Source:	**CN5 (OSA)**
Title:	**Rel-4/5 CRs 29.198-12 OSA API Part 12: Charging**
Agenda item:	**7.10**
Document for:	**APPROVAL**

Doc-1st-Level	Spec	CR	R	Ph	Subject	Cat	Version-Current	Doc-2nd-Lev	WI
NP-030546	29.198-12	023	-	Rel-4	Correcting charging State Transition when reservation closed	F	4.4.0	N5-030394	OSA1
NP-030546	29.198-12	024	-	Rel-5	Correcting charging State Transition when reservation closed	A	5.2.0	N5-030395	OSA1

CR-Form-v7

CHANGE REQUEST

⌘   **29.198-12** CR **023**   ⌘**rev** **-** ⌘   Current version: **4.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐   ME ☐ Radio Access Network ☐ Core Network **X**

Title: ⌘	Correcting charging State Transition when reservation closed
Source: ⌘	CN5 (AePONA – Eamonn Murray)
Work item code: ⌘ OSA1	***Date:*** ⌘ 18/07/2003

Category: ⌘ **F**	***Release:*** ⌘ *REL-4*

Use <u>one</u> of the following categories:
   F *(correction)*
   A *(corresponds to a correction in an earlier release)*
   B *(addition of feature),*
   C *(functional modification of feature)*
   D *(editorial modification)*
Detailed explanations of the above categories can
be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
  2   *(GSM Phase 2)*
  R96   *(Release 1996)*
  R97   *(Release 1997)*
  R98   *(Release 1998)*
  R99   *(Release 1999)*
  Rel-4 *(Release 4)*
  Rel-5 *(Release 5)*
  Rel-6 *(Release 6)*

Reason for change: ⌘	The current charging service specification does not accurately describe the behaviour of the SCS when a charging reservation is closed. The descriptive text in the behaviour of several methods indicates that applications may request that reservations are closed without closing the charging session. This may be misinterpreted as allowing applications to establish a further reservation on the same session. This is not the intended behaviour of the charging SCS.
Summary of change: ⌘	Introduce additional state transition in charging STD and clarify state behaviour to ensure that closure of a charging reservation results in no further charging reservation actions are supported as part of that session.
Consequences if not approved: ⌘	Multivendor Interoperability shall not be possible as a result of inconsistent and ambiguous SCS definition

Clauses affected: ⌘ 9		

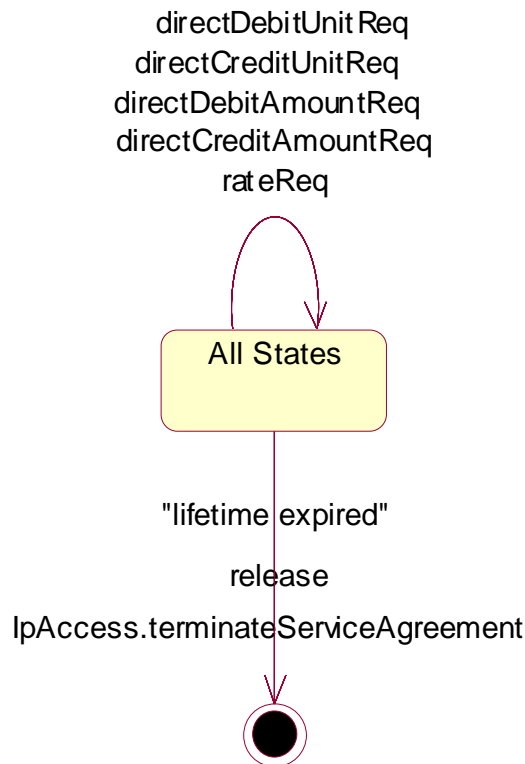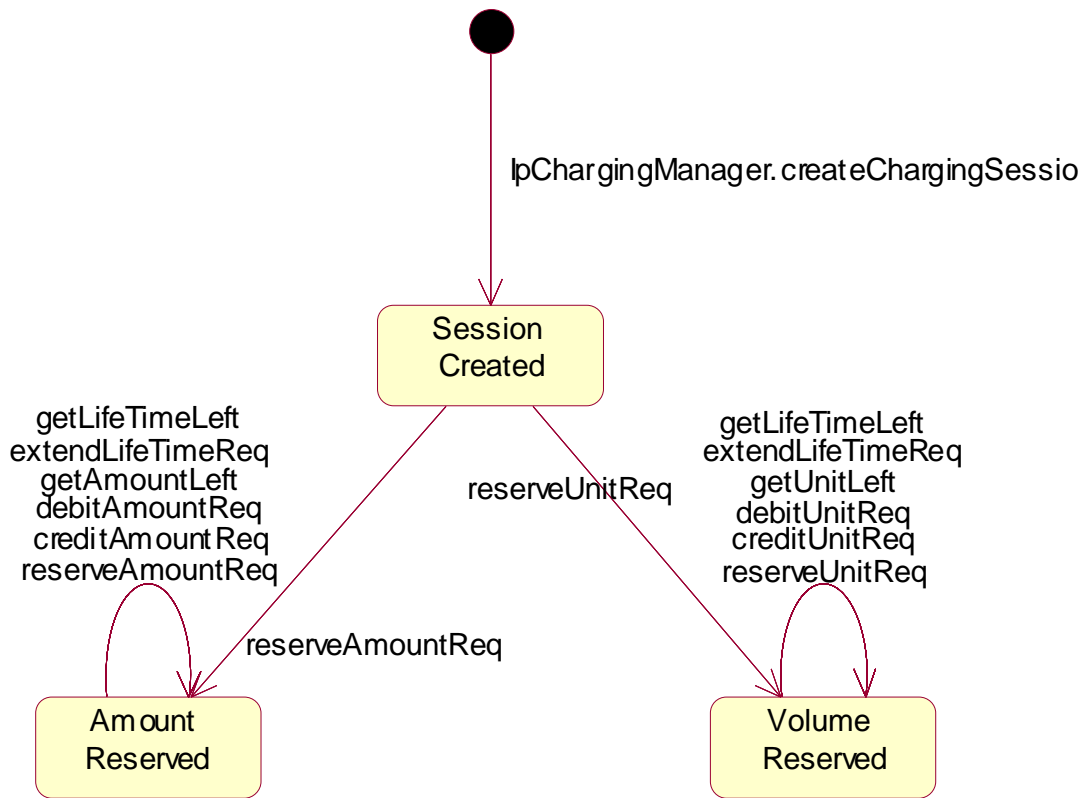|	**Y**	**N**		
Other specs affected: ⌘	**X**		Other core specifications ⌘	Rel-5 29.198-12
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	Rel-5 Mirror CR in N5-030395.

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.

****************** Start of Change # 1 *********************

9   State Transition Diagrams

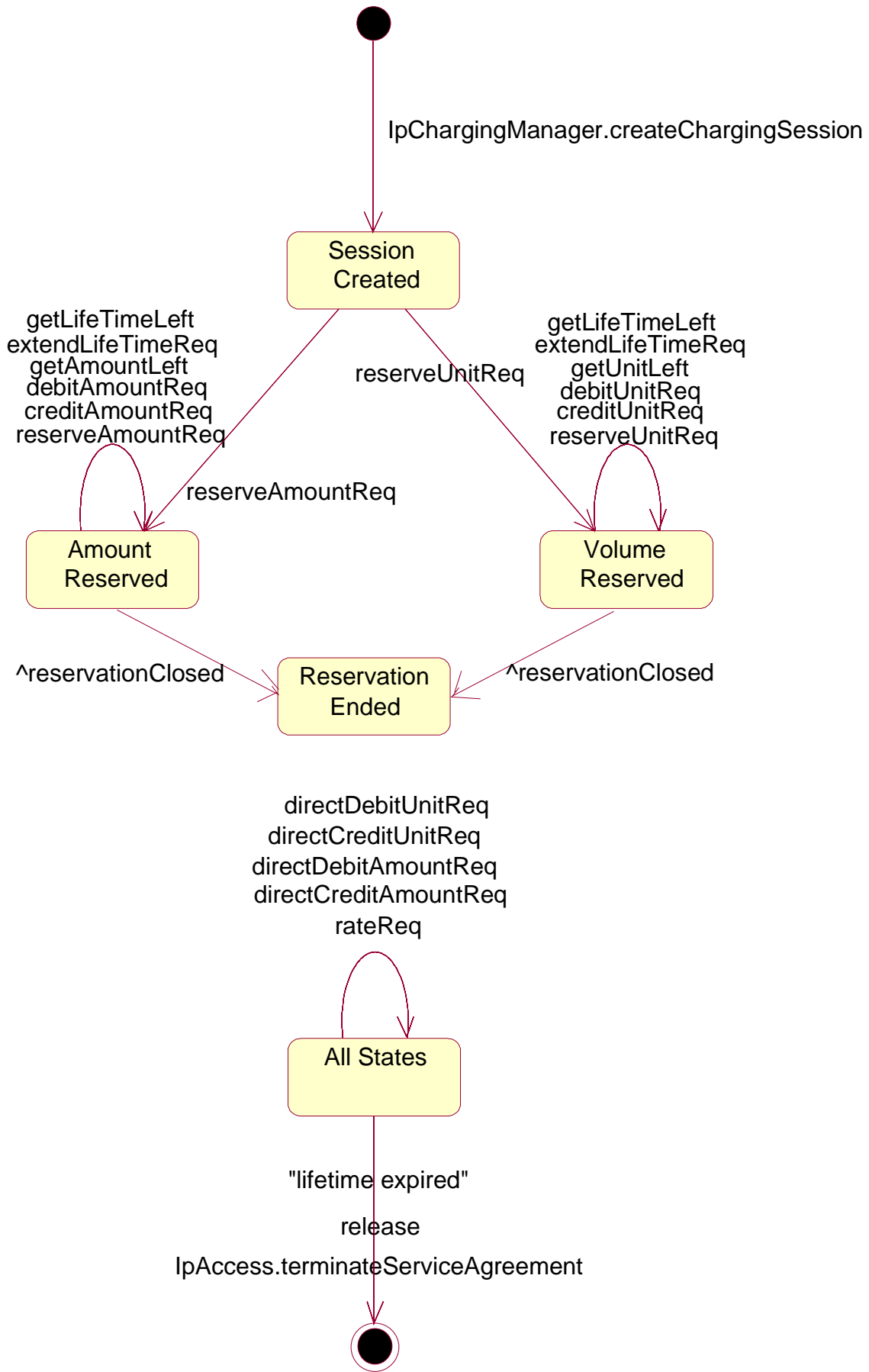## 9.1   State Transition Diagrams for IpChargingSession

Figure : Charging Session Handling

9.1.1   Session Created State

In this state the Charging Session is created. No reservations have been made. In this state, the applications have the possibility to perform direct debits and credits on the user's account and to request rating.

9.1.2   Amount Reserved State

In this state a reservation for a certain maximum amount has been made. This reservation has succeeded and the application has the possibility to perform incremental debits/credits on this reserved amount until either the application chooses to close the reservation or the reservation limit is reached, or the Charging Session is released (either explicitly by the application or implicitly when the lifetime of the session has expired). The application can also extend the reservation and control its lifetime.

If the application chooses to close the reservation or the original reservation limit is reached, a transition to the 'Reservation Ended' state results.

9.1.3   Volume Reserved State

In this state a reservation for a certain maximum volume (kilobytes, emails, html-pages, etc) has been made. This reservation has succeeded and the application has the possibility to perform incremental debits/credits on this reserved volume until either the application chooses to close the reservation or the reservation limit is reached, or the Charging Session is released (either explicitly by the application or implicitly when the lifetime of the session has expired). The application can also extend the reservation and control its lifetime.

If the application chooses to close the reservation or the original reservation limit is reached, a transition to the 'Reservation Ended' state results.

9.1.4   Reservation Ended State

In this state an amount or volume reservation has been closed by the application, or the reservation limit has been reached. The charging session may remain active in order to carry out non-reservation related tasks such direct credit or debit operations. No further charging reservations shall be possible for this session, a new session is therefore required for future charging reservations. The charging session is closed on lifetime expiry or application 'release'.

*************** End of Change # 1 **********************

Annex B (informative): Change history

					Change history		
Date	**TSG #**	**TSG Doc.**	**CR**	**Rev**	**Subject/Comment**	**Old**	**New**
Mar 2001	CN_11	NP-010134	047	--	CR 29.198: for moving TS 29.198 from R99 to Rel 4 (N5-010158)	3.2.0	1.0.0
Jun 2001	CN_12	NP-010328	--	--		2.0.0	4.0.0
Sep 2001	CN_13	NP-010473	001	--	Changing references to JAIN	4.0.0	4.1.0
Sep 2001	CN_13	NP-010473	002	--	Error corrections charging	4.0.0	4.1.0
Sep 2001	CN_13	NP-010473	003	--	Changed semantics of closeReservation parameter	4.0.0	4.1.0
Sep 2001	CN_13	NP-010473	004	--	Missing errors in definition of (credit/debit)(Amoun/Unit)Err	4.0.0	4.1.0
Sep 2001	CN_13	NP-010473	005	--	Clarification of Unit Reservation	4.0.0	4.1.0
Sep 2001	CN_13	NP-010473	006	--	Improving correlation request and response for applications	4.0.0	4.1.0
Sep 2001	CN_13	NP-010473	007	--	Remove the P_CHS_PARAM_RESULT value from the TpChargingParameterID type	4.0.0	4.1.0
Sep 2001	CN_13	NP-010473	008	--	Align the order of parameters for similar methods	4.0.0	4.1.0
Dec 2001	CN_14	NP-010603	009	--	Replace Out Parameters with Return Types	4.1.0	4.2.0
Mar 2002	CN_15	NP-020112	010	--	Add P_INVALID_INTERFACE_TYPE exception to IpService.setCallback() and IpService.setCallbackWithSessionID()	4.2.0	4.3.0
Mar 2002	CN_15	NP-020112	011	--	Correction of parameter name in IpAppChargingSession.extendLifeTimeRes()	4.2.0	4.3.0
Mar 2003	CN_19	NP-030026	020		Correction of status of methods to Charging interfaces	4.3.0	4.4.0

CR-Form-v7

CHANGE REQUEST

| | ⌘ | **29.198-12** CR **024** | ⌘**rev** | **-** | ⌘ | Current version: | **5.2.0** | ⌘ |

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Proposed change affects: UICC apps⌘ ☐   ME ☐ Radio Access Network ☐ Core Network **X**

Title:	⌘	Correcting charging State Transition when reservation closed
Source:	⌘	CN5 (AePONA – Eamonn Murray)
Work item code: ⌘	OSA1	***Date:*** ⌘ 18/07/2003
Category:	⌘ **A**	***Release:*** ⌘ *REL-5*

Use <u>one</u> of the following categories:
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Rel-6   (Release 6)

Reason for change:	⌘	The current charging service specification does not accurately describe the behaviour of the SCS when a charging reservation is closed. The descriptive text in the behaviour of several methods indicates that applications may request that reservations are closed without closing the charging session. This may be misinterpreted as allowing applications to establish a further reservation on the same session. This is not the intended behaviour of the charging SCS.
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Consequences if not approved:	⌘	Multivendor Interoperability shall not be possible as a result of inconsistent and ambiguous SCS definition

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Clauses affected:	⌘	9

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	Rel-5 Mirror CR of N5-030394.

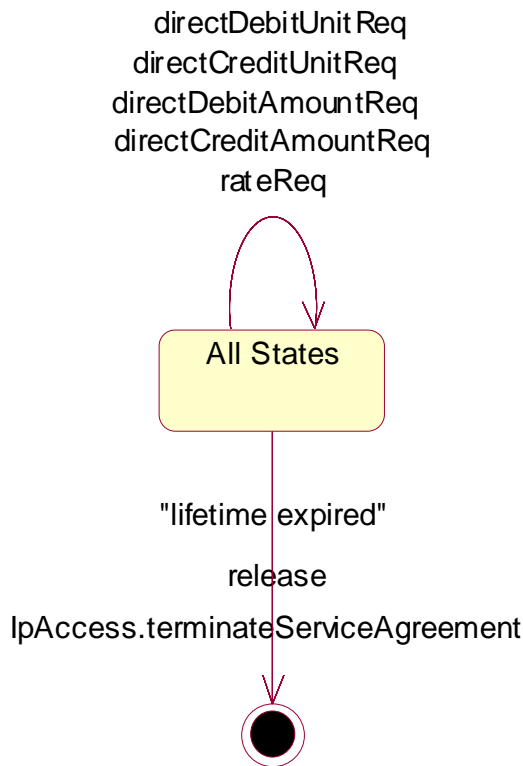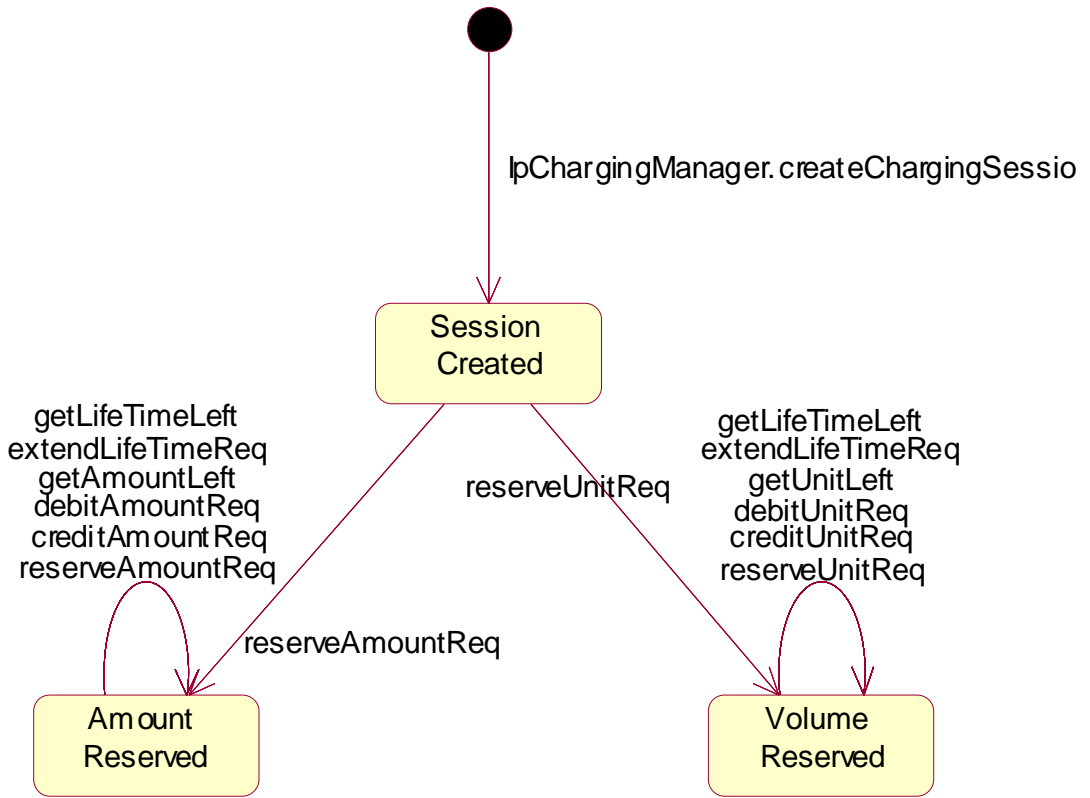**How to create CRs using this form:**
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*************** Start of Change # 1 *********************

9 State Transition Diagrams

9.1 State Transition Diagrams for IpChargingSession

IpChargingManager. createChargingSessio

Session
Created

getLifeTimeLeft
extendLifeTimeReq
getAmountLeft
debitAmountReq
creditAmountReq
reserveAmountReq

reserveUnitReq

getLifeTimeLeft
extendLifeTimeReq
getUnitLeft
debitUnitReq
creditUnitReq
reserveUnitReq

reserveAmountReq

Amount
Reserved

Volume
Reserved

directDebitUnitReq
directCreditUnitReq
directDebitAmountReq
directCreditAmountReq
rateReq

All States

"lifetime expired"

release
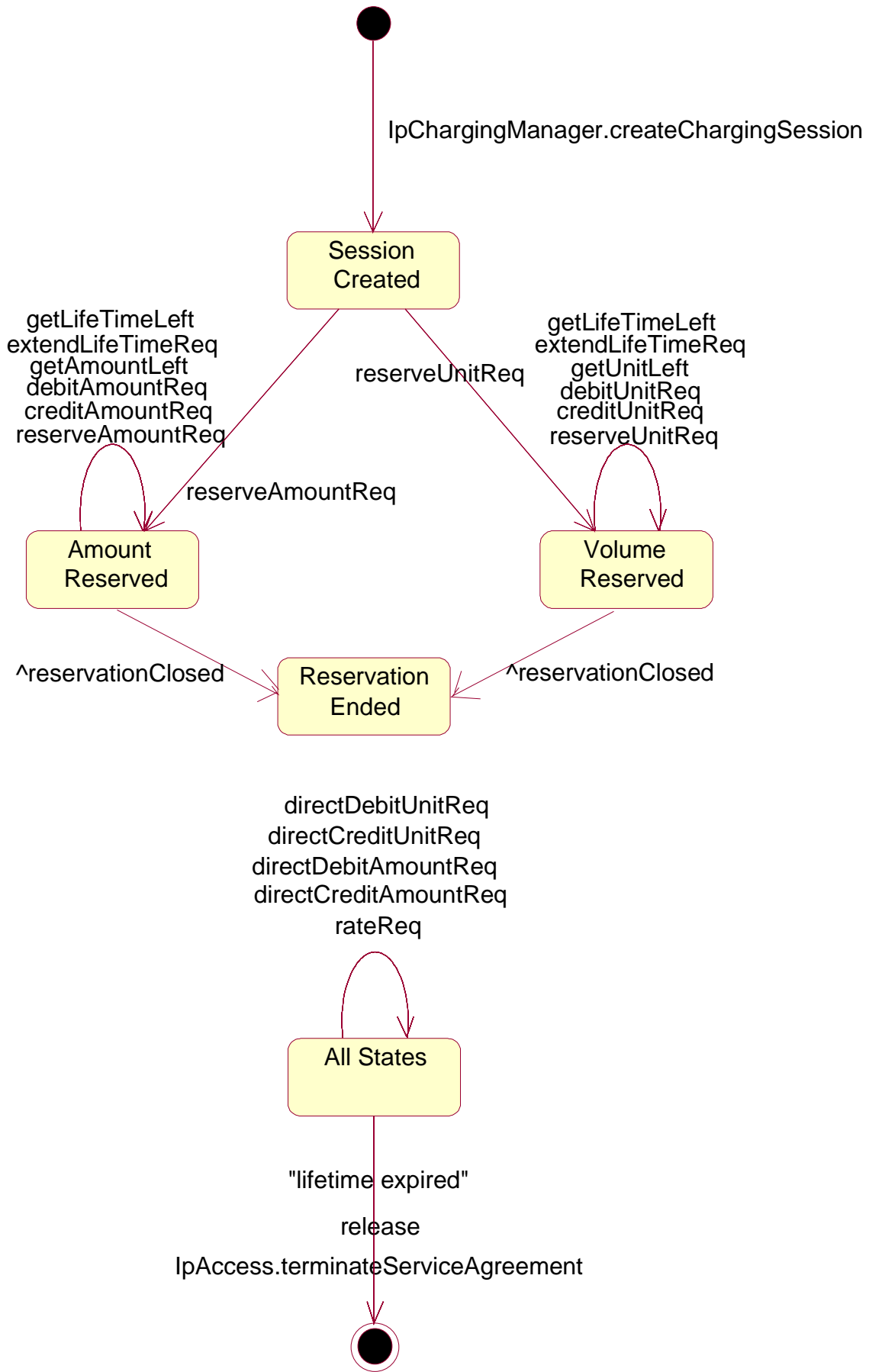
IpAccess.terminateServiceAgreement

Figure : Charging Session Handling

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*************** End of Change # 1 ***********************