RESTful bindings for Parlay X Web Services – Terminal Location

Candidate Version 1.0 – 24 Aug 2010

Open Mobile Alliance

OMA-TS-ParlayREST_TerminalLocation-V1_0-20100824-C

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1. Scope

This specification defines an HTTP protocol binding for an abstract API using the REST architectural style, based on existing OMA enabler namely the Terminal Location, as defined in [3GPP 29.199-9].

2. References

2.1 Normative References

[3GPP 29.199-9] 3rd Generation Partnership Project; Technical Specification Group Core Network and Terminals; Open Service Access (OSA); Parlay X Web Services; Part 9: Terminal Location (Release 7); 3GPP TS 29.199-9 URL:http://www.3gpp.org/

[REST_TS_Common] "RESTful bindings for Parlay X Web Services – Common", Version 1.0, Open Mobile Alliance™, OMA-TS-ParlayREST_Common-V1_0, URL:http://www.openmobilealliance.org/

[RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt

[RFC2616] "Hypertext Transfer Protocol -- HTTP/1.1", R. Fielding et. al, January 1999, URL:http://www.ietf.org/rfc/rfc2616.txt

[RFC4627] "The application/json Media Type for JavaScript Object Notation (JSON)", D. Crockford, July 2006, URL:http://www.ietf.org/rfc/rfc4627.txt

[SCRRULES] "SCR Rules and Procedures", Open Mobile Alliance™, OMA-ORG-SCR_Rules_and_Procedures, URL:http://www.openmobilealliance.org/

[W3C-URLENC] W3C HTML 2.0 Specification, form-urlencoded Media Type, URL: http://www.w3.org/MarkUp/html-spec/html-spec_8.html#SEC8.2.1

[XMLSchema1] W3C Recommendation, XML Schema Part 1: Structures Second Edition, URL: http://www.w3.org/TR/xmlschema-1/

[XMLSchema2] W3C Recommendation, XML Schema Part 2: Datatypes Second Edition, URL: http://www.w3.org/TR/xmlschema-2/

2.2 Informative References

[OMADICT] "Dictionary for OMA Specifications", Version 2.8, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_8, URL:http://www.openmobilealliance.org/

[REST_WP] "White Paper on Guidelines for ParlayREST API specifications", Open Mobile Alliance™, OMA-WP-Guidelines-for-ParlayREST-API-specifications, URL:http://www.openmobilealliance.org/

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

For the purpose of this TS, all definitions from the OMA Dictionary apply [OMA-DICT].

3.3 Abbreviations

API	Application Programming Interface
HTTP	HyperText Transfer Protocol
JSON	JavaScript Object Notation
OMA	Open Mobile Alliance
REST	REpresentational State Transfer
SCR	Static Conformance Requirements
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
XML	Extensible Markup Language

4. Introduction

The ParlayREST Technical Specification for Terminal Location contains the HTTP protocol binding for the Parlay X Terminal Location Web Services specification, using the REST architectural style. The specification provides resource definitions, the HTTP verbs applicable for each of these resources, and the element data structures, as well as support material including flow diagrams and examples using the various supported message body formats (i.e. XML and JSON).

4.1 Version 1.0

Version 1.0 of the Terminal Location ParlayREST API specification supports the following operations:

- Obtain the current terminal location
- Obtain the terminal distance from a given location
- Obtain the distance between two terminals
- Manage client-specific subscriptions to periodic notifications
- Manage client-specific subscriptions to area (circle) notifications
- Manage client-specific subscriptions to distance notifications

5. Terminal Location API definition

This section is organized to support a comprehensive understanding of the TerminalLocation API design. It specifies the definition of all resources, definition of all data structures, and definitions of all operations permitted on the specified resources.

Common data types, naming conventions, fault definitions and namespaces are defined in [REST_TS_Common].

The remainder of this document is structured as follows:

Section 5 starts with a table listing all the resources (and their URL) used by this API, along with the data structure and the supported HTTP verbs (section 5.1). In addition, for each supported resource/verb combination, the table lists the Parlay X equivalent operation, where applicable. What follows are the data structures, divided by root elements and their child elements (section 5.2). A sample of typical use cases is included in section 5.3, described as high level flow diagrams.

The remaining subsections in section 5 contain the detailed specification for each of the resources. Each such subsection defines the resource, the request URI variables that are common for all HTTP commands, the possible HTTP response codes, and the supported HTTP verbs. For each supported HTTP verb, a description of the functionality is provided, along with an example of a request and an example of a response. For each unsupported HTTP verb, the returned HTTP error status is specified, as well as what should be returned in the Allow header.

All examples in section 5 use XML as the format for the message body. JSON examples are provided in Appendix C. Appendix B provides the Static Conformance Requirements (SCR).

Note: Throughout this document client and application can be used interchangeably.

5.1 Resource Summary

This section summarizes all the resources used by the TerminalLocation API.

The figure below visualizes the resource structure defined by this specification. Note that those nodes in the resource tree which have associated HTTP methods defined in this specification are depicted by solid boxes.

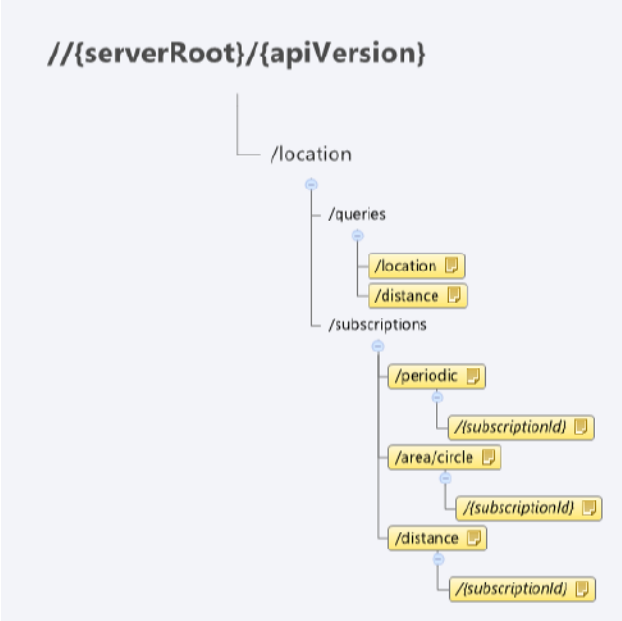

Figure 1 Resource structure defined by this specification

The following table gives a detailed overview of the resources defined in this specification, the data type of their representation and the allowed HTTP methods.

Note: The "PX" row indicates the Parlay X SOAP equivalent operation.

Purpose: poll terminal location and terminal distance

Resource (Purpose)	URL Base URL: http://{serverRoot}/{apiVersion}/location	Data Structures	HTTP verbs			
			GET	POST	PUT	DELETE
Terminal location	/queries/location?address={terminalId}... /queries/location?address={terminalId1}&address={terminalId2}...	TerminalLocationList	return current location of the terminal or multiple terminals	no	no	no
			PX: GetLocation GetLocationForGroup			
Terminal distance	/queries/distance?address={terminalId}&latitude={lat}&longitude={lon} or /queries/distance?address={terminalId1}&address={terminalId2}	TerminalDistance	return current distance from terminal to the specified location or between two terminals	no	no	no
			PX: GetTerminalDistance			

Purpose: location subscription

Resource (Purpose)	URL Base URL: http://{serverRoot}/{apiVersion}/location	Data Structures	HTTP verbs			
			GET	POST	PUT	DELETE
Periodic location notification subscriptions	/subscriptions/periodic	NotificationSubscriptionList (used for GET) PeriodicNotificationSubscription (used for POST)	return all subscriptions	create new subscription	no	no
			No PX equivalent	PX: StartPeriodicNotification		

Resource (Purpose)	URL Base URL: http://{serverRoot}/{apiVersion}/location	Data Structures	HTTP verbs			
			GET	POST	PUT	DELETE
Individual periodic location notification subscription	/subscriptions/periodic/{subscriptionId}	PeriodicNotificationSubscription	return one subscription	no	update subscription	delete one subscription
			No PX equivalent		PX: StartPeriodicNotification	PX: EndNotification
Area (circle) notification subscriptions	/subscriptions/area/circle	NotificationSubscriptionList (used for GET) CircleNotificationSubscription (used for POST)	return all subscriptions	create new subscription	no	no
			No PX equivalent	PX: StartGeographicalNotification		
Area (circle) individual notification subscription	/subscriptions/area/circle/{subscriptionId}	CircleNotificationSubscription	return one subscription	no	update subscription	delete one subscription
			No PX equivalent		PX: StartGeographicalNotification	PX: EndNotification
Distance notification subscriptions	/subscriptions/distance	NotificationSubscriptionList (used for GET) DistanceNotificationSubscription (used for POST)	return all subscriptions	create new subscription	no	no
			No PX equivalent	PX: StartDistanceNotification		
Distance individual notification subscription	/subscriptions/distance/{subscriptionId}	DistanceNotificationSubscription	return one subscription	no	update subscription	delete one subscription
			No PX equivalent		PX: StartDistanceNotification	PX: EndNotification

Purpose: client notification

Resource (Purpose)	URL <provided by the client>	Data Structures	HTTP verbs			
			GET	POST	PUT	DELETE
Client notification callback resource	{provided by client}	SubscriptionNotification SubscriptionCancellationNotification	no	yes PX: LocationNotification DistanceNotification LocationEnd LocationError	no	no

5.2 Terminal Location Data Structures

The namespace for the Terminal Location data types is:

urn:oma:xml:rest:terminallocation:1

The 'xsd' namespace is used in the present document to refer to the XML Schema data types defined in XML Schema [XMLSchema1, XMLSchema2]. The 'common' namespace is used in the present document to refer to the data types defined in [REST_TS_Common]. The use of the names 'xsd' and ‘common’ is not semantically significant.

5.2.1 Type: TerminalLocation

Element	Type	Optional	Description
address	xsd:anyURI	No	Address of the terminal device to which the location information applies
locationRetrievalStatus	common:RetrievalStatus	No	Status of retrieval for this terminal device address
currentLocation	LocationInfo	Yes	Location of terminal. It is only provided if locationRetrievalStatus=Retrieved.
errorInformation	common:ServiceError	Yes	If locationRetrievalStatus=Error, this is the reason for the error.

5.2.2 Type: TerminalLocationList

Element	Type	Optional	Description
terminalLocation	TerminalLocation [1..unbounded]	No	Collection of the terminal locations

A root element named terminalLocationList of type TerminalLocationList is allowed in request and/or response bodies.

5.2.3 Type: SubscriptionNotification

Element	Type	Optional	Description
callbackData	xsd:string	Yes	CallbackData if passed by the application in the receiptRequest element during the associated Send SMS operation. See [REST_TS_Common], section 6.2.4.
terminalLocation	TerminalLocation [1..unbounded]	No	Collection of the terminal locations
enteringLeavingCriteria	EnteringLeavingCriteria	Yes	Indicates whether the notification was caused by the terminal entering or leaving the target area. (This part is provided for geographical notifications)
distanceCriteria	DistanceCriteria	Yes	Indicates which distance criteria that caused the notification. (This part is provided for distance notifications)
isFinalNotification	xsd:boolean	Yes	Will be set to true if it is a final notification about location change
link	common:Link [0..unbounded]	Yes	Link to other resources that are in relationship with the resource

A root element named subscriptionNotification of type SubscriptionNotification is allowed in request and/or response bodies.

5.2.4 Type: SubscriptionCancellationNotification

Element	Type	Optional	Description
callbackData	xsd:string	Yes	CallbackData if passed by the application in the receiptRequest element during the associated Send SMS operation. See [REST_TS_Common], section 6.2.4.
address	xsd:anyURI	Yes	Address of terminal if the error applies to an individual terminal, or not specified if it applies to the whole notification.
reason	common:ServiceError	No	Reason notification is being discontinued.
link	common:Link[0..unbounded]	Yes	Link to other resources that are in relationship with the resource

A root element named subscriptionCancellationNotification of type SubscriptionCancellationNotification is allowed in request and/or response bodies.

5.2.5 Type: TerminalDistance

Element	Type	Optional	Description
distance	xsd:int	No	Distance from terminal to a location or between two terminals specified in meters
accuracy	xsd:int	Yes	Accuracy of the provided distance in meters
timestamp	xsd:dateTime	Yes	Date and time that location from which distance is calculated was collected

A root element named terminalDistance of type TerminalDistance is allowed in request and/or response bodies.

5.2.6 Type: LocationInfo

Element	Type	Optional	Description
latitude	xsd:float	No	Location latitude
longitude	xsd:float	No	Location longitude
altitude	xsd:float	Yes	Location altitude
accuracy	xsd:int	No	Accuracy of location provided in meters
timestamp	xsd:dateTime	No	Date and time that location was collected

A root element named locationInfo of type LocationInfo is allowed in request and/or response bodies.

5.2.7 Type: NotificationSubscriptionList

Element	Type	Optional	Description
circleNotificationSubscription	CircleNotificationSubscription [0..unbound]	Yes	Collection of CircleNotificationSubscription elements
periodicNotificationSubscription	PeriodicNotificationSubscription [0..unbound]	Yes	Collection of PeriodicNotificationSubscription elements
distanceNotificationSubscription	DistanceNotificationSubscription [0..unbound]	Yes	Collection of DistanceNotificationSubscription elements

A root element named notificationSubscriptionList of type NotificationSubscriptionList is allowed in request and/or response bodies.

5.2.8 Type: CircleNotificationSubscription

Element	Type	Optional	Description
clientCorrelator	xsd:string	Yes	A correlator that the client MAY use to tag this particular resource representation during a request to create a resource on the server. In case the field is present, the server SHALL not alter its value, and SHALL provide it as part of the representation of this resource. In case the field is not present, the server SHALL NOT generate it.
resourceURL	xsd:anyURI	Yes	Link to the resource
link	common:Link[0..unbounded]	Yes	Link to other resources that are in relationship with the resource
callbackReference	common:CallbackReference	No	Notification callback definition
requester	xsd:anyURI	Yes	It identifies the entity that is requesting the information. The application invokes this operation on behalf of this entity. However, it does not imply that the application has authenticated the requester. If this part is not present, the requesting entity is the application itself. If this part is present, and the requester is not authorized to retrieve location info, a policy exception will be returned.

Element	Type	Optional	Description
address	xsd:anyURI [1..unbounded]	No	Addresses of terminals to monitor. Reference to the group could be provided here if supported by implementation
latitude	xsd:float	No	Latitude of center point
longitude	xsd:float	No	Longitude of center point
radius	xsd:float	No	Radius of circle around center point in meters
trackingAccuracy	xsd:float	No	Number of meters of acceptable error in tracking distance
enteringLeavingCriteria	EnteringLeavingCriteria	No	Indicates whether the notification should occur when the terminal enters or leaves the target area
checkImmediate	xsd:boolean	No	Check location immediately after establishing notification
frequency	common:TimeMetric	No	Maximum frequency of notifications per subscriber (can also be considered minimum time between notifications)
duration	common:TimeMetric	Yes	Period of time notifications are provided for. If set to “0” (zero), a default duration time, which is specified by the service policy, will be used. If the parameter is omitted, the notifications will continue until the maximum duration time, which is specified by the service policy, unless the notifications are stopped by deletion of subscription for notifications
count	xsd:int	Yes	Maximum number of notifications per individual address. For no maximum, either do not specify this part or specify a value of zero. Default value is 0.

A root element named circleNotificationSubscription of type CircleNotificationSubscription is allowed in request and/or response bodies.

Note that the clientCorrelator is used for purposes of error recovery as specified in section 5.6.1 of [REST_TS_Common], and internal client purposes. The server is NOT REQUIRED to use the clientCorrelator value in any form in the creation of the URL of the resource. Section 5.6.1 of [REST_TS_Common] provides a recommendation regarding the generation of the value of this field.

5.2.9 Type: PeriodicNotificationSubscription

Element	Type	Optional	Description
clientCorrelator	xsd:string	Yes	A correlator that the client MAY use to tag this particular resource representation during a request to create a resource on the server. In case the field is present, the server SHALL not alter its value, and SHALL provide it as part of the representation of this resource. In case the field is not present, the server SHALL NOT generate it.
resourceURL	xsd:anyURI	Yes	Link to the resource
link	common:Link[0..unbounded]	Yes	Link to other resources that are in relationship with the resource
callbackReference	common:CallbackReference	No	Notification callback definition
requester	xsd:anyURI	Yes	It identifies the entity that is requesting the information.

Element	Type	Optional	Description
			The application invokes this operation on behalf of this entity. However, it does not imply that the application has authenticated the requester. If this part is not present, the requesting entity is the application itself. If this part is present, and the requester is not authorized to retrieve location info, a policy exception will be returned.
address	xsd:anyURI [1..unbounded]	No	Addresses of terminals to monitor
requestedAccuracy	xsd:int	No	Accuracy of the provided distance in meters
frequency	common:TimeMetric	No	Maximum frequency of notifications (can also be considered minimum time between notifications)
duration	common:TimeMetric	Yes	Period of time notifications are provided for. If set to “0” (zero), a default duration time, which is specified by the service policy, will be used. If the parameter is omitted, the notifications will continue until the maximum duration time, which is specified by the service policy, unless the notifications are stopped by deletion of subscription for notifications

A root element named periodicNotificationSubscription of type PeriodicNotificationSubscription is allowed in request and/or response bodies.

Note that the clientCorrelator is used for purposes of error recovery as specified in section 5.6.1 of [REST_TS_Common], and internal client purposes. The server is NOT REQUIRED to use the clientCorrelator value in any form in the creation of the URL of the resource. Section 5.6.1 of [REST_TS_Common] provides a recommendation regarding the generation of the value of this field.

5.2.10 Type: DistanceNotificationSubscription

Element	Type	Optional	Description
clientCorrelator	xsd:string	Yes	A correlator that the client MAY use to tag this particular resource representation during a request to create a resource on the server. In case the field is present, the server SHALL not alter its value, and SHALL provide it as part of the representation of this resource. In case the field is not present, the server SHALL NOT generate it.
resourceURL	xsd:anyURI	Yes	Link to the resource
link	common:Link [0..unbounded]	Yes	Link to other resources that are in relationship with the resource
callbackReference	common:CallbackReference	No	Notification callback definition
requester	xsd:anyURI	Yes	It identifies the entity that is requesting the information. The application invokes this operation on behalf of this entity. However, it does not imply that the application has authenticated the requester. If this part is not present, the requesting entity is the application itself. If this part is present, and the requester is not authorized to retrieve location info, a policy exception

Element	Type	Optional	Description
			will be returned.
referencesAddress	xsd:anyURI [0..unbounded]	Yes	If specified, indicates address of each device that will be used as reference devices from which the distances towards monitored devices indicated in the Addresses will be monitored.
monitoredAddress	xsd:anyURI [1..unbounded]	No	Contains addresses of devices to monitor. If the ReferenceAddress is specified, then the distance between each monitored device and reference device(s) will be monitored. If the ReferenceAddress is not present, then the distance between each of the monitored devices will be monitored. Note that in that case there must be at least two addresses specified here.
distance	xsd:float	No	Distance between devices that shall be monitored
trackingAccuracy	xsd:float	No	Number of meters of acceptable error in tracking distance
criteria	DistanceCriteria	No	Indicates whether the notification should occur when the geographical relationship between monitored and referenced devices changes.
checkImmediate	xsd:boolean	No	Check location immediately after establishing notification
frequency	common:TimeMetric	No	Maximum frequency of notifications per subscriber (can also be considered minimum time between notifications)
duration	common:TimeMetric	Yes	Period of time notifications are provided for. If set to “0” (zero), a default duration time, which is specified by the service policy, will be used. If the parameter is omitted, the notifications will continue until the maximum duration time, which is specified by the service policy, unless the notifications are stopped by deletion of subscription for notifications
count	xsd:int	Yes	Maximum number of notifications per individual address. For no maximum, either do not specify this part or specify a value of zero. Default value is 0.

A root element named distanceNotificationSubscription of type DistanceNotificationSubscription is allowed in request and/or response bodies.

Note that the clientCorrelator is used for purposes of error recovery as specified in section 5.6.1 of [REST_TS_Common], and internal client purposes. The server is NOT REQUIRED to use the clientCorrelator value in any form in the creation of the URL of the resource. Section 5.6.1 of [REST_TS_Common] provides a recommendation regarding the generation of the value of this field.

5.2.11 Enumeration: EnteringLeavingCriteria

Enumeration	Description
Entering	Terminal is entering an area
Leaving	Terminal is leaving an area

5.2.12 Void

5.2.13 Enumeration: DistanceCriteria

Enumeration	Description
AllWithinDistance	All monitored devices are within the specified distance
AnyWithinDistance	Any of monitored devices gets within the specified distance
AllBeyondDistance	All monitored devices are beyond the specified distance
AnyBeyondDistance	Any of monitored devices gets beyond the specified distance

5.2.14 Enumeration: DelayTolerance

Enumeration	Description
NoDelay	The server should immediately return any location estimate that it currently has. If no estimate is available, the server shall return the failure indication and may optionally initiate procedures to obtain a location estimate (e.g. to be available for a later request).
LowDelay	Fulfilment of the response time requirement takes precedence over fulfilment of the accuracy requirement. The server shall return any current location estimate with minimum delay. The server shall attempt to fulfil any accuracy requirement, but in doing so shall not add any additional delay (i.e. a quick response with lower accuracy is more desirable than waiting for a more accurate response).
DelayTolerant	Fulfilment of the accuracy requirement takes precedence over fulfilment of the response time requirement. If necessary, the server should delay providing a response until the accuracy requirement of the requesting application is met. The server shall obtain a current location with regard to fulfilling the accuracy requirement.

5.2.15 Values of the Link “rel” attribute

The “rel” attribute of the Link element is a free string set by the server implementation, to indicate a relationship between the current resource and an external resource. The following are possible strings (list is non-exhaustive, and can be extended):

- TerminalLocationList
- TerminalDistance
- NotificationPeriodicSubscriptionList
- NotificationCircleSubscriptionList
- NotificationDistanceSubscriptionList
- SubscriptionNotification
- SubscriptionCancellationNotification
- LocationInfo
- CircleNotificationSubscription
- PeriodicNotificationSubscription
- DistanceNotificationSubscription

These values indicate the kind of resource that the link points to.

5.3 Sequence diagrams

5.3.1 Location query

This figure below shows a scenario to return location for single terminal or group of terminals.

The resource:

- To get the location information for a single terminal or a group of terminals, read the resource below with the URL parameters terminal address or addresses

  http://{serverRoot}/{apiVersion}/location/queries/location

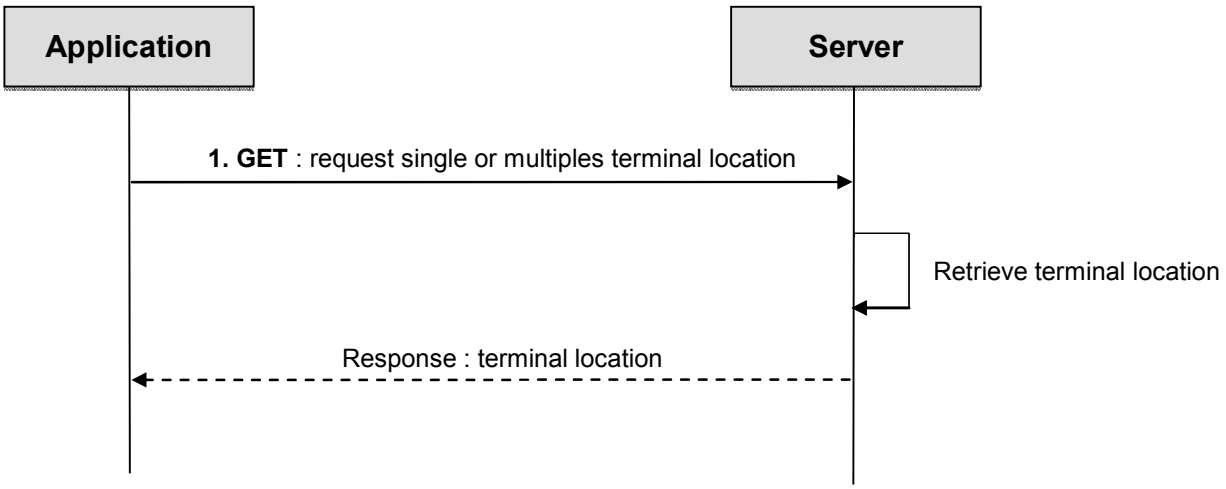

Figure 2 Location query

Outline of flow:

1. An application requests single or multiples terminal location with Request URL parameters such as terminal address or addresses (i.e. group) and desired accuracy using **GET** and receives the terminal location information.

5.3.2 Distance from location query

This figure below shows a scenario to return the distance of a terminal from a location.

The resource:

To get the distance between a terminal and a geographical location, read the resource below, while passing appropriate query parameters

http://{serverRoot}/{apiVersion}/location/queries/distance

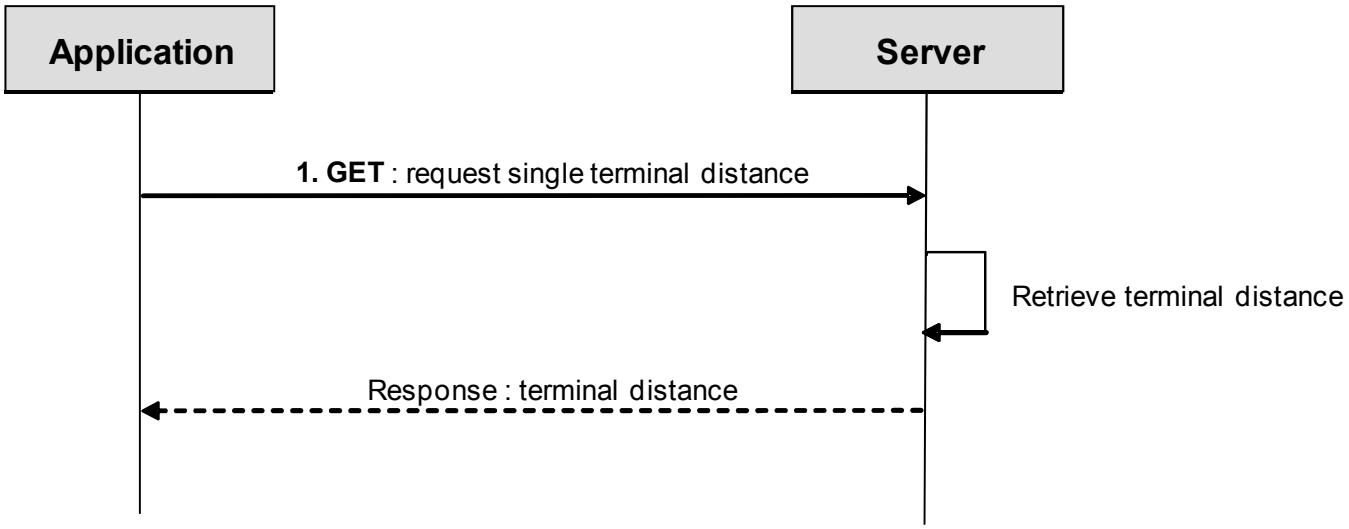

Figure 3 Distance from location query

Outline of flow:

1. An application requests the distance between a terminal and a geographical location by using GET with resource URL and request URL parameters such as terminal address and longitude/latitude of the geographical location. It receives the terminal distance information.

5.3.3 Distance between two terminals query

This figure below shows a scenario to return the distance between two terminals.

The resource:

- To get the distance between two terminals, read the resource below, while passing appropriate query parameters

  http://{serverRoot}/{apiVersion}/location/queries/distance

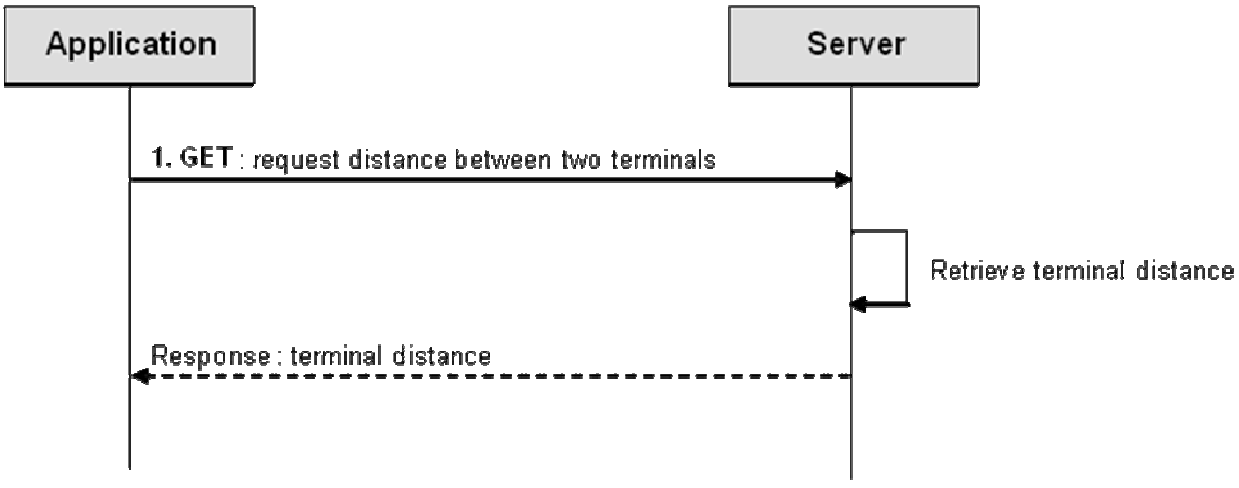

Figure 4 Distance between two terminals query

Outline of flow:

1. An application requests the distance between two terminals by using GET with the resource URL and providing two different terminal addresses as Request URL parameters. It receives the terminal distance information.

5.3.4 Periodic location notification

This figure below shows a scenario to control subscriptions for periodic notifications about terminal location for a particular client.

The resource:

- To start subscription to periodic notifications about terminal location for a particular client, create new resource under

  http://{serverRoot}/{apiVersion}/location/subscriptions/periodic

- To update or delete an individual subscription for periodic notifications about terminal location for a particular client, use the resource

  http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}

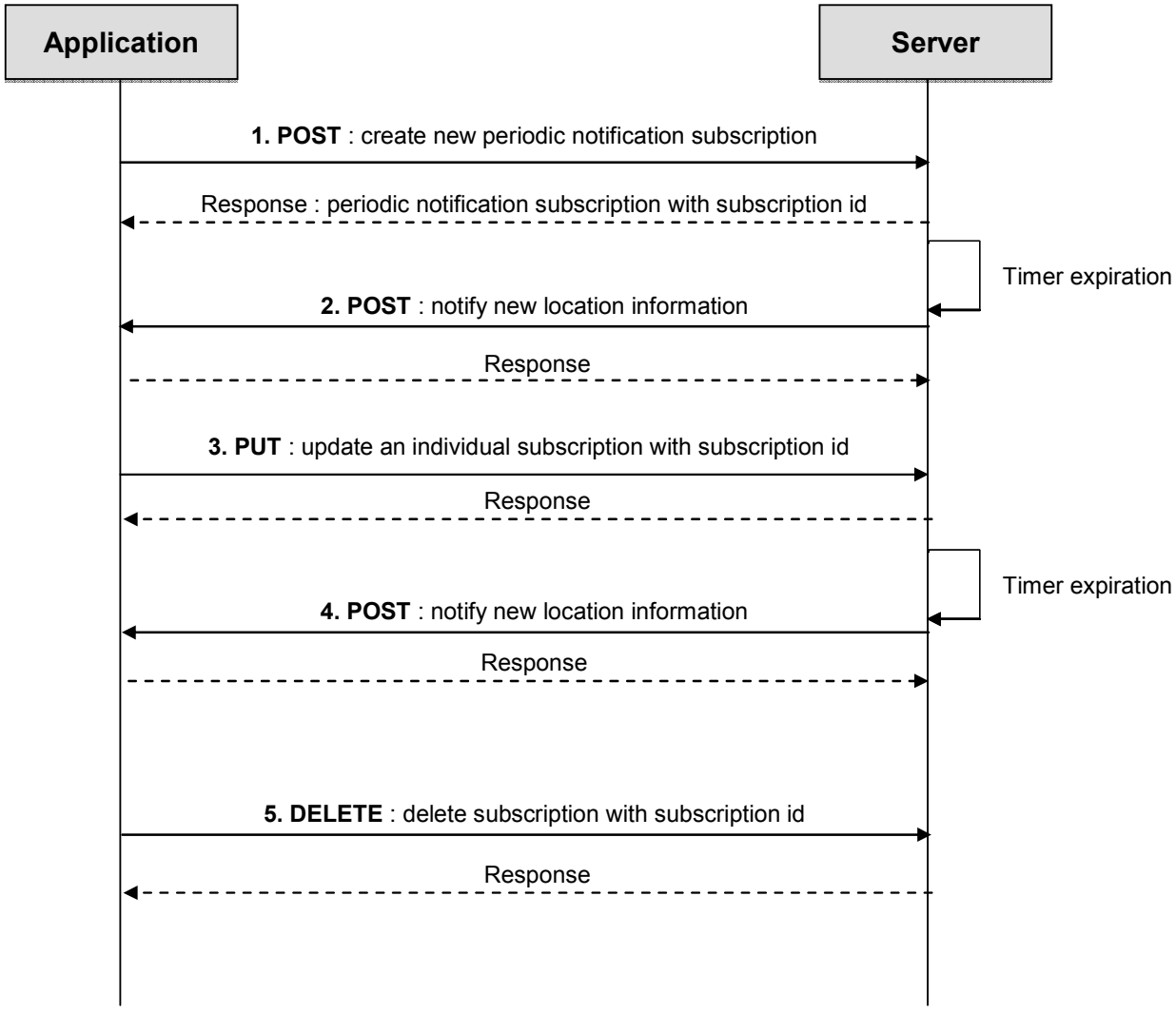

Figure 5 Periodic location notification

Outline of flow:

1. An application creates a new periodic notification subscription for the particular client by using POST and receives the resulting resource URL containing the subscriptionId.
2. When the set up timer expires, the REST service on the server notifies the application of current location information using POST to the application supplied notifyURL. This is repeated each time interval.
3. An application updates an individual subscription for periodic location notification for the particular client by using PUT to resource URL containing the subscriptionId.
4. When the set up timer expires, the REST service on the server notifies the application of current location information using POST to the application supplied notifyURL. This is repeated each time interval.
5. An application deletes a subscription for periodic location notification and stop notifications for a particular client by using DELETE to resource URL containing the subscriptionId.

5.3.5 Area (circle) location notification

This figure below shows a scenario to control subscriptions for notification about terminal movement in relation to the geographic area (circle), crossing in and out, for a particular client.

The resource:

- To start subscription to notifications about terminal movements in relation to the geographic area (circle), crossing in and out, for a particular client, create new resource under

  http://{server root}/{api version}/location/subscriptions/area/circle

- To update or delete an individual subscription for notifications about terminal movements in relation to the geographic area (circle), crossing in and out, for a particular client, use the resource

  http://{server root}/{api version}/location/subscriptions/area/circle/{subscriptionId}

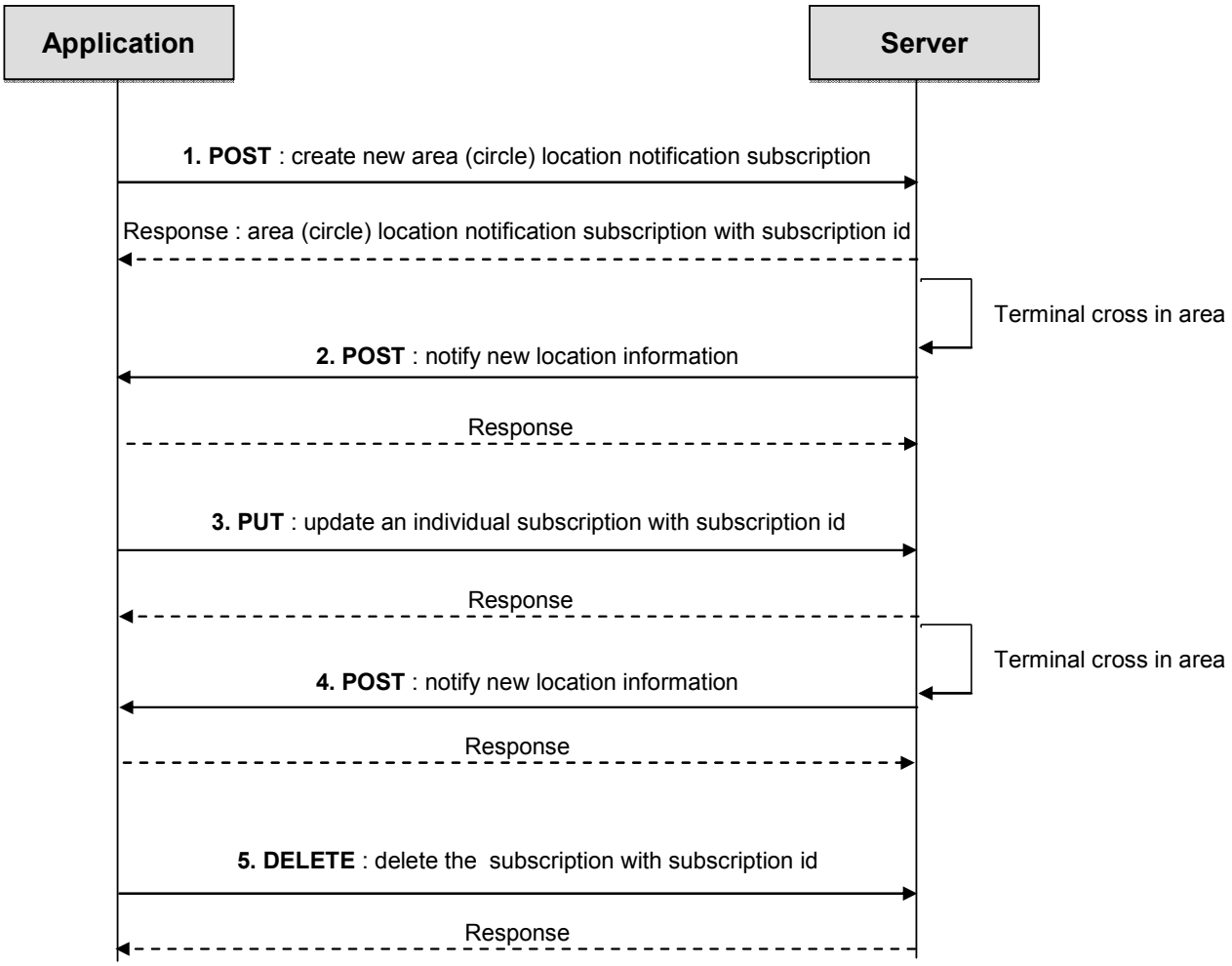

Figure 6 Area (circle) location notification

Outline of flow:

1. An application creates a new area (circle) notification subscription for the particular client by using POST and receives the resulting resource URL containing the subscriptionId.
2. When the terminal crosses in or out the specified area (circle) the REST service on the server notifies the application using POST to the application supplied notifyURL.
3. An application updates an individual subscription for area (circle) notification for the particular client by using PUT to resource URL containing the subscriptionId.
4. When the terminal crosses in or out the updated specified area (circle) the REST service on the server notifies the application using POST to the application supplied notifyURL.
5. An application deletes a subscription for area (circle) notification and stop notifications for the particular client by using DELETE to resource URL containing the subscriptionId.

5.3.6 Distance location notification

This figure below shows a scenario to control subscriptions for notifications about changes in the geographical relationships between terminals (a client has passed a border by either approaching or leaving another referenced client).

The resource and operation used

- To start subscription to notifications about changes in the geographical relationships between terminals, create new resource under

  http://{serverRoot}/{apiVersion}/location/subscriptions/distance

- To update or delete an individual subscription for notifications about changes in the geographical relationships between terminals for a particular client, use the resource

  http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}

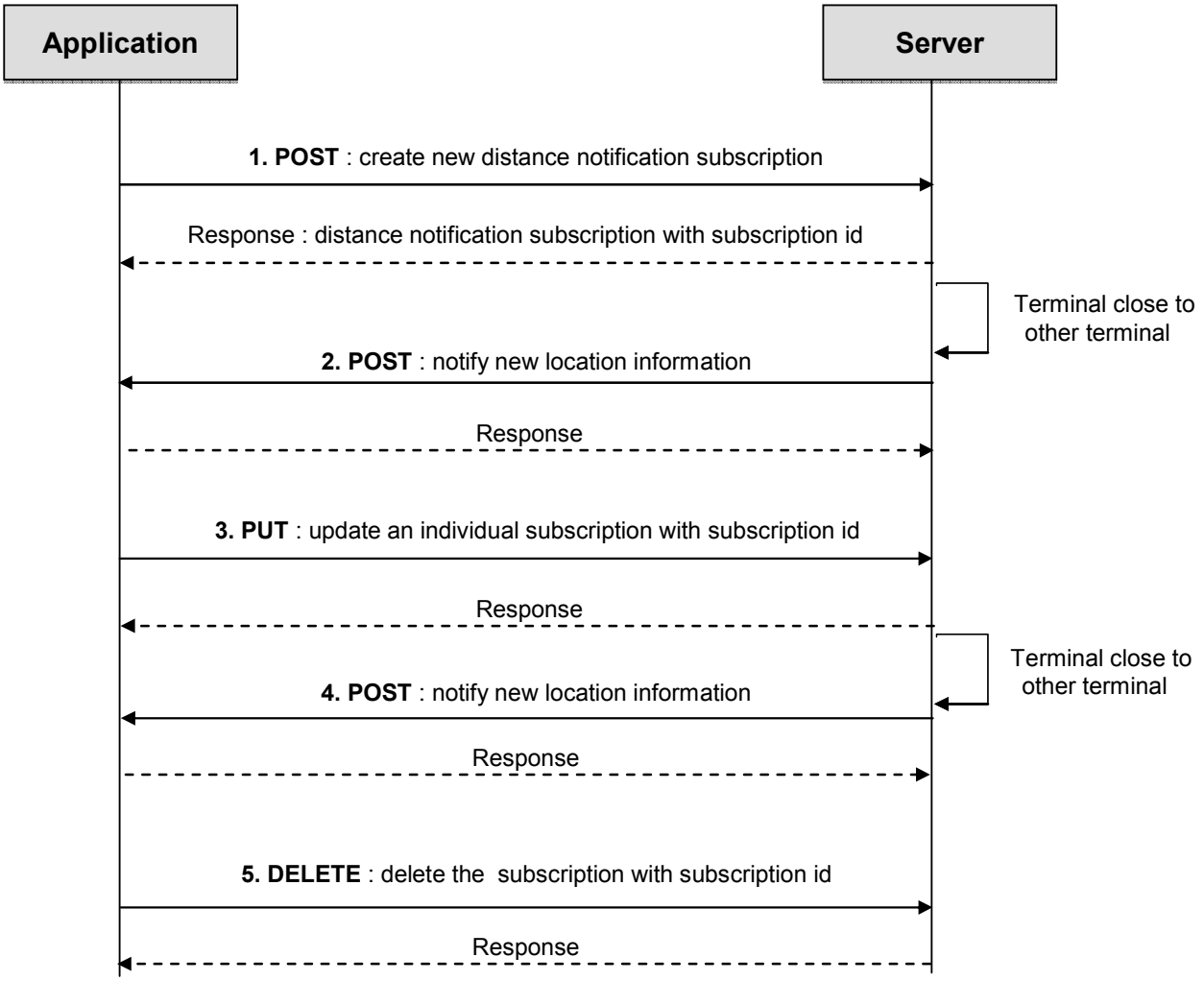

Figure 7 Distance location notification

Outline of flow:

1. An application creates a new distance notification subscription for the particular client by using POST and receives the resulting resource URL containing the subscriptionId.
2. When a terminal passes the border by either approaching or leaving the referenced terminal, the REST service on the server notifies the application by using POST to the application supplied notifyURL.
3. An application updates an individual subscription for distance notification for the particular terminal by using PUT to resource URL containing the subscriptionId.

4. When a terminal passes the border by either approaching or leaving the referenced terminal, the REST service on the server notifies the application by using POST to the application supplied notifyURL.
5. An application deletes a subscription for distance notification and stop notifications for the particular client by using DELETE to resource URL containing the subscriptionId.

5.4 Resource: Terminal Location

The resource used is:

http://{serverRoot}/{apiVersion}/location/queries/location

This resource is used to return location for single terminal or group of terminals.

5.4.1 Request URI variables

The following request URI variables are common for all HTTP commands:

Name	Description
serverRoot	server base url: hostname+port+base path. Example: http://example.com:80/ParlayREST
apiVersion	version of the ParlayREST API client wants to use (e.g. 1 for version 1.x)

5.4.2 Response codes

5.4.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.4.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.4.3 GET

This operation is used to read terminal location information. If the requester parameter is present and the requester is not authorized, PolicyException (POL0002) will be returned.

Name	Type/value	Optional	Description
requester	xsd:anyURI	Yes	It identifies the entity that is requesting the information. The application invokes this operation on behalf of this entity. However, it does not imply that the application has authenticated the requester. If this part is not present, the requesting entity is the application itself.

			If this part is present, and the requester is not authorized to retrieve location info, a policy exception will be returned.
address	xsd:anyURI[1..unbounded]	No	Address(es) of the terminal device(s) for which the location information is requested
requestedAccuracy	xsd:int	No	Accuracy of location information requested
acceptableAccuracy	xsd:int	No	Accuracy that is acceptable for a response
maximumAge	common:TimeMetric	Yes	Maximum acceptable age of the location information that is returned
responseTime	common:TimeMetric	Yes	Indicates the maximum time that the application can accept to wait for a response
tolerance	DelayTolerance	No	Indicates the priority of response time versus accuracy

Note: ParlayX SOAP equivalents are GetLocation, GetLocationForGroup

Request URL parameters are:

5.4.3.1 Example 1: (one terminal address) (Informative)

5.4.3.1.1 Request

```
GET ../{apiVersion}/location/queries/location?resFormat=XML&address=tel:16309700001&tolerance=LowDelay&requestedAccuracy=1000
&acceptableAccuracy=1000 HTTP/1.1
Host: example.com:80
```

5.4.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:terminalLocationList xmlns:tl="urn:oma:xml:rest:terminallocation:1">
 <terminalLocation>
  <address>tel:16309700001</address>
  <locationRetrievalStatus>Retrieved</locationRetrievalStatus>
  <currentLocation>
   <latitude>-80.86302</latitude>
   <longitude>41.277306</longitude>
   <altitude>1001.0</altitude>
   <accuracy>100</accuracy>
   <timestamp>2009-06-03T00:27:23.000Z</timestamp>
```

```
   </currentLocation>
  </terminalLocation>
</tl:terminalLocationList>
```

5.4.3.2 Example 2: (multiple terminal addresses) (Informative)

5.4.3.2.1 Request

```
GET ../{apiVersion}/location/queries/location?resFormat=XML&address=tel:16309700001&address=
tel:16309700002&Tolerance=LowDelay&requestedAccuracy=1000&acceptableAccuracy=1000 HTTP/1.1
Host: example.com:80
```

5.4.3.2.2 Response

```
HTTP/1.1 200 OK
X-Powered-By: Servlet/2.5
Server: Example/v3
Content-Type: application/xml
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:terminalLocationList
 xmlns:tl="urn:oma:xml:rest:terminallocation:1"
>
 <terminalLocation>
  <address>tel:16309700001</address>
  <locationRetrievalStatus>Retrieved</locationRetrievalStatus>
  <currentLocation>
   <latitude>-80.86302</latitude>
   <longitude>41.277306</longitude>
   <altitude>1001.0</altitude>
   <accuracy>100</accuracy>
   <timestamp>2009-06-03T00:27:23.000Z</timestamp>
  </currentLocation>
 </terminalLocation>
 <terminalLocation>
  <address>tel:16309700002</address>
  <locationRetrievalStatus>Error</locationRetrievalStatus>
```

```
   <errorInformation>

    <messageId>SVC0001</messageId>
    <text>A service error occurred. %1 %2</text>
    <variables>Location information is not available for</variables>
    <variables>tel:16309700002</variables>

   </errorInformation>
  </terminalLocation>
</tl:terminalLocationList>
```

5.4.3.3 Example 3: (location with unsupported accuracy) (Informative)

5.4.3.3.1 Request

```
GET ../{apiVersion}/location/queries/location?resFormat=XML&address=
tel:16309700001&tolerance=LowDelay&requestedAccuracy=10&acceptableAccuracy=100 HTTP/1.1
Host: example.com:80
```

5.4.3.3.2 Response

```
HTTP/1.1 400 Bad Request

Content-Type: application/xml
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<common:requestError xmlns:common="urn:oma:xml:rest:common:1">
<link rel="TerminalLocationList" href="http://{serverRoot}/{apiVersion}/location/queries/location"/>
  <policyException>
    <messageId>POL0230</messageId>
    <text>The requested accuracy %1 is not supported by the policy</text>
    <variables>10</variables>
  </policyException>
</common:requestError>
```

5.4.3.4 Example 4: (unauthorized requester) (Informative)

5.4.3.4.1 Request

```
GET ../{apiVersion}/location/queries/location?resFormat=XML&requester=tel:17329700003&address=
tel:16309700001&tolerance=LowDelay&requestedAccuracy=10&acceptableAccuracy=100 HTTP/1.1
Host: example.com:80
```

5.4.3.4.2 Response

```
HTTP/1.1 400 Bad Request

Content-Type: application/xml
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<common:requestError xmlns:common="urn:oma:xml:rest:common:1">
  <policyException>
    <messageId>POL0002</messageId>
    <text>Privacy error.</text>
  </policyException>
</common:requestError>
```

5.4.4 PUT

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET' field in the response as per section 14.7 of [RFC 2616].

5.4.5 POST

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET' field in the response as per section 14.7 of [RFC 2616].

5.4.6 DELETE

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET' field in the response as per section 14.7 of [RFC 2616].

5.5 Resource: Terminal distance

The resource used is:

http://{serverRoot}/{apiVersion}/location/queries/distance

This resource is used to return distance between either:

- A terminal and a geographical location.
- Two terminals

5.5.1 Request URI variables

The following request URI variables are common for all HTTP commands:

Name	Description
serverRoot	server base url: hostname+port+base path. Example: http://example.com:80/ParlayREST
apiVersion	version of the ParlayREST API client wants to use (e.g. 1 for version 1.x)

5.5.2 Response codes

5.5.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.5.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.5.3 GET

This operation is used to return the distance between either:

- A terminal and a geographical location.
- Two terminals

If the requester parameter is present and the requester is not authorized, PolicyException (POL0002) will be returned.

Note: ParlayX SOAP equivalent is GetTerminalDistance.

Request URL parameters are:

Name	Type/value	Optional	Description
requester	xsd:anyURI	Yes	It identifies the entity that is requesting the information. The application invokes this operation on behalf of this entity. However, it does not imply that the application has authenticated the requester. If this part is not present, the requesting entity is the application itself. If this part is present, and the requester is not authorized to retrieve location info, a policy exception will be returned.
address	xsd:anyURI[1..2]	No	One or two terminal addresses of terminal to check. The second “address” parameter SHALL NOT be used when the distance between a terminal and a location is requested.
latitude	xsd:float	Yes	Latitude of the location to measure from. SHALL NOT be used when the distance between two terminals is requested.
longitude	xsd:float	Yes	Longitude of the location to measure from. SHALL NOT be used when the distance between two terminals is requested.

5.5.3.1 Example 1: (distance between a terminal and a location) (Informative)

5.5.3.1.1 Request

```
GET ../{apiVersion}/location/queries/distance?resFormat=XML&address=tel:+16309700002&latitude=50&longitude=125 HTTP/1.1
Host: example.com:80
```

5.5.3.1.2 Response:

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:terminalDistance xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <distance>100</distance>
</tl:terminalDistance>
```

5.5.3.2 Example 2: (distance between two terminals) (Informative)

5.5.3.2.1 Request

```
GET ../{apiVersion}/location/queries/distance?resFormat=XML&address=tel:+16309700002& address=tel:+16309700003 HTTP/1.1
Host: example.com:80
```

5.5.3.2.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:terminalDistance xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <distance>100</distance>
</tl:terminalDistance>
```

5.5.3.3 Example 3: (invalid address) (Informative)

5.5.3.3.1 Request

```
GET ../{apiVersion}/location/queries/distance?resFormat=XML&address=tel:+016309700000&latitude=50&longitude=125 HTTP/1.1
```

```
Host: example.com:80
```

5.5.3.3.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<common:requestError xmlns:common="urn:oma:xml:rest:common:1">
   <link rel="TerminalDistance" href="http://{serverRoot}/{apiVersion}/location/queries/distance"/>
   <serviceException>
   <messageId>SVC0002</messageId>
   <text> Invalid input value for message part %1</text>
   <variables> tel:+016309700000</variables>
 </serviceException>
</common:requestError>
```

5.5.3.4 Example 4: (too many addresses) (Informative)

5.5.3.4.1 Request

```
GET ../{apiVersion}/location/queries/distance?resFormat=XML&address=tel:+016309700000&
address=tel:+16309700001&address=tel:+16309700002  HTTP/1.1
Host: example.com:80
```

5.5.3.4.2 Response

```
HTTP/1.1 400 Bad Request
Content-Type: application/xml
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<common:requestError xmlns:common="urn:oma:xml:rest:common:1">
  <link rel="TerminalDistance" href="http://{serverRoot}/{apiVersion}/location/queries/distance"/>
 <policyException>
      <messageId>POL0003</messageId>
      <text> Too many addresses specified in message part %1</text>
      <variables>addresses</variables>
  </policyException>
</common:requestError>
```

5.5.4 PUT

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET' field in the response as per section 14.7 of [RFC 2616].

5.5.5 POST

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET' field in the response as per section 14.7 of [RFC 2616].

5.5.6 DELETE

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET' field in the response as per section 14.7 of [RFC 2616].

5.6 Resource: Periodic location notification subscriptions

The resource used is:

http://{serverRoot}/{apiVersion}/location/subscriptions/periodic

This resource is used to control subscriptions for periodic location notification for a particular client.

5.6.1 Request URI variables

The following request URI variables are common for all HTTP commands:

Name	Description
serverRoot	server base url: hostname+port+base path. Example: http://example.com:80/ParlayREST
apiVersion	version of the ParlayREST API client wants to use (e.g. 1 for version 1.x)

5.6.2 Response codes

5.6.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.6.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.6.3 GET

Read all active subscriptions for periodic location notifications for the particular client.

Note: No equivalent ParlayX SOAP API.

No URL parameters.

5.6.3.1 Example (Informative)

5.6.3.1.1 Request

```
GET .../{apiVersion}/location/subscriptions/periodic?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.6.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:notificationSubscriptionList xmlns:tl="urn:oma:xml:rest:terminallocation:1">
 <periodicNotificationSubscription>
  <clientCorrelator>0001</clientCorrelator>
  <resourceURL>
   http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId1}
  </resourceURL>
  <callbackReference>
   <notifyURL>
    http://application.example.com/notifications/LocationNotification
   </notifyURL>
   <callbackData>1234</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <requestedAccuracy>10</requestedAccuracy>
  <frequency>
   <metric>Second</metric>
   <units>10</units>
  </frequency>
 </periodicNotificationSubscription>
 <periodicNotificationSubscription>
  <clientCorrelator>0002</clientCorrelator>
  <resourceURL>
   http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId2}
  </resourceURL>
  <callbackReference>
   <notifyURL>
    http://application.example.com/notifications/LocationNotification
   </notifyURL>
   <callbackData>5678</callbackData>
  </callbackReference>
  <address>tel:+14155556666</address>
  <address>tel:+14155557777</address>
  <requestedAccuracy>10</requestedAccuracy>
  <frequency>
```

```
    <metric>Second</metric>
    <units>10</units>
   </frequency>
  </periodicNotificationSubscription>
</tl:notificationSubscriptionList>
```

5.6.4 PUT

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, POST' field in the response as per section 14.7 of [RFC 2616].

5.6.5 POST

This operation is used to create a new periodic location notification subscription for the particular client.

If the requester parameter is present and the requester is not authorized, PolicyException (POL0002) will be returned.

Note: ParlayX SOAP equivalent API is StartPeriodicNotification

Note: server implementation may use clientCorrelator value, if provided by client, as {subscriptionId}. Otherwise, sequence number should be generated for {subscriptionId}. This is to make sure that client can have a stable and predictable URL for online subscriptions.

5.6.5.1 Example 1: returning a representation of created resource (Informative)

5.6.5.1.1 Request

```
POST .../{apiVersion}/location/subscriptions/periodic?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:periodicNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0001</clientCorrelator>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>1234</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <requestedAccuracy>10</requestedAccuracy>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:periodicNotificationSubscription>
```

5.6.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:periodicNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0001</clientCorrelator>
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>1234</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <requestedAccuracy>10</requestedAccuracy>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:periodicNotificationSubscription>
```

5.6.5.2 Example 2: returning the location of created resource (Informative)

5.6.5.2.1 Request

```
POST .../{apiVersion}/location/subscriptions/periodic?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:periodicNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0001</clientCorrelator>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>1234</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <requestedAccuracy>10</requestedAccuracy>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:periodicNotificationSubscription>
```

5.6.5.2.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}
Content-Length: 254
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<common:resourceReference xmlns:common="urn:oma:xml:rest:common:1">
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}</resourceURL>
</common:resourceReference>
```

5.6.6 DELETE

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, POST' field in the response as per section 14.7 of [RFC 2616].

5.7 Resource: Individual periodic location notification subscription

The resource used is:

http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}

This resource is used to control individual subscription for periodic location notifications for a particular client.

5.7.1 Request URI variables

The following request URI variables are common for all HTTP commands:

Name	Description
serverRoot	server base url: hostname+port+base path. Example: http://example.com:80/ParlayREST
apiVersion	version of the ParlayREST API client wants to use (e.g. 1 for version 1.x)
subscriptionId	identifier of the subscription

5.7.2 Response codes

5.7.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.7.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.7.3 GET

This operation is used to read an individual subscription for periodic location notifications for the particular client.

Note: No equivalent ParlayX SOAP API.

No URL parameters

5.7.3.1 Example (Informative)

5.7.3.1.1 Request

```
GET .../{apiVersion}/location/subscriptions/periodic/{subscriptionId}?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.7.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:periodicNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0001</clientCorrelator>
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>1234</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <requestedAccuracy>10</requestedAccuracy>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:periodicNotificationSubscription>
```

5.7.4 PUT

This operation is used to update an individual subscription for periodic location notifications for the particular client.

If the requester parameter is present and the requester is not authorized, PolicyException (POL0002) will be returned.

Note: an approximate equivalent in ParlayX SOAP API is StartPeriodicNotification.

5.7.4.1 Example (Informative)

5.7.4.1.1 Request

```
PUT .../{apiVersion}/location/subscriptions/periodic/{subscriptionId}?resFormat=XML HTTP/1.1
```

```
Content-Type: application/xml; charset=UTF-8
Host: example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:periodicNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0001</clientCorrelator>
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>1234</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <requestedAccuracy>5</requestedAccuracy>
  <frequency>
    <metric>Second</metric>
    <units>60</units>
  </frequency>
</tl:periodicNotificationSubscription>
```

5.7.4.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:periodicNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0001</clientCorrelator>
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>1234</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <requestedAccuracy>5</requestedAccuracy>
  <frequency>
    <metric>Second</metric>
    <units>60</units>
  </frequency>
</tl:periodicNotificationSubscription>
```

5.7.5 POST

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, PUT, DELETE' field in the response as per section 14.7 of [RFC 2616].

5.7.6 DELETE

This operation is used to delete a subscription for periodic location notifications and stop notifications for a particular client.

Note: ParlayX SOAP API equivalent is EndNotification.

No URL parameters

5.7.6.1 Example (Informative)

5.7.6.1.1 Request

```
DELETE .../{apiVersion}/location/subscriptions/periodic/{subscriptionId}?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.7.6.1.2 Response

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

5.8 Resource: Area (circle) notification subscriptions

The resource used is:

http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle

This resource is used to control subscriptions for notification about terminal movements in relation to the geographic area (circle), crossing in and out, for a particular client.

5.8.1 Request URI variables

The following request URI variables are common for all HTTP commands:

Name	Description
serverRoot	server base url: hostname+port+base path. Example: http://example.com:80/ParlayREST
apiVersion	version of the ParlayREST API client wants to use (e.g. 1 for version 1.x)

5.8.2 Response codes

5.8.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.8.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.8.3 GET

This operation is used to read all active movement notifications subscriptions for the particular client.

No URL parameters

5.8.3.1 Example (Informative)

5.8.3.1.1 Request

```
GET .../{apiVersion}/location/subscriptions/area/circle?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.8.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:notificationSubscriptionList xmlns:tl="urn:oma:xml:rest:terminallocation:1">
 <circleNotificationSubscription>
  <clientCorrelator>0003</clientCorrelator>
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId1}</resourceURL>
  <callbackReference>
   <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
   <callbackData>4444</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <latitude>100.23</latitude>
  <longitude>-200.45</longitude>
  <radius>500</radius>
  <trackingAccuracy>10</trackingAccuracy>
  <enteringLeavingCriteria>Entering</enteringLeavingCriteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
   <metric>Second</metric>
   <units>10</units>
  </frequency>
 </circleNotificationSubscription>
 <circleNotificationSubscription>
  <clientCorrelator>0004</clientCorrelator>
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId2}</resourceURL>
  <callbackReference>
   <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
   <callbackData>5555</callbackData>
```

```
  </callbackReference>
  <address>tel:+14155556666</address>
  <address>tel:+14155557777</address>
  <latitude>100.23</latitude>
  <longitude>-200.45</longitude>
  <radius>500</radius>
  <trackingAccuracy>10</trackingAccuracy>
  <enteringLeavingCriteria>Entering</enteringLeavingCriteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
   <metric>Second</metric>
   <units>10</units>
  </frequency>
 </circleNotificationSubscription>
</tl:notificationSubscriptionList>
```

5.8.4 PUT

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, POST' field in the response as per section 14.7 of [RFC 2616].

5.8.5 POST

This operation is used to create new movement notification subscription for the particular client.

Note: ParlayX SOAP API equivalent is StartGeographicalNotification.

If the requester parameter is present and the requester is not authorized, PolicyException (POL0002) will be returned.

Note: server implementation may use clientCorrelator value, if provided by client, as {subscriptionId}. Otherwise, sequence number should be generated for {subscriptionId}. This is to make sure that client can have a stable and predictable URL for online subscriptions. May be required when multiple client instances are used for performance reasons.

5.8.5.1 Example (Informative)

5.8.5.1.1 Request

```
POST .../{apiVersion}/location/subscriptions/area/circle?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:circleNotificationSubscription
 xmlns:tl="urn:oma:xml:rest:terminallocation:1">
<clientCorrelator>0003</clientCorrelator>
 <callbackReference>
  <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
  <callbackData>4444</callbackData>
 </callbackReference>
```

```
 <address>tel:+14155553323</address>
 <latitude>100.23</latitude>
 <longitude>-200.45</longitude>
 <radius>500</radius>
 <trackingAccuracy>10</trackingAccuracy>
 <enteringLeavingCriteria>Entering</enteringLeavingCriteria>
 <checkImmediate>true</checkImmediate>
 <frequency>
  <metric>Second</metric>
  <units>10</units>
 </frequency>
</tl:circleNotificationSubscription>
```

5.8.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
 Location: http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:circleNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
 <clientCorrelator>0003</clientCorrelator>
 <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}</resourceURL>
 <callbackReference>
  <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
  <callbackData>4444</callbackData>
 </callbackReference>
 <address>tel:+14155553323</address>
 <latitude>100.23</latitude>
 <longitude>-200.45</longitude>
 <radius>500</radius>
 <trackingAccuracy>10</trackingAccuracy>
 <enteringLeavingCriteria>Entering</enteringLeavingCriteria>
 <checkImmediate>true</checkImmediate>
 <frequency>
  <metric>Second</metric>
  <units>10</units>
 </frequency>
</tl:circleNotificationSubscription>
```

5.8.6 DELETE

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, POST' field in the response as per section 14.7 of [RFC 2616].

5.9 Resource: Area (circle) individual notification subscription

The resource used is:

http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}

This resource is used to control individual subscription for notifications about terminal movement in relation to the geographic area (circle), crossing in and out, for a particular client.

5.9.1 Request URI variables

The following request URI variables are common for all HTTP commands:

Name	Description
serverRoot	server base url: hostname+port+base path. Example: http://example:80/ParlayREST
apiVersion	version of the ParlayREST API client wants to use (e.g. 1 for version 1.x)
subscriptionId	identifier of the subscription

5.9.2 Response Codes

5.9.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.9.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.9.3 GET

This operation is used to read an individual subscription for movement notification for the particular client.

Note: No equivalent ParlayX SOAP API.

No URL parameters

5.9.3.1 Example (Informative)

5.9.3.1.1 Request

```
GET .../{apiVersion}/location/subscriptions/area/circle/{subscriptionId}?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.9.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

```
<?xml version="1.0" encoding="UTF-8"?>
<tl:circleNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0003</clientCorrelator>
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>4444</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <latitude>100.23</latitude>
  <longitude>-200.45</longitude>
  <radius>500</radius>
  <trackingAccuracy>10</trackingAccuracy>
  <enteringLeavingCriteria>Entering</enteringLeavingCriteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:circleNotificationSubscription>
```

5.9.4 PUT

This operation is used to update the subscription for movement notification for the particular client.

If the requester parameter is present and the requester is not authorized, PolicyException (POL0002) will be returned.

Note: an approximate equivalent in ParlayX SOAP API is StartGeographicalNotification.

5.9.4.1 Example: update radius (Informative)

5.9.4.1.1 Request

```
PUT .../{apiVersion}/location/subscriptions/area/circle/{subscriptionId}?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:circleNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0003</clientCorrelator>
  <resourceURL>http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>4444</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <latitude>100.23</latitude>
  <longitude>-200.45</longitude>
```

```
  <radius>50</radius>
  <trackingAccuracy>10</trackingAccuracy>
  <enteringLeavingCriteria>Entering</enteringLeavingCriteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:circleNotificationSubscription>
```

5.9.4.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:circleNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0003</clientCorrelator>
  <resourceURL>
http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}
</resourceURL>
<callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>4444</callbackData>
  </callbackReference>
  <address>tel:+14155553323</address>
  <latitude>100.23</latitude>
  <longitude>-200.45</longitude>
  <radius>50</radius>
  <trackingAccuracy>10</trackingAccuracy>
  <enteringLeavingCriteria>Entering</enteringLeavingCriteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:circleNotificationSubscription>
```

5.9.5 POST

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, PUT, DELETE' field in the response as per section 14.7 of [RFC 2616].

5.9.6 DELETE

This operation is used to delete subscription for movement notifications and stop notifications for the particular client.

Note: ParlayX SOAP API equivalent is EndNotification.

No URL parameters

5.9.6.1 Example (Informative)

5.9.6.1.1 Request

```
DELETE .../{apiVersion}/location/subscriptions/area/circle/{subscriptionId}?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.9.6.1.2 Response

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

5.10 Resource: Distance notification subscriptions

The resource used is:

http://{serverRoot}/{apiVersion}/location/subscriptions/distance

This resource is used to control subscriptions for notification about changes in the geographical relationships between terminals (a client has passed a border by either approaching or leaving another referenced client).

5.10.1 Request URI variables

The following request URI variables are common for all HTTP commands:

Name	Description
serverRoot	server base url: hostname+port+base path. Example: http://example.com:80/ParlayREST
apiVersion	version of the ParlayREST API client wants to use (e.g. 1 for version 1.x)

5.10.2 Response codes

5.10.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.10.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.10.3 GET

This operation is used to read all active distance notifications subscriptions for the particular client.

No URL parameters

5.10.3.1 Example (Informative)

5.10.3.1.1 Request

```
GET .../{apiVersion}/location/subscriptions/distance?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.10.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:notificationSubscriptionList
xmlns:tl="urn:oma:xml:rest:terminallocation:1">
 <distanceNotificationSubscription>
  <clientCorrelator>0006</clientCorrelator>
  <resourceURL>
http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId1}
</resourceURL>
  <callbackReference>
   <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
   <callbackData>6666</callbackData>
  </callbackReference>
  <referenceAddress>tel:+14155553323</referenceAddress>
  <monitoredAddress>tel:+14155553324</monitoredAddress>
  <monitoredAddress>tel:+14155553325</monitoredAddress>
  <distance>100</distance>
  <trackingAccuracy>10</trackingAccuracy>
  <criteria>AllWithinDistance</criteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
   <metric>Second</metric>
   <units>10</units>
  </frequency>
 </distanceNotificationSubscription>
 <distanceNotificationSubscription>
  <clientCorrelator>0007</clientCorrelator>
```

```
  <resourceURL>
http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId2}</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>7777</callbackData>
  </callbackReference>
  <monitoredAddress>tel:+14155553323</monitoredAddress>
  <monitoredAddress>tel:+14155553324</monitoredAddress>
  <monitoredAddress>tel:+14155553325</monitoredAddress>
  <distance>1000</distance>
  <trackingAccuracy>50</trackingAccuracy>
  <criteria>AnyBeyondDistance</criteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
 </distanceNotificationSubscription>
</tl:notificationSubscriptionList>
```

5.10.4 PUT

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, POST' field in the response as per section 14.7 of [RFC 2616].

5.10.5 POST

This operation is used to create new distance notification subscription for the particular client.

If the requester parameter is present and the requester is not authorized, PolicyException (POL0002) will be returned.

Note: ParlayX SOAP API equivalent is StartDistanceNotification.

Note: server implementation may use **clientCorrelator** value, if provided by client, as {subscriptionId}. Otherwise, sequence number should be generated for {subscriptionId}. This is to make sure that client can have a stable and predictable URL for online subscriptions.

5.10.5.1 Example (Informative)

5.10.5.1.1 Request

```
POST .../{apiVersion}/location/subscriptions/distance?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:distanceNotificationSubscription
xmlns:tl="urn:oma:xml:rest:terminallocation:1">
```

```
<clientCorrelator>0006</clientCorrelator>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>6666</callbackData>
  </callbackReference>
  <referenceAddress>tel:+14155553323</referenceAddress>
  <monitoredAddress>tel:+14155553324</monitoredAddress>
  <monitoredAddress>tel:+14155553325</monitoredAddress>
  <distance>100</distance>
  <trackingAccuracy>10</trackingAccuracy>
  <criteria>AllWithinDistance</criteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:distanceNotificationSubscription>
```

5.10.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{ subscriptionId}
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:distanceNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1" >
  <clientCorrelator>0006</clientCorrelator>
<resourceURL>
http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}
</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>6666</callbackData>
  </callbackReference>
  <referenceAddress>tel:+14155553323</referenceAddress>
  <monitoredAddress>tel:+14155553324</monitoredAddress>
  <monitoredAddress>tel:+14155553325</monitoredAddress>
  <distance>100</distance>
  <trackingAccuracy>10</trackingAccuracy>
  <criteria>AllWithinDistance</criteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
```

```
   <units>10</units>
  </frequency>
</tl:distanceNotificationSubscription>
```

5.10.6 DELETE

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, POST' field in the response as per section 14.7 of [RFC 2616].

5.11 Resource: Distance individual notification subscription

The resource used is:

http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}

This resource is used to control individual subscription for notifications about changes in the geographical relationships between terminals (a client has passed a border by either approaching or leaving another referenced client).

5.11.1 Request URI variables

The following request URI variables are common for all HTTP commands:

Name	Description
serverRoot	server base url: hostname+port+base path. Example: http://example:80/ParlayREST
apiVersion	version of the ParlayREST API client wants to use (e.g. 1 for version 1.x)
subscriptionId	identifier of the subscription

5.11.2 Response Codes

5.11.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.11.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.11.3 GET

This operation is used to read an individual subscription for distance notification for the particular client.

Note: No equivalent ParlayX SOAP API.

No URL parameters

5.11.3.1 Example (Informative)

5.11.3.1.1 Request

```
GET .../{apiVersion}/location/subscriptions/distance/{subscriptionId}?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.11.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:distanceNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0006</clientCorrelator>
  <resourceURL>
http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}
</resourceURL>
<callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>6666</callbackData>
  </callbackReference>
  <referenceAddress>tel:+14155553323</referenceAddress>
  <monitoredAddress>tel:+14155553324</monitoredAddress>
  <monitoredAddress>tel:+14155553325</monitoredAddress>
  <distance>100</distance>
  <trackingAccuracy>10</trackingAccuracy>
  <criteria>AllWithinDistance</criteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:distanceNotificationSubscription>
```

5.11.4 PUT

This operation is used to update the subscription for distance notification for the particular client.

If the requester parameter is present and the requester is not authorized, PolicyException (POL0002) will be returned.

Note: an approximate equivalent in ParlayX SOAP API is StartDistanceNotification.

5.11.4.1 Example: add a monitored address (Informative)

5.11.4.1.1 Request

```
PUT .../{apiVersion}/location/subscriptions/distance/{subscriptionId}?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: example.com:80

<?xml version="1.0" encoding="UTF-8"?>
```

```
<tl:distanceNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0006</clientCorrelator>
  <resourceURL>
http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}
</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>6666</callbackData>
  </callbackReference>
  <referenceAddress>tel:+14155553323</referenceAddress>
  <monitoredAddress>tel:+14155553324</monitoredAddress>
  <monitoredAddress>tel:+14155553325</monitoredAddress>
  <monitoredAddress>tel:+14155553326</monitoredAddress>
  <distance>100</distance>
  <trackingAccuracy>10</trackingAccuracy>
  <criteria>AllWithinDistance</criteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:distanceNotificationSubscription>
```

5.11.4.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Date: Thu, 04 Jun 2009 02:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<tl:distanceNotificationSubscription xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <clientCorrelator>0006</clientCorrelator>
  <resourceURL>
http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}
</resourceURL>
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/LocationNotification</notifyURL>
    <callbackData>6666</callbackData>
  </callbackReference>
  <referenceAddress>tel:+14155553323</referenceAddress>
  <monitoredAddress>tel:+14155553324</monitoredAddress>
  <monitoredAddress>tel:+14155553325</monitoredAddress>
  <monitoredAddress>tel:+14155553326</monitoredAddress>
  <distance>100</distance>
```

```
  <trackingAccuracy>10</trackingAccuracy>
  <criteria>AllWithinDistance</criteria>
  <checkImmediate>true</checkImmediate>
  <frequency>
    <metric>Second</metric>
    <units>10</units>
  </frequency>
</tl:distanceNotificationSubscription>
```

5.11.5 POST

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: GET, POST, DELETE' field in the response as per section 14.7 of [RFC 2616].

5.11.6 DELETE

This operation is used to delete subscription for distance notifications and stop notifications for the particular client.

Note: ParlayX SOAP API equivalent is EndNotification.

No URL parameters

5.11.6.1 Example (Informative)

5.11.6.1.1 Request

```
DELETE .../{apiVersion}/location/subscriptions/distance/{subscriptionId}?resFormat=XML HTTP/1.1
Host: example.com:80
```

5.11.6.1.2 Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

5.12 Resource: Client notification callback resource

This resource is a client provided callback URL for notification about location changes. ParlayREST does not make any assumption about the structure of this URL

5.12.1 Request URI variables

Client provided.

5.12.2 Response Codes

5.12.2.1 HTTP Response Codes

For HTTP response codes, see [REST_TS_Common].

5.12.2.2 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Terminal Location, see [3GPP 29.199-9].

5.12.3 GET

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: POST' field in the response as per section 14.7 of [RFC 2616].

5.12.4 PUT

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: POST' field in the response as per section 14.7 of [RFC 2616].

5.12.5 POST

This operation is used to notify client about message arrival. Note: ParlayX SOAP equivalents are LocationNotification, DistanceNotification, LocationEnd, and LocationError.

5.12.5.1 Example 1: Circle area notification (one terminal) (Informative)

5.12.5.1.1 Request

```
POST /notifications/LocationNotification?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: application.example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:subscriptionNotification xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <callbackData>4444</callbackData>
  <terminalLocation>
    <address>tel:16309700001</address>
    <locationRetrievalStatus>Retrieved</locationRetrievalStatus>
    <currentLocation>
      <latitude>-80.86302</latitude>
      <longitude>41.277306</longitude>
      <altitude>1001.0</altitude>
      <accuracy>100</accuracy>
      <timestamp>2009-06-03T00:27:23.000Z</timestamp>
    </currentLocation>
  </terminalLocation>
  <enteringLeavingCriteria>Entering</enteringLeavingCriteria>
  <isFinalNotification>false</isFinalNotification>
  <link rel="CircleNotificationSubscription"
        href="http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}"/>
</tl:subscriptionNotification>
```

5.12.5.1.2 Response

```
HTTP/1.1 204 No Content
```

```
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

5.12.5.2 Example 2: Periodic location notification (one terminal) (Informative)

5.12.5.2.1 Request

```
POST /notifications/LocationNotification?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: application.example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:subscriptionNotification xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <callbackData>1234</callbackData>
  <terminalLocation>
    <address>tel:16309703333</address>
    <locationRetrievalStatus>Retrieved</locationRetrievalStatus>
    <currentLocation>
      <latitude>-80.86302</latitude>
      <longitude>41.277306</longitude>
      <altitude>1001.0</altitude>
      <accuracy>100</accuracy>
      <timestamp>2009-06-03T00:27:23.000Z</timestamp>
    </currentLocation>
  </terminalLocation>
  <isFinalNotification>false</isFinalNotification>
  <link rel="PerodicNotificationSubscription"
        href="http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}"/>
</tl:subscriptionNotification>
```

5.12.5.2.2 Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

5.12.5.3 Example 3: Distance location notification (one terminal) (Informative)

5.12.5.3.1 Request

```
POST /notifications/LocationNotification?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: application.example.com:80

<?xml version="1.0" encoding="UTF-8"?>
```

```
<tl:subscriptionNotification xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <callbackData>6666</callbackData>
  <terminalLocation>
    <address>tel:16309703333</address>
    <locationRetrievalStatus>Retrieved</locationRetrievalStatus>
    <currentLocation>
      <latitude>-80.86302</latitude>
      <longitude>41.277306</longitude>
      <altitude>1001.0</altitude>
      <accuracy>100</accuracy>
      <timestamp>2009-06-03T00:27:23.000Z</timestamp>
    </currentLocation>
  </terminalLocation>
  <distanceCriteria>AllBeyondDistance</distanceCriteria>
  <isFinalNotification>false</isFinalNotification>
  <link rel="DistanceNotificationSubscription"
        href="http://{serverRoot}/{apiVersion}/location/subscriptions/distances/{subscriptionId}"/>
</tl:subscriptionNotification>
```

5.12.5.3.2 Response

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

5.12.5.4 Example 4: Final periodic location notification (Informative)

5.12.5.4.1 Request

```
POST /notifications/LocationNotification?resFormat=XML HTTP/1.1
Accept: application/xml
Content-Type: application/xml; charset=UTF-8
Host: application.example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:subscriptionNotification xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <callbackData>1234</callbackData>
  <terminalLocation>
    <address>tel:16309703333</address>
    <locationRetrievalStatus>Retrieved</locationRetrievalStatus>
    <currentLocation>
      <latitude>-80.86302</latitude>
      <longitude>41.277306</longitude>
      <altitude>1001.0</altitude>
      <accuracy>100</accuracy>
      <timestamp>2009-06-03T00:27:23.000Z</timestamp>
```

```
   </currentLocation>
  </terminalLocation>
  <isFinalNotification>true</isFinalNotification>
  <link rel="FinalDistanceNotificationSubscription"
        href="http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}"/>
</tl:subscriptionNotification>
```

5.12.5.4.2 Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

5.12.5.5 Example 5: Subscription cancellation notification (Informative)

5.12.5.5.1 Request

```
POST /notifications/LocationNotification?resFormat=XML HTTP/1.1
Content-Type: application/xml; charset=UTF-8
Host: application.example.com:80

<?xml version="1.0" encoding="UTF-8"?>
<tl:subscriptionCancellationNotification xmlns:tl="urn:oma:xml:rest:terminallocation:1">
  <callbackData>6666</callbackData>
  <address>tel:16309703333</address>
  <reason>
     <messageId>SVC0001</messageId>
     <text>A service error occurred. %1 %2</text>
     <variables>Location information is not available for</variables>
     <variables>tel:16309703333</variables>
  </reason>
  <link rel="DistanceNotificationSubscription"
      href="http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}"/>
</tl:subscriptionCancellationNotification>
```

5.12.5.5.2 Response

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

5.12.6 DELETE

Method not supported by the resource. The returned HTTP error status is 405. The server should also include the 'Allow: POST' field in the response as per section 14.7 of [RFC 2616].

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

A.2 Draft Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Version: OMA-TS-ParlayREST-TerminalLocation-V0_0	24 Jun 2009	1, 4	Initial Scope and Introduction sections
Draft Version OMA-TS-ParlayREST-TerminalLocation-V0_1	03 Aug 2009	1, 2, 3, 4, 5, Appendix A & Appendix B	Updated Scope and Introduction sections Initial References, Terminology and Conventions, Terminal Locations, Change History and SCR sections
Draft Version OMA-TS-ParlayREST-TerminalLocation-V0_2	10 Nov 2009	4.1, 5	Updated after LA meeting, from OMA-ARC-REST-2009-0051R01-CR_ParlayREST_TerminalLocation_API.doc
Draft Version OMA-TS-ParlayREST-TerminalLocation-V1_0	25 Nov 2009	all	Moved ServiceError, PolicyException and ServiceException to Common Formatting and clean-up
	1 Dec 2009	5.1	Replaced table, with data from OMA-ARC-REST-2009-0074R01, and OMA-ARC-REST-2009-0092R01
		all	Merged location contribution from OMA-TS-ParlayREST_TerminalLocation-V1_0-20091125-D_distance_added.doc, as described in OMA-ARC-REST-2009-0104R01 and added OMA-ARC-REST-2009-0088R02-CR_FlowDiagrams_to_TerminalLocation_TS
	2 Dec 2009	5.6.4.2 5.6.6.1 5.6.6.2 5.7.4.2 5.7.5.1 5.7.5.2	Changes from OMA-ARC-REST-2009-0109-CR_Updates_PeriodicNotification_to_TerminalLocation_TS
	3 Dec 2009	5.2	Updated selfURL to resourceURL and added Link and OMA-ARC-REST-2009-0102-CR_DataStructures_Notification_to_TerminalLocation_TS
		4	Updated from OMA-ARC-REST-2009-0113-INP_SMS_Intro_section.
		2	Updated from OMA-ARC-REST-2009-0114-INP_SMS_TS_Reference_Section
		3	Updated from OMA-ARC-REST-2009-0115R01-INP_SMS_TS_Section_3.doc
	7 Dec 2009	all	Document clean-up and added OMA-ARC-REST-2009-0118R01-CR_Outline_for_request_response_examples.doc
	11 Dec 2009	all	Update after final CC, see OMA-ARC-REST-2009-0170-MINUTES_11Dec2009_CC for details OMA-ARC-REST-2009-0149R02-CR_Issue_LOC_8_Missing_XML_Examples OMA-ARC-REST-2009-0165-CR_RequestError_Issue_LOC_4 OMA-ARC-REST-2009-0156-CR_Issue_LOC_20 OMA-ARC-REST-2009-0152-CR_TerminalLocation_Fix_unbounded_Link OMA-ARC-REST-2009-0135-CR_SCR_and_PX_Profile_vs_REST_Ops_Appx_for_TerminalLocation OMA-ARC-REST-2009-0126-CR_Link_rel_strings_TerminalLocation
	16 Dec 2009	All	Editorial fixes History table Styles as per template
	26 Feb 2010	All	CONRR editorial comments applied, solving G005, G007, G008, E0011, E0016, E0020, E0024
	02 Feb 2010	All	Update from OMA-ARC-REST-0022
	03 Feb 2010	All	Applied G001, G002, G004
	04 Feb 2010	All	Added OMA-ARC-REST-2009-177R01

Document Identifier	Date	Sections	Description
	07 Feb 2010	All	E001, E002, E003, E004, E005, E009, E011
	10 Feb 2010	All	E012, E022, E006, E014, E015, E017, E018, E019, E020, E021 E022, E023, E024, E028, E029, E030, E031, E032, E033, E034 E009, E025, E027, E013, E026
	15 Feb 2010	All	OMA-ARC-REST-2010-0055R01 E008
	18 Feb 2010	All examples	Revalidated
	28 Feb 2010	All	Editorial cleanup and added OMA-ARC-REST-2010-0098-CR_Rename_terminal_distance
	07 Mar 2010	All	OMA-ARC-REST-2010-0086 OMA-ARC-REST-2010-0095
	08 Mar 2010	All	Editorial updates: Styles from template applied 2010 copyright
	08 Mar 2010	All	Editorial updates: Typos found in pre-walk-thru References in in Appendix B Removed changes from: OMA-ARC-REST-2010-0098-CR_Rename_terminal_distance (This CR is still on R&A till March 10.)
	11 Mar 2010	All	Added OMA-ARC-REST-2010-0098-CR_Rename_terminal_distance Added new version of figure 5 and 6.
	17 Mar 2010	5 5.12.5.3.2 Appendix C TOC	Formatted all examples with 'listing' style Fixed typos 'subscription' -> 'subscription' Added section to show Response Added JSON examples Updated
	18 Mar 2010	All	Updates from walk-through
	29 Mar 2010	All	OMA-ARC-REST-2010-0151-CR_Restructuring_Terminal_Location OMA-ARC-REST-2010-0163R01-CR_Terminal_Location_Notifications_alignment Reapplied still applicable changes from 26 Mar 2010: • CR 131 OMA-ARC-REST-2010-0131-CR_SCR_correction_Terminal_Location • Removed "/n" from JSON examples • Remove line break after name space OMA-ARC-REST-2010-0137R02-CR_Correction_of_section_5.3_in_Terminal_Location_TS OMA-ARC-REST-2010-0159R01-CR_Fixing_Inaccuracy_Flow_Description_Terminal_Location OMA-ARC-REST-2010-0139-CR_Incorrect_URL_for_client_side_resources_Location OMA-ARC-REST-2010-0145-CR_Common_prefix_TerminalLocation OMA-ARC-REST-2010-0161-CR_resoucreURL_correction OMA-ARC-REST-2010-0162R01-CR_Type_of_Representation_returned_in_GetLocation_Query OMA-ARC-REST-2010-0165R01-CR_Duration_description_alignment_TL Editorial updates: Font/styles in document Circle/area and movement/location updates where needed.
	30 Mar 2010	5.6.5 C9, C10 (new)	OMA-ARC-REST-2010-0092-CR_Closing_echoing_issue_examples_Location.doc
Candidate Version: OMA-TS-ParlayREST_TerminalLocation-V1_0	27 Apr 2010	All	Status changed to Candidate by TP: OMA-TP-2010-0186-INP_ParlayREST_V1_0_ERP_for_Candidate_Approval

Document Identifier	Date	Sections	Description
Draft Versions: OMA-TS-ParlayREST_TerminalLocation-V1_0	09 Jun 2010	5.1 5.2.1, 5.2.4 5.2.12 5.4.3.2.2 5.10.3.1.2 5.12.5.2.1 App C	Implemented agreed CRs: OMA-ARC-REST-2010-0202-CR_DataStructures_column_in_TerminalLocation OMA-ARC-REST-2010-0216R01-CR_TerminalLocation_RetrievalStatus_related_change OMA-ARC-REST-2010-0247-CR_Resolving_XML_validation_error_TS_TerminalLocation OMA-ARC-REST-2010-0249-CR_Update_TeminalLocation_TS_with_ServiceError
	13 Jul 2010	5.2, 5.4, 5.5.3, 5.6, 5.7, 5.8, 5.9, 5.10, 5.11 C.2	Implemented agreed CRs: OMA-ARC-REST-2010-0307R01-CR_TerminalLocation_requester_fix OMA-ARC-REST-2010-0324-CR_XML_error_correction_in_OMA_TS_ParlayREST_TerminalLocation_V1_0_20100609_D
Candidate Version: OMA-TS-ParlayREST_TerminalLocation-V1_0	24 Aug 2010	All	Status changed to Candidate by TP: OMA-TP-2010-0359-INP_ParlyREST_V1_0_ERP_for_Candidate_reapproval

Appendix B. Static Conformance Requirements (Normative)

The notation used in this appendix is specified in [SCRRULES].

B.1 SCR for ParlayREST.TerminalLocation Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-SUPPORT-S-001-M	Support for the TERMINALLOCATION REST Enabler	5	
PARLAYREST-LOC-SUPPORT-S-002-M	Support for the XML request & response format	5	
PARLAYREST-LOC-SUPPORT-S-003-M	Support for the JSON request & response format	5	

B.1.1 SCR for ParlayREST.TerminalLocation.TerminalLocation Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-LOC-S-001-M	Support for returning current location of terminals	5.4	
PARLAYREST-LOC-LOC-S-002-M	Read terminal location information for a single address - GET	5.4.3	
PARLAYREST-LOC-LOC-S-003-M	Read terminal location information for a group of addresses - GET	5.4.3	

B.1.2 SCR for ParlayREST.TerminalLocation. TerminalDistanceFromLocation Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-LOC-DIST-S-001-O	Support for returning distance from terminal current location	5.5	PARLAYREST-LOC- LOC-DIST-S-001-O
PARLAYREST-LOC-LOC-DIST-S-001-O	the distance from current terminal location - GET	5.5.3	

B.1.3 SCR for ParlayREST.TerminalLocation. PeriodicLocationNotificationSubscriptions Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-LOC-NOTIF-SUBSCR-S-001-O	Support for controlling subscriptions for periodic location notification for a particular client.	5.6	PARLAYREST-LOC-LOC-NOTIF-SUBSCR-S-003-O
PARLAYREST-LOC-LOC-NOTIF-	Read all active subscriptions for	5.6.3	

Item	Function	Reference	Requirement
SUBSCR-S-002-O	periodic notifications for the particular client - GET		
PARLAYREST-LOC-LOC-NOTIF-SUBSCR-S-003-O	Create a new periodic notification subscription for the particular client - POST	5.6.5	

B.1.4 SCR for ParlayREST.TerminalLocation. IndividualPeriodicNotificationSubscr Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-IND-NOTIF-SUBSCR-S-001-O	Support for controlling individual subscription for periodic location notifications for a particular client.	5.7	
PARLAYREST-LOC-IND-NOTIF-SUBSCR-S-002-O	Read an individual subscription for periodic location notifications for the particular client.- GET	5.7.3	
PARLAYREST-LOC-IND-NOTIF-SUBSCR-S-003-O	Update an individual subscription for periodic location notifications for the particular client.- PUT	5.7.4	
PARLAYREST-LOC-IND-NOTIF-SUBSCR-S-004-O	Delete a subscription for periodic location notifications and stop notifications for a particular client. - DELETE	5.7.6	

B.1.5 SCR for ParlayREST.TerminalLocation. AreaCircleNotificationSubscriptions Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-AREA-CIR-NOTIF-SUBSCR-S-001-O	Support for controlling subscriptions for notification about terminal movements in relation to the geographic area (circle),crossing in and out, for a particular client.	5.8	PARLAYREST-LOC-AREA-CIR-NOTIF-SUBSCR-S-003-O
PARLAYREST-LOC-AREA-CIR-NOTIF-SUBSCR-S-002-O	Read all active movement notifications subscriptions for the particular client - GET	5.8.3	

Item	Function	Reference	Requirement
PARLAYREST-LOC-AREA-CIR-NOTIF-SUBSCR-S-003-O	Create new movement notification subscription for the particular client. - POST	5.8.5	

B.1.6 SCR for ParlayREST.TerminalLocation. AreaCircleIndividualNotificationSubscription Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-AREA-CIR-IND-NOTIF-SUBSCR-S-001-O	Support for controlling individual subscription for notifications about terminal movements in relation to the geographic area (circle), crossing in and out, for a particular client.	5.9	
PARLAYREST-LOC-AREA-CIR-IND-NOTIF-SUBSCR-S-002-O	Read an individual subscription for movement notification for the particular client. - GET	5.9.3	
PARLAYREST-LOC-AREA-CIR-IND-NOTIF-SUBSCR-S-003-O	Update the subscription for movement notification for the particular client.- PUT	5.9.4	
PARLAYREST-LOC-AREA-CIR-IND-NOTIF-SUBSCR-S-004-O	Delete subscription for movement notifications and stop notifications for the particular client.- DELETE	5.9.6	

B.1.7 SCR for ParlayREST.TerminalLocation. DistanceNotificationSubscriptions Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-DIST-NOTIF-SUBSCR-S-001-O	Support for controlling subscriptions for notification about changes in the geographical relationships between terminals.	5.10	PARLAYREST-LOC-DIST-NOTIF-SUBSCR-S-003-O
PARLAYREST-LOC-DIST-NOTIF-SUBSCR-S-002-O	Read all active distance notifications subscriptions for the particular client.- GET	5.10.3	
PARLAYREST-LOC-DIST-NOTIF-	Create new distance notification	5.10.5	

Item	Function	Reference	Requirement
SUBSCR-S-003-O	subscription for the particular client.- POST		

B.1.8 SCR for ParlayREST.TerminalLocation. DistanceIndividualNotificationSubscription Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-DIST-IND-NOTIF-SUBSCR-S-001-O	Support for controlling individual subscription for notifications about changes in the geographical relationships between terminals.	5.11	
PARLAYREST-LOC-DIST-IND-NOTIF-SUBSCR-S-002-O	Read an individual subscription for distance notification for the particular client.- GET	5.11.3	
PARLAYREST-LOC-DIST-IND-NOTIF-SUBSCR-S-003-O	Update the subscription for distance notification for the particular client - PUT	5.11.4	
PARLAYREST-LOC-DIST-IND-NOTIF-SUBSCR-S-004-O	Delete subscription for distance notifications and stop notifications for the particular client. - DELETE	5.11.6	

B.1.9 SCR for ParlayREST. TerminalLocation. ClientNotificationCallbackResource Server

Item	Function	Reference	Requirement
PARLAYREST-LOC-CLIENT-NOTIF-CALLB-S-001-O	Support for callback URL for notification about location changes	5.12	PARLAYREST-LOC-CLIENT-NOTIF-CALLB-S-002-O
PARLAYREST-LOC-CLIENT-NOTIF-CALLB-S-002-O	Notify client about message arrival - POST	5.12.5	

Appendix C. JSON examples (Informative)

JSON (JavaScript Object Notation) is a lightweight, text-based, language-independent data interchange format. It provides a simple means to represent basic name-value pairs, arrays and objects. JSON is relatively trivial to parse and evaluate using standard JavaScript libraries, and hence is suited for Parlay REST invocations from browsers or other processors with JavaScript engines. Further information on JSON can be found at [RFC 4627].

The following examples show the request or response for various operations using a JSON binding. The examples follow the XML to JSON serialization guidelines in [REST_WP]. A JSON response may be obtained by following the content negotiation guidelines section of [REST_WP].

For full details on the operations themselves please refer to the section number indicated.

C.1 Get location single address (section 5.4.3.1)

Request:

```
GET ../{apiVersion}/location/queries/location?resFormat=JSON&address=
tel:16309700001&tolerance=LowDelay&requestedAccuracy=1000&acceptableAccuracy=1000 HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"terminalLocationList": {"terminalLocation": {
   "address": "tel:16309700001",
   "currentLocation": {
      "accuracy": "100",
      "altitude": "1001.0",
      "latitude": "-80.86302",
      "longitude": "41.277306",
      "timestamp": "2009-06-03T00:27:23.000Z"
   },
   "locationRetrievalStatus": "Retrieved"
}}}
```

C.2 Get location multiple addresses (section 5.4.3.2)

Request:

```
GET ../{apiVersion}/location/queries/location?resFormat=JSON&address=tel:16309700001&address=
tel:16309700002&Tolerance=LowDelay&requestedAccuracy=1000&acceptableAccuracy=1000 HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
X-Powered-By: Servlet/2.5
Server: Example/v3
Content-Type: application/json
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"terminalLocationList": {"terminalLocation": [
   {
      "address": "tel:16309700001",
      "currentLocation": {
         "accuracy": "100",
         "altitude": "1001.0",
         "latitude": "-80.86302",
         "longitude": "41.277306",
         "timestamp": "2009-06-03T00:27:23.000Z"
      },
      "locationRetrievalStatus": "Retrieved"
   },
   {
      "address": "tel:16309700002",
      "errorInformation": {
         "messageId": "SVC0001",
         "text": "A service error occurred. %1 %2",
         "variables": [
            "Location information is not available for",
            "tel:16309700002"
         ]
      },
      "locationRetrievalStatus": "Error"
   }
]}}
```

C.3 Location with unsupported accuracy (section 5.4.3.3)

Request:

```
GET ../{apiVersion}/location/queries/location?resFormat=JSON&address=
tel:16309700001&tolerance=LowDelay&requestedAccuracy=10&acceptableAccuracy=100 HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
X-Powered-By: Servlet/2.5
```

```
Server: Example/v3
Content-Type: application/json
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"requestError": {
   "link": {
      "href": "http://{serverRoot}/{apiVersion}/location/queries/location",
      "rel": "TerminalLocationList"
   },
   "policyException": {
      "messageId": "POL0230",
      "text": "The requested accuracy %1 is not supported by the policy",
      "variables": "10"
   }
}}
```

C.4 Location with unauthorized requester (section 5.4.3.4)

Request:

```
GET ../{apiVersion}/location/queries/location?resFormat=JSON&requester=tel:17329700003&address=
tel:16309700001&tolerance=LowDelay&requestedAccuracy=10&acceptableAccuracy=100 HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
X-Powered-By: Servlet/2.5
Server: Example/v3
Content-Type: application/json
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"requestError": {
   "policyException": {
      "messageId": "POL0002",
      "text": "Privacy error."
   }
}}
```

C.5 Distance between a terminal and a location (section 5.5.3.1)

Request:

```
GET ../{apiVersion}/location/queries/distance?resFormat=JSON&address=tel:+16309700002&latitude=50&longitude=125 HTTP/1.1
```

```
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"terminalDistance": {"distance": "100"}}
```

C.6 Distance between two terminals (section 5.5.3.2)

Request:

```
GET ../{apiVersion}/location/queries/distance?resFormat=JSON&address=tel:+16309700002& address=tel:+16309700003 HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"requestError": {
   "link": {
      "href": "http://{serverRoot}/{apiVersion}/location/queries/distance",
      "rel": "TerminalDistance"
   },
   "policyException": {
      "messageId": "SVC0002",
      "text": " Invalid input value for message part %1",
      "variables": "tel:+016309700000"
   }
}}
```

C.7 Invalid address (section 5.5.3.3)

Request:

```
GET ../{apiVersion}/location/queries/distance?resFormat=JSON&address=tel:+016309700000&latitude=50&longitude=125 HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"requestError": {
   "link": {
      "href": "http://{serverRoot}/{apiVersion}/location/queries/distance",
      "rel": "TerminalDistance"
   },
   "serviceException": {
      "messageId": "SVC0002",
      "text": " Invalid input value for message part %1",
      "variables": " tel:+016309700000"
   }
}}
```

C.8 Too many addresses (section 5.5.3.4)

Request:

```
GET ../{apiVersion}/location/queries/distance?resFormat=JSON&address=tel:+016309700000&
address=tel:+16309700001&address=tel:+16309700002  HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 400 Bad Request
Content-Type: application/json
Content-Length: 1234
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"requestError": {
   "link": {
      "href": "http://{serverRoot}/{apiVersion}/location/queries/distance",
      "rel": "TerminalDistance"
   },
   "policyException": {
      "messageId": "POL0003",
      "text": " Too many addresses specified in message part %1",
      "variables": "addresses"
   }
}}
```

C.9 Get periodic notification subscriptions (section 5.6.3)

Request:

```
GET .../{apiVersion}/location/subscriptions/periodic?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"notificationSubscriptionList": {"periodicNotificationSubscription": [
   {
      "address": "tel:+14155553323",
      "callbackReference": {
         "callbackData": "1234",
         "notifyURL": "http://application.example.com/notifications/LocationNotification"
      },
      "clientCorrelator": "0001",
      "frequency": {
         "metric": "Second",
         "units": "10"
      },
      "requestedAccuracy": "10",
      "resourceURL": http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId1} "
   },
   {
      "address": [
         "tel:+14155556666",
         "tel:+14155557777"
      ],
      "callbackReference": {
         "callbackData": "5678",
         "notifyURL": " http://application.example.com/notifications/LocationNotification"
      },
      "clientCorrelator": "0002",
      "frequency": {
         "metric": "Second",
         "units": "10"
      },
      "requestedAccuracy": "10",
      "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId2}"
   }
]}}
```

C.10 Create new periodic notification subscription, returning a representation of created resource (section 5.6.5.1)

Request:

```
POST .../{apiVersion}/location/subscriptions/periodic?resFormat=JSON HTTP/1.1
Content-Type: application/JSON; charset=UTF-8
Host: example.com:80

{"periodicNotificationSubscription": {
   "address": "tel:+14155553323",
   "callbackReference": {
      "callbackData": "1234",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "clientCorrelator": "0001",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "requestedAccuracy": "10"
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"periodicNotificationSubscription": {
   "address": "tel:+14155553323",
   "callbackReference": {
      "callbackData": "1234",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "clientCorrelator": "0001",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "requestedAccuracy": "10",
   "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}"
}}
```

C.11 Create new periodic notification subscription, returning the location of created resource (section 5.6.5.2)

Request:

```
POST .../{apiVersion}/location/subscriptions/periodic?resFormat=JSON HTTP/1.1
Content-Type: application/JSON; charset=UTF-8
Host: example.com:80

{"periodicNotificationSubscription": {
   "address": "tel:+14155553323",
   "callbackReference": {
      "callbackData": "1234",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "clientCorrelator": "0001",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "requestedAccuracy": "10"
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}
Content-Length: 254
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"resourceReference": {
   "resourceURL": " http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}"
}}
```

C.12 Read individual notification subscription (section 5.7.3)

Request:

```
GET .../{apiVersion}/location/subscriptions/periodic/{subscriptionId}?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/JSON
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

{"periodicNotificationSubscription": {
"address": "tel:+14155553323",
"callbackReference": {
"callbackData": "1234",
"notifyURL": "http://application.example.com/notifications/LocationNotification"
},
"clientCorrelator": "0001",
"frequency": {
"metric": "Second",
"units": "10"
},
"requestedAccuracy": "10",
"resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}"
}}

C.13 Update individual notification subscription (section 5.7.4)

Request:

```
PUT .../{apiVersion}/location/subscriptions/periodic/{subscriptionId}?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"periodicNotificationSubscription": {
"address": "tel:+14155553323",
"callbackReference": {
"callbackData": "1234",
"notifyURL": "http://application.example.com/notifications/LocationNotification"
},
"clientCorrelator": "0001",
"frequency": {
"metric": "Second",
"units": "60"
},
"requestedAccuracy": "5",
"resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/periodic/{subscriptionId}"
}}
```

C.14 Delete a notification subscription (section 5.7.6.1)

Request:

```
DELETE .../{apiVersion}/location/subscriptions/periodic/{subscriptionId}?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

C.15 Read all active area(circle) notification subscriptions (section 5.8.3)

Request:

```
GET .../{apiVersion}/location/subscriptions/area/circle?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"notificationSubscriptionList": {"circleNotificationSubscription": [
  {
    "address": "tel:+14155553323",
    "callbackReference": {
      "callbackData": "4444",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
    },
    "checkImmediate": "true",
    "clientCorrelator": "0003",
    "enteringLeavingCriteria": "Entering",
    "frequency": {
      "metric": "Second",
      "units": "10"
    },
    "latitude": "100.23",
    "longitude": "-200.45",
    "radius": "500",
    "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId1}",
    "trackingAccuracy": "10"
  },
```

```
  {
    "address": [
      "tel:+14155556666",
      "tel:+14155557777"
    ],
    "callbackReference": {
      "callbackData": "5555",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
    },
    "checkImmediate": "true",
    "clientCorrelator": "0004",
    "enteringLeavingCriteria": "Entering",
    "frequency": {
      "metric": "Second",
      "units": "10"
    },
    "latitude": "100.23",
    "longitude": "-200.45",
    "radius": "500",
    "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId2}",
    "trackingAccuracy": "10"
  }
]}}
```


C.16 Create new notification subscription (section 5.8.5)

Request:

```
POST .../{apiVersion}/location/subscriptions/area/circle?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: example.com:80

{"circleNotificationSubscription": {
  "address": "tel:+14155553323",
  "callbackReference": {
    "callbackData": "4444",
    "notifyURL": "http://application.example.com/notifications/LocationNotification"
  },
  "checkImmediate": "true",
  "clientCorrelator": "0003",
  "enteringLeavingCriteria": "Entering",
  "frequency": {
    "metric": "Second",
```

```
      "units": "10"
   },
   "latitude": "100.23",
   "longitude": "-200.45",
   "radius": "500",
   "trackingAccuracy": "10"
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
 Location: http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"circleNotificationSubscription": {
   "address": "tel:+14155553323",
   "callbackReference": {
      "callbackData": "4444",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "checkImmediate": "true",
   "clientCorrelator": "0003",
   "enteringLeavingCriteria": "Entering",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "latitude": "100.23",
   "longitude": "-200.45",
   "radius": "500",
   "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}",
   "trackingAccuracy": "10"
}}
```

C.17 Get individual notification subscription (section 5.9.3)

Request:

```
GET .../{apiVersion}/location/subscriptions/area/circle/{subscriptionId}?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"circleNotificationSubscription": {
   "address": "tel:+14155553323",
   "callbackReference": {
      "callbackData": "4444",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "checkImmediate": "true",
   "clientCorrelator": "0003",
   "enteringLeavingCriteria": "Entering",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "latitude": "100.23",
   "longitude": "-200.45",
   "radius": "500",
   "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}",
   "trackingAccuracy": "10"
}}
```

C.18 Update subscription for notification (section 5.9.4)

Request:

```
PUT .../{apiVersion}/location/subscriptions/area/circle/{subscriptionId}?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: example.com:80

{"circleNotificationSubscription": {
   "address": "tel:+14155553323",
   "callbackReference": {
      "callbackData": "4444",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "checkImmediate": "true",
   "clientCorrelator": "0003",
   "enteringLeavingCriteria": "Entering",
   "frequency": {
      "metric": "Second",
      "units": "10"
```

```
   },
   "latitude": "100.23",
   "longitude": "-200.45",
   "radius": "50",
   "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}",
   "trackingAccuracy": "10"
}}
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"circleNotificationSubscription": {
   "address": "tel:+14155553323",
   "callbackReference": {
      "callbackData": "4444",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "checkImmediate": "true",
   "clientCorrelator": "0003",
   "enteringLeavingCriteria": "Entering",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "latitude": "100.23",
   "longitude": "-200.45",
   "radius": "50",
   "resourceURL": "\http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}",
   "trackingAccuracy": "10"
}}
```

C.19 Delete a subscription for area(circle) notification (section 5.9.6)

Request:

```
DELETE .../{apiVersion}/location/subscriptions/area/circle/{subscriptionId}?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 204 No Content
```

```
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

C.20 Read distance notification subscription (section 5.10.3)

Request:

```
GET .../{apiVersion}/location/subscriptions/distance?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"notificationSubscriptionList": {"distanceNotificationSubscription": [
  {
    "callbackReference": {
      "callbackData": "6666",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
    },
    "checkImmediate": "true",
    "clientCorrelator": "0006",
    "criteria": "AllWithinDistance",
    "distance": "100",
    "frequency": {
      "metric": "Second",
      "units": "10"
    },
    "monitoredAddress": [
      "tel:+14155553324",
      "tel:+14155553325"
    ],
    "referenceAddress": "tel:+14155553323",
    "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId1}",
    "trackingAccuracy": "10"
  },
  {
    "callbackReference": {
      "callbackData": "7777",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
    },
    "checkImmediate": "true",
    "clientCorrelator": "0007",
    "criteria": "AnyBeyondDistance",
```

```
      "distance": "1000",
      "frequency": {
         "metric": "Second",
         "units": "10"
      },
      "monitoredAddress": [
         "tel:+14155553323",
         "tel:+14155553324",
         "tel:+14155553325"
      ],
      "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId2}",
      "trackingAccuracy": "50"
   }
]}}
```


C.21 Create new distance notification (section 5.10.5)

Request:


```
POST .../{apiVersion}/location/subscriptions/distance?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: example.com:80

{"distanceNotificationSubscription": {
   "callbackReference": {
      "callbackData": "6666",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "checkImmediate": "true",
   "clientCorrelator": "0006",
   "criteria": "AllWithinDistance",
   "distance": "100",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "monitoredAddress": [
      "tel:+14155553324",
      "tel:+14155553325"
   ],
   "referenceAddress": "tel:+14155553323",
   "trackingAccuracy": "10"
}}
```


Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{ subscriptionId}
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"distanceNotificationSubscription": {
   "callbackReference": {
      "callbackData": "6666",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "checkImmediate": "true",
   "clientCorrelator": "0006",
   "criteria": "AllWithinDistance",
   "distance": "100",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "monitoredAddress": [
      "tel:+14155553324",
      "tel:+14155553325"
   ],
   "referenceAddress": "tel:+14155553323",
   "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}",
   "trackingAccuracy": "10"
}}
```

C.22 Read a subscription for distance notification (section 5.11.3)

Request:

```
GET .../{apiVersion}/location/subscriptions/distance/{subscriptionId}?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"distanceNotificationSubscription": {
   "callbackReference": {
      "callbackData": "6666",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
```

```
   "checkImmediate": "true",
   "clientCorrelator": "0006",
   "criteria": "AllWithinDistance",
   "distance": "100",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "monitoredAddress": [
      "tel:+14155553324",
      "tel:+14155553325"
   ],
   "referenceAddress": "tel:+14155553323",
   "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}",
   "trackingAccuracy": "10"
}}
```


C.23 Update a distance notification subscription (section 5.11.4.1)

Request:

```
PUT .../{apiVersion}/location/subscriptions/distance/{subscriptionId}?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: example.com:80

{"distanceNotificationSubscription": {
   "callbackReference": {
      "callbackData": "6666",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "checkImmediate": "true",
   "clientCorrelator": "0006",
   "criteria": "AllWithinDistance",
   "distance": "100",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "monitoredAddress": [
      "tel:+14155553324",
      "tel:+14155553325",
      "tel:+14155553326"
   ],
```

```
   "referenceAddress": "tel:+14155553323",
   "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}",
   "trackingAccuracy": "10"
}}
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Date: Thu, 04 Jun 2009 02:51:59 GMT

{"distanceNotificationSubscription": {
   "callbackReference": {
      "callbackData": "6666",
      "notifyURL": "http://application.example.com/notifications/LocationNotification"
   },
   "checkImmediate": "true",
   "clientCorrelator": "0006",
   "criteria": "AllWithinDistance",
   "distance": "100",
   "frequency": {
      "metric": "Second",
      "units": "10"
   },
   "monitoredAddress": [
      "tel:+14155553324",
      "tel:+14155553325",
      "tel:+14155553326"
   ],
   "referenceAddress": "tel:+14155553323",
   "resourceURL": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}",
   "trackingAccuracy": "10"
}}
```

C.24 Delete a distance notification subscription (section 5.11.6.1)

Request:

```
DELETE .../{apiVersion}/location/subscriptions/distance/{subscriptionId}?resFormat=JSON HTTP/1.1
Host: example.com:80
```

Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

C.25 Circle area notification – one terminal (section 5.12.5.1)

Request:

```
POST /notifications/LocationNotification?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: application.example.com:80

{"subscriptionNotification": {
   "callbackData": "4444",
   "enteringLeavingCriteria": "Entering",
   "isFinalNotification": "false",
   "link": {
      "href": "http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}",
      "rel": "CircleNotificationSubscription"
   },
   "terminalLocation": {
      "address": "tel:16309700001",
      "currentLocation": {
         "accuracy": "100",
         "altitude": "1001.0",
         "latitude": "-80.86302",
         "longitude": "41.277306",
         "timestamp": "2009-06-03T00:27:23.000Z"
      },
      "locationRetrievalStatus": "Retrieved"
   }
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

C.26 Periodic location notification – one terminal (section 5.12.5.2)

Request:

```
POST /notifications/LocationNotification?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: application.example.com:80

{"subscriptionNotification": {
   "callbackData": "1234",
```

```
   "isFinalNotification": "false",
   "link": {
      "href": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}",
      "rel": "PerodicNotificationSubscription"
   },
   "terminalLocation": {
      "address": "tel:16309703333",
      "currentLocation": {
         "accuracy": "100",
         "altitude": "1001.0",
         "latitude": "-80.86302",
         "longitude": "41.277306",
         "timestamp": "2009-06-03T00:27:23.000Z"
      },
      "locationRetrievalStatus": "Retrieved"
   }
}}
```


Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

C.27 Distance notification – one terminal (section 5.12.5.3)

Request:

```
POST /notifications/LocationNotification?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: application.example.com:80

{"subscriptionNotification": {
   "callbackData": "6666",
   "distanceCriteria": "AllBeyondDistance",
   "isFinalNotification": "false",
   "link": {
      "href": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}",
      "rel": "DistanceNotificationSubscription"
   },
   "terminalLocation": {
      "address": "tel:16309703333",
      "currentLocation": {
         "accuracy": "100",
         "altitude": "1001.0",
         "latitude": "-80.86302",
```

```
            "longitude": "41.277306",
            "timestamp": "2009-06-03T00:27:23.000Z"
        },
        "locationRetrievalStatus": "Retrieved"
    }
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

C.28 Final periodic location notification (section 5.12.5.4)

Request:

```
POST /notifications/LocationNotification?resFormat=JSON HTTP/1.1
Accept: application/json
Content-Type: application/json; charset=UTF-8
Host: application.example.com:80

{"subscriptionNotification": {
    "callbackData": "1234",
    "isFinalNotification": "true",
    "link": {
        "href": "http://{serverRoot}/{apiVersion}/location/subscriptions/area/circle/{subscriptionId}",
        "rel": "FinalDistanceNotificationSubscription"
    },
    "terminalLocation": {
        "address": "tel:16309703333",
        "currentLocation": {
            "accuracy": "100",
            "altitude": "1001.0",
            "latitude": "-80.86302",
            "longitude": "41.277306",
            "timestamp": "2009-06-03T00:27:23.000Z"
        },
        "locationRetrievalStatus": "Retrieved"
    }
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```

C.29 Subscription cancellation notification (section 5.12.5.5)

Request:

```
POST /notifications/LocationNotification?resFormat=JSON HTTP/1.1
Content-Type: application/json; charset=UTF-8
Host: application.example.com:80

{"subscriptionCancellationNotification": {
   "address": "tel:16309703333",
   "callbackData": "6666",
   "link": {
      "href": "http://{serverRoot}/{apiVersion}/location/subscriptions/distance/{subscriptionId}",
      "rel": "DistanceNotificationSubscription"
   },
   "reason": {
      "messageId": "SVC0001",
      "text": "A service error occurred. %1 %2",
      "variables": [
         "Location information is not available for",
         "tel:16309703333"
      ]
   }
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Thu, 04 Jun 2009 02:51:59 GMT
```