

**Open Service Access (OSA);
Parlay X Web Services;
Part 12: Multimedia Conference**



Reference

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Foreword

This ETSI Standard (ES) has been produced by ETSI Technical Committee Telecommunications and Internet converged Services and Protocols for Advanced Networking (TISPAN).

The present document is part 12 of a multi-part deliverable covering Open Service Access (OSA); Parlay X Web Services, as identified below:

- Part 1: "Common";
- Part 2: "Third Party Call";
- Part 3: "Call Notification";
- Part 4: "Short Messaging";
- Part 5: "Multimedia Messaging";
- Part 6: "Payment";
- Part 7: "Account Management";
- Part 8: "Terminal Status";
- Part 9: "Terminal Location";
- Part 10: "Call Handling";
- Part 11: "Audio Call";
- Part 12: "Multimedia Conference";**
- Part 13: "Address List Management";
- Part 14: "Presence".

The present document has been defined jointly between ETSI, The Parlay Group (<http://www.parlay.org>) and the 3GPP.

The present document is equivalent to 3GPP TS 29.199-12 V6.0.0 (Release 6).

1 Scope

The present document is part 12 of the Stage 3 Parlay X Web Services specification for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardized interface, i.e. the OSA APIs.

The present document specifies the Multimedia Conference Web Service. The following are defined here:

- Name spaces.
- Sequence diagrams.
- Data definitions.
- Interface specification plus detailed method descriptions.
- Fault definitions.
- Service Policies.
- WSDL Description of the interfaces.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <http://docbox.etsi.org/Reference>.

[1] W3C Recommendation (2 May 2001): "XML Schema Part 2: Datatypes".

NOTE: Available at <http://www.w3.org/TR/2001/REC-xmlschema-2-20010502/>.

[2] ETSI ES 202 391-1: "Open Service Access (OSA); Parlay X Web Services; Part 1: Common".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in ES 202 391-1 [2] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations defined in ES 202 391-1 [2] apply.

4 Detailed service description

The Multimedia Conferencing is a simple Web Service that allows the creation of a multimedia conference and the dynamic management of the participants and the media involved.

The underlying model of the service is based on the following entities:

- **Conference:** a "context" (uniquely identified) to which participants can be added/removed.
- **Participant:** each of the parties involved in the conference. Media can be added/removed for each participant. There may exist a participant that is also the "owner" of the conference, i.e. the user who can end the call and/or be the reference user for billing purposes.
- **Media:** the conference can utilize multiple media streams to support the participants' communication. In particular both audio and video streams are available, including the specific stream direction (i.e. in, out, bidirectional).

An application setting up a multimedia conference must initially invoke the **createConference** method. The result of such invocation is the creation of a "context" that represents a "virtual" room where users can "meet". A unique identifier is assigned to the just-created conference. At this stage no participant is connected yet.

Subsequently the application may wish to add participants to the conference. In order to do so the method **inviteParticipant** can be used. The result of such method is to alert the user of the incoming connection request (e.g. the user's terminal rings).

If the application wishes to check whether the user has accepted the invitation (i.e. is connected) it can invoke (at a later time) the **getParticipantInfo** method.

Note that:

- As soon as the first participant connects, the conference becomes "active". The duration of the conference is then measured starting from the moment the conference has become active.
- The initial media set utilized by the participant will depend on the conference type and the media actually supported by the participant's terminal.

During the conference session the application is able to:

- Add (or remove) a specific media stream to a single participant: e.g. adding a video bidirectional stream to a participant that has an audio connection to the conference. This can be obtained by invoking the **addMediaForParticipant** and the **DeleteMediaForParticipant** methods.
- Disconnect a participant from the conference, by invoking the **disconnectParticipant** method.
- Retrieve information related to the conference and its status, by invoking **getConferenceInfo** and **getParticipants**.

There are different conditions that can determine the end of the conference:

- 1) The application may invoke the method **endConference**, that "forces" the termination of the conference and the disconnection of all participants.
- 2) The owner of the conference (if defined) leaves the conference. If the owner is not defined this condition will apply when all the participants have left the conference (disconnected).
- 3) The conference duration exceeds a maximum value (specified during the conference creation step).

5 Namespaces

The Multimedia Conference interface uses the namespace:

`www.csapi.org/wsd/parlayx/multimedia_conference/v2_0`

The data types are defined in the namespace:

`www.csapi.org/schema/parlayx/multimedia_conference/v2_0`

The 'xsd' namespace is used in the present document to refer to the XML Schema data types defined in XML Schema [1]. The use of the name 'xsd' is not semantically significant.

6 Sequence diagrams

The following sequence diagrams illustrate typical scenarios of interaction between an application and the Multimedia Conferencing Web Service.

6.1 Setting up a conference

Set up a multimedia conference call.

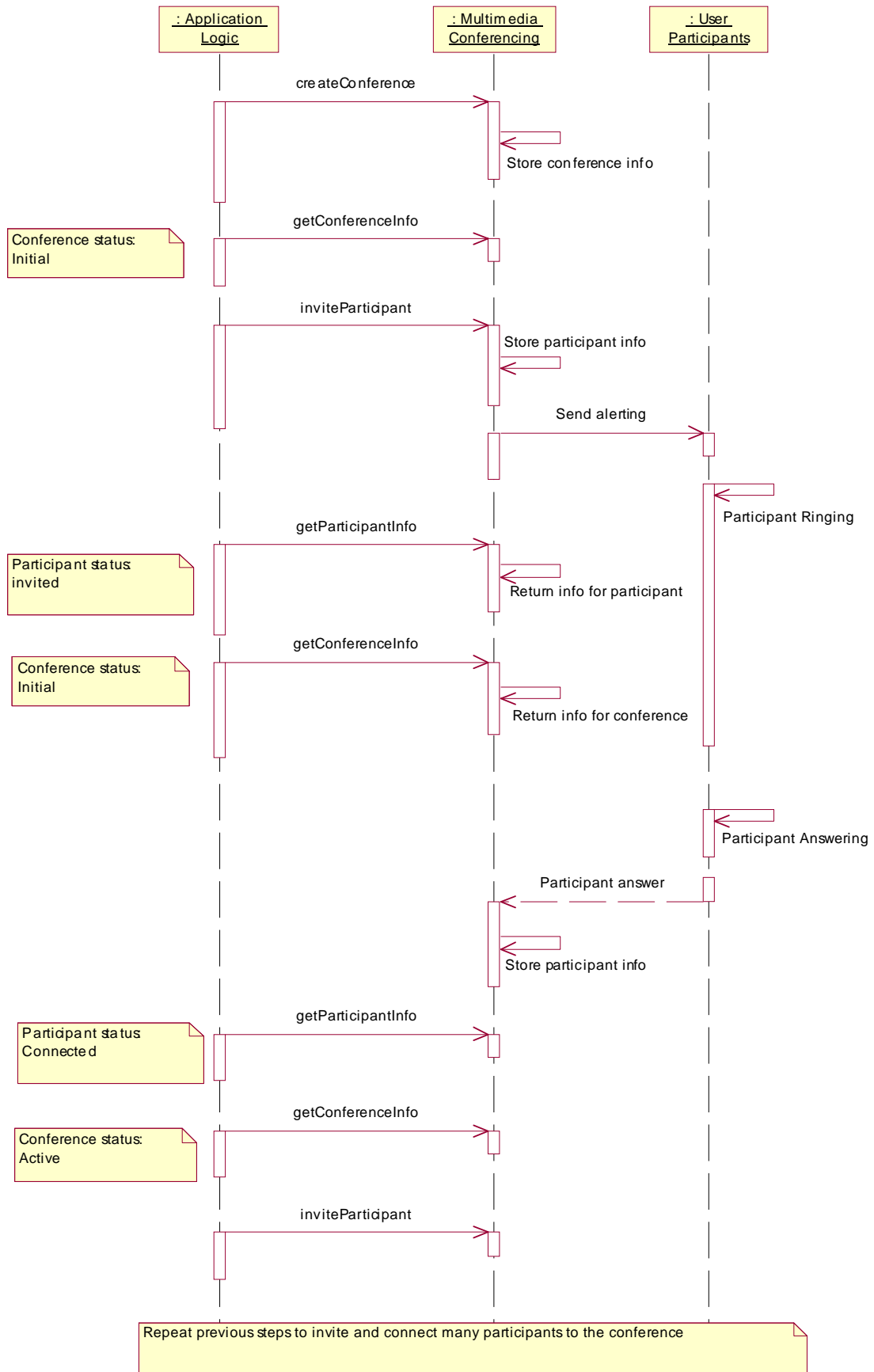


Figure 1

6.2 Adding and Removing Media

On an existing conference call, add media to, or remove media from, a participant.

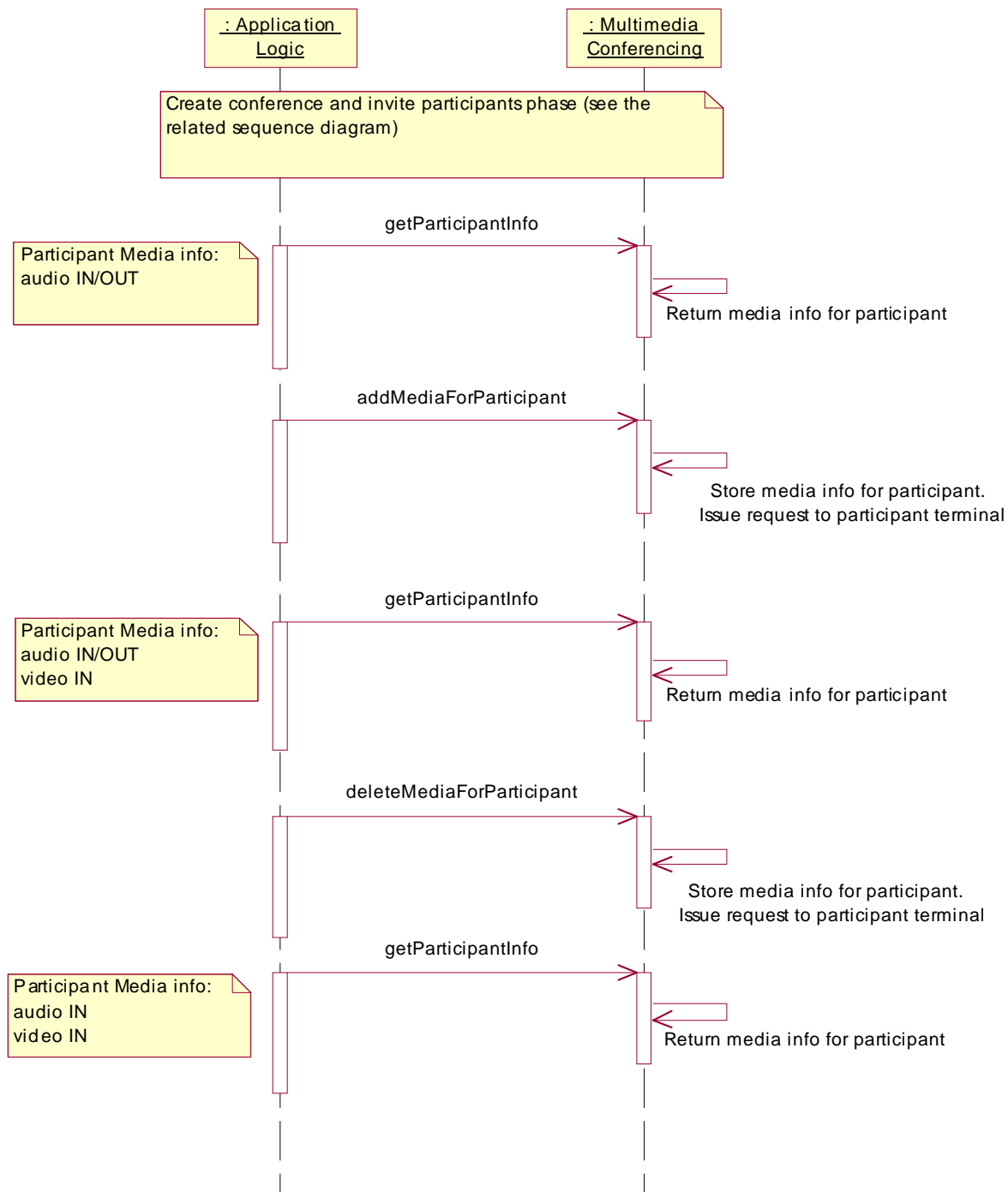


Figure 2

6.3 Conference owner disconnects

During a conference call, the conference owner disconnects.

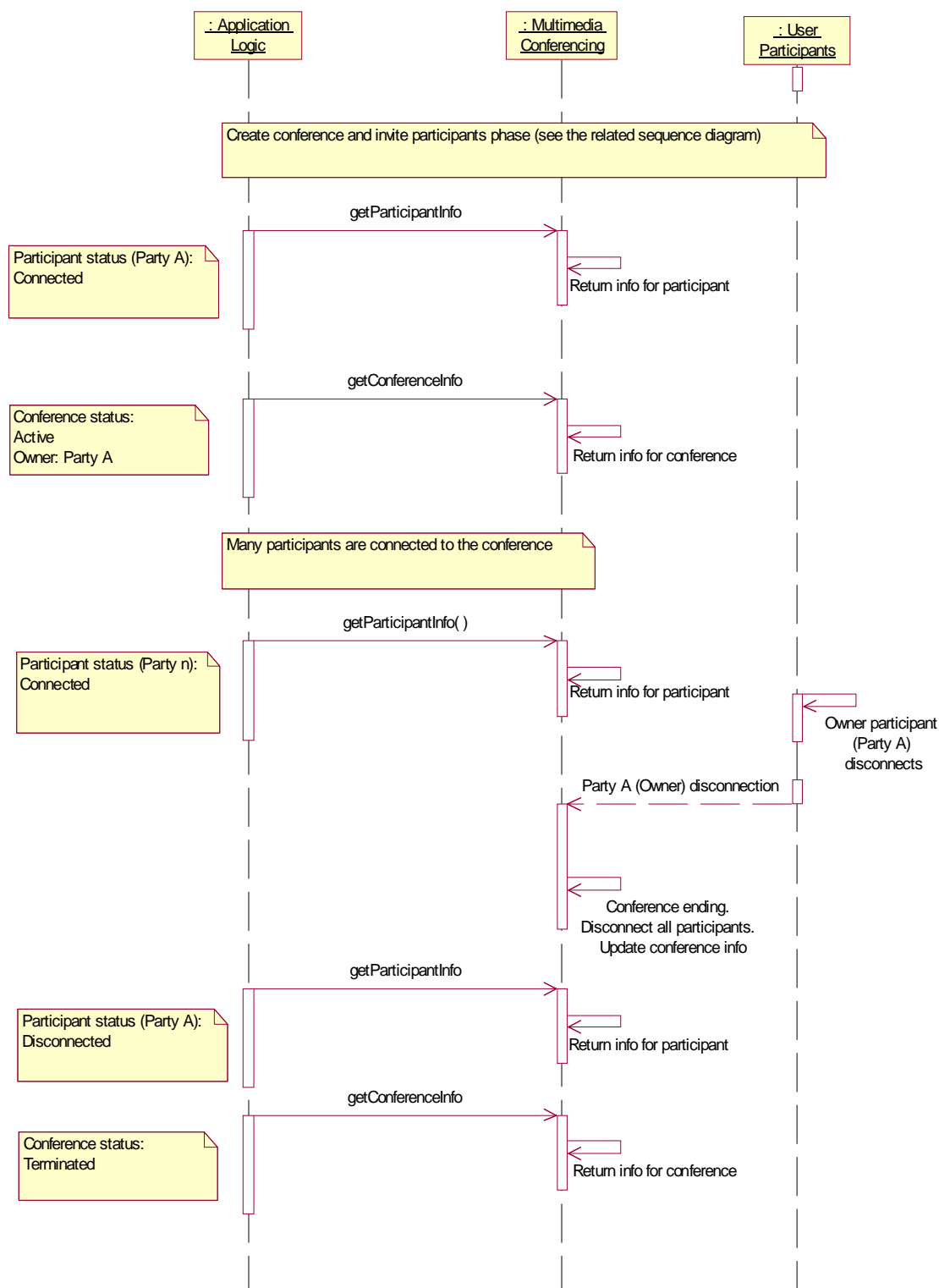


Figure 3

6.4 All participants disconnect

End of conference call processing when all participants disconnect.

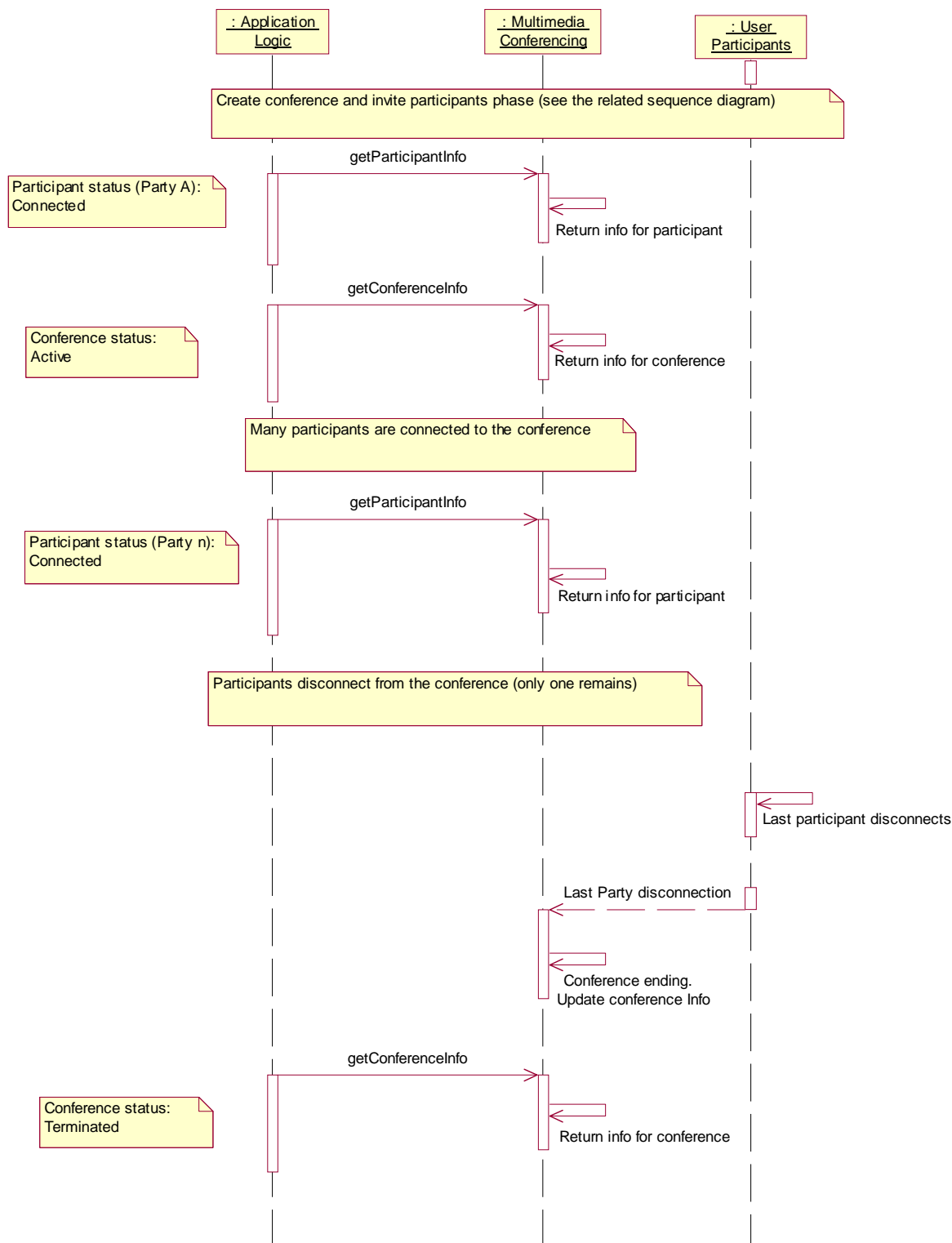


Figure 4

6.5 Conference ended by application

End of conference call processing when the conference is ended by the application.

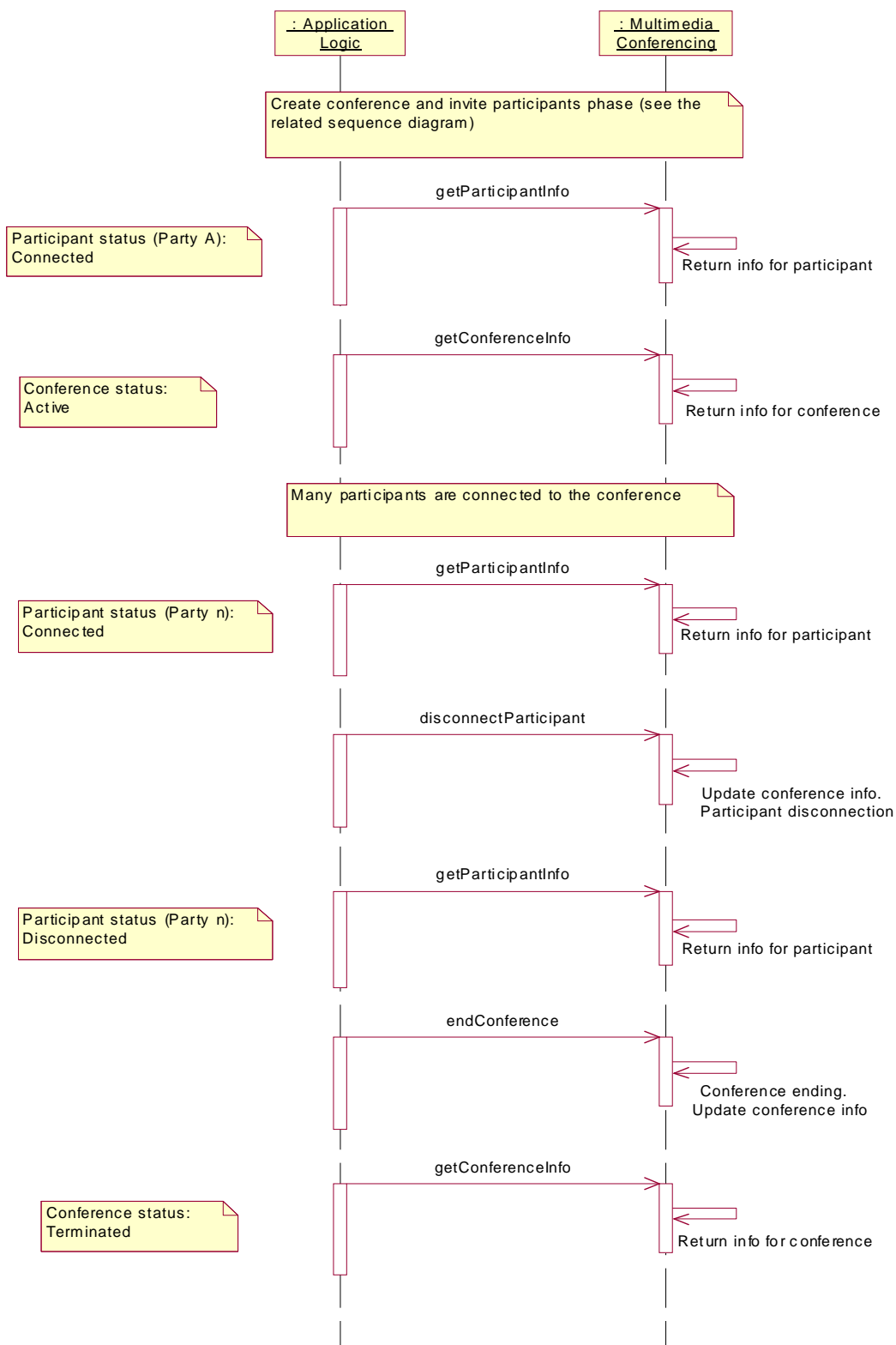


Figure 5

7 XML Schema data type definition

7.1 ConferenceStatus enumeration

Element name	Description
Initial	The conference has been created but no participant is connected yet
Active	The conference is active, i.e. at least one user has connected
Terminated	The conference was terminated

7.2 ConferenceInfo structure

Name	Type	Description
Status	ConferenceStatus	Status of the conference
StartTime	xsd:dateTime	The time at which the conference was created
Duration	xsd:int	The duration of the conference so far (in seconds)
Owner	xsd:anyURI	Conference owner
NumberOfParticipants	xsd:int	Current number of connected participants
MaximumNumberOfParticipants	xsd:int	Maximum number of participants
ConferenceIdentifier	xsd:string	Conference identifier
ConferenceDescription	xsd:string	Conference description

7.3 ParticipantInfo structure

Name	Type	Description
Participant	xsd:anyURI	Participant identifier
CodecVideoIn	xsd:string	Codec Video IN
CodecVideoOut	xsd:string	Codec Video OUT
CodecAudioIn	xsd:string	Codec Audio IN
CodecAudioOut	xsd:string	Codec Audio OUT
StartTime	xsd:dateTime	Time this participant joined the conference
Status	ParticipantStatus	Status of participant

7.4 ParticipantStatus enumeration

Element name	Description
Invited	Participant invited but not connected yet
Connected	Participant connected
Disconnected	Participant disconnected

7.5 Media enumeration

Element name	Description
Audio	Audio media type
Video	Video media type
Chat	Chat media type
Data	Other media type

7.6 MediaDirection enumeration

Element name	Description
In	Incoming
Out	Outgoing
InOut	Bidirectional

8 Web Service interface definition

8.1 Interface: MultimediaConference

The MultimediaConference interface can be used by an application for creating a multimedia conference call and for dynamically managing the participants and the media involved in the call.

8.1.1 Operation: createConference

The invocation of **createConference** requests to create a multi-media conference with initially no participants connected. The reference to the new multimedia conference is returned in the output parameter.

The conference termination can be driven either by a user action or by the expiring of a maximum duration. In particular, three possible situations are considered. In the first scenario, the concept of the "conference owner" is used. This user that has the control of the call and when the conference owner leaves the conference, all users are disconnected (such a user could be for instance the reference for the conference billing). In this scenario, the optional parameter **conferenceOwner** is present in the method call.

In the second scenario, the conference is terminated when the last participant abandons (in this case the parameter **conferenceOwner** is not present).

A third case is when the optional parameter **maximumDuration** is present: in this situation, when the maximum duration is reached, the conference is terminated.

The selection of the scenario depends on the presence of the optional parameters; if no optional parameter is present, the conference end condition is the disconnection of the last user in conference, if both are present, the conference is terminated when the duration expires (this case could happen if the information concerning the conference owner is needed for billing purposes).

The values **maximumDuration** and **maximumNumberOfParticipants** must not exceed the corresponding service policies otherwise a policy exception is raised.

8.1.1.1 Input message: createConferenceRequest

Part name	Part type	Description
ConferenceType	xsd:string	OPTIONAL. Conference type, i.e. one of a list of operator-specific identifiers that indicates how the conference is rendered on the terminals
ConferenceDescription	xsd:string	A text describing the conference
Charging	common:ChargingInformation	OPTIONAL. If present, defines the charge per unit of time consumed on the conference call. If the service does not support charging, a PolicyException (POL0008) will be returned.
MaximumDuration	xsd:int	OPTIONAL. If present it represents the maximum duration of the multimedia conference in seconds. If this parameter is present, it represents the end condition of the conference.
MaximumNumberOfParticipants	xsd:int	Maximum number of participants allowed
ConferenceOwner	xsd:anyURI	OPTIONAL. It is the address of the multimedia conference owner. If this parameter is present, and the maximumDuration is not present, the conference is terminated when this user disconnects, else this information can be used for billing or other purpose

8.1.1.2 Output message: createConferenceResponse

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier

8.1.1.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.
- POL0008: Charging not supported.
- POL0240: Too many participants.
- POL0242: Maximum duration exceeded.

8.1.2 Operation: getConferenceInfo

The invocation of **getConferenceInfo** requests the information concerning the current status of the multi-media conference call identified by **conferenceIdentifier**.

8.1.2.1 Input message: getConferenceInfoRequest

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier

8.1.2.2 Output message: getConferenceInfoResponse

Part name	Part type	Description
ConferenceInfo	ConferenceInfo	Status of the conference

8.1.2.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.

8.1.3 Operation: endConference

The invocation of **endConference** requests to terminate the multi-media conference call identified by **conferenceIdentifier**.

8.1.3.1 Input message: endConferenceRequest

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier

8.1.3.2 Output message: endConferenceResponse

Part name	Part type	Description
None		

8.1.3.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.

8.1.4 Operation: inviteParticipant

The invocation of **inviteParticipant** requests to add a new participant specified by **participant** to the multi-media conference call identified by **conferenceIdentifier**. The media used for the initial connection of the new participant depends on the conference type and the participant's supported media.

The operation will fail if the conference has already reached the maximum number of participants (as specified in the creation operation).

8.1.4.1 Input message: inviteParticipantRequest

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier
Participant	xsd:anyURI	New participant invited

8.1.4.2 Output message: inviteParticipantResponse

Part name	Part type	Description
None		

8.1.4.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.
- POL0240: Too many participants.

8.1.5 Operation: disconnectParticipant

The invocation of **disconnectParticipant** requests to disconnect the participant specified by **participant** from the multi-media conference call identified by **conferenceIdentifier**.

8.1.5.1 Input message: disconnectParticipantRequest

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier
Participant	xsd:anyURI	Participant

8.1.5.2 Output message: disconnectParticipantResponse

Part name	Part type	Description
None		

8.1.5.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.

8.1.6 Operation: getParticipantInfo

The invocation of **getParticipantInfo** requests information concerning the current status of the participant specified by **participant**, in the multi-media conference call identified by **conferenceIdentifier**.

8.1.6.1 Input message: getParticipantInfoRequest

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier
Participant	xsd:anyURI	Participant

8.1.6.2 Output message: getParticipantInfoResponse

Part name	Part type	Description
ParticipantInfo	ParticipantInfo	Status of the participant

8.1.6.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.

8.1.7 Operation: getParticipants

The invocation of **getParticipants** requests information concerning the current status of each participant of the multi-media conference call identified by **conferenceIdentifier**. The output includes participants already disconnected from the conference (if any).

8.1.7.1 Input message: getParticipantsRequest

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier

8.1.7.2 Output message: getParticipantsResponse

Part name	Part type	Description
Participants	ParticipantInfo[]	Array containing status information for each participant

8.1.7.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.

8.1.8 Operation: addMediaForParticipant

The invocation of **addMediaForParticipant** requests to add a **media** stream to the media set used by **participant**. The operation is executed on a single participant connected to the multi-media conference call identified by **conferenceIdentifier**. The new media has to be compatible with the type of multimedia conference and the set of media supported by the participant terminal, otherwise the operation will fail.

8.1.8.1 Input message: addMediaForParticipantRequest

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier
Participant	xsd:anyURI	Participant
Media	Media	It identifies the new media stream the participant will receive/send
MediaDirection	MediaDirection	In indicates the direction of the media stream to add (in, out, etc.)

8.1.8.2 Output message: addMediaForParticipantResponse

Part name	Part type	Description
None		

8.1.8.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.
- POL0241: Unavailable media.

8.1.9 Operation: deleteMediaForParticipant

The invocation of **deleteMediaForParticipant** requests to remove a **media** stream from the media set used by **participant**. The operation is executed on a single participant connected to the multi-media conference call identified by **conferenceIdentifier**.

8.1.9.1 Input message: deleteMediaForParticipantRequest

Part name	Part type	Description
ConferenceIdentifier	xsd:string	Conference identifier
Participant	xsd:anyURI	Participant
Media	Media	It identifies the media the user is not enabled to use any more
MediaDirection	MediaDirection	It indicates the direction of the media stream to remove (in, out, etc.)

8.1.9.2 Output message: deleteMediaForParticipantResponse

Part name	Part type	Description
None		

8.1.9.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001: Service error.
- SVC0002: Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001: Policy error.

9 Fault definitions

9.1 PolicyException

9.1.1 POL0240: Too many participants

Too many participants.

Name	Description
Message Id	POL0240
Text	Too many participants
Variables	None

9.1.2 POL0241: Unavailable media

Name	Description
Message Id	POL0241
Text	Unavailable media
Variables	None

9.1.3 POL0242: Maximum duration exceeded

Name	Description
Message Id	POL0242
Text	Maximum duration exceeded. Maximum allowed is %1 seconds
Variables	%1 - maximum duration set by service policy

10 Service policies

Service policies for this service.

Name	Type	Description
MaximumDuration	xsd:int	Maximum duration (in seconds) a conference may be set up for
MaximumParticipants	xsd:int	Maximum number of participants a conference may be set up for
ChargingSupported	xsd:boolean	Is charging supported for the createConference operation

Annex A (normative): WSDL for Multimedia Conference

The document/literal WSDL representation of this interface specification is compliant to ES 202 391-1 [2] and is contained in text files (contained in archive es_20239112v010101p0.zip) which accompany the present document.

Annex B (informative): Bibliography

ETSI TR 121 905: "Universal Mobile Telecommunications System (UMTS); Vocabulary for 3GPP Specifications (3GPP TR 21.905)".

History

Document history		
V1.1.1	January 2005	Membership Approval Procedure MV 20050318: 2005-01-18 to 2005-03-18
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