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Technical Specification

Digital cellular telecommunications system (Phase 2+);
Universal Mobile Telecommunications System (UMTS);
LTE;
Open Service Access (OSA)
Application Programming Interface (API);
Part 4: Call control;
Subpart 5: Conference call control
Service Capability Feature (SCF)
(3GPP TS 29.198-04-5 version 9.0.0 Release 9)

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Foreword

This Technical Specification (TS) has been produced by ETSI 3rd Generation Partnership Project (3GPP).

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The cross reference between GSM, UMTS, 3GPP and ETSI identities can be found under http://webapp.etsi.org/key/queryform.asp.

Contents

Foreword

This Technical Specification has been produced by the 3rd Generation Partnership Project (3GPP).

The contents of the present document are subject to continuing work within the TSG and may change following formal TSG approval. Should the TSG modify the contents of the present document, it will be re-released by the TSG with an identifying change of release date and an increase in version number as follows:

Version x.y.z

where:

- x the first digit:
  - 1 presented to TSG for information;
  - 2 presented to TSG for approval;
  - 3 or greater indicates TSG approved document under change control.
- y the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- z the third digit is incremented when editorial only changes have been incorporated in the document.

Introduction

The present document is part 4, sub-part 5 of a multi-part TS covering the 3rd Generation Partnership Project: Technical Specification Group Core Network and Terminals; Open Service Access (OSA); Application Programming Interface (API), as identified below. The **API specification** (3GPP TS 29.198) is structured in the following Parts:

Part 1:	"Overview";	
Part 2:	"Common data definitions";	
Part 3:	"Framework";	
Part 4:	**"Call control";**	
	Sub-part 1: "Call control common definitions";	
	Sub-part 2: "Generic call control SCF";	
	Sub-part 3: "Multi-party call control SCF";	
	Sub-part 4: "Multimedia call control SCF";	
	Sub-part 5: "Conference call control SCF";	
Part 5:	"User Interaction SCF";	
Part 6:	"Mobility SCF";	
Part 7:	"Terminal capabilities SCF";	
Part 8:	"Data session control SCF";	
Part 9:	"Generic Messaging SCF";	(not part of 3GPP Release 8)
Part 10:	"Connectivity Manager SCF";	(new in 3GPP Release 8)
Part 11:	"Account management SCF";	
Part 12:	"Charging SCF".	
Part 13:	"Policy management SCF";	
Part 14:	"Presence and Availability Management (PAM) SCF";	
Part 15:	"Multi-media Messaging (MM) SCF";	
Part 16:	"Service broker SCF".	

The **Mapping specification of the OSA APIs and network protocols** (3GPP TR 29.998) is also structured as above. A mapping to network protocols is however not applicable for all Parts, but the numbering of Parts is kept. Also in case a Part is not supported in a Release, the numbering of the parts is maintained.

Table: Overview of the OSA APIs & Protocol Mappings 29.198 & 29.998-family

OSA API specifications 29.198-family						OSA API Mapping - 29.998-family	
29.198-01	Overview					29.998-01	Overview
29.198-02	Common Data Definitions					*29.998-02*	*Not Applicable*
29.198-03	Framework					*29.998-03*	*Not Applicable*
Call Control (CC) SCF	29.198-04-1 Common CC data definitions	29.198-04-2 Generic CC SCF	29.198-04-3 Multi-Party CC SCF	29.198-04-4 Multi-media CC SCF	**29.198-04-5 Conf. CC SCF**	29.998-04-1	Generic Call Control – CAP mapping
						29.998-04-2	*Generic Call Control – INAP mapping*
						29.998-04-3	*Generic Call Control – Megaco mapping*
						29.998-04-4	Multiparty Call Control – ISC mapping
29.198-05	User Interaction SCF					29.998-05-1	User Interaction – CAP mapping
						29.998-05-2	*User Interaction – INAP mapping*
						29.998-05-3	*User Interaction – Megaco mapping*
						29.998-05-4	User Interaction – SMS mapping
29.198-06	Mobility SCF					29.998-06-1	User Status and User Location – MAP mapping
						29.998-06-2	User Status and User Location – SIP mapping
29.198-07	Terminal Capabilities SCF					*29.998-07*	*Not Applicable*
29.198-08	Data Session Control SCF					29.998-08	Data Session Control – CAP mapping
29.198-09	*Generic Messaging SCF*					*29.998-09*	*Not Applicable*
29.198-10	Connectivity Manager SCF					*29.998-10*	*Not Applicable*
29.198-11	Account Management SCF					*29.998-11*	*Not Applicable*
29.198-12	Charging SCF					*29.998-12*	*Not Applicable*
29.198-13	Policy Management SCF					*29.998-13*	*Not Applicable*
29.198-14	Presence & Availability Management SCF					*29.998-14*	*Not Applicable*
29.198-15	Multi Media Messaging SCF					*29.998-15*	*Not Applicable*
29.198-16	Service Broker SCF					*29.998-16*	*Not Applicable*

1 Scope

The present document is Part 4, Sub-Part 5 of the Stage 3 specification for an Application Programming Interface (API) for Open Service Access (OSA).

The OSA specifications define an architecture that enables application developers to make use of network functionality through an open standardised interface, i.e. the OSA APIs. The concepts and the functional architecture for the OSA are contained in 3GPP TS 23.198 [3]. The requirements for OSA are contained in 3GPP TS 22.127 [2].

The present document specifies the Conference call control Service Capability Feature (SCF) aspects of the interface. All aspects of the Conference call control SCF are defined here, these being:

- Sequence Diagrams
- Class Diagrams
- Interface specification plus detailed method descriptions
- State Transition diagrams
- Data definitions
- IDL Description of the interfaces
- WSDL Description of the interfaces
- Reference to the Java™ API description of the interfaces

The process by which this task is accomplished is through the use of object modelling techniques described by the Unified Modelling Language (UML).

This specification has been defined jointly between 3GPP TSG CT WG5, ETSI TISPAN and the Parlay Group, in co-operation with a number of JAIN™ Community member companies.

Maintenance of up to 3GPP Rel-8 and new OSA Stage 1, 2 and 3 work beyond Rel-9 was moved to OMA in June 2008.

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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document.*

[1] 3GPP TS 29.198-01: "Open Service Access (OSA) Application Programming Interface (API); Part 1: Overview".

[2] 3GPP TS 22.127: "Service Requirement for the Open Services Access (OSA); Stage 1".

[3] 3GPP TS 23.198: "Open Service Access (OSA); Stage 2".

[4] 3GPP TS 22.002: "Circuit Bearer Services (BS) supported by a Public Land Mobile Network (PLMN)".

[5] ISO 4217 (1995): "Codes for the representation of currencies and funds ".

[6] 3GPP TS 24.002: "GSM-UMTS Public Land Mobile Network (PLMN) Access Reference Configuration".

[7] 3GPP TS 22.003: "Circuit Teleservices supported by a Public Land Mobile Network (PLMN)".

[8] ITU-T Q.763: "Signalling System No. 7 - ISDN user part formats and codes".

[9] ANSI T1.113: "Signalling System No. 7 (SS7) - Integrated Services Digital Network (ISDN) User Part".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions given in TS 29.198-1 [1] apply.

3.2 Abbreviations

For the purposes of the present document, the abbreviations given in TS 29.198-1 [1] apply.

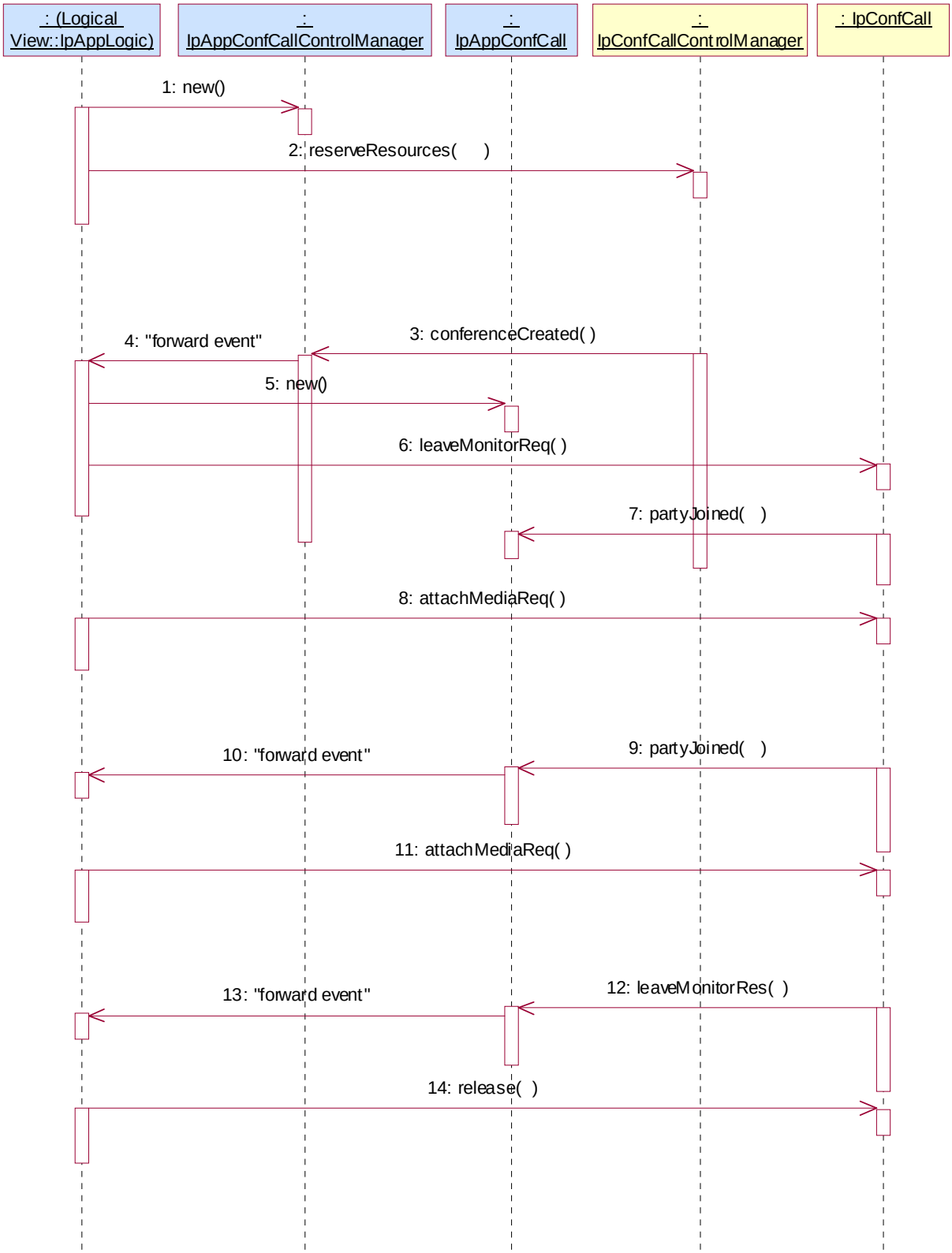
4 Conference call control Service Sequence Diagrams

4.1 Meet-me conference without subconferencing

This sequence illustrates a pre-arranged meet-me conference for a specified time period. During this timeslot parties can 'call in to' the meet-me conference by dialling a special number.

For each participant joining the conference, the application can decide to accept the participant in to the conference.

The application can also be notified when parties are leaving the conference.



1: The application creates a new object to receive the callbacks from the conference call control manager.

2: The application reserves resources for some time in the future.

With this same method the application registers interest in the creation of the conference (e.g. when the first party to joins the conference or at the specified start time, this is implementation dependant).

The reservation also includes the conference policy. One of the elements is whether joined parties must be explicitly attached. If so, this is treated as an implicit joinMonitorReq.

3: The conference is created.

4: The message is forwarded to the application.

5: The application creates an object to receive the call back messages from the conference call.

6: The application also requests to be notified when parties leave the conference.

7: The application is notified of the first party that joined the conference.

8: When the party is allowed to join the conference, the party is added.

Alternatively, the party could have been rejected with a releaseCallLeg.

9: A new party joins the conference and the application is notified.

10: The message is forwarded to the application.

11: This party also is allowed into the conference by attaching the leg.

12: A party leaves the conference.

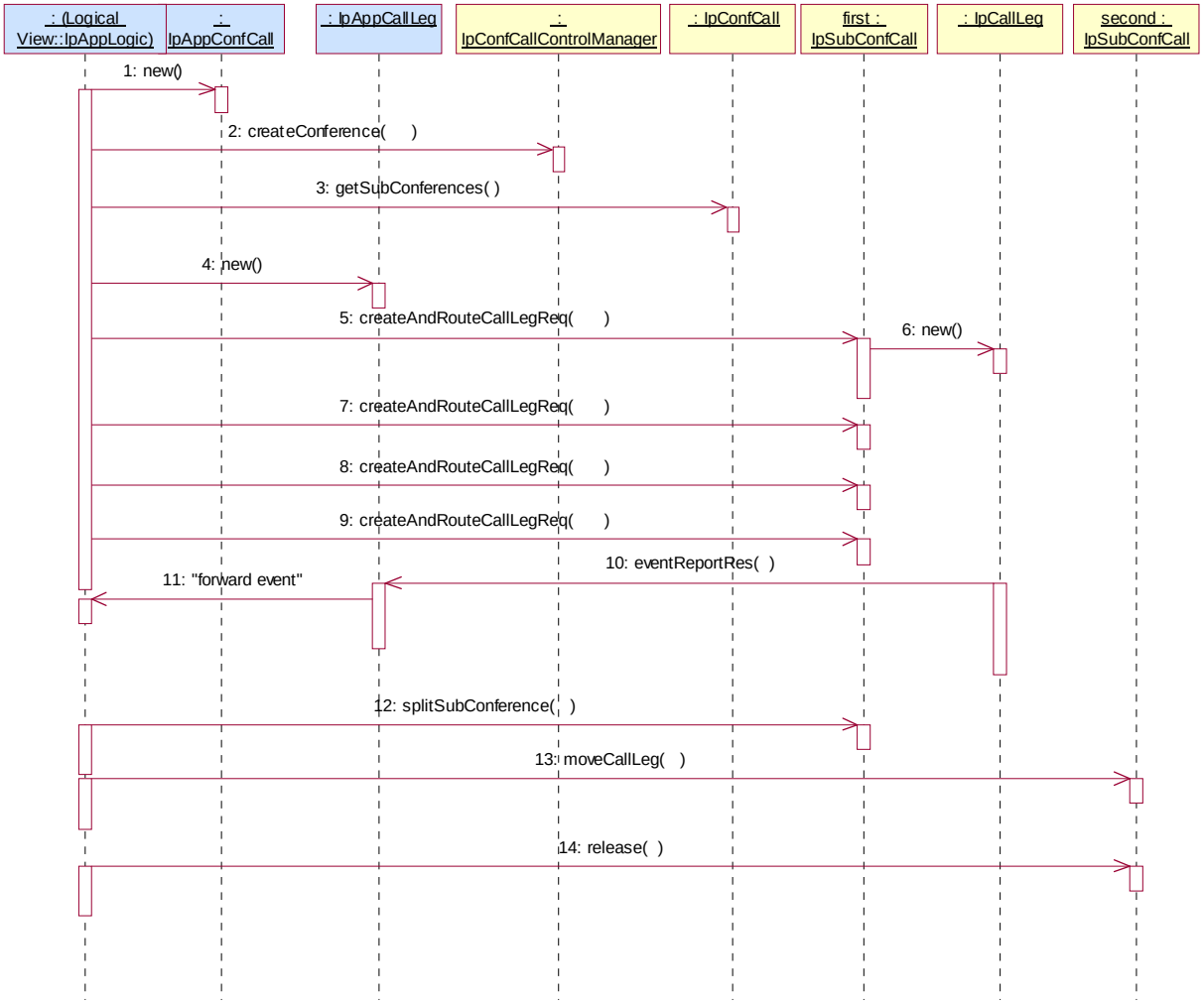
13: The message is forwarded to the application.

14: The application decides to release the entire conference.

4.2 Non-add hoc add-on with subconferencing

This sequence illustrates a prearranged add-on conference. The end user that initiates the call, communicates with the conference application via a web interface (not shown). By dragging and dropping names from the addressbook, the end-user adds parties to the conference.

Also via the web-interface, the end-user can group parties in subconferences. Only parties in the same subconference can talk to each other.



1: The application creates a new interface to receive the callbacks from the conference call.

2: The application initiates the conference. There has been no prior resource reservation, so there is a chance that no resources are available when parties are added to the conference.

The conferenceCall interface object is returned.

3: Together with the conference a subconference is implicitly created.

However, the subconference is not returned as a result of the createConference, therefore the application uses this method to get the subconference.

4: The application creates a new IpAppCallLeg interface.

5: The application adds the first party to the subconference. This process is repeated for all 4 parties. Note that in the following not all steps are shown.

6: The gateway creates a new IpCallLeg interface.

7: The application adds parties to the subconference.

8: The application adds parties to the subconference.

9: The application adds parties to the subconference.

10: When a party A answers the application is notified.

We assume that all parties answer. This happens in the same way as for party A and is not shown in the following.

11: The message is forwarded to the application.

12: The application decides to split the conference. Party C & D are indicated in the message.

The gateway will create a new subconference and move party C and D to the new subconference.

The configuration is A & B are in speech, C & D are in speech. There is no bearer connection between the two subconferences.

13: The application moves one of the legs from the second subconference back to the first. The configuration now is A, B & C are in speech configuration. D is alone in its own subconference.

14: The second subconference is released. Since party D was in this subconference, this callleg is also released.

This leaves one subconference with A, B & C.

4.3 Non-addhoc add-on multimedia

This sequence illustrates a prearranged add-on multi-media conference. The end user that initiates the call, communicates with the conference application via a web interface (not shown). By dragging and dropping names from the addressbook, the end-user adds parties to the conference.

Also via the web-interface, the end-user can do things that normally the chair would be able to do, e.g. determine who has the floor (e.g. whose video is being broadcast to the other participants) or inspect the video of participants who do not have the floor (e.g. to see how they react to the current speaker).

1: The application creates a new object for receiving callbacks from the MMSubConference.

2: When the user selects the appropriate option in the web interface, the application will create a conference without resource reservation. The policy for video is set to 'chairperson switched.

3: The application requests the subconference that was implicitly created together with the conference.

4: The application creates a new IpAppCallLeg interface.

5: The application adds the first party to the subconference. This process is repeated for all 4 parties. Note that in the following not all steps are shown.

6: The gateway creates a new IpCallLeg interface.

7: The application creates a new IpAppCallLeg interface.

8: The application adds parties to the conference and monitors on success.

9: The gateway creates a new IpCallLeg interface.

10: The application adds parties to the conference and monitors on success.

11: The application adds parties to the conference and monitors on success.

12: When a party A answers the application is notified.

We assume that all parties answer.

14: We assume that A was the initiating party.

The initiating end-user is assigned the chairpersonship.

This message is needed to synchronise the chairpersonship in the application with the MCU chairpersonship, since the chair can also use H.323 messages to control the conference.

15: When a party B answers the application is notified. We assume the other parties answer as well and this is not shown below in the sequence.

16: Chairperson (A) decides via WWW interface that party B is the speaker. This means that the video of B is broadcast to the rest.

17: The chairperson selects the video of C in order to judge their reactions on B's proposal.

18: The chairperson selects the video of D in order to judge their reactions on B's proposal.

19: The chairperson goes back to receiving the broadcasted videostream (B).

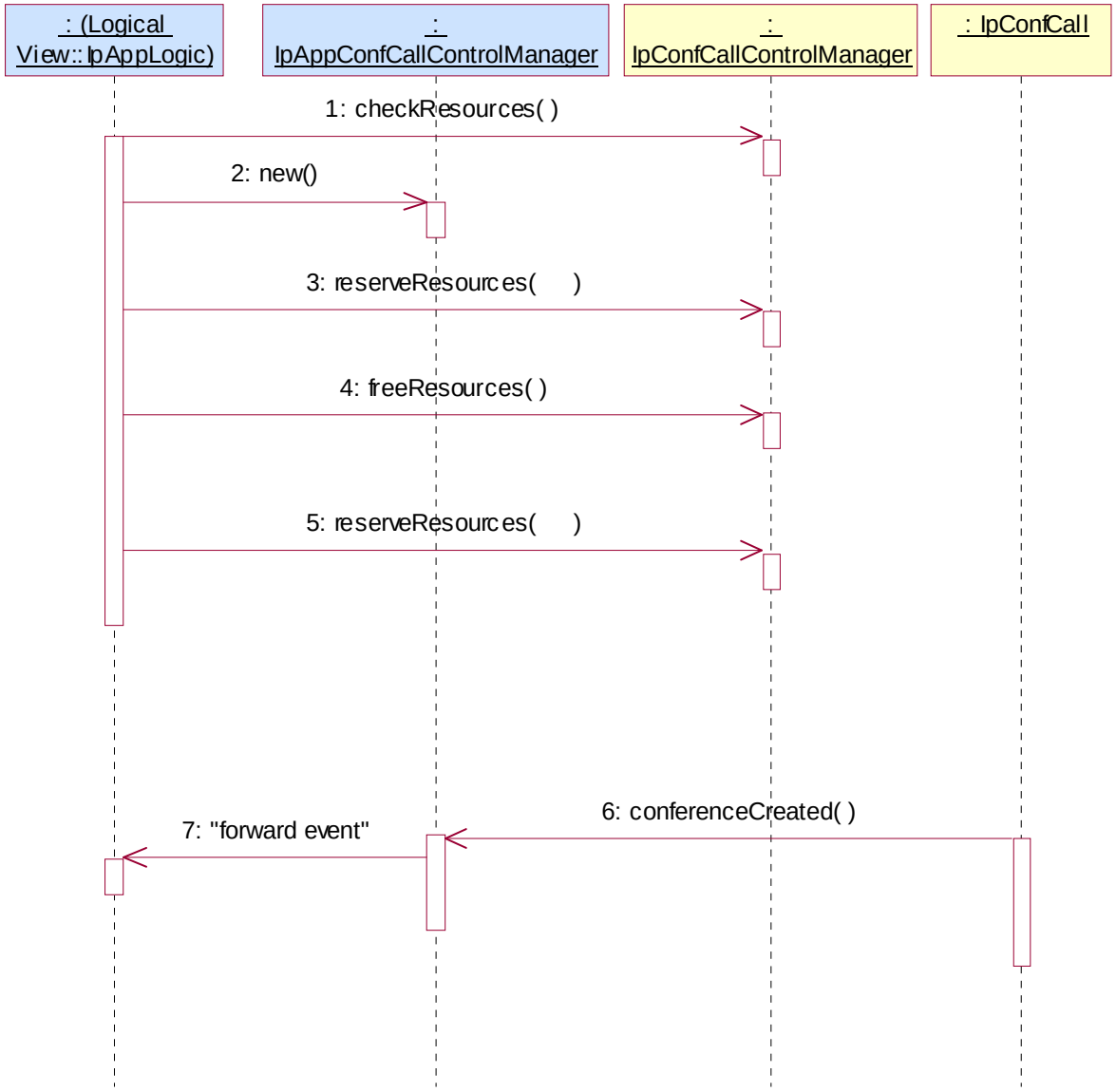
20: User C requests the floor via the H.323 signals. The application is notified of this.

21: The message is forwarded to the application logic.

22: The chairperson (via the WWW interface) grants the request by appointing C as the speaker.

4.4 Resource Reservation

This sequence illustrates how an application can check and reserve resources for a meet-me conference.



1: The application checks if enough conference resources are available in a given time period.

2: The application creates an object to receive callback messages.

3: The application reserves resources for the time period. The callback object is in order to receive a notification when the conference is started.

4: Because the time was wrong by accident, the application cancels the earlier reservation.

5: The application makes a new reservation.

6: At the specified time, or when the first party joins the conference the application is notified.

7: The event is forwarded to the application.

5 Class Diagrams

The conference call control service consists of two packages, one for the interfaces on the application side and one for interfaces on the service side. The class diagrams in the following figures show the interfaces that make up the conference call control application package and the conference call control service package.

This class diagram shows the interfaces that make up the application conference call control service package and the relation to the interfaces in the conference call control service package.

The diagram also shows the inheritance relation between the multi-party call application interfaces and the conference call application interfaces; the conference interfaces are specialisations of the corresponding multi-party call interfaces.

Communication between the application and service packages is done via the <<uses>> relations; the interfaces can communicate with callback methods in the corresponding application interfaces.

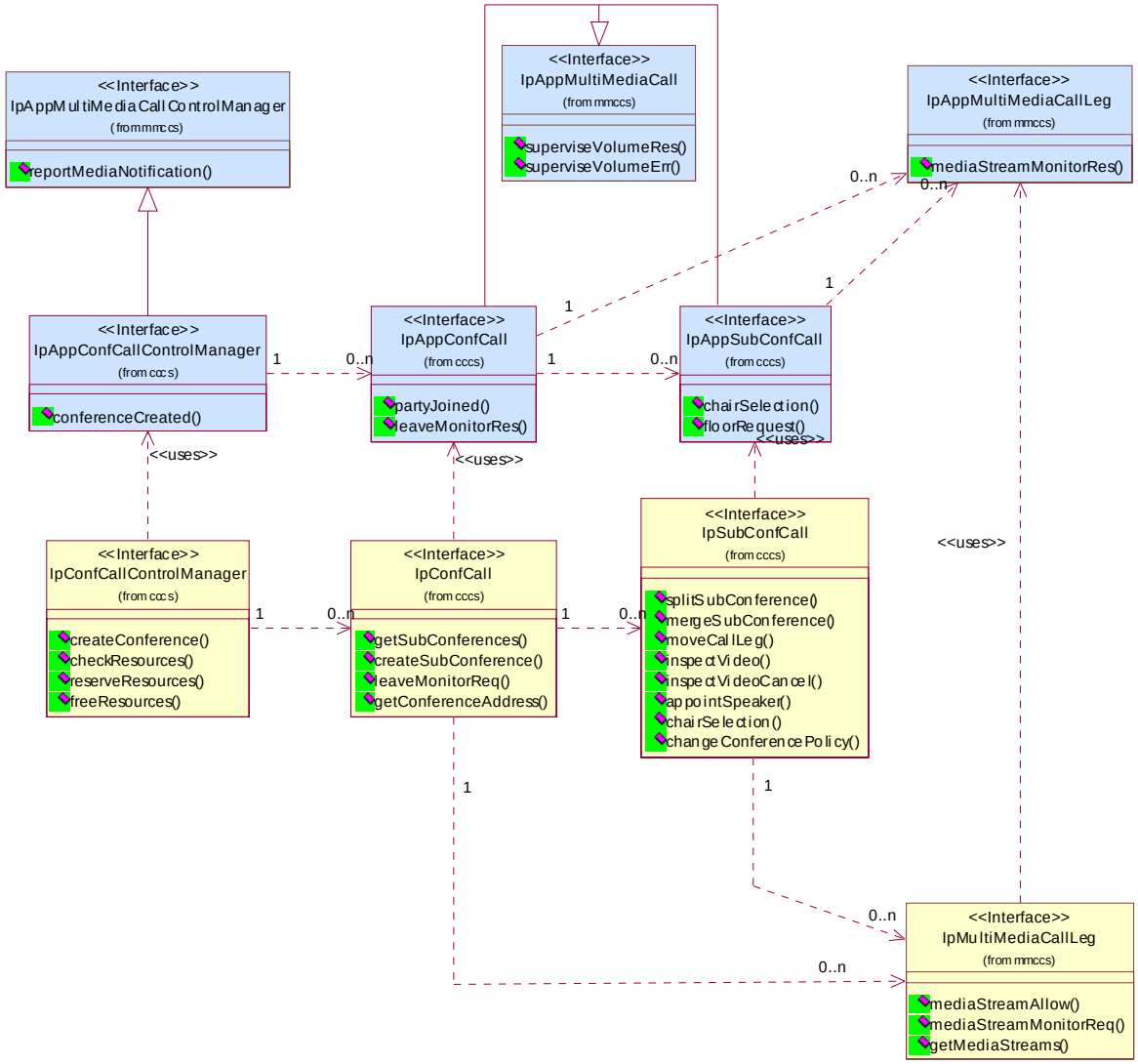


Figure : Application Interfaces

This class diagram shows the interfaces that make up the conference call control service package.

The diagram also shows the inheritance relation between the multi-party call interfaces and the conference call interfaces; the conference interfaces are specialisations of the corresponding multi-party call interfaces.

Furthermore, the class diagram illustrates that the conference call control manager can instantiate or be associated with zero or more conference calls. Each conference call can have one or more subconferences associated with it. Each subconference contains zero or more call legs associated. Detached legs are not associated with any specific subconference, instead they are associated with the conference call itself.

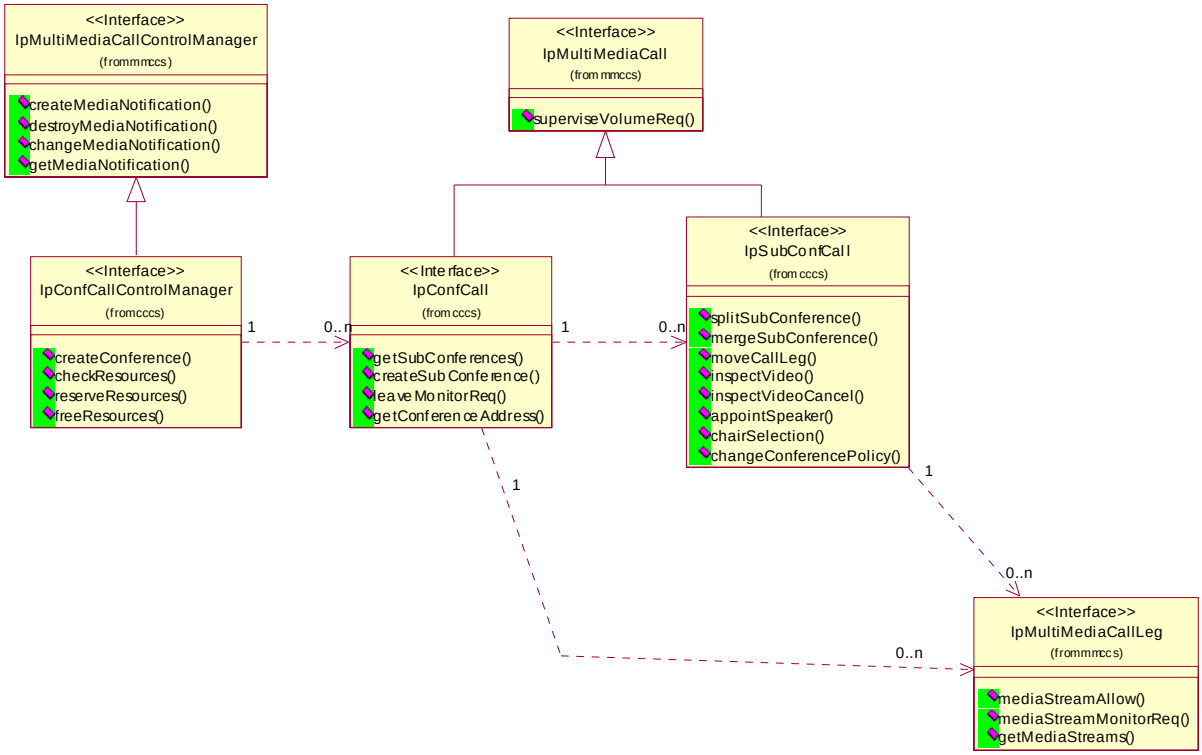


Figure : Service Interfaces

6 Conference call control Service Interface Classes

The Conference call control Service enhances the multi-media call control service. The conference call control service gives the application the ability to manipulate subconferences within a conference. A subconference defines the grouping of legs within the overall conference call. Only parties in the same subconference have a bearer connection (or media channel connection) to each other (e.g. can speak to each other). The application can:

- create new subconferences within the conference, either as an empty subconference or by splitting an existing subconference in two subconferences;

- move legs between subconferences;

- merge subconferences;

- get a list of all subconferences in the call;

The generic conference also gives the possibility to manipulate typical multi-media conference details, such as:

- interworking with network signalled conference protocols (e.g. H.323);

- manipulation of the media in the MCU, e.g., broadcasting of video;

- handling of multi-media conference policies, e.g., how video should be handled, voice controlled switched or chair controlled.

Furthermore the conference call control service adds support for the reservation of resources needed for conferencing. The application can:

- reserve resources for a predefined time period;

- free reserved resources;

- search for the availability of conference resources based on a number of criteria.

There are two ways to initiate a conference:

- the conferences can be started on the pre-arranged time by the service, at the start time indicated in the reservation. The application is notified about this. The application can then add parties to the conference and/or parties can dial-in to the conference using the address provided during reservation;

- the conference can be created directly on request of the application using the createConference method in the IpConfCallControlManager interface.

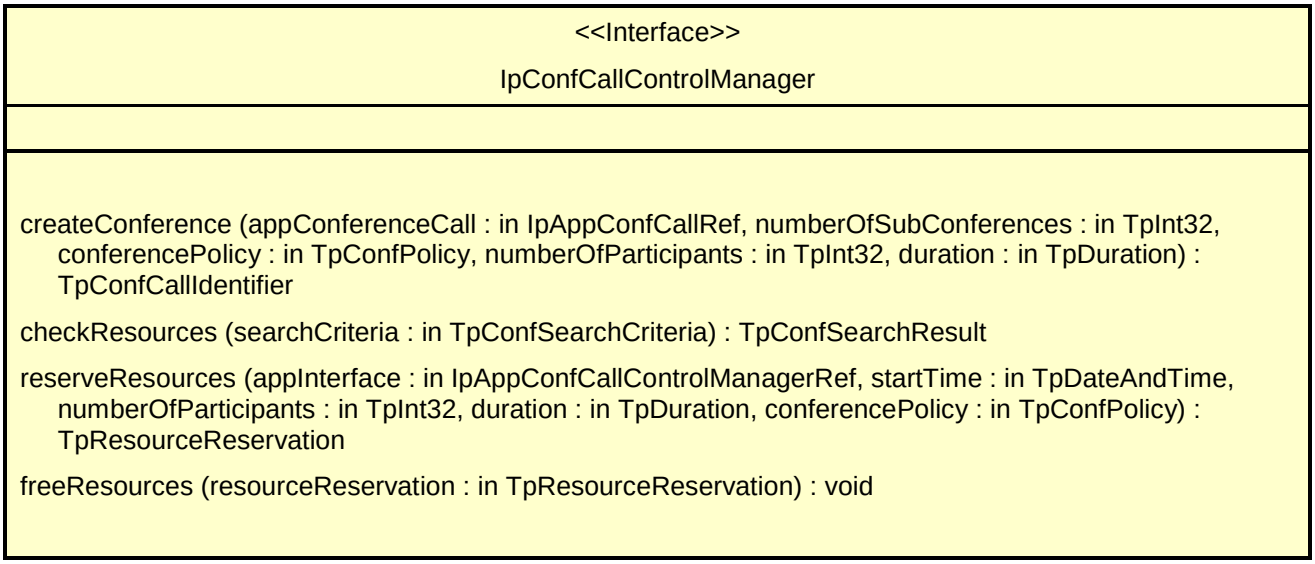
Each Conference call control interface inherits from a Multi Media Call Control interface, which in turn inherits from Multi Party Call Control. It is possible to implement conference call control without any multi-media features, using only those inherited methods which come from Multi Party Call Control, in addition to the Conference call control methods. The minimum required method set for each Conference call control interface reflects this possibility, by not requiring the Multi Media Call Control methods.

6.1 Interface Class IpConfCallControlManager

Inherits from: IpMultiMediaCallControlManager;

The conference Call Control Manager is the factory interface for creating conferences. Additionally it takes care of resource management.

This interface shall be implemented by a Conference call control SCF. As a minimum requirement, either the createConference() method shall be implemented, or the reserveResources() and freeResources() methods shall be implemented. The minimum required methods from IpMultiPartyCallControlManager are also required.



6.1.1 Method createConference()

This method is used to create a new conference. If the specified resources are not available for the indicated duration the creation is rejected with P_RESOURCES_UNAVAILABLE.

Returns conference : Specifies the interface reference and sessionID of the created conference.

Parameters

appConferenceCall : in IpAppConfCallRef

Specifies the callback interface for the conference created.

numberOfSubConferences : in TpInt32

Specifies the number of subconferences that the user wants to create automatically. The references to the interfaces of the subconferences can later be requested with getSubConferences.

The number of subconferences should be at least 1.

conferencePolicy : in TpConfPolicy

Specifies the policy to be applied for the conference, e.g. are parties allowed to join (call into) the conference?

Note that if parties are allowed to join the conference, the application can expect partyJoined() messages on the IpAppConfCall interface.

numberOfParticipants : in TpInt32

Specifies the number of participants in the conference. The actual number of participants may exceed this, but these resources are not guaranteed, i.e. anything exceeding this will be best effort only and the conference service may drop or reject participants in order to fulfil other committed resource requests. By specifying 0, the application can request a best effort conference.

duration : in TpDuration

Specifies the duration for which the conference resources are reserved. The duration of the conference may exceed this, but after the duration, the resources are no longer guaranteed, i.e. parties may be dropped or rejected by the service in order to satisfy other committed resource requests. When the conference is released before the allocated duration, the reserved resources are released and can be used to satisfy other resource requests. By specifying 0, the application requests a best effort conference.

Returns

TpConfCallIdentifier

Raises

TpCommonExceptions

6.1.2 Method checkResources()

This method is used to check for the availability of conference resources.

The input is the search period (start and stop time and date) - mandatory.

Furthermore, a conference duration and number of participants can be specified - optional.

The search algorithm will search the specified period for availability of conference resources and tries to find an optimal solution.

When a match is found the actual number of available resources, the actual start and the actual duration for which these are available is returned. These values can exceed the requested values.

When no match is found a best effort is returned, still the actual start time, duration, number of resources are returned, but these values now indicate the best that the conference bridge can offer, e.g. one or more of these values will not reach the requested values.

Returns result : Specifies the result of the search. It indicates if a match was found. If no exact match was found the best attempt is returned.

Parameters

searchCriteria : in TpConfSearchCriteria

Specifies the boundary conditions of the search. E.g. the time period that should be searched, the number of participants.

Returns

TpConfSearchResult

Raises

TpCommonExceptions

6.1.3 Method reserveResources()

This method is used to reserve conference resources for a given time period. Conferences can be created without first reserving resources, but in that case no guarantees can be made.

Returns resourceReservation : Specifies a structured data type which contains two fields:

ResourceID: The address with which the conference can be addressed, both in the methods of the interface and in the network, i.e. if joinAllowed is TRUE, parties can use this address to join the conference.

If no match is found the ResourceID contains an empty address.

ReservationID: Specifies the reservation made. It should be unique in a particular resource.

Parameters

appInterface: in IpAppConfCallControlManagerRef

Specifies the callback interface to be used when the conference is created in the network. The application will receive the conferenceCreated message when a conference is created in the network.

startTime: in TpDateAndTime

Specifies the time at which the conference resources should be reserved, i.e. the start time of the conference.

numberOfParticipants: in TpInt32

Specifies the number of participants in the conference. The actual number of participants may exceed this, but these resources are not guaranteed, i.e. anything exceeding this will be best effort only and the conference service may drop or reject participants in order to fulfil other committed resource requests.

duration: in TpDuration

Specifies the duration for which the conference resources are reserved. The duration of the conference may exceed this, but after the duration, the resources are no longer guaranteed, i.e. parties may be dropped or rejected by the service in order to satisfy other committed resource requests. When the conference is released before the allocated duration, the reserved resources are released and can be used to satisfy other resource requests.

conferencePolicy: in TpConfPolicy

The policy to be applied for the conference, e.g. are parties allowed to join (call into) the conference? Note that if parties are allowed to join the conference, the application can expect partyJoined() messages on the appConfCall.

Returns

TpResourceReservation

Raises

TpCommonExceptions

6.1.4 Method freeResources()

This method can be used to cancel an earlier made reservation of conference resources.

This also means that no ConferenceCreated events will be received for this conference.

Parameters

resourceReservation: in TpResourceReservation

Specifies the ResourceID and the ReservationID that were received during the reservation.

Raises

TpCommonExceptions

6.2 Interface Class IpAppConfCallControlManager

Inherits from: IpAppMultiMediaCallControlManager;

The conference call control manager application interface provides the application with additional callbacks when a conference is created by the network (based on an earlier reservation).

<<Interface>> IpAppConfCallControlManager
conferenceCreated (conferenceCall : in TpConfCallIdentifier) : IpAppConfCallRef

6.2.1 Method conferenceCreated()

This method is called when a conference is created from an earlier resource reservation. If the application has previously explicitly passed a reference to the callback using a setCallbackWithSessionID() invocation, this parameter may be null, or if supplied must be the same as that provided during the setCallbackWithSessionID().

Returns appInterface : Specifies a reference to the application interface which implements the callback interface for the new conference.

Parameters

`conferenceCall : in TpConfCallIdentifier`

Specifies the reference to the conference call interface to which the notification relates and the associated sessionID.

Returns

`IpAppConfCallRef`

6.3 Interface Class IpConfCall

Inherits from: IpMultiMediaCall;

The conference call manages the subconferences. It also provides some convenience methods to hide the fact of multiple subconferences from the applications that do not need it. Note that the conference call always contains one subconference. The following inherited call methods apply to the conference as a whole, with the specified semantics:

- setCallback; changes the callback interface reference.
- release; releases the entire conference, including all the subconferences and detached legs.
- deassignCall; de-assigns the complete conference. No callbacks will be received by the application, either on the conference, or on any of the contained subconferences or call legs.
- getInfoReq; request information over the complete conference. The conference duration is defined as the time when the first party joined the conference until when the last party leaves the conference or the conference is released.

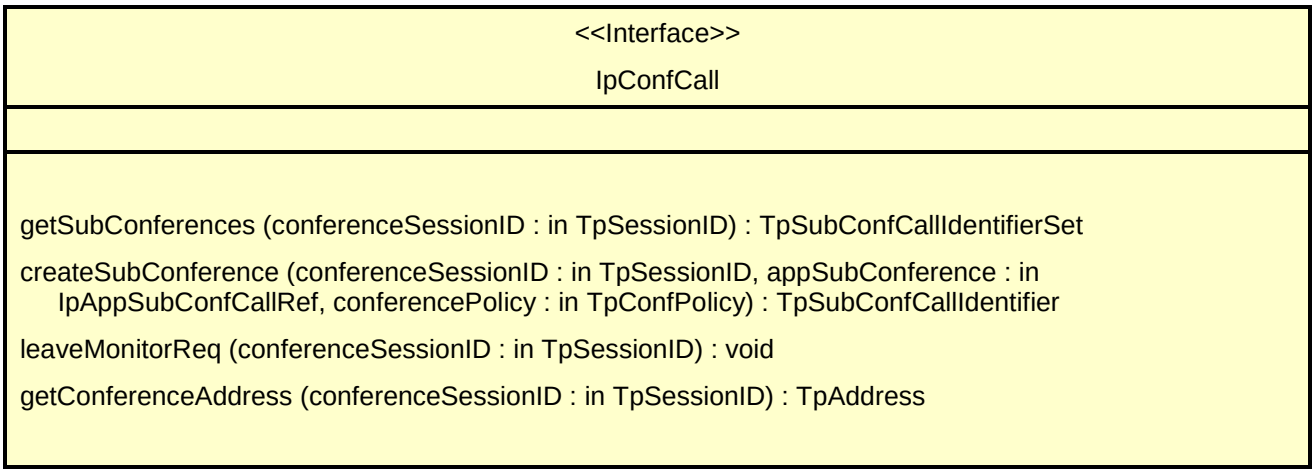
- setChargePlan; set the chargeplan for the conference. This chargeplan will apply to all the subconferences, unless another chargeplan is explicitly overridden on the subconference.
- superviseReq; supervise the duration of the complete conference.
- getCallLegs; return all the call legs used within the conference.
- superviseVolumeReq; supervises and sets a granted data volume for the conference.

Other methods apply to the default subconference. When using multiple subconferences, it is recommended that the

application calls these methods directly on the subconference since this makes it more explicit what the effect of the method is:

- createAndRouteCallLegReq.
- createCallLeg.

This interface shall be implemented by a Conference call control SCF. As a minimum requirement, the getSubConferences(), getConferenceAddress() and createSubConference() methods shall be implemented. The minimum required methods from IpMultiPartyCall are also required.



6.3.1 Method getSubConferences()

This method returns all the subconferences of the conference.

Returns subConferenceList : Specifies the list of all the subconferences of the conference.

Parameters

conferenceSessionID: in TpSessionID

Specifies the sessionID of the conference.

Returns

TpSubConfCallIdentifierSet

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.3.2 Method createSubConference()

This method is used to create a new subconference. Note that one subconference is already created together with the conference.

Returns subConference : Specifies the created subconference (interface and sessionID).

Parameters

conferenceSessionID: in TpSessionID

Specifies the sessionID of the conference.

appSubConference: in IpAppSubConfCallRef

Specifies the call back interface for the created subconference.

conferencePolicy:in TpConfPolicy

Conference Policy to be used in the subconference. Optional; if undefined, the policy of the conference is used. Note that not all policy elements have to be applicable for subconferences.

Returns

TpSubConfCallIdentifier

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.3.3 Method leaveMonitorReq()

This method is used to request a notification when a party leaves the conference.

Parameters

conferenceSessionID:in TpSessionID

Specifies the session ID of the conference.

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.3.4 Method getConferenceAddress()

This method returns the conference address that specifies the address with which the conference can be addressed in case parties are allowed to join the conference.

Parameters

conferenceSessionID:in TpSessionID

Specifies the sessionID of the conference.

Returns

TpAddress

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.4 Interface Class IpAppConfCall

Inherits from: IpAppMultiMediaCall;

The Conference Call application interface allows the application to handle call responses and state reports. Additionally it allows the application to handle parties entering and leaving the conference.

<<Interface>> IpAppConfCall
partyJoined (conferenceSessionID : in TpSessionID, callLeg : in mpccs::TpCallLegIdentifier, eventInfo : in TpJoinEventInfo) : mpccs::IpAppCallLegRef leaveMonitorRes (conferenceSessionID : in TpSessionID, callLeg : in TpSessionID) : void

6.4.1 Method partyJoined()

This asynchronous method indicates that a new party (leg) has joined the conference. This can be used in, e.g. a meetme conference where the participants dial in to the conference using the address returned during reservation of the conference.

The Leg will be assigned to the default subconference object and will be in a detached state. The application may move the call Leg to a different subconference before attaching the media.

The method will only be called when joinAllowed is indicated in the conference policy.

Returns appCallLeg : Specifies the call back interface that should be used for callbacks from the new call Leg.

Parameters

conferenceSessionID : in TpSessionID

Specifies the session ID of the conference that the party wants to join.

callLeg : in mpccs::TpCallLegIdentifier

Specifies the interface and sessionID of the call leg that joined the conference.

eventInfo : in TpJoinEventInfo

Specifies the address information of the party that wants to join the conference.

Returns

mpccs::IpAppCallLegRef

6.4.2 Method leaveMonitorRes()

This asynchronous method indicates that a party (leg) has left the conference.

Parameters

conferenceSessionID : in TpSessionID

Specifies the session ID of the conference that the party wants to leaves.

callLeg: in TpSessionID

Specifies the sessionID of the call leg that left the conference.

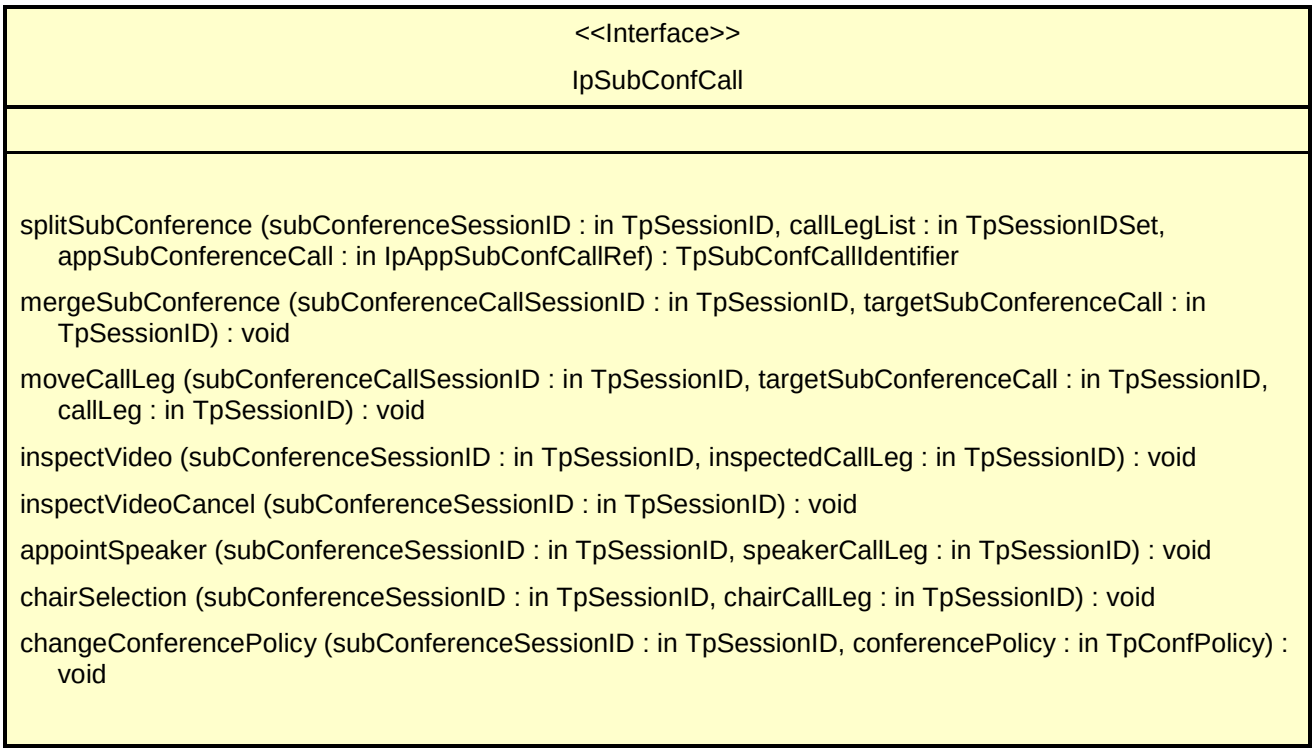
6.5 Interface Class IpSubConfCall

Inherits from: IpMultiMediaCall;

The subconference is an additional grouping mechanism within a conference. Parties (legs) that are in the same subconference have a speech connection with each other. The following inherited call methods apply to the subconference as a whole, with the specified semantics:

- setCallback; changes the callback interface reference.
- release; releases the subconference, including all currently attached legs. When the last subconference in the conference is released, the conference is implicitly released as well.
- deassignCall; de-assigns the subconference. No callbacks will be received by the application on this subconference, nor will the gateway accept any methods on this subconference or accept any methods using the subconference as a parameter (e.g., merge). When the subconference is the last subconference in the conference, the conference is deassigned as well. In general it is recommended to only use deassignCall for the complete conference.
- getInfoReq; request information over the subconference. The subconference duration is defined as the time when the first party joined the subconference until when the last party leaves the subconference or the subconference is released.
- setChargePlan; set the charge plan for the subconference.
- superviseReq; supervise the duration of the subconference. It is recommended that this method is only used on the complete conference.
- superviseVolumeReq; supervises and sets a granted data volume for the subconference.
- getCallLegs; return all the call legs in the subconference.
- createCallLeg; create a call leg.
- createAndRouteCallLegReq; implicitly create a leg and route the leg to the specified destination.

This interface shall be implemented by a Conference call control SCF. As a minimum requirement, either the moveCallLeg() method shall be implemented, or the splitSubConference() and mergeSubConference() methods shall be implemented. The minimum required methods from IpMultiPartyCall are also required.



6.5.1 Method splitSubConference()

This method is used to create a new subconference and move some of the legs to it.

Returns newSubConferenceCall : Specifies the new subconference that is implicitly created as a result of the method.

Parameters

subConferenceSessionID : in TpSessionID

Specifies the session ID of the subconference.

callLegList : in TpSessionIDSet

Specifies the sessionIDs of the legs that will be moved to the new subconference.

appSubConferenceCall : in IpAppSubConfCallRef

Specifies the application call back interface for the new subconference.

Returns

TpSubConfCallIdentifier

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.5.2 Method mergeSubConference()

This method is used to merge two subconferences, i.e. move all our legs from this subconference to the other subconference followed by a release of this subconference.

Parameters

subConferenceCallSessionID : in TpSessionID

Specifies the session ID of the subconference.

targetSubConferenceCall : in TpSessionID

The session ID of target subconference with which the current subconference will be merged.

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.5.3 Method moveCallLeg()

This method moves one leg from this subconference to another subconference.

Parameters

subConferenceCallSessionID : in TpSessionID

Specifies the session ID of the source subconference.

targetSubConferenceCall : in TpSessionID

Specifies the sessionID of the target subconference.

callLeg: in TpSessionID

Specifies the sessionID of the call leg to be moved.

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.5.4 Method inspectVideo()

This method can be used by the application to select which video should be sent to the party that is currently selected as the chair.

Whether this method can be used depends on the selected conference policy.

Parameters

subConferenceSessionID: in TpSessionID

Specifies the session ID of the multi media subconference.

inspectedCallLeg: in TpSessionID

Specifies the sessionID of call leg of the party whose video stream should be sent to the chair.

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.5.5 Method inspectVideoCancel()

This method cancels a previous inspectVideo. The chair will receive the broadcasted video.

Whether this method can be used depends on the selected conference policy.

Parameters

subConferenceSessionID: in TpSessionID

Specifies the session ID of the multi media subconference.

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.5.6 Method appointSpeaker()

This method indicates which of the participants in the conference has the floor. The video of the speaker will be broadcast to the other parties.

Whether this method can be used depends on the selected conference policy.

Parameters

subConferenceSessionID: in TpSessionID

Specifies the session ID of the multi media subconference.

speakerCallLeg: in TpSessionID

Specifies the sessionID of the call leg of the party whose video stream should be broadcast.

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.5.7 Method chairSelection()

This method is used to indicate which participant in the conference is the chair. E.g. the terminal of this participant will be the destination of the video of the inspectVideo method.

Whether this method can be used depends on the selected conference policy.

Parameters

subConferenceSessionID: in TpSessionID

Specifies the session ID of the multi media subconference.

chairCallLeg: in TpSessionID

Specifies the sessionID of the call leg of the party that will become the chair.

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.5.8 Method changeConferencePolicy()

This method can be used to change the conference policy in an ongoing conference.

Multi media conference policy options available. E.g.:

- chair controlled video / voice switched video;

- closed conference / open conference;

- Composite video (different types) / only speaker.

Parameters

subConferenceSessionID: in TpSessionID

Specifies the session ID of the multi media subconference.

conferencePolicy: in TpConfPolicy

New Conference Policy to be used in the subconference.

Raises

TpCommonExceptions, P_INVALID_SESSION_ID

6.6 Interface Class IpAppSubConfCall

Inherits from: IpAppMultiMediaCall;

The Sub Conference Call application interface allows the application to handle call responses and state reports from a sub conference.

<<Interface>> IpAppSubConfCall
chairSelection (subConferenceSessionID : in TpSessionID, callLegSessionID : in TpSessionID) : void floorRequest (subConferenceSessionID : in TpSessionID, callLegSessionID : in TpSessionID) : void

6.6.1 Method chairSelection()

This method is used to inform the application about the chair selection requests from the network. The application can grant the request by calling the chairSelection method on the subconference.

Parameters

`subConferenceSessionID : in TpSessionID`

Specifies the session ID of the subconference where the chair request originates.

`callLegSessionID : in TpSessionID`

Specifies the session ID of the call leg making the chair request.

6.6.2 Method floorRequest()

This method is used to inform the application about the floor requests from the network. The application can grant the request by calling the appointSpeaker method.

Parameters

`subConferenceSessionID : in TpSessionID`

Specifies the session ID of the subconference where the floor request originates.

`callLegSessionID : in TpSessionID`

Specifies the session ID of the call leg making the floor request.

7 Conference call control Service State Transition Diagrams

There are no State Transition Diagrams for the Conference call control Service package.

8 Conference call control Data Definitions

This clause provides the Conference call control data definitions necessary to support the API specification.

The general format of a data definition specification is described below.

- Data Type:

  This shows the name of the data type.

- Description:

  This describes the data type.

- Tabular Specification:

  This specifies the data types and values of the data type.

- Example:

  If relevant, an example is shown to illustrate the data type.

All data types referenced in the present document but not defined in this clause are defined either in the common call control data definitions in 3GPP TS 29.198-4-1 or in the common data definitions which may be found in 3GPP TS 29.198-2.

8.1 Event Notification Data Definitions

No specific event notification data.

8.2 Conference call control Data Definitions

8.2.1 IpConfCall

Defines the address of an `IpConfCall` Interface.

8.2.2 IpConfCallRef

Defines a `Reference` to type IpConfCall.

8.2.3 IpAppConfCall

Defines the address of an `IpAppConfCall` Interface.

8.2.4 IpAppConfCallRef

Defines a `Reference` to type IpAppConfCall.

8.2.5 IpSubConfCall

Defines the address of an `IpSubConfCall` Interface.

8.2.6 IpSubConfCallRef

Defines a `Reference` to type IpSubConfCall.

8.2.7 IpAppSubConfCall

Defines the address of an `IpAppSubConfCall` Interface.

8.2.8 IpAppSubConfCallRef

Defines a `Reference` to type IpAppSubConfCall.

8.2.9 TpSubConfCallIdentifierSet

Defines a `Numbered Set of Data Elements` of IpSubConfCallIdentifier.

8.2.10 TpConfCallIdentifier

Defines the Sequence of Data Elements that unambiguously specify the Conference Call object.

Sequence Element Name	Sequence Element Type	Sequence Element Description
ConfCallReference	IpConfCallRef	This element specifies the interface reference for the conference call object.
ConfCallSessionID	TpSessionID	This element specifies the session ID of the conference call.

8.2.11 TpSubConfCallIdentifier

Defines the Sequence of Data Elements that unambiguously specify the SubConference Call object.

Sequence Element Name	Sequence Element Type	Sequence Element Description
SubConfCallReference	IpSubConfCallRef	This element specifies the interface reference for the subconference call object.
SubConfCallSessionID	TpSessionID	This element specifies the session ID of the subconference call.

8.2.12 IpAppConfCallControlManager

Defines the address of an `IpAppConfCallControlManager` Interface.

8.2.13 IpAppConfCallControlManagerRef

Defines a `Reference` to type IpAppConfCallControlManager.

8.2.14 TpConfPolicyType

Defines policy type for the conference.

If undefined the gateway will select an appropriate default.

If a mono media conference policy is specified for a multi-media conference, the gateway will select appropriate defaults for the multi-media policy items.

If a multi-media policy is selected for a mono-media (voice-only) conference, the multi-media conference items will be ignored.

Name	Value	Description
P_CONFERENCE_POLICY_UNDEFINED	0	Undefined
P_CONFERENCE_POLICY_MONOMEDIA	1	CCCS - monomedia conference policy
P_CONFERENCE_POLICY_MULTIMEDIA	2	MMCCS - multimedia conference policy

8.2.15 TpConfPolicy

Defines the `Tagged Choice of Data Elements` that specify the policy that needs adhered to by the conference.

	Tag Element Type	
	TpConfPolicyType	

Tag Element Value	Choice Element Type	Choice Element Name
P_CONFERENCE_POLICY_MONOMEDIA	TpMonoMediaConfPolicy	MonoMedia
P_CONFERENCE_POLICY_MULTIMEDIA	TpMultiMediaConfPolicy	MultiMedia

8.2.16 TpMonoMediaConfPolicy

Defines the type of conference policy as a sequence of Policy Items and their values.

For mono media there are only two types of conference policies; specified, i.e. the application provides the policy, or undefined, i.e. the GW may choose a default conference policy.

Sequence Element Name	Sequence Element Type	Description
JoinAllowed	TpBoolean	Specifies if dial-in to the conference is allowed. Parties can dial-in to the conference using the address returned during reservation. If this is specified the application will receive partyJoined for each participant dialling into the conference.

8.2.17 TpJoinEventInfo

Defines the `Sequence of Data Elements` that specify the information returned to the application in a Join event notification.

Sequence Element Name	Sequence Element Type
DestinationAddress	TpAddress
OriginatingAddress	TpAddress
CallAppInfo	TpCallAppInfoSet

8.2.18 TpConfSearchCriteria

Defines the `Sequence of Data Elements` that specify the criteria for doing a search for available conference resources.

Sequence Element Name	Sequence Element Type
StartSearch	TpDateAndTime
StopSearch	TpDateAndTime
RequestedResources	TpInt32
RequestedDuration	TpDuration

8.2.19 TpConfSearchResult

Defines the `Sequence of Data Elements` that specifies the result of a search for available conference resources.

Sequence Element Name	Sequence Element Type
MatchFound	TpBoolean
ActualStartTime	TpDateAndTime
ActualResources	TpInt32
ActualDuration	TpDuration

8.2.20 TpMultiMediaConfPolicy

Sequence of items for multi-media conferences.

Sequence Element Name	Sequence Element Type	Description
JoinAllowed	TpBoolean	Specifies if dial-in to the conference is allowed. Parties can dial-in to the conference using the address returned during reservation. If this is specified the application will receive partyJoined for each participant dialling into the conference.
MediaAllowed	TpMediaType	Specifies the media that are allowed to be used by the participants. E.g. this can be used to limit the conference to audio only, even when all participants support video.
Chaired	TpBoolean	Specifies whether the conference is chaired or free. In a chaired conference the application or one of the participants acting as chair has special privileges; e.g. can control the video distribution.
VideoHandling	TpVideoHandlingType	Specifies how the video should be handled.

8.2.21 TpResourceReservation

Defines the `Sequence of Data Elements` that specifies the result of a search for available conference resources.

Sequence Element Name	Sequence Element Type	Sequence Element Description
ResourceID	TpAddress	The address with which the conference can be addressed.
ReservationID	TpInt32	Specifies the reservation made. It should be unique in a particular resource.

8.2.22 TpVideoHandlingType

Defines how video should be handled in the conference.

Name	Value	Description
P_MIXED_VIDEO	0	Video is mixed, no special treatment of speaker.
P_SWITCHED_VIDEO_CHAIR_CONTROLLED	1	Video is switched, chair determines the speaker.
P_SWITCHED_VIDEO_VOICE_CONTROLLED	2	Video is switched automatically based on audio output of the speaker.

Annex A (normative): OMG IDL Description of Conference call control SCF

The OMG IDL representation of this interface specification is contained in a text file (cccs.idl) contained in archive 291980405V700IDL.ZIP which accompanies the present document.

Annex B (informative): W3C WSDL Description of Conference call control SCF

The W3C WSDL representation of this interface specification is contained in zip file 291980405V700WSDL.ZIP, which accompanies the present document.

Annex C (informative): Java™ API Description of the Call Control SCFs

The Java™ API realisation of this interface specification is produced in accordance with the Java™ Realisation rules defined in Part 1 of this specification. These rules aim to deliver for Java™, a developer API, provided as a realisation, supporting a Java™ API that represents the UML specifications. The rules support the production of both J2SE™ and J2EE™ versions of the API from the common UML specifications.

The J2SE representation of this interface specification is provided as Java Code, contained in archive 291980405V700J2SE.ZIP that accompanies the present document.

The J2EE representation of this interface specification is provided as Java Code, contained in archive 291980405V700J2EE.ZIP that accompanies the present document.

Annex D (informative): Description of Call Control Sub-part 5: Conference call control SCF for 3GPP2 cdma2000 networks

This annex is intended to define the OSA API Stage 3 interface definitions and it provides the complete OSA specifications. It is an extension of OSA API specifications capabilities to enable operation in cdma2000 systems environment. They are in alignment with 3GPP2 Stage 1 requirements and Stage 2 architecture defined in:

[1] 3GPP2 P.S0001-B: "Wireless IP Network Standard", Version 1.0, September 2000.

[2] 3GPP2 S.R0037-0: "IP Network Architecture Model for cdma2000 Spread Spectrum Systems", Version 2.0, May 14, 2002.

[3] 3GPP2 X.S0013: "All-IP Core Network Multimedia Domain", December 2003.

These requirements are expressed as additions to and/or exclusions from the 3GPP Release 6 specification.
The information given here is to be used by developers in 3GPP2 cdma2000 network architecture to interpret the 3GPP OSA specifications.

D.1 General Exceptions

The terms 3GPP and UMTS are not applicable for the cdma2000 family of standards. Nevertheless these terms are used (3GPP TR 21.905) mostly in the broader sense of "3G Wireless System". If not stated otherwise there are no additions or exclusions required.

CAMEL and CAP mappings are not applicable for cdma2000 systems.

D.2 Specific Exceptions

D.2.1 Clause 1: Scope

There are no additions or exclusions.

D.2.2 Clause 2: References

Normative references on 3GPP TS 23.078 and on 3GPP TS 29.078 are not applicable for cdma2000 systems.

D.2.3 Clause 3: Definitions and abbreviations

There are no additions or exclusions.

D.2.4 Clause 4: Conference call control Service Sequence Diagrams

There are no additions or exclusions.

D.2.5 Clause 5: Class Diagrams

There are no additions or exclusions.

D.2.6 Clause 6: Conference call control Service Interface Classes

There are no additions or exclusions.

D.2.7 Clause 7: Conference call control Service State Transition Diagrams

There are no additions or exclusions.

D.2.8 Clause 8: Conference call control Data Definitions

There are no additions or exclusions. Nevertheless, for cdma2000 systems the CAMEL data types and service properties are not applicable.

D.2.9 Clause 9: Multi-Party Call Control Data Definitions

There are no additions or exclusions.

D.2.10 Annex A (normative): OMG IDL Description of Conference call control SCF

There are no additions or exclusions.

D.2.11 Annex B (informative): W3C WSDL Description of Conference call control SCF

There are no additions or exclusions.

D.2.12 Annex C (informative): Java™ API Description of the Call Control SCFs

There are no additions or exclusions.

Annex E (informative): Change history

Change history								
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Cat**	**Old**	**New**
Nov 2006	CT_34	CP-060609	--	--	Submitted to TSG CT#34 for Information.	--	--	1.0.0
Mar 2007	CT_35	CP-070050	--	--	Submitted to TSG CT#35 for Approval	--	2.0.0	7.0.0
Dec 2008	CT_42				Upgraded unchanged from Rel-7		7.0.0	8.0.0
Jan 2009					Correction of typo in Introduction (wrong subpart)		8.0.0	8.0.1
Jan 2009					Corrects the correction		8.0.1	8.0.2
2009-12	-	-	-	-	- Update to Rel-9 version (MCC)		8.0.2	9.0.0

History

Document history		
V9.0.0	January 2010	Publication