Source:	**CN5 (OSA)**	
Title:	**Rel-4 CRs 29.198-06 OSA API Part 6: Mobility**	
Agenda item:	**7.10**	
Document for:	**APPROVAL**	

Doc-1st-Level	Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Doc-2nd-Level	Workitem
NP-030022	29.198-06	019	-	Rel-4	Correction of status of methods to Mobility interfaces	F	4.4.0	N5-021134	OSA1
NP-030022	29.198-06	020	-	Rel-5	Addition of status of methods to Mobility interfaces	A	5.1.0	N5-021135	OSA2

CR-Form-v7

CHANGE REQUEST

⌘   **29.198-06 CR 019**   ⌘**rev** **-** ⌘ Current version: **4.4.0** ⌘

*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 Mobility interfaces	
Source: ⌘	N5	
Work item code: ⌘	OSA1	***Date:*** ⌘ 31/10/2002
Category: ⌘ **F**		***Release:*** ⌘ *REL-4*

Use <u>one</u> of the following categories: Use <u>one</u> of the following releases:
   F *(correction)*   2   *(GSM Phase 2)*
   A *(corresponds to a correction in an earlier release)*   R96   *(Release 1996)*
   B *(addition of feature),*   R97   *(Release 1997)*
   C *(functional modification of feature)*   R98   *(Release 1998)*
   D *(editorial modification)*   R99   *(Release 1999)*
Detailed explanations of the above categories can   Rel-4   *(Release 4)*
be found in 3GPP TR 21.900.   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

	Y	N		
Other specs affected: ⌘		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 Mobility SCF

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

The order is as follows:

- The Sequence diagrams give the reader a practical idea of how each of the SCF 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.

- 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 section 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 Mobility Interface Classes

8.1 User Location Interface Classes

The User Location service (UL) provides a general geographic location service. UL has functionality to allow applications to obtain the geographical location and the status of fixed, mobile and IP based telephony users.

UL is supplemented by User Location Camel service (ULC) to provide information about network related information. There is also some specialised functionality to handle emergency calls in the User Location Emergency service (ULE).

The UL service provides the IpUserLocation and IpTriggeredUserLocation interfaces. Most methods are asynchronous, in that they do not lock a thread into waiting whilst a transaction performs. In this way, the client machine can handle many more calls, than one that uses synchronous message calls. To handle responses and reports, the developer must implement IpAppUserLocation and IpAppTriggeredUserLocation interfaces to provide the callback mechanism.

When periodic or triggered location reporting is used, errors may be reported either when the recurrent reporting is requested, as an error per user in reports or in the corresponding err-method when the error concerns all subscribers in an assignment.

8.1.1 Interface Class IpUserLocation

Inherits from: IpService.

This interface is the 'service manager' interface for the User Location Service.

The user location interface provides the management functions to the user location service. The application programmer can use this interface to obtain the geographical location of users.

This interface, or IpTriggeredUserLocation, shall be implemented by a User Location SCF as a minimum requirement.

The locationReportReq() method, or the extendedLocationReportReq() method, or both the periodicLocationReportingStartReq() and periodicLocationReportingStop() methods shall be implemented as a minimum requirement, if this interface is implemented.

<<Interface>>
IpUserLocation
locationReportReq (appLocation : in IpAppUserLocationRef, users : in TpAddressSet) : TpSessionID extendedLocationReportReq (appLocation : in IpAppUserLocationRef, users : in TpAddressSet, request : in TpLocationRequest) : TpSessionID periodicLocationReportingStartReq (appLocation : in IpAppUserLocationRef, users : in TpAddressSet, request : in TpLocationRequest, reportingInterval : in TpDuration) : TpSessionID periodicLocationReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void

Method
locationReportReq()

Request of a report on the location for one or several users.

Raises the following exceptions:

P_NO_CALLBACK_ADDRESS_SET

The requested method has been refused, because no callback address is set.

P_RESOURCES_UNAVAILABLE

The required resources in the network are not available. The application may try to invoke the method at a later time.

P_UNKNOWN_SUBSCRIBER

The end-user is not subscribed to the application.

P_APPLICATION_NOT_ACTIVATED

The end-user has de-activated the application.

P_INFORMATION_NOT_AVAILABLE

The request violates the end-user's privacy setting.

Returns: assignmentId

Specifies the assignment ID of the location-report request.

Parameters

appLocation : in IpAppUserLocationRef

Specifies the application interface for callbacks from the User Location service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

Returns

TpSessionID

Raises

TpCommonExceptions, P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE, P_UNKNOWN_SUBSCRIBER, P_INVALID_INTERFACE_TYPE

Method
extendedLocationReportReq()

Advanced request of report on the location for one or several users.

Raises the following exceptions:

P_NO_CALLBACK_ADDRESS_SET

The requested method has been refused, because no callback address is set.

P_RESOURCES_UNAVAILABLE

The required resources in the network are not available. The application may try to invoke the method at a later time.

P_UNKNOWN_SUBSCRIBER

The end-user is not subscribed to the application.

P_APPLICATION_NOT_ACTIVATED

The end-user has de-activated the application.

P_INFORMATION_NOT_AVAILABLE

The request violates the end-user's privacy setting.

Returns: assignmentId

Specifies the assignment ID of the extended location-report request.

Parameters

appLocation : in IpAppUserLocationRef

Specifies the application interface for callbacks from the User Location service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported

request : in TpLocationRequest

Specifies among others the requested location type, accuracy, response time and priority.

Returns

TpSessionID

Raises

**TpCommonExceptions, P_APPLICATION_NOT_ACTIVATED,
P_REQUESTED_ACCURACY_CANNOT_BE_DELIVERED,
P_REQUESTED_RESPONSE_TIME_CANNOT_BE_DELIVERED, P_UNKNOWN_SUBSCRIBER,
P_INFORMATION_NOT_AVAILABLE, P_INVALID_INTERFACE_TYPE**

Method
periodicLocationReportingStartReq()

Request of periodic reports on the location for one or several users.

Raises the following exceptions:

P_NO_CALLBACK_ADDRESS_SET

The requested method has been refused, because no callback address is set.

P_RESOURCES_UNAVAILABLE

The required resources in the network are not available. The application may try to invoke the method at a later time.

P_UNKNOWN_SUBSCRIBER

The end-user is not subscribed to the application.

P_APPLICATION_NOT_ACTIVATED

The end-user has de-activated the application.

P_INFORMATION_NOT_AVAILABLE

The request violates the end-user's privacy setting.

Returns: assignmentId

Specifies the assignment ID of the periodic location-reporting request.

Parameters

appLocation : in IpAppUserLocationRef

Specifies the application interface for callbacks from the User Location service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

request : in TpLocationRequest

Specifies among others the requested location type, accuracy, response time and priority.

reportingInterval : in TpDuration

Specifies the requested interval in seconds between the reports.

Returns

TpSessionID

Raises

**TpCommonExceptions, P_INVALID_REPORTING_INTERVAL,
P_REQUESTED_ACCURACY_CANNOT_BE_DELIVERED,
P_REQUESTED_RESPONSE_TIME_CANNOT_BE_DELIVERED, P_UNKNOWN_SUBSCRIBER,
P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE,
P_INVALID_INTERFACE_TYPE**

Method
periodicLocationReportingStop()

Termination of periodic reports on the location for one or several users.

Raises the following exceptions:

P_INVALID_ASSIGNMENT_ID

The assignment ID does not correspond to one of a valid assignment.

Parameters

stopRequest : in TpMobilityStopAssignmentData

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

8.1.2   Interface Class IpAppUserLocation

Inherits from: IpInterface.

The user-location application interface is implemented by the client application developer and is used to handle user location request responses.

<<Interface>>
IpAppUserLocation
locationReportRes (assignmentId : in TpSessionID, locations : in TpUserLocationSet) : void locationReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void extendedLocationReportRes (assignmentId : in TpSessionID, locations : in TpUserLocationExtendedSet) : void extendedLocationReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void periodicLocationReport (assignmentId : in TpSessionID, locations : in TpUserLocationExtendedSet) : void periodicLocationReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void

Method
locationReportRes()

A report containing locations for one or several users is delivered.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the location-report request.

locations : in TpUserLocationSet

Specifies the location(s) of one or several users.

Method
locationReportErr()

This method indicates that the location report request has failed.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the failed location report request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

Method
extendedLocationReportRes()

A report containing extended location information for one or several users is delivered.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the extended location-report request.

locations : in TpUserLocationExtendedSet

Specifies the location(s) of one or several users.

Method
extendedLocationReportErr()

This method indicates that the extended location report request has failed.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the failed extended location report request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

Method
periodicLocationReport()

A report containing periodic location information for one or several users is delivered.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the periodic location-reporting request.

locations : in TpUserLocationExtendedSet

Specifies the location(s) of one or several users.

Method
periodicLocationReportErr()

This method indicates that a requested periodic location report has failed. Note that errors only concerning individual users are reported in the ordinary periodicLocationReport() message.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the failed periodic location reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.1.3   Interface Class IpTriggeredUserLocation

Inherits from: IpUserLocation.

This interface can be used as an extended version of the User Location: Service Interface.

The triggered user location interface represents the interface to the triggered user location functions. The application programmer can use this interface to request user location reports that are triggered by location change.

This interface, or IpUserLocation, shall be implemented by a User Location SCF as a minimum requirement.

The triggeredLocationReportingStartReq() and triggeredLocationReportingStop() methods shall be implemented as a minimum requirement. An implementation of IpTriggeredUserLocation is not required to implement the minimum mandatory methods of IpUserLocation.

<<Interface>>
IpTriggeredUserLocation
triggeredLocationReportingStartReq (appLocation : in IpAppTriggeredUserLocationRef, users : in TpAddressSet, request : in TpLocationRequest, triggers : in TpLocationTriggerSet) : TpSessionID triggeredLocationReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void

Method
triggeredLocationReportingStartReq()

Request for user location reports when the location is changed (reports are triggered by location change).

Returns: assignmentId

Specifies the assignment ID of the triggered location-reporting request.

Parameters

appLocation : in IpAppTriggeredUserLocationRef

Specifies the application interface for callbacks from the User Location service.

`users : in TpAddressSet`

Specifies the user(s) for which the location shall be reported.

`request : in TpLocationRequest`

Specifies among others the requested location type, accuracy, response time and priority.

`triggers : in TpLocationTriggerSet`

Specifies the trigger conditions.

Returns

`TpSessionID`

Raises

`TpCommonExceptions, P_REQUESTED_ACCURACY_CANNOT_BE_DELIVERED,`
`P_REQUESTED_RESPONSE_TIME_CANNOT_BE_DELIVERED,`
`P_TRIGGER_CONDITIONS_NOT_SUBSCRIBED, P_UNKNOWN_SUBSCRIBER,`
`P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE,`
`P_INVALID_INTERFACE_TYPE`

Method
triggeredLocationReportingStop()

Stop triggered user location reporting.

Parameters

`stopRequest : in TpMobilityStopAssignmentData`

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

`TpCommonExceptions, P_INVALID_ASSIGNMENT_ID`

8.1.4   Interface Class IpAppTriggeredUserLocation

Inherits from: IpAppUserLocation.

This interface must be used as a specialised version of the User Location: Application Interface if the Triggered User Location: Service Interface is used.

The triggered user location application interface is implemented by the client application developer and is used to handle triggered location reports.

<<Interface>>
IpAppTriggeredUserLocation
triggeredLocationReport (assignmentId : in TpSessionID, location : in TpUserLocationExtended, criterion : in TpLocationTriggerCriteria) : void triggeredLocationReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void

Method
triggeredLocationReport()

A triggered report containing location for a user is delivered.

Parameters

assignmentId : in TpSessionID
Specifies the assignment ID of the triggered location-reporting request.

location : in TpUserLocationExtended
Specifies the location of the user.

criterion : in TpLocationTriggerCriteria
Specifies the criterion that triggered the report.

Method
triggeredLocationReportErr()

This method indicates that a requested triggered location report has failed. Note that errors only concerning individual users are reported in the ordinary triggeredLocationReport() message.

Parameters

assignmentId : in TpSessionID
Specifies the assignment ID of the failed triggered location reporting start request.

cause : in TpMobilityError
Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic
Specifies additional information about the error that led to the failure.

8.2 User Location Camel Interface Classes

The ULC provides location information, based on network-related information, rather than the geographical co-ordinates that can be retrieved via the general User Location Service.

Using the ULC functions, an application programmer can request the VLR Number, the location Area Identification and the Cell Global Identification and other mobile-telephony-specific location information

The ULC provides the IpUserLocationCamel interface. Most methods are asynchronous, in that they do not lock a thread into waiting whilst a transaction performs. In this way, the client machine can handle many more calls, than one that uses synchronous message calls. To handle responses and reports, the developer must implement IpAppUserLocationCamel interface to provide the callback mechanism.

8.2.1 Interface Class IpUserLocationCamel

Inherits from: IpService.

This interface is the 'service manager' interface for ULC.

This interface shall be implemented by a User Location Camel SCF.

The locationReportReq() method, or both the periodicLocationReportingStartReq() and periodicLocationReportingStop() methods, or both the triggeredLocationReportingStartReq() and triggeredLocationReportingStop() methods shall be implemented as a minimum requirement.

<<Interface>>
IpUserLocationCamel
locationReportReq (appLocationCamel : in IpAppUserLocationCamelRef, users : in TpAddressSet) : TpSessionID
periodicLocationReportingStartReq (appLocationCamel : in IpAppUserLocationCamelRef, users : in TpAddressSet, reportingInterval : in TpDuration) : TpSessionID
periodicLocationReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void
triggeredLocationReportingStartReq (appLocationCamel : in IpAppUserLocationCamelRef, users : in TpAddressSet, trigger : in TpLocationTriggerCamel) : TpSessionID
triggeredLocationReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void

Method
locationReportReq()

Request for mobile-related location information on one or several camel users.

Raises the following exceptions:

P_NO_CALLBACK_ADDRESS_SET

The requested method has been refused, because no callback address is set.

P_RESOURCES_UNAVAILABLE

The required resources in the network are not available. The application may try to invoke the method at a later time.

P_UNKNOWN_SUBSCRIBER

The end-user is not subscribed to the application.

P_APPLICATION_NOT_ACTIVATED

The end-user has de-activated the application.

P_INFORMATION_NOT_AVAILABLE

The request violates the end-user's privacy setting.

Returns: assignmentId

Specifies the assignment ID of the location-report request.

Parameters

appLocationCamel : in IpAppUserLocationCamelRef

Specifies the application interface for callbacks from the User Location Camel service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

Returns

TpSessionID

Raises

TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE, P_INVALID_INTERFACE_TYPE

Method
periodicLocationReportingStartReq()

Request for periodic mobile location reports on one or several users.

Raises the following exceptions:

P_NO_CALLBACK_ADDRESS_SET

The requested method has been refused, because no callback address is set.

P_RESOURCES_UNAVAILABLE

The required resources in the network are not available. The application may try to invoke the method at a later time.

P_UNKNOWN_SUBSCRIBER

The end-user is not subscribed to the application.

P_APPLICATION_NOT_ACTIVATED

The end-user has de-activated the application.

P_INFORMATION_NOT_AVAILABLE

The request violates the end-user's privacy setting.

Returns: assignmentId

Specifies the assignment ID of the periodic location-reporting request.

Parameters

appLocationCamel : in IpAppUserLocationCamelRef

Specifies the application interface for callbacks from the User Location Camel service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

reportingInterval : in TpDuration

Specifies the requested interval in seconds between the reports.

Returns

TpSessionID

Raises

**TpCommonExceptions, P_INVALID_REPORTING_INTERVAL,
P_REQUESTED_ACCURACY_CANNOT_BE_DELIVERED,
P_REQUESTED_RESPONSE_TIME_CANNOT_BE_DELIVERED, P_UNKNOWN_SUBSCRIBER,
P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE,
P_INVALID_INTERFACE_TYPE**

Method
periodicLocationReportingStop()

This method stops the sending of periodic mobile location reports for one or several users.

Raises the following exceptions:

P_INVALID_ASSIGNMENT_ID

The assignment ID does not correspond to one of a valid assignment.

Parameters

stopRequest : in TpMobilityStopAssignmentData

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

Method
triggeredLocationReportingStartReq()

Request for user location reports, containing mobile related information, when the location is changed (the report is triggered by the location change).

Raises the following exceptions:

P_NO_CALLBACK_ADDRESS_SET

The requested method has been refused, because no callback address is set.

P_RESOURCES_UNAVAILABLE

The required resources in the network are not available. The application may try to invoke the method at a later time.

P_UNKNOWN_SUBSCRIBER

The end-user is not subscribed to the application.

P_APPLICATION_NOT_ACTIVATED

The end-user has de-activated the application.

P_INFORMATION_NOT_AVAILABLE

The request violates the end-user's privacy setting.

Returns: assignmentId

Specifies the assignment ID of the triggered location-reporting request.

Parameters

appLocationCamel : in IpAppUserLocationCamelRef

Specifies the application interface for callbacks from the User Location Camel service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

trigger : in TpLocationTriggerCamel

Specifies the trigger conditions.

Returns

TpSessionID

Raises

TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE, P_INVALID_INTERFACE_TYPE

Method
triggeredLocationReportingStop()

Request that triggered mobile location reporting should stop.

Raises the following exceptions:

P_INVALID_ASSIGNMENT_ID

The assignment ID does not correspond to one of a valid assignment.

Parameters

stopRequest : in TpMobilityStopAssignmentData

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

8.2.2   Interface Class IpAppUserLocationCamel

Inherits from: IpInterface.

The user location Camel application interface is implemented by the client application developer and is used to handle location reports that are specific for mobile telephony users.

<<Interface>>
IpAppUserLocationCamel
locationReportRes (assignmentId : in TpSessionID, locations : in TpUserLocationCamelSet) : void
locationReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void
periodicLocationReport (assignmentId : in TpSessionID, locations : in TpUserLocationCamelSet) : void
periodicLocationReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void
triggeredLocationReport (assignmentId : in TpSessionID, location : in TpUserLocationCamel, criterion : in TpLocationTriggerCamel) : void
triggeredLocationReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void

Method
locationReportRes()

Delivery of a mobile location report. The report is containing mobile-related location information for one or several users.

Parameters

assignmentId : in TpSessionID
Specifies the assignment ID of the location-report request.

locations : in TpUserLocationCamelSet
Specifies the location(s) of one or several users.

Method
locationReportErr()

This method indicates that the location report request has failed.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the failed location report request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

Method
periodicLocationReport()

Periodic delivery of mobile location reports. The reports are containing mobile-related location information for one or several users.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the periodic location-reporting request.

locations : in TpUserLocationCamelSet

Specifies the location(s) of one or several users.

Method
periodicLocationReportErr()

This method indicates that a requested periodic location report has failed. Note that errors only concerning individual users are reported in the ordinary periodicLocationReport() message.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the failed periodic location reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

Method
triggeredLocationReport()

Delivery of a report that is indicating that the user's mobile location has changed.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the triggered location-reporting request.

location : in TpUserLocationCamel

Specifies the location of the user.

criterion : in TpLocationTriggerCamel

Specifies the criterion that triggered the report.

Method
triggeredLocationReportErr()

This method indicates that a requested triggered location report has failed. Note that errors only concerning individual users are reported in the ordinary triggeredLocationReport() message.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the failed triggered location reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.3   User Status Interface Classes

The User Status Service (US) provides a general user status service. US allow applications to obtain the status of fixed, mobile and IP-based telephony users.

The US provides the IpUserStatus interface. Most methods are asynchronous, in that they do not lock a thread into waiting whilst a transaction performs. In this way, the client machine can handle many more calls, than one that uses synchronous message calls. To handle responses and reports, the developer must implement IpAppUserStatus interface to provide the callback mechanism.

8.3.1   Interface Class IpAppUserStatus

Inherits from: IpInterface.

The user-status application interface is implemented by the client application developer and is used to handle user status reports.

<<Interface>>
IpAppUserStatus
statusReportRes (assignmentId : in TpSessionID, status : in TpUserStatusSet) : void
statusReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void
triggeredStatusReport (assignmentId : in TpSessionID, status : in TpUserStatus) : void
triggeredStatusReportErr (assignmentId : in TpSessionID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void

Method
statusReportRes()

Delivery of a report, that is containing one or several user's status.

Parameters
assignmentId : in TpSessionID

Specifies the assignment ID of the status-report request.

status : in TpUserStatusSet

Specifies the status of one or several users.

Method
statusReportErr()

This method indicates that the status report request has failed.

Parameters
assignmentId : in TpSessionID

Specifies the assignment ID of the failed status report request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

Method
triggeredStatusReport()

Delivery of a report that is indicating that a user's status has changed.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the triggered status-reporting request.

status : in TpUserStatus

Specifies the status of the user.

Method
triggeredStatusReportErr()

This method indicates that a requested triggered status reporting has failed. Note that errors only concerning individual users are reported in the ordinary triggeredStatusReport() message.

Parameters

assignmentId : in TpSessionID

Specifies the assignment ID of the failed triggered status reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.3.2   Interface Class IpUserStatus

Inherits from: IpService.

The application programmer can use this interface to obtain the status of fixed, mobile and IP-based telephony users.

This interface shall be implemented by a User Status SCF.

The statusReportReq() method, or both the triggeredStatusReportingStartReq() and trigggeredStatusReportingStop() methods shall be implemented as a minimum requirement.

<<Interface>>
IpUserStatus
statusReportReq (appStatus : in IpAppUserStatusRef, users : in TpAddressSet) : TpSessionID triggeredStatusReportingStartReq (appStatus : in IpAppUserStatusRef, users : in TpAddressSet) : TpSessionID triggeredStatusReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void

Method
statusReportReq()

Request for a report on the status of one or several users.

Raises the following exceptions:

P_NO_CALLBACK_ADDRESS_SET

The requested method has been refused, because no callback address is set.

P_RESOURCES_UNAVAILABLE

The required resources in the network are not available. The application may try to invoke the method at a later time.

Returns: assignmentId

Specifies the assignment ID of the status-report request.

Parameters

appStatus : in IpAppUserStatusRef
Specifies the application interface for callbacks from the User Status service.

users : in TpAddressSet
Specifies the user(s) for which the status shall be reported.

Returns

TpSessionID

Raises

**TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_INFORMATION_NOT_AVAILABLE,
P_APPLICATION_NOT_ACTIVATED, P_INVALID_INTERFACE_TYPE**

Method
triggeredStatusReportingStartReq

Request for triggered status reports when one or several user's status is changed. The user status service will send a report when the status changes.

Raises the following exceptions:

P_NO_CALLBACK_ADDRESS_SET

The requested method has been refused, because no callback address is set.

P_RESOURCES_UNAVAILABLE

The required resources in the network are not available. The application may try to invoke the method at a later time.

Returns: assignmentId

Specifies the assignment ID of the triggered status-reporting request.

Parameters

appStatus : in IpAppUserStatusRef
Specifies the application interface for callbacks from the User Status service.

users : in TpAddressSet

Specifies the user(s) for which the status changes shall be reported.

Returns

TpSessionID

Raises

TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_INFORMATION_NOT_AVAILABLE, P_APPLICATION_NOT_ACTIVATED, P_INVALID_INTERFACE_TYPE

Method
triggeredStatusReportingStop()

This method stops the sending of status reports for one or several users.

Raises the following exceptions:

P_INVALID_ASSIGNMENT_ID

The assignment ID does not correspond to one of a valid assignment.

Parameters

stopRequest : in TpMobilityStopAssignmentData

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

CR-Form-v7

CHANGE REQUEST

⌘   **29.198-06** CR **020**   ⌘**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 Mobility interfaces
Source: ⌘	N5
Work item code:⌘	OSA2 ***Date:*** ⌘ 31/10/2002

Category: ⌘	**A**	***Release:*** ⌘	*REL-5*

Use one of the following categories: *Use one of the following releases:*
    F *(correction)*   *2*   *(GSM Phase 2)*
    A *(corresponds to a correction in an earlier release)*   *R96*   *(Release 1996)*
    B *(addition of feature),*   *R97*   *(Release 1997)*
    C *(functional modification of feature)*   *R98*   *(Release 1998)*
    D *(editorial modification)*   *R99*   *(Release 1999)*
Detailed explanations of the above categories can   *Rel-4*   *(Release 4)*
be found in 3GPP TR 21.900.   *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

	Y	N		
Other specs ⌘ ***affected:***		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 Mobility SCF

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

The order is as follows:

- The Sequence diagrams give the reader a practical idea of how each of the SCF 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.

- 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 section 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   Mobility Interface Classes

8.1   User Location Interface Classes

The User Location service (UL) provides a general geographic location service. UL has functionality to allow applications to obtain the geographical location and the status of fixed, mobile and IP based telephony users.

UL is supplemented by User Location Camel service (ULC) to provide information about network related information. There is also some specialised functionality to handle emergency calls in the User Location Emergency service (ULE).

The UL service provides the IpUserLocation and IpTriggeredUserLocation interfaces. Most methods are asynchronous, in that they do not lock a thread into waiting whilst a transaction performs. In this way, the client machine can handle many more calls, than one that uses synchronous message calls. To handle responses and reports, the developer must implement IpAppUserLocation and IpAppTriggeredUserLocation interfaces to provide the callback mechanism.

When periodic or triggered location reporting is used, errors may be reported either when the recurrent reporting is requested, as an error per user in reports or in the corresponding err-method when the error concerns all subscribers in an assignment.

8.1.1   Interface Class IpUserLocation

Inherits from: IpService.

This interface is the 'service manager' interface for the User Location Service.

The user location interface provides the management functions to the user location service. The application programmer can use this interface to obtain the geographical location of users.

This interface, or IpTriggeredUserLocation, shall be implemented by a User Location SCF as a minimum requirement.

The locationReportReq() method, or the extendedLocationReportReq() method, or both the periodicLocationReportingStartReq() and periodicLocationReportingStop() methods shall be implemented as a minimum requirement, if this interface is implemented.

<<Interface>>
IpUserLocation
locationReportReq (appLocation : in IpAppUserLocationRef, users : in TpAddressSet) : TpAssignmentID extendedLocationReportReq (appLocation : in IpAppUserLocationRef, users : in TpAddressSet, request : in TpLocationRequest) : TpAssignmentID periodicLocationReportingStartReq (appLocation : in IpAppUserLocationRef, users : in TpAddressSet, request : in TpLocationRequest, reportingInterval : in TpDuration) : TpAssignmentID periodicLocationReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void

8.1.1.1   Method locationReportReq()

Request of a report on the location for one or several users.

Returns: assignmentId

Specifies the assignment ID of the location-report request.

Parameters

appLocation : in IpAppUserLocationRef

Specifies the application interface for callbacks from the User Location service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

Returns

TpAssignmentID

Raises

**TpCommonExceptions, P_APPLICATION_NOT_ACTIVATED,
P_INFORMATION_NOT_AVAILABLE, P_INVALID_INTERFACE_TYPE**

8.1.1.2   Method extendedLocationReportReq()

Advanced request of report on the location for one or several users.

Returns: assignmentId

Specifies the assignment ID of the extended location-report request.

Parameters

appLocation : in IpAppUserLocationRef

Specifies the application interface for callbacks from the User Location service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported

request : in TpLocationRequest

Specifies among others the requested location type, accuracy, response time and priority.

Returns

TpAssignmentID

Raises

**TpCommonExceptions, P_APPLICATION_NOT_ACTIVATED,
P_REQUESTED_ACCURACY_CANNOT_BE_DELIVERED,
P_REQUESTED_RESPONSE_TIME_CANNOT_BE_DELIVERED,
P_INFORMATION_NOT_AVAILABLE, P_INVALID_INTERFACE_TYPE**

8.1.1.3   Method periodicLocationReportingStartReq()

Request of periodic reports on the location for one or several users.

Returns: assignmentId

Specifies the assignment ID of the periodic location-reporting request.

Parameters

appLocation : in IpAppUserLocationRef

Specifies the application interface for callbacks from the User Location service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

request : in TpLocationRequest

Specifies among others the requested location type, accuracy, response time and priority.

reportingInterval : in TpDuration

Specifies the requested interval in seconds between the reports.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_INVALID_REPORTING_INTERVAL,
P_REQUESTED_ACCURACY_CANNOT_BE_DELIVERED,
P_REQUESTED_RESPONSE_TIME_CANNOT_BE_DELIVERED,
P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE,
P_INVALID_INTERFACE_TYPE

8.1.1.4   Method periodicLocationReportingStop()

Termination of periodic reports on the location for one or several users.

Parameters

stopRequest : in TpMobilityStopAssignmentData

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

8.1.2   Interface Class IpAppUserLocation

Inherits from: IpInterface.

The user-location application interface is implemented by the client application developer and is used to handle user location request responses.

```
┌─────────────────────────────────────────────────────────────────────────────────┐
│                                  <<Interface>>                                    │
│                                IpAppUserLocation                                  │
├─────────────────────────────────────────────────────────────────────────────────┤
│                                                                                   │
├─────────────────────────────────────────────────────────────────────────────────┤
│                                                                                   │
│  locationReportRes (assignmentId : in TpAssignmentID, locations : in TpUserLocationSet) : void │
│                                                                                   │
│  locationReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in │
│      TpMobilityDiagnostic) : void                                                 │
│                                                                                   │
│  extendedLocationReportRes (assignmentId : in TpAssignmentID, locations : in      │
│      TpUserLocationExtendedSet) : void                                            │
│                                                                                   │
│  extendedLocationReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in │
│      TpMobilityDiagnostic) : void                                                 │
│                                                                                   │
│  periodicLocationReport (assignmentId : in TpAssignmentID, locations : in TpUserLocationExtendedSet) : │
│      void                                                                         │
│                                                                                   │
│  periodicLocationReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in │
│      TpMobilityDiagnostic) : void                                                 │
│                                                                                   │
└─────────────────────────────────────────────────────────────────────────────────┘
```

8.1.2.1   Method locationReportRes()

A report containing locations for one or several users is delivered.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the location-report request.

locations : in TpUserLocationSet

Specifies the location(s) of one or several users.

8.1.2.2   Method locationReportErr()

This method indicates that the location report request has failed.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed location report request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.1.2.3   Method extendedLocationReportRes()

A report containing extended location information for one or several users is delivered.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the extended location-report request.

locations : in TpUserLocationExtendedSet

Specifies the location(s) of one or several users.

8.1.2.4   Method extendedLocationReportErr()

This method indicates that the extended location report request has failed.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed extended location report request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.1.2.5   Method periodicLocationReport()

A report containing periodic location information for one or several users is delivered.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the periodic location-reporting request.

locations : in TpUserLocationExtendedSet

Specifies the location(s) of one or several users.

8.1.2.6   Method periodicLocationReportErr()

This method indicates that a requested periodic location report has failed. Note that errors only concerning individual users are reported in the ordinary periodicLocationReport() message.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed periodic location reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.1.3 Interface Class IpTriggeredUserLocation

Inherits from: IpUserLocation.

This interface can be used as an extended version of the User Location: Service Interface.

The triggered user location interface represents the interface to the triggered user location functions. The application programmer can use this interface to request user location reports that are triggered by location change.

This interface, or IpUserLocation, shall be implemented by a User Location SCF as a minimum requirement.

The triggeredLocationReportingStartReq() and triggeredLocationReportingStop() methods shall be implemented as a minimum requirement. An implementation of IpTriggeredUserLocation is not required to implement the minimum mandatory methods of IpUserLocation.

<<Interface>>
IpTriggeredUserLocation
triggeredLocationReportingStartReq (appLocation : in IpAppTriggeredUserLocationRef, users : in TpAddressSet, request : in TpLocationRequest, triggers : in TpLocationTriggerSet) : TpAssignmentID triggeredLocationReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void

8.1.3.1 Method triggeredLocationReportingStartReq()

Request for user location reports when the location is changed (reports are triggered by location change).

Returns: assignmentId

Specifies the assignment ID of the triggered location-reporting request.

Parameters

appLocation : in IpAppTriggeredUserLocationRef

Specifies the application interface for callbacks from the User Location service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

request : in TpLocationRequest

Specifies among others the requested location type, accuracy, response time and priority.

triggers : in TpLocationTriggerSet

Specifies the trigger conditions.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_REQUESTED_ACCURACY_CANNOT_BE_DELIVERED,
P_REQUESTED_RESPONSE_TIME_CANNOT_BE_DELIVERED,
P_TRIGGER_CONDITIONS_NOT_SUBSCRIBED, P_UNKNOWN_SUBSCRIBER,
P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE,
P_INVALID_INTERFACE_TYPE

8.1.3.2   Method triggeredLocationReportingStop()

Stop triggered user location reporting.

Parameters

stopRequest : in TpMobilityStopAssignmentData
Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.
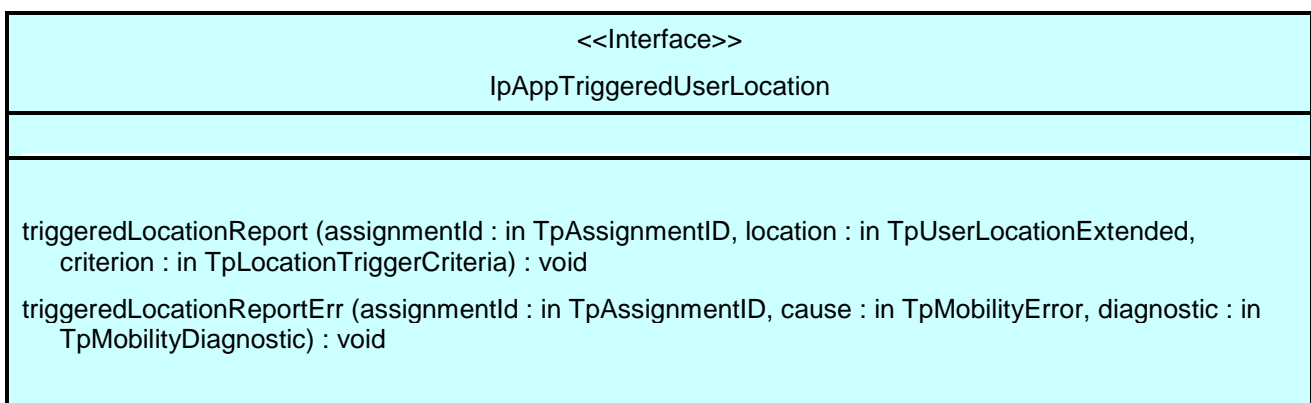
Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

8.1.4   Interface Class IpAppTriggeredUserLocation

Inherits from: IpAppUserLocation.

This interface must be used as a specialised version of the User Location: Application Interface if the Triggered User Location: Service Interface is used.

The triggered user location application interface is implemented by the client application developer and is used to handle triggered location reports.

<<Interface>>
IpAppTriggeredUserLocation
triggeredLocationReport (assignmentId : in TpAssignmentID, location : in TpUserLocationExtended, criterion : in TpLocationTriggerCriteria) : void triggeredLocationReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void

8.1.4.1   Method triggeredLocationReport()

A triggered report containing location for a user is delivered.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the triggered location-reporting request.

location : in TpUserLocationExtended

Specifies the location of the user.

criterion : in TpLocationTriggerCriteria

Specifies the criterion that triggered the report.

8.1.4.2   Method triggeredLocationReportErr()

This method indicates that a requested triggered location report has failed. Note that errors only concerning individual users are reported in the ordinary triggeredLocationReport() message.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed triggered location reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.2   User Location Camel Interface Classes

The ULC provides location information, based on network-related information, rather than the geographical co-ordinates that can be retrieved via the general User Location Service.

Using the ULC functions, an application programmer can request the VLR Number, the location Area Identification and the Cell Global Identification and other mobile-telephony-specific location information

The ULC provides the IpUserLocationCamel interface. Most methods are asynchronous, in that they do not lock a thread into waiting whilst a transaction performs. In this way, the client machine can handle many more calls, than one that uses synchronous message calls. To handle responses and reports, the developer must implement IpAppUserLocationCamel interface to provide the callback mechanism.

8.2.1   Interface Class IpUserLocationCamel

Inherits from: IpService.

This interface is the 'service manager' interface for ULC.

This interface shall be implemented by a User Location Camel SCF.

The locationReportReq() method, or both the periodicLocationReportingStartReq() and periodicLocationReportingStop() methods, or both the triggeredLocationReportingStartReq() and triggeredLocationReportingStop() methods shall be implemented as a minimum requirement.

```
                        <<Interface>>
                      IpUserLocationCamel


  locationReportReq (appLocationCamel : in IpAppUserLocationCamelRef, users : in TpAddressSet) :
     TpAssignmentID

  periodicLocationReportingStartReq (appLocationCamel : in IpAppUserLocationCamelRef, users : in
     TpAddressSet, reportingInterval : in TpDuration) : TpAssignmentID

  periodicLocationReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void

  triggeredLocationReportingStartReq (appLocationCamel : in IpAppUserLocationCamelRef, users : in
     TpAddressSet, trigger : in TpLocationTriggerCamel) : TpAssignmentID

  triggeredLocationReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void
```

8.2.1.1   Method locationReportReq()

Request for mobile-related location information on one or several camel users.

Returns: assignmentId

Specifies the assignment ID of the location-report request.

Parameters

appLocationCamel : in IpAppUserLocationCamelRef

Specifies the application interface for callbacks from the User Location Camel service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

Returns

TpAssignmentID

Raises

**TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_APPLICATION_NOT_ACTIVATED,
P_INFORMATION_NOT_AVAILABLE, P_INVALID_INTERFACE_TYPE**

8.2.1.2   Method periodicLocationReportingStartReq()

Request for periodic mobile location reports on one or several users.

Returns: assignmentId

Specifies the assignment ID of the periodic location-reporting request.

Parameters

appLocationCamel : in IpAppUserLocationCamelRef

Specifies the application interface for callbacks from the User Location Camel service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

reportingInterval : in TpDuration

Specifies the requested interval in seconds between the reports.

Returns

TpAssignmentID

Raises

**TpCommonExceptions, P_INVALID_REPORTING_INTERVAL, P_UNKNOWN_SUBSCRIBER,
P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE,
P_INVALID_INTERFACE_TYPE**

8.2.1.3   Method periodicLocationReportingStop()

This method stops the sending of periodic mobile location reports for one or several users.

Parameters

stopRequest : in TpMobilityStopAssignmentData

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

8.2.1.4   Method triggeredLocationReportingStartReq()

Request for user location reports, containing mobile related information, when the location is changed (the report is triggered by the location change).

Returns: assignmentId

Specifies the assignment ID of the triggered location-reporting request.

Parameters

appLocationCamel : in IpAppUserLocationCamelRef

Specifies the application interface for callbacks from the User Location Camel service.

users : in TpAddressSet

Specifies the user(s) for which the location shall be reported.

trigger : in TpLocationTriggerCamel

Specifies the trigger conditions.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_APPLICATION_NOT_ACTIVATED, P_INFORMATION_NOT_AVAILABLE, P_INVALID_INTERFACE_TYPE

8.2.1.5   Method triggeredLocationReportingStop()

Request that triggered mobile location reporting should stop.

Parameters

stopRequest : in TpMobilityStopAssignmentData

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID

8.2.2   Interface Class IpAppUserLocationCamel

Inherits from: IpInterface.

The user location Camel application interface is implemented by the client application developer and is used to handle location reports that are specific for mobile telephony users.

<<Interface>>
IpAppUserLocationCamel
locationReportRes (assignmentId : in TpAssignmentID, locations : in TpUserLocationCamelSet) : void locationReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void periodicLocationReport (assignmentId : in TpAssignmentID, locations : in TpUserLocationCamelSet) : void periodicLocationReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void triggeredLocationReport (assignmentId : in TpAssignmentID, location : in TpUserLocationCamel, criterion : in TpLocationTriggerCamel) : void triggeredLocationReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void

8.2.2.1 Method locationReportRes()

Delivery of a mobile location report. The report is containing mobile-related location information for one or several users.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the location-report request.

locations : in TpUserLocationCamelSet

Specifies the location(s) of one or several users.

8.2.2.2 Method locationReportErr()

This method indicates that the location report request has failed.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed location report request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.2.2.3 Method periodicLocationReport()

Periodic delivery of mobile location reports. The reports are containing mobile-related location information for one or several users.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the periodic location-reporting request.

locations : in TpUserLocationCamelSet

Specifies the location(s) of one or several users.

8.2.2.4 Method periodicLocationReportErr()

This method indicates that a requested periodic location report has failed. Note that errors only concerning individual users are reported in the ordinary periodicLocationReport() message.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed periodic location reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.2.2.5   Method triggeredLocationReport()

Delivery of a report that is indicating that the user's mobile location has changed.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the triggered location-reporting request.

location : in TpUserLocationCamel

Specifies the location of the user.

criterion : in TpLocationTriggerCamel

Specifies the criterion that triggered the report.

8.2.2.6   Method triggeredLocationReportErr()

This method indicates that a requested triggered location report has failed. Note that errors only concerning individual users are reported in the ordinary triggeredLocationReport() message.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed triggered location reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.3   User Status Interface Classes

The User Status Service (US) provides a general user status service. US allow applications to obtain the status of fixed, mobile and IP-based telephony users.

The US provides the IpUserStatus interface. Most methods are asynchronous, in that they do not lock a thread into waiting whilst a transaction performs. In this way, the client machine can handle many more calls, than one that uses synchronous message calls. To handle responses and reports, the developer must implement IpAppUserStatus interface to provide the callback mechanism.

8.3.1   Interface Class IpAppUserStatus

Inherits from: IpInterface.

The user-status application interface is implemented by the client application developer and is used to handle user status reports.

<<Interface>>
IpAppUserStatus
statusReportRes (assignmentId : in TpAssignmentID, status : in TpUserStatusSet) : void statusReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void triggeredStatusReport (assignmentId : in TpAssignmentID, status : in TpUserStatus) : void triggeredStatusReportErr (assignmentId : in TpAssignmentID, cause : in TpMobilityError, diagnostic : in TpMobilityDiagnostic) : void

8.3.1.1   Method statusReportRes()

Delivery of a report, that is containing one or several user's status.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the status-report request.

status : in TpUserStatusSet

Specifies the status of one or several users.

8.3.1.2   Method statusReportErr()

This method indicates that the status report request has failed.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed status report request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.3.1.3 Method triggeredStatusReport()

Delivery of a report that is indicating that a user's status has changed.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the triggered status-reporting request.

status : in TpUserStatus

Specifies the status of the user.

8.3.1.4 Method triggeredStatusReportErr()

This method indicates that a requested triggered status reporting has failed. Note that errors only concerning individual users are reported in the ordinary triggeredStatusReport() message.

Parameters

assignmentId : in TpAssignmentID

Specifies the assignment ID of the failed triggered status reporting start request.

cause : in TpMobilityError

Specifies the error that led to the failure.

diagnostic : in TpMobilityDiagnostic

Specifies additional information about the error that led to the failure.

8.3.2 Interface Class IpUserStatus

Inherits from: IpService.

The application programmer can use this interface to obtain the status of fixed, mobile and IP-based telephony users.

This interface shall be implemented by a User Status SCF.

The statusReportReq() method, or both the triggeredStatusReportingStartReq() and trigggeredStatusReportingStop() methods shall be implemented as a minimum requirement.

<<Interface>>
IpUserStatus
statusReportReq (appStatus : in IpAppUserStatusRef, users : in TpAddressSet) : TpAssignmentID   triggeredStatusReportingStartReq (appStatus : in IpAppUserStatusRef, users : in TpAddressSet) : TpAssignmentID   triggeredStatusReportingStop (stopRequest : in TpMobilityStopAssignmentData) : void

8.3.2.1 Method statusReportReq()

Request for a report on the status of one or several users.

Returns: assignmentId

Specifies the assignment ID of the status-report request.

Parameters

appStatus : in IpAppUserStatusRef

Specifies the application interface for callbacks from the User Status service.

users : in TpAddressSet

Specifies the user(s) for which the status shall be reported.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_INFORMATION_NOT_AVAILABLE, P_APPLICATION_NOT_ACTIVATED, P_INVALID_INTERFACE_TYPE

8.3.2.2 Method triggeredStatusReportingStartReq()

Request for triggered status reports when one or several user's status is changed. The user status service will send a report when the status changes.

Returns: assignmentId

Specifies the assignment ID of the triggered status-reporting request.

Parameters

appStatus : in IpAppUserStatusRef

Specifies the application interface for callbacks from the User Status service.

users : in TpAddressSet

Specifies the user(s) for which the status changes shall be reported.

Returns

TpAssignmentID

Raises

TpCommonExceptions, P_UNKNOWN_SUBSCRIBER, P_INFORMATION_NOT_AVAILABLE, P_APPLICATION_NOT_ACTIVATED, P_INVALID_INTERFACE_TYPE

8.3.2.3 Method triggeredStatusReportingStop()

This method stops the sending of status reports for one or several users.

Parameters

stopRequest : in TpMobilityStopAssignmentData

Specifies how the assignment shall be stopped, i.e. if whole or just parts of the assignment should be stopped.

Raises

TpCommonExceptions, P_INVALID_ASSIGNMENT_ID