

**Open Service Access (OSA);
Parlay X Web Services;
Part 6: Payment
(Parlay X 2)**



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), and is now submitted for the ETSI standards Membership Approval Procedure.

The present document is part 6 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>), PayCircle (<http://www.paycircle.org/>) and the 3GPP.

The present document forms part of the Parlay X 2.2 set of specifications.

The present document is equivalent to 3GPP TS 29.199-06 V6.5.0 (Release 6).

1 Scope

The present document is part 6 of the Stage 3 Parlay X 2 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 Payment 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

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.
- Non-specific reference may be made only to a complete document or a part thereof and only in the following cases:
 - if it is accepted that it will be possible to use all future changes of the referenced document for the purposes of the referring document;
 - for informative references.

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NOTE: While any hyperlinks included in this clause were valid at the time of publication ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[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 (Parlay X 2)".
- [3] ISO 4217: "Codes for the representation of currencies and funds".

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 given in ES 202 391-1 [2] apply.

4 Detailed service description

A vast amount of content, both information and entertainment, will be made available to subscribers. To support a business model that enables operators to offer integrated billing, a payment API is crucial. Open and inter-operable "payment APIs" are the key to market growth and investment protection. The Payment Web Service supports payments for any content in an open, Web-like environment.

The Payment Web Service described in the present document supports payment reservation, pre-paid payments, and post-paid payments. It supports charging of both volume and currency amounts, a conversion function and a settlement function in case of a financially resolved dispute.

Note that certain parameters are negotiated off line. For example the currency, volume type, default reservation enforcement time, as well as the taxation procedures and parameters.

An example of an application scenario could be a multimedia service. Assume a subscriber is interested in receiving a stream of, say, a soccer match. The subscriber selects a match and establishes a trusted relation with the provider. Again, the provider obtains the MSISDN and other information from the subscriber. The subscriber wants to know what the service will cost and the provider interacts with the operators rating engine (**getAmount**) taking into account the subscriber's subscription, time of day, etc. The value returned is a **ChargingInformation** amount and is printed on the page that is displayed at the MS. The subscriber then decides to stream the match to his MS. Subsequently, the provider will reserve the appropriate amount with the operator (**reserveAmount**) to ensure that the subscriber can fulfil his payment obligations. The match starts and the provider periodically charges against the reservation (**chargeReservation**). The match ends in a draw and is extended with a "sudden death" phase. The subscriber continues listening, so the existing reservation is enlarged (**reserveAdditionalAmount**). Suddenly, one of the teams scores a goal, so the match abruptly ends, leaving part of the reserved amount unused. The provider now releases the reservation (**releaseReservation**), and the remaining amount is available for future use by the subscriber.

Now we can extend this scenario by having the subscriber participate in a game of chance in which the provider refunds a percentage of the usage costs (**refundAmount**) based on the ranking of a particular team in this tournament. For example, the subscriber gambling on the team that wins the tournament receives a full refund, while for gambling on the team that finishes in second place, the refund is 50 %, etc.

5 Namespaces

The AmountCharging interface uses the namespace:

http://www.csapi.org/wsd/parlayx/payment/amount_charging/v2_2

The VolumeCharging interface uses the namespace:

http://www.csapi.org/wsd/parlayx/payment/volume_charging/v2_2

The ReserveAmountCharging interface uses the namespace:

http://www.csapi.org/wsd/parlayx/payment/reserve_amount_charging/v2_2

The ReserveVolumeCharging interface uses the namespace:

http://www.csapi.org/wsd/parlayx/payment/reserve_volume_charging/v2_3

The data types are defined in the namespace:

http://www.csapi.org/schema/parlayx/payment/v2_1

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

6.1 Charge for content

Assume a subscriber is interested in downloading a ring tone to his device. The subscriber selects a ring tone and establishes a trusted relation with the ring tone provider. Essentially, the ring tone provider obtains the address (MSISDN) and other information from the subscriber. The ring tone may be downloaded to the device using SMS. As soon as the download succeeds, the provider of the ring tone will charge the subscriber (**chargeAmount**).

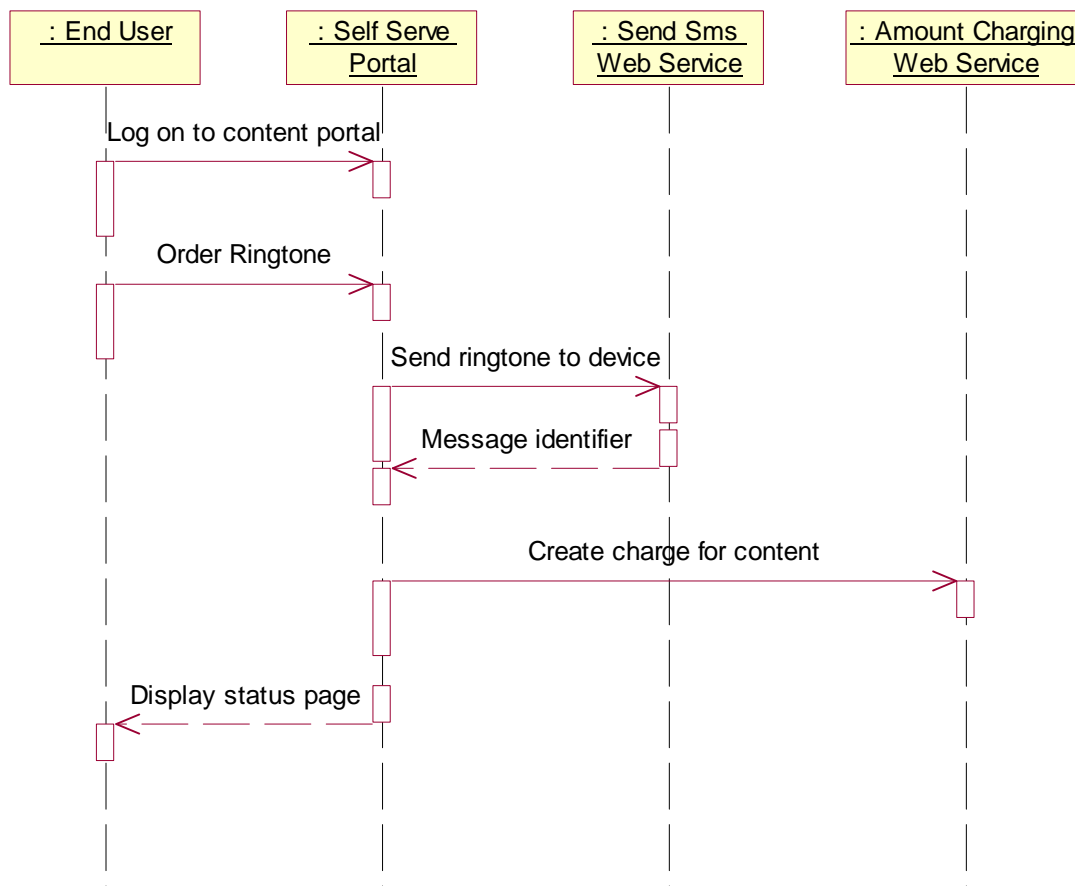


Figure 1

7 XML Schema data type definition

7.1 Property structure

Property with a name and value.

Element name	Type	Optional	Description
name	xsd:string	No	Name of property
value	xsd:string	No	Value of property

8 Web Service interface definition

8.1 Interface: AmountCharging

Charge operations by amount.

8.1.1 Operation: chargeAmount

This operation results in directly charging to the account indicated by the end user identifier. The charge is specified as a **ChargingInformation** data structure, consisting of information on the amount to be charged and a description to appear on the bill. The reference code is used to uniquely identify the request; it is the application's responsibility to provide a unique reference code within the scope of the application.

8.1.1.1 Input message: chargeAmountRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	The end user's account to be charged
charge	common:ChargingInformation	No	Information on the charge to be made. In the ChargingInformation structure: <ul style="list-style-type: none"> The description element is information to appear on the bill. The amount to be charged appears either directly in the amount element or encoded in the code element. If both these elements are missing or empty, a service exception (SVC0007) will be thrown. The optional currency element specifies the currency to be used for the charge.
referenceCode	xsd:string	No	Textual information to uniquely identify the request, e.g. in case of disputes.

8.1.1.2 Output message: chargeAmountResponse

Part name	Part type	Optional	Description
None			

8.1.1.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.
- SVC0007 - Invalid charging information.

- SVC0270 - Charge failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.1.2 Operation: refundAmount

This operation results in directly applying a refund to the account indicated by the end user identifier. The refund is specified as a currency amount. The billing text field is used for textual information to appear on the bill. The reference code is used to uniquely identify the request; it is the application's responsibility to provide a unique reference code within the scope of the application.

8.1.2.1 Input message: refundAmountRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	The end user's account to be refunded
charge	common:Charging Information	No	Information on the refund to be made. In the ChargingInformation structure: <ul style="list-style-type: none"> • The description element is information to appear on the bill. • The amount to be refunded appears either directly in the amount element or encoded in the code element. If both these elements are missing or empty, a service exception (SVC0007) will be thrown. • The optional currency element specifies the currency to be used for the refund.
referenceCode	xsd:string	No	Textual information to uniquely identify the request, e.g. in case of disputes.

8.1.2.2 Output message: refundAmountResponse

Part name	Part type	Optional	Description
None			

8.1.2.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.
- SVC0007 - Invalid charging information.
- SVC0270 - Charge failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.2 Interface: VolumeCharging

Charging operations by volume.

8.2.1 Operation: chargeVolume

This operation results in directly charging to the account indicated by the end user identifier. The charge is specified as a volume. The billing text field is used for textual information to appear on the bill. The reference code is used to uniquely identify the request; it is the application's responsibility to provide a unique reference code within the scope of the application.

8.2.1.1 Input message: chargeVolumeRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	The end user's account to be charged
volume	xsd:long	No	The volume to be charged
billingText	xsd:string	No	Textual information to appear on the bill
referenceCode	xsd:string	No	Textual information to uniquely identify the request, e.g. in case of disputes
parameters	Property [0..unbounded]	Yes	Parameters to use to perform rating ("unit", "contract", "service", "operation")

8.2.1.2 Output message: chargeVolumeResponse

Part name	Part type	Optional	Description
None			

8.2.1.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.
- SVC0270 - Charge failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.2.2 Operation: getAmount

This operation results in converting the given volume to a currency amount. The end user identifier is given to indicate the subscriber for whom this conversion calculation must be made. The message returns a currency amount if successful.

The following properties may be provided:

- unit, specifying the unit used for measuring volume (e.g. bytes);
- contract, number of a contract that may govern the use;
- service, name of the service to be used (e.g. SendMessageService);
- operation, name of the operation to be used (e.g. sendMessage).

8.2.2.1 Input message: getAmountRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	The end user's account to be charged
volume	xsd:long	No	The volume to be converted
parameters	Property [0..unbounded]	Yes	Parameters to use to perform rating ("unit", "contract", "service", "operation")

8.2.2.2 Output message: getAmountResponse

Part name	Part type	Optional	Description
result	common:Charging Information	No	The conversion process results in the return of a ChargingInformation structure, where the description , amount and currency elements must be non-null.

8.2.2.3 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.

8.2.3 Operation: refundVolume

This operation results in directly applying a refund to the account indicated by the end user identifier. The refund is specified as a volume. The billing text field is used for textual information to appear on the bill. The reference code is used to uniquely identify the request; it is the application's responsibility to provide a unique reference code within the scope of the application.

8.2.3.1 Input message: refundVolumeRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	The end user's account to be refunded
volume	xsd:long	No	The volume to be refunded
billingText	xsd:string	No	Textual information to appear on the bill
referenceCode	xsd:string	No	Textual information to uniquely identify the request, e.g. in case of disputes
parameters	Property [0..unbounded]	Yes	Parameters to use to perform rating ("unit", "contract", "service", "operation")

8.2.3.2 Output message: refundVolumeResponse

Part name	Part type	Optional	Description
None			

8.2.3.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

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

- SVC0270 - Charge failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.3 Interface: ReserveAmountCharging

Operations to manage reservation charging by amount.

8.3.1 Operation: reserveAmount

This operation reserves a charge for an account indicated by the end user identifier. The charge to be reserved is specified as a **ChargingInformation** data structure. Note that reservations do not last forever; it is assumed the default reservation enforcement time is negotiated off-line. If the reservation times out, the remaining funds will be returned to the account from which this reservation was made. However, the remaining funds shall preferably be returned explicitly to the account using the **releaseReservation** operation. The **description** element of the **ChargingInformation** data structure is used for textual information to appear on the bill. Subsequent textual information provided during this charging session will be appended to this textual information; one charging session to a reservation will result in only one entry on the bill. In case of success, a reservation id is returned for future reference; e.g. subsequent charging against the existing reservation using the **chargeReservation** operation.

8.3.1.1 Input message: reserveAmountRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	The end user's account subject to the reservation
charge	common:ChargingInformation	No	Information on the charge to be reserved. In the ChargingInformation structure: <ul style="list-style-type: none"> • The description element is information to appear on the bill. • The charge to be reserved appears either directly in the amount element or encoded in the code element. If both these elements are missing or empty, a service exception (SVC0007) will be thrown. • The optional currency element specifies the currency to be used for the charge reservation.

8.3.1.2 Output message: reserveAmountResponse

Part name	Part type	Optional	Description
result	xsd:string	No	It is an identifier for the newly created reservation

8.3.1.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.
- SVC0007 - Invalid charging information.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.3.2 Operation: reserveAdditionalAmount

This operation results in the addition/subtraction of a charge to/from an existing reservation indicated by the reservation id. The charge is specified as a **ChargingInformation** data structure. Note that reservations do not last forever; it is assumed the default reservation enforcement time is negotiated off-line. Invoking this message will extend the reservation enforcement time for another off-line-negotiated period. The **description** element of the **ChargingInformation** data structure is used for appending textual information to appear on the bill. The textual information is appended to the initial textual information given by the **reserveAmount** operation; one charging session to a reservation will result in only one entry on the bill. Reserved credit can be returned to the account through the **releaseReservation** operation.

8.3.2.1 Input message: reserveAdditionalAmountRequest

Part name	Part type	Optional	Description
reservationIdentifier	xsd:string	No	An identifier for the reservation to be amended
charge	common:ChargingInformation	No	Information on the charge to be added to (or subtracted from) the reservation. In the ChargingInformation structure: <ul style="list-style-type: none"> The description element is information to appear on the bill. The charge to be reserved appears either directly in the amount element or encoded in the code element. If both these elements are missing or empty, a service exception (SVC0007) will be thrown. The currency element is not applicable: the currency is defined only when the reservation is established (i.e. the reserveAmount operation is invoked).

8.3.2.2 Output message : reserveAdditionalAmountResponse

Part name	Part type	Optional	Description
None			

8.3.2.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.
- SVC0007 - Invalid charging information.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.3.3 Operation: chargeReservation

This operation results in charging to a reservation indicated by the reservation id. Reservations, identified by reservation id, are established through invoking the **reserveAmount** operation. The charge is specified as a **ChargingInformation** data structure. The **description** element of the **ChargingInformation** data structure is used for appending textual information to appear on the bill. The textual information is appended to the initial textual information given by the **reserveAmount** operation; one charging session to a reservation will result in only one entry on the bill. The reference code is used to uniquely identify the request; it is the application's responsibility to provide a unique reference code within the scope of the application.

8.3.3.1 Input message: chargeReservationRequest

Part name	Part type	Optional	Description
reservationIdentifier	xsd:string	No	An identifier for the reservation to be charged
charge	common:ChargingInformation	No	Information on the charge to the reservation. In the ChargingInformation structure: <ul style="list-style-type: none"> The description element is information to appear on the bill. The charge to the reservation appears either directly in the amount element or encoded in the code element. If both these elements are missing or empty, a service exception (SVC0007) will be thrown. The currency element is not applicable: the currency is defined only when the reservation is established (i.e. the reserveAmount operation is invoked).
referenceCode	xsd:string	No	Textual information to uniquely identify the request, e.g. in case of disputes

8.3.3.2 Output message: chargeReservationResponse

Part name	Part type	Optional	Description
None			

8.3.3.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.
- SVC0007 - Invalid charging information.
- SVC0270 - Charge failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.3.4 Operation: releaseReservation

This operation returns funds left in a reservation indicated by reservation id to the account from which this reservation was made. Reservations, identified by reservation id, are established by invoking the **reserveAmount** operation.

8.3.4.1 Input message: releaseReservationRequest

Part name	Part type	Optional	Description
reservationIdentifier	xsd:string	No	An identifier for the reservation to be released

8.3.4.2 Output message: releaseReservationResponse

Part name	Part type	Optional	Description
None			

8.3.4.3 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.

8.4 Interface: ReserveVolumeCharging

Operations to manage reservation charging by amount.

8.4.1 Operation: getAmount

This operation returns the amount resulting from converting the given volume. The end user identifier is given to indicate the subscriber for whom this calculation must be made. The message returns a currency amount if successful.

The following properties may be provided:

- unit, specifying the unit used for measuring volume (e.g. bytes);
- contract, number of a contract that may govern the use;
- service, name of the service to be used (e.g. SendMessageService);
- operation, name of the operation to be used (e.g. sendMessage).

8.4.1.1 Input message: getAmountRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	The end user's account to be charged
volume	xsd:long	No	The volume to be converted
parameters	Property [0..unbounded]	Yes	Parameters to use to perform rating ("unit", "contract", "service", "operation")

8.4.1.2 Output message : getAmountResponse

Part name	Part type	Optional	Description
result	common:Charging Information	No	The conversion process results in the return of a ChargingInformation structure, where the description , amount and currency elements must be non-null.

8.4.1.3 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.

8.4.2 Operation: reserveVolume

This operation reserves a volume for an account indicated by the end user identifier. Note that reservations do not last forever; it is assumed the default reservation enforcement time is negotiated off-line. If the reservation times out, the remaining volume will be returned to the account from which this reservation was made. However, the remaining volume should preferably be returned explicitly to the account using the **releaseReservation** operation. The billing text field is used for textual information to appear on the bill. Subsequent textual information provided during this charging session will be appended to this textual information; one charging session to a reservation will result in only one entry on the bill. In case of success, a reservation identifier is returned for future reference; e.g. subsequent charging against the existing reservation using the **chargeReservation** operation.

8.4.2.1 Input message: reserveVolumeRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	The end user's account subject to the reservation
volume	xsd:long	No	The volume of the reservation
billingText	xsd:string	No	Textual information to appear on the bill
parameters	Property [0..unbounded]	Yes	Parameters to use to perform rating ("unit", "contract", "service", "operation"). There is a maximum of one instance of each parameter type. Example, for the request "reserve 5 minutes of the gold video service", the volume part value is 5 and the parameters part has the following properties: <ul style="list-style-type: none"> • "unit"=minutes • "contract"=gold • "service"=video

8.4.2.2 Output message: reserveVolumeResponse

Part name	Part type	Optional	Description
result	xsd:string	No	It is an identifier for the newly created reservation

8.4.2.3 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.

8.4.3 Operation: reserveAdditionalVolume

This operation adds/subtracts a volume to/from an existing volume reservation indicated by the reservation id. Note that reservations do not last forever; it is assumed the default reservation enforcement time is negotiated off-line. Invoking this message will extend the reservation enforcement time for another off-line-negotiated period. The billing text field is used for appending textual information to appear on the bill. The textual information is appended to the initial textual information given by the **reserveVolume** operation; one charging session to a reservation will result in only one entry on the bill. A reserved credit can be returned to the account through the **releaseReservation** operation.

8.4.3.1 Input message: reserveAdditionalVolumeRequest

Part name	Part type	Optional	Description
reservationIdentifier	xsd:string	No	An identifier for the reservation to be amended
volume	xsd:long	No	The volume to be added to (or subtracted from) the reservation. [Note the associated rating parameters are the same as those defined in the parameters part of the original reserveVolumeRequest message.]
billingText	xsd:string	No	Textual information to appear on the bill

8.4.3.2 Output message: reserveAdditionalVolumeResponse

Part name	Part type	Optional	Description
None			

8.4.3.3 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.

8.4.4 Operation: chargeReservation

This operation results in charging to a volume reservation indicated by the reservation id. Reservations, identified by reservation id., are established through invoking the **reserveVolume** operation. Optionally, the billing text field can be used for appending textual information to appear on the bill. The textual information is appended to the initial textual information given by the **reserveVolume** operation; one charging session to a reservation will result in only one entry on the bill. The reference code is used to uniquely identify the request; it is the application's responsibility to provide a unique reference code within the scope of the application.

8.4.4.1 Input message: chargeReservationRequest

Part name	Part type	Optional	Description
reservationIdentifier	xsd:string	No	An identifier for the reservation to be charged
volume	xsd:long	No	The volume to be charged. (Note the associated rating parameters are the same as those defined in the parameters part of the original reserveVolumeRequest message.)
billingText	xsd:string	Yes	Textual information to appear on the bill (optional)
referenceCode	xsd:string	No	Textual information to uniquely identify the request, e.g. in case of disputes

8.4.4.2 Output message: chargeReservationResponse

Part name	Part type	Optional	Description
None			

8.4.4.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.
- SVC0270 - Charge failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.4.5 Operation: releaseReservation

This operation returns funds left in a volume reservation indicated by reservation id. to the account from which this reservation was made. Reservations, identified by reservation id., are established through invoking the **reserveVolume** operation.

8.4.5.1 Input message: releaseReservationRequest

Part name	Part type	Optional	Description
reservationIdentifier	xsd:string	No	An identifier for the reservation to be released

8.4.5.2 Output message: releaseReservationResponse

Part name	Part type	Optional	Description
None			

8.4.5.3 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.

9 Fault definitions

9.1 ServiceException

9.1.1 SVC0270: Charge failed

Name	Description
messageId	SVC0270
text	Charging operation failed, the charge was not applied.
variables	None

10 Service policies

Service policies for this service.

Name	Type	Description
Currency	xsd:string	Currency used by service (per ISO 4217 [3])

Annex A (normative): WSDL for Payment

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_20239106v010301m0.zip) which accompany the present document.

Annex B (informative): Bibliography

ETSI TR 121 905: " Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Vocabulary for 3GPP Specifications (3GPP TR 21.905)".

History

Document history		
V1.1.1	March 2005	Publication
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