Final draft **ETSI ES 202 391-7** V1.2.1 (2006-10)

ETSI Standard

**Open Service Access (OSA);
Parlay X Web Services;
Part 7: Account Management
(Parlay X 2)**
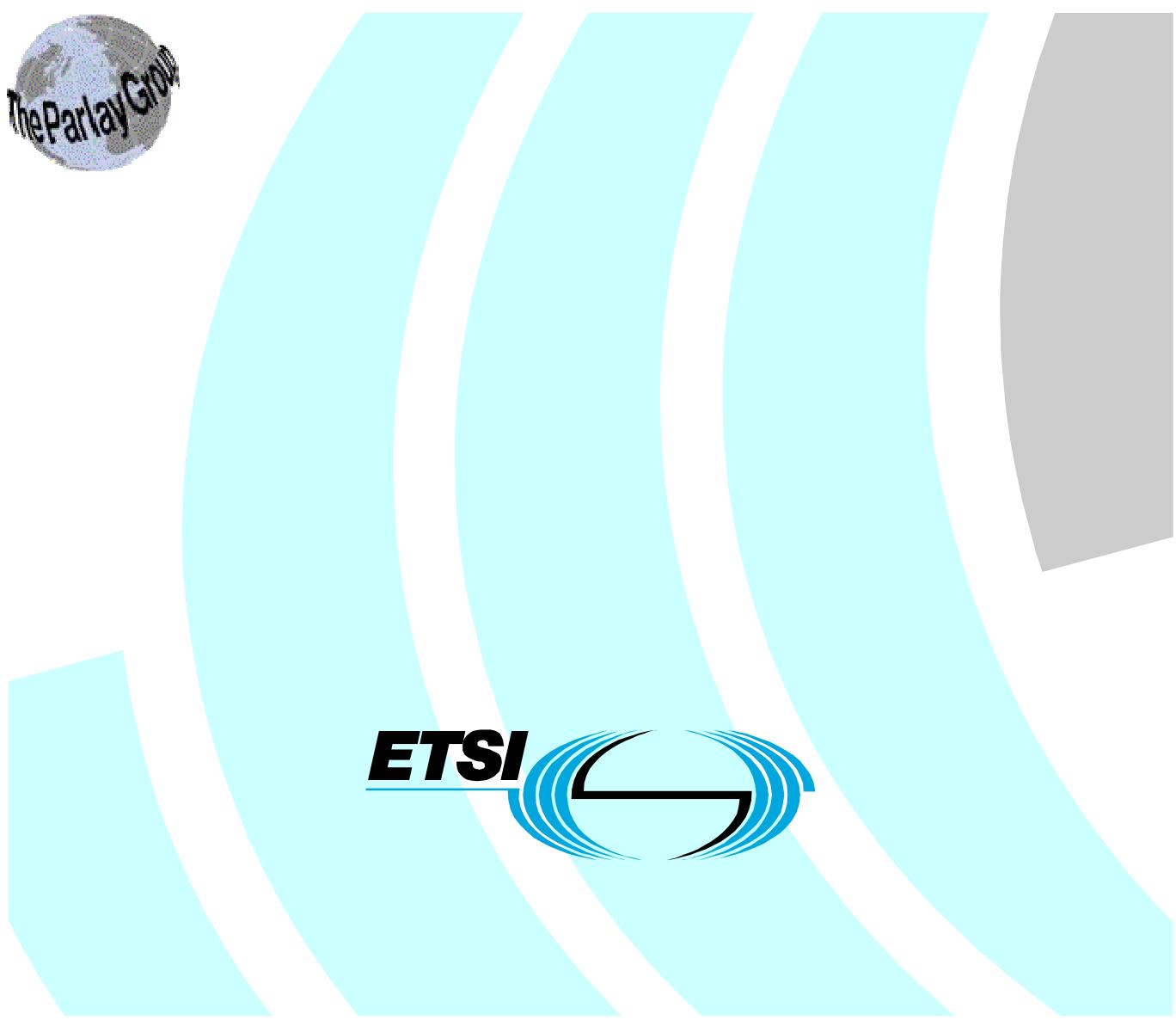
Reference

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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 7 of a multi-part deliverable covering Open Service Access (OSA); Parlay X Web Services, as identified below:

Part 1:   "Common";

Part 2:   "Third Party Call";

Part 3:   "Call Notification";

Part 4:   "Short Messaging";

Part 5:   "Multimedia Messaging";

Part 6:   "Payment";

Part 7:   "Account Management";

Part 8:   "Terminal Status";

Part 9:   "Terminal Location";

Part 10:   "Call Handling";

Part 11:   "Audio Call";

Part 12:   "Multimedia Conference";

Part 13:   "Address List Management";

Part 14:   "Presence".

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

The present document forms part of the Parlay X 2.1 set of specifications.

The present document is equivalent to 3GPP TS 29.199-07 V6.2.0 (Release 6).

1 Scope

The present document is part 7 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 Account Management Web Service. The following are defined here:

- Name spaces.

- Sequence diagrams.

- Data definitions.

- Interface specification plus detailed method descriptions.

- Fault definitions.

- Service Policies.

- WSDL Description of the interfaces.

2 References

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

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

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

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

[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 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

Pre-paid subscribers, whether they have subscribed to pre-paid telephony, SMS, or data service, have credits with their service providers; the consumption of services will lead to reduction of their credit, or the credit may expire. Therefore, from time to time, subscribers may have to recharge their accounts. This occurs through an application that interfaces with the subscriber either directly or indirectly. Examples of direct interaction are voice prompts and WAP/web pages, or even SMS. Typically, such multi-modal applications either request a currency amount and, e.g. credit card information, or a voucher number plus credentials. The voucher number and credentials are then validated and causes a pre-determined currency amount to be transferred.

The Parlay X 2 Account Management API described in the present document supports account querying, direct recharging and recharging through vouchers. As a side effect, it may prevent subscribers from having their account balance credits expire.

5   Namespaces

The AccountManagement interface uses the namespace:

   http://www.csapi.org/wsdl/parlayx/account_management/v2_2

The data types are defined in the namespace:

   http://www.csapi.org/schema/parlayx/account_management/v2_2

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

This clause discusses three scenarios; one where a subscriber uses a voucher, one where the subscriber directly recharges after the payment is cleared, and one where the subscriber checks the recent transactions.

   NOTE: Associated Account Management API messages are shown in "bold" format: e.g. (**getBalance**).

6.1   Prepaid account recharge using a voucher

The prepaid subscriber wishes to recharge their account with a voucher and query their account balance. The subscriber uses their mobile phone or other wireline phone to interact with an IVR system. In order to recharge their account, the subscriber must enter the voucher number, the MSISDN to be recharged , and PIN(s). The IVR system accesses an external voucher database to validate the voucher number. The subscriber's account balance is then increased with the value of the voucher (**voucherUpdate**). The subscriber queries their account balance (**getBalance**), before and/or after the recharge.
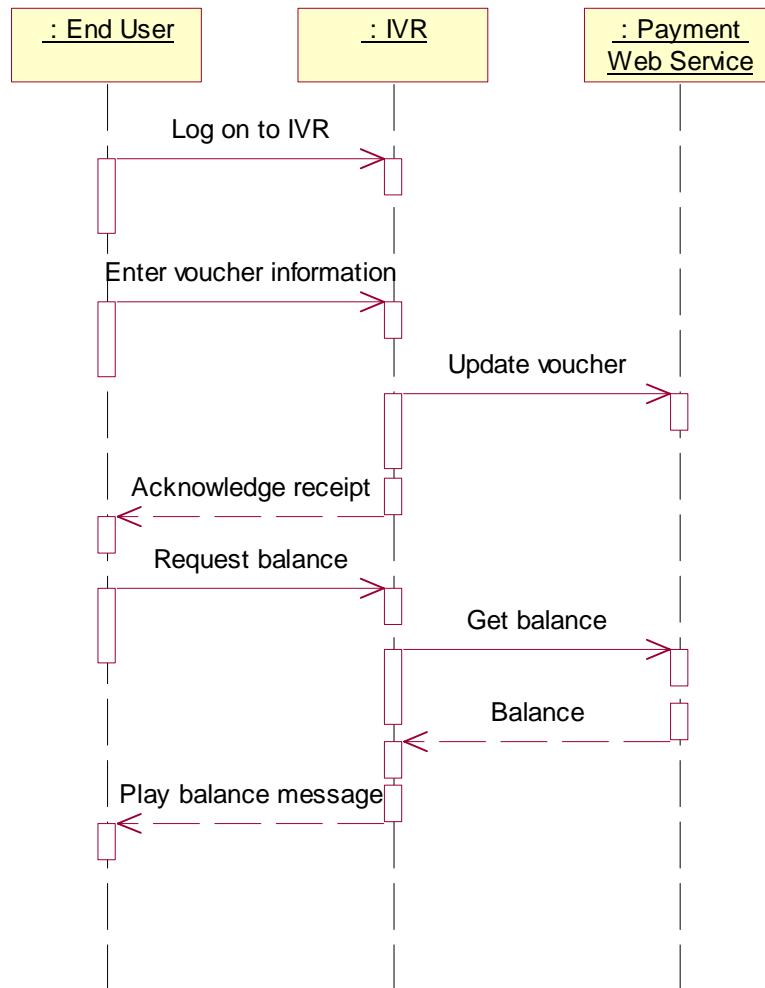
Figure 1

6.2   Prepaid account recharge using direct payment

Directly recharging (i.e. without a voucher) works much along the same way. In this case, we assume the prepaid subscriber interacts with a web page. After providing the MSISDN, along with the PIN, the user can query the account balance (**getBalance**). For recharging, the subscriber must enter payment details, for example credit card information, from which the payment will be made. After clearing the payment details, the currency amount will be transferred and the subscriber's prepaid account balance expiration date will be reset (**balanceUpdate**). The subscriber also queries their account balance expiration date (**getCreditExpiryDate**), after the recharge.
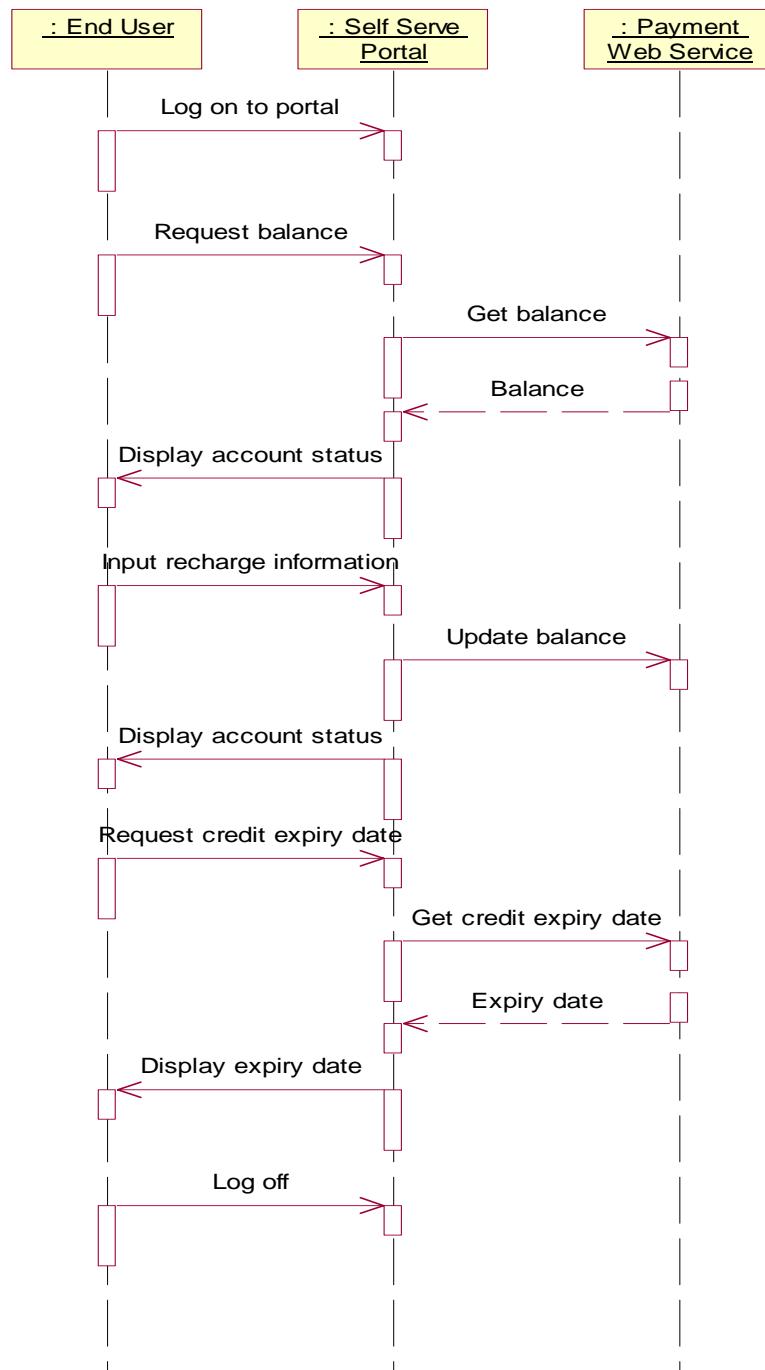
Figure 2

7   XML Schema data type definition

7.1   DatedTransaction structure

This data structure represents a transaction record.

Element Name	Element Type	Optional	Description
transactionDate	xsd:dateTime	No	The date the transaction occurred.
transactionDetails	xsd:string	No	The transaction details.

7.2   Balance structure

This data structure represents a balance record.

Element Name	Element Type	Optional	Description
balanceType	xsd:string	No	Identifies the type of balance. End user accounts may have one or more balances for different types of usage (e.g Voice, SMS, gaming etc)
amount	xsd:decimal	No	Amount of balance

7.3   BalanceExpireDetails structure

This data structure represents balance expiry details.

| Element Name	Element Type	Optional	Description
balanceType	xsd:string	No	Identifies the type of balance. End user accounts may have one or more balances for different types of usage (e.g Voice, SMS, gaming etc)
date	xsd:dateTime	Yes	It is the date the identified balance will expire. Do not specify if the balance does not expire

8   Web Service interface definition

8.1   Interface: AccountManagement

The Account Management interface provides access to account information for update and query operations.

8.1.1   Operation: getBalance

This message results in getting account balances indicated by the end user identifier and associated end user PIN. The returned amount for each balance is specified as a currency amount.

End users accounts may have a single balance for all usage, or may have multiple balances for different uses. For example, an end user may have a separate balance for voice calls, SMS messages, and GPRS usage.

8.1.1.1   Input message: getBalanceRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	This parameter identifies the end user's account.
endUserPin	xsd:string	Yes	Contains the end user's credentials for authorizing access to the account

8.1.1.2 Output message: getBalanceResponse

Part name	Part type	Optional	Description
result	Balance [1.. unbounded]	No	It is a set of Balance records, where each record specifies a balance type and the associated amount.

8.1.1.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.

- SVC0002 - Invalid input value.

- SVC0250 - End user authentication failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.1.2 Operation: getCreditExpiryDate

This message results in getting the expiration date of the credit indicated by the end user identifier and associated end user PIN. The returned date is the date the current balance will expire.

8.1.2.1 Input message: getCreditExpiryDateRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	This parameter identifies the end user's account.
endUserPin	xsd:string	Yes	Contains the end user's credentials for authorizing access to the account.

8.1.2.2 Output message: getCreditExpiryDateResponse

Part name	Part type	Optional	Description
result	BalanceExpireDetails [1.. unbounded]	No	It is a set of records, where each record specifies a balance type and the associated date that the balance will expire.

8.1.2.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.

- SVC0002 - Invalid input value.

- SVC0250 - End user authentication failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.1.3   Operation: balanceUpdate

This message results in directly recharging the account indicated by the end user identifier and optional associated end user PIN. 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. The charge is specified as a currency amount. The balance is requested to expire in the number of days indicated by the period parameter. The operator's policies may overrule this parameter. If the optional period parameter is not present, the operator's policy on balance expiration is always in effect.

8.1.3.1   Input message: balanceUpdateRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	This parameter identifies the end user's account.
endUserPin	xsd:string	Yes	Contains the end user's credentials for authorizing access to the account.
referenceCode	xsd:string	No	Textual information to uniquely identify the request, e.g. in case of disputes.
balanceType	xsd:string	No	Identifies the type of balance. End user accounts may have one or more balances for different types of usage (e.g. Voice, SMS, gaming etc.).
amount	xsd:decimal	No	Currency amount that should be added to the end user's account.
period	xsd:int	Yes	The balance is requested to expire in the number of days indicated by this parameter. The operator's policies may overrule this parameter. If this optional parameter is not present, the operator's policy on balance expiration is always in effect.

8.1.3.2   Output message: balanceUpdateResponse

Part name	Part type	Optional	Description
None			

8.1.3.3   Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.
- SVC0002 - Invalid input value.
- SVC0250 - End user authentication failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.1.4   Operation: voucherUpdate

This message results in directly recharging the account indicated by the end user identifier and optional associated end user PIN. 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. A voucher identifier indirectly specifies the charge. The optional voucher PIN code can be used to verify the voucher.

8.1.4.1   Input message: voucherUpdateRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	This parameter identifies the end user's account.
endUserPin	xsd:string	Yes	Contains the end user's credentials for authorizing access to the account.
referenceCode	xsd:string	No	Textual information to uniquely identify the request, e.g. in case of disputes.
voucherIdentifier	xsd:string	No	This parameter identifies the voucher.
voucherPin	xsd:string	Yes	Contains the voucher's credentials for authentication.

8.1.4.2   Output message: voucherUpdateResponse

Part name	Part type	Optional	Description
None			

8.1.4.3   Referenced Faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.

- SVC0002 - Invalid input value.

- SVC0250 - End user authentication failed.

- SVC0251 - Unknown voucher.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

- POL0220 - Vouchers not accepted.

8.1.5   Operation: getHistory

This message results in returning the transaction history of the account indicated by the end user identifier and associated optional end user PIN. The maximum number of entries to return and the start date define the range of transactions that are of interest to the requester.

If the total number of entries in the transaction history, starting at the specified date, is larger than the specified maximum number of entries, only the most recent events are returned. Note that the operator might limit the maximum amount of entries to be returned or the period for which the entries are to be returned.

8.1.5.1   Input message: getHistoryRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	This parameter identifies the end user's account.
endUserPin	xsd:string	Yes	Contains the end user's credentials for authorizing access to the account.
date	xsd:dateTime	Yes	This parameter indicates the desired starting date for the entries to be returned. If this parameter is not present, it is up to the discretion of the service to decide this date.
maxEntries	xsd:int	Yes	This parameter indicates the maximum number of entries that shall be returned. If this parameter is not present, it is up to the discretion of the service to decide how many entries to return.

8.1.5.2 Output message: getHistoryResponse

Part name	Part type	Optional	Description
result	DatedTransaction [0 .. unbounded]	Yes	It is a DatedTransaction array that consists of types with a date field and a string field: i.e. the date of the occurrence and the transaction details, respectively.

8.1.5.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.

- SVC0002 - Invalid input value.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

8.1.6 Operation: getBalanceTypes

This operation results in getting a set of valid account balance types per account.

8.1.6.1 Input message: getBalanceTypesRequest

Part name	Part type	Optional	Description
endUserIdentifier	xsd:anyURI	No	This parameter identifies the end user's account.
endUserPin	xsd:string	Yes	Contains the end user's credentials for authorizing access to the account.

8.1.6.2 Output message: getBalanceTypesResponse

Part name	Part type	Optional	Description
result	xsd:string [1.. unbounded]	No	Identifies the types of balance. End user accounts may have one or more balances for different types of usage (e.g Voice, SMS, gaming etc.).

8.1.6.3 Referenced faults

ServiceException from ES 202 391-1 [2]:

- SVC0001 - Service error.

- SVC0002 - Invalid input value.

- SVC0250 - End user authentication failed.

PolicyException from ES 202 391-1 [2]:

- POL0001 - Policy error.

9 Fault definitions

9.1 ServiceException

9.1.1 SVC0250: End user authentication failed

Name	Description
messageId	SVC0250
text	End user authentication failed.
variables	None.

9.1.2 SVC0251: Unknown Voucher

Name	Description
messageId	SVC0251
text	Voucher %1 is not valid.
variables	%1 Voucher identifier.

9.2 PolicyException

9.2.1 POL0220: Vouchers not accepted

Name	Description
messageId	POL0220
text	Vouchers not accepted.
variables	None.

10 Service policies

Service policies for this service.

Name	Type	Description
VouchersAccepted	xsd:Boolean	Are vouchers accepted

Annex A (normative):
WSDL for Account Management

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_20239107v010201m0.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
V1.2.1	October 2006	Membership Approval Procedure MV 20061215: 2006-10-17 to 2006-12-15