RESTful Network API for Call Notification

Candidate Version 1.0 – 27 Mar 2012

Open Mobile Alliance

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1. Scope

This specification defines a RESTful Call Notification API using an HTTP protocol binding, based on the similar API defined in [3GPP 29.199-03].

2. References

2.1 Normative References

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[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/

[ParlayREST_CallNotif] "RESTful bindings for Parlay X Web Services – Call Notification", Version 1.0, Open Mobile Alliance™, OMA-TS-ParlayREST-CallNotification-V1_0, URL: http://www.openmobilealliance.org/

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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

Client-side Notification URL	An HTTP URL exposed by a client, on which it is capable of receiving notifications and that can be used by the client when subscribing to notifications.
Long Polling	A variation of the traditional polling technique, where the server does not reply to a request unless a particular event, status or timeout has occurred. Once the server has sent a response, it closes the connection, and typically the client immediately sends a new request. This allows the emulation of an information push from a server to a client.
Notification Channel	A channel created on the request of the client and used to deliver notifications from a server to a client. The channel is represented as a resource and provides means for the server to post notifications and for the client to receive them via specified delivery mechanisms. For example in the case of Long Polling the channel resource is defined by a pair of URLs. One of the URLs is used by the client as a call-back URL when subscribing for notifications. The other URL is used by the client to retrieve notifications from the Notification Server.
Notification Server	A server that is capable of creating and maintaining Notification Channels.
Server-side Notification URL	An HTTP URL exposed by a Notification Server, that identifies a Notification Channel and that can be used by a client when subscribing to notifications.

In addition, all definitions from the OMA Dictionary apply [OMADICT].

3.3 Abbreviations

ACR	Anonymous Customer Reference
API	Application Programming Interface
HTTP	HyperText Transfer Protocol
JSON	JavaScript Object Notation
MIME	Multipurpose Internet Mail Extensions
OMA	Open Mobile Alliance
REST	REpresentational State Transfer
SCR	Static Conformance Requirements
SIP	Session Initiation Protocol
TS	Technical Specification
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
WP	White Paper
XML	eXtensible Markup Language

XSD	XML Schema Definition

4. Introduction

The Technical Specification for the RESTful Network API for Call Notification contains HTTP protocol bindings based on the Parlay X Call Notification Web Services [3GPP 29.199-03] 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, JSON, and application/x-www-form-urlencoded).

4.1 Version 1.0

The RESTful Network API for Call Notification V1.0 is a republication of the ParlayREST CallNotification API V1.0 [ParlayREST_CallNotif] as part of the suite of OMA RESTful Network APIs. Bug fixes and structural changes to fit that suite, but also functional changes have been applied.

Version 1.0 of the RESTful Network API for Call Notification keeps supporting the following operations:

- Managing subscriptions for Call Notifications, Call Direction Notifications and Media Interaction Notifications
- Notifications about Call Events, Call Direction Events and Media Interaction Events
- Managing Call Event Monitors
- Polling information about Call Events from Call Event Monitors

The following new functionality has been introduced:

- Notifications about Speech Recognition Events
- Support for scope values used with authorization framework defined in [Autho4API_10]
- Support for Anonymous Customer Reference (ACR) as an end user identifier
- Support for “acr:Authorization” as a reserved keyword in an ACR

5. Call Notification API definition

This section is organized to support a comprehensive understanding of the Call Notification 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_NetAPI_Common].

The remainder of this document is structured as follows:

Section 5 starts with a diagram representing the resources hierarchy, followed by 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). What follows are the data structures (section 5.2). A sample of typical use cases is included in section 5.3, described as high level flow diagrams.

Section 6 contains the detailed specification for each of the resources. Each subsection defines the resource, the request URL 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 to return in the Allow header.

All examples in section 6 use XML as the format for the message body. Application/x-www-form-urlencoded examples are provided in Appendix C, while JSON examples are provided in Appendix D. Appendix B provides the Static Conformance Requirements (SCR).

Appendix E lists the Parlay X equivalent method for each supported REST resource and method combination, where applicable.

Appendix F provides a list of all light-weight resources, where applicable.

Appendix G defines authorization aspects to control access to the resources defined in this specification.

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

5.1 Resources Summary

This section summarizes all the resources used by the RESTful Call Notification API.

The "apiVersion" URL variable SHALL have the value "v1" to indicate that the API corresponds to this version of the specification. See [REST_NetAPI_Common] which specifies the semantics of this variable.

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.

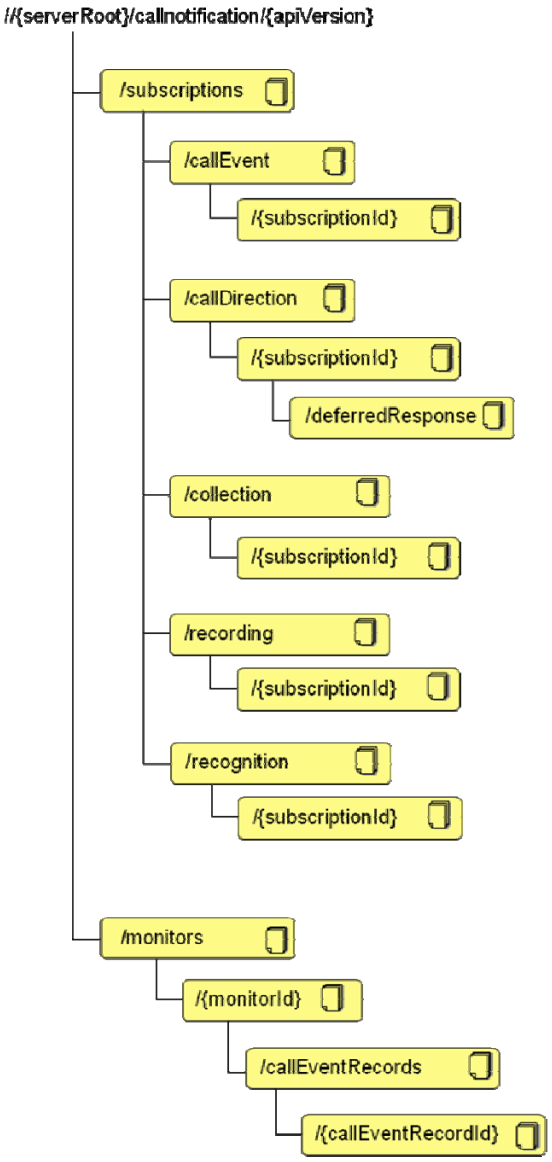

Figure 1 Resource structure defined by this specification

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

Purpose: To allow the client to retrieve all active subscriptions

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
All subscriptions related to Call Notification	/subscriptions	CallNotificationSubscriptionList	Read all active subscriptions	no	no	no

Purpose: To allow the client to manage its subscriptions for call notifications

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
All subscriptions to call event notifications	/subscriptions/callEvent	CallNotificationSubscriptionList (used for GET) CallEventSubscription (used for POST) common:ResourceReference (OPTIONAL alternative for POST response)	Read all active call notification subscriptions	no	Create new subscription for call notifications	no
Individual subscription to call event notifications	/subscriptions/callEvent/{subscriptionId}	CallEventSubscription	Read individual subscription	no	no	Cancel subscription and stop corresponding notifications

Purpose: To allow the client to manage its subscriptions for call direction related notifications

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
All subscriptions to call direction notifications	/subscriptions/callDirection	CallNotificationSubscriptionList (used for GET) CallDirectionSubscription (used for POST) common:ResourceReference (OPTIONAL alternative for POST response)	Read all active call direction subscriptions	no	Create new subscription for call direction notifications	no
Individual subscription to call direction notifications	/subscriptions/callDirection/{subscriptionId}	CallDirectionSubscription	Read individual subscription	no	no	Cancel subscription and stop corresponding notifications

Purpose: To allow the client to manage its subscriptions for media interaction related notifications

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
All subscriptions to play-and-collect media interaction notifications	/subscriptions/collection	CallNotificationSubscriptionList (used for GET) PlayAndCollectInteractionSubscription (used for POST) common:ResourceReference (OPTIONAL alternative for POST response)	Read all active play-and-collect subscriptions	no	Create new subscription for play-and-collect notifications	no

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
Individual subscription to play-and-collect media interaction notifications	/subscriptions/collection/{subscriptionId}	PlayAndCollectInteractionSubscription	Read individual subscription	no	no	Cancel subscription and stop corresponding notifications
All subscriptions to play-and-record media interaction notifications	/subscriptions/recording	CallNotificationSubscriptionList (used for GET) PlayAndRecordInteractionSubscription (used for POST) common:ResourceReference (OPTIONAL alternative for POST response)	Read all active play-and-record subscriptions	no	Create new subscription for play-and-record notifications	no
Individual subscription to play-and-record media interaction notifications	/subscriptions/recording/{subscriptionId}	PlayAndRecordInteractionSubscription	Read individual subscription	no	no	Cancel subscription and stop corresponding notifications
All subscriptions to speech recognition media interaction notifications	/subscriptions/recognition	CallNotificationSubscriptionList (used for GET) RecognitionInteractionSubscription (used for POST) common:ResourceReference (OPTIONAL alternative for POST response)	Read all active speech recognition subscriptions	no	Create new subscription for speech recognition notifications	no

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
Individual subscription to speech recognition media interaction notifications	/subscriptions/recognition/{subscriptionId}	RecognitionInteractionSubscription	Read individual subscription	no	no	Cancel subscription and stop corresponding notifications

Purpose: To allow the server to inform the client about a call event

Resource	URL <specified by the client>	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
Client notification about call events	Specified by client when subscription is created or provisioned	CallEventNotification	no	no	Notify client about a call event	no

Purpose: To allow the server to inform the client about an event related to media interactions

Resource	URL <specified by the client>	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
Client notification about media interaction events	Specified by client when subscription is created or provisioned	MediaInteractionNotification	no	no	Notify client about a media interaction event (play-and-collect or play-and-record)	no

Resource	URL <specified by the client>	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
Client notification about speech recognition media interaction events	Specified by client when subscription is created or provisioned	RecognitionInteractionNotification	no	no	Notify client about a speech recognition event	no

Purpose: To allow the server to inform the client about a call direction event

Resource	URL <specified by the client>	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
Client notification about call direction events	Specified by client when subscription is created or provisioned	CallEventNotification (used for POST request) Action (used for POST response)	no	no	Notify client about a call event and request how to handle that event	no

Purpose: To allow the client to inform the server how to handle a call that has previously been deferred

Resource	URL http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
Deferred responses to previous call direction notifications	/subscriptions/callDirection/{subscriptionId}/deferredResponse	Action	no	no	Inform the server about a decision to handle a call in a deferred way	no

Purpose: To allow the client to manage its call event monitors

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
All call event monitors	/monitors	CallEventMonitorList (used for GET) CallEventMonitor (used for POST) common:ResourceReference (OPTIONAL alternative for POST response)	Read all active call monitors	no	Create new call monitor	no
Individual call event monitor	/monitors/{monitorId}	CallEventMonitor	Read individual call event monitor	no	no	Remove individual call event monitor
List of call events per monitor	/monitors/{monitorId}/callEventRecords	CallEventRecordList	Read all recent call events recorded by a particular monitor	no	no	no

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Data Structures	HTTP verbs			
			GET	PUT	POST	DELETE
Individual call event information	/monitors/{monitorId}/callEventRecords/{callEventRecordId}	CallEventRecord	Read individual recorded call event information	no	no	Remove individual call event information

5.2 Data Types

5.2.1 XML Namespaces

The namespace for the Call Notification data types is:

urn:oma:xml:rest:netapi:callnotification: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_NetAPI_Common]. The use of the names 'xsd' and ‘common’ is not semantically significant.

The XML schema for the data structures defined in the section below is given in [REST_SUP_CallNotif].

Applications following the RESTful Network API for Call Notification V 1.0 specification SHALL use the namespace urn:oma:xml:rest:netapi:callnotification:1.

Note: Server implementations can choose to also support the legacy namespace urn:oma:xml:rest:callnotification:1 for the Call Notification data types, in order to allow backwards-compatibility with [ParlayREST_CallNotif] applications. Use of this legacy namespace is deprecated and support is foreseen to be withdrawn in future versions of this specification. In messages sent from the server to the application, the legacy namespace is suggested to be used by the server if it was used by a legacy application in the corresponding request or subscription message.

5.2.2 Structures

The subsections of this section define the data structures used in the Call Notification API.

Some of the structures can be instantiated as so-called root elements.

For structures that contain elements which describe a user identifier, the statements in section 6 regarding 'tel', 'sip' and 'acr' URI schemes apply.

5.2.2.1 Type: EventDescription

Contains the details of the event being notified to the application

Element	Type	Optional	Description
callEvent	CallEvents	No	Indicates the type of call event being notified, e.g. Busy.
description	xsd:string	Yes	Optional description to give details about the callEvents (for instance the name of the Participant in case of disconnection) or details about the CallEvent when the callEvent subscribed is service specific.

5.2.2.2 Type: Action

Specifies the action to perform in response to a Call Direction notification

Element name	Element type	Optional	Description
actionToPerform	ActionValues	No	Indicates the action as described in section 5.2.3.2.
routingAddress	xsd:anyURI	Yes	The address (e.g. 'sip' URI, 'tel' URI, 'acr' URI) to be used in case the action indicates 'Route'.
charging	common:ChargingInformation	Yes	Charge to apply to this call session.
mediaInfo	common:MediaInfo [0..unbounded]	Yes	The desired media type(s) in case the action indicates 'Route. It identifies one or more media type(s) for the call, i.e. the media type(s) to be applied to the participants in the call session. It includes the media direction: incoming, outgoing or bidirectional. Only to be used if the action indicates 'Route'. If the parameter is omitted, the media type(s) SHALL be negotiated by the underlying network.
decisionId	xsd:string	Yes	Identifier unique in the scope of a client to mark related requests and responses. This field SHALL be present in deferred call direction messages (i.e. in case actionToPerform is equal to "Deferred"), and SHALL be absent otherwise.

A root element named action of type Action is allowed in request and response bodies.

5.2.2.3 Type: CallNotificationSubscriptionList

List of all active call notification subscriptions.

Element	Type	Optional	Description
callEventSubscription	CallEventSubscription [0..unbounded]	Yes	Array of call event subscriptions.
callDirectionSubscription	CallDirectionSubscription [0..unbounded]	Yes	Array of call direction subscriptions.
playAndCollectInteractionSubscription	PlayAndCollectInteractionSubscription [0..unbounded]	Yes	Array of play-and-collect media interaction subscriptions.
playAndRecordInteractionSubscription	PlayAndRecordInteractionSubscription [0..unbounded]	Yes	Array of play-and-record media interaction subscriptions.

recognitionInteractionSubscription	RecognitionInteractionSubscription[0..unbounded]	Yes	Array of speech recognition media interaction subscriptions.
resourceURL	xsd:anyURI	No	Self referring URL.

A root element named callNotificationSubscriptionList of type CallNotificationSubscriptionList is allowed in response bodies.

5.2.2.4 Type: CallEventFilter

Contains the details of the call event being subscribed to by the application

Element	Type	Optional	Description
address	xsd:anyURI [1..unbounded]	No	Party addresses (e.g. 'sip' URI, 'tel' URI, 'acr' URI) to receive notifications on. The address type/direction is determined by the addressDirection. If the addressDirection part is not populated this is for notifications on called party addresses.
criteria	CallEvents [0..unbounded]	Yes	List of Call Event values to generate notification.
addressDirection	AddressDirection	Yes	Determine if the address considered is "Called" or "Calling". Default: “Called”. It applies for all the addresses. The address direction value “Calling” applies only to two call event types – “CalledNumber” and “Disconnected”. In case other event types are communicated in the “criteria” parameter in combination with addressDirection=”Calling”, a ServiceException (SVC0002) SHOULD be returned to the application.

5.2.2.5 Type: CallNotificationSubscription

Generic subscription to call notification or call direction events.

Element	Type	Optional	Description
callbackReference	common:CallbackReference	No	Client's Notification URL and OPTIONAL callbackData.
filter	CallEventFilter	No	Details of the call event being subscribed to.
clientCorrelator	xsd:string	Yes	A correlator that the client can use to tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from communication failures during resource creation and therefore avoids creating the same subscription twice in such situations. In case the element 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	Self referring URL. The resourceURL SHALL NOT be included in POST requests by the client, but MUST be included in POST requests representing notifications by the server to the client, when a complete representation of the resource is embedded in the notification. The resourceURL MUST also be included in responses to any HTTP method that returns an entity body, and in PUT requests.

Note that the clientCorrelator is used for purposes of error recovery as specified in [REST_NetAPI_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. The document [REST_NetAPI_Common] provides a recommendation regarding the generation of the value of this field.

5.2.2.6 Type: CallEventSubscription

Subscription to call event notifications.

A root element named callEventSubscription of type CallEventSubscription is allowed in request and response bodies.

It inherits all fields of the type CallNotificationSubscription (see section 5.2.2.5). There are no fields added in this version of the specification.

Regarding the clientCorrelator field, the note in section 5.2.2.5 applies.

5.2.2.7 Type: CallDirectionSubscription

Subscription to call direction notifications.

A root element named callDirectionSubscription of type CallDirectionSubscription is allowed in request and response bodies.

It inherits all fields of the type CallNotificationSubscription (see section 5.2.2.5). There are no fields added in this version of the specification.

Regarding the clientCorrelator field, the note in section 5.2.2.5 applies.

5.2.2.8 Type:MediaInteractionSubscription

Generic structure containing the details of the media interaction event being subscribed to by the application

Element	Type	Optional	Description
callbackReference	common:CallbackReference	No	Client's Notification URL and OPTIONAL callbackData.
callSessionIdentifier	xsd:string	Choice	Identifies the existing call session via a Parlay X call session identifier.
link	common:Link	Choice	Identifies the existing call session via a resource URL. The “rel” attribute MUST be equal to “CallSessionInformation”, and the link MUST point to a resource of that type.

clientCorrelator	xsd:string	Yes	A correlator that the client can use to tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from communication failures during resource creation and therefore avoids creating the same subscription twice in such situations. In case the element 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	Self referring URL. The resourceURL SHALL NOT be included in POST requests by the client, but MUST be included in POST requests representing notifications by the server to the client, when a complete representation of the resource is embedded in the notification. The resourceURL MUST also be included in responses to any HTTP method that returns an entity body, and in PUT requests.

Regarding the clientCorrelator field, the note in section 5.2.2.5 applies.

XSD modelling uses a “choice” to select either callSessionIdentifier or link to refer to a call session.

5.2.2.9 Type: PlayAndCollectInteractionSubscription

Contains the details of the Play-and-collect interaction event being subscribed to by the application.

A root element named playAndCollectInteractionSubscription of type PlayAndCollectInteractionSubscription is allowed in request and response bodies.

It inherits all fields of the type MediaInteractionSubscription (see section 5.2.2.8). There are no fields added in this version of the specification.

Regarding the clientCorrelator field, the note in section 5.2.2.5 applies.

5.2.2.10 Type: PlayAndRecordInteractionSubscription

Contains the details of the play-and-record interaction event being subscribed to by the application.

A root element named playAndRecordInteractionSubscription of type PlayAndRecordInteractionSubscription is allowed in request and response bodies.

It inherits all fields of the type MediaInteractionSubscription (see section 5.2.2.8). There are no fields added in this version of the specification.

Regarding the clientCorrelator field, the note in section 5.2.2.5 applies.

5.2.2.11 Type: RecognitionInteractionSubscription

Contains the details of the speech recognition interaction event being subscribed to by the application.

A root element named recognitionInteractionSubscription of type RecognitionInteractionSubscription is allowed in request and response bodies.

It inherits all fields of the type MediaInteractionSubscription (see section 5.2.2.8). There are no fields added in this version of the specification.

Regarding the clientCorrelator field, the note in section 5.2.2.5 applies.

5.2.2.12 Type: CallEventNotification

Contains the details of the call event notified by the application for purposes of Call Direction or Call Notification handling.

Element	Type	Optional	Description
callbackData	xsd:string	Yes	The 'callbackData' element if it was passed by the application in the 'callbackReference' element when creating a subscription to notifications about call events See [REST_NetAPI_Common]
notificationType	CallEventNotificationTypes	No	Indicates whether this is a call event notification or a call direction notification.
eventDescription	EventDescription	No	Call Event values to generate notification and optional description to give details about the callEvents (for instance the name of the newParticipant) or service-specific details about the CallEvent.
callingParticipant	xsd:anyURI	No	Address (e.g. 'sip' URI, 'tel' URI, 'acr' URI) of the caller.
callingParticipantName	xsd:string	Yes	Name of the caller.
calledParticipant	xsd:anyURI	No	Address (e.g. 'sip' URI, 'tel' URI, 'acr' URI) of the called participant.
callSessionIdentifier	xsd:string	Yes	Identifies the call session. If provided allows applications to avail of additional web service features and capabilities that rely upon a callSessionIdentifier.
link	common:Link [0..unbounded]	Yes	Links to other resources that are in relationship to the current resource (e.g. related subscription, related call session). In case the Server provides the "callSessionIdentifier" element, and exposes via the Third Party Call API [REST_NetAPI_3PCall] a resource representing the corresponding call session to the Client that receives the notification, it SHOULD include a link to that resource using the "link" element.
decisionId	xsd:string	Yes	Identifier to correlate this notification to a

			decision sent later by the client in a deferred response. The Server SHALL include this element if it supports deferred notifications, and SHALL omit it otherwise. Only relevant in Call Direction notifications, i.e.notificationType="CallDirection". See sections 6.12 and 6.13 for further details.

A root element named callEventNotification of type CallEventNotification is allowed in event notification request bodies.

5.2.2.13 Type: MediaInteractionNotification

Provides the result of a media interaction (play and collect or play and record).

Element	Type	Optional	Description
callbackData	xsd:string	Yes	The 'callbackData' element if it was passed by the application in the 'callbackReference' element when creating a subscription to notifications about media interaction events See [REST_NetAPI_Common].
notificationType	MediaInteractionNotificationTypes	No	Indicates whether this is a play-and-collect notification or play-and-record notification.
callParticipant	xsd:anyURI	No	The address (e.g. 'sip' URI, 'tel' URI, 'acr' URI) of the call participant who has generated the Media Interaction Event.
mediaInteractionResult	xsd:string	No	The result of the media interaction. In case of play-and-collect, this SHALL include the digits collected. In case of play-and-record, this SHALL include the location of the recorded information.
link	common:Link [0..unbounded]	Yes	Links to other resources that are in relationship to the current resource (e.g. related subscription, related call session, related call session participant). In case the Server exposes via the Third Party Call API [REST_NetAPI_3PCall] a resource representing the underlying call session to the Client that receives the notification, it SHOULD include a link to that resource using the "link" element, and SHOULD further include a link to the call participant who generated the interaction result.

A root element named mediaInteractionNotification of type MediaInteractionNotification is allowed in event notification request bodies.

5.2.2.14 Type: RecognitionInteractionNotification

Provides the result of a speech recognition media interaction.

Element	Type	Optional	Description
callbackData	xsd:string	Yes	The 'callbackData' element if it was passed by the application in the 'callbackReference' element when creating a subscription to notifications about media interaction events See [REST_NetAPI_Common].
callParticipant	xsd:anyURI	No	The address (e.g. 'sip' URI, 'tel' URI, 'acr' URI) of the call participant who has generated the Media Interaction Event.
recognitionResult	xsd:any	No	The result of the media interaction. The format of the result is out of scope of this specification. If the RecognitionInteractionNotification data structure is represented in the XML format, this element can carry XML encoded or base64 [RFC4648] encoded data. If the ASRConfig data structure is represented in the JSON format, this element MUST be base64 [RFC4648] encoded.
resultType	xsd:string	No	The MIME type of the content of the "recognitionResult" element.
resultEncoding	xsd:string	Yes	If present and set to "base64", the result is base64-encoded.
link	common:Link [0..unbounded]	Yes	Links to other resources that are in relationship to the current resource (e.g. related subscription, related call session, related call session participant). In case the Server exposes via the Third Party Call API [REST_NetAPI_3PCall] a resource representing the underlying call session to the Client that receives the notification, it SHOULD include a link to that resource using the "link" element, and SHOULD further include a link to the call participant who generated the interaction result.

A root element named recognitionInteractionNotification of type RecognitionInteractionNotification is allowed in event notification request bodies.

5.2.2.15 Type: CallEventMonitorList

List of all active call monitors.

Element	Type	Optional	Description

callEventMonitor	CallEventMonitor [0..unbounded]	Yes	Array of call event monitors.
resourceURL	xsd:anyURI	No	Self referring URL.

A root element named callEventMonitorList of type CallEventMonitorList is allowed in response bodies.

5.2.2.16 Type: CallEventMonitor

Monitor for call events.

Element	Type	Optional	Description
filter	CallEventFilter	No	Details of the call event being monitored.
callEventRecordList	CallEventRecordList	Yes	List of call event records recorded by this monitor.
clientCorrelator	xsd:string	Yes	A correlator that the client can use to tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from communication failures during resource creation and therefore avoids creating the same call event monitor twice in such situations. In case the element 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	Self referring URL. The resourceURL SHALL NOT be included in POST requests by the client, but MUST be included in POST requests representing notifications by the server to the client, when a complete representation of the resource is embedded in the notification. The resourceURL MUST also be included in responses to any HTTP method that returns an entity body, and in PUT requests.

A root element named callEventMonitor of type CallEventMonitor is allowed in request and response bodies.

Regarding the clientCorrelator field, the note in section 5.2.2.5 applies.

5.2.2.17 Type: CallEventRecordList

List of call event records.

Element	Type	Optional	Description
callEventRecord	CallEventRecord [0..unbounded]	Yes	Array of call event records.

resourceURL	xsd:anyURI	No	Self referring URL.

A root element named callEventRecordList of type CallEventRecordList is allowed in response bodies.

5.2.2.18 Type: CallEventRecord

Contains the details of a call event as recorded by a call event monitor.

Element	Type	Optional	Description
eventDescription	EventDescription	No	Call Event type and optional description to give details about the callEvents (for instance the name of the newParticipant) or service-specific details about the CallEvent.
callingParticipant	xsd:anyURI	No	Address (e.g. 'sip' URI, 'tel' URI, 'acr' URI) of the caller.
callingParticipantName	xsd:string	Yes	Name of the caller.
calledParticipant	xsd:anyURI	No	Address (e.g. 'sip' URI, 'tel' URI, 'acr' URI) of the called participant.
callSessionIdentifier	xsd:string	Yes	Identifies the call session. If provided allows applications to avail of additional web service features and capabilities that rely upon a callSessionIdentifier.
timestamp	xsd:dateTime	No	Time when the event occurred.
resourceURL	xsd:anyURI	No	Self referring URL.
link	common:Link [0..unbounded]	Yes	Links to other resources that are in relationship to the current resource (e.g. related call session). In case the Server provides the “callSessionIdentifier” element, and exposes via the Third Party Call API [REST_NetAPI_3PCall] a resource representing the corresponding call session to the Client that receives the notification, it SHOULD include a link to that resource using the “link” element.

A root element named callEventRecord of type CallEventRecord is allowed in response bodies.

5.2.3 Enumerations

The subsections of this section define the enumerations used in the Call Notification API.

5.2.3.1 Enumeration: CallEvents

CallEvents is an enumeration which lists the possible call events about which the application could be notified.

Enumeration value	Description
Busy	Called party is busy. This value is allowed for both Call Direction and Call Notification.
NotReachable	Called party is not reachable. This value is allowed for both Call Direction and Call Notification.

NoAnswer	Called party doesn't answer. This value is allowed for both Call Direction and Call Notification.
CalledNumber	A call session between two parties, a calling participant and a called participant (called number) is being attempted. This value is allowed for both Call Direction and Call Notification.
Answer	Called Participant has confirmed (answered) the call. This value is only allowed for Call Notification but not for Call Direction.
Disconnected	Called (or calling) party disconnected. This value is allowed for both Call Direction and Call Notification.

5.2.3.2 Enumeration: ActionValues

The ActionValues data type is an enumeration with the following values.

Enumeration value	Description
Route	Request to (re-)route the call to the address indicated with routingAddress.
Continue	Request to continue the call without any changes. This will result in normal handling of the event in the network.
EndCall	Request to end the call. This will result in termination of the call. The callingParty will receive a tone or announcement.
Deferred	Indicates that the action can not be determined immediately, and the decision will be communicated in a later request from the Client to the Server.

5.2.3.3 Enumeration: CallEventNotificationTypes

The CallEventSubscriptionNotificationTypes data type is an enumeration that defines the allowed values for types of subscriptions and the associated notifications for call events.

Enumeration value	Description
CallEvent	Subscription to and notification of call events.
CallDirection	Subscription to and notification of call direction requests.

5.2.3.4 Enumeration: MediaInteractionNotificationTypes

The MediaInteractionSubscriptionNotificationTypes data type is an enumeration that defines the allowed values for types of subscriptions and the associated notifications.

Enumeration value	Description
PlayAndCollect	Subscription to and notification of play and collect requests.
PlayAndRecord	Subscription to and notification of play and record requests.

5.2.3.5 Enumeration: AddressDirection

The AddressDirection data type is an enumeration that defines the allowed values for address directions in call event filters.

Enumeration value	Description
Called	The associated address indicates a called party.
Calling	The associated address indicates a calling party.

5.2.4 Values of the Link "rel" attribute

The "rel" attribute of the Link element (see [REST_NetAPI_Common]) 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, indicating resources that are defined in this specification which the "link" element can point to (list is non-exhaustive, and can be extended):

- Action
- CallNotificationSubscriptionList
- CallEventSubscription
- CallDirectionSubscription
- PlayAndCollectInteractionSubscription
- PlayAndRecordInteractionSubscription
- CallEventMonitorList
- CallEventMonitor
- CallEventRecordList
- CallEventRecord
- RecognitionInteractionSubscription
- RecognitionInteractionNotification

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

5.3 Sequence Diagrams

The following subsections describe the resources, methods and steps involved in typical scenarios.

The notification URL passed by the client during the subscription step can be a Client-side Notification URL, or a Server-side Notification URL. Refer to [REST_NetAPI_NotificationChannel] for sequence flows illustrating the creation of a Notification Channel and obtaining a Server-side Notification URL on the server-side, and its use by the client via Long Polling.

In a sequence diagram, a step which involves delivering a notification is labeled with "POST or NOTIFY", where "POST" refers to delivery via the HTTP POST method, and "NOTIFY" refers to delivery using the Notification Channel [REST_NetAPI_NotificationChannel].

5.3.1 Subscription to call event notifications

This figure below shows a scenario for an application subscribing to call event notifications.

The resources:

- In order to subscribe to call event notifications, create a new resource under **http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callEvent**
- In order to cancel a previously-created subscription to call event notifications, delete the resource created in the subscription **http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callEvent/{subscriptionId}**

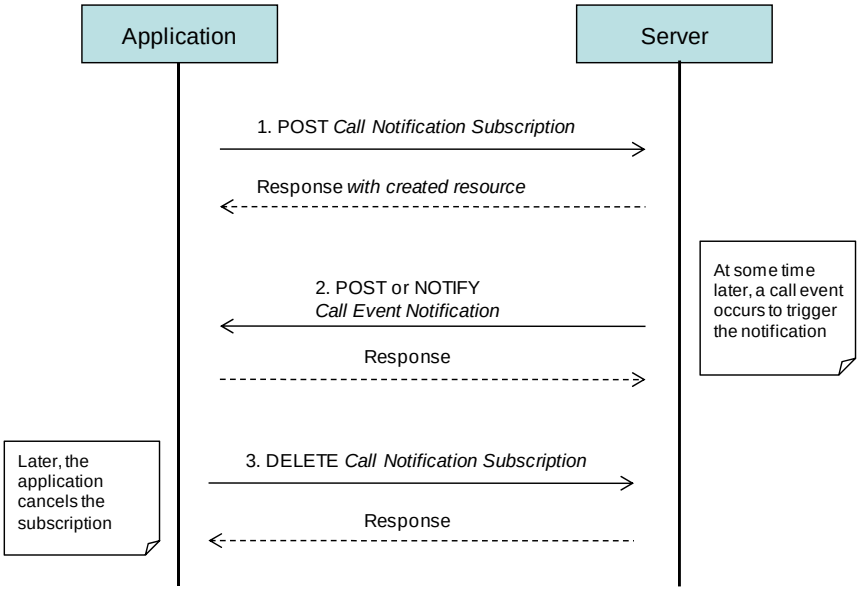

Figure 2 Subscribing to Call Event Notifications

Outline of the flows:

1. An application subscribes to notifications for call events using POST and receives the result resource URL containing the subscriptionId.
2. When the event which satisfies the specified criteria occurs, the Server notifies the Application by using POST to the specified endpoint.
3. The application stops the notification using DELETE with a resource URL containing the subscriptionId.

5.3.2 Subscription to call direction notifications

This figure below shows a scenario for an application subscribing to call direction notifications.

The resources:

- In order to subscribe to call direction notifications, create a new resource under **http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callDirection**
- In order to cancel a previously-created subscription to call direction notifications, delete the resource created in the subscription **http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callDirection/{subscriptionId}**

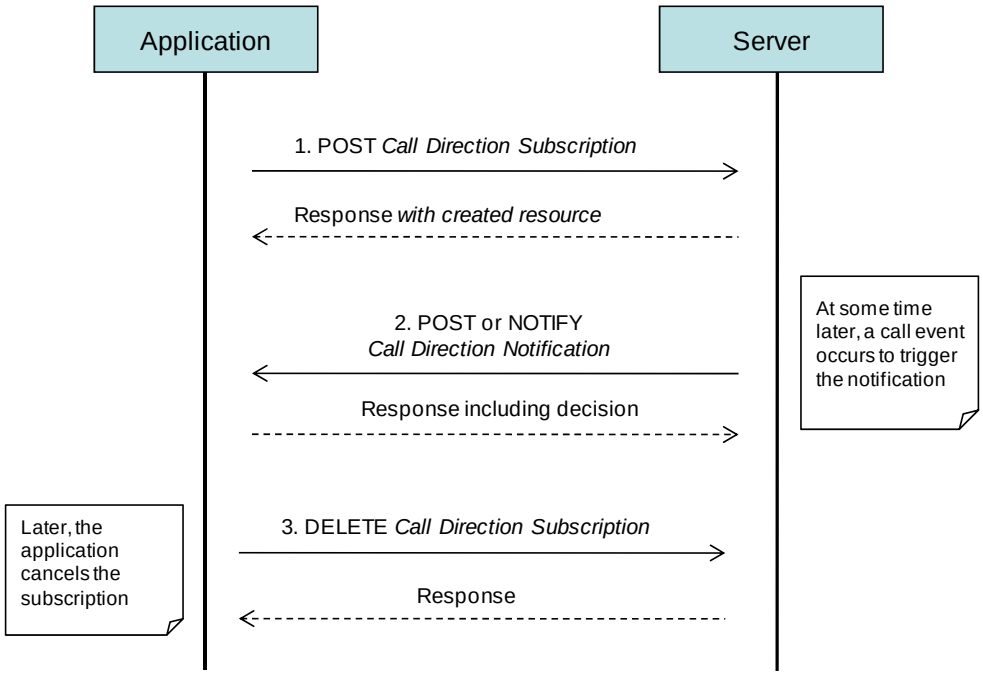

Figure 3 Subscribing to Call Direction Notifications

Outline of the flows:

1. An application subscribes to call direction notifications using POST and receives the result resource URL containing the subscriptionId.
2. When the event which satisfies the specified criteria occurs, the Server notifies the Application by using POST to the specified endpoint. The Application needs to respond with a decision which action to be performed.
3. The application stops the notification using DELETE with a resource URL containing the subscriptionId.

5.3.3 Subscription to media interaction notifications

This figure below shows a scenario for an application subscribing to media interaction notifications with the user, e.g. when an announcement is played before entering a call and the user is asked to press a digit to continue.

Note that playing of the announcement and collection of the digits is handled by the Audio Call service [REST_NetAPI_AudioCall].

The resources:

- In order to subscribe to media interaction notifications, create a new resource under **http://{serverRoot}/callnotification/{apiVersion}/subscriptions/collection**
- In order to cancel a previously-created subscription to media interaction notifications, delete the resource created in the subscription **http://{serverRoot}/callnotification/{apiVersion}/subscriptions/collection/{subscriptionId}**

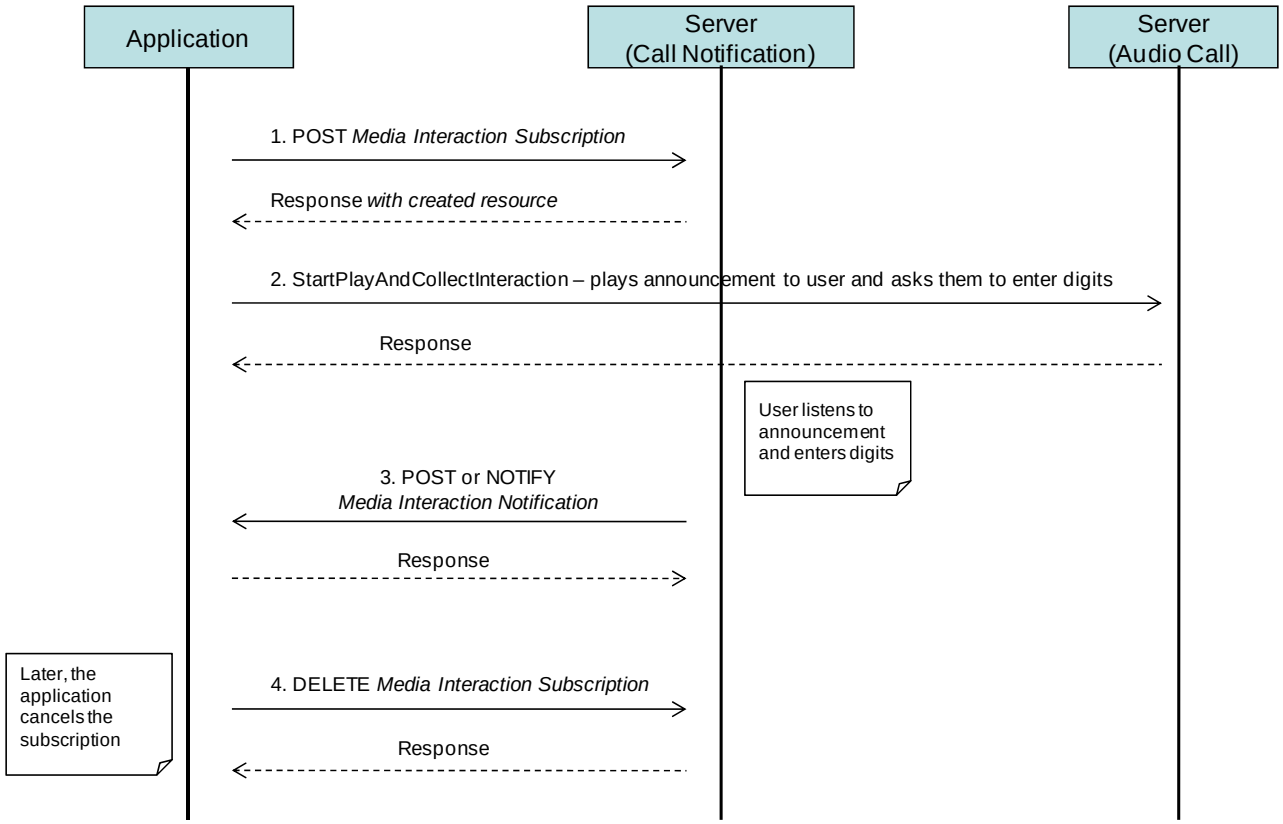

Figure 4 Subscribing to Media Interaction Notifications

Outline of the flows:

1. An application subscribes to media interaction notifications using POST and receives the result resource URL containing the subscriptionId.
2. The application then initiates the collection of digits by interacting with the Audio Call Server using means defined in [REST_NetAPI_AudioCall].
3. When an event occurs which satisfies the specified criteria occurs, the Call Notification Server notifies the Application by using POST to the specified endpoint.
4. The application stops the notification using DELETE with a resource URL containing the subscriptionId.

6. Detailed specification of the resources

The following applies to all resources defined in this specification regardless of the representation format (i.e. XML, JSON,application/x-www-form-urlencoded):

- Reserved characters in URL variables (parts of a URL denoted below by a name in curly brackets) MUST be percent-encoded according to [RFC3986]. Note that this always applies, no matter whether the URL is used as a Request URL or inside the representation of a resource (such as in “resourceURL” and “link” elements).

- If a user identifier (e.g. address, userId, etc) of type anyURI is in the form of an MSISDN, it MUST be defined as a global number according to [RFC3966] (e.g. tel:+19585550100). The use of characters other than digits and the leading “+” sign SHOULD be avoided in order to ensure uniqueness of the resource URL. This applies regardless of whether the user identifier appears in a URL variable or in a parameter in the body of an HTTP message.

- If a user identifier (e.g. address, userId, etc) of type anyURI is in the form of a SIP URI, it MUST be defined according to [RFC3261].

- If a user identifier (e.g. address, userId, etc) of type anyURI is in the form of an Anonymous Customer Reference (ACR), it MUST be defined according to [IETF_ACR_draft], i.e. it MUST include the protocol prefix 'acr:' followed by the ACR.

    - The ACR ‘Authorization’ is a supported reserved keyword, and MUST NOT be assigned as an ACR to any particular end user. See G.1.2 for details regarding the use of this reserved keyword.

- For requests and responses that have a body, the following applies: in the requests received, the server SHALL support JSON and XML encoding of the parameters in the body, and MAY support application/x-www-form-urlencoded parameters in the body. The Server SHALL return either JSON or XML encoded parameters in the response body, according to the result of the content type negotiation as specified in [REST_NetAPI_Common]. In notifications to the Client, the server SHALL use either XML or JSON encoding, depending on which format the client has specified in the related subscription. The generation and handling of the JSON representations SHALL follow the rules for JSON encoding in HTTP Requests/Responses as specified in [REST_ NetAPI_Common].

6.1 Resource: All subscriptions related to Call Notification

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions

This resource is used as a container for all subscriptions to notifications about call events.

6.1.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use.The value of this variable is defined in section 5.1.

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.1.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.1.3 GET

This operation is used to read all subscriptions to notifications about call events.

6.1.3.1 Example: Retrieving all subscriptions (Informative)

6.1.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions HTTP/1.1
Accept: application/xml
Host: example.com
```

6.1.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callNotificationSubscriptionList xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callEventSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
    </callbackReference>
    <filter>
      <address>tel:+19585550101</address>
      <address>tel:+19585550102</address>
      <criteria>Answer</criteria>
      <criteria>Busy</criteria>
      <addressDirection>Called</addressDirection>
    </filter>
    <clientCorrelator>112345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001</resourceURL>
  </callEventSubscription>
  <callEventSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
    </callbackReference>
    <filter>
      <address>tel:+19585550103</address>
      <address>tel:+19585550104</address>
      <criteria>Busy</criteria>
      <addressDirection>Called</addressDirection>
    </filter>
    <clientCorrelator>012345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub002</resourceURL>
  </callEventSubscription>
  <callDirectionSubscription>
```

```
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
    </callbackReference>
    <filter>
      <address>tel:+19585550101</address>
      <address>tel:+19585550102</address>
      <criteria>Busy</criteria>
      <addressDirection>Called</addressDirection>
    </filter>
    <clientCorrelator>212345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001</resourceURL>
  </callDirectionSubscription>
  <playAndCollectInteractionSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
    </callbackReference>
    <callSessionIdentifier>A1234</callSessionIdentifier>
    <clientCorrelator>312345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001</resourceURL>
  </playAndCollectInteractionSubscription>
  <playAndCollectInteractionSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
    </callbackReference>
    <callSessionIdentifier>A5678</callSessionIdentifier>
    <clientCorrelator>412345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001</resourceURL>
  </playAndCollectInteractionSubscription>
  <recognitionInteractionSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
    </callbackReference>
    <callSessionIdentifier>A91011</callSessionIdentifier>
    <clientCorrelator>512345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001</resourceURL>
  </recognitionInteractionSubscription>   <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions</resourceURL>
</cn:callNotificationSubscriptionList>
```

6.1.4 PUT

Method not allowed 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 [RFC2616].

6.1.5 POST

Method not allowed 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 [RFC2616].

6.1.6 DELETE

Method not allowed 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 [RFC2616].

6.2 Resource: All subscriptions to call event notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callEvent

This resource is used as a container for all subscriptions to call event notifications.

This resource can be used in conjunction with a Client-side Notification URL, or in conjunction with a Server-side Notification URL. In this latter case, the application MUST first create a Notification Channel (see [REST_NetAPI_NotificationChannel]) before creating a subscription.

6.2.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.2.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.2.3 GET

This operation is used to read all subscriptions to call event notifications.

6.2.3.1 Example: Retrieving all subscriptions to call event notifications (Informative)

6.2.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/callEvent HTTP/1.1
Accept: application/xml
Host: example.com
```

6.2.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callNotificationSubscriptionList xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callEventSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
```

```
    </callbackReference>
    <filter>
      <address>tel:+19585550101</address>
      <address>tel:+19585550102</address>
      <criteria>Answer</criteria>
      <criteria>Busy</criteria>
      <addressDirection>Called</addressDirection>
    </filter>
    <clientCorrelator>112345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001</resourceURL>
  </callEventSubscription>
  <callEventSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
    </callbackReference>
    <filter>
      <address>tel:+19585550103</address>
      <address>tel:+19585550104</address>
      <criteria>Busy</criteria>
      <addressDirection>Called</addressDirection>
    </filter>
    <clientCorrelator>012345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub002</resourceURL>
  </callEventSubscription>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions</resourceURL>
</cn:callNotificationSubscriptionList>
```

6.2.4 PUT

Method not allowed 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 [RFC2616].

6.2.5 POST

This operation is used for creating a new subscription to call event notifications.

The notifyURL in the callbackReference either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

6.2.5.1 Example 1: Creating a new subscription to call event notifications, response with copy of created resource (Informative)

6.2.5.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callEvent HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com

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

```
<cn:callEventSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
  </callbackReference>
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>112345</clientCorrelator>
</cn:callEventSubscription>
```

6.2.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
  </callbackReference>
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>112345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001</resourceURL>
</cn:callEventSubscription>
```

6.2.5.2 Example 2: Creating a new subscription to call event notifications, response with location of created resource (Informative)

6.2.5.2.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callEvent HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
```

```
  </callbackReference>
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>112345</clientCorrelator>
</cn:callEventSubscription>
```

6.2.5.2.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<common:resourceReference xmlns:common="urn:oma:xml:rest:netapi:common:1">
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001</resourceURL>
</common:resourceReference>
```

6.2.6 DELETE

Method not allowed 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 [RFC2616].

6.3 Resource: Individual subscription to call event notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callEvent/{subscriptionId}

This resource represents an individual subscription to call event notifications.

6.3.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
subscriptionId	identifier of the subscription

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.3.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.3.3 GET

This operation is used for reading an individual subscription to call event notifications.

6.3.3.1 Example: Retrieving an individual subscription to call event notifications (Informative)

This example shows also an alternative way to indicate desired content type in response from the server, by using URL query parameter "?resFormat" which is described in [REST_NetAPI_Common].

6.3.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/callEvent/sub001?resFormat=XML HTTP/1.1

Host: example.com
```

6.3.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
  </callbackReference>
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>112345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001</resourceURL>
</cn:callEventSubscription>
```

6.3.4 PUT

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.3.5 POST

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.3.6 DELETE

This operation is used to cancel a subscription to call event notifications and to stop corresponding notification messages.

6.3.6.1 Example: Removing a subscription to call event notifications(Informative)

6.3.6.1.1 Request

```
DELETE /exampleAPI/callnotification/v1/subscriptions/callEvent/sub001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.3.6.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

6.4 Resource: All subscriptions to call direction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callDirection

This resource is used as a container for all subscriptions to call direction notifications.

This resource can be used in conjunction with a Client-side Notification URL, or in conjunction with a Server-side Notification URL. In this latter case, the application MUST first create a Notification Channel (see [REST_NetAPI_NotificationChannel]) before creating a subscription.

6.4.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.4.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.4.3 GET

This operation is used to read all subscriptions to call direction notifications.

6.4.3.1 Example: Retrieving all subscriptions to call direction notifications (Informative)

6.4.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/callDirection HTTP/1.1
Accept: application/xml
Host: example.com
```

6.4.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callNotificationSubscriptionList xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callDirectionSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
    </callbackReference>
    <filter>
      <address>tel:+19585550101</address>
      <address>tel:+19585550102</address>
      <criteria>Busy</criteria>
      <addressDirection>Called</addressDirection>
    </filter>
    <clientCorrelator>212345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001</resourceURL>
  </callDirectionSubscription>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection</resourceURL>
</cn:callNotificationSubscriptionList>
```

6.4.4 PUT

Method not allowed 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 [RFC2616].

6.4.5 POST

This operation is used for creating a new subscription to call direction notifications.

The notifyURL in the callbackReference either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

6.4.5.1 Example 1: Creating a new subscription to call direction notifications using tel URI (Informative)

6.4.5.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:callDirectionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
  </callbackReference>
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>212345</clientCorrelator>
</cn:callDirectionSubscription>
```

6.4.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callDirectionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
  </callbackReference>
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>212345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001</resourceURL>
</cn:callDirectionSubscription>
```

Note that alternatively, a ‘resourceReference’ root element can be returned, as illustrated in section 6.2.5.2.2.

6.4.5.2 Example 2: Creating a new subscription to call direction notifications using ACR (Informative)

6.4.5.2.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:callDirectionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
  </callbackReference>
  <filter>
    <address>acr:pseudonym123</address>
    <address>acr:pseudonym456</address>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>212345</clientCorrelator>
</cn:callDirectionSubscription>
```

6.4.5.2.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callDirectionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
  </callbackReference>
  <filter>
    <address>acr:pseudonym123</address>
    <address>acr:pseudonym456</address>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>212345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001</resourceURL>
</cn:callDirectionSubscription>
```

Note that alternatively, a ‘resourceReference’ root element can be returned, as illustrated in section 6.2.5.2.2.

6.4.6 DELETE

Method not allowed 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 [RFC2616].

6.5 Resource: Individual subscription to call direction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callDirection/{subscriptionId}

This resource represents an individual subscription to call direction notifications.

6.5.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
subscriptionId	identifier of the subscription

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.5.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.5.3 GET

This operation is used for reading an individual subscription to call direction notifications.

6.5.3.1 Example: Retrieving an individual subscription to call direction notifications (Informative)

6.5.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.5.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callDirectionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
  </callbackReference>
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>212345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001</resourceURL>
</cn:callDirectionSubscription>
```

6.5.4 PUT

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.5.5 POST

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.5.6 DELETE

This operation is used to cancel a subscription to CallDirection events and to stop corresponding notification messages.

6.5.6.1 Example: Removing a subscription to call direction notifications (Informative)

6.5.6.1.1 Request

```
DELETE /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.5.6.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

6.6 Resource: All subscriptions to play-and-collect media interaction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/collection

This resource is used as a container for all subscriptions to play-and-collect interaction notifications.

This resource can be used in conjunction with a Client-side Notification URL, or in conjunction with a Server-side Notification URL. In this latter case, the application MUST first create a Notification Channel (see [REST_NetAPI_NotificationChannel]) before creating a subscription.

6.6.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.6.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.6.3 GET

This operation is used to read all subscriptions to play-and-collect Media Interaction notifications.

6.6.3.1 Example: Retrieving all subscriptions to play-and-collect media interaction notifications (Informative)

6.6.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/collection HTTP/1.1
Accept: application/xml
Host: example.com
```

6.6.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

```
<?xml version="1.0" encoding="UTF-8"?>
<cn:callNotificationSubscriptionList xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <playAndCollectInteractionSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
    </callbackReference>
    <callSessionIdentifier>A1234</callSessionIdentifier>
    <clientCorrelator>312345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001</resourceURL>
  </playAndCollectInteractionSubscription>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/collection</resourceURL>
</cn:callNotificationSubscriptionList>
```

6.6.4 PUT

Method not allowed 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 [RFC2616].

6.6.5 POST

This operation is used for creating a new subscription to play-and-collect media interaction notifications.

The notifyURL in the callbackReference either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

6.6.5.1 Example: Creating a new subscription to play-and-collect media interaction notifications (Informative)

6.6.5.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/collection HTTP/1.1
Content-Length: nnnn
Content-Type: application/xml
Accept: application/xml
Host: example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:playAndCollectInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A1234</callSessionIdentifier>
  <clientCorrelator>312345</clientCorrelator>
</cn:playAndCollectInteractionSubscription>
```

6.6.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
```

```
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:playAndCollectInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A1234</callSessionIdentifier>
  <clientCorrelator>312345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001</resourceURL>
</cn:playAndCollectInteractionSubscription>
```

Note that alternatively, a ‘resourceReference’ root element can be returned, as illustrated in section 6.2.5.2.2.

Note further, that instead of the ’callSessionIdentifier’ element, a ’link’ element can be provided that points to the representation of the call session.

6.6.6 DELETE

Method not allowed 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 [RFC2616].

6.7 Resource: Individual subscription to play-and-collect media interaction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/collection/{subscriptionId}

This resource represents an individual subscription to play-and-collect media interaction notifications.

6.7.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
subscriptionId	identifier of the subscription

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.7.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.7.3 GET

This operation is used for reading an individual subscription to play-and-collect media interaction notifications.

6.7.3.1 Example: Retrieving an individual subscription to play-and-collect media interaction notifications (Informative)

6.7.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/collection/sub001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.7.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:playAndCollectInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A1234</callSessionIdentifier>
  <clientCorrelator>312345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001</resourceURL>
</cn:playAndCollectInteractionSubscription>
```

6.7.4 PUT

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the ‘Allow: GET, DELETE’ field in the response as per section 14.7 of [RFC2616].

6.7.5 POST

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the ‘Allow: GET, DELETE’ field in the response as per section 14.7 of [RFC2616].

6.7.6 DELETE

This operation is used to cancel a subscription to play-and-collect media interaction notifications and to stop corresponding notification messages.

6.7.6.1 Example: Removing a subscription to play-and-collect media interaction notifications (Informative)

6.7.6.1.1 Request

```
DELETE /exampleAPI/callnotification/v1/subscriptions/collection/sub001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.7.6.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

6.8 Resource: All Subscriptions to play-and-record media interaction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/recording

This resource is used as a container for all subscriptions to play-and-record media interaction notifications.

This resource can be used in conjunction with a Client-side Notification URL, or in conjunction with a Server-side Notification URL. In this latter case, the application MUST first create a Notification Channel (see [REST_NetAPI_NotificationChannel]) before creating a subscription.

6.8.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.8.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.8.3 GET

This operation is used to read all subscriptions to play-and-record media interaction notifications.

6.8.3.1 Example: Retrieving all subscriptions to play-and-record interaction notifications (Informative)

6.8.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/recording HTTP/1.1
Accept: application/xml
Host: example.com
```

6.8.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callNotificationSubscriptionList xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <playAndRecordInteractionSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
    </callbackReference>
    <callSessionIdentifier>A5678</callSessionIdentifier>
    <clientCorrelator>412345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001</resourceURL>
  </playAndRecordInteractionSubscription>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recording</resourceURL>
</cn:callNotificationSubscriptionList>
```

6.8.4 PUT

Method not allowed 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 [RFC2616].

6.8.5 POST

This operation is used for creating a new subscription to play-and-record media interaction notifications.

The notifyURL in the callbackReference either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

6.8.5.1 Example: Creating a new subscription to play-and-record media interaction notifications (Informative)

6.8.5.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/recording HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com
```

```
<?xml version="1.0" encoding="UTF-8"?>
<cn:playAndRecordInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A5678</callSessionIdentifier>
  <clientCorrelator>412345</clientCorrelator>
</cn:playAndRecordInteractionSubscription>
```

6.8.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:playAndRecordInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A5678</callSessionIdentifier>
  <clientCorrelator>412345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001</resourceURL>
</cn:playAndRecordInteractionSubscription>
```

Note that alternatively, a ‘resourceReference’ root element could be returned, as illustrated in section 6.2.5.2.2.

6.8.6 DELETE

Method not allowed 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 [RFC2616].

6.9 Resource: Individual subscription to play-and-record media interaction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/recording/{subscriptionId}

This resource represents an individual subscription to play-and-record media interaction notifications.

6.9.1 Request URL variables

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

Name	Description

serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
subscriptionId	identifier of the subscription

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.9.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.9.3 GET

This operation is used for reading an individual subscription to play-and-record media interaction notifications.

6.9.3.1 Example: Retrieving an individual subscription to play-and-record media interaction notification (Informative)

6.9.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/recording/sub001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.9.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:playAndRecordInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A5678</callSessionIdentifier>
  <clientCorrelator>412345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001</resourceURL>
</cn:playAndRecordInteractionSubscription>
```

6.9.4 PUT

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the ‘Allow: GET, DELETE’ field in the response as per section 14.7 of [RFC2616].

6.9.5 POST

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.9.6 DELETE

This operation is used to cancel a subscription to play-and-record media interaction notifications and to stop corresponding notification messages.

6.9.6.1 Example: Removing a subscription to play-and-record media interaction notifications (Informative)

6.9.6.1.1 Request

```
DELETE /exampleAPI/callnotification/v1/subscriptions/recording/sub001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.9.6.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

6.10 Resource: Client notification about call events

This resource is a callback URL provided by the client for notification about call events. The RESTful CallNotification API does not make any assumption about the structure of this URL. If this URL is a Client-side Notification URL, the server will POST notifications directly to it. If this URL is a Server-side Notification URL, the server uses it to determine the address of the Notification Server to which the notifications will subsequently be POSTed. The way the server determines the address of the Notification Server is out of scope of this specification.

Note: In the case when the client has set up a Notification Channel in order to use Long Polling to obtain the notifications, in order to retrieve the notifications, the client needs to use the Long Polling mechanism described in [REST_NetAPI_NotificationChannel], instead of the mechanism described below in section 6.10.5.

6.10.1 Request URL variables

Client-provided if any.

6.10.2 Response Codes

For HTTP response codes, see [REST_NetAPI_Common].

6.10.3 GET

Method not allowed 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 [RFC2616].

6.10.4 PUT

Method not allowed 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 [RFC2616].

6.10.5 POST

This operation is used to notify a Client about a call event. No decision or response is expected from the client.

6.10.5.1 Example: Notifying a client about a call event (Informative)

6.10.5.1.1 Request

```
POST /notifications/CallNotificationURL HTTP/1.1
Accept: application/xml
Content-Type: application/xml
Content-Length: nnnn
Host: application.example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventNotification xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <notificationType>CallEvent</notificationType>
  <eventDescription>
    <callEvent>Busy</callEvent>
    <description>optional service-specific information</description>
  </eventDescription>
  <callingParticipant>tel:+19585550102</callingParticipant>
  <callingParticipantName>Peter E. Xample</callingParticipantName>
  <calledParticipant>tel:+19585550101</calledParticipant>
  <callSessionIdentifier>B12345</callSessionIdentifier>
  <link rel="CallEventSubscription" href="http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001"/>
  <link rel="CallSessionInformation" href="http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001"/>
</cn:callEventNotification>
```

Note that this example does contain a link to an underlying call session because it is assumed that a REST-layer representation of that session is available for the Client that receives the notification, for instance because that Client is the one that has created the session.

6.10.5.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:21:59 GMT
```

6.10.6 DELETE

Method not allowed 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 [RFC2616].

6.11 Resource: Client notification about media interaction events

This resource is a callback URL provided by the client for notification about media interaction events that communicate to the client the information input by the user in a play-and-collect or play-and-record operation. The RESTful CallNotification API does not make any assumption about the structure of this URL. If this URL is a Client-side Notification URL, the server

will POST notifications directly to it. If this URL is a Server-side Notification URL, the server uses it to determine the address of the Notification Server to which the notifications will subsequently be POSTed. The way the server determines the address of the Notification Server is out of scope of this specification.

Note: In the case when the client has set up a Notification Channel in order to use Long Polling to obtain the notifications, in order to retrieve the notifications, the client needs to use the Long Polling mechanism described in [REST_NetAPI_NotificationChannel], instead of the mechanism described below in section 6.11.5.

6.11.1 Request URL variables

Client-provided if any.

6.11.2 Response Codes

For HTTP response codes, see [REST_NetAPI_Common].

6.11.3 GET

Method not allowed 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 [RFC2616].

6.11.4 PUT

Method not allowed 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 [RFC2616].

6.11.5 POST

This operation is used to notify a Client about a media interaction event.

Note: Depending on the content of the 'notificationType' field in the 'mediaInteractionNotification' data structure, this notification either represents a play-and-collect event (notificationType="PlayAndCollect") or a play-and-record event (notificationType="PlayAndRecord").

6.11.5.1 Example 1: Notifying a client about a play-and-collect media interaction event (Informative)

6.11.5.1.1 Request

```
POST /notifications/MediaInteractionNotificationURL HTTP/1.1
Accept: application/xml
Content-Type: application/xml
Content-Length: nnnn
Host: application.example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:mediaInteractionNotification xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <notificationType>PlayAndCollect</notificationType>
  <callParticipant>tel:+19585550101</callParticipant>
  <mediaInteractionResult>1234#</mediaInteractionResult>
  <link rel="PlayAndCollectInteractionSubscription"
        href="http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001"/>
</cn:mediaInteractionNotification>
```

6.11.5.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:21:59 GMT
```

6.11.5.2 Example 2: Notifying a client about a play-and-record media interaction event (Informative)

6.11.5.2.1 Request

```
POST /notifications/MediaInteractionNotificationURL HTTP/1.1
Accept: application/xml
Content-Type: application/xml
Content-Length: nnnn
Host: application.example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:mediaInteractionNotification xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <notificationType>PlayAndRecord</notificationType>
  <callParticipant>tel:+19585550101</callParticipant>
  <mediaInteractionResult>http://media.example.com/recordings/1234.wav</mediaInteractionResult>
  <link rel="PlayAndRecordInteractionSubscription"
        href="http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001"/>
</cn:mediaInteractionNotification>
```

6.11.5.2.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:21:59 GMT
```

6.11.6 DELETE

Method not allowed 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 [RFC2616].

6.12 Resource: Client notification about call direction events

This resource is a callback URL provided by the client for notification about call direction events. The RESTful CallNotification API does not make any assumption about the structure of this URL. If this URL is a Client-side Notification URL, the server will POST notifications directly to it. If this URL is a Server-side Notification URL, the server uses it to determine the address of the Notification Server to which the notifications will subsequently be POSTed. The way the server determines the address of the Notification Server is out of scope of this specification.

Note: In the case when the client has set up a Notification Channel in order to use Long Polling to obtain the notifications, in order to retrieve the notifications, the client needs to use the Long Polling mechanism described in [REST_NetAPI_NotificationChannel], instead of the mechanism described below in section 6.12.5.

A call direction notification requires the client to make a decision about how to handle the call, and to return that decision either immediately in the response to the event notification (as specified in this section), or in a deferred way (as specified in section 6.13). If the client has obtained the notification from a Notification Channel, it MUST send the response in a deferred way.

6.12.1 Request URL variables

Client-provided if any.

6.12.2 Response Codes

For HTTP response codes, see [REST_NetAPI_Common].

6.12.3 GET

Method not allowed 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 [RFC2616].

6.12.4 PUT

Method not allowed 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 [RFC2616].

6.12.5 POST

This operation is used to notify a Client about a Call Direction Event.

In case the server supports deferred responses, it MUST include in the request a 'link' element pointing to the instance of the subscription that triggered the notification, and MUST provide a value in the 'decisionId' element that will allow correlating a deferred response to the actual notification. Note that the provision of the 'link' element allows the client to address the subscription with a deferred response. If the server uses a Notification Channel to deliver the notifications it MUST support deferred notifications.

The client MUST include in the HTTP response an 'action' element with information how to handle the call, or with 'actionToPerform' set to "Deferred" to indicate that a deferred response will be provided later as specified in section 6.13. In case 'actionToPerform' has been set to "Deferred", the client MUST further set the field 'decisionId' to the value of the element 'decisionId' that has been provided by the server in the notification.

6.12.5.1 Example 1: Notifying a client about a call direction event with immediate response (Informative)

In the case of immediate response, the decision how to handle the call is indicated by the client in the HTTP response to the notification.

6.12.5.1.1 Request

```
POST /notifications/CallDirectionNotificationURL HTTP/1.1
Accept: application/xml
Content-Type: application/xml
Content-Length: nnnn
Host: application.example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventNotification xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <notificationType>CallDirection</notificationType>
  <eventDescription>
    <callEvent>Busy</callEvent>
  </eventDescription>
  <callingParticipant>tel:+19585550102</callingParticipant>
  <callingParticipantName>Peter E. Xample</callingParticipantName>
  <calledParticipant>tel:+19585550101</calledParticipant>
  <callSessionIdentifier>B6789</callSessionIdentifier>
```

```
  <link rel="callEventSubscription" href="http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001"/>
</cn:callEventNotification>
```

Note that this example does *not* contain a link to an underlying call session because it is assumed that no REST-layer representation of that session is available for the Client that receives the notification, for instance because that Client has not created the session.

6.12.5.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:40:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:action xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <actionToPerform>Route</actionToPerform>
  <routingAddress>tel:+19585550105</routingAddress>
</cn:action>
```

6.12.5.2 Example 2: Notifying a client about a call direction event with deferred response (Informative)

In the case of deferred response, the decision how to handle the call is indicated by the client separately as illustrated in the example in section 6.13.5.1. In the HTTP response to the notification, the client announces the deferral of the decision, and provides an identifier ‘decisionId’ to correlate related requests/responses during the deferred communication of the decision. Note that this method can be used to reduce the number of open HTTP connections in case of longer decision times.

6.12.5.2.1 Request

```
POST /notifications/MediaInteractionNotificationURL HTTP/1.1
Accept: application/xml
Content-Type: application/xml
Content-Length: nnnn
Host: application.example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventNotification xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <notificationType>CallDirection</notificationType>
  <eventDescription>
    <callEvent>Busy</callEvent>
  </eventDescription>
  <callingParticipant>tel:+19585550102</callingParticipant>
  <callingParticipantName>Peter E. Xample</callingParticipantName>
  <calledParticipant>tel:+19585550101</calledParticipant>
  <callSessionIdentifier>B6789</callSessionIdentifier>
  <link rel="callEventSubscription" href="http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001"/>
  <decisionId>ABC-776655</decisionId>
</cn:callEventNotification>
```

For a note on the “link” element, see section 6.12.5.1.1.

6.12.5.2.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:40:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:action xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <actionToPerform>Deferred</actionToPerform>
  <decisionId>ABC-776655</decisionId>
</cn:action>
```

6.12.6 DELETE

Method not allowed 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 [RFC2616].

6.13 Resource: Deferred responses to previous call direction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/callDirection/{subscriptionId}/deferredResponse

This resource is an endpoint to which the client can send deferred responses to previous call direction notifications.

6.13.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
subscriptionId	identifier of the subscription

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.13.2 Response Codes

For HTTP response codes, see [REST_NetAPI_Common].

In case the client delivers a deferred response later than a server-defined timeout, the server SHALL respond with "408 Request Timeout".

6.13.2.1 Exception fault codes

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.13.3 GET

Method not allowed 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 [RFC2616].

6.13.4 PUT

Method not allowed 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 [RFC2616].

6.13.5 POST

This operation is used by the Client to send a deferred response to a Call Direction notification to the Server by POSTing an 'action' XML structure. This is the only way a client can respond to a Call Direction notification received via the Notification Channel.

The client MUST provide the same value in the field 'decisionId' as in the related notification, and MUST NOT use the value "Deferred" in the actionToPerform field.

6.13.5.1 Example: Deferred response to a previous call direction notification (Informative)

This example illustrates the deferred response to the Call Direction notification from example 6.12.5.2.

6.13.5.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001/deferredResponse HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:action xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <actionToPerform>Route</actionToPerform>
  <routingAddress>tel:+19585550105</routingAddress>
  <decisionId>ABC-776655</decisionId>
</cn:action>
```

6.13.5.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

6.13.5.2 Example: Timed-out deferred response to a previous call direction notification (Informative)

This example illustrates a deferred response to the Call Direction notification from example 6.12.5.2 that is sent by the Application too late and therefore triggers a timeout error.

6.13.5.2.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001/deferredResponse HTTP/1.1
```

```
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:action xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <actionToPerform>Route</actionToPerform>
  <routingAddress>tel:+19585550105</routingAddress>
  <decisionId>ABC-776655</decisionId>
</cn:action>
```

6.13.5.2.2 Response

```
HTTP/1.1 408 Request Timeout
Date: Mon, 28 Jun 2010 17:51:59 GMT
Content-Type: application/xml
Content-Length: nnnn

<?xml version="1.0" encoding="UTF-8"?>
<common:requestError xmlns:common="urn:oma:xml:rest:netapi:common:1">
 <policyException>
  <messageId>POL0010</messageId>
  <text>Requested information unavailable as the retention time interval has expired.</text>
 </policyException>
</common:requestError>
```

6.13.6 DELETE

Method not allowed 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 [RFC2616].

6.14 Resource: All call event monitors

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/monitors

This resource represents all call event monitors.

6.14.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.14.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.14.3 GET

This operation is used for retrieving all call event monitors.

6.14.3.1 Example: Retrieving all call event monitors (Informative)

6.14.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/monitors HTTP/1.1
Accept: application/xml
Host: example.com
```

6.14.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventMonitorList xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callEventMonitor>
    <filter>
      <address>tel:+19585550101</address>
      <address>tel:+19585550102</address>
      <criteria>Answer</criteria>
      <criteria>Busy</criteria>
      <addressDirection>Called</addressDirection>
    </filter>
    <callEventRecordList>
      <callEventRecord>
        <eventDescription>
          <callEvent>Busy</callEvent>
        </eventDescription>
        <callingParticipant>tel:+19585550102</callingParticipant>
        <callingParticipantName>Peter E. Xample</callingParticipantName>
        <calledParticipant>tel:+19585550101</calledParticipant>
        <callSessionIdentifier>B12345</callSessionIdentifier>
        <timestamp>2010-06-28T18:21:55</timestamp>
        <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001</resourceURL>
        <link rel="CallSessionInformation" href="http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001"/>
      </callEventRecord>
      <callEventRecord>
        <eventDescription>
          <callEvent>Answer</callEvent>
        </eventDescription>
        <callingParticipant>tel:+19585550101</callingParticipant>
```

```
        <callingParticipantName>Max Muster</callingParticipantName>
        <calledParticipant>tel:+19585550102</calledParticipant>
        <callSessionIdentifier>B23456</callSessionIdentifier>
        <timestamp>2010-06-28T18:27:02</timestamp>
        <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer002</resourceURL>
      </callEventRecord>
      <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords</resourceURL>
    </callEventRecordList>
    <clientCorrelator>612345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001</resourceURL>
  </callEventMonitor>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors</resourceURL>
</cn:callEventMonitorList>
```

Note that the first call event record in this example does contain a link to an underlying call session because it is assumed that a REST-layer representation of that session is available for the Client that owns the monitor, for instance because that Client is the one that has created the session. For the second call event record, no link is contained, because it is assumed that no REST-layer representation of that session is available for the Client that owns the monitor, for instance because that Client has not created the session.

6.14.4 PUT

Method not allowed 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 [RFC2616].

6.14.5 POST

This operation is used for creating a call event monitor.

6.14.5.1 Example 1: Creating a new call event monitor, response with a copy of the created resource (Informative)

6.14.5.1.1 Request

```
POST /exampleAPI/callnotification/v1/monitors HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventMonitor xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>612345</clientCorrelator>
</cn:callEventMonitor>
```

6.14.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/monitors/mon001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventMonitor xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <callEventRecordList>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords</resourceURL>
  </callEventRecordList>
  <clientCorrelator>612345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001</resourceURL>
</cn:callEventMonitor>
```

6.14.5.2 Example 2: Creating a new call event monitor, response with location of the created resource (Informative)

6.14.5.2.1 Request

```
POST /exampleAPI/callnotification/v1/monitors HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventMonitor xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>612345</clientCorrelator>
</cn:callEventMonitor>
```

6.14.5.2.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/monitors/mon001
Content-Length: nnnn
```

```
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<common:resourceReference xmlns:common="urn:oma:xml:rest:netapi:common:1">
  <resourceURL> http://example.com/exampleAPI/callnotification/v1/monitors/mon001</resourceURL>
</common:resourceReference>
```

6.14.6 DELETE

Method not allowed 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 [RFC2616].

6.15 Resource: Individual call event monitor

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/monitors/{monitorId}

This resource is represents an individual call event monitor. A call event monitor collects call events and stores them for polling.

6.15.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
monitorId	identifier of the call event monitor resource

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.15.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.15.3 GET

This operation is used for retrieving an individual call event monitor.

6.15.3.1 Example: Retrieving an individual call event monitor (Informative)

6.15.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/monitors/mon001 HTTP/1.1
Accept: application/xml
```

```
Host: example.com
```

6.15.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventMonitor xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <callEventRecordList>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords</resourceURL>
  </callEventRecordList>
  <clientCorrelator>612345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001</resourceURL>
</cn:callEventMonitor>
```

6.15.4 PUT

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.15.5 POST

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.15.6 DELETE

This operation is used for deleting a call event monitor.

6.15.6.1 Example: Deleting a call event monitor (Informative)

6.15.6.1.1 Request

```
DELETE /exampleAPI/callnotification/v1/monitors/mon001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.15.6.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:51:59 GMT
```

6.16 Resource: List of call events per monitor

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/monitors/{monitorId}/callEventRecords

This resource represents the list of call events collected by a call event monitor.

6.16.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
monitorId	identifier of the call event monitor resource

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.16.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.16.3 GET

This operation is used for retrieving the list of call events collected by a call event monitor.

6.16.3.1 Example: Retrieving the list of call events collected by a call event monitor (Informative)

6.16.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/monitors/mon001/callEventRecords HTTP/1.1
Accept: application/xml
Host: example.com
```

6.16.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventRecordList xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
```

```
  <callEventRecord>
    <eventDescription>
      <callEvent>Busy</callEvent>
    </eventDescription>
    <callingParticipant>tel:+19585550102</callingParticipant>
    <callingParticipantName>Peter E. Xample</callingParticipantName>
    <calledParticipant>tel:+19585550101</calledParticipant>
    <callSessionIdentifier>B12345</callSessionIdentifier>
    <timestamp>2010-06-28T18:21:55</timestamp>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001</resourceURL>
    <link rel="CallSessionInformation" href="http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001"/>
  </callEventRecord>
  <callEventRecord>
    <eventDescription>
      <callEvent>Answer</callEvent>
    </eventDescription>
    <callingParticipant>tel:+19585550101</callingParticipant>
    <callingParticipantName>Max Muster</callingParticipantName>
    <calledParticipant>tel:+19585550102</calledParticipant>
    <callSessionIdentifier>B23456</callSessionIdentifier>
    <timestamp>2010-06-28T18:27:02</timestamp>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer002</resourceURL>
  </callEventRecord>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords</resourceURL>
</cn:callEventRecordList>
```

For a note on the “link” element, see section 6.14.3.1.2.

6.16.4 PUT

Method not allowed 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 [RFC2616].

6.16.5 POST

Method not allowed 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 [RFC2616].

6.16.6 DELETE

Method not allowed 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 [RFC2616].

6.17 Resource: Individual call event information

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/monitors/{monitorId}/callEventRecords/{callEventRecordId}

This resource represents information about a call event that has been collected by a call event monitor.

Information about a call event MAY be removed explicitly by the client using the DELETE operation, or MAY be removed from the server automatically after a certain time interval, depending on service policy.

6.17.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
monitorId	identifier of the call event monitor resource
callEventRecordId	identifier of the call event resource

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.17.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.17.3 GET

This operation is used for retrieving the information about an individual call event.

6.17.3.1 Example: Retrieving individual call event information (Informative)

6.17.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.17.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventRecord xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <eventDescription>
    <callEvent>Busy</callEvent>
  </eventDescription>
  <callingParticipant>tel:+19585550102</callingParticipant>
  <callingParticipantName>Peter E. Xample</callingParticipantName>
  <calledParticipant>tel:+19585550101</calledParticipant>
  <callSessionIdentifier>B12345</callSessionIdentifier>
  <timestamp>2010-06-28T18:21:55</timestamp>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001</resourceURL>
```

```
  <link rel="CallSessionInformation" href="http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001"/>
</cn:callEventRecord>
```

Note that the call event in this example does contain a link to an underlying call session because it is assumed that a REST-layer representation of that session is available for the Client that owns the monitor, for instance because that Client is the one that has created the session.

6.17.4 PUT

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.17.5 POST

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.17.6 DELETE

This operation is used to delete the information about a particular call event. Removing information about the call event does not affect in any way the underlying call session. The server MUST return in the response body the representation of the resource.

6.17.6.1 Example: Deleting an individual call event (Informative)

6.17.6.1.1 Request

```
DELETE /exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.17.6.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventRecord xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <eventDescription>
    <callEvent>Busy</callEvent>
  </eventDescription>
  <callingParticipant>tel:+19585550102</callingParticipant>
  <callingParticipantName>Peter E. Xample</callingParticipantName>
  <calledParticipant>tel:+19585550101</calledParticipant>
  <callSessionIdentifier>B12345</callSessionIdentifier>
  <timestamp>2010-06-28T18:21:55</timestamp>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001</resourceURL>
  <link rel="CallSessionInformation" href="http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001"/>
</cn:callEventRecord>
```

6.18 Resource: All Subscriptions to speech recognition media interaction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/recognition

This resource is used as a container for all subscriptions to speech recognition media interaction notifications.

This resource can be used in conjunction with a Client-side Notification URL, or in conjunction with a Server-side Notification URL. In this latter case, the application MUST first create a Notification Channel (see [REST_NetAPI_NotificationChannel]) before creating a subscription.

6.18.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.18.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.18.3 GET

This operation is used to read all subscriptions to speech recognition media interaction notifications.

6.18.3.1 Example: Retrieving all subscriptions to speech recognition interaction notifications (Informative)

6.18.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/recognition HTTP/1.1
Accept: application/xml
Host: example.com
```

6.18.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

```
<?xml version="1.0" encoding="UTF-8"?>
<cn:callNotificationSubscriptionList xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <recognitionInteractionSubscription>
    <callbackReference>
      <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
    </callbackReference>
    <callSessionIdentifier>A91011</callSessionIdentifier>
    <clientCorrelator>512345</clientCorrelator>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001</resourceURL>
  </recognitionInteractionSubscription>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition</resourceURL>
</cn:callNotificationSubscriptionList>
```

6.18.4 PUT

Method not allowed 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 [RFC2616].

6.18.5 POST

This operation is used for creating a new subscription to speech recognition media interaction notifications.

The notifyURL in the callbackReference either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

6.18.5.1 Example: Creating a new subscription to speech recognition media interaction notifications (Informative)

6.18.5.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/recognition HTTP/1.1
Content-Type: application/xml
Content-Length: nnnn
Accept: application/xml
Host: example.com
s
<?xml version="1.0" encoding="UTF-8"?>
<cn:recognitionInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A91011</callSessionIdentifier>
  <clientCorrelator>512345</clientCorrelator>
</cn:recognitionInteractionSubscription >
```

6.18.5.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
```

```
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:recognitionInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A91011</callSessionIdentifier>
  <clientCorrelator>512345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001</resourceURL>
</cn:recognitionInteractionSubscription>
```

Note that alternatively, a ‘resourceReference’ root element could be returned, as illustrated in section 6.2.5.2.2.

6.18.6 DELETE

Method not allowed 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 [RFC2616].

6.19 Resource: Individual subscription to speech recognition media interaction notifications

The resource used is:

http://{serverRoot}/callnotification/{apiVersion}/subscriptions/recognition/{subscriptionId}

This resource represents an individual subscription to speech recognition media interaction notifications.

6.19.1 Request URL variables

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

Name	Description
serverRoot	server base url: hostname+port+base path. Example: example.com/exampleAPI
apiVersion	version of the API clients want to use. The value of this variable is defined in section 5.1.
subscriptionId	identifier of the subscription

See section 6 for a statement on the escaping of reserved characters in URL variables.

6.19.2 Response Codes and Error handling

For HTTP response codes, see [REST_NetAPI_Common].

For Policy Exception and Service Exception fault codes applicable to Call Notification, see section 7.

6.19.3 GET

This operation is used for reading an individual subscription to speech recognition media interaction notifications.

6.19.3.1 Example: Retrieving an individual subscription to speech recognition media interaction notification (Informative)

6.19.3.1.1 Request

```
GET /exampleAPI/callnotification/v1/subscriptions/recognition/sub001 HTTP/1.1
Accept: application/xml
Host: example.com
```

6.19.3.1.2 Response

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:recognitionInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A91011</callSessionIdentifier>
  <clientCorrelator>512345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001</resourceURL>
</cn:recognitionInteractionSubscription>
```

6.19.4 PUT

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.19.5 POST

Method not allowed by the resource. The returned HTTP error status is 405. The server SHOULD also include the 'Allow: GET, DELETE' field in the response as per section 14.7 of [RFC2616].

6.19.6 DELETE

This operation is used to cancel a subscription to play-and-record media interaction notifications and to stop corresponding notification messages.

6.19.6.1 Example: Removing a subscription to speech recognition media interaction notifications (Informative)

6.19.6.1.1 Request

```
DELETE /exampleAPI/callnotification/v1/subscriptions/recognition/sub001 HTTP/1.1
```

```
Accept: application/xml
Host: example.com
```

6.19.6.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

6.20 Resource: Client notification about speech recognition media interaction events

This resource is a callback URL provided by the client for notification about speech recognition events that communicate to the client the information input by the user in a speech recognition operation.

The RESTful CallNotification API does not make any assumption about the structure of this URL. If this URL is a Client-side Notification URL, the server will POST notifications directly to it. If this URL is a Server-side Notification URL, the server uses it to determine the address of the Notification Server to which the notifications will subsequently be POSTed. The way the server determines the address of the Notification Server is out of scope of this specification.

Note: In the case when the client has set up a Notification Channel in order to use Long Polling to obtain the notifications, in order to retrieve the notifications, the client needs to use the Long Polling mechanism described in [REST_NetAPI_NotificationChannel], instead of the mechanism described below in section 6.11.5.

6.20.1 Request URL variables

Client-provided if any.

6.20.2 Response Codes

For HTTP response codes, see [REST_NetAPI_Common].

6.20.3 GET

Method not allowed 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 [RFC2616].

6.20.4 PUT

Method not allowed 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 [RFC2616].

6.20.5 POST

This operation is used to notify a Client about a speech recognition event.

6.20.5.1 Example: Notifying a client about a speech recognition event(Informative)

6.20.5.1.1 Request

```
POST /notifications/MediaInteractionNotificationURL HTTP/1.1
```

```
Accept: application/xml
Content-Type: application/xml
Content-Length: nnnn
Host: application.example.com

<?xml version="1.0" encoding="UTF-8"?>
<cn:recognitionInteractionNotification xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
   <callParticipant>tel:+19585550101</callParticipant>
   <recognitionResult>
      <foo xmlns="http://example.com">
         <!-- data -->
      </foo>
   </recognitionResult>
   <resultType>application/vnd.myfootype</resultType>
   <link rel="RecognitionInteractionSubscription"
      href="http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001"/>
</cn:recognitionInteractionNotification>
```

6.20.5.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:21:59 GMT
```

6.20.6 DELETE

Method not allowed 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 [RFC2616].

7. Fault definitions

7.1 Service Exceptions

For common Service Exceptions refer to [REST_NetAPI_Common].

There are no additional Service Exception codes defined for the Call Notification API.

7.2 Policy Exceptions

For common Policy Exceptions refer to [REST_NetAPI_Common].

There are no additional Policy Exception codes defined for the Call Notification API.

Appendix A. Change History (Informative)

A.1 Approved Version History

Reference	Date	Description
n/a	n/a	No prior version

A.2 Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Version OMA-TS-REST_NetAPI_CallNotification-V1_0	03 May 2011	Many	Structural changes to fit the OMA RESTful Network API release. This version inherits the technical content of OMA-TS-ParlayREST_CallNotification-V1_0-20110111-C and applies changes according to ARC INP 30R01, 98R02, 155R01,156R01, 67R01, 175R01, 186, 187R02 and 160R02
	23 May 2011	Many	Adapted to new REST NetAPI TS template OMA-TEMPLATE-Technical_Spec_RESTful_Network_API-20110502-D by CR OMA-ARC-REST-NetAPI-2011-0032R02-CR_CallNotification_New_template
	31 May 2011	App H	Fixed a typo (OMA-ARC-REST-NetAPI-2011-0032R02-CR_CallNotification_New_template)
	15 Jul 2011	Many	OMA-ARC-REST-NetAPI-2011-0145-CR_CallNotif_fictional_phone_numbers implemented
	27 Jul 2011	Many	CRs implemented - OMA-ARC-REST-NetAPI-2011-0017R02-INP_ApiVersion_in_NetAPI_TSs - OMA-ARC-REST-NetAPI-2011-0170R02-CR_CallNotif_tel_URI_fixes_and_Notif_channel_changes
	08 Sep 2011	Many	CRs implemented - OMA-ARC-REST-NetAPI-2011-0221R01-CR_CallNotif_resourceURL_changes_TS - OMA-ARC-REST-NetAPI-2011-0223R02-CR_CallNotif_Long_Polling_fix - OMA-ARC-REST-NetAPI-2011-0228R01-CR_CallNotif_allowed_method_bugfix
	20 Sep 2011	Many	CR implemented - OMA-ARC-REST-NetAPI-2011-0247R02-CR_ACR_CallNotif
	25 Oct 2011	Many	CRs implemented: - OMA-ARC-REST-NetAPI-2011-0277R01-CR_CallNotif_fixing_decisionId_description - OMA-ARC-REST-NetAPI-2011-0299R02-CR_CallNotif_editorial_and_near_editorial_CONRR_resolution
	18 Nov 2011	Many	OMA-ARC-REST-NetAPI-2011-0376-CR_CallNotif_actions_and_editorials implemented
	30 Nov 2011	Many	Implemented: - OMA-ARC-REST-NetAPI-2011-0436-CR_CallNotif_Annex_G - OMA-ARC-REST-NetAPI-2011-0424-INP_HTML_401_reference_blueprint
	13 Jan 2012	Many	Implemented: - OMA-ARC-REST-NetAPI-2012-0009-CR_TS_CallNotif_CONR_resolution
	20 Feb 2012	Many	Implemented: - OMA-ARC-REST-NetAPI-2012-0034R01-CR_CallNotif_various_fixes

Document Identifier	Date	Sections	Description
	27 Feb 2012	4.1, 5, 6, G.1.2	Implemented: - OMA-ARC-REST-NetAPI-2012-0082-CR_CallNotif_more_CONR_resolutions
	07 Mar 2012	Many	Implemented OMA-ARC-REST-NetAPI-2012-0084-CR_CallNotif_TS_ASR
Candidate Version OMA-TS-REST_NetAPI_CallNotification-V1_0	27 Mar 2012	n/a	Status changed to Candidate by TP TP Ref # OMA-TP-2012-0121-INP_REST_NetAPI_CallNotification_1_0_ERP_and_ETR_for_Candidate_Approval

Appendix B. Static Conformance Requirements (Normative)

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

B.1 SCR for REST.CN Server

Item	Function	Reference	Requirement
REST-CN-SUPPORT-S-001-M	Support for the RESTful Call Notification API	5, 6	
REST-CN-SUPPORT-S-002-M	Support for the XML request & response format	6	
REST-CN-SUPPORT-S-003-M	Support for the JSON request & response format	6	
REST-CN-SUPPORT-S-004-O	Support for the application/x-www-form-urlencoded format	Appendix C	

B.1.1 SCR for REST.CN.Subscriptions Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-S-001-O	Support for access to the list of all subscriptions to call notifications	6.1	REST-CN-SUBSCR-S-002-O
REST-CN-SUBSCR-S-002-O	Retrieving a list of all subscriptions – GET	6.1.3	

B.1.2 SCR for REST.CN.Subscriptions.CallEvent Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-CALLEVENT-S-001-M	Support for access to the list of subscriptions to call event notifications	6.2	
REST-CN- SUBSCR-CALLEVENT-S-002-O	Retrieving a list of subscriptions to call event notifications – GET	6.2.3	
REST-CN- SUBSCR-CALLEVENT-S-003-M	Creating a new subscription to call event notifications – POST (XML or JSON)	6.2.5	
REST-CN- SUBSCR-CALLEVENT-S-004-O	Creating a new subscription to call event notifications – POST (application/x-www-form-urlencoded)	C.1	

B.1.3 SCR for REST.CN.Subscriptions.IndividualCallEvent Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-INDCALLEVENT-S-001-M	Support for access to an individual subscription to call event notifications	6.3	
REST-CN-SUBSCR-INDCALLEVENT-S-002-M	Retrieving an individual subscription to call event notifications – GET	6.3.3	
REST-CN-SUBSCR-INDCALLEVENT-S-003-M	Deleting an individual subscription to call event notifications – DELETE	6.3.6	

B.1.4 SCR for REST.CN.Subscriptions.CallDirection Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-CALLDIR-S-001-O	Support for access to the list of subscriptions to call direction notifications	6.4	REST-CN-SUBSCR-CALLDIR-S-003-O AND REST-CN-SUBSCR-INDCALLDIR-S-001-O
REST-CN-SUBSCR-CALLDIR-S-002-O	Retrieving a list of subscriptions to call direction notifications – GET	6.4.3	
REST-CN-SUBSCR-CALLDIR-S-003-O	Creating a new subscription to call direction notifications – POST (XML or JSON)	6.4.5	
REST-CN-SUBSCR-CALLDIR-S-004-O	Creating a new subscription to call direction notifications – POST (application/x-www-form-urlencoded)	C.2	

B.1.5 SCR for REST.CN.Subscriptions.IndividualCallDirection Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-INDCALLDIR-S-001-O	Support for access to an individual subscription to call direction notifications	6.5	REST-CN-SUBSCR-INDCALLDIR-S-002-O AND REST-CN-SUBSCR-INDCALLDIR-S-003-O
REST-CN-SUBSCR-INDCALLDIR-S-002-O	Retrieving an individual subscription to call direction notifications – GET	6.5.3	
REST-CN-SUBSCR-INDCALLDIR-S-003-O	Deleting an individual subscription to call direction notifications –	6.5.6	

Item	Function	Reference	Requirement
	DELETE		

B.1.6 SCR for REST.CN.Subscriptions.PlayAndCollect Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-PAC-S-001-M	Support for access to the list of subscriptions to play-and-collect media interaction notifications	6.6	
REST-CN-SUBSCR-PAC-S-002-O	Retrieving a list of subscriptions to play-and-collect media interaction notifications – GET	6.6.3	
REST-CN-SUBSCR-PAC-S-003-M	Creating a new subscription to play-and-collect media interaction notifications – POST (XML or JSON)	6.6.5	
REST-CN-SUBSCR-PAC-S-004-O	Creating a new subscription to play-and-collect media interaction notifications – POST (application/x-www-form-urlencoded)	C.3	

B.1.7 SCR for REST.CN.Subscriptions.IndividualPlayAndCollect Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-INDPAC-S-001-M	Support for access to an individual subscription to play-and-collect media interaction notifications	6.7	
REST-CN-SUBSCR-INDPAC-S-002-M	Retrieving an individual subscription to play-and-collect media interaction notifications – GET	6.7.3	
REST-CN-SUBSCR-INDPAC-S-003-M	Deleting an individual subscription to play-and-collect media interaction notifications – DELETE	6.7.6	

B.1.8 SCR for REST.CN.Subscriptions.PlayAndRecord Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-	Support for access to	6.8	REST-CN-SUBSCR-PAR-S-003-

Item	Function	Reference	Requirement
PAR-S-001-O	the list of subscriptions to play-and-record media interaction notifications		O AND REST-CN- SUBSCR-INDPAR-S-001-O
REST-CN-SUBSCR-PAR-S-002-O	Retrieving a list of subscriptions to play-and-record media interaction notifications – GET	6.8.3	
REST-CN-SUBSCR-PAR-S-003-O	Creating a new subscription to play-and-record media interaction notifications – POST (XML or JSON)	6.8.5	
REST-CN-SUBSCR-PAR-S-004-O	Creating a new subscription to play-and-record media interaction notifications – POST (application/x-www-form-urlencoded)	C.4	

B.1.9 SCR for REST.CN.Subscriptions.PlayAndRecord.Individual Server

Item	Function	Reference	Requirement
REST-CN- SUBSCR-INDPAR-S-001-O	Support for access to an individual subscription to play-and-record media interaction notifications	6.9	REST-CN-SUBSCR-INDPAR-S-002-O AND REST-CN-SUBSCR-INDPAR-S-003-O
REST-CN- SUBSCR-INDPAR-S-002-O	Retrieving an individual subscription to play-and-record media interaction notifications – GET	6.9.3	
REST-CN- SUBSCR-INDPAR-S-003-O	Deleting an individual subscription to play-and-record media interaction notifications – DELETE	6.9.6	

B.1.10 SCR for REST.CN.Notifications.CallEvent Server

Item	Function	Reference	Requirement
REST-CN-NOTIF-CALLEVENT-S-001-M	Support for notifying a client about a call event	6.10	

Item	Function	Reference	Requirement
REST-CN-NOTIF-CALLEVENT-S-002-M	Notifying a client about a call event – POST (XML or JSON)	6.10.5	

B.1.11 SCR for REST.CN.Notifications.MediaInteraction Server

Item	Function	Reference	Requirement
REST-CN-NOTIF-MEDINT-S-001-M	Support for notifying a client about a media interaction event	6.11	
REST-CN- NOTIF-MEDINT-S-002-M	Notifying a client about a media interaction event – POST (XML or JSON)	6.11.5	

B.1.12 SCR for REST.CN.Notifications.CallDirection Server

Item	Function	Reference	Requirement
REST-CN-NOTIF-CALLDIR-S-001-O	Support for notifying a client about a call direction event	6.12	REST-CN-NOTIF-CALLDIR-S-002-O AND REST-CN-NOTIF-CALLDIR-S-003-O
REST-CN-NOTIF-CALLDIR-S-002-O	Notifying a client about a call direction event – Sending POST Request (XML or JSON)	6.12.5	
REST-CN-NOTIF-CALLDIR-S-003-O	Receiving from a client the decision regarding the call direction event – receiving POST Response (XML or JSON)	6.12.5	
REST-CN-NOTIF-CALLDIR-S-004-O	Receiving from a client the proposal of sending a deferred response regarding the call direction event – receiving POST Response (XML or JSON)	6.12.5	REST-CN-NOTIF-CALLDIR-DEFER-S-001-O

B.1.13 SCR for REST.CN.Notifications.CallDirection.Deferred Server

Item	Function	Reference	Requirement
REST-CN-NOTIF-CALLDIR-DEFER-S-	Support for deferred responses to	6.13	REST-CN-NOTIF-CALLDIR-DEFER-S-002-O

Item	Function	Reference	Requirement
001-O	notifications about call direction events		
REST-CN-NOTIF-CALLDIR-DEFER-S-002-O	Receiving the deferred response to a notification about a call direction event POST (XML or JSON)	6.13.5	
REST-CN-NOTIF-CALLDIR-DEFER-S-003-O	Receiving the deferred response to a notification about a call direction event POST (application/x-www-form-urlencoded)	C.5	

B.1.14 SCR for REST.CN.Monitors Server

Item	Function	Reference	Requirement
REST-CN-MON-S-001-O	Support for access to the list of call event monitors	6.14	REST-CN-MON-S-003-O AND REST-CN-INDMON- S-001-O
REST-CN- MON-S-002-O	Retrieving a list of call event monitors – GET	6.14.3	
REST-CN- MON-S-003-O	Creating a new call event monitor – POST (XML or JSON)	6.14.5	
REST-CN- MON-S-004-O	Creating a new call event monitor – POST (application/x-www-form-urlencoded)	C.6	

B.1.15 SCR for REST.CN.IndividualMonitor Server

Item	Function	Reference	Requirement
REST-CN-INDMON-S-001-O	Support for access to an individual call event monitor	6.15	REST-CN-INDMON-S-002-O AND REST-CN-INDMON-S-003-O AND REST-CN-INDMON-Events-S-001-O
REST-CN-INDMON-S-002-O	Retrieving an individual call event monitor – GET	6.15.3	
REST-CN-INDMON-S-003-O	Deleting an individual call event monitor – DELETE	6.15.6	

B.1.16 SCR for REST.CN.IndividualMonitor.Events Server

Item	Function	Reference	Requirement
REST-CN-INDMON-EVENTS-S-001-O	Support for access to the list of call events in a call event monitor	6.16	REST-CN-INDMON-EVENTS-S-002-O AND REST-CN-INDMON-INDEVENT-

Item	Function	Reference	Requirement
			S-001-O
REST-CN-INDMON-EVENTS-S-002-O	Retrieving a list of call events – GET	6.16.3	

B.1.17 SCR for REST.CN.IndividualMonitor.IndividualEvent Server

Item	Function	Reference	Requirement
REST-CN-INDMON-INDEVENT-S-001-O	Support for access to information about an individual call event in a call event monitor	6.17	REST-CN-INDMON-INDEVENT-S-002-O AND REST-CN-INDMON-INDEVENT-S-003-O
REST-CN-INDMON-INDEVENT-S-002-O	Retrieving information about an individual call event – GET	6.17.3	
REST-CN-INDMON-INDEVENT-S-003-O	Removing information about an individual call event – DELETE	6.17.6	

B.1.18 SCR for REST.CN.NotificationChannel

Item	Function	Reference	Requirement
REST-CN-NC-S-001-O	Support for delivering notifications via a Notification Channel	[REST_NetAPI_NotificationChannel]	REST-CN-NOTIF-CALLDIR-DEFER-S-001-O

B.1.19 SCR for REST.CN.Subscriptions.Recognition Server

Item	Function	Reference	Requirement
REST-CN-SUBSCR-RCG-S-001-O	Support for access to the list of subscriptions to speech recognition media interaction notifications	6.18	REST-CN-SUBSCR-RCG-S-003-O AND REST-CN- SUBSCR-INDRCG-S-001-O
REST-CN-SUBSCR-RCG-S-002-O	Retrieving a list of subscriptions to speech recognition media interaction notifications – GET	6.18.3	
REST-CN-SUBSCR-RCG-S-003-O	Creating a new subscription to speech recognition media interaction notifications – POST (XML or JSON)	6.18.5	
REST-CN-SUBSCR-RCG-S-004-O	Creating a new subscription to speech recognition media	C.7	

Item	Function	Reference	Requirement
	interaction notifications – POST (application/x-www-form-urlencoded)		

B.1.20 SCR for REST.CN.Subscriptions.Recognition.Individual Server

Item	Function	Reference	Requirement
REST-CN- SUBSCR-INDRCG-S-001-O	Support for access to an individual subscription to speech recognition media interaction notifications	6.19	REST-CN-SUBSCR-INDRCG-S-002-O AND REST-CN-SUBSCR-INDRCG-S-003-O
REST-CN-SUBSCR-INDRCG-S-002-O	Retrieving an individual subscription to speech recognition media interaction notifications – GET	6.19.3	
REST-CN-SUBSCR-INDRCG-S-003-O	Deleting an individual subscription to speech recognition media interaction notifications – DELETE	6.19.6	

B.1.21 SCR for REST.CN.Notifications.Recognition Server

Item	Function	Reference	Requirement
REST-CN-NOTIF-RCG-S-001-M	Support for notifying a client about a speech recognition event	6.20	
REST-CN- NOTIF-RCG-S-002-M	Notifying a client about a speech recognition event – POST (XML or JSON)	6.20.5	

Appendix C. Application/x-www-form-urlencoded Request Format for POST Operations (Normative)

This section defines a format for the RESTful Call Notification API requests where the body of the request is encoded using the application/x-www-form-urlencoded MIME type.

Note: only the request body is encoded as application/x-www-form-urlencoded, the response is still encoded as XML or JSON depending on the preference of the client and the capabilities of the server.

Names and values MUST follow the application/x-www-form-urlencoded character escaping rules at [W3C_URLENC].

The encoding is defined below for all Call Notification REST operations which are based on POST requests.

C.1 Creating a new subscription to call event notifications

This operation is used for creating a new subscription to call event notifications, see section 6.2.5.

The notifyURL either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

The request parameters are as follows:

Name	Type/Values	Optional	Description
notifyURL	xsd:anyURI	No	Notification endpoint definition.
callbackData	xsd:string	Yes	Data the application can register with the server when subscribing to notifications, and that are passed back unchanged in each of the related notifications.
notificationFormat	common:NotificationFormat	Yes	Default: XML. Application can specify format of the resource representation in notifications that are related to this subscription. The choice is between {XML, JSON}.
filterAddress	xsd:anyURI[1..unbounded]	No	Party addresses (e.g. 'sip' URI, 'tel' URI, 'acr' URI) to receive notifications on. The address type/direction is determined by the AddressDirection. If the AddressDirection part is not populated this is for notifications on called party addresses.
filterCriteria	CallEvents[0..unbounded]	Yes	List of Call Event values to generate notification.
addressDirection	AddressDirection	Yes	Determine if the address considered is "Called" or "Calling". It applies for all the addresses.
clientCorrelator	xsd:string	Yes	A correlator that the client can use to

			tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from communication failures during resource creation and therefore avoids creating the same subscription twice in such situations. In case the element 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.

If the operation was successful, it returns an HTTP Status of “201 Created”.

C.1.1 Example (Informative)

C.1.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callEvent HTTP/1.1
Content-Type: application/x-www-form-urlencoded
Content-Length: nnnn
Accept: application/xml
Host: example.com

notifyURL=http%3A%2F%2Fapplication.example.com%2Fnotifications%2FCallNotificationURL&
filterAddress=tel%3A%2B19585550101&
filterAddress=tel%3A%2B19585550102&
filterCriteria=Answer&
filterCriteria=Busy&
addressDirection=Called&
clientCorrelator=112345
```

C.1.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallNotificationURL</notifyURL>
  </callbackReference>
```

```
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>112345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001</resourceURL>
</cn:callEventSubscription>
```

Note that alternatively, a ‘resourceReference’ root element can be returned, as illustrated in section 6.2.5.2.2.

C.2 Creating a new subscription to call direction notifications

This operation is used for creating a new subscription to call direction notifications, see section 6.4.5.

The notifyURL either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

The request parameters are as follows:

Name	Type/Values	Optional	Description
notifyURL	xsd:anyURI	No	Notification endpoint definition.
callbackData	xsd:string	Yes	Data the application can register with the server when subscribing to notifications, and that are passed back unchanged in each of the related notifications.
notificationFormat	common:NotificationFormat	Yes	Default: XML. Application can specify format of the resource representation in notifications that are related to this subscription. The choice is between {XML, JSON}.
filterAddress	xsd:anyURI[1..unbounded]	No	Party addresses (e.g. 'sip' URI, 'tel' URI, 'acr' URI) to receive notifications on. The address type/direction is determined by the AddressDirection. If the AddressDirection part is not populated this is for notifications on called party addresses.
filterCriteria	CallEvents[0..unbounded]	Yes	List of Call Event values to generate notification.
addressDirection	AddressDirection	Yes	Determine if the address considered is "Called" or "Calling".

			It applies for all the addresses.
clientCorrelator	xsd:string	Yes	A correlator that the client can use to tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from communication failures during resource creation and therefore avoids creating the same subscription twice in such situations. In case the element 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.

If the operation was successful, it returns an HTTP Status of “201 Created”.

C.2.1 Example 1, using tel URI (Informative)

C.2.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection HTTP/1.1
Content-Type: application/x-www-form-urlencoded
Content-Length: nnnn
Accept: application/xml
Host: example.com

notifyURL=http%3A%2F%2Fapplication.example.com%2Fnotifications%2FCallDirectionURL&
filterAddress=tel%3A%2B19585550101&
filterAddress=tel%3A%2B19585550102&
filterCriteria=Busy&
addressDirection=Called&
clientCorrelator=212345
```

C.2.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

```
<?xml version="1.0" encoding="UTF-8"?>
<cn:callDirectionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
  </callbackReference>
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>212345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001</resourceURL>
</cn:callDirectionSubscription>
```

Note that alternatively, a ‘resourceReference’ root element can be returned, as illustrated in section 6.2.5.2.2.

C.2.2 Example 2, using ACR (Informative)

C.2.2.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection HTTP/1.1
Content-Type: application/x-www-form-urlencoded
Content-Length: nnnn
Accept: application/xml
Host: example.com

notifyURL=http%3A%2F%2Fapplication.example.com%2Fnotifications%2FCallDirectionURL&
filterAddress=acr%3Apseudonym123&
filterAddress=acr%3Apseudonym456&
filterCriteria=Busy&
addressDirection=Called&
clientCorrelator=212345
```

C.2.2.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callDirectionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/CallDirectionURL</notifyURL>
  </callbackReference>
  <filter>
    <address>acr:pseudonym123</address>
    <address>acr:pseudonym456</address>
    <criteria>Busy</criteria>
```

```
    <addressDirection>Called</addressDirection>
  </filter>
  <clientCorrelator>212345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001</resourceURL>
</cn:callDirectionSubscription>
```

Note that alternatively, a 'resourceReference' root element can be returned, as illustrated in section 6.2.5.2.2.

C.3 Creating a new subscription to play-and-collect notifications

This operation is used for creating a new subscription to play-and-collect media interaction notifications, see section 6.6.5.

The notifyURL either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

The request parameters are as follows:

Name	Type/Values	Optional	Description
notifyURL	xsd:anyURI	No	Notification endpoint definition.
callbackData	xsd:string	Yes	Data the application can register with the server when subscribing to notifications, and that are passed back unchanged in each of the related notifications.
notificationFormat	common:NotificationFormat	Yes	Default: XML. Application can specify format of the resource representation in notifications that are related to this subscription. The choice is between {XML, JSON}.
callSessionIdentifier	xsd:string	Yes	Identifies the existing call session via a Parlay X call session identifier. If this parameter is not present, the "linkHref" parameter MUST be present.
linkHref	xsd:anyURI	Yes	Identifies the existing call session via a OMA REST resource URL which MUST point to a resource of type "CallSessionInformation". If this parameter is not present, the "callSessionIdentifier" parameter MUST be present.
clientCorrelator	xsd:string	Yes	A correlator that the client can use to tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from

			communication failures during resource creation and therefore avoids creating the same subscription twice in such situations. In case the element 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.

If the operation was successful, it returns an HTTP Status of “201 Created”.

C.3.1 Example (Informative)

C.3.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/collection HTTP/1.1
Content-Type: application/x-www-form-urlencoded
Content-Length: nnnn
Accept: application/xml
Host: example.com

notifyURL=http%3A%2F%2Fapplication.example.com%2Fnotifications%2FMediaInteractionNotificationURL&
callSessionIdentifier=A1234&
clientCorrelator=312345
```

C.3.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:playAndCollectInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A1234</callSessionIdentifier>
  <clientCorrelator>312345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001</resourceURL>
</cn:playAndCollectInteractionSubscription>
```

The notes in section 6.6.5.1.2 apply.

C.4 Creating a new subscription to play-and-record notifications

This operation is used for creating a new subscription to play-and-record media interaction notifications, see section 6.8.5.

The notifyURL either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

The request parameters are as follows:

Name	Type/Values	Optional	Description
notifyURL	xsd:anyURI	No	Notification endpoint definition.
callbackData	xsd:string	Yes	Data the application can register with the server when subscribing to notifications, and that are passed back unchanged in each of the related notifications.
notificationFormat	common:NotificationFormat	Yes	Default: XML. Application can specify format of the resource representation in notifications that are related to this subscription. The choice is between {XML, JSON}.
callSessionIdentifier	xsd:string	Yes	Identifies the existing call session via a Parlay X call session identifier. If this parameter is not present, the “linkHref” parameter MUST be present.
linkHref	xsd:anyURI	Yes	Identifies the existing call session via a OMA REST resource URL which MUST point to a resource of type “CallSessionInformation”. If this parameter is not present, the “callSessionIdentifier” parameter MUST be present.
clientCorrelator	xsd:string	Yes	A correlator that the client can use to tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from communication failures during resource creation and therefore avoids creating the same subscription twice in such situations. In case the element 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.

If the operation was successful, it returns an HTTP Status of “201 Created”.

C.4.1 Example (Informative)

C.4.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/recording HTTP/1.1
Content-Type: application/x-www-form-urlencoded
Content-Length: nnnn
Accept: application/xml
Host: example.com

notifyURL=http%3A%2F%2Fapplication.example.com%2Fnotifications%2FMediaInteractionNotificationURL&
callSessionIdentifier=A5678&
clientCorrelator=412345
```

C.4.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:playAndRecordInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A5678</callSessionIdentifier>
  <clientCorrelator>412345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001</resourceURL>
</cn:playAndRecordInteractionSubscription>
```

Note that alternatively, a ‘resourceReference’ root element could be returned, as illustrated in section 6.2.5.2.2.

C.5 Deferred response to a previous call direction notification

This operation is used by the Client to send a deferred response to a Call Direction notification to the Server, see section 6.13.5.

The request parameters are as follows:

Name	Type/Values	Optional	Description
actionToPerform	ActionValues	No	Indicates the action the server is expected to perform.

routingAddress	xsd:anyURI	Yes	The address (e.g. 'sip' URI, 'tel' URI, 'acr' URI) to be used in case the action indicates 'Route'.
chargingDescription	xsd:string [0..unbounded]	Yes	Description of charge to apply to this message. In case charging is required, this parameter MUST be present.
chargingCurrency	xsd:string	Yes	Currency of charge to apply to this message. In case chargingDescription is not present, this parameter MUST NOT be present.
chargingAmount	xsd:decimal	Yes	Charging amount to apply to this message. In case chargingDescription is not present, this parameter MUST NOT be present.
chargingCode	xsd:string	Yes	Charging code to apply to this message. In case chargingDescription is not present, this parameter MUST NOT be present.
media	common:Media[0..unbounded]	Yes	Identifies the desired media type(s) for the call, i.e. the media type(s) to be applied to the participants in the call session. Only to be used in case the action indicates 'Route'. If the parameter is omitted, the media type(s) SHALL be negotiated by the underlying network.
mediaDirection	common:MediaDirection [0..unbounded]	Yes	Identifies the desired media direction for each of the media types. Only to be used if the action indicates 'Route'. The number of occurrences of this parameter MUST match the number of occurrences of the 'media' parameter.
decisionId	xsd:string	No	Identifier unique in the scope of a client to mark related requests and responses, for use in deferred call direction response messages.

If the operation was successful, it returns an HTTP Status of "204 No Content".

C.5.1 Example (Informative)

C.5.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001/deferredResponse HTTP/1.1
```

```
Content-Type: application/x-www-form-urlencoded
Content-Length: nnnn
Accept: application/xml
Host: example.com

actionToPerform=Route&
routingAddress=tel%3A%2B19585550105&
decisionId=ABC-776655
```

C.5.1.2 Response

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

C.6 Creating a call event monitor

This operation is used for creating a call event monitor, see section 6.14.5.

The request parameters are as follows:

Name	Type/Values	Optional	Description
filterAddress	xsd:anyURI[1..unbounded]	No	Party addresses (e.g. 'sip' URI, 'tel' URI, 'acr' URI) to receive notifications on. The address type/direction is determined by the AddressDirection. If the AddressDirection part is not populated this is for notifications on called party addresses.
filterCriteria	CallEvents[0..unbounded]	Yes	List of Call Event values to generate notification.
addressDirection	AddressDirection	Yes	Determine if the address considered is "Called" or "Calling". It applies for all the addresses.
clientCorrelator	xsd:string	Yes	A correlator that the client can use to tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from communication failures during resource creation and therefore avoids creating the same call event monitor twice in such situations. In case the element 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.

If the operation was successful, it returns an HTTP Status of “201 Created”.

C.6.1 Example (Informative)

C.6.1.1 Request

```
POST /exampleAPI/callnotification/v1/monitors HTTP/1.1
Content-Type: application/x-www-form-urlencoded
Content-Length: nnnn
Accept: application/xml
Host: example.com

filterAddress=tel%3A%2B19585550101&
filterAddress=tel%3A%2B19585550102&
filterCriteria=Answer&
filterCriteria=Busy&
addressDirection=Called&
clientCorrelator=612345
```

C.6.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/monitors/mon001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:callEventMonitor xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <filter>
    <address>tel:+19585550101</address>
    <address>tel:+19585550102</address>
    <criteria>Answer</criteria>
    <criteria>Busy</criteria>
    <addressDirection>Called</addressDirection>
  </filter>
  <callEventRecordList>
    <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords</resourceURL>
  </callEventRecordList>
  <clientCorrelator>612345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/monitors/mon001</resourceURL>
</cn:callEventMonitor>
```

Note that alternatively, a ‘resourceReference’ root element could be returned, as illustrated in section 6.14.5.2.2.

C.7 Creating a new subscription to speech recognition notifications

This operation is used for creating a new subscription to speech recognition notifications, see section 6.18.5.

The notifyURL either contains the Client-side Notification URL (as defined by the client) or the Server-side Notification URL (as obtained during the creation of the Notification Channel [REST_NetAPI_NotificationChannel]).

The request parameters are as follows:

Name	Type/Values	Optional	Description
notifyURL	xsd:anyURI	No	Notification endpoint definition.
callbackData	xsd:string	Yes	Data the application can register with the server when subscribing to notifications, and that are passed back unchanged in each of the related notifications.
notificationFormat	common:NotificationFormat	Yes	Default: XML. Application can specify format of the resource representation in notifications that are related to this subscription. The choice is between {XML, JSON}.
callSessionIdentifier	xsd:string	Yes	Identifies the existing call session via a Parlay X call session identifier. If this parameter is not present, the “linkHref” parameter MUST be present.
linkHref	xsd:anyURI	Yes	Identifies the existing call session via a OMA REST resource URL which MUST point to a resource of type “CallSessionInformation”. If this parameter is not present, the “callSessionIdentifier” parameter MUST be present.
clientCorrelator	xsd:string	Yes	A correlator that the client can use to tag this particular resource representation during a request to create a resource on the server. This element MAY be present. Note: this allows the client to recover from communication failures during resource creation and therefore avoids creating the same subscription twice in such situations. In case the element 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.

If the operation was successful, it returns an HTTP Status of “201 Created”.

C.7.1 Example (Informative)

C.7.1.1 Request

```
POST /exampleAPI/callnotification/v1/subscriptions/recognition HTTP/1.1
Content-Type: application/x-www-form-urlencoded
Content-Length: nnnn
Accept: application/xml
Host: example.com

notifyURL=http%3A%2F%2Fapplication.example.com%2Fnotifications%2FMediaInteractionNotificationURL&
callSessionIdentifier=A91011&
clientCorrelator=512345
```

C.7.1.2 Response

```
HTTP/1.1 201 Created
Content-Type: application/xml
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

<?xml version="1.0" encoding="UTF-8"?>
<cn:recognitionInteractionSubscription xmlns:cn="urn:oma:xml:rest:netapi:callnotification:1">
  <callbackReference>
    <notifyURL>http://application.example.com/notifications/MediaInteractionNotificationURL</notifyURL>
  </callbackReference>
  <callSessionIdentifier>A91011</callSessionIdentifier>
  <clientCorrelator>512345</clientCorrelator>
  <resourceURL>http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001</resourceURL>
</cn:recognitionInteractionSubscription>
```

Note that alternatively, a ‘resourceReference’ root element could be returned, as illustrated in section 6.2.5.2.2.

Appendix D. 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 invocations from browsers or other processors with JavaScript engines. Further information on JSON can be found at[RFC4627].

The following examples show the request and response for various operations using a JSON binding. The examples follow the XML to JSON serialization rules in [REST_NetAPI_Common]. A JSON response can be obtained by using the content type negotiation mechanism specified in [REST_NetAPI_Common].

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

D.1 Retrieving all subscriptions (section 6.1.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callNotificationSubscriptionList": {
   "callDirectionSubscription": {
      "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallDirectionURL"},
      "clientCorrelator": "212345",
      "filter": {
         "address": [
            "tel:+19585550101",
            "tel:+19585550102"
         ],
         "addressDirection": "Called",
         "criteria": "Busy"
      },
      "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001"
   },
   "callEventSubscription": [
      {
         "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallNotificationURL"},
         "clientCorrelator": "112345",
         "filter": {
            "address": [
               "tel:+19585550101",
               "tel:+19585550102"
            ],
            "addressDirection": "Called",
            "criteria": [
               "Answer",
```

```
                "Busy"
            ]
        },
        "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001"
      },
      {
        "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallNotificationURL"},
        "clientCorrelator": "012345",
        "filter": {
          "address": [
            "tel:+19585550103",
            "tel:+19585550104"
          ],
          "addressDirection": "Called",
          "criteria": "Busy"
        },
        "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub002"
      }
    ],
    "playAndCollectInteractionSubscription": [
      {
        "callSessionIdentifier": "A1234",
        "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
        "clientCorrelator": "312345",
        "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001"
      },
      {
        "callSessionIdentifier": "A5678",
        "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
        "clientCorrelator": "412345",
        "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001"
      }
    ],
    "recognitionInteractionSubscription": {
      "callSessionIdentifier": "A91011",
      "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
      "clientCorrelator": "512345",
      "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001"
    },
    "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions"
}}
```


D.2 Retrieving all subscriptions to call event notifications (section 6.2.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/callEvent HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callNotificationSubscriptionList": {
   "callEventSubscription": [
      {
         "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallNotificationURL"},
         "clientCorrelator": "112345",
         "filter": {
            "address": [
               "tel:+19585550101",
               "tel:+19585550102"
            ],
            "addressDirection": "Called",
            "criteria": [
               "Answer",
               "Busy"
            ]
         },
         "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001"
      },
      {
         "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallNotificationURL"},
         "clientCorrelator": "012345",
         "filter": {
            "address": [
               "tel:+19585550103",
               "tel:+19585550104"
            ],
            "addressDirection": "Called",
            "criteria": "Busy"
         },
         "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub002"
      }
   ],
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions"
}}
```

D.3 Creating a new subscription to call event notifications, response with copy of created resource (section 6.2.5.1)

Request:

```
POST /exampleAPI/callnotification/v1/subscriptions/callEvent HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com
```

```
{"callEventSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallNotificationURL"},
   "clientCorrelator": "112345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": [
         "Answer",
         "Busy"
      ]
   }
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callEventSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallNotificationURL"},
   "clientCorrelator": "112345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": [
         "Answer",
         "Busy"
      ]
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001"
}}
```

D.4 Creating a new subscription to call event notifications, response with location of created resource (section 6.2.5.2)

Request:

```
POST /exampleAPI/callnotification/v1/subscriptions/callEvent HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
```

```
Accept: application/json
Host: example.com

{"callEventSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallNotificationURL"},
   "clientCorrelator": "112345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": [
         "Answer",
         "Busy"
      ]
   }
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"resourceReference": {"resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001"}}
```

D.5 Retrieving an individual subscription to call event notifications (section 6.3.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/callEvent/sub001?resFormat=JSON HTTP/1.1

Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callEventSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallNotificationURL"},
   "clientCorrelator": "112345",
   "filter": {
```

```
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": [
         "Answer",
         "Busy"
      ]
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001"
}}
```

D.6 Removing a subscription to call event notifications (section 6.3.6.1)

Request:

```
DELETE /exampleAPI/callnotification/v1/subscriptions/callEvent/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

D.7 Retrieving all subscriptions to call direction notifications (section 6.4.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/callDirection HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callNotificationSubscriptionList": {
   "callDirectionSubscription": {
```

```
      "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallDirectionURL"},
      "clientCorrelator": "212345",
      "filter": {
         "address": [
            "tel:+19585550101",
            "tel:+19585550102"
         ],
         "addressDirection": "Called",
         "criteria": "Busy"
      },
      "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection"
}}
```

D.8 Creating a new subscription to call direction notifications, using tel URI (section 6.4.5.1)

Request:

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com

{"callDirectionSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallDirectionURL"},
   "clientCorrelator": "212345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": "Busy"
   }
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callDirectionSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallDirectionURL"},
   "clientCorrelator": "212345",
   "filter": {
```

```
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": "Busy"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001"
}}
```


D.9 Creating a new subscription to call direction notifications, using ACR (section 6.4.5.2)

Request:


```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com

{"callDirectionSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallDirectionURL"},
   "clientCorrelator": "212345",
   "filter": {
      "address": [
         "acr:pseudonym123",
         "acr:pseudonym456"
      ],
      "addressDirection": "Called",
      "criteria": "Busy"
   }
}}
```


Response:


```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callDirectionSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallDirectionURL"},
   "clientCorrelator": "212345",
   "filter": {
      "address": [
         "acr:pseudonym123",
         "acr:pseudonym456"
      ],
      "addressDirection": "Called",
```

```
      "criteria": "Busy"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001"
}}
```


D.10 Retrieving an individual subscription to call direction notifications (section 6.5.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:


```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callDirectionSubscription": {
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/CallDirectionURL"},
   "clientCorrelator": "212345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": "Busy"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001"
}}
```


D.11 Removing a subscription to call direction notifications (section 6.5.6.1)

Request:

```
DELETE /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

D.12 Retrieving all subscriptions to play-and-collect media interaction notifications (section 6.6.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/collection HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callNotificationSubscriptionList": {
   "playAndCollectInteractionSubscription": {
      "callSessionIdentifier": "A1234",
      "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
      "clientCorrelator": "312345",
      "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/collection"
}}
```

D.13 Creating a new subscription to play-and-collect media interaction notifications (section 6.6.5.1)

Request:

```
POST /exampleAPI/callnotification/v1/subscriptions/collection HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com

{"playAndCollectInteractionSubscription": {
   "callSessionIdentifier": "A1234",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "312345"
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"playAndCollectInteractionSubscription": {
   "callSessionIdentifier": "A1234",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "312345",
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001"
}}
```

D.14 Retrieving an individual subscription to play-and-collect media interaction notifications (section 6.7.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/collection/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"playAndCollectInteractionSubscription": {
   "callSessionIdentifier": "A1234",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "312345",
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001"
}}
```

D.15 Removing a subscription to play-and-collect media interaction notifications (section 6.7.6.1)

Request:

```
DELETE /exampleAPI/callnotification/v1/subscriptions/collection/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

D.16 Retrieving all subscriptions to play-and-record interaction notifications (section 6.8.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/recording HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callNotificationSubscriptionList": {
   "playAndRecordInteractionSubscription": {
      "callSessionIdentifier": "A5678",
      "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
      "clientCorrelator": "412345",
      "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recording"
}}
```

D.17 Creating a new subscription to play-and-record media interaction notifications (section 6.8.5.1)

Request:

```
POST /exampleAPI/callnotification/v1/subscriptions/recording HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com

{"playAndRecordInteractionSubscription": {
   "callSessionIdentifier": "A5678",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "412345"
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"playAndRecordInteractionSubscription": {
   "callSessionIdentifier": "A5678",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "412345",
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001"
}}
```

D.18 Retrieving an individual subscription to play-and-record media interaction notification (section 6.9.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/recording/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"playAndRecordInteractionSubscription": {
   "callSessionIdentifier": "A5678",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "412345",
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001"
}}
```

D.19 Removing a subscription to play-and-record media interaction notifications (section 6.9.6.1)

Request:

```
DELETE /exampleAPI/callnotification/v1/subscriptions/recording/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

D.20 Notifying a client about a call event (section 6.10.5.1)

Request:

```
POST /notifications/CallNotificationURL HTTP/1.1
Accept: application/json
Content-Type: application/json
Content-Length: nnnn
Host: application.example.com

{"callEventNotification": {
   "callSessionIdentifier": "B12345",
   "calledParticipant": "tel:+19585550101",
   "callingParticipant": "tel:+19585550102",
   "callingParticipantName": "Peter E. Xample",
   "eventDescription": {
      "callEvent": "Busy",
      "description": "optional service-specific information"
   },
   "link": [
      {
         "href": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callEvent/sub001",
         "rel": "CallEventSubscription"
      },
      {
         "href": "http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001",
         "rel": "CallSessionInformation"
      }
   ],
   "notificationType": "CallEvent"
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:21:59 GMT
```

D.21 Notifying a client about a play-and-collect media interaction event (section 6.11.5.1)

Request:

```
POST /notifications/MediaInteractionNotificationURL HTTP/1.1
Accept: application/json
```

```
Content-Type: application/json
Content-Length: nnnn
Host: application.example.com

{"mediaInteractionNotification": {
   "callParticipant": "tel:+19585550101",
   "link": {
      "href": "http://example.com/exampleAPI/callnotification/v1/subscriptions/collection/sub001",
      "rel": "PlayAndCollectInteractionSubscription"
   },
   "mediaInteractionResult": "1234#",
   "notificationType": "PlayAndCollect"
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:21:59 GMT
```

D.22 Notifying a client about a play-and-record media interaction event (section 6.11.5.2)

Request:

```
POST /notifications/MediaInteractionNotificationURL HTTP/1.1
Accept: application/json
Content-Type: application/json
Content-Length: nnnn
Host: application.example.com

{"mediaInteractionNotification": {
   "callParticipant": "tel:+19585550101",
   "link": {
      "href": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001",
      "rel": "PlayAndRecordInteractionSubscription"
   },
   "mediaInteractionResult": "http://media.example.com/recordings/1234.wav",
   "notificationType": "PlayAndRecord"
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:21:59 GMT
```

D.23 Notifying a client about a call direction event with immediate response (section 6.12.5.1)

Request:

```
POST /notifications/CallDirectionNotificationURL HTTP/1.1
Accept: application/json
Content-Type: application/json
Content-Length: nnnn
Host: application.example.com

{"callEventNotification": {
   "callSessionIdentifier": "B6789",
   "calledParticipant": "tel:+19585550101",
   "callingParticipant": "tel:+19585550102",
   "callingParticipantName": "Peter E. Xample",
   "eventDescription": {"callEvent": "Busy"},
   "link": {
      "href": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001",
      "rel": "callEventSubscription"
   },
   "notificationType": "CallDirection"
}}
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:40:59 GMT

{"action": {
   "actionToPerform": "Route",
   "routingAddress": "tel:+19585550105"
}}
```

D.24 Notifying a client about a call direction event with deferred response (section 6.12.5.2)

Request:

```
POST /notifications/MediaInteractionNotificationURL HTTP/1.1
Accept: application/json
Content-Type: application/json
Content-Length: nnnn
Host: application.example.com

{"callEventNotification": {
   "callSessionIdentifier": "B6789",
   "calledParticipant": "tel:+19585550101",
```

```
   "callingParticipant": "tel:+19585550102",
   "callingParticipantName": "Peter E. Xample",
   "decisionId": "ABC-776655",
   "eventDescription": {"callEvent": "Busy"},
   "link": {
      "href": "http://example.com/exampleAPI/callnotification/v1/subscriptions/callDirection/sub001",
      "rel": "callEventSubscription"
   },
   "notificationType": "CallDirection"
}}
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:40:59 GMT

{"action": {
   "actionToPerform": "Deferred",
   "decisionId": "ABC-776655"
}}
```

D.25 Deferred response to a previous call direction notification (section 6.13.5.1)

Request:

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001/deferredResponse HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com

{"action": {
   "actionToPerform": "Route",
   "decisionId": "ABC-776655",
   "routingAddress": "tel:+19585550105"
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

D.26 Deferred response to a previous call direction notification (section 6.13.5.2)

Request:

```
POST /exampleAPI/callnotification/v1/subscriptions/callDirection/sub001/deferredResponse HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com

{"action": {
   "actionToPerform": "Route",
   "decisionId": "ABC-776655",
   "routingAddress": "tel:+19585550105"
}}
```

Response:

```
HTTP/1.1 408 Request Timeout
Date: Mon, 28 Jun 2010 17:51:59 GMT
Content-Type: application/json
Content-Length: nnnn

{"requestError": {"policyException": {
   "messageId": "POL0010",
   "text": "Requested information unavailable as the retention time interval has expired."
}}}
```

D.27 Retrieving all call event monitors (section 6.14.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/monitors HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT


{"callEventMonitorList": {
   "callEventMonitor": {
      "callEventRecordList": {
         "callEventRecord": [
```

```
            {
               "callSessionIdentifier": "B12345",
               "calledParticipant": "tel:+19585550101",
               "callingParticipant": "tel:+19585550102",
               "callingParticipantName": "Peter E. Xample",
               "eventDescription": {"callEvent": "Busy"},
               "link": {
                  "href": "http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001",
                  "rel": "CallSessionInformation"
               },
               "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001",
               "timestamp": "2010-06-28T18:21:55"
            },
            {
               "callSessionIdentifier": "B23456",
               "calledParticipant": "tel:+19585550102",
               "callingParticipant": "tel:+19585550101",
               "callingParticipantName": "Max Muster",
               "eventDescription": {"callEvent": "Answer"},
               "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer002",
               "timestamp": "2010-06-28T18:27:02"
            }
         ],
         "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords"
      },
      "clientCorrelator": "612345",
      "filter": {
         "address": [
            "tel:+19585550101",
            "tel:+19585550102"
         ],
         "addressDirection": "Called",
         "criteria": [
            "Answer",
            "Busy"
         ]
      },
      "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors"
}}
```


D.28 Creating a new call event monitor, response with a copy of the created resource (section 6.14.5.1)

Request:

```
POST /exampleAPI/callnotification/v1/monitors HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com
```

```
{"callEventMonitor": {
   "clientCorrelator": "612345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": [
         "Answer",
         "Busy"
      ]
   }
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/monitors/mon001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callEventMonitor": {
   "callEventRecordList": {"resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords"},
   "clientCorrelator": "612345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": [
         "Answer",
         "Busy"
      ]
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001"
}}
```

D.29 Creating a new call event monitor, response with location of the created resource (section 6.14.5.2)

Request:

```
POST /exampleAPI/callnotification/v1/monitors HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com
```

```
{"callEventMonitor": {
   "clientCorrelator": "612345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
      "criteria": [
         "Answer",
         "Busy"
      ]
   }
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/monitors/mon001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"resourceReference": {"resourceURL": " http://example.com/exampleAPI/callnotification/v1/monitors/mon001"}}
```

D.30 Retrieving an individual call event monitor (section 6.15.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/monitors/mon001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT

{"callEventMonitor": {
   "callEventRecordList": {"resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords"},
   "clientCorrelator": "612345",
   "filter": {
      "address": [
         "tel:+19585550101",
         "tel:+19585550102"
      ],
      "addressDirection": "Called",
```

```
      "criteria": [
         "Answer",
         "Busy"
      ]
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001"
}}
```

D.31 Deleting a call event monitor (section 6.15.6.1)

Request:

```
DELETE /exampleAPI/callnotification/v1/monitors/mon001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:51:59 GMT
```

D.32 Retrieving the list of call events collected by a call event monitor (section 6.16.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/monitors/mon001/callEventRecords HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT

{"callEventRecordList": {
   "callEventRecord": [
      {
         "callSessionIdentifier": "B12345",
         "calledParticipant": "tel:+19585550101",
         "callingParticipant": "tel:+19585550102",
         "callingParticipantName": "Peter E. Xample",
         "eventDescription": {"callEvent": "Busy"},
         "link": {
```

```
            "href": "http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001",
            "rel": "CallSessionInformation"
         },
         "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001",
         "timestamp": "2010-06-28T18:21:55"
      },
      {
         "callSessionIdentifier": "B23456",
         "calledParticipant": "tel:+19585550102",
         "callingParticipant": "tel:+19585550101",
         "callingParticipantName": "Max Muster",
         "eventDescription": {"callEvent": "Answer"},
         "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer002",
         "timestamp": "2010-06-28T18:27:02"
      }
   ],
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords"
}}
```


D.33 Retrieving individual call event information (section 6.17.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:


```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:51:59 GMT

{"callEventRecord": {
   "callSessionIdentifier": "B12345",
   "calledParticipant": "tel:+19585550101",
   "callingParticipant": "tel:+19585550102",
   "callingParticipantName": "Peter E. Xample",
   "eventDescription": {"callEvent": "Busy"},
   "link": {
      "href": "http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001",
      "rel": "CallSessionInformation"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001",
   "timestamp": "2010-06-28T18:21:55"
}}
```

D.34 Deleting an individual call event (section 6.17.6.1)

Request:

```
DELETE /exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/xml
Content-Length: nnnn
Date: Mon, 28 Jun 2010 18:52:00 GMT

{"callEventRecord": {
   "callSessionIdentifier": "B12345",
   "calledParticipant": "tel:+19585550101",
   "callingParticipant": "tel:+19585550102",
   "callingParticipantName": "Peter E. Xample",
   "eventDescription": {"callEvent": "Busy"},
   "link": {
      "href": "http://example.com/exampleAPI/thirdpartycall/v1/callSessions/cs001",
      "rel": "CallSessionInformation"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/monitors/mon001/callEventRecords/cer001",
   "timestamp": "2010-06-28T18:21:55"
}}
```

D.35 Retrieving all subscriptions to speech recognition interaction notifications (see section 6.18.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/recognition HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"callNotificationSubscriptionList": {
   "recognitionInteractionSubscription": {
      "callSessionIdentifier": "A91011",
      "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
```

```
      "clientCorrelator": "512345",
      "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001"
   },
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition"
}}
```

D.36 Creating a new subscription to speech recognition media interaction notifications (see section 6.18.5.1)

Request:

```
POST /exampleAPI/callnotification/v1/subscriptions/recognition HTTP/1.1
Content-Type: application/json
Content-Length: nnnn
Accept: application/json
Host: example.com

{"recognitionInteractionSubscription": {
   "callSessionIdentifier": "A91011",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "512345"
}}
```

Response:

```
HTTP/1.1 201 Created
Content-Type: application/json
Location: http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"recognitionInteractionSubscription": {
   "callSessionIdentifier": "A91011",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "512345",
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001"
}}
```

D.37 Retrieving an individual subscription to speech recognition media interaction notification (see section 6.19.3.1)

Request:

```
GET /exampleAPI/callnotification/v1/subscriptions/recognition/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 200 OK
Content-Type: application/json
Content-Length: nnnn
Date: Mon, 28 Jun 2010 17:51:59 GMT

{"recognitionInteractionSubscription": {
   "callSessionIdentifier": "A91011",
   "callbackReference": {"notifyURL": "http://application.example.com/notifications/MediaInteractionNotificationURL"},
   "clientCorrelator": "512345",
   "resourceURL": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recording/sub001"
}}
```

D.38 Removing a subscription to speech recognition media interaction notifications (see section 6.19.6.1)

Request:

```
DELETE /exampleAPI/callnotification/v1/subscriptions/recognition/sub001 HTTP/1.1
Accept: application/json
Host: example.com
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 17:51:59 GMT
```

D.39 Notifying a client about a speech recognition event (see section 6.20.5.1)

Request:

```
POST /notifications/MediaInteractionNotificationURL HTTP/1.1
Accept: application/json
Content-Type: application/json
Content-Length: nnnn
Host: application.example.com

{"recognitionInteractionNotification": {
   "callParticipant": "tel:+19585550101",
   "link": {
      "href": "http://example.com/exampleAPI/callnotification/v1/subscriptions/recognition/sub001",
      "rel": "RecognitionInteractionSubscription"
   },
   "recognitionResult":
"ICAgICAgICA8Zm9vIHhtbG5zPSJodHRwOi8vZXhhbXBsZS5jb20iPg0KICAgICAgICAgICAgPCEtLSBkYXRhIC0tPiANCiAgICAgICAgPC9mb28+DQoNCg
   "resultEncoding": "base64"
   "resultType": "application/vnd.myfootype"
}}
```

Response:

```
HTTP/1.1 204 No Content
Date: Mon, 28 Jun 2010 18:21:59 GMT
```

Appendix E. Parlay X operations mapping (Informative)

The table below illustrates the mapping between REST resources/methods and Parlay X [3GPP 29.199-03] equivalent operations.

REST resource	REST method	REST section reference	Parlay X equivalent operation
Subscriptions to call event notifications	POST	6.2.5	startCallNotification
Individual subscription to call event notifications	DELETE	6.3.6	stopCallNotification
Subscriptions to call direction notifications	POST	6.4.5	startCallDirectionNotification
Individual subscription to call direction notifications	DELETE	6.5.6	stopCallDirectionNotification
Subscriptions to play-and-collect media interaction notifications	POST	6.6.5	startPlayAndCollectNotification
Individual subscription to play-and-collect media interaction notifications	DELETE	6.7.6	stopMediaInteractionNotification
Subscriptions to play-and-record media interaction notifications	POST	6.8.5	startPlayAndRecordNotification
Individual subscription to play-and-record media interaction notifications	DELETE	6.9.6	stopMediaInteractionNotification
Client notification about call events	POST	6.10.5	notifyCallEvent
Client notification about media interaction events	POST	6.11.5	notifyPlayAndCollectEvent, notifyPlayAndRecordEvent
Client notification about call direction events	POST	6.12.5	handleCallEvent

Table 1: Parlay X operations mapping

Appendix F. Light-weight resources (Informative)

As this version of the specification does not define any light-weight resources, this appendix is empty.

Appendix G. Authorization aspects (Normative)

This appendix specifies how to use the RESTful Call Notification API in combination with some authorization frameworks.

G.1 Use with OMA Authorization Framework for Network APIs

The RESTful Call Notification API MAY support the authorization framework defined in [Autho4API_10].

A RESTful Call Notification API supporting [Autho4API_10]:

- SHALL conform to section D.1 of [REST_NetAPI_Common];
- SHALL conform to this section G.1.

G.1.1 Scope values

G.1.1.1 Definitions

In compliance with [Autho4API_10], an authorization server serving clients requests for getting authorized access to the resources exposed by the RESTful Call Notification API:

- SHALL support the scope values defined in the table below;
- MAY support scope values not defined in this specification.

Scope value	Description	For one-time access token
oma_rest_callnotification.all_{apiVersion}	Provide access to all defined operations on the resources in this version of the API. The {apiVersion} part of this identifier SHALL have the same value as the “apiVersion” URL variable which is defined in section5.1. This scope value is the union of the other scope values listed in the next rows of this table.	No
oma_rest_callnotification.callevent	Provide access to all defined operations regarding call event notifications	No

Scope value	Description	For one-time access token
oma_rest_callnotification.calldirection	Provide access to all defined operations regarding call direction notifications	No
oma_rest_callnotification.monitor	Provide access to all defined operations regarding call event monitors	No
oma_rest_callnotification.play_and_collect	Provide access to all defined operations regarding play-and-collect notifications	No
oma_rest_callnotification.play_and_record	Provide access to all defined operations regarding play-and-record notifications	No
oma_rest_callnotification.recognition	Provide access to all defined operations regarding speech recognition notifications	No

Table 2: Scope values for RESTful Call Notification API

G.1.1.2 Downscoping

In the case where the client requests authorization for "oma_rest_callnotification.all_{apiVersion}" scope, the authorization server and/or resource owner MAY restrict the granted scope to some of the following scope values:

- "oma_rest_callnotification.callevent"
- "oma_rest_callnotification.calldirection"
- "oma_rest_callnotification.monitor"
- "oma_rest_callnotification.play_and_collect"
- "oma_rest_callnotification.play_and_record"
- "oma_rest_callnotification.recognition"

G.1.1.3 Mapping with resources and methods

Tables in this section specify how the scope values defined in section G.1.1.1 for the RESTful Call Notification API map to the REST resources and methods of this API. In these tables, the root "oma_rest_callnotification." of scope values is omitted for readability reasons.

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Section refe-rence	HTTP verbs			
			GET	PUT	POST	DELETE
All subscriptions related to Call Notification	/subscriptions	6.1	all_{apiVersion} or callevent or calldirection or monitor or play_and_collect or play_and_record or recognition(1)	n/a	n/a	n/a

Table 2: Required scope values for general call notification subscriptions

(1) Only resources of such types that the scope allows access to will be shown when accessing the list of all subscriptions interactions.

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Section refe-rence	HTTP verbs			
			GET	PUT	POST	DELETE
All subscriptions to call event notifications	/subscriptions/callEvent	6.2	all_{apiVersion} or callevent	n/a	all_{apiVersion} or callevent	n/a
Individual subscription to call event notifications	/subscriptions/callEvent/{subscriptionId}	6.3	all_{apiVersion} or callevent	n/a	n/a	all_{apiVersion} or callevent
All subscriptions to call direction notifications	/subscriptions/callDirection	6.4	all_{apiVersion} or calldirection	n/a	all_{apiVersion} or calldirection	n/a
Individual subscription to call direction notifications	/subscriptions/callDirection/{subscriptionId}	6.5	all_{apiVersion} or calldirection	n/a	n/a	all_{apiVersion} or calldirection
Deferred responses to previous call direction notifications	/subscriptions/callDirection/{subscriptionId}/ deferredResponse	6.13	n/a	n/a	all_{apiVersion} or calldirection	n/a
All subscriptions to play-and-collect media interaction notifications	/subscriptions/collection	6.6	all_{apiVersion} or play_and_collect	n/a	all_{apiVersion} or play_and_collect	n/a
Individual subscription to play-and-collect media	/subscriptions/collection/{subscriptionId}	6.7	all_{apiVersion} or	n/a	n/a	all_{apiVersion}

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Section refe-rence	HTTP verbs			
			GET	PUT	POST	DELETE
interaction notifications			play_and_collect			or play_and_collect
All subscriptions to play-and-record media interaction notifications	/subscriptions/recording	6.8	all_{apiVersion} or play_and_record	n/a	all_{apiVersion} or play_and_record	n/a
Individual subscription to play-and-record media interaction notifications	/subscriptions/recording/{subscriptionId}	6.9	all_{apiVersion} or play_and_record	n/a	n/a	all_{apiVersion} or play_and_record
All subscriptions to play-and-record media interaction notifications	/subscriptions/recognition	6.18	all_{apiVersion} or recognition	n/a	all_{apiVersion} or recognition	n/a
Individual subscription to play-and-record media interaction notifications	/subscriptions/recognition/{subscriptionId}	6.19	all_{apiVersion} or recognition	n/a	n/a	all_{apiVersion} or recognition

Table 3: Required scope values for type-specific call event subscriptions

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Section refe-rence	HTTP verbs			
			GET	PUT	POST	DELETE
Client notification about call events	Specified by client when subscription is created or provisioned	6.10	n/a	n/a	all_{apiVersion} or callevent	n/a
Client notification about media interaction events	Specified by client when subscription is created or provisioned	6.11	n/a	n/a	all_{apiVersion} or play_and_collect or play_and_record	n/a
Client notification about	Specified by client when subscription is created or	6.12	n/a	n/a	all_{apiVersion}	n/a

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Section refe-rence	HTTP verbs			
			GET	PUT	POST	DELETE
call direction events	provisioned				or calldirection	
Client notification about media interaction events	Specified by client when subscription is created or provisioned	6.20	n/a	n/a	all_{apiVersion} or recognition	n/a

Table 4: Required scope values for notifications

Notifications are only sent to clients that have prior passed an authorization token with a matching scope in the related subscription.

Resource	URL Base URL: http://{serverRoot}/callnotification/{apiVersion}	Section refe-rence	HTTP verbs			
			GET	PUT	POST	DELETE
All call event monitors	/monitors	6.14	all_{apiVersion} or monitor	n/a	all_{apiVersion} or monitor	n/a
Individual call event monitor	/monitors/{monitorId}	6.15	all_{apiVersion} or monitor	n/a	n/a	all_{apiVersion} or monitor
List of call events per monitor	/monitors/{monitorId}/callEventRecords	6.16	all_{apiVersion} or monitor	n/a	n/a	n/a
Individual call event information	/monitors/{monitorId}/callEventRecords/{callEventRecordId}	6.17	all_{apiVersion} or monitor	n/a	n/a	all_{apiVersion} or monitor

Table 5: Required scope values for call monitors

G.1.2 Use of ‘acr:Authorization’

This section specifies the use of ‘acr:Authorization’ in place of an end user identifier (i.e. “address”, “calledParticipant”, “callingParticipant”, “callParticipant”) in a data structure.

An ‘acr’ URI of the form ‘acr:Authorization’, where ‘Authorization’ is a reserved keyword MAY be used to avoid exposing a real end user identifier to the application.

A client MAY use ‘acr:Authorization’ in a data structure in place of a user identifier (such as “address”, “calledParticipant”, “callingParticipant”, “callParticipant”), when the RESTful Call Notification API is used in combination with [Autho4API_10].

In the case the RESTful Call Notification API supports [Autho4API_10], the server:

- SHALL accept ‘acr:Authorization’ as a valid value for a user Id variable in the body (i.e. “address”, “calledParticipant”, “callingParticipant”, “callParticipant”).
- SHALL conform to [REST_Common_TS] section 5.8.1.1 regarding the processing of ‘acr:Authorization’.