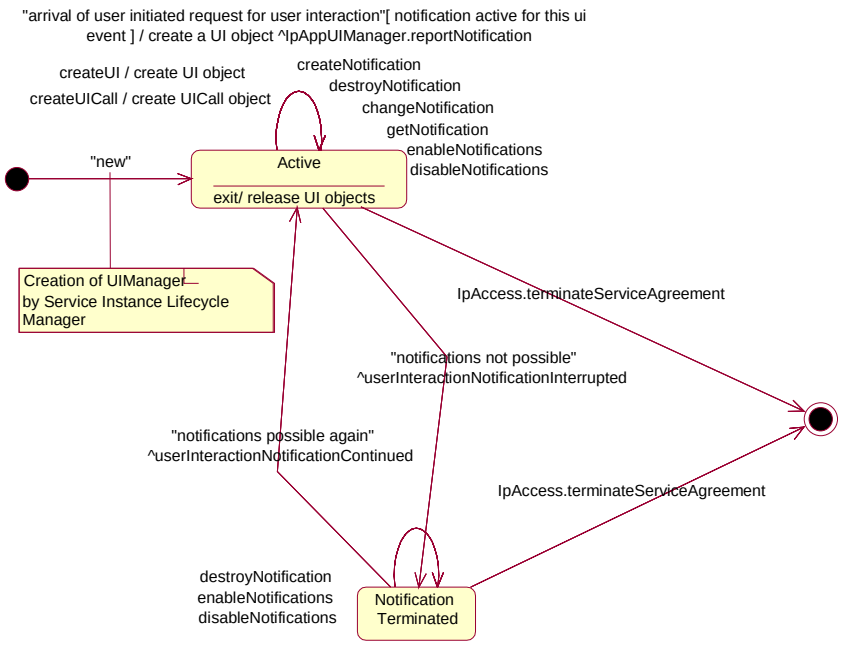


Figure : Application view on the UI Manager

9.1.11 Active State

In this state a relation between the Application and a User Interaction Service Capability Feature (Generic User Interaction or Call User Interaction) has been established. The application is now able to request creation of UI and/or UICall objects.

9.1.12 Notification Terminated State

When the UI manager is in the Notification terminated state, events requested with createNotification()/enableNotifications() will not be forwarded to the application. There can be multiple reasons for this: for instance it might be that the application receives more notifications than defined in the Service Level Agreement. Another example is that the SCS has detected it receives no notifications from the network due to e.g. a link failure. In this state no requests for new notifications will be accepted.

←========== END MODIFIED SECTION ==========→

CR-Form-v7

CHANGE REQUEST

⌘ **29.198-05** **CR** **030** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Corrections to User Interaction
Source:	⌘	N5
Work item code:	⌘	OSA1
Date:	⌘	22/01/2003
Category:	⌘	**F**
Release:	⌘	*REL-4*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	1) Clause 4 of TS 29.198-05 refers to there being only 2 interfaces in UI, when in fact there are 3. 2) The STD for IpUIManager still refers to the Service Factory, which has been replaced in the Framework
Summary of change:	⌘	1) Introduce text in clause 4 to describe IpUICall 2) Correct STD to refer to Service Instance Lifecycle Manager
Consequences if not approved:	⌘	Developers are currently implementing this specification. They might believe, however mistakenly, that what we have written in it, we have written intentionally. Yet we also don't want developers to 'interpret' these specifications in a way other than they are written. These errors must be corrected, as they are either misleading, or worse still may be corrected by different developers in different ways, with interoperability difficulties resulting.

Clauses affected:	⌘	4, 9.1			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

How to create CRs using this form:
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←========== FIRST MODIFIED SECTION ==========→

4 Generic and Call User Interaction SCF

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userInteractionAborted	sendInfoAndCollectErr
userInteractionNotificationInterrupted	release
userInteractionNotificationContinued	UserInteractionFaultDetected
changeNotification	
getNotification	

The following table gives an overview of the Call User Interaction methods and to which interfaces these methods belong.

Table 2: Overview of Call User Interaction interfaces and their methods

User Interaction Manager	Call User Interaction
As defined for the Generic User Interaction SCF	Inherits from Generic User Interaction and adds:
	recordMessageReq
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	recordMessageErr
	deleteMessageReq
	deleteMessageRes
	deleteMessageErr
	abortActionReq
	abortActionRes
	abortActionErr

The IpUI Interface provides functions to send information to, or gather information from the user, i.e. this interface allows applications to send SMS and USSD messages. An application can use this interface independently of other SCFs. The IpUICall Interface provides functions to send information to, or gather information from the user (or call party) attached to a call.

The following clauses describe each aspect of the Generic User Interaction Service Capability Feature (SCF).

The order is as follows:

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

5) The Class relationships clause show how each of the interfaces applicable to the SCF, relate to one another

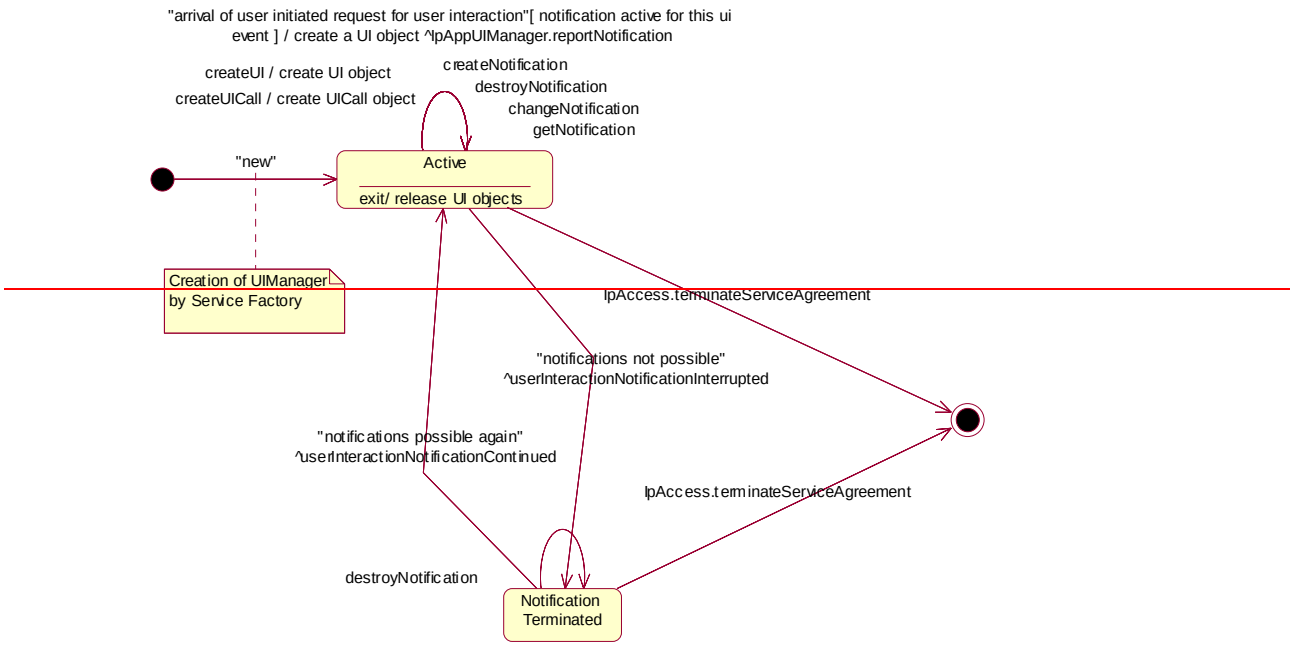
6) The Interface specification clause describes in detail each of the interfaces shown within the Class diagram part. This clause also includes Call User interaction.

7) The State Transition Diagrams (STD) show the transition between states in the SCF. The states and transitions are well-defined; either methods specified in the Interface specification or events occurring in the underlying networks cause state transitions.

8) The Data Definitions clause show 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.

←========== NEXT MODIFIED SECTION ==========→

9.1 State Transition Diagrams for IpUIManager



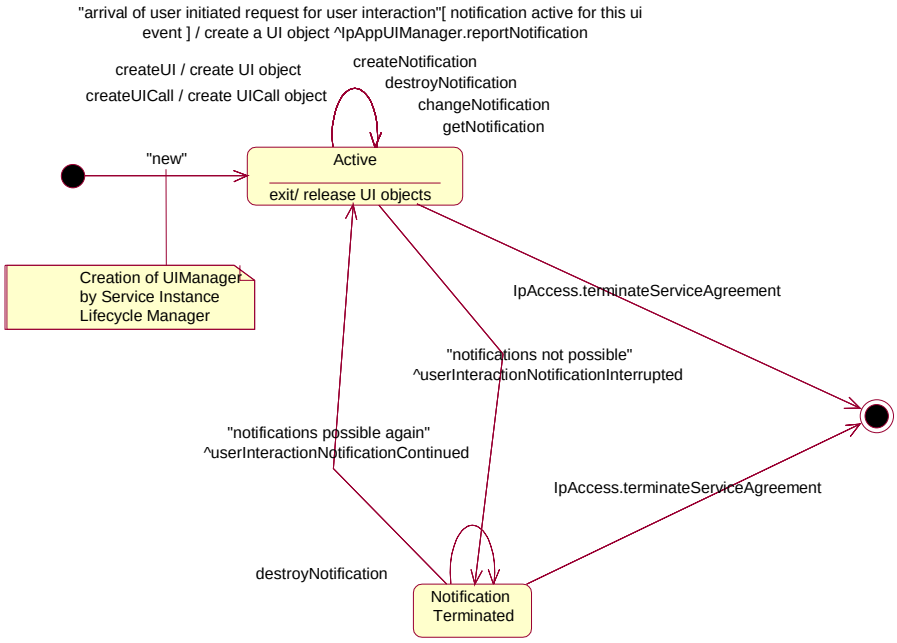


Figure : Application view on the UI Manager

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When the UI manager is in the Notification terminated state, events requested with createNotification() will not be forwarded to the application. There can be multiple reasons for this: for instance it might be that the application receives more notifications than defined in the Service Level Agreement. Another example is that the SCS has detected it receives no notifications from the network due to e.g. a link failure. In this state no requests for new notifications will be accepted.

←========== END MODIFIED SECTION ==========→

joint-API-group (Parlay, ETSI Project OSA, 3GPP TSG_CN WG5) **N5-021147**
Meeting #21, Dublin, IRELAND, 28 – 31 October 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.198-05** **CR** **028** ⌘ **rev** **-** ⌘ 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: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Addition of status of methods to User Interaction interfaces
Source:	⌘	N5
Work item code:	⌘	OSA2
Date:	⌘	31/10/2002
Category:	⌘	**A**
Release:	⌘	*REL-5*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
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Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)

Reason for change:	⌘	There is no requirement in the standard about the necessity to implement all or only some of the methods defined for an interface.
Summary of change:	⌘	Add a statement that clarifies which methods are mandatory and which are optional.
Consequences if not approved:	⌘	Application developers will not know which methods will actually be available.

Clauses affected:	⌘	4, 8

Other specs affected: ⌘	Y	N	
		X	Other core specifications
		X	Test specifications
		X	O&M Specifications

⌘

Other comments: ⌘

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4 Generic and Call User Interaction SCF

The Generic User Interaction service capability feature is used by applications to interact with end users. It consists of two interfaces:

1) User Interaction Manager, containing management functions for User Interaction related issues;

2) Generic User Interaction, containing methods to interact with an end-user.

The Generic User Interaction service capability feature is described in terms of the methods in the Generic User Interaction interfaces.

The following table gives an overview of the Generic User Interaction methods and to which interfaces these methods belong.

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userInteractionNotificationInterrupted	release
userInteractionNotificationContinued	UserInteractionFaultDetected
changeNotification	
getNotification	
enableNotifications	
disableNotifications	

The following table gives an overview of the Call User Interaction methods and to which interfaces these methods belong.

Table 2: Overview of Call User Interaction interfaces and their methods

User Interaction Manager	Call User Interaction
As defined for the Generic User Interaction SCF	Inherits from Generic User Interaction and adds:
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	recordMessageErr
	deleteMessageReq
	deleteMessageRes
	deleteMessageErr
	abortActionReq
	abortActionRes
	abortActionErr

The IpUI Interface provides functions to send information to, or gather information from the user, i.e. this interface allows applications to send SMS and USSD messages. An application can use this interface independently of other SCFs. The IpUICall Interface provides functions to send information to, or gather information from the user (or call party) attached to a call.

The following clauses describe each aspect of the Generic User Interaction 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 show 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. This clause also includes Call User interaction.
- The State Transition Diagrams (STD) show the transition between states in the SCF. The states and transitions are well-defined; either methods specified in the Interface specification or events occurring in the underlying networks cause state transitions.
- The Data Definitions clause show 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.

4.1 General requirements on support of methods

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.

Where a method is not supported by an implementation of an Application interface, a call to that method shall be possible, and no exception shall be returned.

8 Generic User Interaction Interface Classes

The Generic User Interaction Service interface (GUIS) is used by applications to interact with end users. The GUIS is represented by the IpUIManager, IpUI and IpUICall interfaces that interface to services provided by the network. To handle responses and reports, the developer must implement IpAppUIManager and IpAppUI interfaces to provide the callback mechanism.

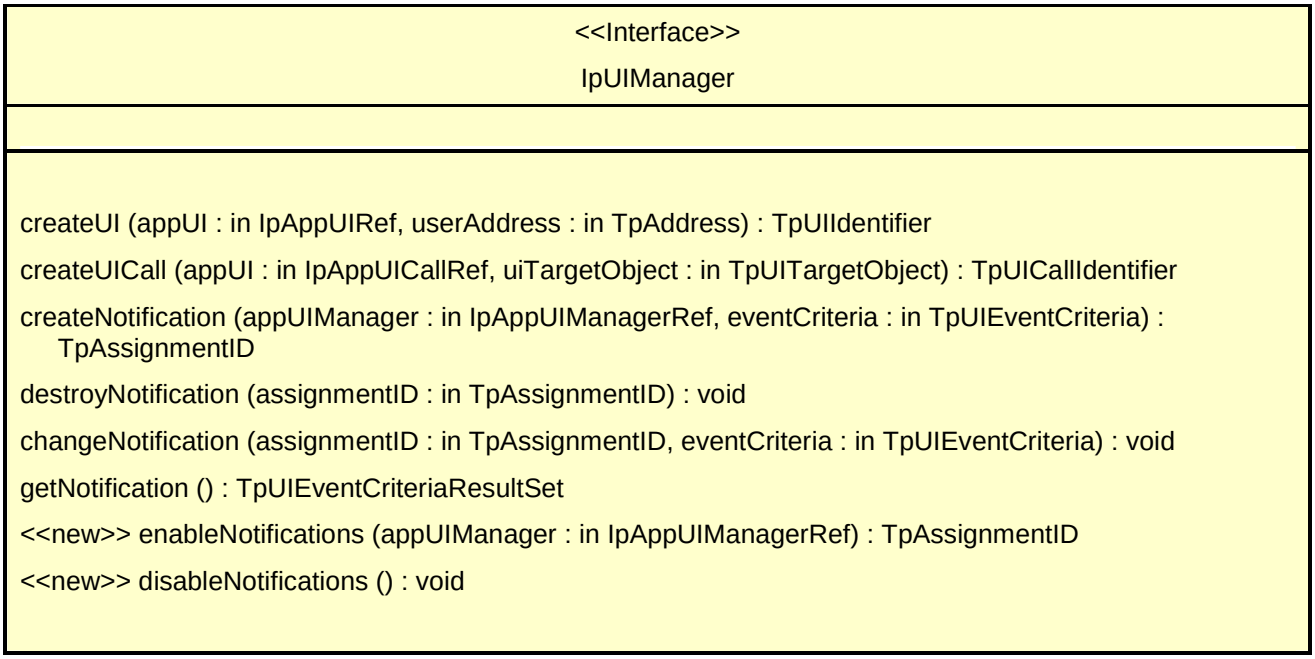
8.1 Interface Class IpUIManager

Inherits from: IpService.

This interface is the 'service manager' interface for the Generic User Interaction Service and provides the management functions to the Generic User Interaction Service.

This interface shall be implemented by a Generic User Interaction SCF.

The createUI() method, or the createUICall() method, or both the createNotification() and destroyNotification methods, or both the enableNotifications() and disableNotifications() methods shall be implemented as a minimum requirement.



8.1.1 Method createUI()

This method is used to create a new user interaction object for non-call related purposes

Results: userInteraction

Specifies the interface and sessionID of the user interaction created.

Parameters

`appUI : in IpAppUIRef`

Specifies the application interface for callbacks from the user interaction created.

userAddress : in TpAddress

Indicates the end-user with whom to interact.

Returns

TpUIIdentifier

Raises

TpCommonExceptions, P_INVALID_NETWORK_STATE, P_INVALID_INTERFACE_TYPE

8.1.2 Method createUICall()

This method is used to create a new user interaction object for call related purposes.

The user interaction can take place to the specified party or to all parties in a call. Note that for certain implementation user interaction can only be performed towards the controlling call party, which shall be the only party in the call.

Returns: userInteraction

Specifies the interface and sessionID of the user interaction created.

Parameters

appUI : in IpAppUICallRef

Specifies the application interface for callbacks from the user interaction created.

uiTargetObject : in TpUITargetObject

Specifies the object on which to perform the user interaction. This can either be a Call, Multi-party Call or call leg object.

Returns

TpUICallIdentifier

Raises

TpCommonExceptions, P_INVALID_NETWORK_STATE, P_INVALID_INTERFACE_TYPE

8.1.3 Method createNotification()

This method is used by the application to install specified notification criteria, for which the reporting is implicitly activated. If some application already requested notifications with criteria that overlap the specified criteria, or the specified criteria overlap with criteria already present in the network (when provisioned from within the network), the request is refused with P_INVALID_CRITERIA.

The criteria are said to overlap if both originating and terminating ranges overlap and the same number plan is used and the same servicecode is used.

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. This means that the callback will only be used in case when the first callback specified by the application is unable to handle the reportNotification (e.g., due to overload or failure).

Returns: assignmentID

Specifies the ID assigned by the generic user interaction manager interface for this newly installed notification criteria.

Parameters

appUIManager : in IpAppUIManagerRef

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.

eventCriteria : in TpUIEventCriteria

Specifies the event specific criteria used by the application to define the event required, like user address and service code.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INVALID_CRITERIA, P_INVALID_INTERFACE_TYPE

8.1.4 Method destroyNotification()

This method is used by the application to destroy previously installed notification criteria via the createNotification method.

Parameters

assignmentID : in TpAssignmentID

Specifies the assignment ID given by the generic user interaction manager interface when the previous createNotification() was called. If the assignment ID does not correspond to one of the valid assignment IDs, the framework will return the error code P_INVALID_ASSIGNMENT_ID.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

8.1.5 Method changeNotification()

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

Parameters

assignmentID : in TpAssignmentID

Specifies the ID assigned by the manager interface for the event notification.

eventCriteria : in TpUIEventCriteria

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

8.1.6 Method getNotification()

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

Returns: eventCriteria

Specifies the event specific 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

TpUIEventCriteriaResultSet

Raises

TpCommonExceptions, P_INVALID_CRITERIA

8.1.7 Method <<new>> enableNotifications()

This method is used to indicate that the application is able to receive notifications 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 IpAppUIManager reference (i.e. without first disabling them), the second callback will be treated as an additional callback. This means that the callback wil only be used in cases when the first callback specified by the application is unable to handle the callEventNotify (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.

Parameters

appUIManager : in IpAppUIManagerRef

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

8.1.8 Method <<new>> 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 were identified for this method

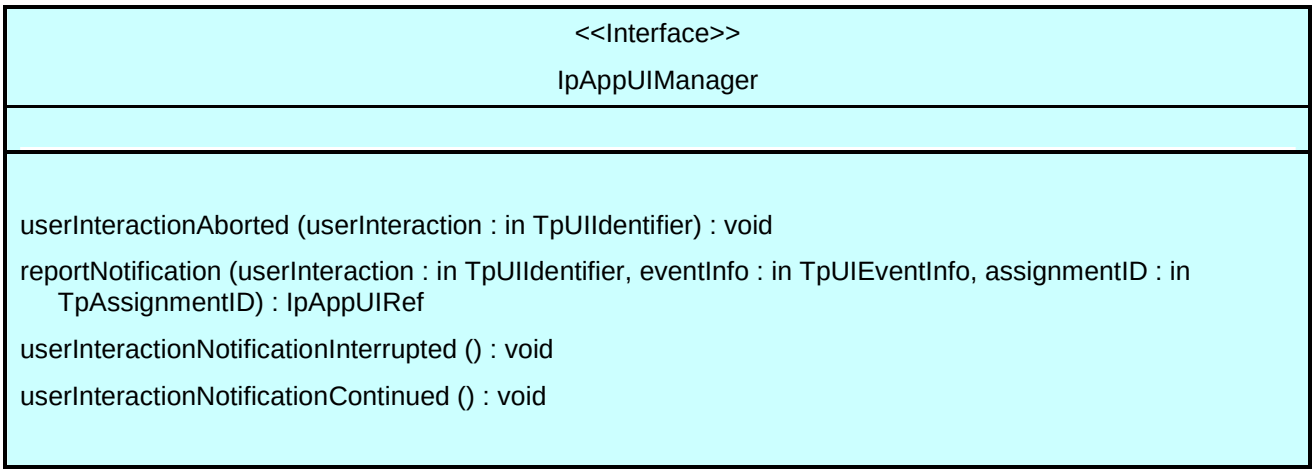
Raises

TpCommonExceptions

8.2 Interface Class IpAppUIManager

Inherits from: IpInterface.

The Generic User Interaction Service manager application interface provides the application callback functions to the Generic User Interaction Service.



8.2.1 Method userInteractionAborted()

This method 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 application.

Parameters

userInteraction : in TpUIIdentifier

Specifies the interface and sessionID of the user interaction service that has terminated.

8.2.2 Method reportNotification()

This method notifies the application of an occurred network event which matches the criteria installed by the createNotification method.

Returns: appUI

Specifies a reference to the application interface, which implements the callback interface for the new user interaction.

Parameters

`userInteraction : in TpUIIdentifier`

Specifies the reference to the interface and the sessionID to which the notification relates.

`eventInfo : in TpUIEventInfo`

Specifies data associated with this event.

`assignmentID : in TpAssignmentID`

Specifies the assignment id which was returned by the createNotification() method. The application can use assignment id to associate events with event specific criteria and to act accordingly.

Returns

`IpAppUIRef`

8.2.3 Method userInteractionNotificationInterrupted()

This method indicates to the application that all event notifications have been temporarily interrupted (for example, due to faults detected). Note that more permanent failures are reported via the Framework (integrity management).

Parameters

No Parameters were identified for this method

8.2.4 Method userInteractionNotificationContinued()

This method indicates to the application that event notifications will again be possible.

Parameters

No Parameters were identified for this method

8.3 Interface Class IpUI

Inherits from: IpService.

The User Interaction Service Interface provides functions to send information to, or gather information from the user. An application can use the User Interaction Service Interface independently of other services.

This interface, or the IpUICall interface, shall be implemented by a Generic User Interaction SCF as a minimum requirement.

The release() method, and at least one of the sendInfoReq() or the sendInfoAndCollectReq() methods shall be implemented as a minimum requirement.

<<Interface>> IpUI
sendInfoReq (userInteractionSessionID : in TpSessionID, info : in TpUIInfo, language : in TpLanguage, variableInfo : in TpUIVariableInfoSet, repeatIndicator : in TpInt32, responseRequested : in TpUIResponseRequest) : TpAssignmentID sendInfoAndCollectReq (userInteractionSessionID : in TpSessionID, info : in TpUIInfo, language : in TpLanguage, variableInfo : in TpUIVariableInfoSet, criteria : in TpUICollectCriteria, responseRequested : in TpUIResponseRequest) : TpAssignmentID release (userInteractionSessionID : in TpSessionID) : void

8.3.1 Method sendInfoReq()

This asynchronous method plays an announcement or sends other information to the user.

Returns: assignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

Parameters

`userInteractionSessionID : in TpSessionID`

Specifies the user interaction session ID of the user interaction.

`info : in TpUIInfo`

Specifies the information to send to the user. This information can be:

- an infoID, identifying pre-defined information to be send (announcement and/or text);

- a string, defining the text to be sent;

- a URL , identifying pre-defined information or data to be sent to or downloaded into the terminal.

`language : in TpLanguage`

Specifies the Language of the information to be send to the user.

`variableInfo : in TpUIVariableInfoSet`

Defines the variable part of the information to send to the user.

`repeatIndicator : in TpInt32`

Defines how many times the information shall be sent to the end-user. A value of zero (0) indicates that the announcement shall be repeated until the call or call leg is released or an abortActionReq() is sent.

`responseRequested : in TpUIResponseRequest`

Specifies if a response is required from the call user interaction service, and any action the service should take.

Returns

TpAssignmentID

Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_INVALID_NETWORK_STATE,P_ILLEGAL_ID,P_ID_NOT_FOUND

8.3.2 Method sendInfoAndCollectReq()

This asynchronous method 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).

Returns: assignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

info : in TpUIInfo

Specifies the ID of the information to send to the user. This information can be:

- an infoID, identifying pre-defined information to be send (announcement and/or text);

- a string, defining the text to be sent;

- a URL , identifying pre-defined information or data to be sent to or downloaded into the terminal

language : in TpLanguage

Specifies the Language of the information to be send to the user.

variableInfo : in TpUIVariableInfoSet

Defines the variable part of the information to send to the user.

criteria : in TpUICollectCriteria

Specifies additional properties for the collection of information, such as the maximum and minimum number of characters, end character, first character timeout and inter-character timeout.

responseRequested : in TpUIResponseRequest

Specifies if a response is required from the call user interaction service, and any action the service should take. For this case it can especially be used to indicate e.g. the final request.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INVALID_SESSION_ID, P_INVALID_NETWORK_STATE, P_ILLEGAL_ID, P_ID_NOT_FOUND, P_ILLEGAL_RANGE, P_INVALID_COLLECTION_CRITERIA

8.3.3 Method release()

This method 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.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction created.

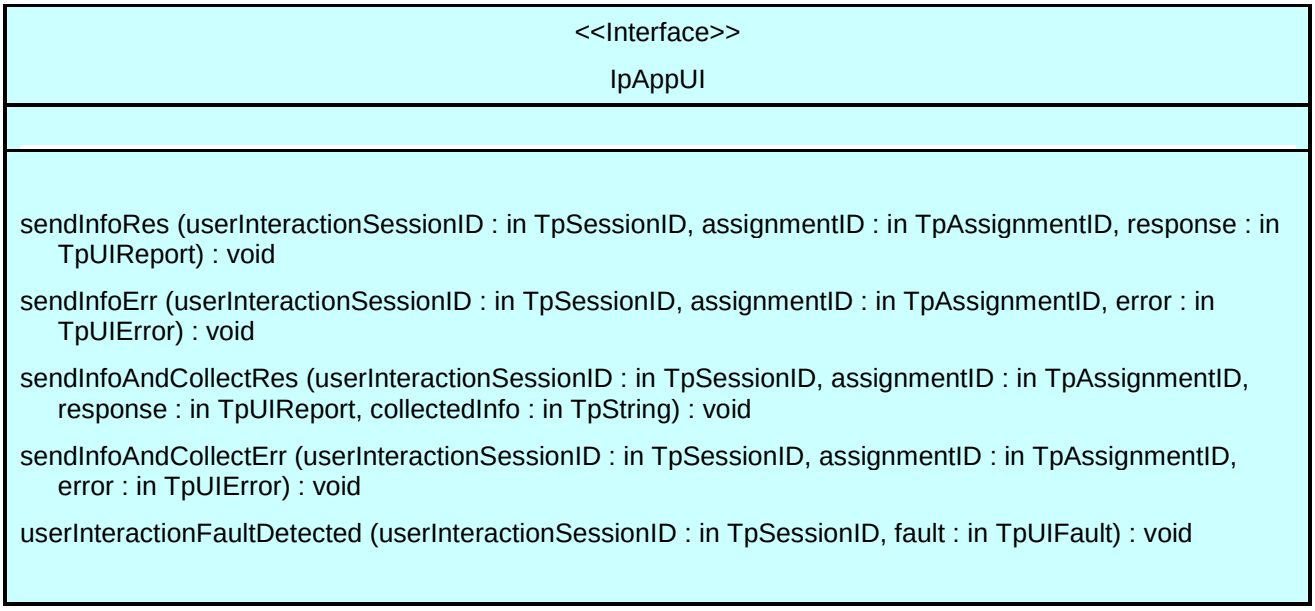
Raises

TpCommonExceptions,P_INVALID_SESSION_ID

8.4 Interface Class IpAppUI

Inherits from: IpInterface.

The User Interaction Application Interface is implemented by the client application developer and is used to handle generic user interaction request responses and reports.



8.4.1 Method sendInfoRes()

This asynchronous method informs the application about the completion of a sendInfoReq(). This response is called only if the responseRequested parameter of the sendInfoReq() method was set to P_UICALL_RESPONSE_REQUIRED.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

response : in TpUIReport

Specifies the type of response received from the user.

8.4.2 Method sendInfoErr()

This asynchronous method indicates that the request to send information was unsuccessful.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

error : in TpUIError

Specifies the error which led to the original request failing.

8.4.3 Method sendInfoAndCollectRes()

This asynchronous method returns the information collected to the application.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

response : in TpUIReport

Specifies the type of response received from the user.

collectedInfo : in TpString

Specifies the information collected from the user.

8.4.4 Method sendInfoAndCollectErr()

This asynchronous method indicates that the request to send information and collect a response was unsuccessful.

Parameters

`userInteractionSessionID : in TpSessionID`

Specifies the user interaction session ID of the user interaction.

`assignmentID : in TpAssignmentID`

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

`error : in TpUIError`

Specifies the error which led to the original request failing.

8.4.5 Method userInteractionFaultDetected()

This method indicates to the application that a fault has been detected in the user interaction.

Parameters

`userInteractionSessionID : in TpSessionID`

Specifies the interface and sessionID of the user interaction service in which the fault has been detected.

`fault : in TpUIFault`

Specifies the fault that has been detected.

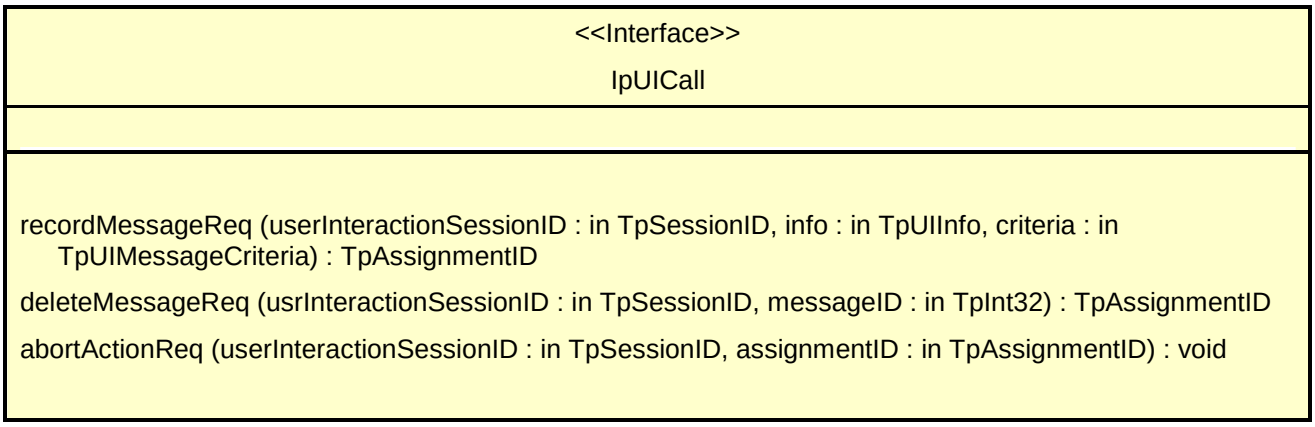
8.5 Interface Class IpUICall

Inherits from: IpUI.

The Call User Interaction Service Interface provides functions to send information to, or gather information from the user (or call party) to which a call leg is connected. An application can use the Call User Interaction Service Interface only in conjunction with another service interface, which provides mechanisms to connect a call leg to a user. At present, only the Call Control service supports this capability.

This interface, or the IpUI interface, shall be implemented by a Generic User Interaction SCF as a minimum requirement.

The minimum required methods of interface IpUI shall be implemented.



8.5.1 Method recordMessageReq()

This asynchronous method allows the recording of a message. The recorded message can be played back at a later time with the sendInfoReq() method.

Returns: assignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

info : in TpUIInfo

Specifies the information to send to the user. This information can be either an ID (for pre-defined announcement or text), a text string, or an URL (indicating the information to be sent, e.g. an audio stream).

criteria : in TpUIMessageCriteria

Defines the criteria for recording of messages

Returns

TpAssignmentID

Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_INVALID_NETWORK_STATE,P_ILLEGAL_ID,P_ID_NOT_FOUND,P_INVALID_CRITERIA

8.5.2 Method deleteMessageReq()

This asynchronous method allows to delete a recorded message.

Returns: assignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

Parameters

usrInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

messageID : in TpInt32

Specifies the message ID.

Returns

TpAssignmentID

Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_ILLEGAL_ID,P_ID_NOT_FOUND

8.5.3 Method abortActionReq()

This asynchronous method aborts a user interaction operation, e.g. a sendInfoReq(), from the specified call leg. The call and call leg are otherwise unaffected. The user interaction call service interrupts the current action on the specified leg.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the user interaction request to be cancelled.

Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_INVALID_ASSIGNMENT_ID

8.6 Interface Class IpAppUICall

Inherits from: IpAppUI.

The Call User Interaction Application Interface is implemented by the client application developer and is used to handle call user interaction request responses and reports.

<<Interface>>

IpAppUICall

recordMessageRes (userInteractionSessionID : in TpSessionID, assignmentID : in TpAssignmentID, response : in TpUIReport, messageID : in TpInt32) : void

recordMessageErr (userInteractionSessionID : in TpSessionID, assignmentID : in TpAssignmentID, error : in TpUIError) : void

deleteMessageRes (usrInteractionSessionID : in TpSessionID, response : in TpUIReport, assignmentID : in TpAssignmentID) : void

deleteMessageErr (usrInteractionSessionID : in TpSessionID, error : in TpUIError, assignmentID : in TpAssignmentID) : void

abortActionRes (userInteractionSessionID : in TpSessionID, assignmentID : in TpAssignmentID) : void

abortActionErr (userInteractionSessionID : in TpSessionID, assignmentID : in TpAssignmentID, error : in TpUIError) : void

8.6.1 Method recordMessageRes()

This method returns whether the message is successfully recorded or not. In case the message is recorded, the ID of the message is returned.

Parameters

`userInteractionSessionID : in TpSessionID`

Specifies the user interaction session ID of the user interaction.

`assignmentID : in TpAssignmentID`

Specifies the ID assigned by the call user interaction interface for a user interaction request.

`response : in TpUIReport`

Specifies the type of response received from the device where the message is stored.

`messageID : in TpInt32`

Specifies the ID that was assigned to the message by the device where the message is stored.

8.6.2 Method recordMessageErr()

This method indicates that the request for recording of a message was not successful.

Parameters

`userInteractionSessionID : in TpSessionID`

Specifies the user interaction session ID of the user interaction.

`assignmentID : in TpAssignmentID`

Specifies the ID assigned by the call user interaction interface for a user interaction request.

error : in TpUIError

Specifies the error which led to the original request failing.

8.6.3 Method deleteMessageRes()

This method returns whether the message is successfully deleted or not.

Parameters

usrInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

response : in TpUIReport

Specifies the type of response received from the device where the message was stored.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

8.6.4 Method deleteMessageErr()

This method indicates that the request for deleting a message was not successful.

Parameters

usrInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

error : in TpUIError

Specifies the error which led to the original request failing.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

8.6.5 Method abortActionRes()

This asynchronous method confirms that the request to abort a user interaction operation on a call leg was successful.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

8.6.6 Method abortActionErr()

This asynchronous method indicates that the request to abort a user interaction operation on a call leg resulted in an error.

Parameters

`userInteractionSessionID : in TpSessionID`

Specifies the user interaction session ID of the user interaction.

`assignmentID : in TpAssignmentID`

Specifies the ID assigned by the call user interaction interface for a user interaction request.

`error : in TpUIError`

Specifies the error which led to the original request failing.

CR-Form-v7

CHANGE REQUEST

⌘ 29.198-05 CR 027 ⌘rev - ⌘ Current version: 4.5.0 ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title: ⌘	Correction of status of methods to User Interaction interfaces	
Source: ⌘	N5	
Work item code: ⌘	OSA1	**Date:** ⌘ 31/10/2002
Category: ⌘	**F**	**Release:** ⌘ *REL-4*

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘	There is no requirement in the standard about the necessity to implement all or only some of the methods defined for an interface.
Summary of change: ⌘	Add a statement that clarifies which methods are mandatory and which are optional.
Consequences if not approved: ⌘	Application developers will not know which methods will actually be available.

Clauses affected: ⌘	4, 8			
Other specs affected: ⌘	**Y**	**N**		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	
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 Generic and Call User Interaction SCF

The Generic User Interaction service capability feature is used by applications to interact with end users. It consists of two interfaces:

1) User Interaction Manager, containing management functions for User Interaction related issues;

2) Generic User Interaction, containing methods to interact with an end-user.

The Generic User Interaction service capability feature is described in terms of the methods in the Generic User Interaction interfaces.

The following table gives an overview of the Generic User Interaction methods and to which interfaces these methods belong.

Table 1: Overview of Generic User Interaction interfaces and their methods

User Interaction Manager	Generic User Interaction
createUI	sendInfoReq
createUICall	sendInfoRes
createNotification	sendInfoErr
destroyUINotification	sendInfoAndCollectReq
reportNotification	sendInfoAndCollectRes
userInteractionAborted	sendInfoAndCollectErr
userInteractionNotificationInterrupted	release
userInteractionNotificationContinued	UserInteractionFaultDetected
changeNotification	
getNotification	

The following table gives an overview of the Call User Interaction methods and to which interfaces these methods belong.

Table 2: Overview of Call User Interaction interfaces and their methods

User Interaction Manager	Call User Interaction
As defined for the Generic User Interaction SCF	Inherits from Generic User Interaction and adds:
	recordMessageReq
	recordMessageRes
	recordMessageErr
	deleteMessageReq
	deleteMessageRes
	deleteMessageErr
	abortActionReq
	abortActionRes
	abortActionErr

The IpUI Interface provides functions to send information to, or gather information from the user, i.e. this interface allows applications to send SMS and USSD messages. An application can use this interface independently of other SCFs. The IpUICall Interface provides functions to send information to, or gather information from the user (or call party) attached to a call.

The following clauses describe each aspect of the Generic User Interaction 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 show 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. This clause also includes Call User interaction.

The State Transition Diagrams (STD) show the transition between states in the SCF. The states and transitions are well-defined; either methods specified in the Interface specification or events occurring in the underlying networks cause state transitions.

The Data Definitions clause show 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. .

4.1 General requirements on support of methods

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.

Where a method is not supported by an implementation of an Application interface, a call to that method shall be possible, and no exception shall be returned.

8 Generic User Interaction Interface Classes

The Generic User Interaction Service interface (GUIS) is used by applications to interact with end users. The GUIS is represented by the IpUIManager, IpUI and IpUICall interfaces that interface to services provided by the network. To handle responses and reports, the developer must implement IpAppUIManager and IpAppUI interfaces to provide the callback mechanism.

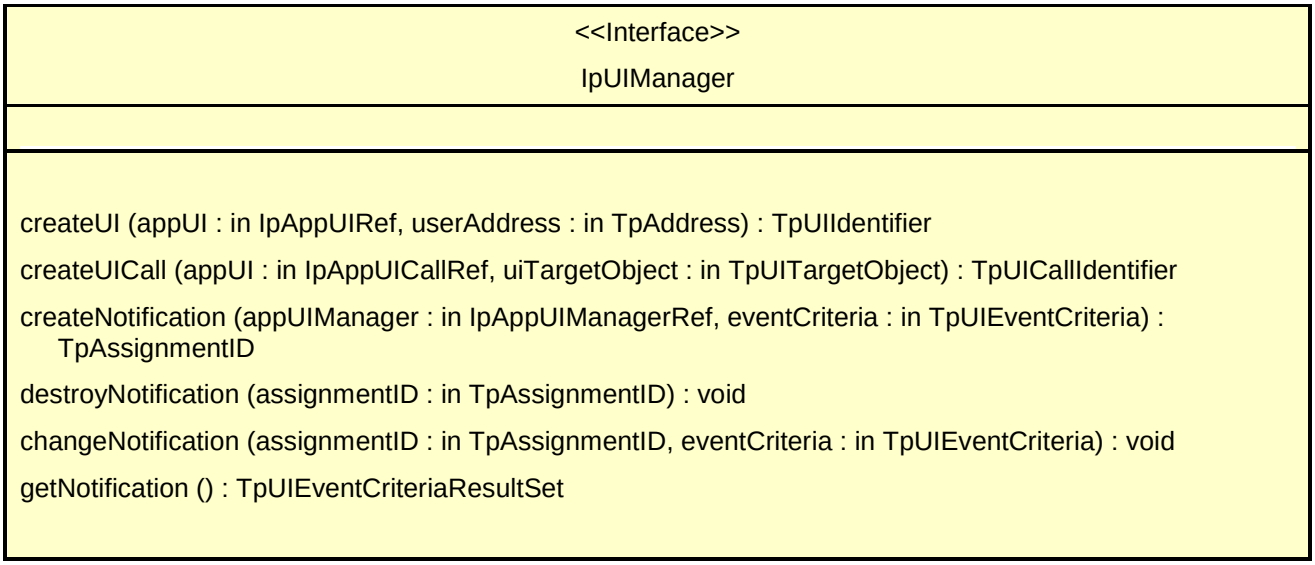
8.1 Interface Class IpUIManager

Inherits from: IpService.

This interface is the 'service manager' interface for the Generic User Interaction Service and provides the management functions to the Generic User Interaction Service.

This interface shall be implemented by a Generic User Interaction SCF.

The createUI() method, or the createUICall() method, or both the createNotification() and destroyNotification methods shall be implemented as a minimum requirement.



Method

`createUI()`

This method is used to create a new user interaction object for non-call related purposes

Results: userInteraction

Specifies the interface and sessionID of the user interaction created.

Parameters

`appUI : in IpAppUIRef`

Specifies the application interface for callbacks from the user interaction created.

`userAddress : in TpAddress`

Indicates the end-user with whom to interact.

Returns

TpUIIdentifier

Raises

TpCommonExceptions, P_INVALID_NETWORK_STATE, P_INVALID_INTERFACE_TYPE

Method

createUICall()

This method is used to create a new user interaction object for call related purposes.

The user interaction can take place to the specified party or to all parties in a call. Note that for certain implementation user interaction can only be performed towards the controlling call party, which shall be the only party in the call.

Returns: userInteraction

Specifies the interface and sessionID of the user interaction created.

Parameters

appUI : in IpAppUICallRef

Specifies the application interface for callbacks from the user interaction created.

uiTargetObject : in TpUITargetObject

Specifies the object on which to perform the user interaction. This can either be a Call, Multi-party Call or call leg object.

Returns

TpUICallIdentifier

Raises

TpCommonExceptions, P_INVALID_NETWORK_STATE, P_INVALID_INTERFACE_TYPE

Method

createNotification()

This method is used by the application to install specified notification criteria, for which the reporting is implicitly activated. If some application already requested notifications with criteria that overlap the specified criteria, the request is refused with P_INVALID_CRITERIA.

The criteria are said to overlap if both originating and terminating ranges overlap and the same number plan is used and the same servicecode is used.

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. This means that the callback will only be used in case when the first callback specified by the application is unable to handle the reportNotification (e.g., due to overload or failure).

Returns: assignmentID

Specifies the ID assigned by the generic user interaction manager interface for this newly installed notification criteria.

Parameters

appUIManager : in IpAppUIManagerRef

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.

eventCriteria : in TpUIEventCriteria

Specifies the event specific criteria used by the application to define the event required, like user address and service code.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INVALID_CRITERIA, P_INVALID_INTERFACE_TYPE

Method

destroyNotification()

This method is used by the application to destroy previously installed notification criteria via the createNotification method.

Parameters

assignmentID : in TpAssignmentID

Specifies the assignment ID given by the generic user interaction manager interface when the previous createNotification() was called. If the assignment ID does not correspond to one of the valid assignment IDs, the framework will return the error code P_INVALID_ASSIGNMENT_ID.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

Method

changeNotification()

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

Parameters

assignmentID : in TpAssignmentID

Specifies the ID assigned by the manager interface for the event notification.

eventCriteria : in TpUIEventCriteria

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

Method

getNotification()

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

Returns: eventCriteria

Specifies the event specific 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

TpUIEventCriteriaResultSet

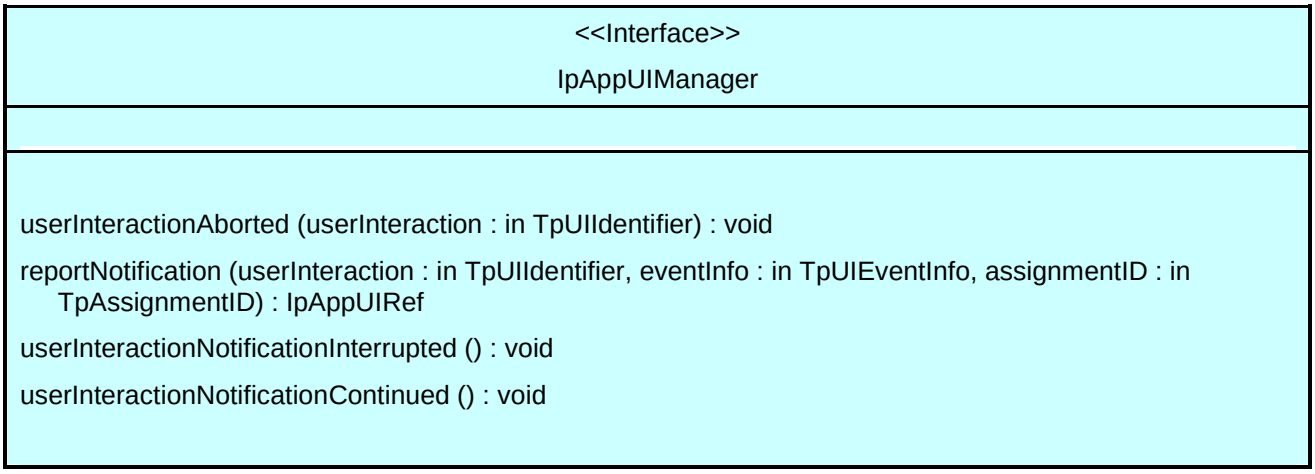
Raises

TpCommonExceptions, P_INVALID_CRITERIA

8.2 Interface Class IpAppUIManager

Inherits from: IpInterface.

The Generic User Interaction Service manager application interface provides the application callback functions to the Generic User Interaction Service.



Method

userInteractionAborted()

This method 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 application.

Parameters

userInteraction : in TpUIIdentifier

Specifies the interface and sessionID of the user interaction service that has terminated.

Method

reportNotification()

This method notifies the application of an occurred network event which matches the criteria installed by the createNotification method.

Returns: appUI

Specifies a reference to the application interface, which implements the callback interface for the new user interaction.

Parameters

userInteraction : in TpUIIdentifier

Specifies the reference to the interface and the sessionID to which the notification relates.

eventInfo : in TpUIEventInfo

Specifies data associated with this event.

assignmentID : in TpAssignmentID

Specifies the assignment id which was returned by the createNotification() method. The application can use assignment id to associate events with event specific criteria and to act accordingly.

Returns

IpAppUIRef

Method

userInteractionNotificationInterrupted()

This method indicates to the application that all event notifications have been temporarily interrupted (for example, due to faults detected). Note that more permanent failures are reported via the Framework (integrity management).

Parameters

No Parameters were identified for this method

Method

userInteractionNotificationContinued()

This method indicates to the application that event notifications will again be possible.

Parameters

No Parameters were identified for this method

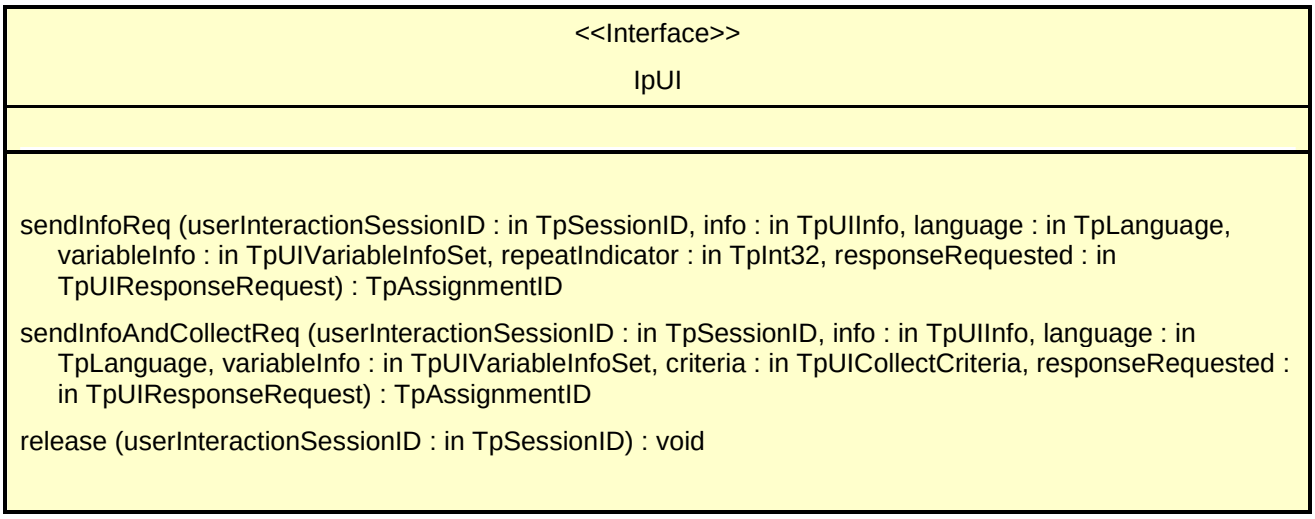
8.3 Interface Class IpUI

Inherits from: IpService.

The User Interaction Service Interface provides functions to send information to, or gather information from the user. An application can use the User Interaction Service Interface independently of other services.

This interface, or the IpUICall interface, shall be implemented by a Generic User Interaction SCF as a minimum requirement.

The release() method, and at least one of the sendInfoReq() or the sendInfoAndCollectReq() methods shall be implemented as a minimum requirement.



Method

`sendInfoReq()`

This asynchronous method plays an announcement or sends other information to the user.

Returns: assignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

Parameters

`userInteractionSessionID : in TpSessionID`

Specifies the user interaction session ID of the user interaction.

`info : in TpUIInfo`

Specifies the information to send to the user. This information can be:

- an infoID, identifying pre-defined information to be send (announcement and/or text);

- a string, defining the text to be sent;

- a URL , identifying pre-defined information or data to be sent to or downloaded into the terminal.

`language : in TpLanguage`

Specifies the Language of the information to be send to the user.

`variableInfo : in TpUIVariableInfoSet`

Defines the variable part of the information to send to the user.

repeatIndicator : in TpInt32

Defines how many times the information shall be sent to the end-user. A value of zero (0) indicates that the announcement shall be repeated until the call or call leg is released or an abortActionReq() is sent.

responseRequested : in TpUIResponseRequest

Specifies if a response is required from the call user interaction service, and any action the service should take.

Returns

TpAssignmentID

Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_INVALID_NETWORK_STATE,P_ILLEGAL_ID,P_ID_NOT_FOUND

Method

sendInfoAndCollectReq()

This asynchronous method 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).

Returns: assignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

info : in TpUIInfo

Specifies the ID of the information to send to the user. This information can be:

- an infoID, identifying pre-defined information to be send (announcement and/or text);

- a string, defining the text to be sent;

- a URL , identifying pre-defined information or data to be sent to or downloaded into the terminal

language : in TpLanguage

Specifies the Language of the information to be send to the user.

variableInfo : in TpUIVariableInfoSet

Defines the variable part of the information to send to the user.

criteria : in TpUICollectCriteria

Specifies additional properties for the collection of information, such as the maximum and minimum number of characters, end character, first character timeout and inter-character timeout.

responseRequested : in TpUIResponseRequest

Specifies if a response is required from the call user interaction service, and any action the service should take. For this case it can especially be used to indicate e.g. the final request.

Returns

TpAssignmentID

Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_INVALID_NETWORK_STATE,P_ILLEGAL_ID,P_ID_NOT_FOUND,P_INVALID_CRITERIA,P_ILLEGAL_RANGE,P_INVALID_COLLECTION_CRITERIA

Method

release()

This method 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.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction created.

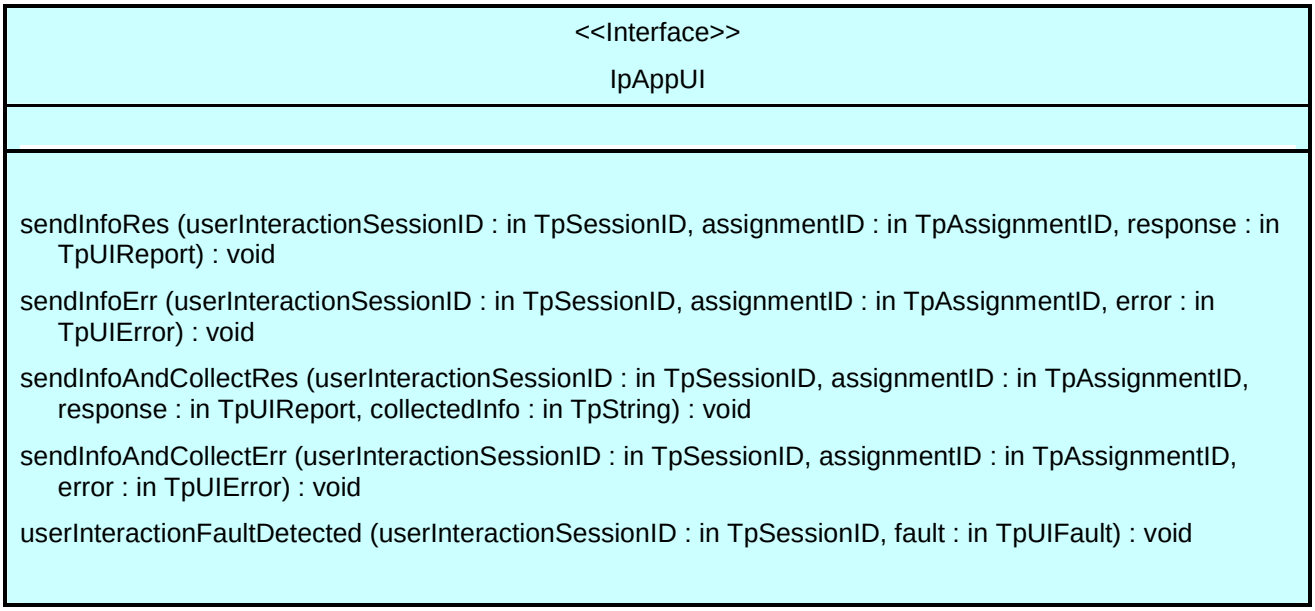
Raises

TpCommonExceptions,P_INVALID_SESSION_ID

8.4 Interface Class IpAppUI

Inherits from: IpInterface.

The User Interaction Application Interface is implemented by the client application developer and is used to handle generic user interaction request responses and reports.



Method

sendInfoRes()

This asynchronous method informs the application about the completion of a sendInfoReq(). This response is called only if the responseRequested parameter of the sendInfoReq() method was set to P_UICALL_RESPONSE_REQUIRED.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

response : in TpUIReport

Specifies the type of response received from the user.

Method

sendInfoErr()

This asynchronous method indicates that the request to send information was unsuccessful.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

error : in TpUIError

Specifies the error which led to the original request failing.

Method

sendInfoAndCollectRes()

This asynchronous method returns the information collected to the application.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

response : in TpUIReport

Specifies the type of response received from the user.

collectedInfo : in TpString

Specifies the information collected from the user.

Method

sendInfoAndCollectErr()

This asynchronous method indicates that the request to send information and collect a response was unsuccessful.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

error : in TpUIError

Specifies the error which led to the original request failing.

Method

userInteractionFaultDetected()

This method indicates to the application that a fault has been detected in the user interaction.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the interface and sessionID of the user interaction service in which the fault has been detected.

fault : in TpUIFault

Specifies the fault that has been detected.

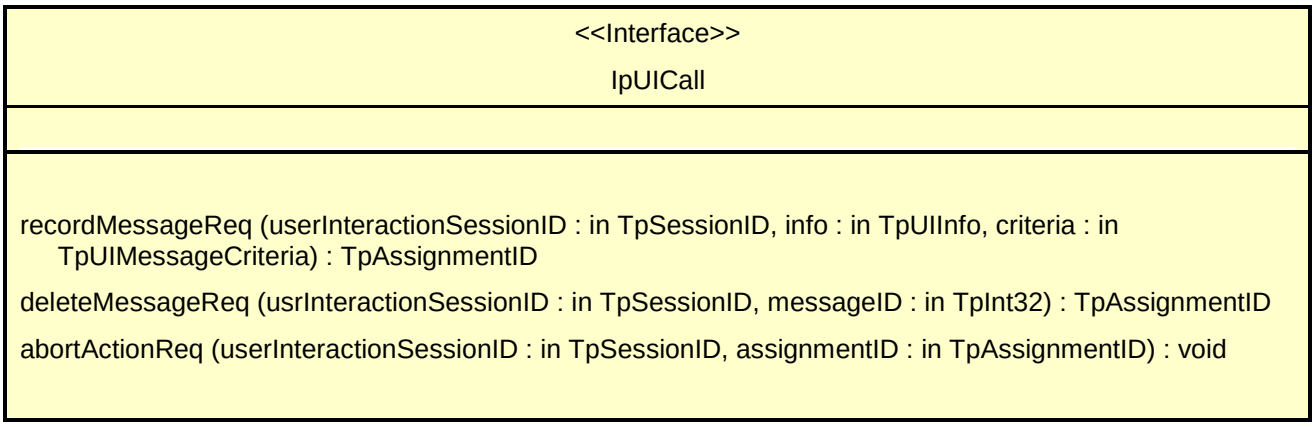
8.5 Interface Class IpUICall

Inherits from: IpUI.

The Call User Interaction Service Interface provides functions to send information to, or gather information from the user (or call party) to which a call leg is connected. An application can use the Call User Interaction Service Interface only in conjunction with another service interface, which provides mechanisms to connect a call leg to a user. At present, only the Call Control service supports this capability.

This interface, or the IpUI interface, shall be implemented by a Generic User Interaction SCF as a minimum requirement.

The minimum required methods of interface IpUI shall be implemented.



Method

recordMessageReq()

This asynchronous method allows the recording of a message. The recorded message can be played back at a later time with the sendInfoReq() method.

Returns: assignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

info : in TpUIInfo

Specifies the information to send to the user. This information can be either an ID (for pre-defined announcement or text), a text string, or an URL (indicating the information to be sent, e.g. an audio stream).

criteria : in TpUIMessageCriteria

Defines the criteria for recording of messages

Returns

TpAssignmentID

Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_INVALID_NETWORK_STATE,P_ILLEGAL_ID,P_ID_NOT_FOUND,P_INVALID_CRITERIA

Method

deleteMessageReq()

This asynchronous method allows to delete a recorded message.

Returns: assignmentID

Specifies the ID assigned by the generic user interaction interface for a user interaction request.

Parameters

usrInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

messageID : in TpInt32

Specifies the message ID.

Returns

TpAssignmentID

Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_ILLEGAL_ID,P_ID_NOT_FOUND

Method

abortActionReq()

This asynchronous method aborts a user interaction operation, e.g. a sendInfoReq(), from the specified call leg. The call and call leg are otherwise unaffected. The user interaction call service interrupts the current action on the specified leg.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the user interaction request to be cancelled.

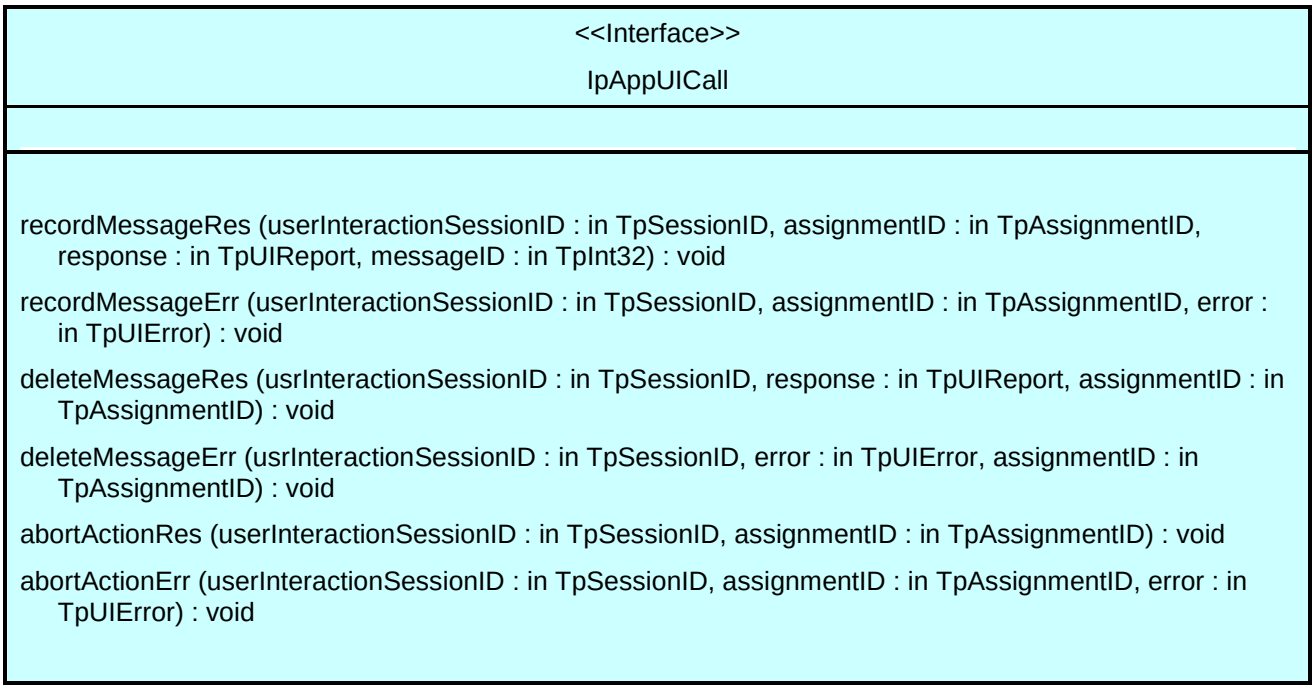
Raises

TpCommonExceptions,P_INVALID_SESSION_ID,P_INVALID_ASSIGNMENT_ID

8.6 Interface Class IpAppUICall

Inherits from: IpAppUI.

The Call User Interaction Application Interface is implemented by the client application developer and is used to handle call user interaction request responses and reports.



Method

recordMessageRes()

This method returns whether the message is successfully recorded or not. In case the message is recorded, the ID of the message is returned.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

response : in TpUIReport

Specifies the type of response received from the device where the message is stored.

messageID : in TpInt32

Specifies the ID that was assigned to the message by the device where the message is stored.

Method

recordMessageErr()

This method indicates that the request for recording of a message was not successful.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

error : in TpUIError

Specifies the error which led to the original request failing.

Method

deleteMessageRes()

This method returns whether the message is successfully deleted or not.

Parameters

usrInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

response : in TpUIReport

Specifies the type of response received from the device where the message was stored.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

Method

deleteMessageErr()

This method indicates that the request for deleting a message was not successful.

Parameters

usrInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

error : in TpUIError

Specifies the error which led to the original request failing.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

Method

abortActionRes()

This asynchronous method confirms that the request to abort a user interaction operation on a call leg was successful.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

Method

abortActionErr()

This asynchronous method indicates that the request to abort a user interaction operation on a call leg resulted in an error.

Parameters

userInteractionSessionID : in TpSessionID

Specifies the user interaction session ID of the user interaction.

assignmentID : in TpAssignmentID

Specifies the ID assigned by the call user interaction interface for a user interaction request.

error : in TpUIError

Specifies the error which led to the original request failing.

joint API group (Parlay, ETSI Project OSA, 3GPP TSG_CN WG5) **N5-021133**
Meeting #21, Dublin, IRELAND, 28 – 31 October 2002

CR-Form-v5

CHANGE REQUEST

⌘ **29.198-05** **CR** **026** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*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 **X**

Title:	⌘	Inconsistent description of use of secondary callback
Source:	⌘	N5
Work item code:	⌘	OSA1
Date:	⌘	10/10/2002
Category:	⌘	**F**
Release:	⌘	*REL-4*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	OSA Specification describes use of secondary callback interface inconsistently between the different parts which confuses application developers.
Summary of change:	⌘	Describe that most recent call back will be used as the callback interface. Only if this one does not work, the initially provided callback interface is used.
Consequences if not approved:	⌘	Interoperability problems.

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

How to create CRs using this form:
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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.

Introduction

The OSA Specifications contains the following descriptions about the use of a secondary callback interface:

Part 4 (GCC)

Method enableNotification()

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().

Part 4 (MPCC)

Method createNotification()

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 createNotification 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().

Part 4 (MMCC)

Method createMediaNotification()

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 createMediaNotification contains no callback, at the moment the application needs to be informed the gateway will use as callback the one that has been registered by setCallback().

Part 5

Method createNotification()

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. This means that the callback will only be used in case when the first callback specified by the application is unable to handle the reportNotification (e.g., due to overload or failure).***

Part 8

Method createNotification()

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 createNotification 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().

Part 11

Method createNotification()

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().

Solution

The intended use of the 2nd callback interface is as described in part 1, therfore the changes to the following method descriptions are proposed.

Proposed Changes

Method createNotification()

This method is used by the application to install specified notification criteria, for which the reporting is implicitly activated. If some application already requested notifications with criteria that overlap the specified criteria, or the specified criteria overlap with criteria already present in the network (when provisioned from within the network), the request is refused with P_INVALID_CRITERIA.

The criteria are said to overlap if both originating and terminating ranges overlap and the same number plan is used and the same servicecode is used.

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. The gateway will always use the most recent callback. In case this most recent callback fails the second most recent is used.~~This means that the callback will only be used in case when the first callback specified by the application is unable to handle the reportNotification (e.g., due to overload or failure).~~

Returns: assignmentID

Specifies the ID assigned by the generic user interaction manager interface for this newly installed notification criteria.

Parameters

appUIManager : in IpAppUIManagerRef

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.

eventCriteria : in TpUIEventCriteria

Specifies the event specific criteria used by the application to define the event required, like user address and service code.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INVALID_CRITERIA, P_INVALID_INTERFACE_TYPE

joint-API-group (Parlay, ETSI Project OSA, 3GPP TSG_CN WG5) **N5-021073**
Meeting #21, Dublin, IRELAND, 28 – 31 October 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.198-05** **CR** **025** ⌘ **rev** **-** ⌘ 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: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Correction to getNotification to remove P_INVALID_CRITERIA exception
Source:	⌘	N5
Work item code:	⌘	OSA2
Date:	⌘	31/10/2002
Category:	⌘	**A**
Release:	⌘	*REL-5*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	A developer has reported the following error: IpUIManager.getNotification() has P_INVALID_CRITERIA on its exception list. But this method has no parameters, instead it returns a list of notification criteria. This exception can never be thrown, so should be removed from the exceptions list (this is backwards compatible)
Summary of change:	⌘	Remove P_INVALID_CRITERIA from the exceptions list of IpUIManager.getNotification()
Consequences if not approved:	⌘	Developers are currently implementing this specification. They might believe, however mistakenly, that what we have written in it, we have written intentionally. Yet we also don't want developers to 'interpret' these specifications in a way other than they are written. These errors must be corrected, as they are either misleading, or worse still may be corrected by different developers in different ways, with interoperability difficulties resulting. If we don't correct the errors which are reported by developers, they might believe that this specification is dead and should not be used.
Clauses affected:	⌘	8.1.6

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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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.

8.1 Interface Class IpUIManager

Inherits from: IpService.

This interface is the 'service manager' interface for the Generic User Interaction Service and provides the management functions to the Generic User Interaction Service.

<<Interface>> IpUIManager
createUI (appUI : in IpAppUIRef, userAddress : in TpAddress) : TpUIIdentifier createUICall (appUI : in IpAppUICallRef, uiTargetObject : in TpUITargetObject) : TpUICallIdentifier createNotification (appUIManager : in IpAppUIManagerRef, eventCriteria : in TpUIEventCriteria) : TpAssignmentID destroyNotification (assignmentID : in TpAssignmentID) : void changeNotification (assignmentID : in TpAssignmentID, eventCriteria : in TpUIEventCriteria) : void getNotification () : TpUIEventCriteriaResultSet <<new>> enableNotifications (appUIManager : in IpAppUIManagerRef) : TpAssignmentID <<new>> disableNotifications () : void

8.1.1 Method createUI()

This method is used to create a new user interaction object for non-call related purposes

Results: userInteraction

Specifies the interface and sessionID of the user interaction created.

Parameters

appUI : in IpAppUIRef

Specifies the application interface for callbacks from the user interaction created.

userAddress : in TpAddress

Indicates the end-user with whom to interact.

Returns

TpUIIdentifier

Raises

TpCommonExceptions, P_INVALID_NETWORK_STATE, P_INVALID_INTERFACE_TYPE

8.1.2 Method createUICall()

This method is used to create a new user interaction object for call related purposes.

The user interaction can take place to the specified party or to all parties in a call. Note that for certain implementation user interaction can only be performed towards the controlling call party, which shall be the only party in the call.

Returns: userInteraction

Specifies the interface and sessionID of the user interaction created.

Parameters

appUI : in IpAppUICallRef

Specifies the application interface for callbacks from the user interaction created.

uiTargetObject : in TpUITargetObject

Specifies the object on which to perform the user interaction. This can either be a Call, Multi-party Call or call leg object.

Returns

TpUICallIdentifier

Raises

TpCommonExceptions, P_INVALID_NETWORK_STATE, P_INVALID_INTERFACE_TYPE

8.1.3 Method createNotification()

This method is used by the application to install specified notification criteria, for which the reporting is implicitly activated. If some application already requested notifications with criteria that overlap the specified criteria, or the specified criteria overlap with criteria already present in the network (when provisioned from within the network), the request is refused with P_INVALID_CRITERIA.

The criteria are said to overlap if both originating and terminating ranges overlap and the same number plan is used and the same servicecode is used.

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. This means that the callback will only be used in case when the first callback specified by the application is unable to handle the reportNotification (e.g., due to overload or failure).

Returns: assignmentID

Specifies the ID assigned by the generic user interaction manager interface for this newly installed notification criteria.

Parameters

appUIManager : in IpAppUIManagerRef

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.

eventCriteria : in TpUIEventCriteria

Specifies the event specific criteria used by the application to define the event required, like user address and service code.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INVALID_CRITERIA, P_INVALID_INTERFACE_TYPE

8.1.4 Method destroyNotification()

This method is used by the application to destroy previously installed notification criteria via the createNotification method.

Parameters

assignmentID : in TpAssignmentID

Specifies the assignment ID given by the generic user interaction manager interface when the previous createNotification() was called. If the assignment ID does not correspond to one of the valid assignment IDs, the framework will return the error code P_INVALID_ASSIGNMENT_ID.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

8.1.5 Method changeNotification()

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

Parameters

assignmentID : in TpAssignmentID

Specifies the ID assigned by the manager interface for the event notification.

eventCriteria : in TpUIEventCriteria

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

8.1.6 Method getNotification()

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

Returns: eventCriteria

Specifies the event specific 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

TpUIEventCriteriaResultSet

Raises

TpCommonExceptions~~, P_INVALID_CRITERIA~~

8.1.7 Method <<new>> enableNotifications()

This method is used to indicate that the application is able to receive notifications 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 IpAppUIManager reference (i.e. without first disabling them), the second callback will be treated as an additional callback. This means that the callback wil only be used in cases when the first callback specified by the application is unable to handle the callEventNotify (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.

Parameters

appUIManager : in IpAppUIManagerRef

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

8.1.8 Method <<new>> 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 were identified for this method

Raises

TpCommonExceptions

joint-API-group (Parlay, ETSI Project OSA, 3GPP TSG_CN WG5) **N5-021072**
Meeting #21, Dublin, IRELAND, 28 – 31 October 2002

CR-Form-v7

CHANGE REQUEST

⌘ **29.198-05** **CR** **024** ⌘ **rev** **-** ⌘ Current version: **4.5.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

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

Title:	⌘	Correction to getNotification to remove P_INVALID_CRITERIA exception
Source:	⌘	N5
Work item code:	⌘	OSA1
Date:	⌘	31/10/2002
Category:	⌘	**F**
Release:	⌘	*REL-4*

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
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Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	A developer has reported the following error: IpUIManager.getNotification() has P_INVALID_CRITERIA on its exception list. But this method has no parameters, instead it returns a list of notification criteria. This exception can never be thrown, so should be removed from the exceptions list (this is backwards compatible)
Summary of change:	⌘	Remove P_INVALID_CRITERIA from the exceptions list of IpUIManager.getNotification()
Consequences if not approved:	⌘	Developers are currently implementing this specification. They might believe, however mistakenly, that what we have written in it, we have written intentionally. Yet we also don't want developers to 'interpret' these specifications in a way other than they are written. These errors must be corrected, as they are either misleading, or worse still may be corrected by different developers in different ways, with interoperability difficulties resulting. If we don't correct the errors which are reported by developers, they might believe that this specification is dead and should not be used.
Clauses affected:	⌘	8.1

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	
Other comments:	⌘				

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8.1 Interface Class IpUIManager

Inherits from: IpService.

This interface is the "service manager" interface for the Generic User Interaction Service and provides the management functions to the Generic User Interaction Service.

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createUI (appUI : in IpAppUIRef, userAddress : in TpAddress) : TpUIIdentifier createUICall (appUI : in IpAppUICallRef, uiTargetObject : in TpUITargetObject) : TpUICallIdentifier createNotification (appUIManager : in IpAppUIManagerRef, eventCriteria : in TpUIEventCriteria) : TpAssignmentID destroyNotification (assignmentID : in TpAssignmentID) : void changeNotification (assignmentID : in TpAssignmentID, eventCriteria : in TpUIEventCriteria) : void getNotification () : TpUIEventCriteriaResultSet

Method

createUI()

This method is used to create a new user interaction object for non-call related purposes

Results: userInteraction

Specifies the interface and sessionID of the user interaction created.

Parameters

appUI : in IpAppUIRef

Specifies the application interface for callbacks from the user interaction created.

userAddress : in TpAddress

Indicates the end-user with whom to interact.

Returns

TpUIIdentifier

Raises

TpCommonExceptions, P_INVALID_NETWORK_STATE, P_INVALID_INTERFACE_TYPE

Method

createUICall()

This method is used to create a new user interaction object for call related purposes.

The user interaction can take place to the specified party or to all parties in a call. Note that for certain implementation user interaction can only be performed towards the controlling call party, which shall be the only party in the call.

Returns: userInteraction

Specifies the interface and sessionID of the user interaction created.

Parameters

appUI : in IpAppUICallRef

Specifies the application interface for callbacks from the user interaction created.

uiTargetObject : in TpUITargetObject

Specifies the object on which to perform the user interaction. This can either be a Call, Multi-party Call or call leg object.

Returns

TpUICallIdentifier

Raises

TpCommonExceptions, P_INVALID_NETWORK_STATE, P_INVALID_INTERFACE_TYPE

Method

createNotification()

This method is used by the application to install specified notification criteria, for which the reporting is implicitly activated. If some application already requested notifications with criteria that overlap the specified criteria, the request is refused with P_INVALID_CRITERIA.

The criteria are said to overlap if both originating and terminating ranges overlap and the same number plan is used and the same servicecode is used.

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. This means that the callback will only be used in case when the first callback specified by the application is unable to handle the reportNotification (e.g., due to overload or failure).

Returns: assignmentID

Specifies the ID assigned by the generic user interaction manager interface for this newly installed notification criteria.

Parameters

appUIManager : in IpAppUIManagerRef

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.

eventCriteria : in TpUIEventCriteria

Specifies the event specific criteria used by the application to define the event required, like user address and service code.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INVALID_CRITERIA, P_INVALID_INTERFACE_TYPE

Method

destroyNotification()

This method is used by the application to destroy previously installed notification criteria via the createNotification method.

Parameters

assignmentID : in TpAssignmentID

Specifies the assignment ID given by the generic user interaction manager interface when the previous createNotification() was called. If the assignment ID does not correspond to one of the valid assignment IDs, the framework will return the error code P_INVALID_ASSIGNMENT_ID.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

Method

changeNotification()

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

Parameters

assignmentID : in TpAssignmentID

Specifies the ID assigned by the manager interface for the event notification.

eventCriteria : in TpUIEventCriteria

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

Method

getNotification()

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

Returns: eventCriteria

Specifies the event specific 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

TpUIEventCriteriaResultSet

Raises

TpCommonExceptions~~, P_INVALID_CRITERIA~~

CR-Form-v7

CHANGE REQUEST

⌘ 29.198-05 CR 023 ⌘rev - ⌘ 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: UICC apps⌘ ☐ ME ☐ Radio Access Network ☐ Core Network X

Title: ⌘	Correction to User Interaction Prepaid Sequence Diagrams	
Source: ⌘	N5	
Work item code: ⌘	OSA2	**Date:** ⌘ 31/10/2002
Category: ⌘	**A**	**Release:** ⌘ *REL-5*

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change: ⌘	The description of the Prepaid and Prepaid with Advice of Charge sequence diagrams in User Interaction is incorrect. They both indicate that an announcement is played only to party A in a call controlled by a GCC application, when both A and B parties are connected. The announcement will in fact be played to both parties, since there is no means in GCC to separate the two parties in the call. This error has been partially corrected in UI for Release 5 (N5-020501). This CR completes the changes made in N5-020501.
Summary of change: ⌘	Change the Prepaid and Prepaid with Advice of Charge sequence diagrams to indicate that the announcement is played to both parties.
Consequences if not approved: ⌘	Developers use these sequence diagrams as examples of how OSA/Parlay really behaves. Since they consider that these examples are provided by the real experts, they consider they must be right and should be followed. If we don't correct such errors, we are deliberately misleading developers, and can only expect interoperability problems at later stages.

Clauses affected: ⌘	5.3, 5.4			
Other specs affected: ⌘	**Y**	**N**		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	
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:

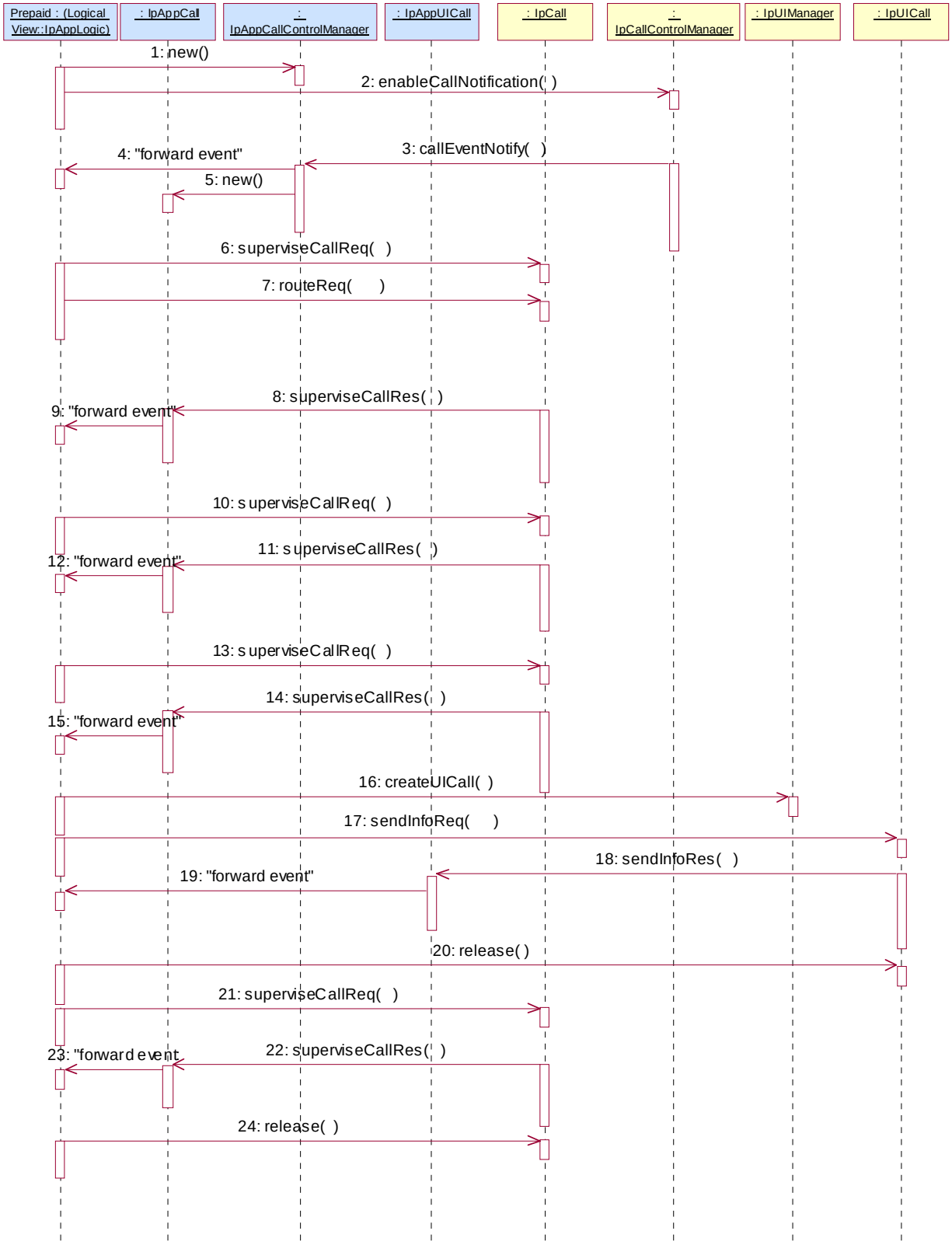
1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

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.

5.4 Prepaid

This sequence shows a Pre-paid application. The subscriber is using a pre-paid card or credit card to pay for the call. The application each time allows a certain timeslice for the call. After the timeslice, a new timeslice can be started or the application can terminate the call. In the following sequence the end-user will received an announcement before his final timeslice.



1: This message is used by the application to create an object implementing the IpAppCallControlManager interface.

2: This message is sent by the application to enable notifications on new call events. As this sequence diagram depicts a pre-paid service, it is likely that only new call events within a certain address range will be enabled. When a new call,

that matches the event criteria, arrives a message (not shown) is directed to the object implementing the IpCallControlManager. Assuming that the criteria for creating an object implementing the IpCall interface (e.g. load control values not exceeded) are met, other messages (not shown) are used to create the call and associated call leg object.

3: The incoming call triggers the Pre-Paid Application (PPA).

4: The message is forwarded to the application.

5: A new object on the application side for the Generic Call object is created

6: The Pre-Paid Application (PPA) requests to supervise the call. The application will be informed after the period indicated in the message. This period is related to the credits left on the account of the pre-paid subscriber.

7: Before continuation of the call, PPA sends all charging information, a possible tariff switch time and the call duration supervision period, towards the GW which forwards it to the network.

8: At the end of each supervision period the application is informed and a new period is started.

9: The message is forwarded to the application.

10: The Pre-Paid Application (PPA) requests to supervise the call for another call duration.

11: At the end of each supervision period the application is informed and a new period is started.

12: The message is forwarded to the application.

13: The Pre-Paid Application (PPA) requests to supervise the call for another call duration. When the timer expires it will indicate that the user is almost out of credit.

14: When the user is almost out of credit the application is informed.

15: The message is forwarded to the application.

16: The application decides to play an announcement to the parties in this call. A new UICall object is created and associated with the call.

17: An announcement is played informing the user about the near-expiration of his credit limit. ~~The B-subscriber will not hear the announcement.~~

18: When the announcement is completed the application is informed.

19: The message is forwarded to the application.

20: The application releases the UICall object.

21: The user does not terminate so the application terminates the call after the next supervision period.

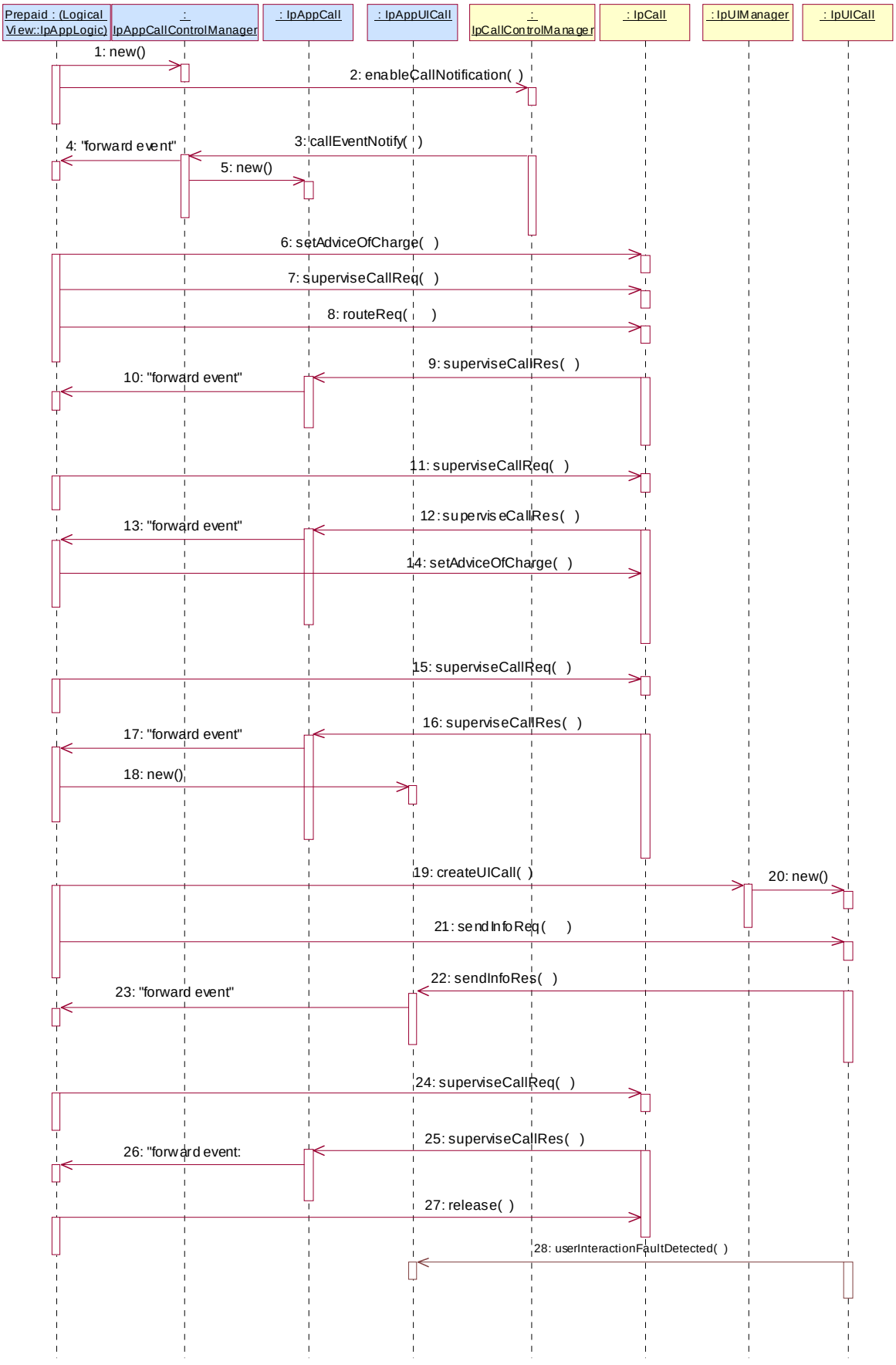
22: The supervision period ends

23: The event is forwarded to the logic.

24: The application terminates the call. Since the user interaction is already explicitly terminated no userInteractionFaultDetected is sent to the application.

5.5 Pre-Paid with Advice of Charge (AoC)

This sequence shows a Pre-paid application that uses the Advice of Charge feature. The application will send the charging information before the actual call setup and when during the call the charging changes new information is sent in order to update the end-user. Note that the Advice of Charge feature requires an application in the end-user terminal to display the charges for the call, depending on the information received from the application.


Prepaid : (Logical View::IpAppLogic)
: IpAppCallControlManager
: IpAppCall
: IpAppUICall
: IpCallControlManager
: IpCall
: IpUIManager
: IpUICall
1: new()
2: enableCallNotification( )
3: callEventNotify( )
4: "forward event"
5: new()
6: setAdviceOfCharge( )
7: superviseCallReq( )
8: routeReq( )
9: superviseCallRes( )
10: "forward event"
11: superviseCallReq( )
12: superviseCallRes( )
13: "forward event"
14: setAdviceOfCharge( )
15: superviseCallReq( )
16: superviseCallRes( )
17: "forward event"
18: new()
19: createUICall( )
20: new()
21: sendInfoReq( )
22: sendInfoRes( )
23: "forward event"
24: superviseCallReq( )
25: superviseCallRes( )
26: "forward event:
27: release( )
28: userInteractionFaultDetected( )

1: This message is used by the application to create an object implementing the IpAppCallControlManager interface.

2: This message is sent by the application to enable notifications on new call events. As this sequence diagram depicts a pre-paid service, it is likely that only new call events within a certain address range will be enabled. When a new call, that matches the event criteria, arrives a message (not shown) is directed to the object implementing the IpCallControlManager. Assuming that the criteria for creating an object implementing the IpCall interface (e.g. load control values not exceeded) are met, other messages (not shown) are used to create the call and associated call leg object.

3: The incoming call triggers the Pre-Paid Application (PPA).

4: The message is forwarded to the application.

5: A new object on the application side for the Call object is created

6: The Pre-Paid Application (PPA) sends the AoC information (e.g. the tariff switch time). (it shall be noted the PPA contains ALL the tariff information and knows how to charge the user).

During this call sequence 2 tariff changes take place. The call starts with tariff 1, and at the tariff switch time (e.g., 18:00 hours) switches to tariff 2. The application is not informed about this (but the end-user is!)

7: The Pre-Paid Application (PPA) requests to supervise the call. The application will be informed after the period indicated in the message. This period is related to the credits left on the account of the pre-paid subscriber.

8: The application requests to route the call to the destination address.

9: At the end of each supervision period the application is informed and a new period is started.

10: The message is forwarded to the application.

11: The Pre-Paid Application (PPA) requests to supervise the call for another call duration.

12: At the end of each supervision period the application is informed and a new period is started.

13: The message is forwarded to the application.

14: Before the next tariff switch (e.g., 19:00 hours) the application sends a new AOC with the tariff switch time. Again, at the tariff switch time, the network will send AoC information to the end-user.

15: The Pre-Paid Application (PPA) requests to supervise the call for another call duration. When the timer expires it will indicate that the user is almost out of credit.

16: When the user is almost out of credit the application is informed~~an announcement is played to inform about this (19-21). The announcement is played only to the leg of the A-party, the B-party will not hear the announcement~~.

17: The message is forwarded to the application.

18: The application creates a new call back interface for the User interaction messages.

19: A new UI Call object that will handle playing of the announcement needs to be created

20: The Gateway creates a new UI call object that will handle playing of the announcement.

21: With this message the announcement is played to the parties in the call~~calling party~~.

22: The user indicates that the call should continue.

23: The message is forwarded to the application.

24: The user does not terminate so the application terminates the call after the next supervision period.

25: The user is out of credit and the application is informed.

26: The message is forwarded to the application.

27: With this message the application requests to release the call.

28: Terminating the call which has still a UICall object associated will result in a userInteractionFaultDetected. The UICall object is terminated in the gateway and no further communication is possible between the UICall and the application.