EUROPEAN UNION AGENCY FOR RAILWAYS

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Technical document

ELECTRONIC RESERVATION OF SEATS/BERTHS AND ELECTRONIC PRODUCTION OF TRAVEL DOCUMENTS - EXCHANGE OF MESSAGES

In the Document History table, version are identified as x.n where
"x" is a correlative number assigned to an approved version when reaching a main milestones
"n" is a correlative number assigned to draft versions, starting by 1. "n"=0 means version approved
Information related to previous draft versions (i.e. 0.1, 0.2 etc.) shall be deleted from the table when a subsequent approved version is issued.
Document History

Version	Date	Comments
2.0	10.01.2020	Initial draft V 2.0

Contents

Application:

With effect from <mark>08 March 2012</mark>.

All actors of the European Union falling under the provisions of the TAP TSI.

1.   Summary

This Technical Document describes the regulations and procedures to be observed when exchanging messages between an RU that issues travel tickets and reservation tickets and the electronic system of the RU which manages the necessary data for the issue of these tickets, in particular the inventories of seats available for reservation. It is supplemented by the following two Technical Documents:

− *ERA TAP TSI Technical Document B.11* - Layout for electronically issued rail passenger tickets

− *ERA TAP TSI Technical Document B.12* Digital Security Elements for Rail Passenger Ticketing

The arrangements contained in these Technical Documents enable a RU to reserve seats from an inventory managed by another RU and to issue any travel document (in particular seat reservations and combined tickets) produced electronically from data transmitted by the electronic system of another RU.

Note: the term "seat" in this Technical Document is used to identify the group of services e.g. berth, bicycle, seats, etc. but can also be used to address a seat.

2.   Overview

2.1.   Coding regulations

The elements described below are always of the same length. If the information is shorter than the field length, the following rules apply:

Numerical coding (N):

The information is entered justified on the right and the left of the field is filled with zeros.

Alphanumerical coding (A) and alphanumerical coding with special character (C):

The information is entered justified on the left and the right of the field is filled with "blanks" ("spaces").

Optional elements must be coded in such a way that no elements occur containing only zeros or blanks.

2.2. List of abbreviations

Heading	ACC	Confirmation
	AD	Final listing
	AP	Partial cancellation
	APR	Provisional listing
	ASS	Seats in trains
	AT	Complete cancellation
	AUB	Car on ferry
	AUT	Car-carrying train
	CC	Couchettes in trains
	D	
	DEM	Specific seat
	DMD	Request
	ECH	Distribution Message Descriptor
	HO	Exchange
	L+C	Hotel
	MNS	Length and code
	MR	Non-solicited message
	N	Correction
	PB	Normal seat request
	PRP	Passengers on ferry
	PRR	Replacement proposal for other service
	PRT	Replacement proposal for other RS
		Replacement proposal for other train/other ferry
	REP	Reply
	RES	Reservation
	RN	Negative reply
	RP	Seats with at-seat meal in trains
	V	Adjacent seat
	VL	Berths in trains
	VR	Meal in restaurant car
	VSC	Hire car
Column code	N	Numerical character
	A	Alphanumerical character
	C	Printable character (A+special character)
Table content	O	Obligatory element

| | 1 – 32 | Optional element (serial number in topographical label) |
| | - | Element not existent |

2.3. Special characters used in this Technical Document

Coding	Designation	ASCII-Code
!	Exclamation sign	X'21'
"	Quote marks	X'22'
#	Hash	X'23'
$	Dollar sign	X'24'
%	Percent	X'25'
&	Ampersand	X'26'
'	Apostrophe	X'27'
(	Left parenthesis	X'28'
)	Right parenthesis	X'29'
*	Asterisk	X'2A'
+	Plus	X'2B'
,	Comma	X'2C'
-	Minus	X'2D'
.	Dot	X'2E'
/	Slash	X'2F'
:	Colon	X'3A'
;	Semicolon	X'3B'
<	Less than	X'3C'
=	Equal to	X'3D'
>	More than	X'3E'
?	Question mark	X'3F'
@	e-mail 'at'	X'40'

3. Message structure

3.1. General

The application "Seat reservation" concerns messages relating to:

– Reservation in trains,

– Reservation on ferries (if available in rail attributing system),

– Availability information,

– Tickets.

The necessary information elements are described in this Technical Document.

There is only one "918 message header" for all "918 messages" (reservation messages).

Elements in the messages appear in the message definition as mandatory elements which have to be included in the message and as technically optional elements which are included in the

message when indicated in the topographical label (see **Error! Reference source not found.**). This is a technical mechanism to keep messages short.

If an element is technically optional it can be omitted in the message in case its default value should be used or in case the element is not required in the functional context.

Whether a functional context requires an element to be included cannot be decided from the technical message definition, e.g. the price type (element 67) to indicate an IRT reservation must be set in case the booked tariff provides an IRT regardless that the element is technically defined as optional.

3.2. Header

The obligatory header for all messages prepared in accordance with this Technical Document is:

Number	Element	L+C
1	Receiving reservation system	2 N O
2	Sending reservation system	2 N O
3	Dialogue number	5 N O
4	Number of the day in the year	3 N O
5	Type of message	1 N O
6	Type of service	1 N O
7	Number of the requesting terminal	7 A O
8	Type of requesting office or type of protocol message	1 N O
9	Number of the application version	1 N O
10	Field at disposal	2 A O
11	Test	1 N O

3.3.   "Application Text" prefix

This is obligatory before each application text.

An application text may be: a request, a confirmation, a negative reply, a replacement proposal, a correction message.

Number	Element	L+C
15	Service	2NO
16	Type of request or reply	1 N O
17	Serial number	2 N O
18[a]	Type of text	2NO

a. Element 18 is only available when, in the header, element 6 has the value 8 = 918^E - message.

In these cases, at least 2 application texts are available in the message, the first of which is a DMD (see point 2.14).

3.4. Reservation requests

No.	Element	L+C	ASS			CC			VL			RP			A UT	V R
			N	D	V	N	D	V	N	D	V	N	D	V		
20A	Train number	5A	O	O	O	O	O	O	O	O	O	O	O	O	O	O
21A	Departure date	4N	O	O	O	O	O	O	O	O	O	O	O	O	O	O
22A	Boarding station	7N	O	O	O	O	O	O	O	O	O	O	O	O	O	O
22B	Destination station	7N	O	O	O	O	O	O	O	O	O	O	O	O	O	O
23A	Number of seats	2N	O	-	O	O	-	O	O	-	O	O	-	O	-	-
24	Class	1A	O	O	O	O	O	O	O	-	-	O	O	O	-	-
25A	Type and number of berths	12N	-	-	-	-	-	-	O	O	O	-	-	-	-	-
26A	Type and number of meals	6N	-	-	-	-	-	-	-	-	-	O	O	O	-	O
27	Coach number	3A	-	O	O	-	O	O	-	O	O	-	O	O	-	-
28A	Number of particular seat	3A	-	O	-	-	O	-	-	O	-	-	O	-	-	-
28B	Number of a reference seat	3A	-	-	O	-	-	O	-	-	O	-	-	O	-	-
29A	Vehicle category	1 N	-	-	-	-	-	-	-	-	-	-	-	-	O	-
30	Vehicle registration	10C	-	-	-	-	-	-	-	-	-	-	-	-	O	-
31	Number and ages of the passengers	8N	-	-	-	-	-	-	-	-	-	-	-	-	O	-
32	Journey number	1 N	-	-	-	-	-	-	-	-	-	-	-	-	O	-
33	Journey code	1 N	-	-	-	-	-	-	-	-	-	-	-	-	O	-
35	Smoking/non-smoking	1 N	1	-	-	1	-	-	-	-	-	1	-	-	-	-
36	Position of seat	4 N	2	-	-	2	-	-	1	-	-	2	-	-	-	-
37	Compartment request	6 N	3	-	-	3	-	-	2	-	-	3	-	-	-	-

No.	Name	Length															
38A	Position of compartment! request	1 N	a	-	-	-	-	-	3	-	-	a	-	-	-	-
39	Compartment with connecting door	1 N	-	-	-	-	-	-	4	-	-	-	-	-	-	-
40	Compartment characteristics b	1 N	-	-	-	-	-	-	5	1	-	-	-	-	-	-
41B	Time of lunch	4N	-	-	-	-	-	-	-	-	-	4	1	1	-	1
41C	Time of dinner	4N	-	-	-	-	-	-	-	-	-	5	2	2	-	2
42A	Tariff 1	9N	4	1	1	4	1	1	6	2	1	6	3	3	a	-
42B	Tariff 2	9N	5	-	2	5	-	2	7	-	2	7	-	4	-	-
43	Individual reservation tickets requested	1 N	6	-	3	6	-	3	8	-	3	8	-	5	-	3
44	Another train acceptable	1 N	7	-	-	7	-	-	9	-	-	9	-	-	1	-
45A	Trailer category	1 N	-	-	-	-	-	-	-	-	-	-	-	-	2	-
29B	Boat category	1 N	-	-	-	-	-	-	-	-	-	-	-	-	3	-
46	Number of dogs	1 N	-	-	-	-	-	-	-	-	-	-	-	-	4	-
47A	Requesting reservation system	2N	8	2	4	8	2	4	10	3	4	10	4	6	-	4
69	Vehicle transport price only	1 N	-	-	-	-	-	-	-	-	-	-	-	-	5	-
70	Loading lower deck	1 N	-	-	-	-	-	-	-	-	-	-	-	-	6	-
71	Height	3N	-	-	-	-	-	-	-	-	-	-	-	-	7	-
76	Code of the travel agent's organisation	5 N	9	3	5	9	3	5	11	4	5	11	5	7	8	5
77	Passenger with vehicle	1 N	10	4	6	10	4	6	12	5	6	12	6	8	-	-
38A	Position of compartment! request	1 N	11	-	-	-	-	-	a	-	-	13	-	-	-	-
42A	Tariff 1	9N	a	a	a	A		a	a	a	a	a	a	a	9	-

80	Country code of requesting terminal	2A	12	5	7	11	5	7	13	6	7	14	7	9	10	6
90	FulfillmentMedium	3 A	13	6	8	12	6	8	14	7	8	15	8	10	11	-
91	PassengerData	400 C	14	7	9	13	7	9	15	8	9	16	9	11	12	-
92	PassengerDataExtension	1000 C	15	8	10	14	8	10	16	9	10	17	10	12	13	-
96	ExchangeReference	24 A	16	9	11	15	9	11	17	10	11	18	11	13	14	-
93	ListOfPassengerIdsCanceled	80 A	17	10	12	16	10	12	18	11	12	19	12	14	15	-

a   This element appears several times in the Table but only once in the message.

b   Appears only if the number of seats does not correspond to a number of complete compartments.

3.5.   Partial cancellation requests

No.	Element	L+C	ASS	CC	VL	RP	AUT	VR
20A	Train number	5 A	O	O	O	O	O	O
21A	Departure date	4 N	O	O	O	O	O	O
23A	Number of seats	2 N	O	O	O	O	-	-
25A	Type and number of berths	12N	-	-	O	-	-	-
26A	Type and number of meals	6 N	-	-	-	O	-	O
34A	Reference number of reservation ticket to be cancelled	12 N	O	O	O	O	O	O
36	Position of seat	4 N	1	1	1	1	-	-
38A	Position of compartment/request	1 N	A	-	2	a	-	-
40	Compartment characteristics b	1 N	-	-	3	-	-	-
42A	Tariff 1	9N	2	2	4	2	-	-
42B	Tariff 2	9N	3	3	5	3	-	-
47A	Requesting reservation system	2 N	4	4	6	4	-	1
74	Reason for cancellation	2 N	5	5	7	5	-	-
76	Code of the travel agent's organisation	5 N	6	6	8	6	-	2
38A	Position of compartment/request	1 N	7	-	a	7	-	-
80	Country code of requesting terminal	2 A	8	7	9	8	2	3
90	FulfillmentMedium	3 A	9	8	10	9		
91	PassengerData	400 C	10	11	11	10		
92	PassengerDataExtension	1000 C	11	12	12	13		
93	ListOfCanceledPassengerIds	70 A	12	13	14			

In case the personal data are incomplete the booking will be rejected with reply code 003.

a   This element appears several times in the Table but only once in the message.

b   Appears only if the number of seats does not correspond to a number of complete compartments.

3.6. Complete cancellation requests

No.	Element	L+C	ASS	CC	VL	RP	AUT	VR
20A	Train number	5 A	O	O	O	O	O	O
21A	Departure date	4 N	O	O	O	O	O	O
34A	Reference number of reservation ticket to be cancelled	12 N	O	O	O	O	O	O
47A	Requesting reservation system	2 N	1	1	1	1	-	1
74	Reason for cancellation	2 N	2	2	2	2	1	-
76	Code of the travel agent's organisation	5 N	3	3	3	3	2	2
80	Country code of requesting terminal	2 A	4	4	4	4	3	3

3.7. Synchronization request / reply

The synchronization request and reply message include the message header only. They do not contain an application text.

The synchronization message is used in case of lost reservation dialogs according to the error scenarios defined in Appendix **Error! Reference source not found.**.

The dialog number (Element 3) contains the dialog number of the lost dialog as described in section **Error! Reference source not found.**.

3.8. Confirmation of reservation requests

No.	Element	L+C	ASS	CC	VL	RP	AUT	VR
20A	Train number	5 A	O	O	O	O	O	O
48	Train category	2 N	O	O	O	O	O	-
21A	Departure date	4 N	O	O	O	O	O	O
41A	Departure time	4 N	O	O	O	O	-	-
49A	Name of boarding station	30 C	O	O	O	O	-	O
49B	Name of destination station	30 C	O	O	O	O	-	O
34B	Reference number of accommodations	12 N	O	O	O	O	O	-
34C	Reference number for breakfast	12 N	-	-	-	O	-	O
34D	Reference number for lunch	12 N	-	-	-	O	-	O
34E	Reference number for dinner	12 N	-	-	-	O	-	O
27	Coach number	3 A	O	O	O	O	-	-
23A	Number of seats	2 N	O	O	O	O	-	-
50A	Accommodation allocated	32 C	O	O	O	O	-	-
24	Class	1A	O	O	O	O	-	-
51	Type of compartment allocated	6 N	O	O	O	O	-	-
26A	Type and number of meals	6 N	-	-	-	O	-	O
41 B	Time of lunch	4 N	-	-	-	O	-	O
41 C	Time of dinner	4 N	-	-	-	O	-	O
52A	Price (reservation charge, supplement)	7 N	O	O	O	O	O	-
52B	Price of breakfast	7 N	-	-	-	O	-	O
52C	Price of lunch	7N	-	-	-	O	-	O
52D	Price of dinner	7 N	-	-	-	O	-	O
49C	Name of loading station	30 C	-	-	-	-	O	-
21C	Loading date	4N	-	-	-	-	O	-
41D	Start of loading period	4 N	-	-	-	-	O	-
41 E	End of loading period	4 N	-	-	-	-	O	-
49D	Name of unloading station	30 C	-	-	-	-	O	-
21D	Unloading date	4N	-	-	-	-	O	-
41 F	Start of unloading period	4 N	-	-	-	-	O	-
41G	End of unloading period	4 N	-	-	-	-	O	-
30	Vehicle registration	10C	-	-	-	-	O	-

53	Number of the entry in loading list	3 N	-	-	-	-	O	-
32	Journey number	1 N	-	-	-	-	O	-
29A	Vehicle category	1 N	-	-	-	-	O	-
54	Price calculation code	1 N	-	-	-	-	O	-
55	Number of passengers	4 N	-	-	-	-	O	-
65	Undertaking providing the service	1 N	-	-	O	-	-	-
56	Change of train/date	1 N	1	1	1	1	1	1
57	Change of station	1 N	2	2	2	2	2	2
41 H	Arrival time	4 N	3	3	3	3	-	-
50B	Additional accommodation allocated	32 C	4	4	4	4	-	-
39	Compartment with connecting door	1 N	-	-	5	-	-	-
21 E	Date of breakfast	4 N	-	-	-	5	-	3
21F	Date of lunch	4N	-	-	-	6	-	4
21G	Date of dinner	4N	-	-	-	7	-	5
58	Number of supplements	2 N	5	5	6	8	-	-
59	Type of supplements	1 N	6	6	7	9	-	-
42A	Tariff 1	9 N	7	7	8	10	-	-
42B	Tariff 2	9 N	8	8	9	11	-	-
60	Number of night sectors	1 N	-	9	-	-	-	-
45A	Trailer category	1 N	-	-	-	-	3	-
46	Number of dogs	1 N	-	-	-	-	4	-
49E	Name of boarding station (start of journey)	30 C	-	-	-	-	5	-
49F	Name of destination station (end of journey)	30 C	-	-	-	-	6	-
29B	Boat category	1 N	-	-	-	-	7	-
41I	Start of additional loading period	4 N	-	-	-	-	8	-
41J	End of additional loading period	4 N	-	-	-	-	9	-
41K	Start of additional unloading period	4 N	-	-	-	-	10	-
41 L	End of additional unloading period	4 N	-	-	-	-	11	-
23C	Number of overbooked seats	2 N	9	-	-	-	-	-
47A	Requesting reservation system	2 N	10	10	10	12	-	-
66	Text for special offers	30 C	11	11	11	13	-	-

40	Compartment characteristics	1 N	-	-	12	-	-	-
70	Loading lower deck	1 N	-	-	-	-	12	-
71	Height	3N	-	-	-	-	13	-
67	Type of price	1 N	12	12	13	14	14	-
73A	Partial price 1	14N	13	13	14	15	-	-
73B	Partial price 2	14 N	14	14	15	16	-	-
73C	Partial price 3	14 N	15	15	16	17	-	-
21H	Arrival date	4N	16	16	17	18	15	-
77	Passenger with vehicle	1 N	17	17	18	19	-	-
38B	Position of compartment/allocation	1 N	18	-	19	20	-	-
79	List of carriers	36A	19	18	20	21	16	-
42A	Tariff 1	9N	a	a	a	a	17	-
81	Service brand information	40 C	20	19	21	22	18	-
86	Cancellation time limits	96 C	21	20	22	23	19	-
90	FulfillmentMedium	3 A	22	21	23	24	20	
94	eTicketData	500 C	23	22	24	25	21	-
95	eTicketDataExtension	2000 C	24	23	25	26	22	-

a   This element appears several times in the Table but only once in the message.

3.9.   Confirmation of partial cancellation requests

No.	Element	L+C	ASS	CC	VL	RP	AUT	VR
20A	Train number	5 A	O	O	O	O	O	O
48	Train category	2 N	O	O	O	O	O	-
21A	Departure date	4 N	O	O	O	O	O	O
41A	Departure time	4 N	O	O	O	O	-	-
49A	Name of boarding station	30 C	O	O	O	O	-	O
49B	Name of destination station	30 C	O	O	O	O	-	O
34B	Reference number of accommodations	12 N	O	O	O	O	O	-
34C	Reference number for breakfast	12 N	-	-	-	O	-	O
34D	Reference number for lunch	12 N	-	-	-	O	-	O
34E	Reference number for dinner	12 N	-	-	-	O	-	O
27	Coach number	3 A	O	O	O	O	-	-
23A	Number of seats	2 N	O	O	O	O	-	-
50A	Accommodation allocated	32 C	O	O	O	O	-	-
24	Class	1A	O	O	O	O	-	-
51	Type of compartment allocated	6 N	O	O	O	O	-	-
26A	Type and number of meals	6 N	-	-	-	O	-	O
41 B	Time of lunch	4 N	-	-	-	O	-	O
41 C	Time of dinner	4 N	-	-	-	O	-	O
52A	Price (reservation charge, supplement)	7 N	O	O	O	O	O	-
52B	Price of breakfast	7 N	-	-	-	O	-	O
52C	Price of lunch	7N	-	-	-	O	-	O
52D	Price of dinner	7 N	-	-	-	O	-	O
49C	Name of loading station	30 C	-	-	-	-	O	-
21C	Loading date	4N	-	-	-	-	O	-
41D	Start of loading period	4 N	-	-	-	-	O	-
41 E	End of loading period	4 N	-	-	-	-	O	-
49D	Name of unloading station	30 C	-	-	-	-	O	-
21D	Unloading date	4N	-	-	-	-	O	-
41 F	Start of unloading period	4 N	-	-	-	-	O	-
41G	End of unloading period	4 N	-	-	-	-	O	-
30	Vehicle registration	10C	-	-	-	-	O	-
53	Number of the entry in loading list	3 N	-	-	-	-	O	-

32	Journey number	1 N	-	-	-	-	O	-
29A	Vehicle category	1 N	-	-	-	-	O	-
54	Price calculation code	1 N	-	-	-	-	O	-
55	Number of passengers	4 N	-	-	-	-	O	-
34F	Reference number of cancelled reservation	12 N	O	O	O	O	O	O
52E	Amount of refund	7 N	O	O	O	O	O	O
23B	Number of cancelled seats	2 N	O	O	-	O	-	-
25B	Type and number of cancelled berths	12 N	-	-	O	-	-	-
26B	Types and number of cancelled meals	6 N	-	-	-	O	-	O
45B	Category of the cancelled trailer	1 N	-	-	-	-	O	-
64	Date of the original reservation	5 N	O	O	O	O	O	O
65	Undertaking providing the service	1 N	-	-	O	-	-	-
57	Change of station	1 N	1	1	1	1	-	1
41 H	Arrival time	4 N	2	2	2	2	-	-
50B	Additional accommodation allocated	32 C	3	3	3	3	-	-
39	Compartment with connecting door	1 N	-	-	4	-	-	-
21 E	Date of breakfast	4 N	-	-	-	4	-	2
21F	Date of lunch	4N	-	-	-	5	-	3
21G	Date of dinner	4N	-	-	-	6	-	4
58	Number of supplements	2 N	4	4	5	7	-	-
59	Type of supplements	1 N	5	5	6	8	-	-
42A	Tariff 1	9 N	6	6	7	9	a	-
42B	Tariff 2	9 N	7	7	8	10	-	-
60	Number of night sectors	1 N	-	8	-	-	-	-
46	Number of dogs	1 N	-	-	-	-	1	-
49E	Name of boarding station (start of journey)	30 C	-	-	-	-	2	-
49F	Name of destination station (end of journey)	30 C	-	-	-	-	3	-
29B	Boat category	1 N	-	-	-	-	4	-
41I	Start of additional loading period	4 N	-	-	-	-	5	-
41J	End of additional loading period	4 N	-	-	-	-	6	-
41K	Start of additional unloading period	4 N	-	-	-	-	7	-
41 L	End of additional unloading period	4 N	-	-	-	-	8	-
23C	Number of overbooked seats	2 N	8	-	-	-	-	-

47A	Requesting reservation system	2 N	9	9	9	11	-	-
66	Text for special offers	30 C	10	10	10	12	-	-
40	Compartment characteristics	1 N	-	-	11	-	-	-
70	Loading lower deck	1 N	-	-	-	-	9	-
71	Height	3N	-	-	-	-	10	-
67	Type of price	1 N	11	11	12	13	11	-
73A	Partial price 1	14N	12	12	13	14	-	-
73B	Partial price 2	14 N	13	13	14	15	-	-
73C	Partial price 3	14 N	14	14	15	16	-	-
73D	Partial price 4	14 N	15	15	16	17	-	-
73E	Partial price 5	14N	16	16	17	18	-	-
73F	Partial price 6	14N	17	17	18	19	-	-
75	Mark of changed price	1 N	18	18	19	20	-	-
21 H	Arrival date	4 N	19	19	20	21	-	-
77	Passenger with vehicle	1 N	20	20	21	22	-	-
38B	Position of compartment/allocation	1 N	21	-	22	23	-	-
79	List of carriers	36A	22	21	23	24	12	-
42A	Tariff 1	9N	a	a	a	a	13	-
81	Service brand information	40 C	23	22	24	25	14	-
86	Cancellation time limits	96 C	24	23	25	26	15	-
88	Original Cancellation Date	6 N	25	24	26	27	16	-
89	Requesting system of original cancellation	2 N	26	25	27	28	17	-
90	FulfillmentMedium	3 A	27	26	28	29	18	
94	eTicketData	500 C	28	27	29	30	19	
95	eTicketDataExtension	2000 C	29	28	30	31	20	

a   This element appears several times in the Table but only once in the message.

3.10. Confirmation of complete cancellation requests

No.	Element	L+C	ASS	CC	VL	RP	AUT	VR
20A	Train number	5 A	O	O	O	O	O	O
21A	Departure date	4 N	O	O	O	O	O	O
41A	Departure time	4 N	O	O	O	O	-	-
24	Class	1A	O	O	O	O	-	-
34F	Reference number of cancelled reservation ticket	12 N	O	O	O	O	O	O
52E	Amount of refund	7 N	O	O	O	O	O	O
23B	Number of cancelled seats	2 N	O	O	-	O	-	-
25B	Type and number of cancelled berths	12 N	-	-	O	-	-	-
26B	Type and number of cancelled meals	6 N	-	-	-	O	-	O
29C	Category of cancelled vehicle	1 N	-	-	-	-	O	-
64	Date of the original reservation	5 N	O	O	O	O	O	O
65	Undertaking providing the service	1 N	-	-	O	-	-	-
45B	Category of the cancelled trailer	1 N	-	-	-	-	1	-
29D	Category of cancelled boat	1 N	-	-	-	-	2	-
60	Number of night sectors	1 N	-	1	-	-	-	-
42A	Tariff 1	9N	1	2	1	1	-	-
42B	Tariff 2	9N	2	3	2	2	-	-
58	Number of supplements	2 N	3	4	3	3	-	-
59	Type of supplements	1 N	4	5	4	4	-	-
47A	Requesting reservation system	2 N	5	6	5	5	-	-
67	Type of price	1 N	6	7	6	6	3	-
73D	Partial price 4	14 N	7	8	7	7	-	-
73E	Partial price 5	14 N	8	9	8	8	-	-
73F	Partial price 6	14 N	9	10	9	9	-	-
75	Mark of changed price	1 N	10	11	10	10	4	-
88	Original Cancellation Date	6 N	11	12	11	11	5	1
89	Requesting system of original cancellation	2 N	12	13	12	12	6	2

3.11. Replacement proposals, negative replies

No.	Element	L+C	PRP	PRT	PRR	RN
47B	Reservation system with further seat offer	2 N	-	-	O	-
20A	Train number	5 A	-	O	1	-
62	Available services	9 A	O	1	-	-
63	Reply code	3N	-	-	-	O
21A	Departure date	4 N	-	2	-	-
41A	Departure time	4 N	-	3	-	-
41 H	Arrival time	4 N	-	4	-	-
48	Train category	2 N	-	5	-	-
61	Request number	2 N	1	6	2	1
81	Service brand information	40 C	-	7	-	-

3.12. Correction messages - request/reply

Principles

1. The dialogue number allocated by the sender is quoted by the allocating system in the reply. The number differs from the message which initiated the cancellation request.

2. If a reply is not received to a cancellation request, a synchronisation message follows.

3. A correction message is not necessary for a complete cancellation.

4. The correction message may contain several application texts if the reply originally received contained several confirmations.

5. The Correction message is sent by the requester to the attributor in two cases:

   - If the answer sent by the attributor contained errors (e.g. date 30th February)

   - If the answer sent by the attributor arrived late, when the timeout at the requesting system had already expired and it had informed the remote requesting terminal that there was no answer. On receiving a correction message the attributor cancels the reservations done.

No.	Element	L+C	ASS	CC	VL	RP	AUT	VR
68	Number of the original dialogue	5 N	O	O	O	O	O	O
20A	Train number	5 A	O	O	O	O	O	O
21A	Departure date	4 N	O	O	O	O	O	O
23A	Number of seats	2 N	O	O	O	O	-	-
34B	Reference number of accommodations	12 N	O	O	O	O	O	-
34C	Reference number for breakfast	12 N	-	-	-	O	-	O
34D	Reference number for lunch	12 N	-	-	-	O	-	O
34E	Reference number for dinner	12 N	-	-	-	O	-	O
52A	Price (reservation charge, supplement)	7 N	O	O	O	O	O	-
52B	Price of breakfast	7 N	-	-	-	O	-	O
52C	Price of lunch	7N	-	-	-	O	-	O
52D	Price of dinner	7 N	-	-	-	O	-	O
47A	Requesting reservation system	2 N	O	O	O	O	-	-
80	Country code of requesting terminal	2 A	1	1	1	1	1	1

3.13. Distribution message description (DMD)

No.	Element	L+C	Request	Confirmation
22C	Starting station	7 N	O	O
22D	Final station	7N	O	O
22E	Return station	7 N	O	O
33	Journey code	1 N	O	O
314	Product code	10A	O	O
307	File reference number	12A	1	1
306	Customer profile	30 C	2	2
304	Booking status	1 N	3	3
305	Currency code	3 A	4	4
310	Maximum excess price	4N	5	5
311	Number of combined messages	2 N	6	6
66A	Notices	30 C	7	7

3.14. Enquiry about availability and reply

No.	Element	L+C	Request	Confirmation
20A	Train number	5 A	O	O
22A	Boarding station	7 N	O	-
22B	Destination station	7 N	O	-
49A	Name of boarding station	30 C	-	O
49B	Name of destination station	30 C	-	O
326A	Departure date	6N	O	O
41A	Departure time	4 N	O	O
326B	Arrival date	6 N	-	O
41 H	Arrival time	4 N	-	O
318A	Service code 1	2A	O	O
300A	Availability information 1	8A	-	O
321	Text groups - identifier	2 N	-	1
314	Product code	10A	-	2
317C	Request area	1 N	1	-
48	Train category	2 N	2	3
37	Compartment request	6 N	3	-
51	Type of compartment allocated	6 N	-	4
322A	Conditions of use	3 N	-	5
318B	Service code 2	2 A	4	-
318C	Service code 3	2 A	5	-
308A	Fare code 1	4A	6	-
308B	Fare code 2	4 A	7	-
308C	Fare code 3	4 A	8	-
300B	Availability information 2	8A	-	6
300C	Availability information 3	8A	-	7
300D	Availability information 4	8A	-	8
300E	Availability information 5	8A	-	9
300F	Availability information 6	8A	-	10
300G	Availability information 7	8 A	-	11
328	Tariff table	13 A[a]	-	12
329	Tariff table 2	26 A[a]	-	13
330	Tariff table 4	52 A[a]	-	14
331	Tariff table 8	104 A[a]	-	15

332	Tariff table 16	208 A[a]	-	16
82	Service brand code	4 N	9	
81	Service brand information	40 C		17
27	Coach number [1]	3 A	10	18
340	Price Table	44 A		19
341	Price Table2	2 * 44 A		20
342	Price Table4	4 * 44 A		21
343	Price Table8	8 * 44 A		22
344	Price Table16	16 * 44 A		23
345	Price Table32	32 * 44 A		24
346	Price Table64	64 * 44 A		25
2	Allocating Reservation system	2 N		26
351	Include Price Flag	1 N	11	
352	Tariff Selection	32 A	12	

a. When Application Version = 1 in Element 9, these lengths are different (see individual elements).

If the requestor wants to get price information the Include Price Flag must be set.

The Price Tables include all information available in the Tariff Table elements as well, the Tariff Table elements therefore can be omitted if the Price Table elements are requested and sent.

The Elements Price Table, Allocating Railway, Include Price F lag and Tariff Selection are used to include prices in the availability message.

The elements Price Tables and Allocated Railway can be sent only if the prices are requested by sending the Include Price Flag.

4.   XML messages

4.1.1.   General

4.1.1.1.   Foundations

The specification of the xml reservation messages was prepared according the rules of the xml best practice document of UIC.

The specification tries to fulfill the following requirements:

1. Defining xml messages for reservation according to the uic best practice standard for xml
2. Defining xml messages for reservation that can be converted to/from reservation messages specified in TAP TSI technical document B.5.
3. Reuse of type definitions from the TAP TSI xml passenger type catalogue for all data items not specific to reservation.

---

[1] If the reply message include element 27 all information only belong to this coach.

4.1.1.2. Name spaces

The reservation specific definitions are located in the namespace http://www.uic-asso.fr/xml/passenger/reservation/01. Note, that the namespace is a virtual address in the UIC web area, which does not necessarily lead to the real specification.

The specification is versioned. The mayor version number is indicated by the last section of the namespace.

4.1.1.3. Name spaces from version 2.0 onwards

All definitions are located in one namespace for passenger services:

http://www.uic.org/xml/passenger/01

The specification is versioned. The mayor version number is indicated by the last section of the namespace.

4.1.1.4. Character Sets

The specification of the allowed characters in string format for xml messages is broader than the specification in TAP TSI technical document B.5. The restriction in chapter Special characters used in this Technical Document) is made due to the printer capabilities of the applications and is not caused by limitations of the interface (TAP TSI B.5 or xml). Therefore it is defined, that also all string formats in the xml specification are currently restricted to the character table defined in TAP TSI technical document B.5.

4.1.1.5. XML specification documents

The specification is provided by schema files (xsd files).

For the convenience of the user generated documentation files are provided additionally in word format, pdf format and html format. These documentation files are generated and do not contain any additional information. The relevant master documents for implementing an interface based on this specification are the schema files only.

The generated document files contain the complete documentation of the imported catalogues, regardless whether a type definition of the catalogue is used or not.

4.1.1.6. Reservation schema files

The schema files are organized as follows:

Type Definitions:

- uic_reservationsimpletypes.xsd   contains all reservation specific simple type definitions.
- uic_reservationcomplextypes.xsd   contains all reservation specific complex type definitions

Message Definitions:

- uic_reservationavailrp.xsd
- uic_reservationavailrq.xsd

- uic_reservationbookrq.xsd
- uic_reservationbookrp.xsd
- uic_reservationcancelrq.xsd
- uic_reservationcancelrp.xsd
- uic_reservationpartialcancelrq.xsd
- uic_reservationpartialcancelrp.xsd
- uic_reservationrollbackrq.xsd
- uic_reservationrollbackrp.xsd
- uic_reservationsynchrorq.xsd
- uic_reservationsynchrorp.xsd

- uic_availgbrq.xsd
- uic_availgbrp.xsd

The following message are not reservation specific and are thus placed in the namespace http://www.uic-asso.fr/xml/passenger/02:

- uic_addpersonaldatarq.xsd
- uic_addpersonaldatarp.xsd
- uic_getstoredpersonaldatarq.xsd
- uic_getstoredpersonaldatarp.xsd
- uic_getsecurityfeaturesrq.xsd
- uic_getsecurityfeaturesrp.xsd

4.1.1.7. Imported schema files

The following schema files are imported:

- passengersimpletypes.xsd
- passengercomplextypes.xsd

The schema files are imported from the namespace http://www.uic-asso.fr/xml/passenger/02.

4.1.1.8. Additional documentation files

- uic_reservationschemas_01.1.zip   html – format documentation

4.1.1.9. Referenced documentation files

- passengerschemas_02.zip   html – format documentation
- passengerschemas_02.pdf

4.1.2. Implementation

Implementation of changes:

New elements and attributes will in general be implemented within two steps. In a first step each system must accept the new elements in received messages. In the second step the elements must be sent and processed by each system.

An implementation of this interface must therefore include mechanisms to support the first step of implementation without software changes.

Implementation of syntax and semantic checks:

It is recommended to implement checks on the syntax of messages generally within the interface and implement check the semantics (checks on codes defined in enumeration) in the application, as the error messages generated by the application is more detailed. Therefore it is recommended to replace enumerations of frequently changing code lists by the basic type before generating code for web services.

4.1.3.   XML Data structures

Description of data structures used in multiple messages.

The description of the main data structures displayed here is a documentation generated from the corresponding schema files for the convenience of the reader. The master of the specification is always the schema file itself!

4.1.3.1. Dialogue
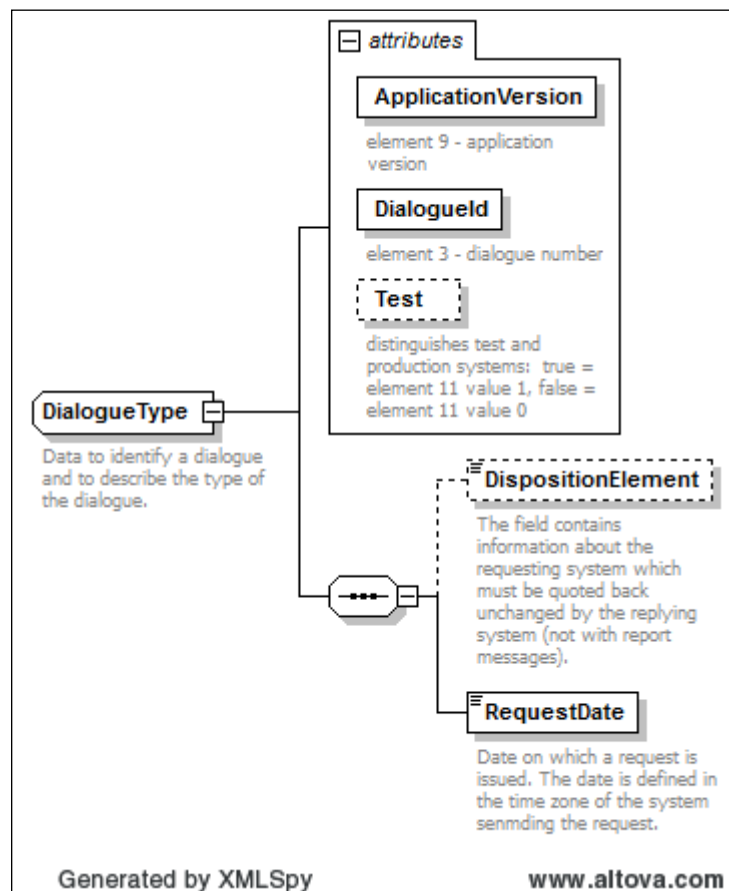
XML data structure of the message dialogue information

4.1.3.2. Requestor
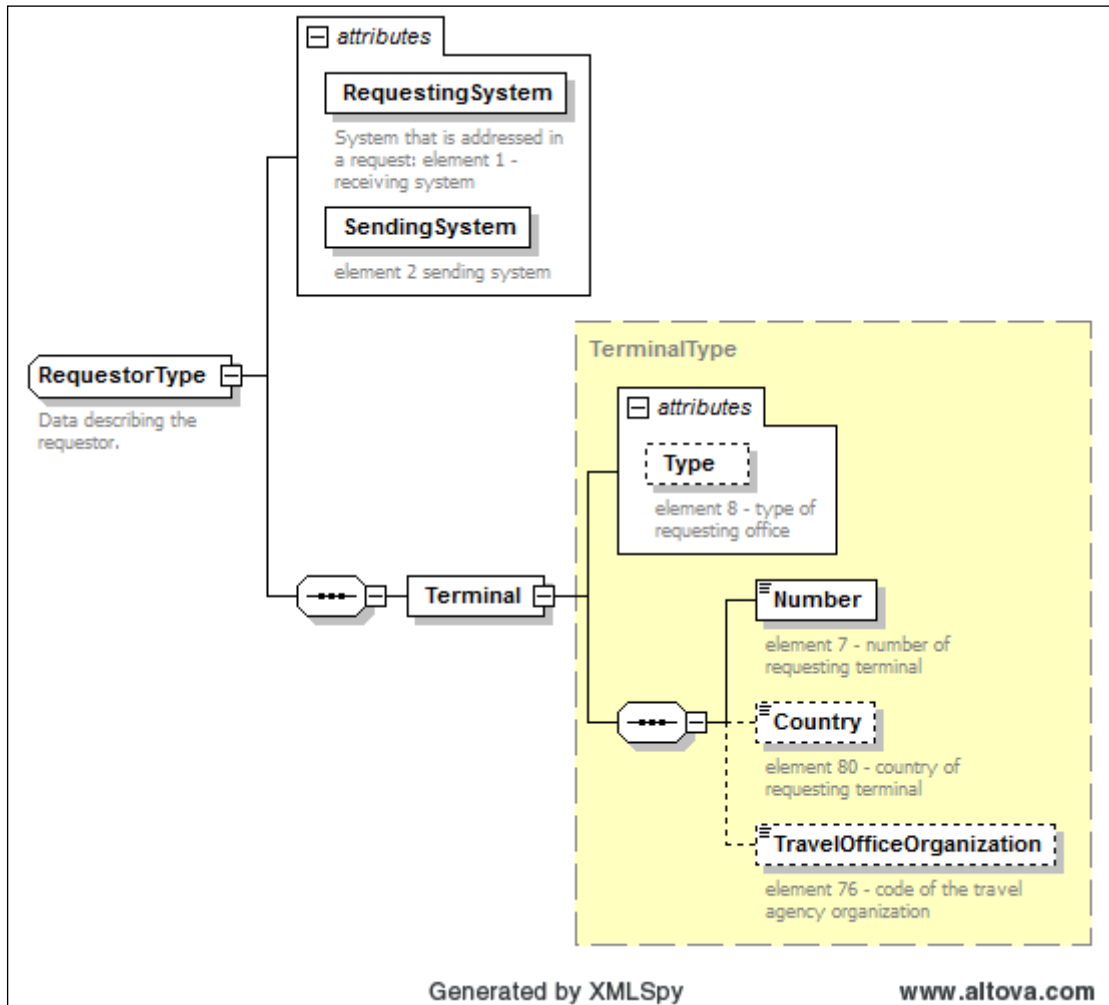
4.1.3.3. Requested Train

Identification of a train in a request.

Generated by XMLSpy
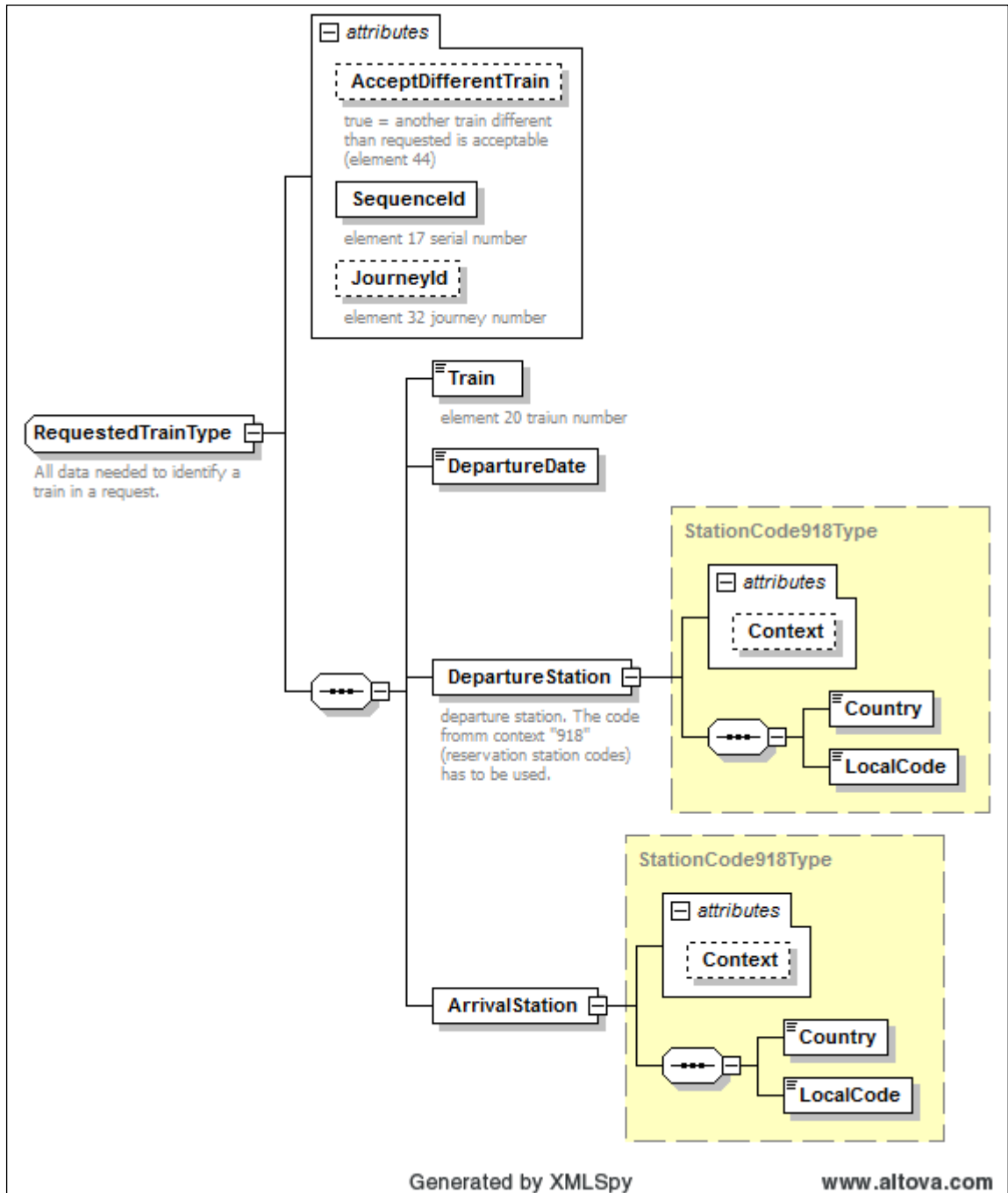
www.altova.com

4.1.3.4.   Allocated Train

Description of a train in an allocation:

Generated by XMLSpy   www.altova.com
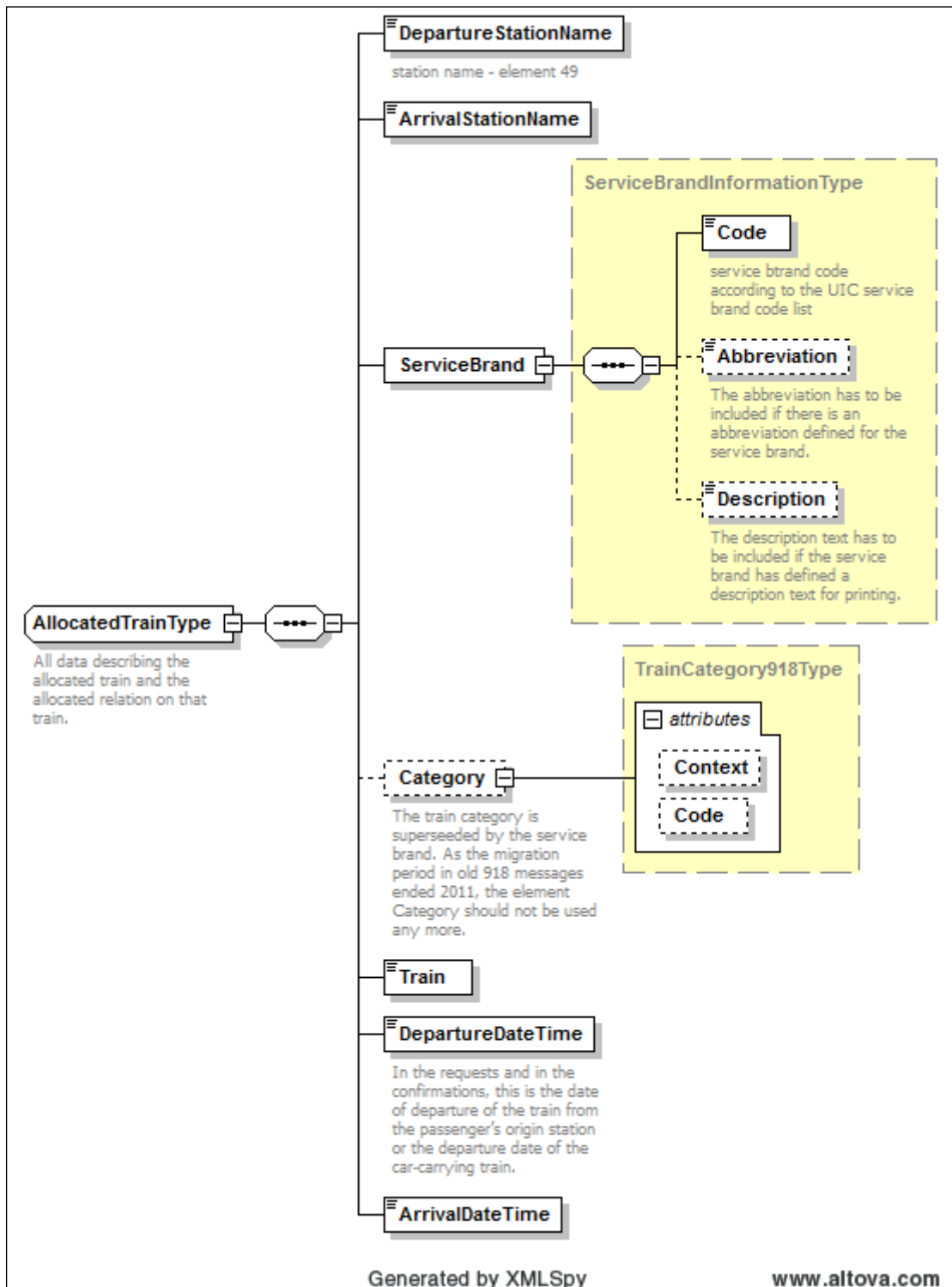
4.1.3.5. Seat Request

Request parameter for a seat request
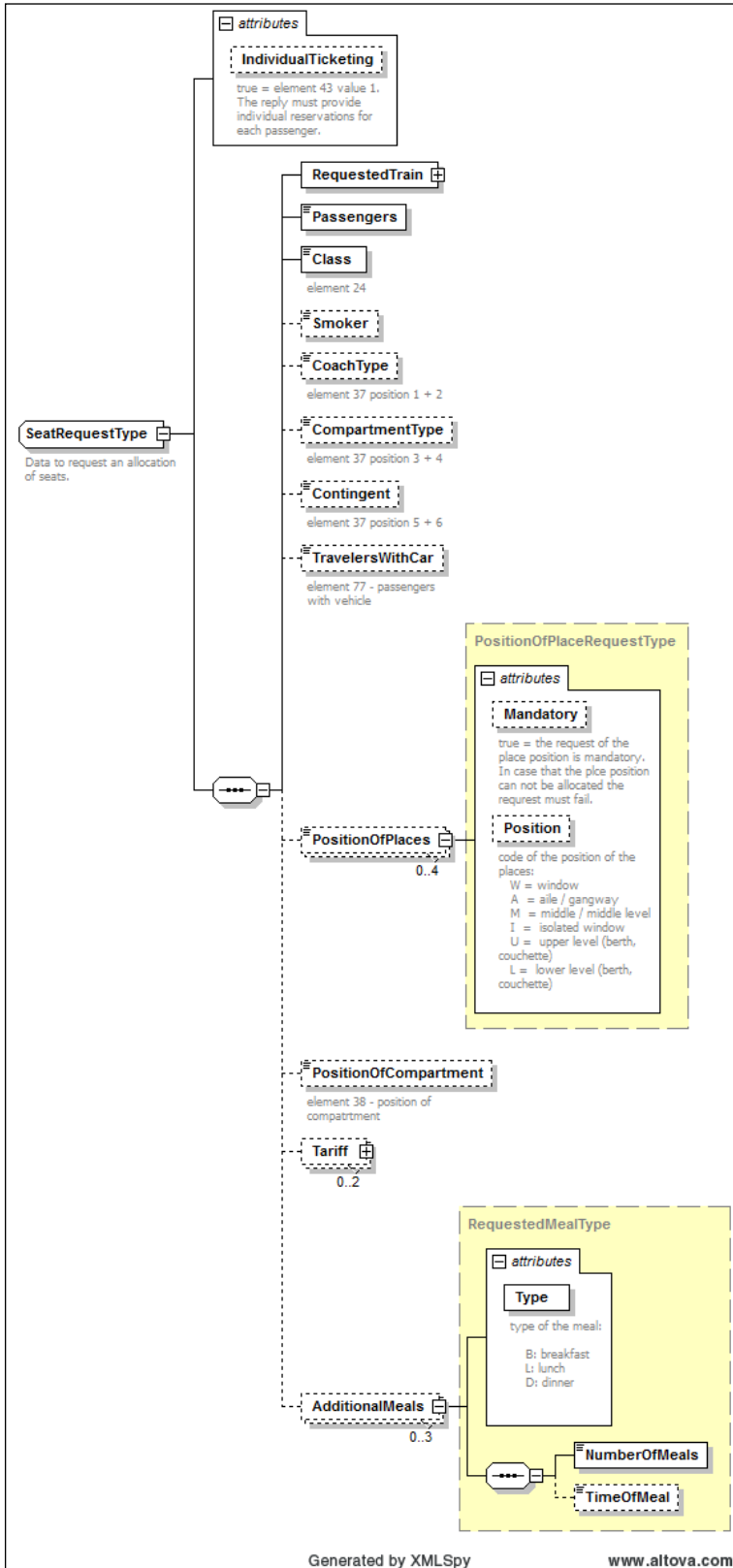
4.1.3.6.   Seat Allocation

Description of allocated seats
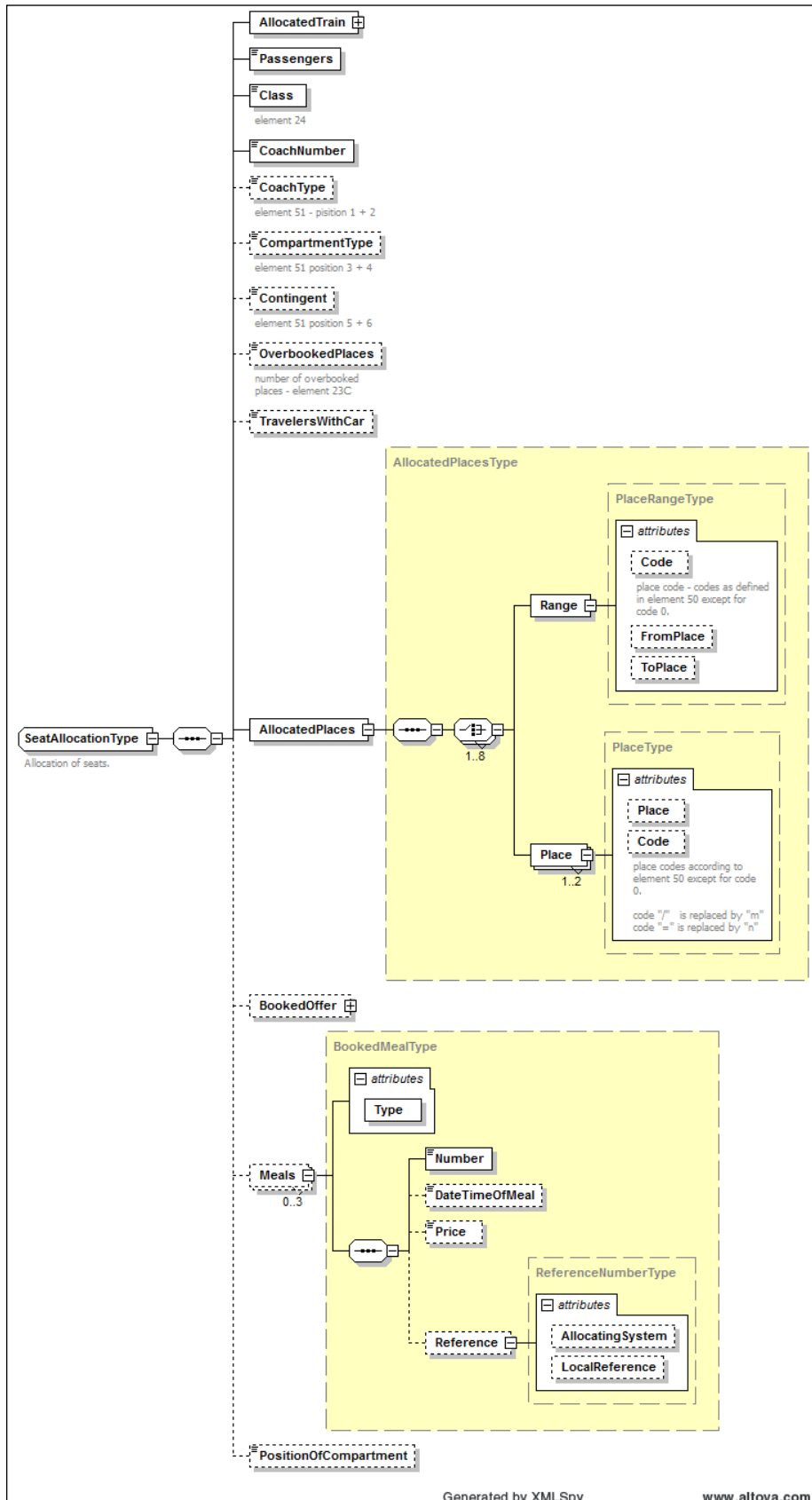
4.1.3.7. Couchette Allocation

Couchette allocation description

Generated by XMLSpy   www.altova.com
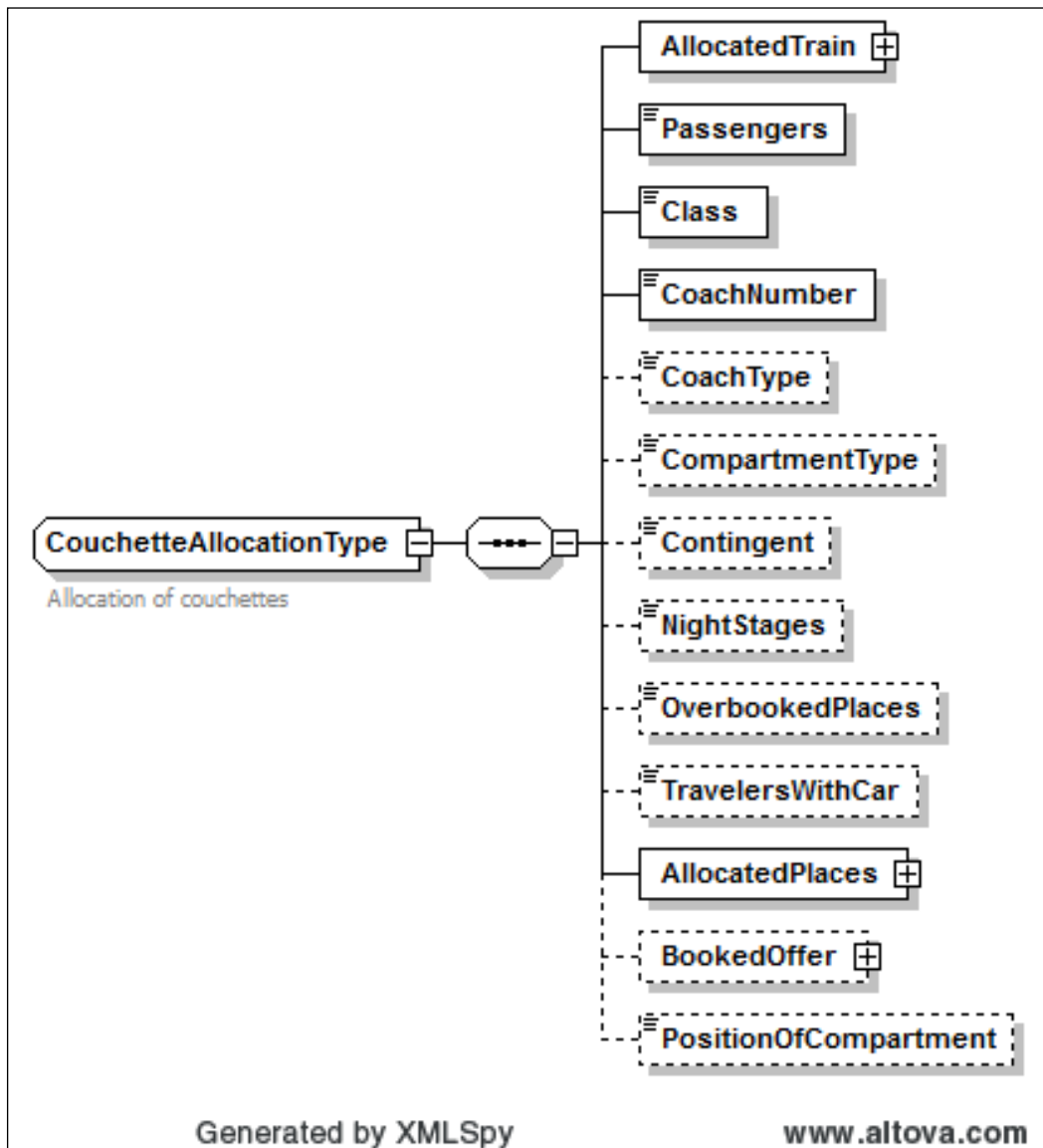
4.1.3.8. Berth Allocation

Description of berth allocation:
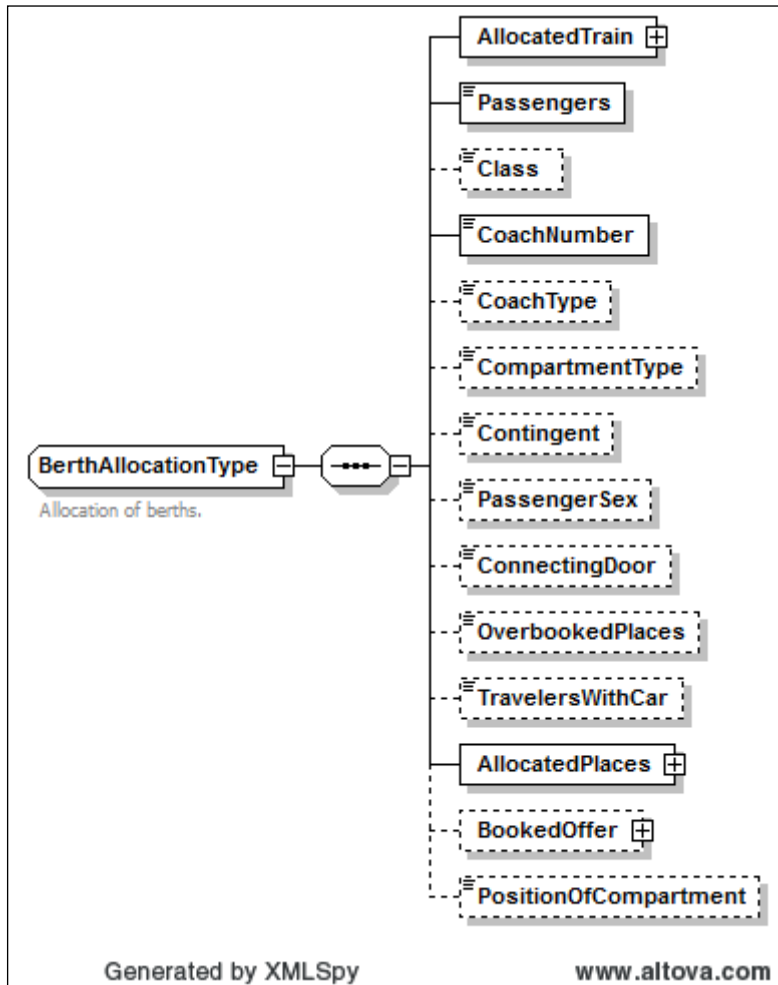
4.1.3.9.   Vehicle Allocation

Description of a vehicle allocation

Generated by XMLSpy   www.altova.com
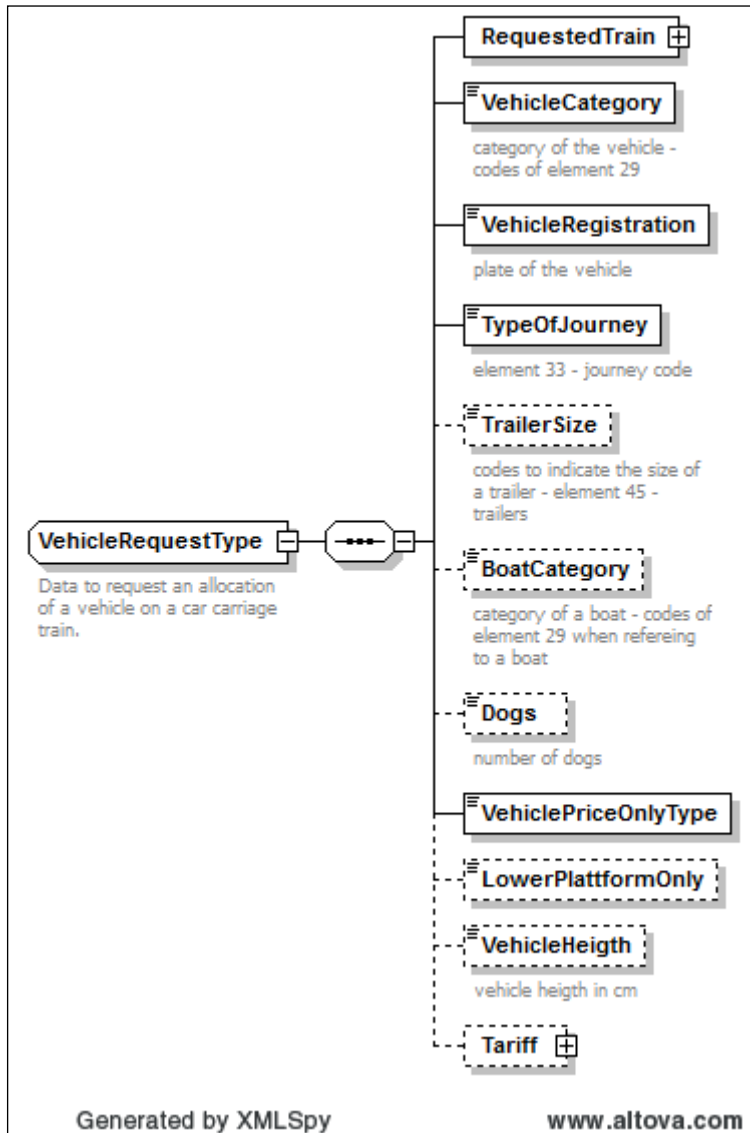
4.1.3.10. Booked Offer

Data type to describe a booked offer in reservation:
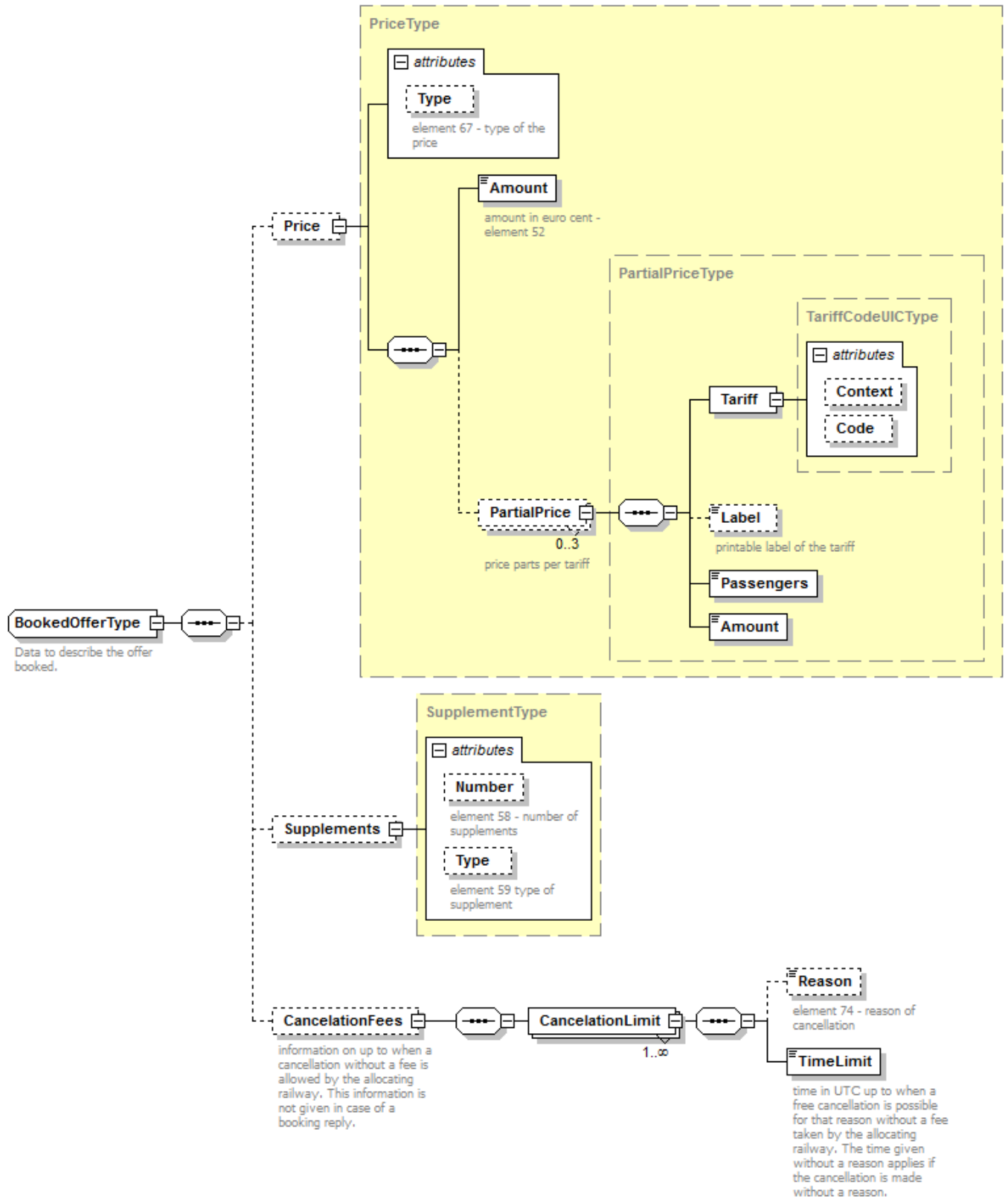
4.1.3.11. Refund

Data type to describe a refund on a cancellation:
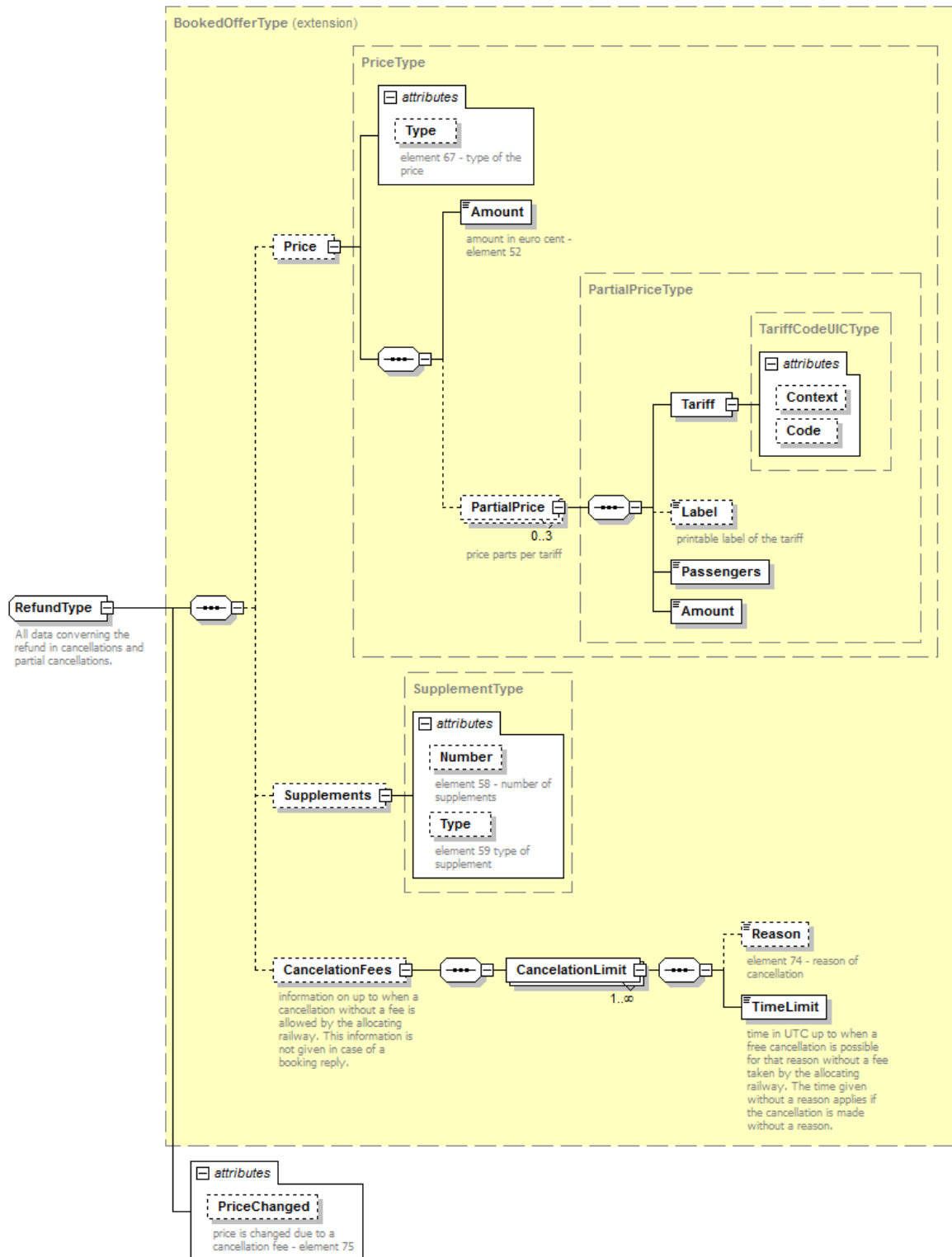
4.1.3.12. Passenger data

The passenger data tag is used wherever passenger personal data need to be transferred. It provides a data structure for all personal data. The applications have to select the appropriate data elements to be filled depending on the situation where it is used.

As the passenger data tag is used in many scenarios almost all elements are defined as optional to allow the applications to transfer only personal data needed for the use case.

Names have been included in ICAO transliteration (see page **Error! Bookmark not defined.**) without special characters and in UTF-8 format. Systems that are not capable of UTF-8 should use the ICAO transliteration.

Customer cards have been added for future use.
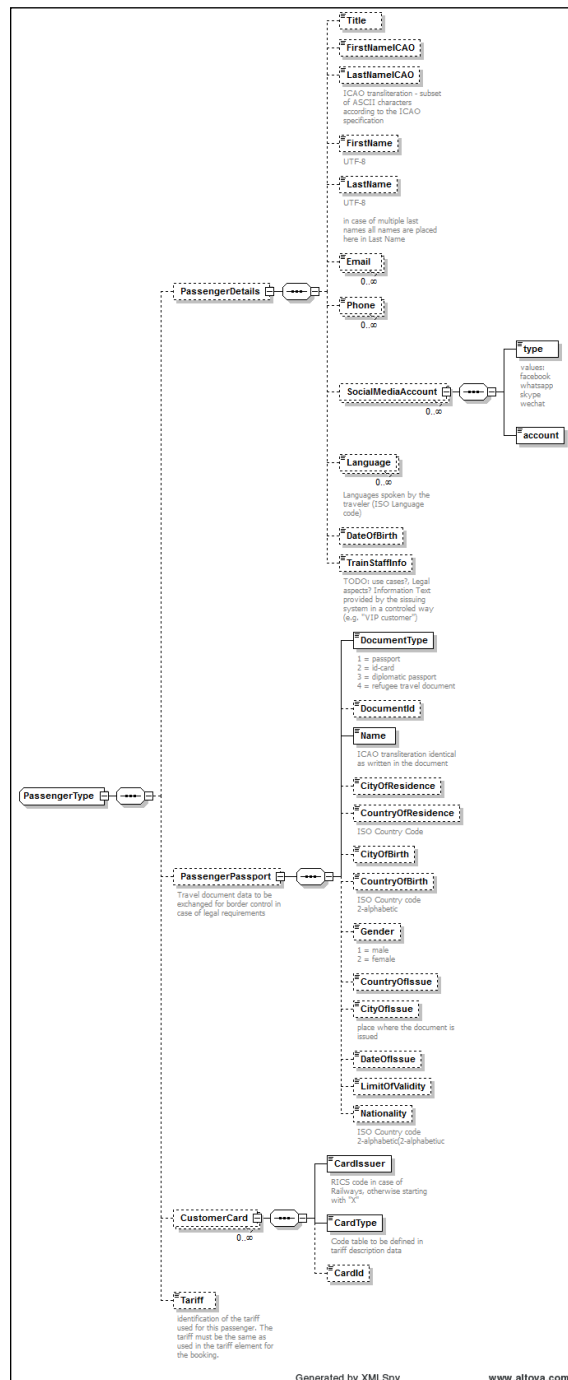
Remark: In case a system works with names according to ICAO Standard only it is sufficient to fill the name in the Tags for ICAO names. The receiving system has to take the name from there in case the UTF-8 encoded name is empty.

4.1.3.13. Ticket Security

Description of security features for e-tickets.

The ticket security tag is used to encode security features or links to security features where ever these data need to be transferred.

A security feature can be linked to a specific passenger (e.g. for individual ticketing) via the passenger name. In this case the EU regulation on data protection for personal data applies.

The data structure can also include data for bar codes. In case these data include personal data the EU regulation of on data protection for personal data applies as well.

The data structure can also include a link to security elements or entire tickets. In case the data that can be accessed via the link include personal data the EU regulation of on data protection for personal data applies also to the data containing the link only. A link (URI) to a ticket containing personal data has to be treated as personal data according to the EU data protection regulation as well.

It is possible to give information on whether the security feature is mandatory of is designed for paper tickets only.
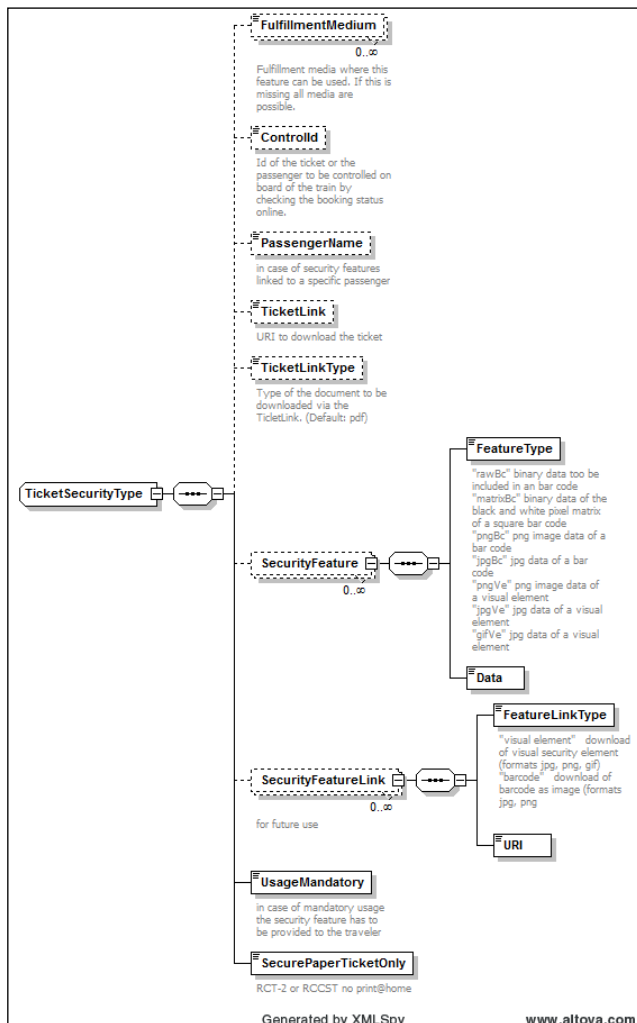
4.1.3.14. VAT data

The VAT data structure includes a list of VAT details where the taxation country is mandatory. Optionally the Amount of tax and the percentage and the tax id of the company paying the tax can be added. For companies within the EU this is the unique European tax id.

The VAT details can be added to booking confirmations, Confirmations of cancellation and partial cancellations. In case of partial cancellation, the data can be added to the price of the remaining places and to the cancellation fee separately.

The obligation to provide the tax information to the customer depends on the legislation of the country where the ticket is sold and the country where the transport service is delivered.
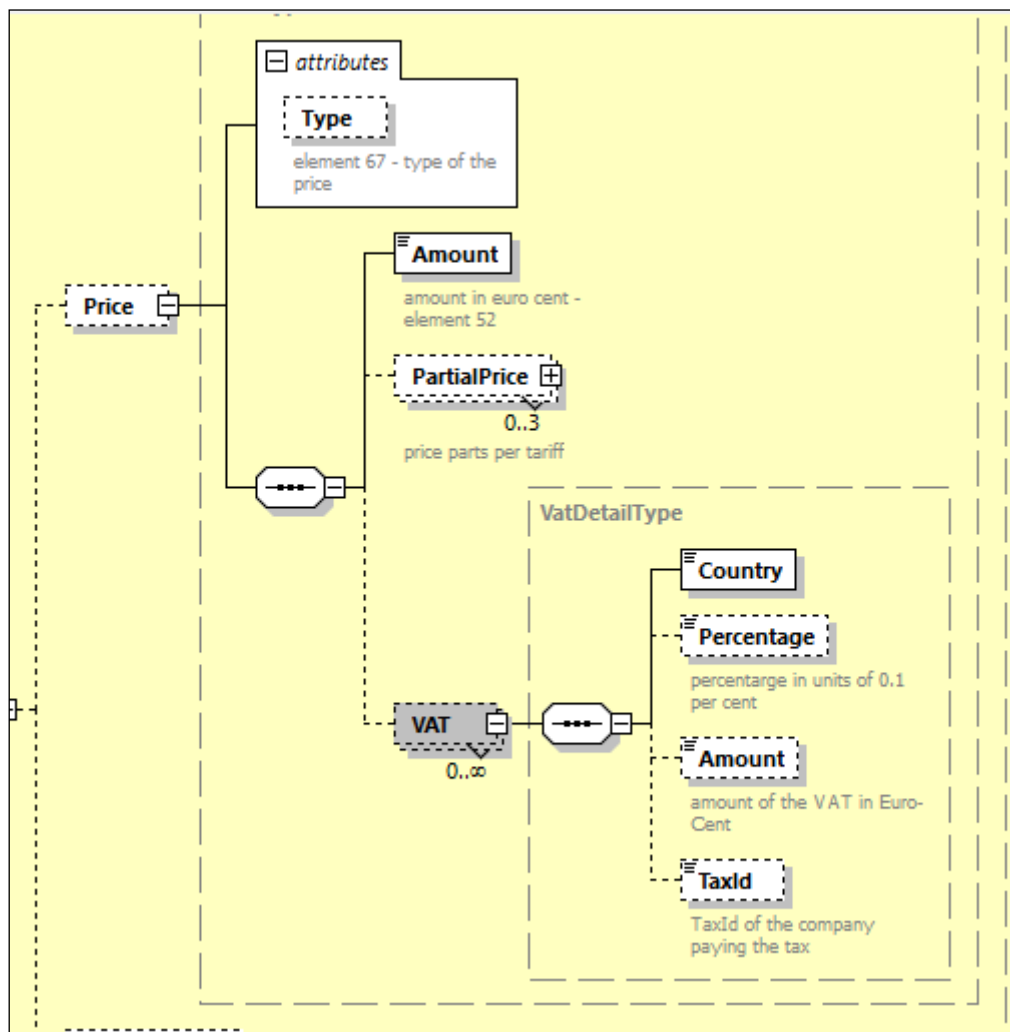
4.1.3.15. Basic XML Messages

The description of the message structures displayed here is a documentation generated from the corresponding schema files for the convenience of the reader. The master of the specification is always the schema file itself!

4.1.3.16. Reservation

Request Message:

Generated by XMLSpy   www.altova.com

Reply Message:

4.1.3.17. Cancelation

Request Message:
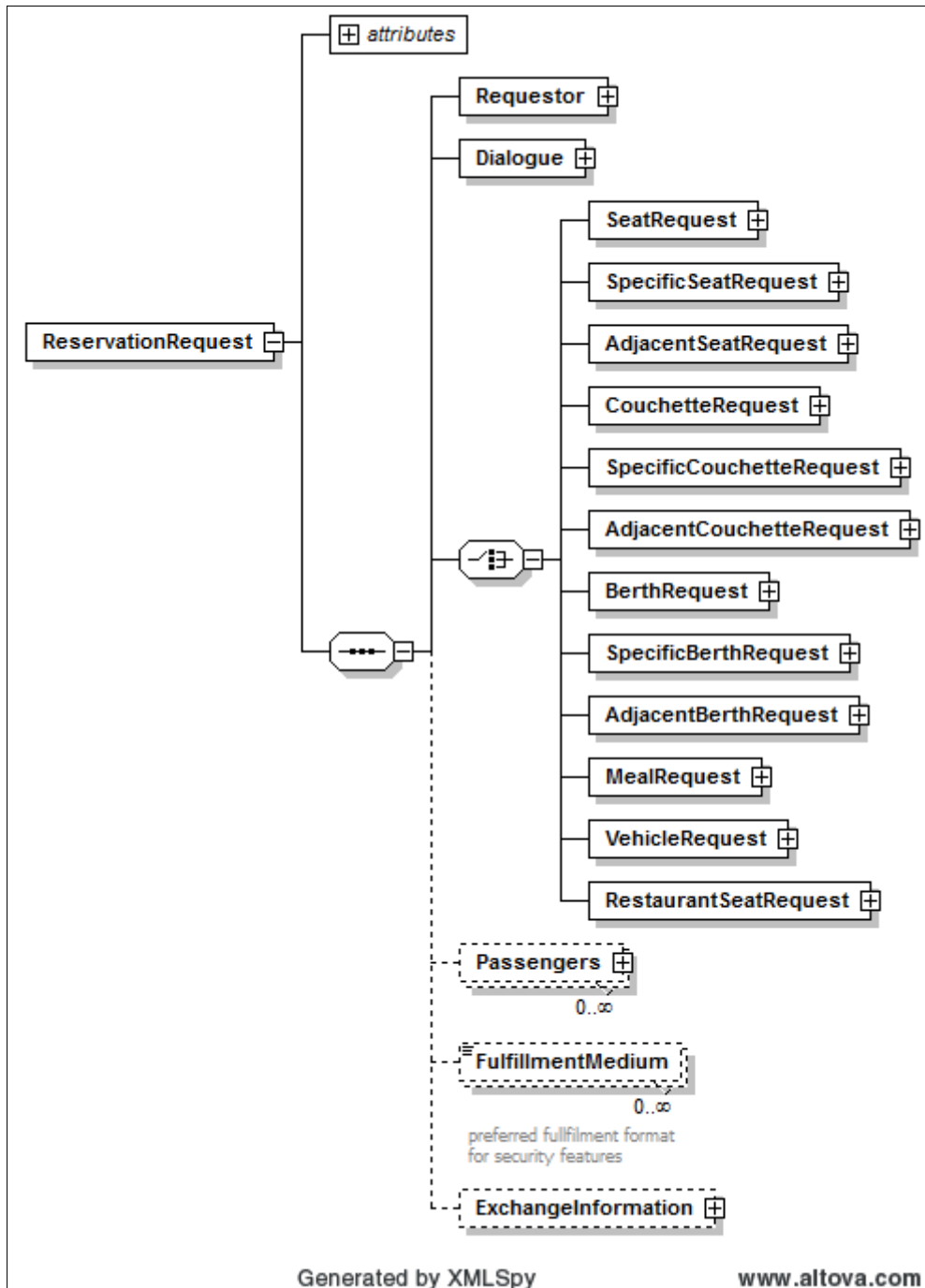
Reply Message:
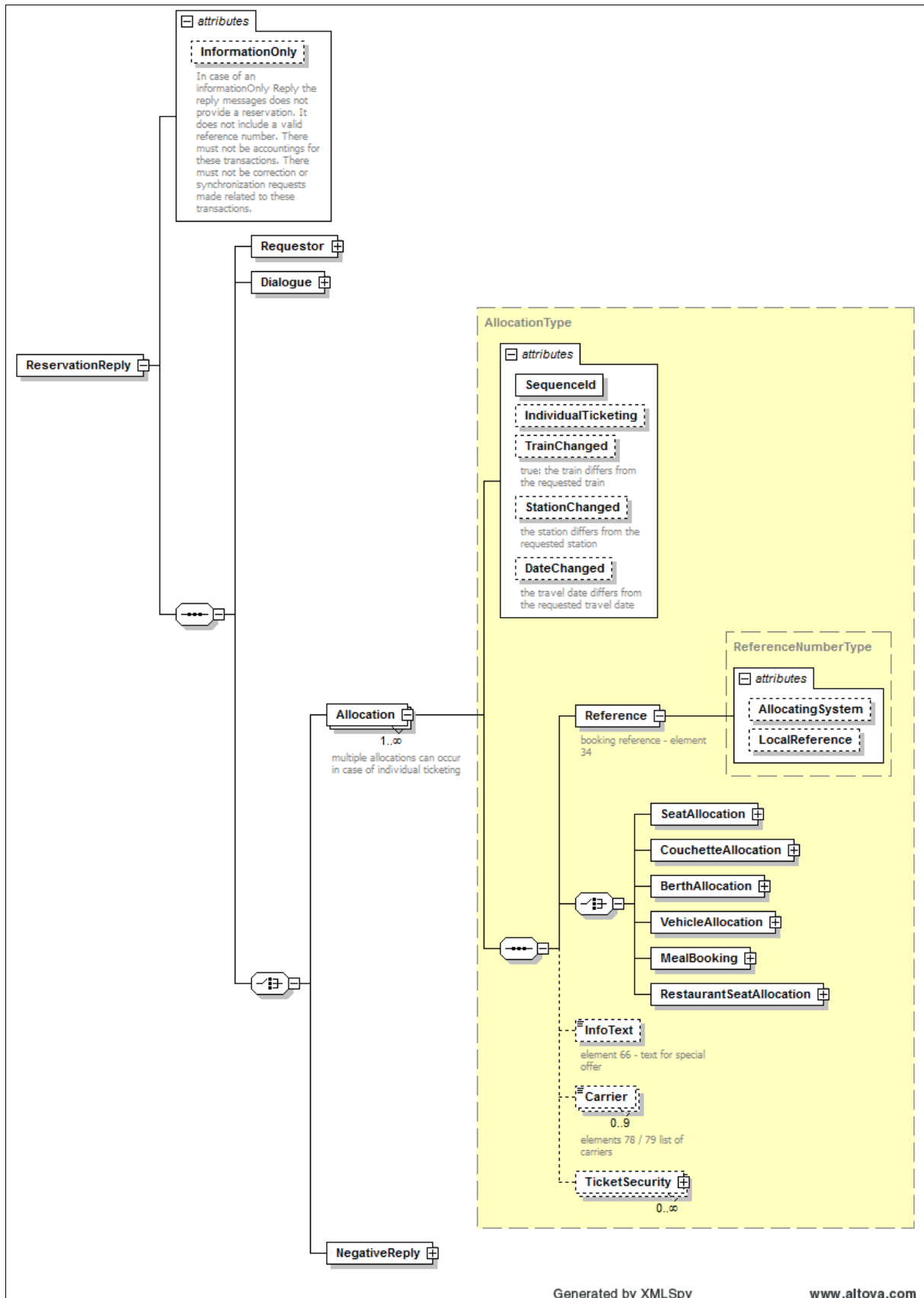
Generated by XMLSpy   www.altova.com
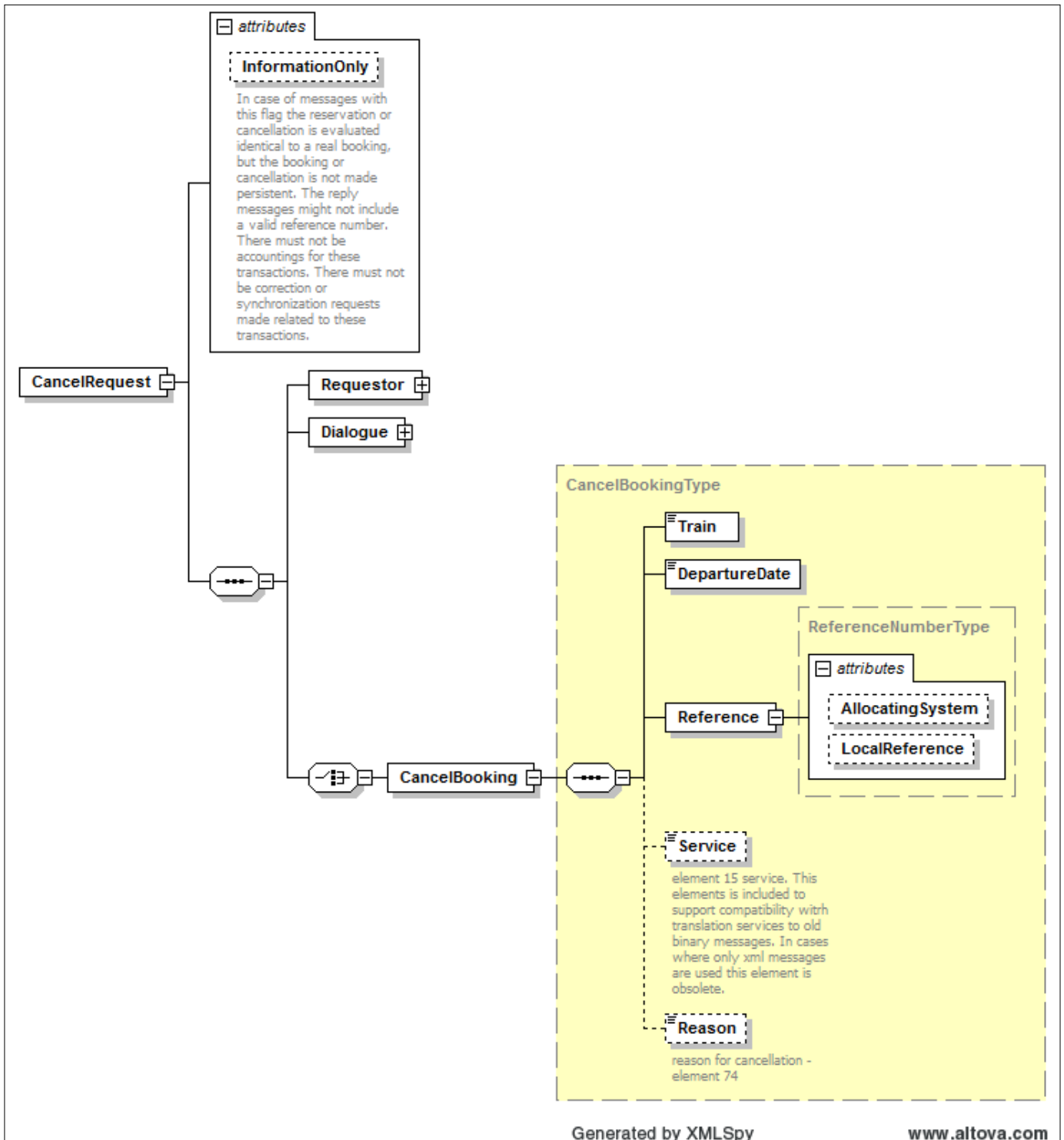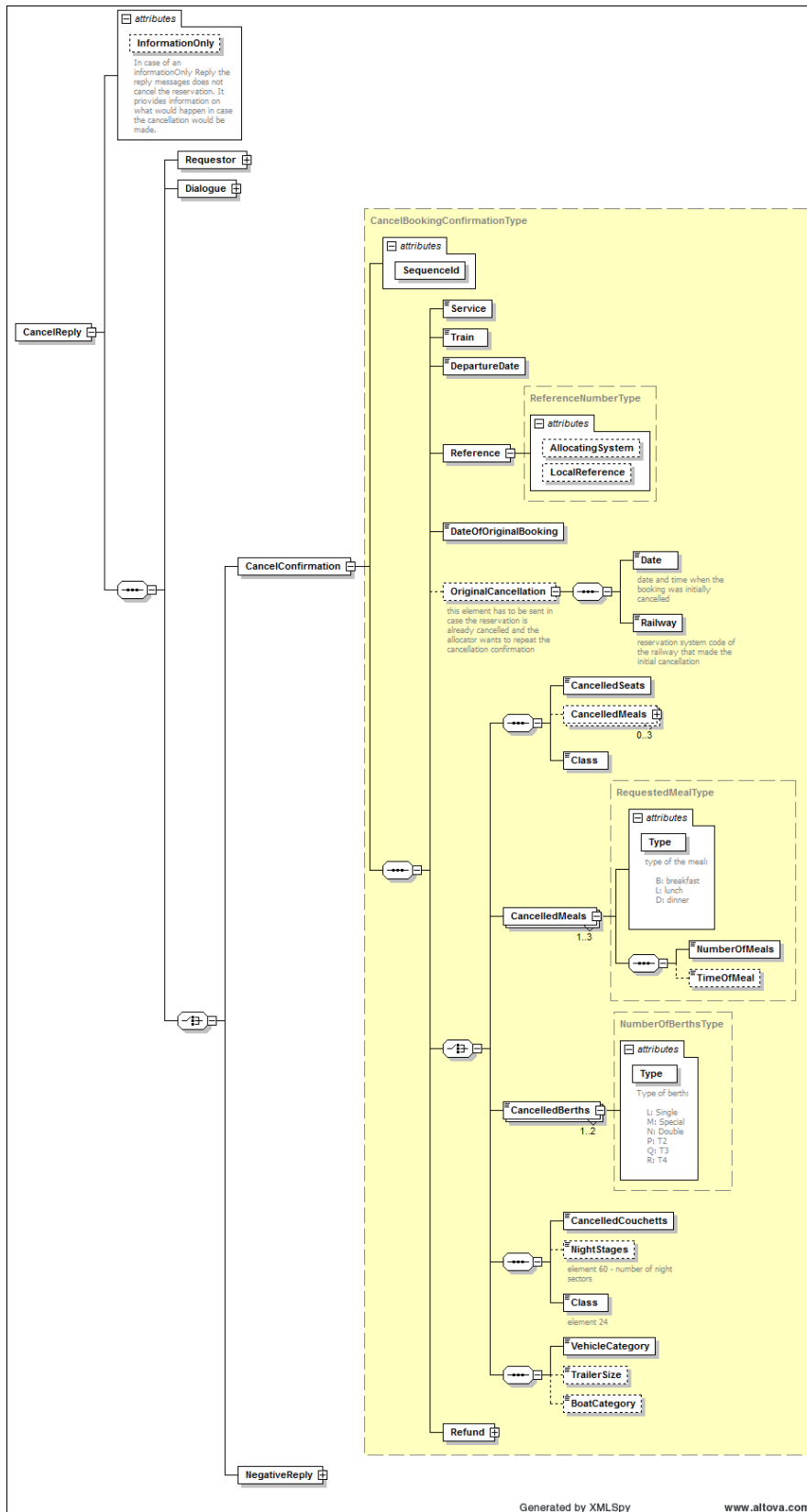
4.1.3.18. Partial Cancellation

Request Message:

Generated by XMLSpy   www.altova.com

Reply Message:

Generated by XMLSpy   www.altova.com
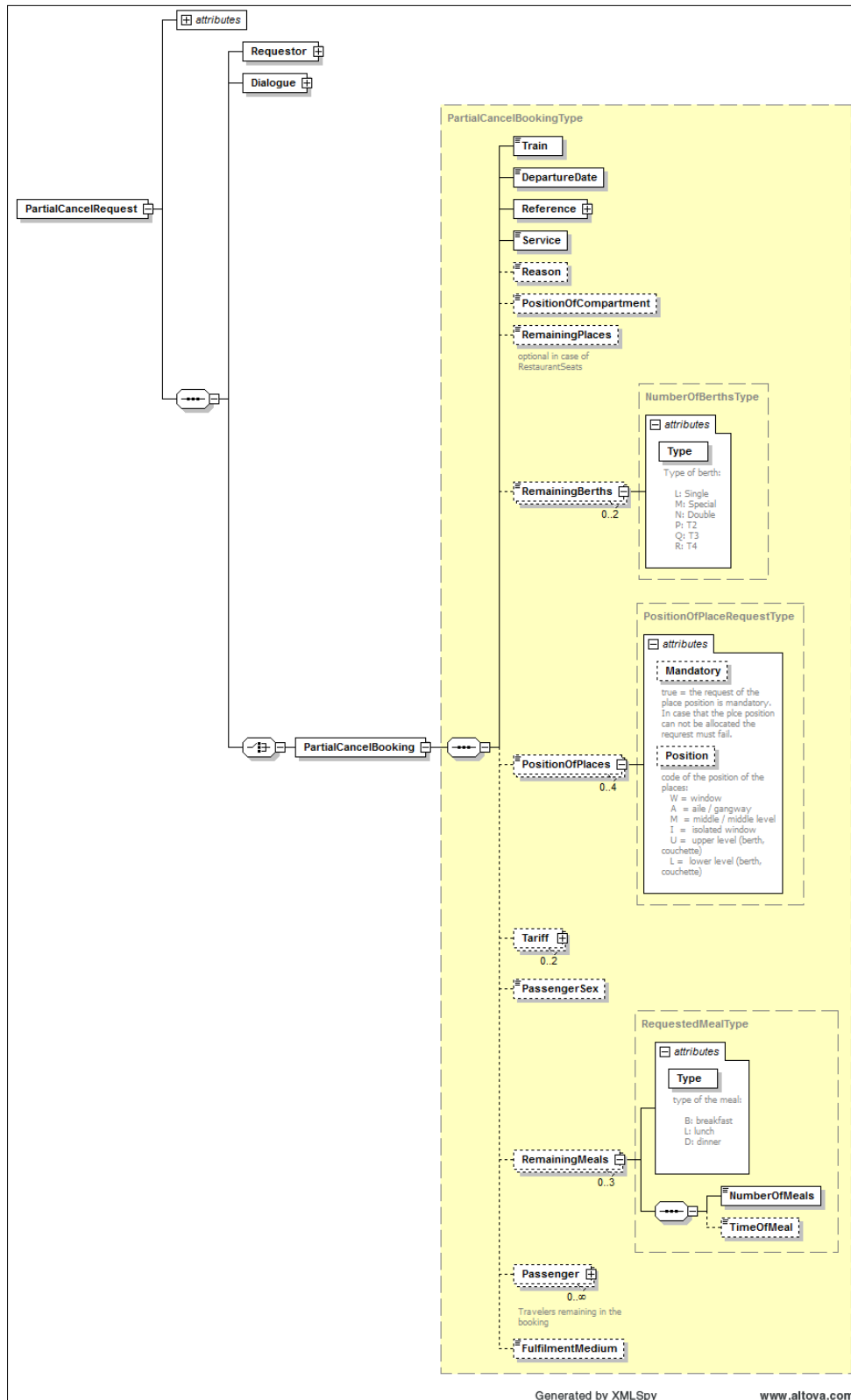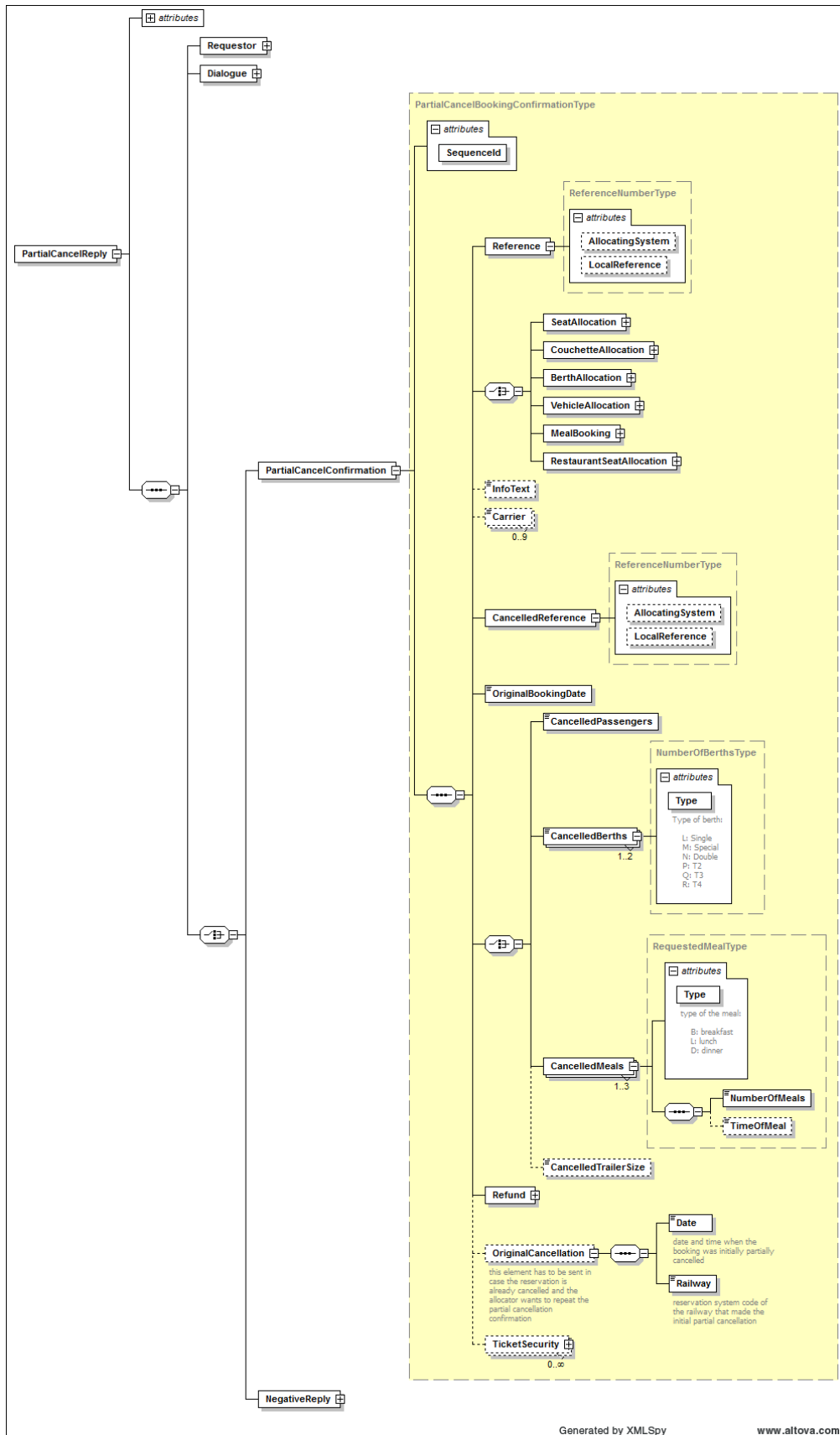
4.1.3.19. Rollback

These messages correspond to the binary correction messages.

Request message

Reply Message

Generated by XMLSpy   www.altova.com
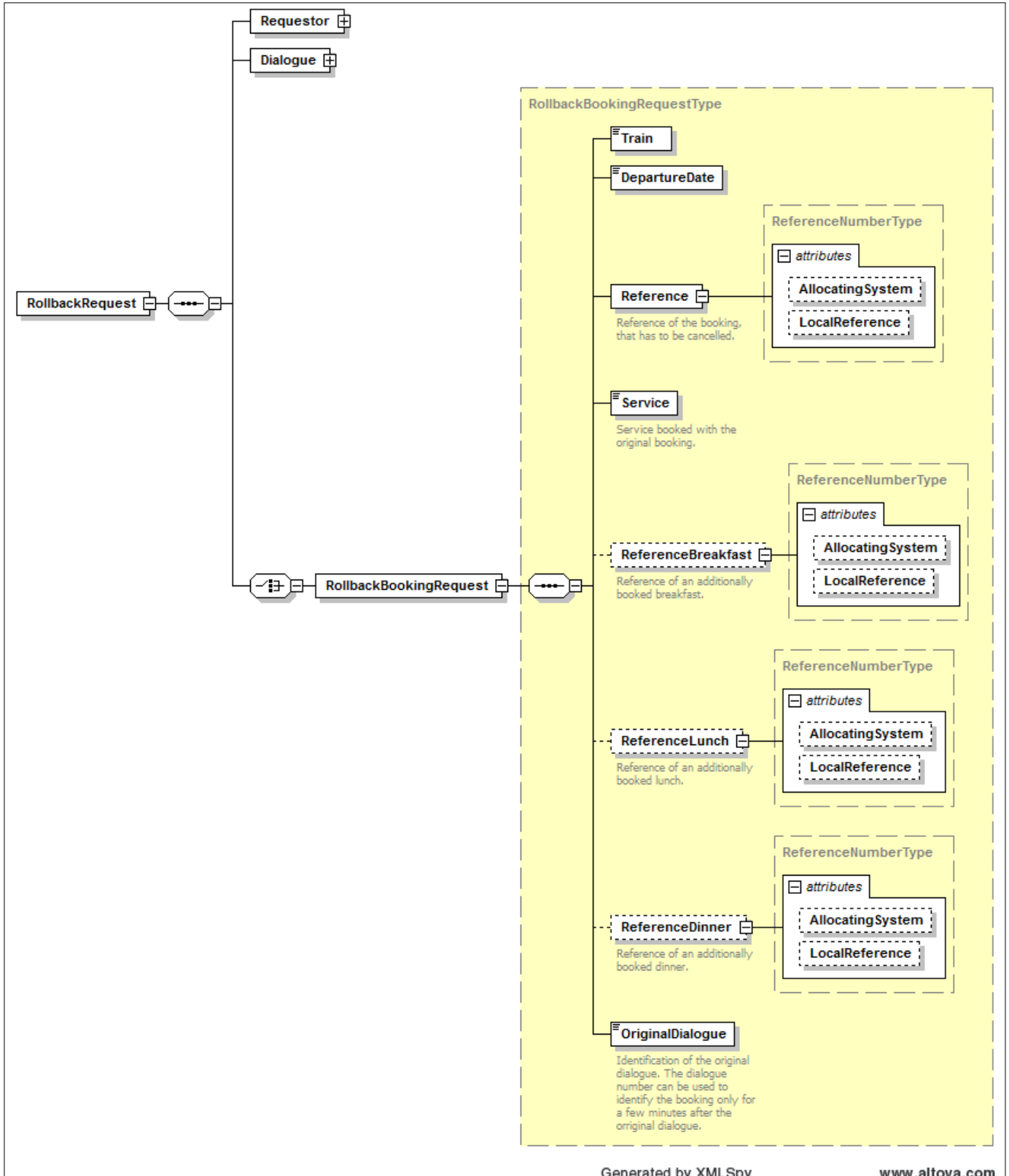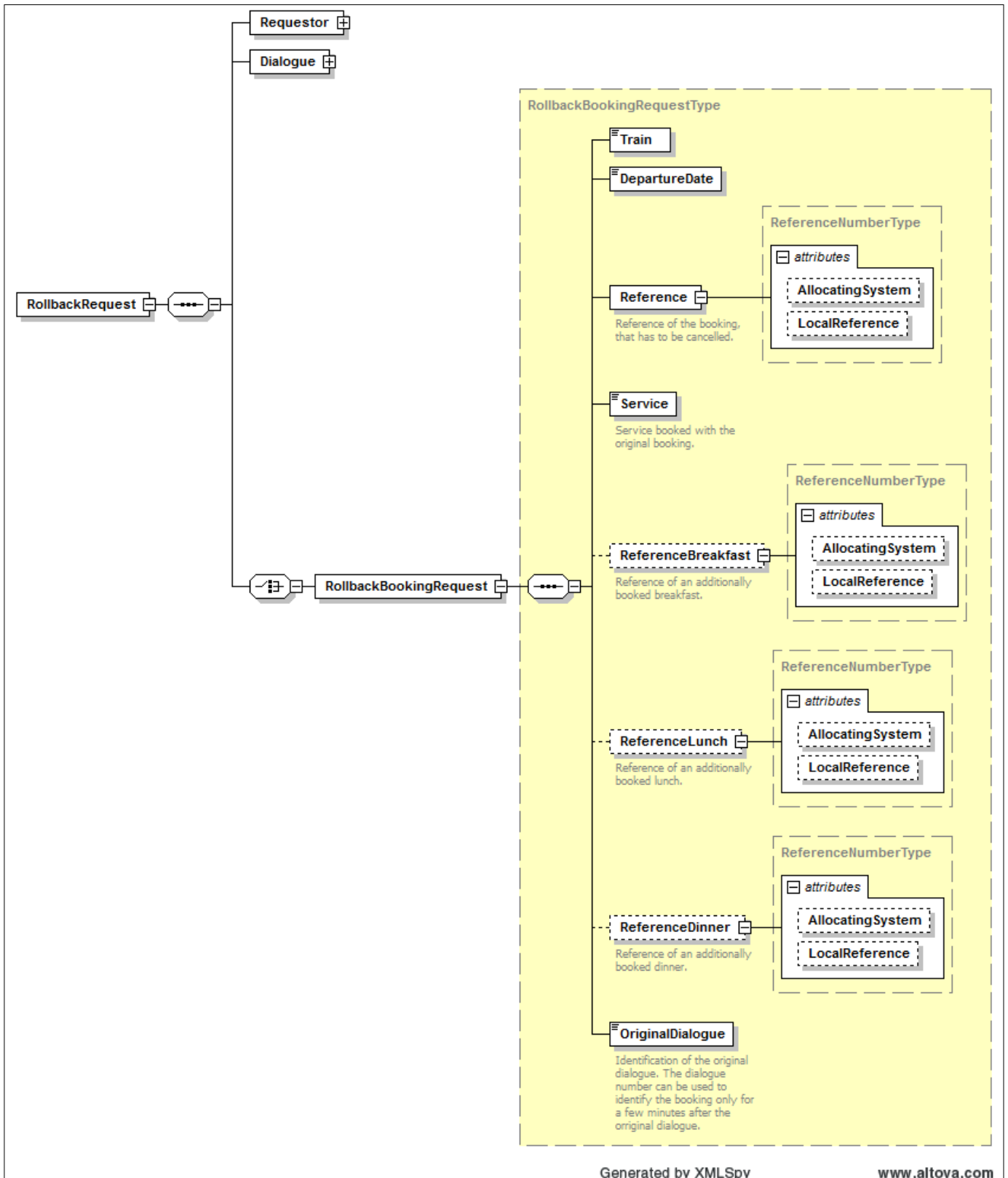
4.1.3.20. Synchronization

Request message

Generated by XMLSpy   www.altova.com

Reply Message

Generated by XMLSpy — www.altova.com
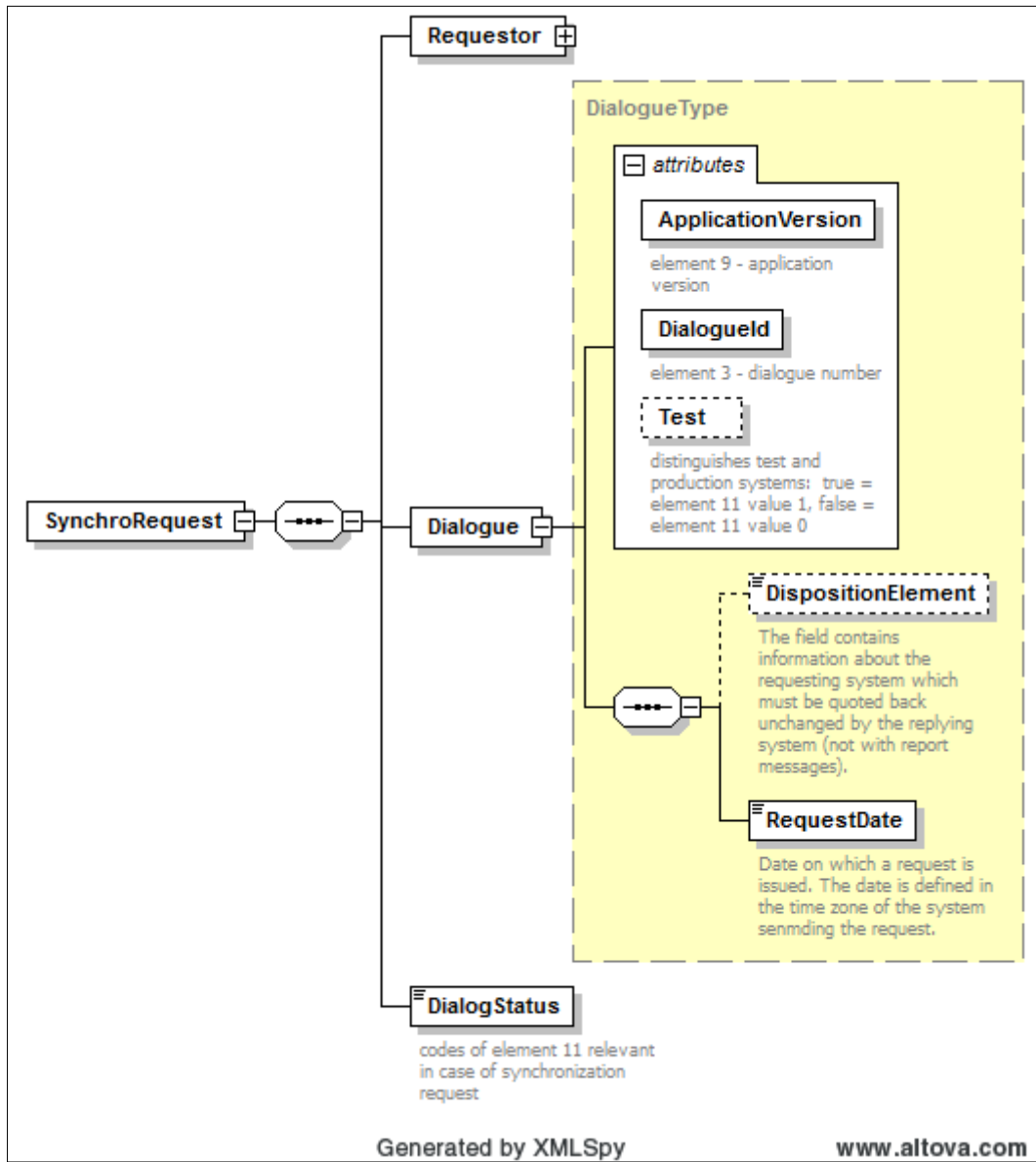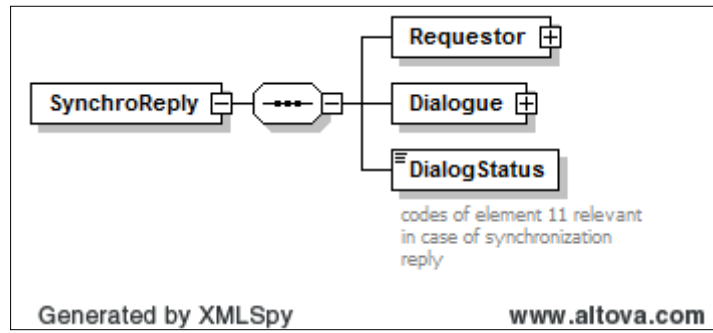
4.1.4. Availability

Request Message:

Reply Message:

AvailabilityType

attributes

SequenceId

RequestedService

The RequestedService is added to support the translation between binary messges and XML messages in the HitRail translation service . It will not be used after the migration is completed. Systems should therefore not use this element. - element 15

Train

Availability

AvailableServiceType

attributes

Service

element 308 - service level positions 1 + 2

AvailableService
1..21

AvailableOfferType

attributes

Type

element 67 - type of price

TariffCodeUICType

attributes

Context

Code

Offer
1..100

Tariff

Scope
price scope - element 348

Amount
amount of the tariff not including reservation fees

Flexibility
price flexibility - element 350

Stability
price stability - element 347

Description
description text of the tariff

Passengers
number of avauilable places if nor separated between smoker and non-smoker

Smokers
number of available smoker places
1..2

NonSmokers
number of available non-smoker places

CoachType

CompartmentType

Contingent

Coach
if the request was limited to a single coach ansd the allocating system has retrieved the availability for this coach only the coach number is included here.

AvailabilityReply

Requestor

Dialogue

1..2

NegativeReply

Generated by XMLSpy   www.altova.com

4.1.5. E-Ticketing support

The scope of these extensions is to implement an interoperable data exchange during the booking process needed to support the control of the customer authorization to travel on a train (e-ticket):

- to allow to travel by personal data
- to allow to travel by id
- to allow to download a boarding pass from the carrier
- to allow the carrier to contact the traveler
- to satisfy national legislation for personal data on cross border trains (e.g. Russian, Belgium, train on ferries)

4.1.5.1. Add personal data to an existing booking

Personal data can be added to an existing booking using the AddPersonalData message.

The same message can be used to modify these data. In this case the complete data have to be sent and will replace the previous data.

Errors can occur in case the booking cannot be retrieved or is outdated (e.g. the travel date has passed).

An error can occur in case the personal data provided are incomplete. In case the personal data do not fulfill the requirements of the booking the ticket must not be issued.

A tag MissingData has been added to the negative reply to indicate which tags are missing. This tag will include the name of the missing tag of the personal data.

In case contact data of the passenger have been provided to the allocating railway the allocating railway must wait for an appropriate time to contact the passenger as the sales process of the issuer might not have been completed yet.

In case a booking with personal data is cancelled the personal data must be deleted according to the EU data protection regulation.

The message contains the booking reference to identify the booking. The train and departure date have been added optionally to support bookings in systems where the booking reference is not yet unique.

In case of a timeout the request can be repeated.

For some tariffs it might not be allowed to replace a person, but according to the GDPR personal data must be changed on request of a passenger. Identification of the passenger to check non-transferable tickets must be made in the system keeping the customer account data.
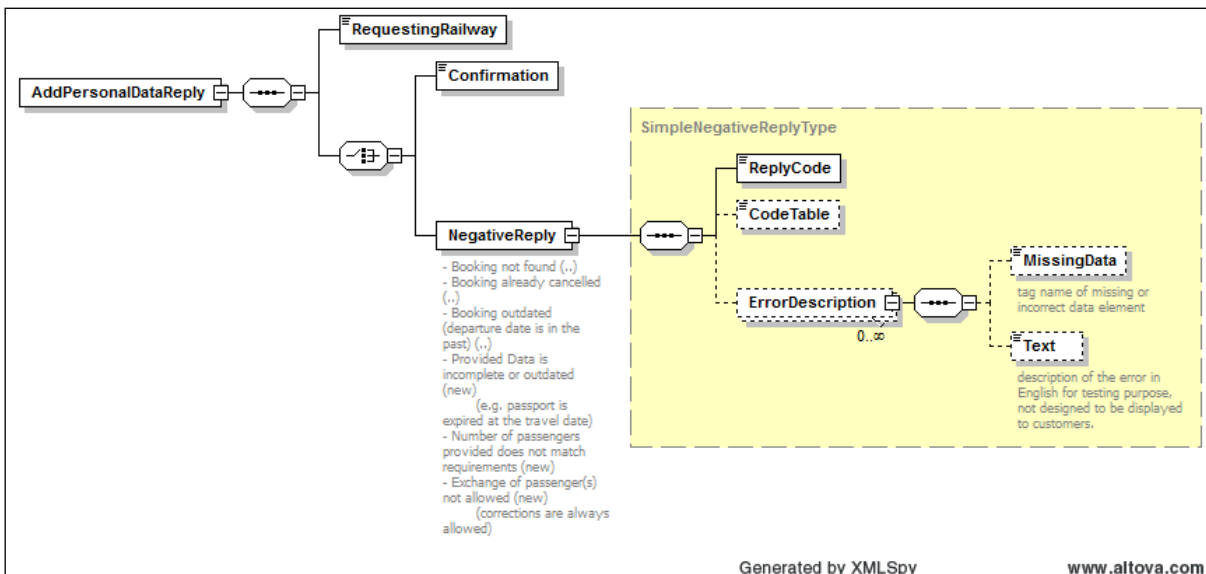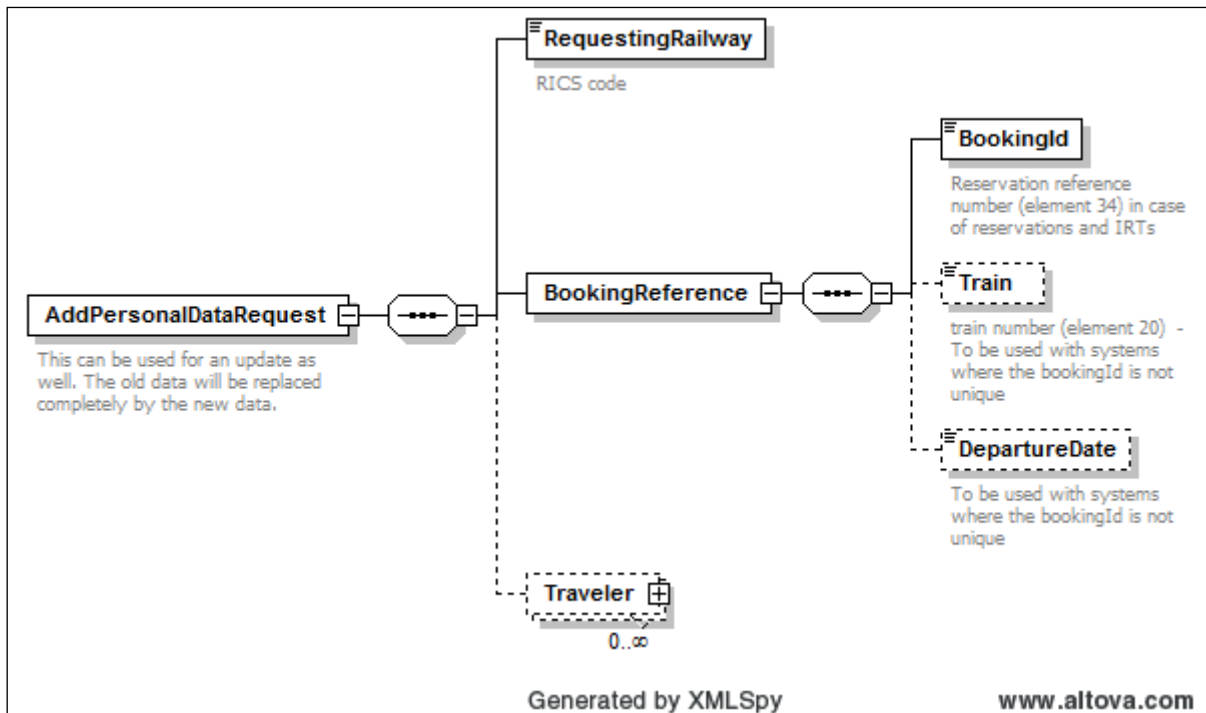
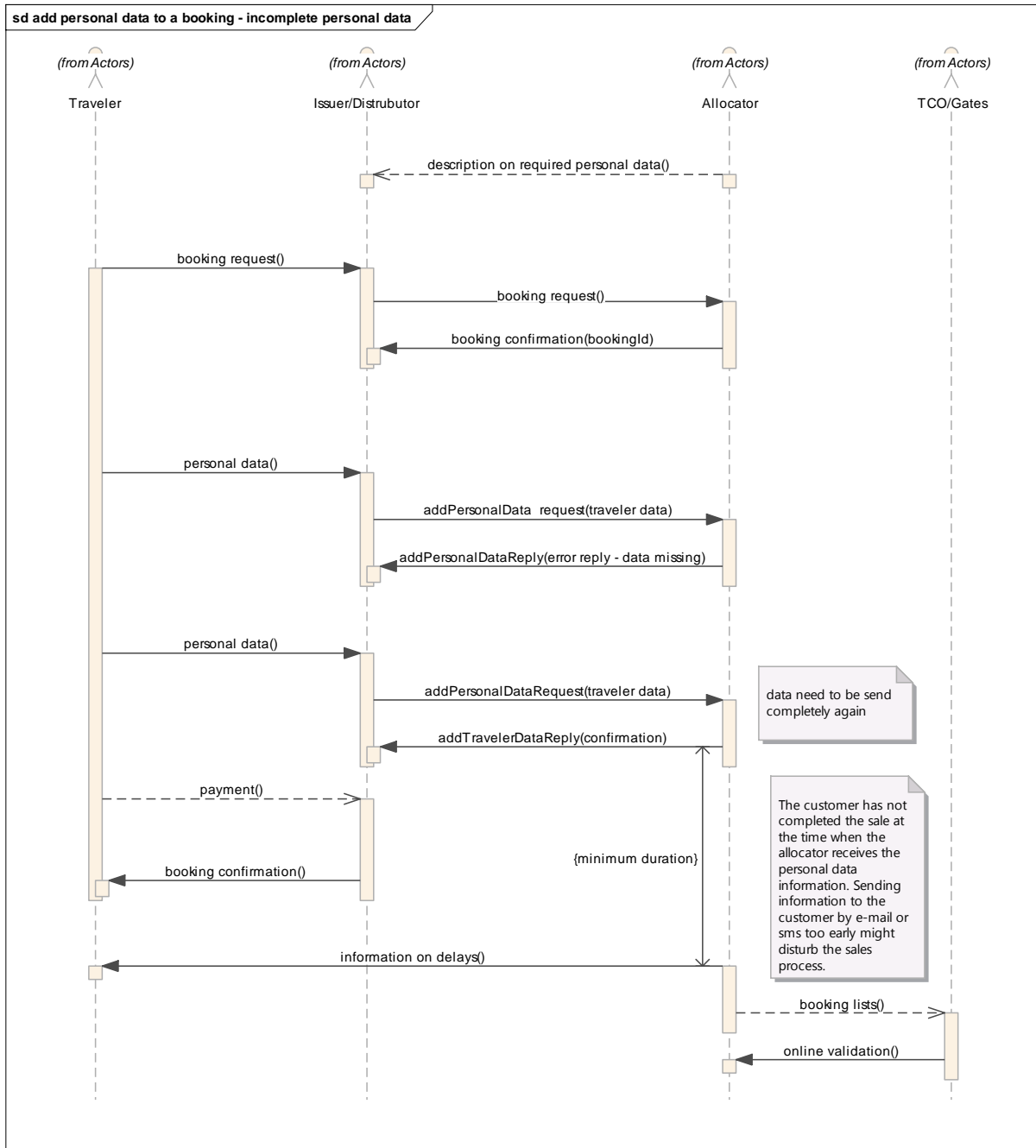Scenarios -Add personal data to an existing booking

Scenarios included:

- regular case without errors
- error due to incomplete personal data
- behavior in case the payment fails

The following scenario describes the exchange of messages in case no error occurs and the provided data are sufficient for the booking. The allocating railway should have provided the issuer with a description on the use of personal data for its products beforehand.
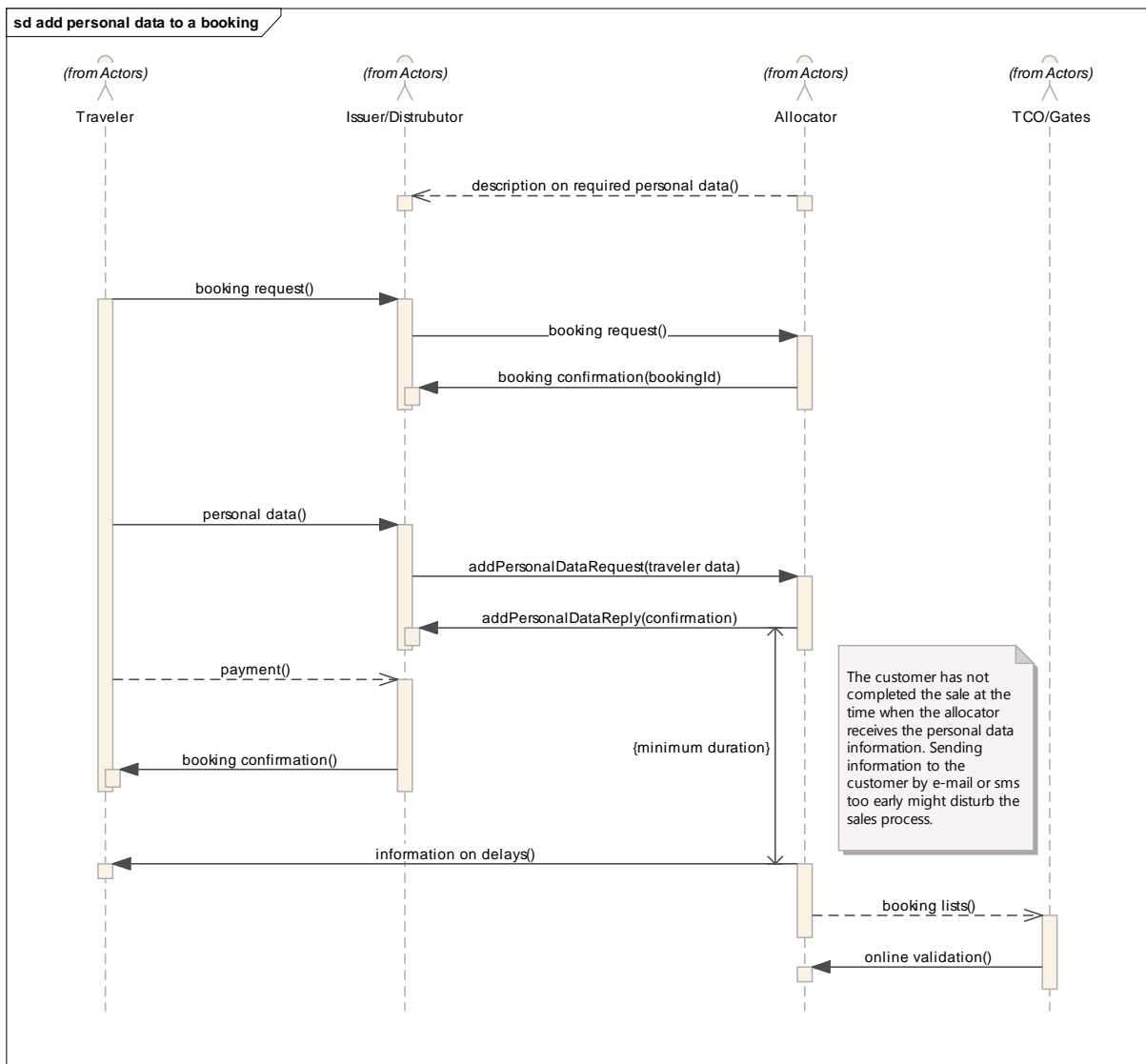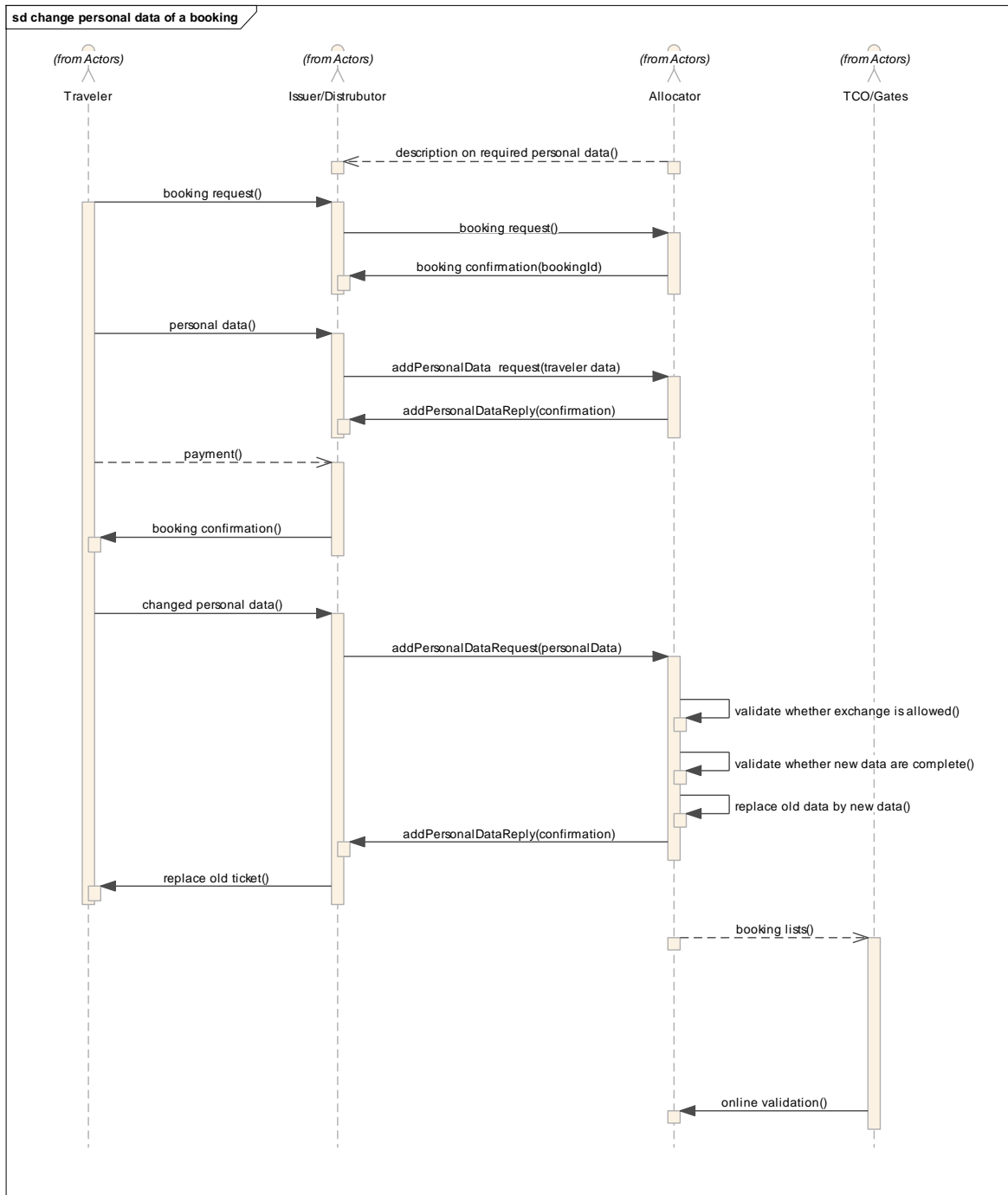
Error scenario – the personal data provided are not sufficient:

The allocating system answers with a negative reply optionally indicating the missing personal data. The issuing system can resend the completed data.

Error scenario – payment failure:

In this scenario the data exchange between issuing railway and allocating railway has no error, but the issuer cannot finalize the payment. The issuer cancels the booking and provides "before payment" as reason for cancellation. As no contract with the customer has been concluded the personal data must be deleted completely by the allocating railway.
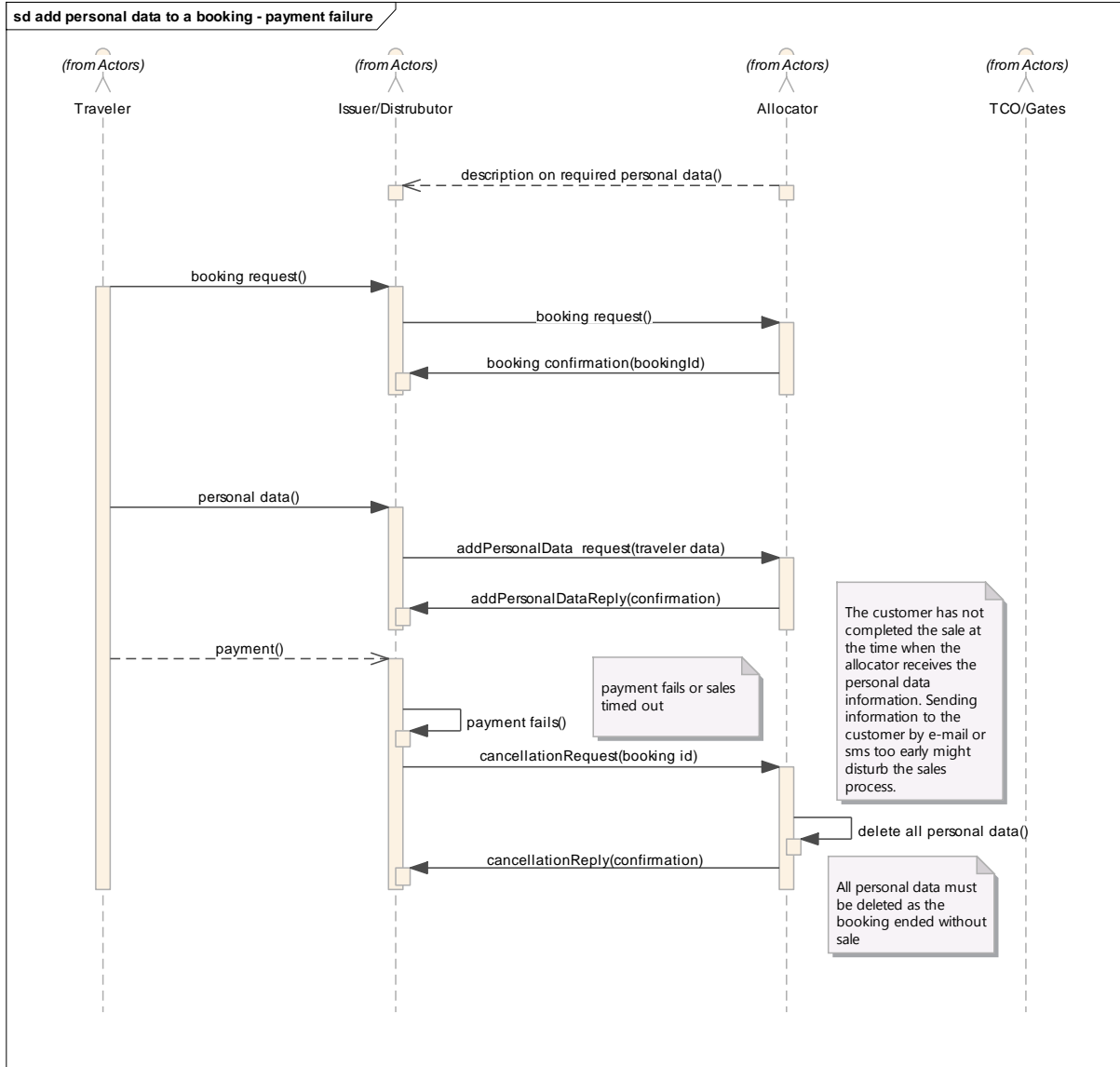
Scenarios -Change personal data of an existing booking

Scenarios included:

- regular case without errors
- error due to incomplete personal data
- error in case the exchange of personal data is not allowed (the booking is not transferable)

The following scenario describes the exchange of messages in case no error occurs and the provided data are sufficient for the booking. The allocating railway should have provided the issuer with a description on the use of personal data for its products beforehand.

sd change personal data of a booking

Error scenario – exchange not allowed:

In this scenario the provided personal data are not accepted by the allocating railway as the new personal data indicate an exchange of the passenger and the booking is not transferable. The allocating system gives a negative reply indicating that the exchange is not allowed and the booking is not changed.
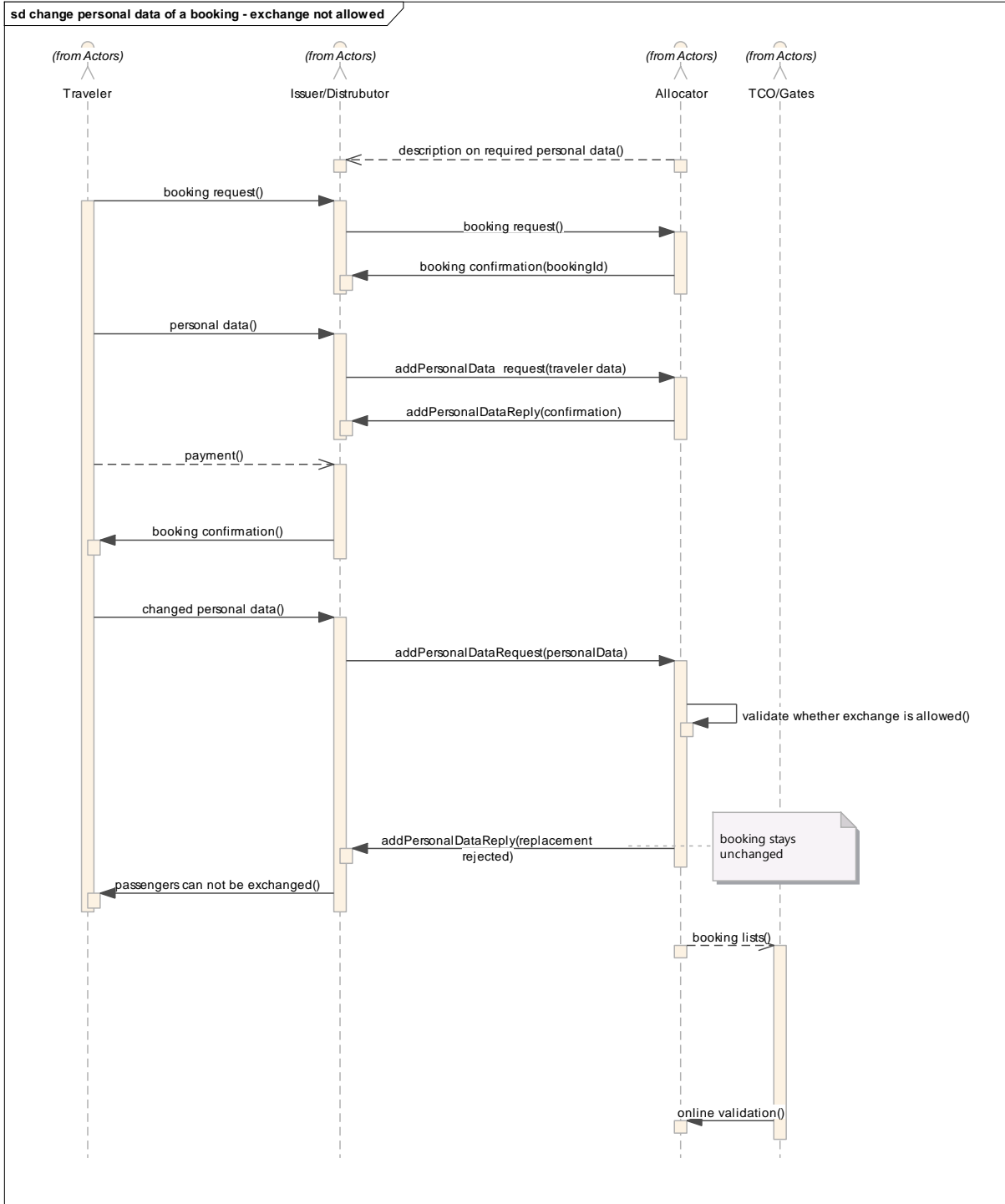
Error scenario – new personal data incomplete:

In this scenario the provided personal data are not accepted by the allocating railway as the new personal data are not complete. The allocating system gives a negative reply and the booking is not changed.
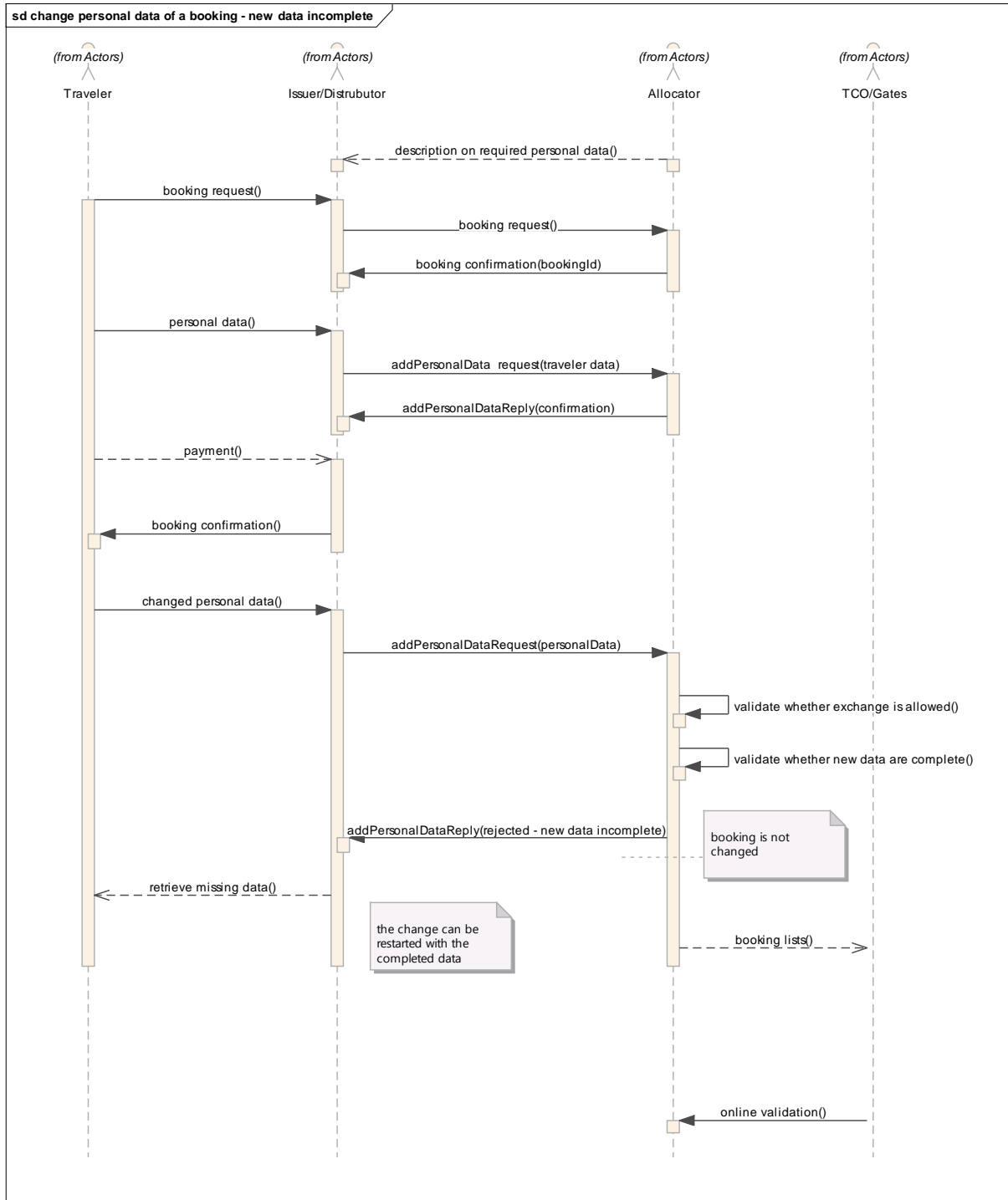
4.1.5.2. Retrieve security features for an existing booking

Security features needed to fulfill the ticket can be retrieved for an existing booking via the GetSecurityFeaturesRequest message.

The message contains the booking reference to identify the booking. The train and departure date have been added optionally to support bookings in systems where the booking reference is not yet unique. In case the security features provided in the reply contain personal data or the links provided link to data containing personal data the EU data protection regulation applies.

The FulfillmentMedium can be provided to limit the number of security features exchanged. In case of a timeout the request can be repeated. In case there is a change of the FulfillmentMedium the security features can be requested again.

GetTicketSecurityReply
The request can be repeated. The valid feature is the one returned in the last request.

RequestingRailway

TicketSecurity
1..∞

NegativeReply
- Booking not found
- Booking already cancelled
- Booking outdated
- No Security Features supported (new)
- Personal Data missing on the booking (new)

SimpleNegativeReplyType

ReplyCode

CodeTable

ErrorDescription
0..∞

MissingData
tag name of missing or incorrect data element

Text
description of the error in English for testing purpose, not designed to be displayed to customers.

Generated by XMLSpy   www.altova.com

Scenarios -Retrieve security features for an existing booking

Scenarios included:

- regular case without errors – immediately retrieving security features
- regular case without errors – delayed retrieving security features
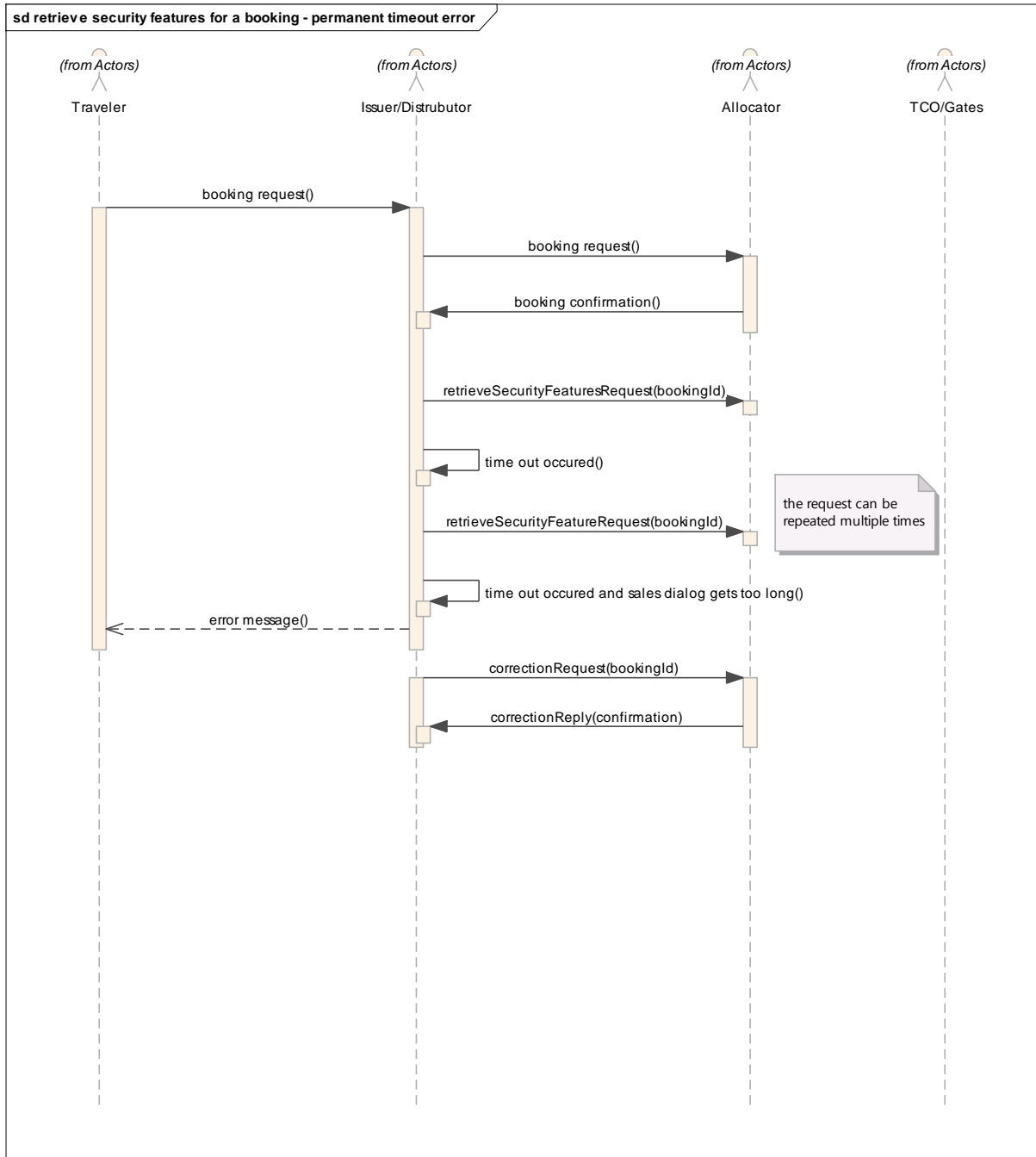- permanent timeout on a request for security features
- temporary timeout on a request for security features

The following scenario describes the exchange of messages in case no error occurs and the security features are requested immediately after completing the booking.
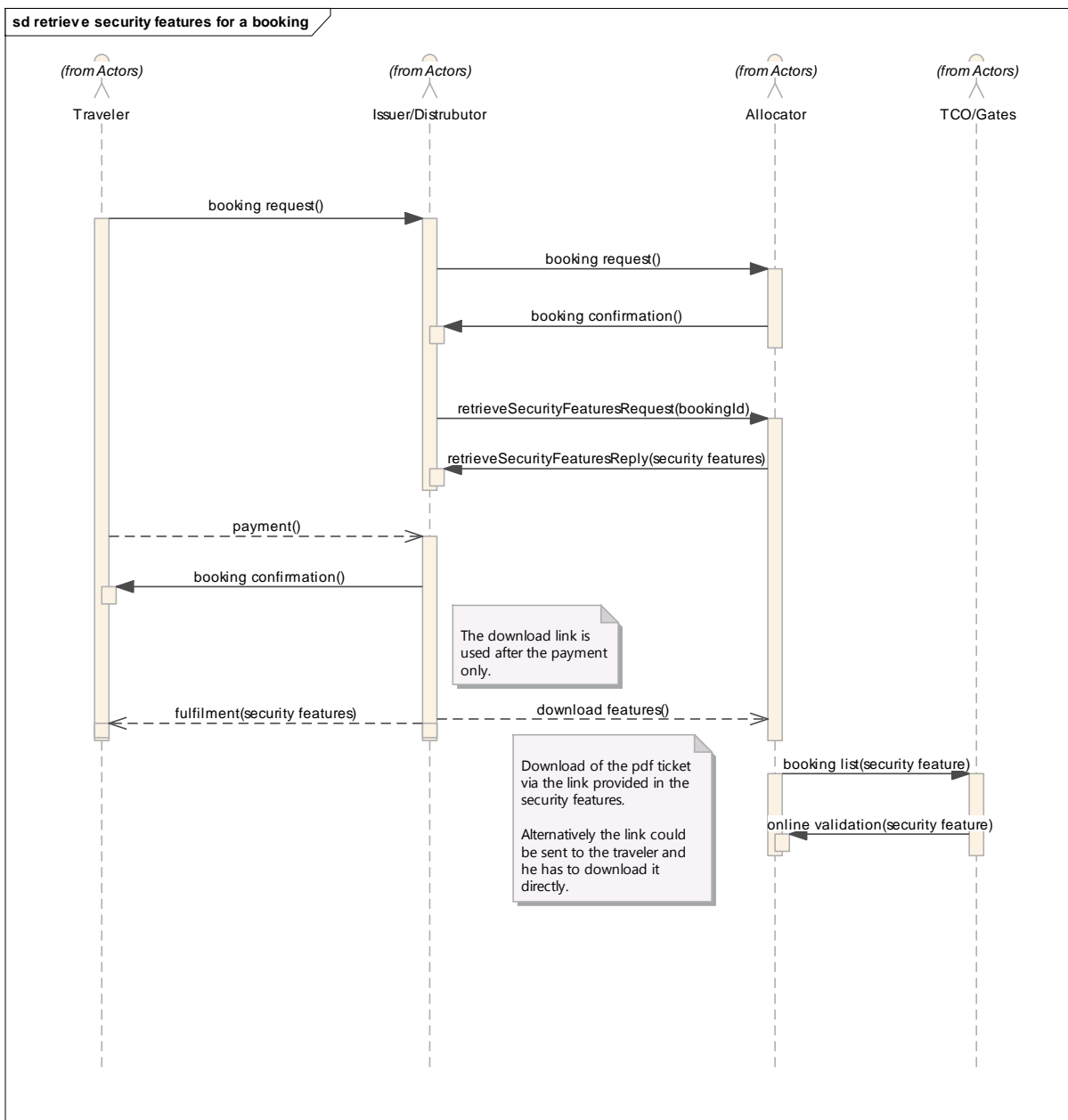
The following scenario describes the exchange of messages in case no error occurs and the security features are requested later on.
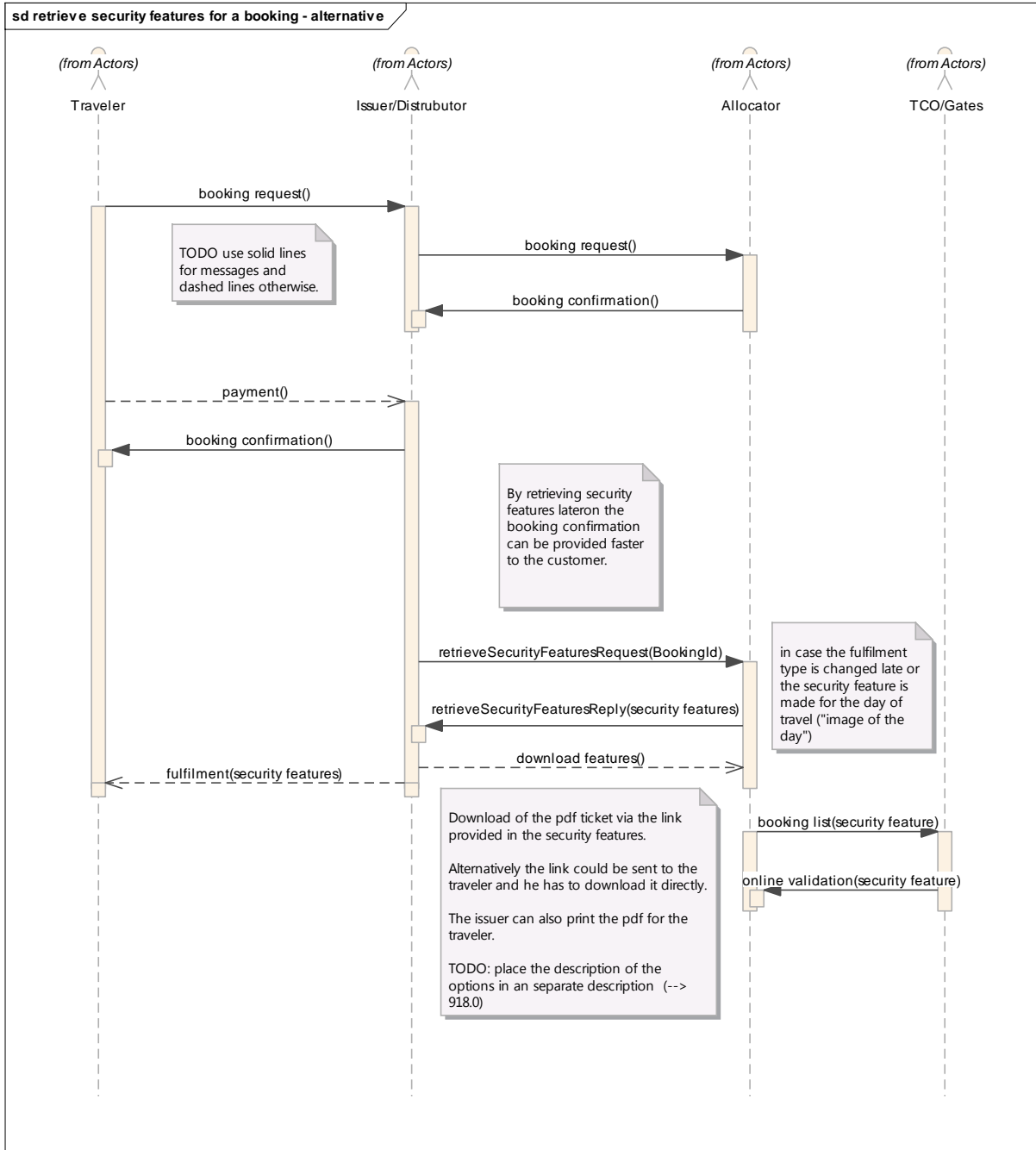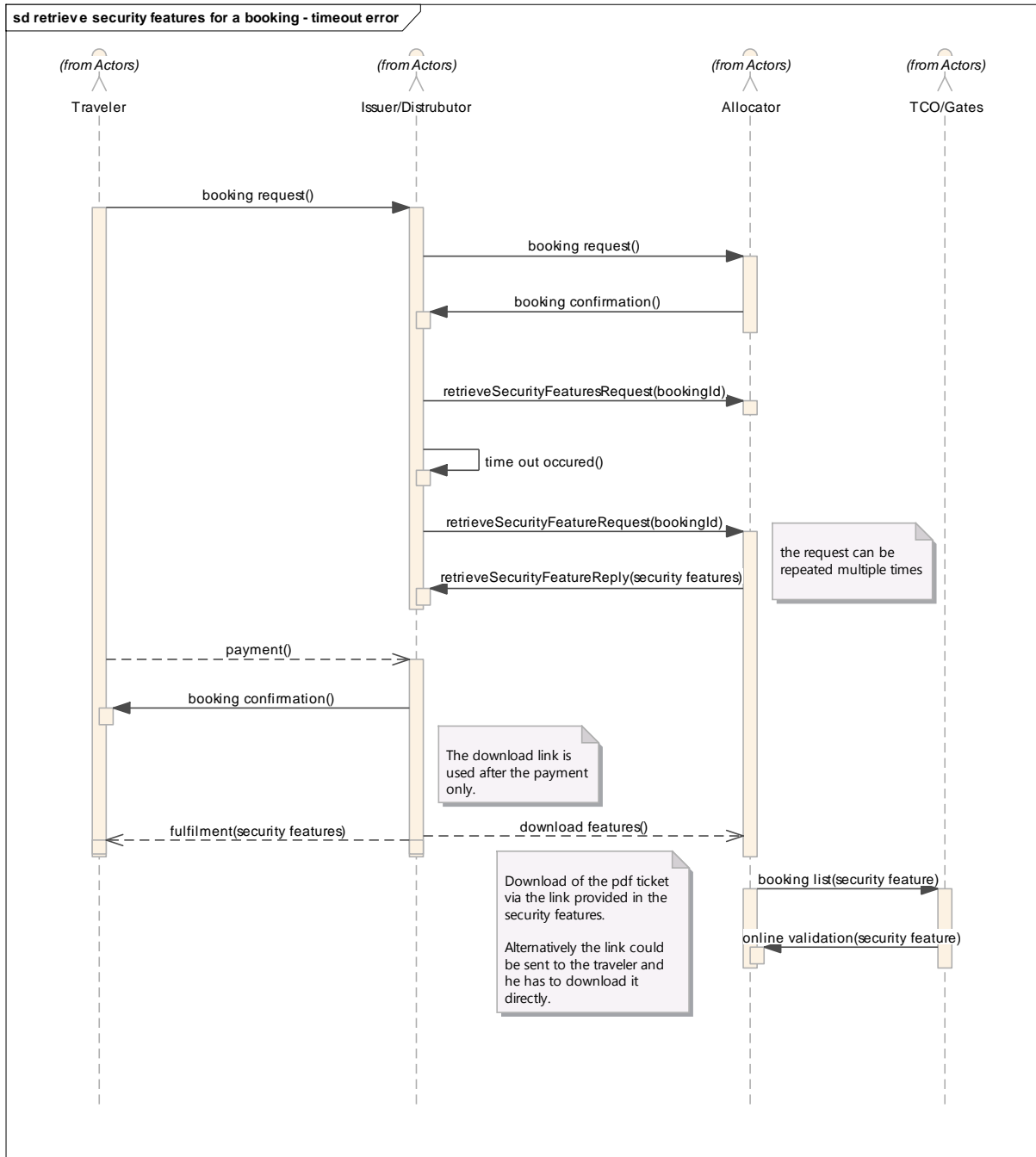
Error scenario - permanent timeout on a request for security features:

In case of a permanent timeout the booking has to be cancelled if the security features cannot be retrieved in time.

Error scenario - temporary timeout on a request for security features:

In case of a time out the request can be repeated.

4.1.5.3. *Include personal data in the reservation message*

The passenger data are added as "Passengers" list in the reservation request message.

The personal data should be provided completely or be provided in a separate message. In case personal data are provided but are incomplete the booking will be rejected with a negative reply using new error code 003.

Reservation request including personal data:
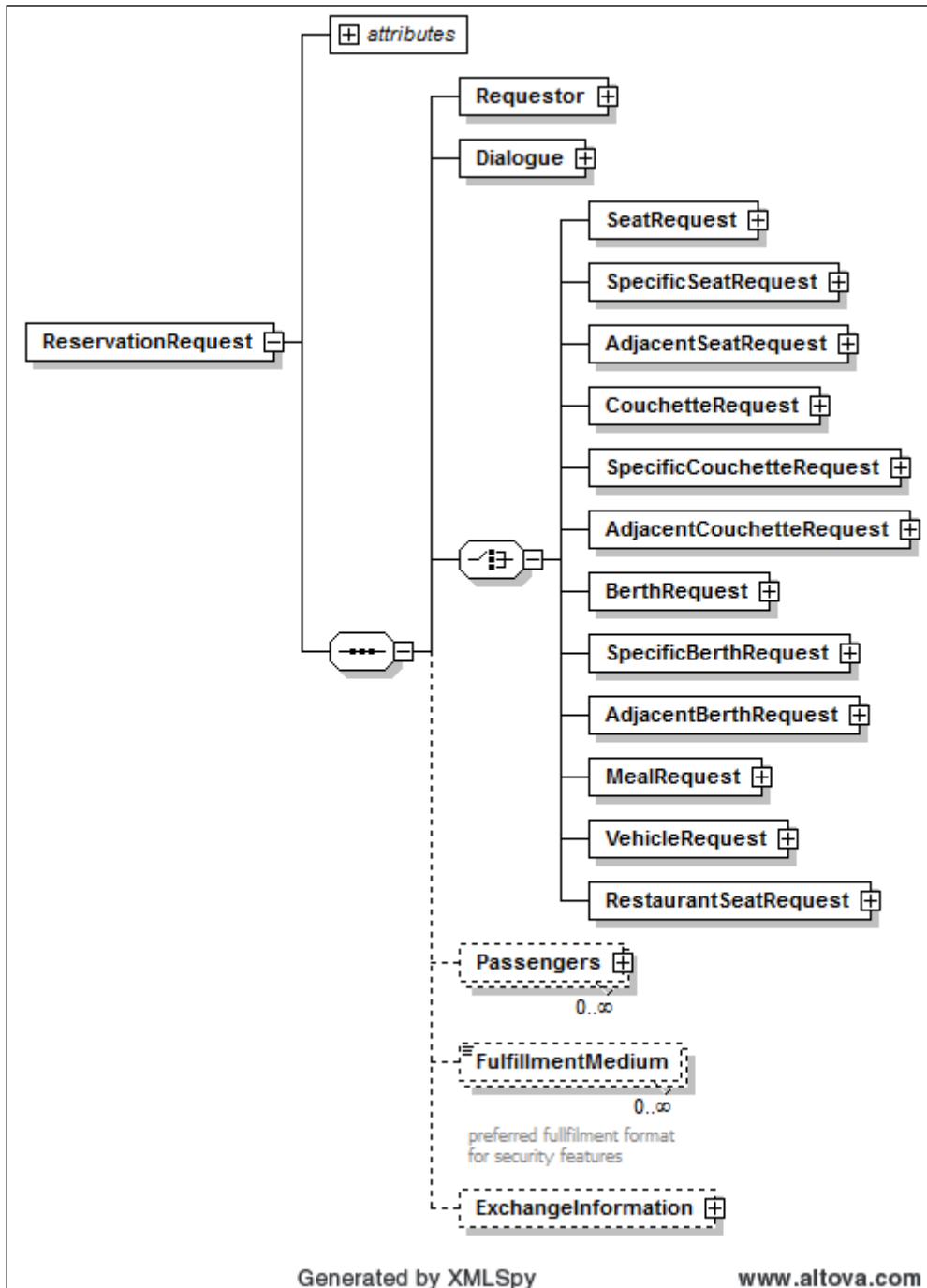
Partial cancellation request:

In case of a partial cancellations the remaining passengers are provided.
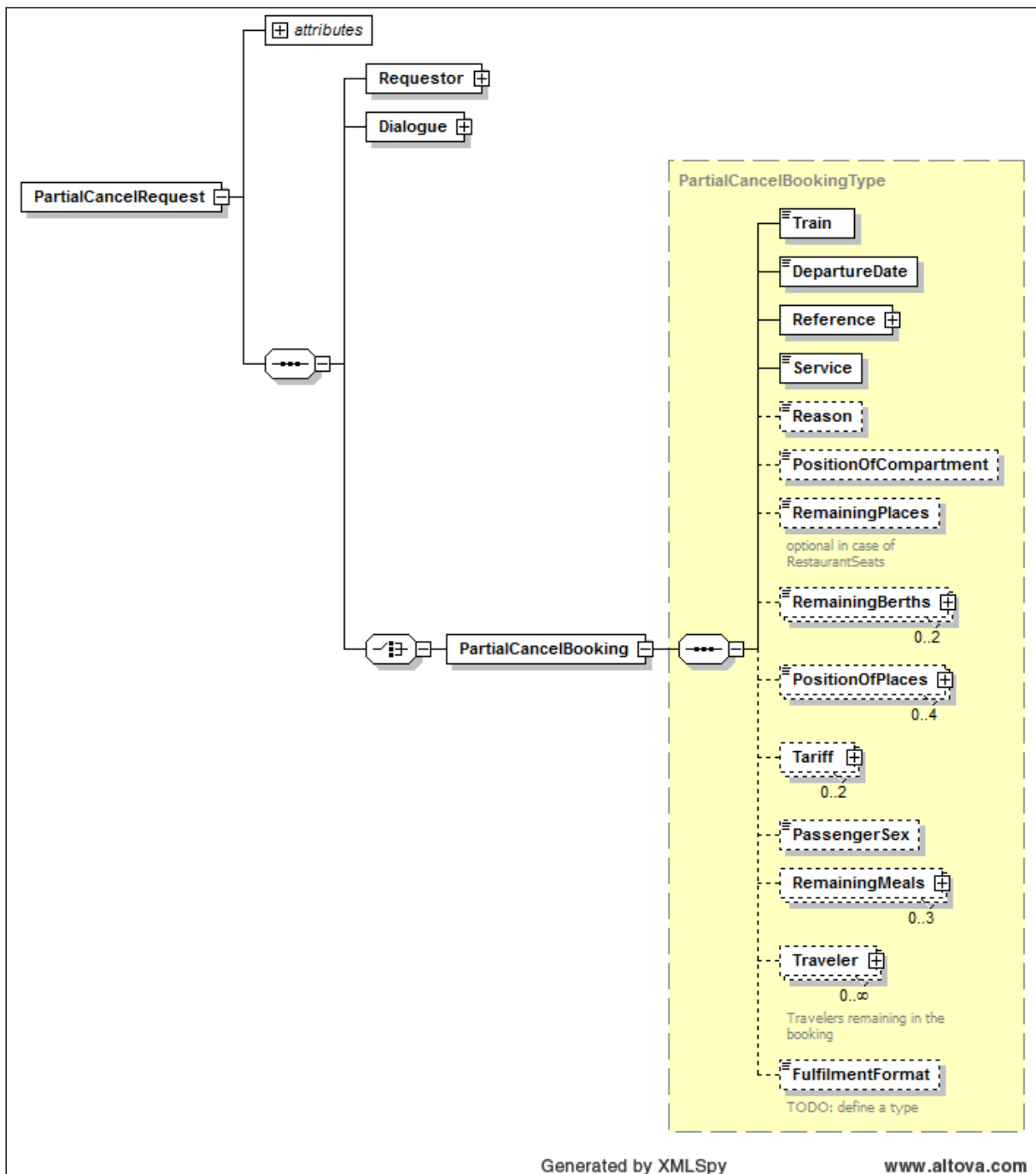
The scenarios for the message exchange in reservation apply.

#### 4.1.5.4. *Include security features in the reservation message*

The security feature list was added in the reservation reply message.

The request for reservation and partial cancellation incudes the intended fulfilment type to limit the number of security features transferred (see request message in: Include personal data in the reservation message).
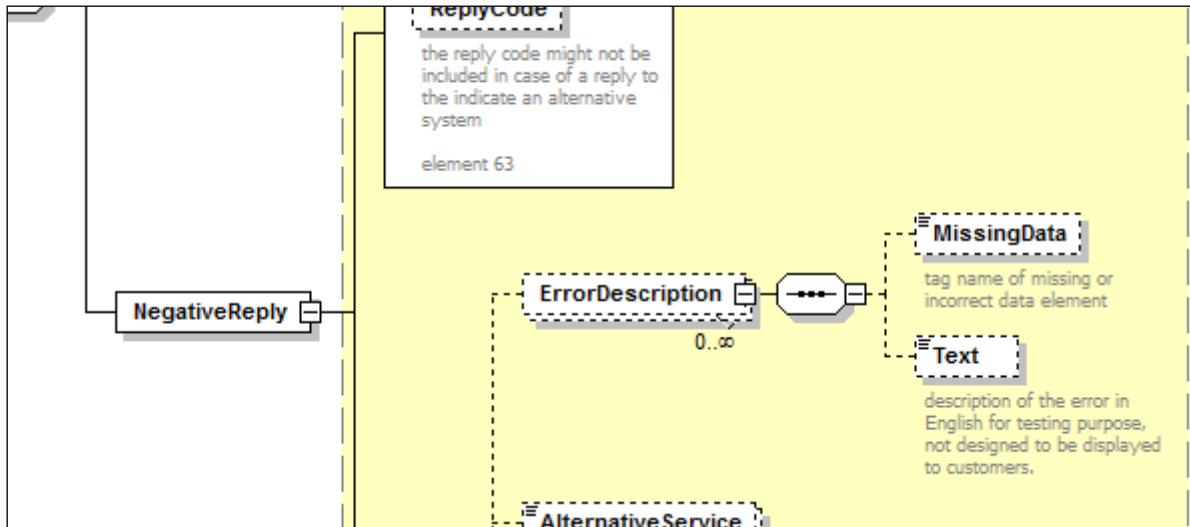
Reservation reply:
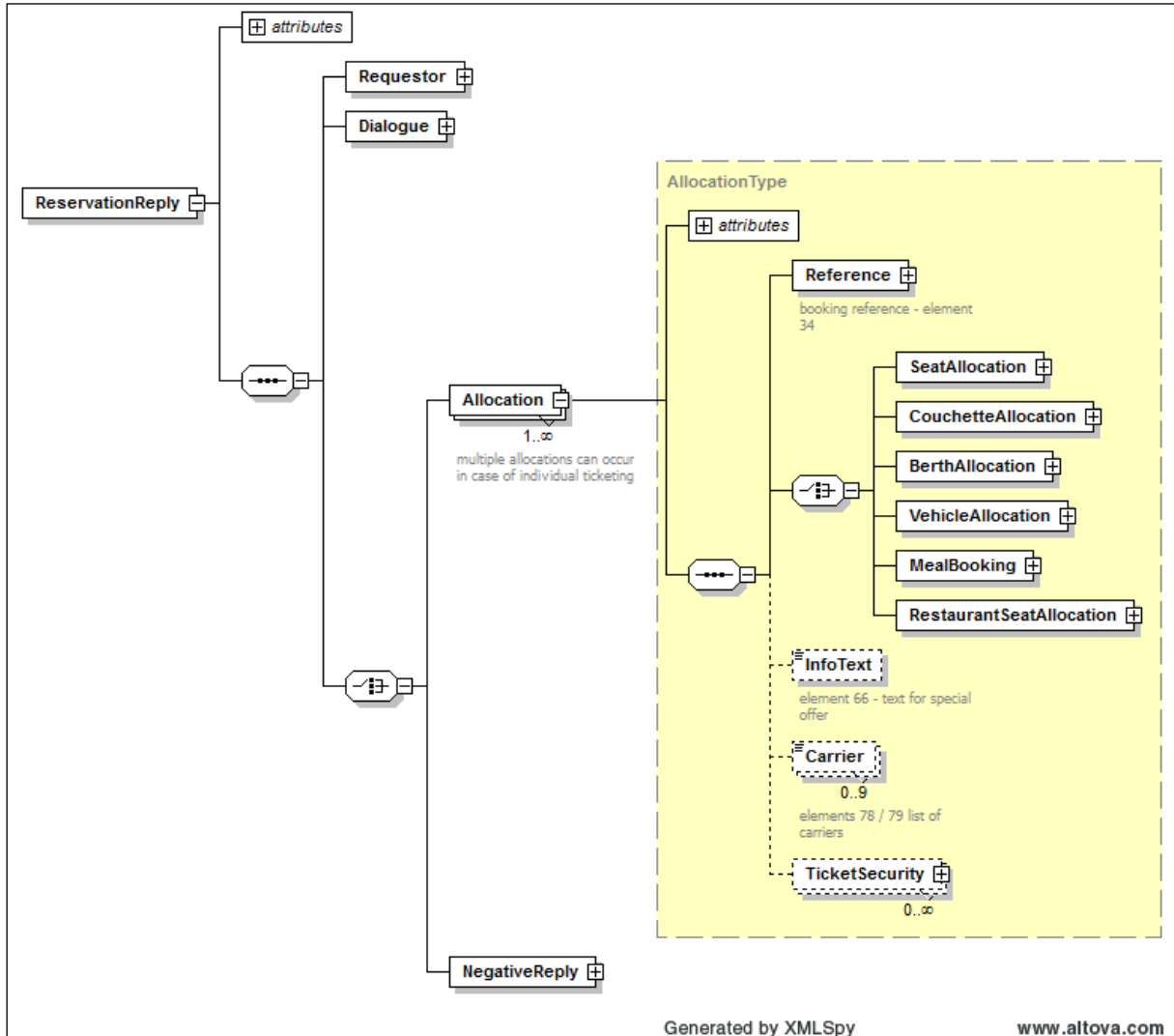
Partial cancellation reply:
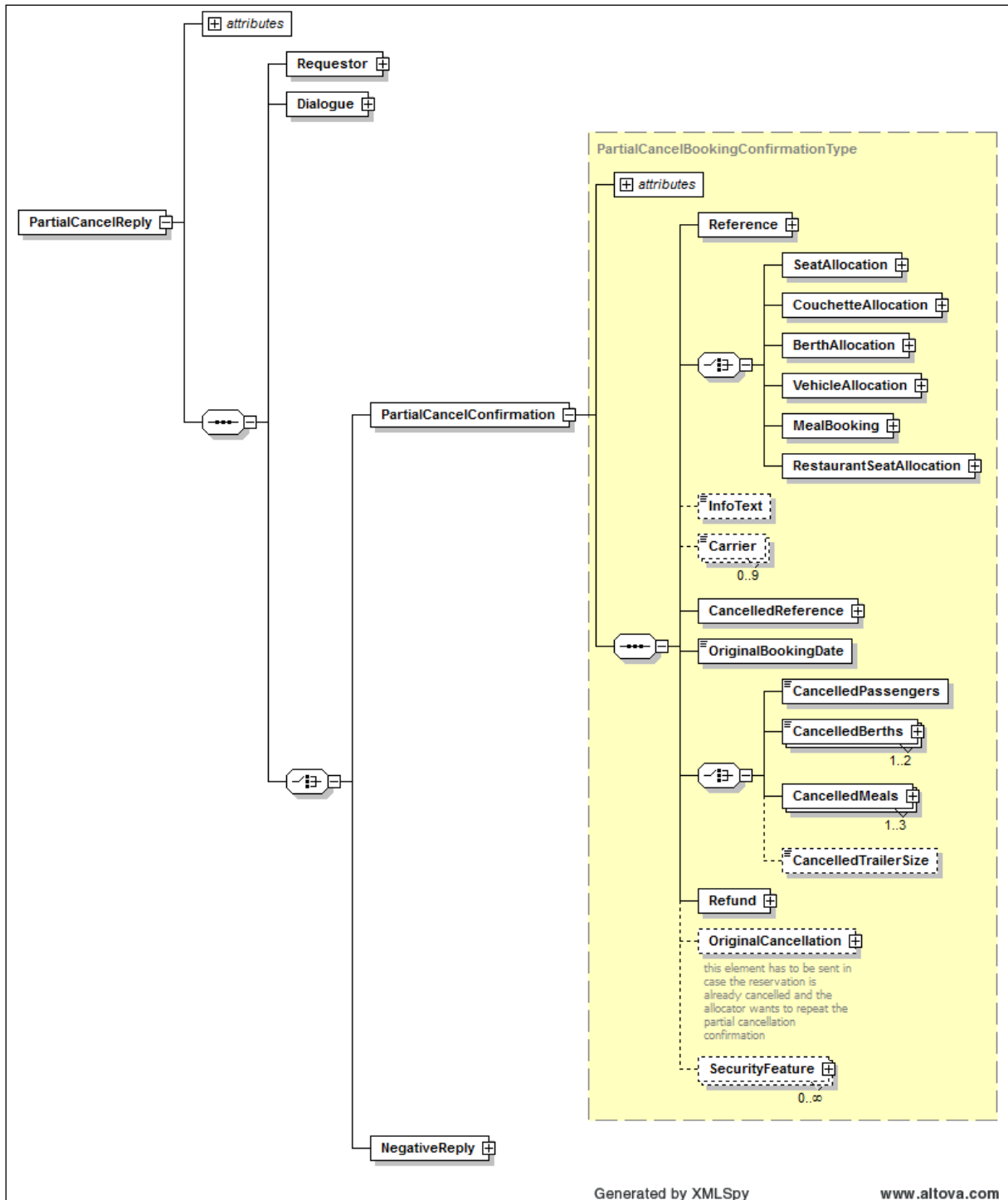
Extended negative reply to indicate missing data:

The scenarios for the message exchange in reservation apply.

4.1.5.5. *Retrieve personal data for a booking*

According to the EU regulation on personal data the customer has the right to receive information on the personal data stored for him. In case personal data have been forwarded to other companies these data must be displayed as well.

The following messages specify a service to retrieve the personal data stored at an allocator. The issuer can use this message to fulfill his legal obligations to inform the customer on the data stored for him.

It is therefore assumed that the allocator stores the personal data only to for the purpose to handle the specified booking. It is not allowed to store these data outside the context of the booking.

Request to retrieve the stored personal data for a booking:
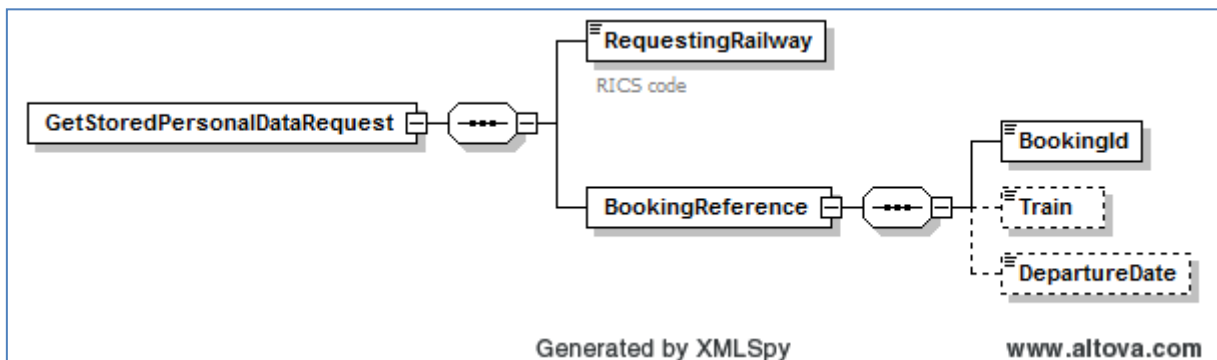
Reply on the request to retrieve the stored personal data for a booking:
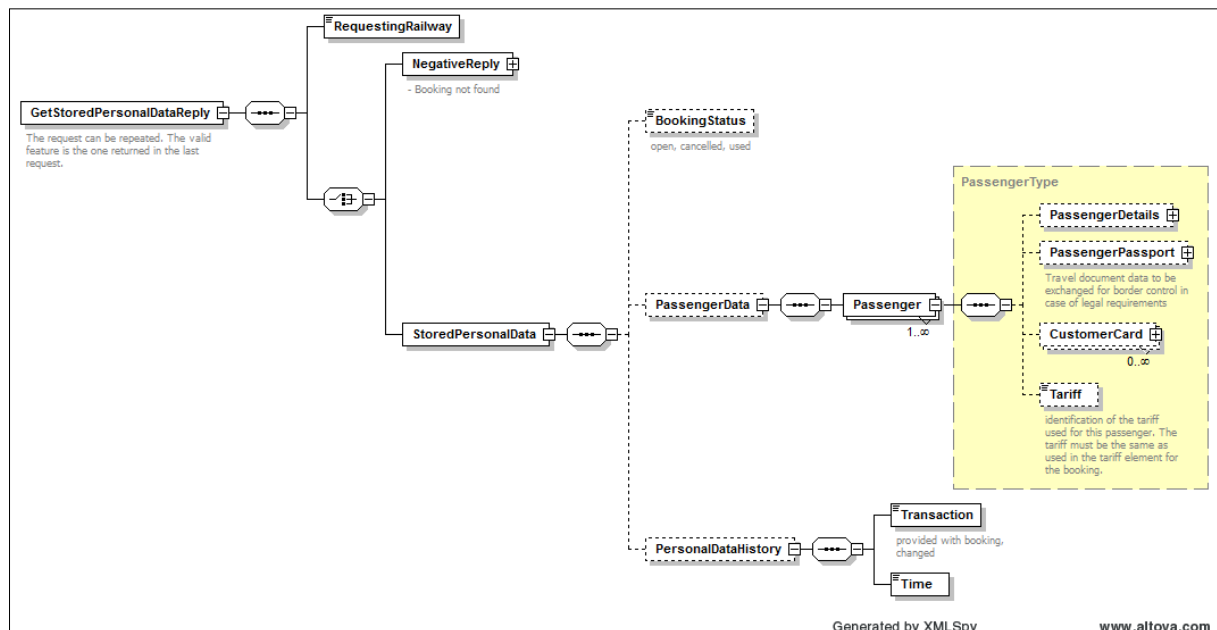
In case no personal data are stored the element "PassengerData" would be missing.

Booking Status:

open	Booking was made and nether changed
cancelled	Booking is cancelled

exchanged	Booking was exchanged
used	Booking was used. Status might be known due to ticket check on board

Transaction on personal data:

provided	Personal data initially provided
changed	Personal data changed

Scenarios -Retrieve stored personal data

The message provided allows the issuer to request the stored personal data to the passenger who booked the ticket through his system. The message provides access to the personal data stored for this booking. These data might be different from the data the issuer has provided as some data might have been deleted already.

The identification of the passenger must be done by the issuer.

In case of a timeout error the request can be repeated.
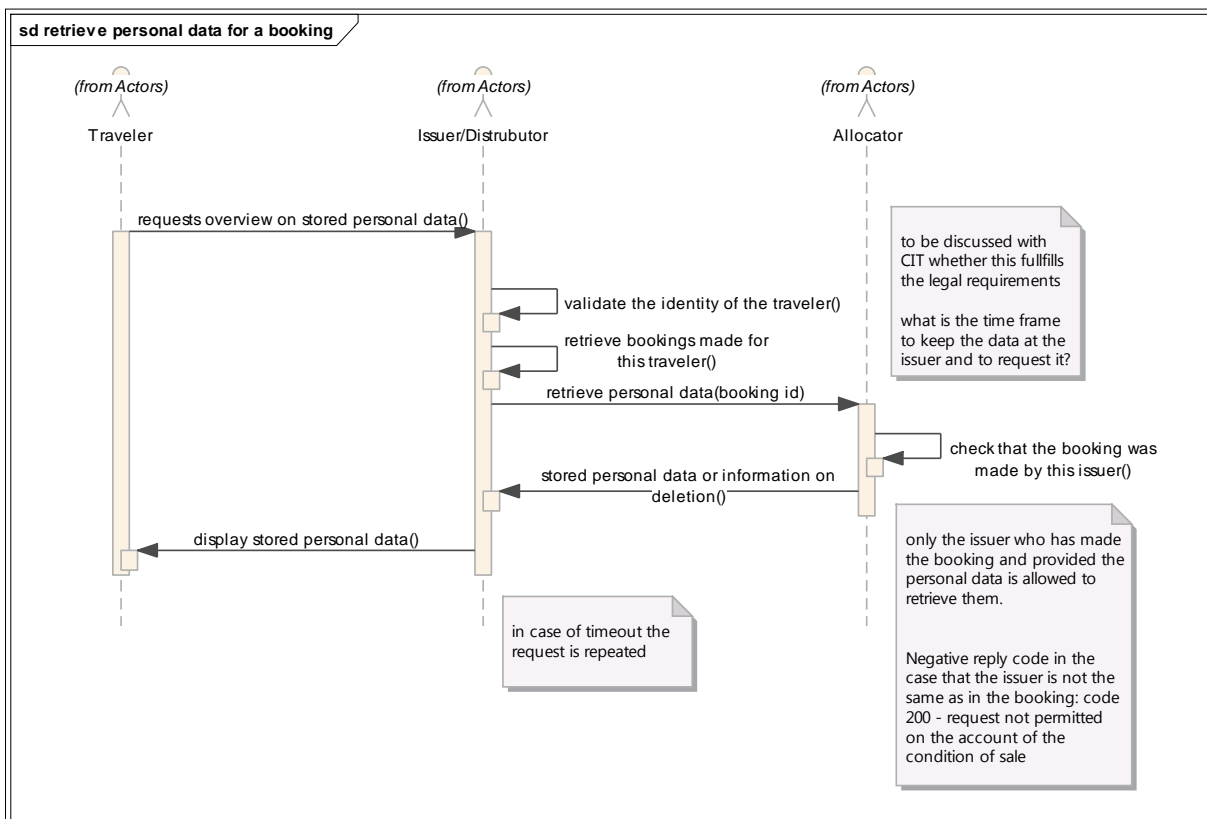
4.1.6. *Exchange*

The exchange of a reservation is currently done via a new booking and a cancellation indicating the reason for cancellation "exchange".

To allow personal data to be kept and validated in an exchange the cancellation of the old reservation and the booking of the new reservation need to be linked. The exchange information includes:

- The reference of the old reservation
- The passenger-Ids in case not all passengers are exchanged

The allocation system will copy the personal data from the original booking.

The allocating might mark the old reservation as "to be cancelled" to control exchanges.
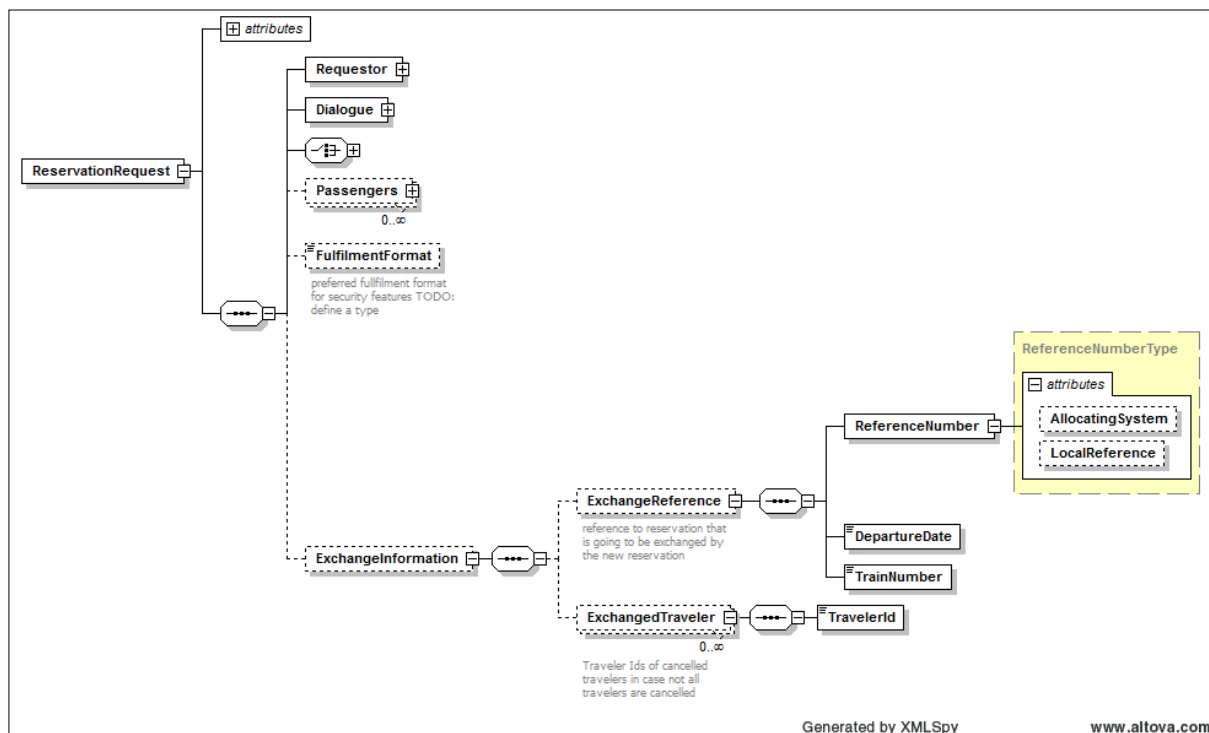
Scenarios -Exchange

The following scenarios are included:

- Exchange without errors
- Exchange with an error in the booking of the new reservation
- Exchange with an error in the exchange reference to the old booking
- Exchange with a missing "reason for cancellation – exchange" in the cancellation request.
  - o Version 1 → negative reply
  - o Version 2 →reason "exchange" is assumed
- Timeout error in the cancellation transaction
- Timeout error in the reservation transaction
- Duplicate requests for an exchange

Exchange a reservation:

The issuing railway will first request the new reservation with a reference to the original reservation. The allocating railway will copy the passenger data from the original reservation. The issuing railway will cancel the original reservation in case the new reservation was successfully booked. The reason for cancellation will indicate "exchange".
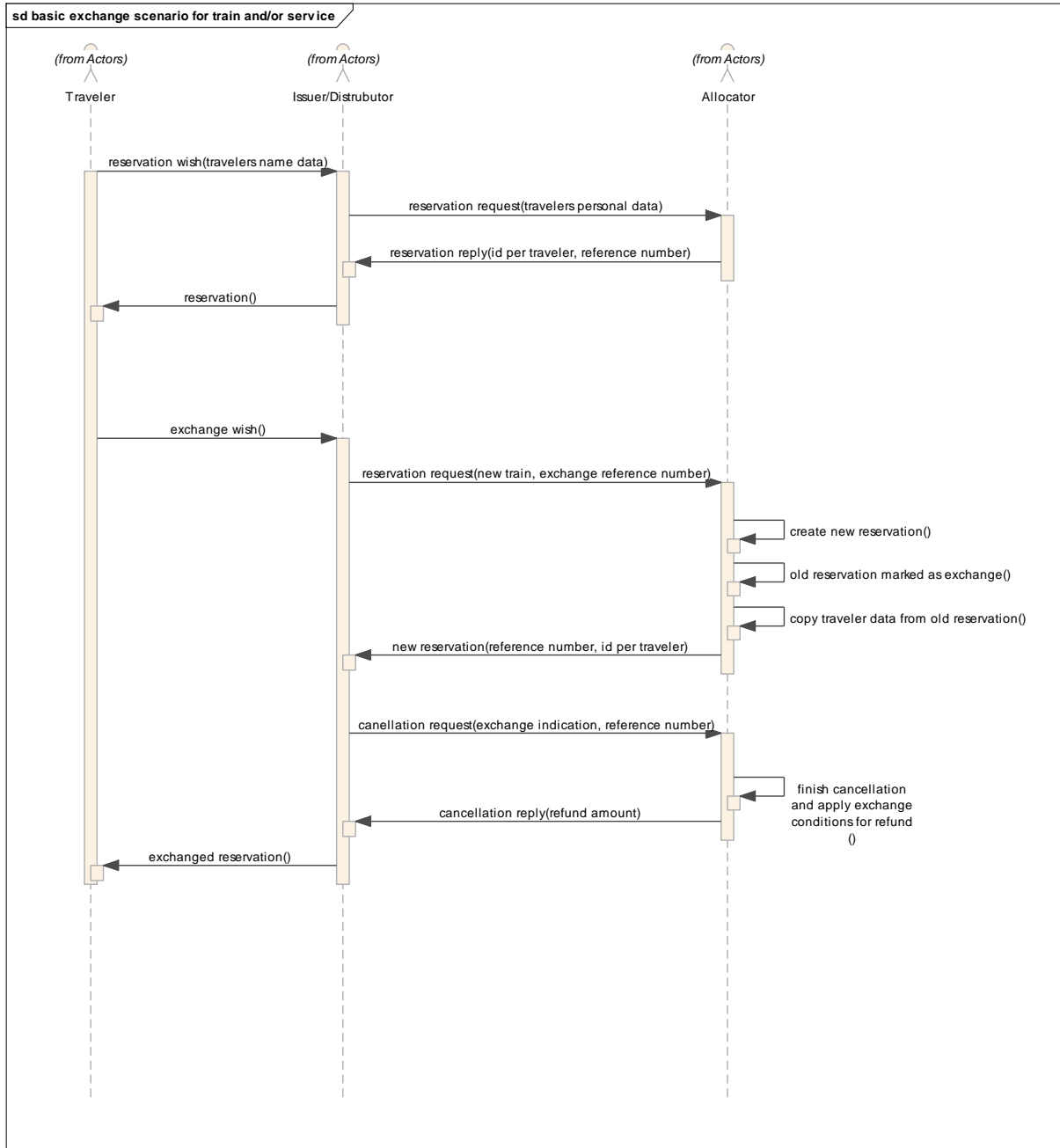
Error scenario: new reservation fails:

The issuing railway will first request the new reservation with a reference to the original reservation. The allocating railway will copy the passenger data from the original reservation. In case the new reservation fails the original reservation is still valid.
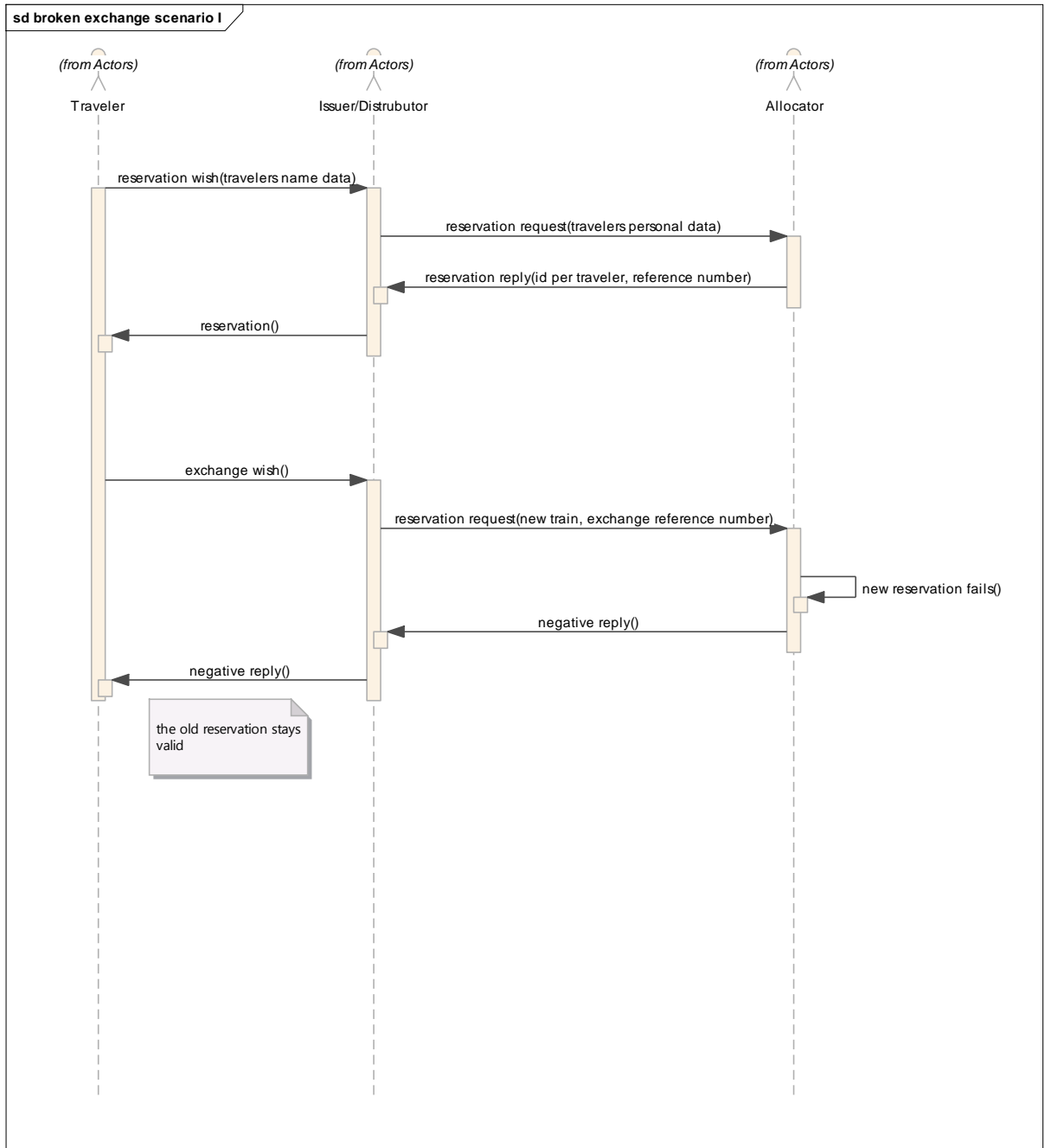
Error scenario: wrong booking reference in the request

In case a reference to an old reservation is provided in a reservation request and the old reservation cannot be retrieved or is already cancelled a negative reply is returned.
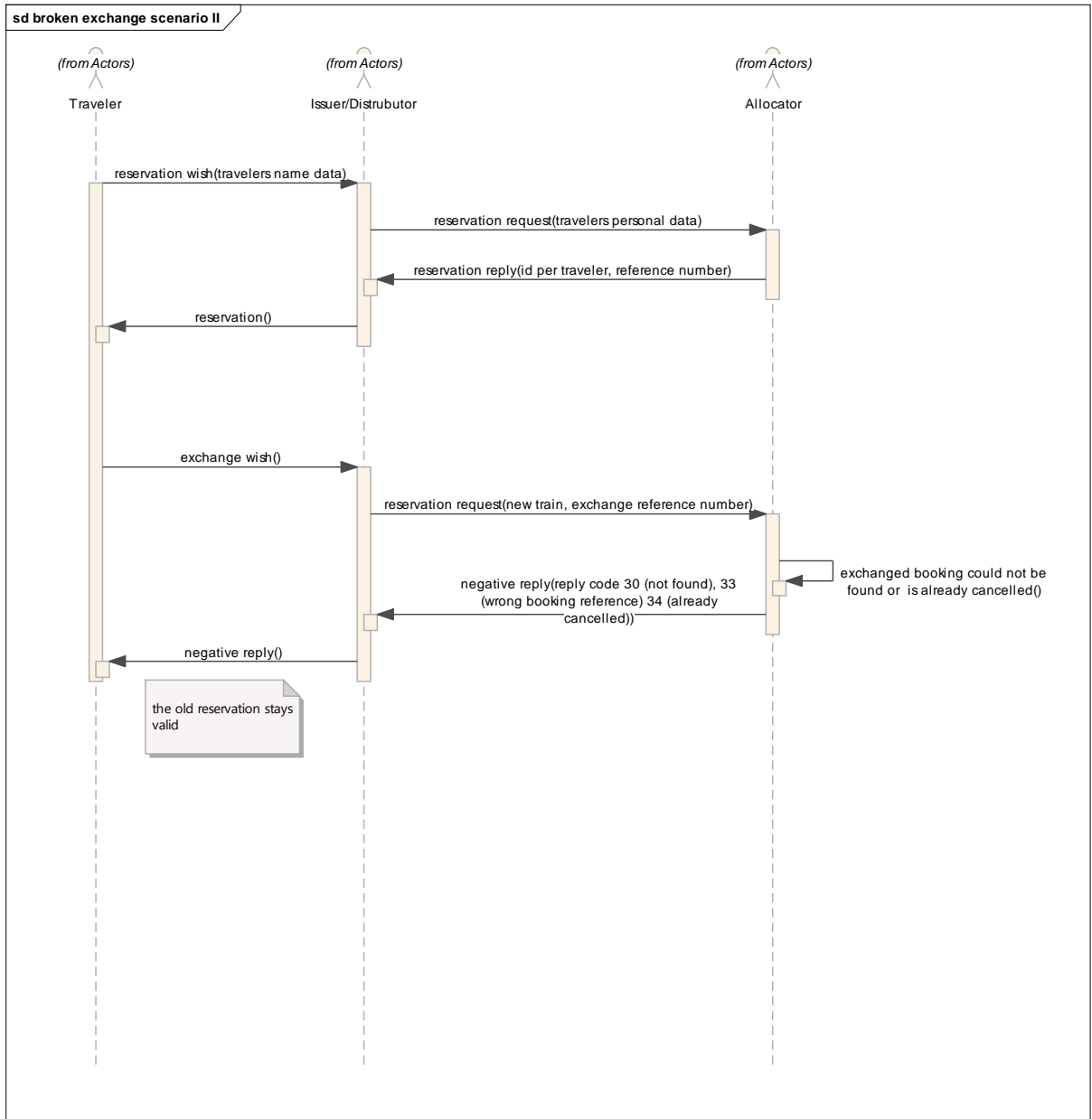
Error scenario: missing exchange indicator – version 1

In case the reason for exchange is missing but the allocating system already knows that there is a new reservation to replace this one the answer is a negative reply.
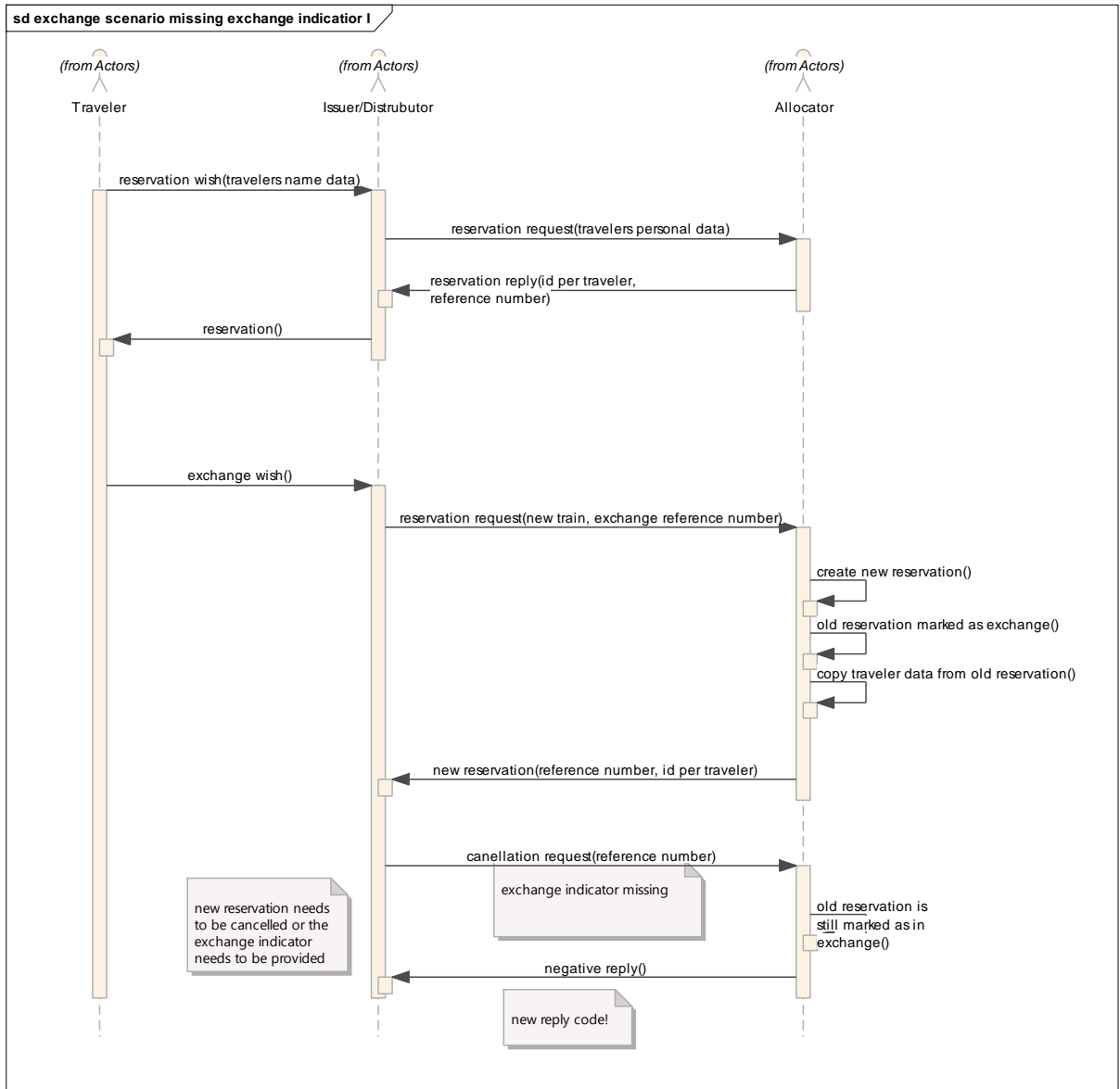
Error scenario: missing exchange indicator – version 2

In case the reason for exchange is missing but the allocating system already knows that there is a new reservation to replace this one the cancellation is processed taking the reason "exchange" into account.
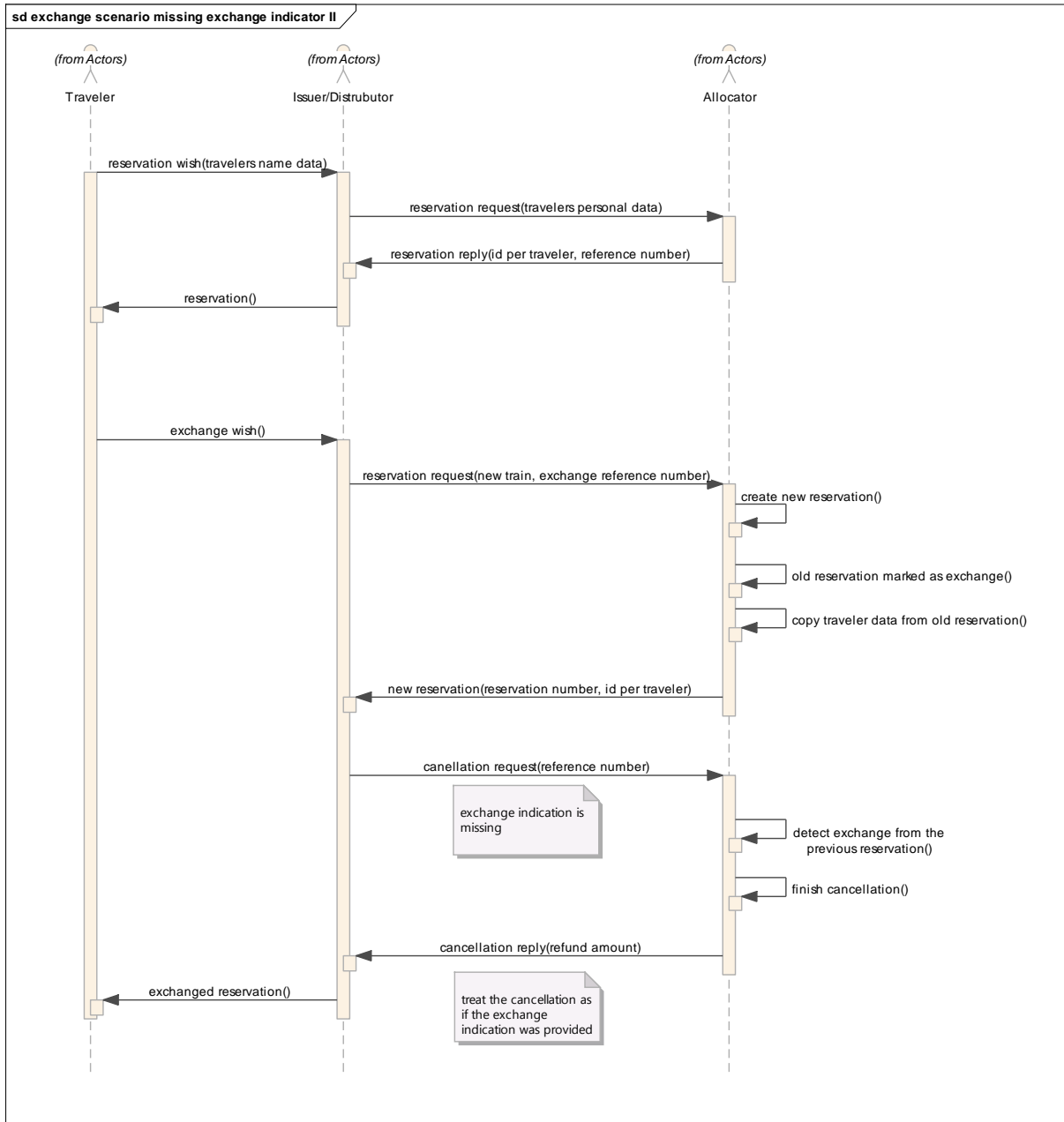
Error scenario - Time out in cancellation part

If a timeout error occurs in the cancellation part the request has to be repeated following the general rules on cancellation requests.
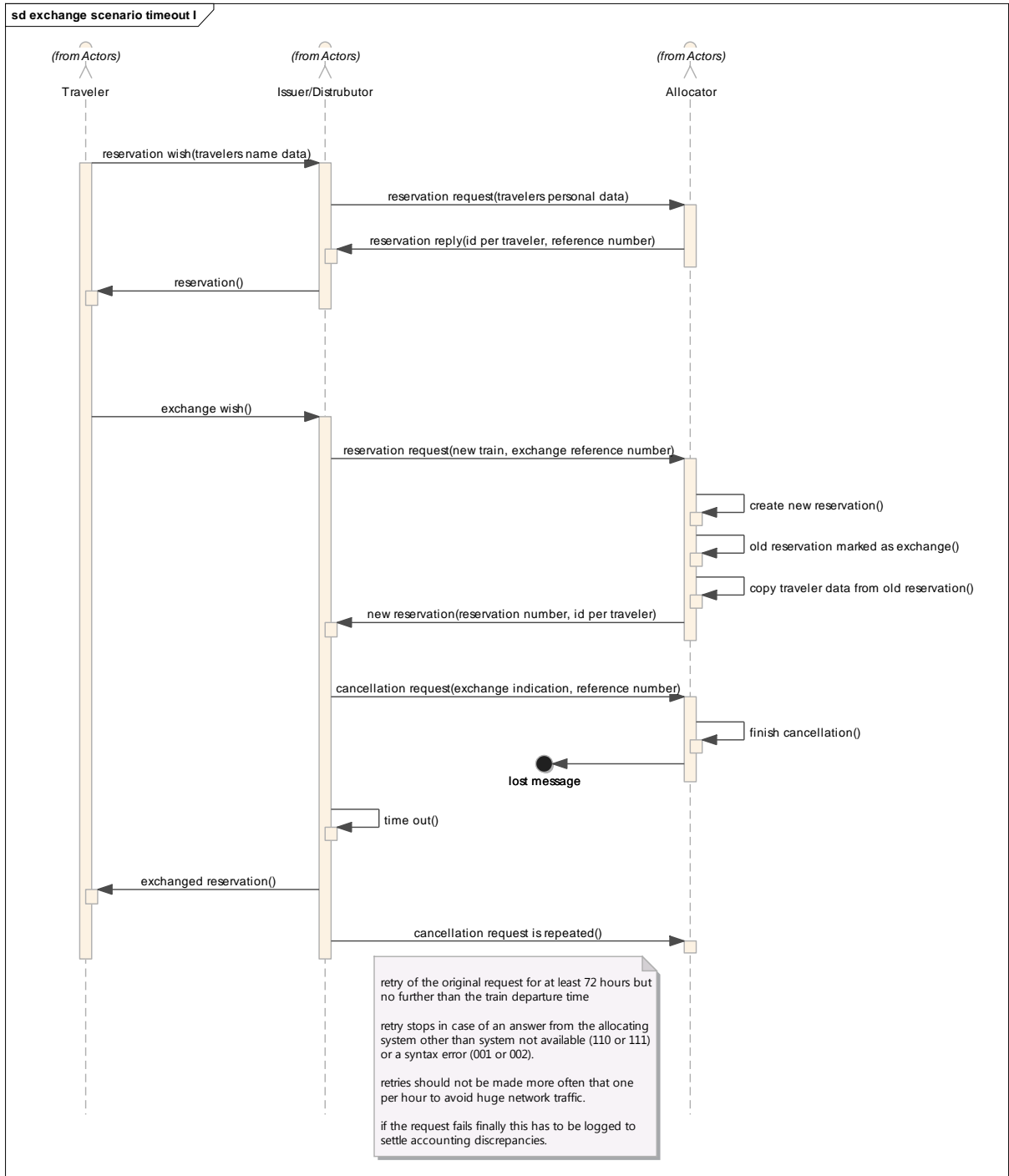
Error scenario - Time out in reservation part

In case of a timeout in the reservation request for the new reservation a synchronization request for this dialog has to be sent following the general rules for reservations. The synchronization request needs to be repeated in case the time out occurs also for the synchronization request.

In case the allocating system has marked the old reservation as foreseen for exchange this mark needs to be removed.
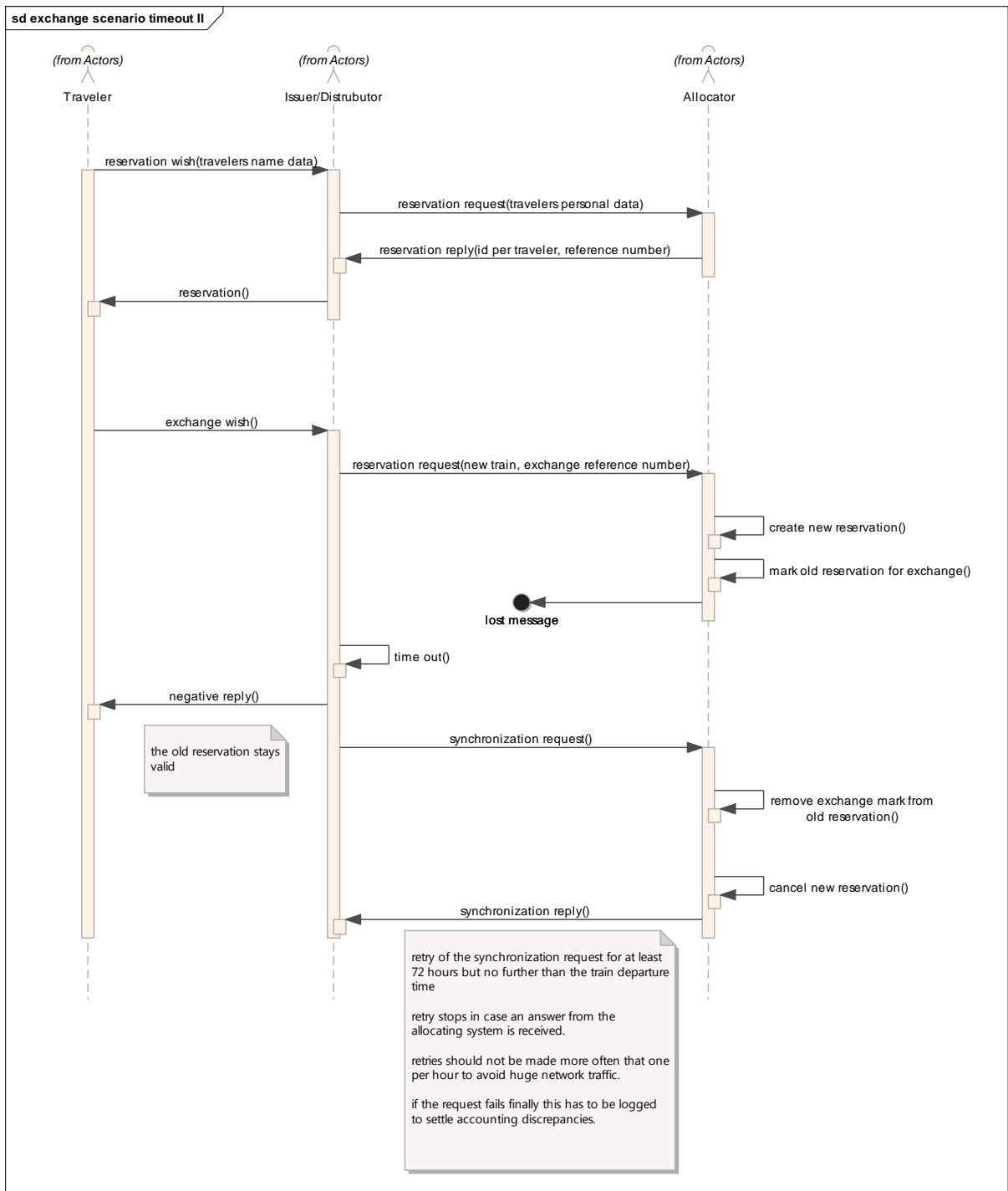
Error scenario: duplicate exchange reservation request

It should be avoided that one reservation is used as exchange reference multiple times. In case of a reservation request with an exchange reference for a reservation that was already foreseen for exchange an error reply is given. The issuer needs to remove the previous reservation via a synchronization request or a cancellation request first before he can try another exchange.

In case exchange of one reservation into multiple reservations should be allowed the allocating railway has to implement more complex rules to cover these cases.
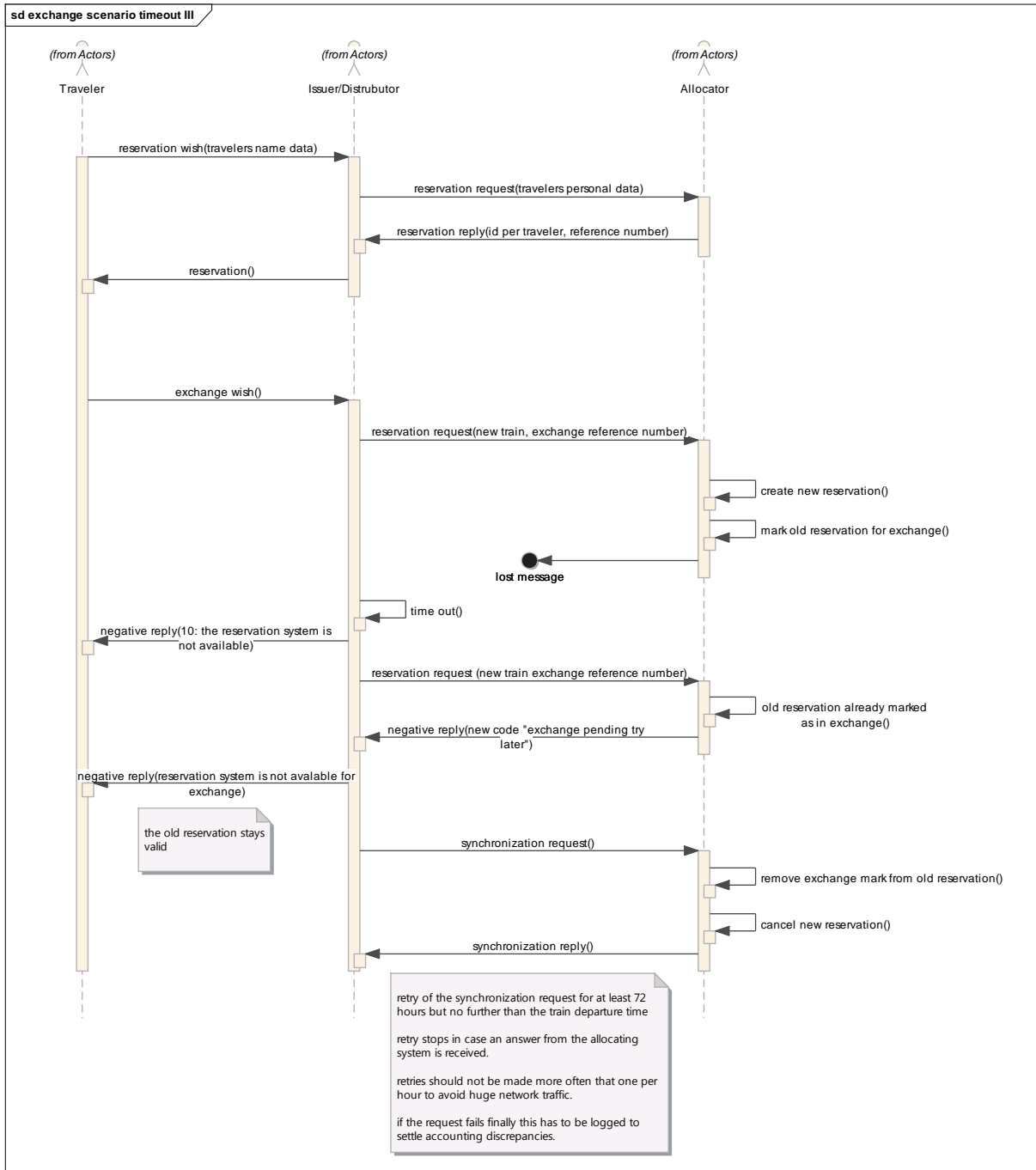
4.2. Translation rules for XML to Binary messages

4.2.1. Binary <-> XML translation rules:

A translator is in the role of a processor of personal data as defined in the EU data security regulation and has to fulfill the requirements of this regulation. CIT provides a guideline on CIT-RAIL.ORG.

In case a translation service is used it is recommended to use URL shortening to avoid problems with the limited data length of binary messages. The extensions in the negative reply message (indication on missing personal data) will not be translated in binary format. After each transaction the translator will delete the personal data.

Binary element	XML tag	translation
FulfillmentMedium	FulfillmentMedium	Code translation to 1 digit code: • A - "RCT2" security feature for secure paper RCT2 • B - "RCCST" security feature for secure paper RCCST • C - "paper" security feature for blank paper • D - "phone" security feature for smart phone • E - "noMedium" travelling with an Id or Card (SIS Security in System)
PassengerData.FirstName	From XML to binary: FirstNameICAO if present FirstName otherwise From Binary to XML: the name is filled into FirstNameICAO	Copy / ICAO transliteration

PassengerData.LastName	From XML to binary: LastNameICAO if present LastName otherwise From binary to XML: The name is filled into LastNameICAO	Copy / ICAO transliteration
PassengerData.DateOfBirth	DateOfBirth	Date to DDDYYYY
PassengerData.CountryOfBirth	CountryOfBirth	copy
E-Mail	Email	copy
passengerId	passengerId	copy
ControlId	ControlId	copy
URL type	DownloadDocumentType	A = pdf B = any
URL	TicketLink	copy
Exchange Reference.reference	ExchangeReference. RererenceNumber	copy
Exchange Reference.train	ExchangeReference. TrainNumber	copy
Exchange Reference.date	ExchangeReference. DepartureDate	Date to DDDYYYY

5.   Coding the message element "Reservation"

5.1.   Header

1 - Receiving reservation system

Length = 2, coding = numerical

See Code List B.5.1

2 - Sending reservation system

(see element 1)

3 - Dialogue number

Length = 5, coding = numerical

Reservation:

In the dialogue operation, the dialogue number is the only information which enables the reply received to be related to the request submitted. This number is given by the requesting reservation system. The reservation system addressed quotes the number in the reply.

4 - Number of day in the year

Length = 3, coding = numerical

Within a year, the day on which the message is sent. In the response message the day is given by the allocating reservation system. (It is also the accounting date).

In case of a synchronization request the date must be the date of the initial reservation request. In the synchronization response message the day is given by the allocating reservation system.

5 - Type of message

Length = 1, coding = numerical

See Code List B.5.5

6 - Type of service

Length = 1, coding = numerical

See Code List B.5.6

The following table gives the possible combinations of the type of message and type of service elements:

Type of message	Code	Type of service							
		0	RES 1	AT 2	AP 3	ECH 4	MR 5	AD 6	APR 7
DEM	1	-	X	X	X	X	X	-	-
REP	2	X	X	X	X	X	X	-	-
MNS	3	-	-	-	-	-	-	X	X

7 - Number of the requesting terminal

Length = 7, coding = alphanumerical

The terminal number is made up as follows:

5 digits: main code location part as specified in *ERA TAP TSI Technical Document B.9* (see Bibliography). If this is not possible, another code is permissible.

2 digits: serial number of the terminal in the office.

For protocol messages, this element contains the value = 0000000.

8 - Type of requesting office or type of protocol message

Length = 1, coding = numerical

Reservation:

See Code List B.5.8

9 - Number of the application version

Length = 1, coding = numerical

In the operation, the same version number applies for all connected reservation systems. If it is changed, a standard first validity day must be specified for all reservation systems.

0 = Standard version

1 = Non-standard version

10 - Field at disposal

Length = 2, coding = alphanumerical

Reservation:

The field contains information from the requesting system which must be quoted back unchanged by the replying system (not with protocol messages).

With protocol messages, the following values are possible:

Reply to a synchronisation request

Code = 00

− correction of the reservation file was needed (reservation or partial cancellation request), the reservation was corrected,

− the cancellation was processed (the reservation file was already corrected),

− the complete cancellation was effected (the reservation file remains unchanged).

− **Code = 20**

− The receiving application cannot recover (lost dialogue). Inclusion in the litigation files by the sending reservation system.

Code = 30

− The original request was not processed or negatively replied:

- for cancellations, the sending reservation system includes it in the litigation file
- for a reservation, partial or complete cancellation request, no special processing takes place.

Synchronisation requests

Code = 00

− the session was interrupted.

Code = 10

− a time-out occurred.
−
Throughput messages

Not being used for the seat reservation application for the time being.

Code 01-99

− specified throughput quota.

11 - Test
Length = 1, coding = numerical

See Code List B.5.11

In case of a reservation request with this value 9 the reply messages should at least contain the correct price, at the time when the reply was sent, for the requested tariff, class, etc. If the tariff is not allowed, or not available for the requested train the reply should be a negative reply. The reference number element should in the first 2 positions hold the reservation system number, while the following digits should hold 10 zeroes.

The desired (but not obligatory) action is that the request is evaluated identical to a real booking, but the booking is not made persistent. In that case if no place (or no place with requested attributes including tariff) is available the result should be a negative reply. It is desired, that in a positive reply the element 50 contains relevant place numbers and correct place codes, element 27 the relevant coach number and element 51 the type of compartment that could have been allocated.

No accounting record will be made for these transactions. There must not be correction or synchronisation requests made related to these transactions.

In case of a cancellation info request (includes partial cancellation info) with this value 9, the reply message should at least contain the correct refund amount for the number of cancelled places at the time when the reply was sent. The reference number element in the partial cancellation reply should in the first 2 positions hold the reservation system number, while the following digits should hold 10 zeroes.

The desired (but not obligatory) action is that the request is evaluated identical to a real cancellation, but the cancellation is not made persistent. If for the requested tariff no refund is defined, than it will be given a positive reply with the refund amount is zero.

In case of a given incorrect reference number, wrong tariff, wrong number of places etc. a negative reply will be sent.

No accounting record will be made for these transactions. There must not be correction or synchronisation requests made related to these transactions.

12 to 14 - Not used

5.2.   Prefix "Application Text"

15 - Service
Length = 2, coding = numerical

See Code List B.5.15

16 - Type of the request or reply
Length = 1, coding = numerical

    0 = Listing

    1 = Request for normal seat

    2 = Request for a particular seat

    3 = Request for adjacent seat

    4 = Confirmation

    5 = Replacement proposal for other service

    6 = Replacement proposal for other train

    7 = Replacement proposal for other reservation system

    8 = Negative reply

    9 = Free

The tables below give the possible combinations of the service elements and type of the request or reply.

The following combinations are possible for requests:

Service	Type of request			
	Code	N 1	D 2	V 3

ASS	01	X	X	X
CC	02	X	X	X
VL	03	X	X	X
RP	04	X	X	X
VR	05	X	-	-
AUT	06	X	-	-
AUB	30	X	-	-
PB	31	X	-	-
VSC	40	X	-	-
HO	50	X	-	-

In the event of cancellation and exchange requests, the element type of request is not significant (Coding = 0).

The following combinations are possible for replies:

Service		Type of reply				
	Code	ACC 4	PRP 5	PRT 6	PRR 7	RN 8
ASS	01	X	X	X	X	X
CC	02	X	X	X	X	X
VL	03	X	X	X	X	X
RP	04	X	X	X	X	X
VR	05	X	-	-	X	X
AUT	06	X	-	X	X	X
AUB	30	X	-	X	X	X
PB	31	X	-	X	X	X
VSC	40	X	-	-	-	X
HO	50	X	-	-	-	X

For replies to cancellation or exchange requests, only the codings 4 (confirmation) and 8 (negative reply) are possible for the element type of reply.

For replies to a rectification, only the codings 4 (confirmation) and 8 (negative reply) are possible.

17 - Serial number

Length = 2, coding = numerical

Application texts are transmitted together in a message, that is to say with a particular dialogue number and connected by the serial number. The numbering is done in decreasing order.

The lowest value is "01".

18 - Type of text

Length = 2, coding = numerical

See Code List B.5.18

19 – Not used

5.3.   Application text

20 - Train

Length = 5, coding = alphanumerical

20A Train number

In the requests, this is generally the number which the train has at the boarding station of the passenger or at the departure station of the car-carrying train.

In the confirmations, it is always the number which the train has at the boarding station of the passenger or the loading station of the car.

In the replacement proposals, it is the number of the proposed train.

20B Original train number

This is the train number in which the ticket to be exchanged was issued.

20C Train number for return journey

21 - Date

Length = 4, coding = numerical

2 digits for the day

2 digits for the month

21A Departure date

In the requests and in the confirmations, this is the date of departure of the train from the passenger's boarding station or the departure date of the car-carrying train. In the replacement proposals, it is the departure date of the proposed train if this differs from that of the requested train.

21B Original departure date

This is the date of departure on the ticket to be exchanged.

21C Loading date

This is the car loading date at the departure station of the car-carrying train.

21D Unloading date

This is the date on which the car is unloaded at the arrival station of the car-carrying train.

21E Date of breakfast

This is given when the date of the meal is different from the departure date at boarding station.

21F Date of lunch (see element 21 E)

21 G Date of dinner (see element 21 E)

21H Arrival date

This is the arrival date of the train at the destination station of the passenger.

22 - Station codes
Length = 7, coding = numerical

2 digits for country code + 5 digits for station codes (as specified in *ERA TAP TSI Technical Document B.9)*

22A Boarding station

22B Destination station

22C Starting station

This is the first station of the journey to which the message refers.

22D Final station

This is the last station of the journey to which the message refers.

22E Return station

This is the code for the return station of a forward and return journey, if the final station is different from the starting station.

22F First intermediate station

This is the first (or only) intermediate station on the journey. It defines a stopping station or a station passed through on the train journey.

22G Second intermediate station

This is the second intermediate station in the journey. It defines a stopping station or a station passed through on the train journey.

23 - Seats (number)
Length = 2, coding = numerical

01 to 40 for   VL

01 to 16 for CC1

01 to 36 for   ASS and CC2

23A Number of seats

For partial cancellation, this is the number of remaining seats with following restrictions:

01 to 39 for   VL

01 to 15 for CC1

01 to 35 for   ASS and CC2

23B Number of cancelled seats

23C Number of overbooked seats

23D Number of smoking seats

23E Number of non-smoking seats

24 - Class
Length = 1, coding = alphanumerical

See Code List B.5.24

25 - Berths (type and number)
Length = 12, coding = numerical

1st + 2nd digits = Single (max. 18)

3rd + 4th digits = Special (max. 18)

5th + 6th digits = Double (max. 36)

7th + 8th digits = T2 (max. 36)

9th + 10th digits = T3 (max. 39)

11th + 12th digits = T4 (max.40)

Only the following combinations are possible:

1st + 2nd digits (value = 01) and 5th + 6th digit (value = 02)

1st + 2nd digits (value = 01) and 9th + 10th digit (value = 03)

5th	+	6th digits (value = 02) and	9th	+	10th	digit (value = 03)
3rd	+	4th digits (value=01) and	7th	+	8th	digit (value=02)

25A Type and number of berths

For partial cancellations, this is the number of remaining berths with following restrictions:

01 to 39 for	VL
01 to 15	for	CC1
01 to 35 for	ASS and CC2

25B Type and number of cancelled berths

26 - Meals

Length = 6, coding = numerical

2 digits = Number of breakfasts

2 digits = Number of lunches

2 digits = Number of dinners

26A Type and number of meals

Refers, for partial cancellation, to the type and number of remaining meals.

26B Type and number of cancelled meals

27 - Coach number

Length = 3, coding = alphanumerical

Number of coach in which the seats are requested.

The element can be empty in some special cases:

i.e.:   - cycle places without coach number

      - ferry places without coach number

      - bus places without coach number

      - overbooked seats

According to the general rules of the Technical Document, "empty" means filled with blanks.

28 - Seat number

Length = 3, coding = alphanumerical

28A Number of a particular seat

Number of the seat requested by the passenger.

Can also be "blank" (only in the case of berths) and then means any berth or berths in the coach in question.

28B Number of a reference seat

Number of the seat on which the allocation of the desired seats should be based; it must be the closest seat to the reference seat within the compartment concerned.

29 - Category of vehicle/boat

Length = 1, coding = numerical

See Code List B.5.29

29A Vehicle category

29B Boat category

29C Category of the cancelled vehicle

29D Category of the cancelled boat

30 - Vehicle registration

Length = 10, coding = printable characters

31 - Number and ages of the passengers

Length = 8, coding = numerical

1st digit	=	number of adults in 1st Class
2nd digit	=	number of children from 4 to 5 years old in 1st Class
3rd digit	=	number of children from 5 to 12 years old in 1st Class
4th digit	=	number of children from 12 to 15 years old in 1st Class
5th digit	=	number of adults in 2nd Class
6th digit	=	number of children from 4 to 5 years old in 2nd Class
7th digit	=	number of children from 5 to 12 years old in 2nd Class
8th digit	=	number of children from 12 to 15 years old in 2nd Class

In case of requests for a car carriage place only the element has to be filled with zeroes completely.

32 - Journey number

Length = 1, coding = numerical

Serial number, indicating the order in which successive journeys are made. In the case of single journey, the journey number will be zero.

33 - Journey code

Length = 1, coding = numerical

Shows whether the request refers to a single journey or to one of a number of sections of a journey.

See Code List B.5.33

34 - Reference number

Length = 12, coding = numerical

The seats or meals originally booked which are to be cancelled or exchanged can be identified from the reference number:

The reference number formed according to the rules of each RS must be sufficiently reliable to ensure that places cannot be erroneously released by mistyped reference numbers.

The elements from the request:

- Train number

- Travel date

- Type of service

must be check to comply with the booking referenced by the reference number given in the cancellation and partial cancellation request.

The reference number must be unique combined with the train number and the travel date. However it is recommended to use intrinsically unique reference numbers unique for one year.

2 digits for the reservation system, having allocated the seats or responsible for the ticket, and 10 digits for the actual reference number

34A Reference number of reservation ticket to be cancelled

34B Reference number of accommodations

Concerns the reservation of seats, couchettes, berths or car places.

34C Reference number for breakfast

Concerns the allocation of breakfast in the coach with meals at seat or in the restaurant car.

34D Reference number for lunch

Concerns the allocation of lunch in the coach with meals at seat or in the restaurant car.

34E Reference number for dinner

Concerns the allocation of dinner in the coach with meals at seat or in the restaurant car.

34F Reference number of cancelled reservation ticket

34G Reference number of ticket issued

This element describes the identification number of a pre-printed ticket or a printed ticket at the time of issue.

34H Reference number of travel ticket to be cancelled

34I Reference number of cancelled ticket

35 - Smoking/non-smoking
Length = 1, coding = numerical

See Code List B.5.35

36 - Position of seat
Length = 4, coding = numerical

This field, which consists of 4 individual digits, gives the number of seats desired in the respective position (maximum 2).

Should the request for a certain seat be considered as mandatory, the digit concerned must be increased by 5. This is only used at present for "lower couchette places mandatory". 1 and 2 become 6 and 7.

The digits mean:

	Number		
	Seats	**Couchettes**	**Sleeper berths**
1st digit	window	upper	upper
2nd digit	middle	middle	middle
3rd digit	gangway	lower	lower
4th digit	window isolated	-	-

In the event of partial cancellation, this gives the number of the remaining seats for each place position.

37 - Compartment request
Length = 6, coding = numerical

The element consists of 3 sub-elements.

1st and 2nd positions: type of coach

See Code List B.5.37.1

3rd and 4th position: compartment with special features

See Code List B.5.37.2

5th and 6th position: special offer/allocations

See Code List B.5.37.3

The offer of the various Tour-Operators is released by agreement at various times before the date of travel depending on the particular train (e.g. 21 days or 3 days) for the general reservation service.

38 - Position of compartment
Length = 1, coding = numerical

This element indicates the desired level of the seats or the sleeping-car compartment

38A Position of compartment/request

See Code List B.5.38.1

 38B Position of compartment/allocation

See Code List B.5.38.2

Concerns the level of the remaining seats or compartments in the case of partial cancellation.

39 - Compartment with connecting door
Length = 1, coding = numerical

1 = compartment with connecting door desired or allocated in the response

40 - Compartment characteristics
Length = 1, coding = numerical
See Code List B.5.40

41 - Time
Length = 4, coding = numerical

| 2 digits for the hour | Local | time | in | 24 | hour | system |
| 2 digits for the minute | | | | | | |

4 1A Departure time

> This is the departure time from the station where the passenger boards.

41B Time of lunch

41C Time of dinner

41D Start of loading period

41E End of loading period

41F Start of unloading period

41G End of unloading period

41H Arrival time

> This is the arrival time at the station where the passenger alights. The element 41H has to
>
> be delivered even if it is marked as optional element in the message.

41I Start of additional loading period

41J End of additional loading period

41K Start of additional unloading period

41L End of additional unloading period

41M Waiting time at first intermediate station

> Length of waiting time at the first intermediate station.

41N Waiting time at second intermediate station

> Length of waiting time at the second intermediate station

41O Departure time of the return journey

> Departure time of the return journey

42 - Tariff

Length = 9, coding = numerical

1st and 2nd digits   = 2-position reason for reduction (00 - 99)

Code as specified in Code List B.5.42

3rd, 4th, 5th and 6th digits = 4-position reason for reduction (0100 - 9999)

7th digit = Free

8th and 9th digits = Number of passengers with price reduction

Where the value "04" is shown in the 1st and 2nd digits, only the 4-position reason for reduction in digits 3 to 6 applies. If the 4-position reason for reduction is not used, digits 3 to 6 = zero.

42A Tariff 1

Marks a deviation from the normal fare. Concerns the remaining seats for partial cancellations.

42B Tariff 2

Marks a second deviation from the normal fare. Concerns the remaining seats for partial cancellations.

43 - Individual reservation tickets requested

Length = 1, coding = numerical

The allocating system should give a reservation confirmation (that is to say a reservation ticket) for each reserved seat requested.

See code list B.5.43

44 - Another train acceptable

Length = 1, coding = numerical

1 = Desired train

See code list B.5.44

The passenger accepts another train to the one requested.

45 - Trailers

Length = 1, coding = numerical

See Code List B.5.45

45A Trailer category

45B Category of the cancelled trailer

46 - Number of dogs

Length = 1, coding = numerical

47 - Reservation system

Length = 2, coding = numerical

Codes see element 1.

47A Requesting reservation system

This element describes the issuing railway coded with the reservation system code in case this railway is different from the requesting reservation system.

In case the message element is mandatory (correction message) the element should contain the issuing railway, even if it is the same as the code of the requesting reservation system.

47B Reservation system with further seat offer

This is the reservation system with a further seat offer to which the requesting reservation system can turn.

48 - Train category

Length = 2, coding = numerical

The element 48 (train category) shall not be processed in the messages.

49 - Station names

Length = 30, coding = printable characters

The method of writing given in *ERA TAP TSI Technical Document B.9* is used.

49A Name of boarding station

49B Name of destination station

49C Name of loading station

49D Name of unloading station

49E Name of boarding station (start of journey)

49F Name of destination station (end of journey)

Together with element 49E, this is the route of the passenger in connection with a car reservation with inclusive price calculation.

49G Name of first intermediate station

49H Name of second intermediate station

50 - Place allocation

Length = 32, coding = by characters

The field consists of a maximum of 8 sub-elements, which are sub-divided as follows:

> 3 digits place number (alphanumerical)

> 1 digit place code (by characters)

The element can be empty in some special cases:

i.e.: - bicycle places without place number

- ferry places without place number

- bus places without place number

- overbooked seats

According to the general rules of the Technical Document "empty" means filled with blanks.

The codes are described below:

1. Seats and seats with meals at seat

See Code List B.5.50.1

2. Couchette berths

See Code List B.5.50.2

3. Berths

See Code List B.5.50.3

Codes to be used for places in compartments without separated gender. These codes are to be used only if the places have been requested by code "mixed" in element 40.

See Code List B.5.50.4

50A Accommodation allocated

50B Additional accommodation allocated

Enables the issue of further allocated seats, if all 8 sub-elements of element 50A are already filled.

However no from-to number sequences may be split from element 50A into the element 50B.

51 - Type of compartment allocated

Length = 6, coding = numerical

The element consists of three sub-elements. 1st and 2nd positions: type of coach

See Code List B.5.51.1

3rd and 4th positions: compartment special features

See Code List B.5.51.2

5th and 6th positions: special offers/contingent

See Code List B.5.51.3

The offer of the various Tour-Operators is withdrawn by agreement at various times before the date of travel depending on the train (e.g. 21 days or 3 days) and then made available for the general reservations.

52 - Amount

Length = 7, coding = numerical

5 digits for the euro

2 digits for the cent

The amount is given in euro, provided no other currency is defined in the element currency code in the same application text.

52A Amount (supplement, global price IRT)

This element normally contains the total amount (supplement, global price IRT).

For inclusive amount calculation in car-carrying trains, the amount may also include the cost of travel tickets for the passengers.

For partial cancellations, the amount relates to the remaining seats.

Reservation fees are calculated by the issuing railway and are not included in the message exchange.

52B Amount of breakfast

For partial cancellations, the amount relates to the remaining seats.

52C Amount of lunch

For partial cancellations, the amount relates to the remaining seats.

52D Amount of dinner

For partial cancellation, the amount relates to the remaining seats.

52E Amount of refund

If the amount differs from the amount of the original reservation, element 75 is delivered. For partial cancellation, the amount is the refund of the cancelled places + the amount of remaining places.

52F Amount

This element contains the product amount in 918E replies.

52G VAT-amount

The amount of VAT.

53 - Number of the entry in loading list
Length = 3, coding = numerical

54 - Price calculation code
Length = 1, coding = numerical

This gives the rules used by the allocating reservation system for the price calculation for car-carrying traffic.

See Code List B.5.54

55 - Number of passengers
Length = 4, coding = numerical

      1st digit   = Number of adults in 1st Class

      2nd digit   = Number of children in 1st Class

      3rd digit   = Number of adults in 2nd Class

      4th digit   = Number of children in 2nd Class

56 - Change of train/date

Length = 1, coding = numerical

Note about change in the customer's wishes regarding train number and/or date of travel.

See Code List B.5.56

Only the value = 1 is possible for an exchange

57 - Change of station

Length = 1, coding = numerical

Note about change in the customer's wishes regarding stations.

See Code List B.5.57

58 - Number of supplements

Length = 2, coding = numerical

Details of the number of supplements to be paid for.

59 - Type of supplements

Length = 1, coding = numerical

See Code List B.5.59

60 - Number of night sectors

Length = 1, coding = numerical

The number of night sectors is required for the exact calculation of the price in the national currency of the issuing reservation system.

The information only appears if the number of night sectors is greater than 1.

61 - Request number

Length = 2, coding = numerical

For combined requests, the request number enables a replacement proposal or a negative reply to be given to the appropriate request.

This element contains the serial number of the request.

62 - Available services

Length = 9, coding = alphanumerical

When the required service is sold out, this gives the services still available in the requested train or available services in an alternative train.

See Code List B.5.62

Each of the 9 positions may contain one of the above-mentioned codes. A maximum of 9 replacement proposals are possible.

63 - Reply code

Length = 3, coding = numerical

The code gives the reason for the negative reply.

See Code List B.5.63

64 - Date of the original reservation

Length = 5, coding = numerical

Display: YYDDD

Consists of the sub elements:

− Year: YY

− Day number: DDD

65 - Undertaking providing the service

Length = 1, coding = numerical

See Code List B.5.65

66 - Text for special offer

Length = 30, coding = printable characters

66A Notices

67 - Type of price

Length = 1, coding = numerical

See Code list B.5.67

68 - Number of the original dialogue

Length = 5, coding = numerical

69 - Vehicle transport price only

Length = 1, coding = numerical

1 = Vehicle transport price only

Indicates to the allocating system when making an inclusive price calculation that it must only calculate the cost for transporting the car.

70 - Loading lower deck

Length = 1, coding = numerical

See Code List B.5.70

71 - Height

Length = 3, coding = numerical

Details of vehicle height in centimetres

72 - Free

73 - Partial price

Length = 14, coding = numerical

The element consists of 3 sub-elements and details the composition of element 52

1st-5th digit   = Tariff code

6th-7th digit   = Number of individual prices

                       (e.g. passengers, compartments, etc.)

8th-14th digit   = Individual price in euro

73A Partial price 1

73B Partial price 2

73C Partial price 3

The elements 73A, 73B and 73C are used for reservation, partial cancellation and exchange confirmations.

73D Partial price 4

73E Partial price 5

73F Partial price 6

The elements 73D, 73E and 73F are used for partial cancellation and complete cancellation confirmation for the price of the original reservation.

The element 73 provides a split of the prices in element 52A and 52E per tariff and person. It can be used in currency conversion to avoid rounding errors.

   local price = persons-tariff-0 * (rounded / converted price element 72 (tariff 0)) + persons-tariff-1 * (rounded / converted price element 72 (tariff 1)) + persons-tariff-2 * (rounded / converted price element 72 (tariff 2))

which is different from:

   local price = total number of persons * rounded / converted total price (Element 52A)

By using the partial price the prices remain additive (e.g. two persons pay the double price also in local currency).

Elements 73A/B/C correspond to the price in 52A, Elements 73D/E/F split the price of element 52E.

Example on partial price element:

One reservation with 2 adults (Tariff 72 and 1 child (tariff 73):

                    • 2 x Tariff 72 (Adult)   partial price 22,60 €

- • 1 x Tariff 73 (Child)   partial price 15,40 €

  <u>total price: 60,60 €</u>

- • message element:
  "00072020002260007301000154000000000000000"

local currency SFR: 1 : 1,20 rounding up to 0.10 SFR

- • simple conversion: 60,60*1,20 = 72,72

  - • $\rightarrow$ <u>72,80 SFR</u>

- • using partial price element:

  - • 22,60*1,20 = 27,12 $\rightarrow$ 27,20 SFR

  - • 15,40*1,20 = 18,48 $\rightarrow$ 18,50 SFR

    $\rightarrow$<u>72,90 SFR</u>

74 - Reason for cancellation
 Length = 2, coding = numerical

See Code List B.5.74

75 - Mark of changed price
Length = 1, coding = numerical

 See Code list B.5.75

76 - Code of the travel agent's organisation
Length = 5, coding = numerical

77 - Passenger with vehicle
Length = 1, coding = numerical

See Code List B.5.77

78 - Carrier
Length = 4, coding = alphanumerical

See codes specified in *ERA TAP TSI Technical Document B.8.*

79 - List of carriers

Length = 36, coding = alphanumerical

The list of carriers comprises the following 9 sub-elements:

No.	Element	L + C
78	Carrier	4 A
78	Carrier	4 A
78	Carrier	4 A
78	Carrier	4 A
78	Carrier	4 A
78	Carrier	4 A
78	Carrier	4 A
78	Carrier	4 A
78	Carrier	4 A

80 - Country code of the requesting terminal

Length = 2, coding = alphanumerical

Coding in accordance with *ISO standard 3166* 2-position alphabetical code

81 – Service brand information

Length = 40, coding = printable characters

The element is composed of three sub elements:

NUM	Element	L+C
82	Service brand code	4 N
83	Abbreviation of service brand	3 C
84	Service brand name	33 C

´

The element 81 has to be delivered even if it is marked as optional element in the message.

81 A – Service brand information for a return train

82 – Service brand code

Length = 4, coding = numerical

See Code List B.5.82

82 A – Service brand code for a return train

83 – Service brand abbreviation

Length = 3, coding = printable characters

See Code List B.5.83

Abbreviation used for printing on RCT2 tickets.

84 – Service brand name

Length = 33, coding = printable characters

See Code List B.5.84

Full text used for printing on RCT2 tickets.

85 - Places (number)

Length = 4, coding = numerical

Number of places

86 – Cancellation time limits

Length = 96, Format = alphanumeric

Length 8 x 12 (up to 8 reasons incl. „no reason"), Format = alphanumeric

Date and Time up to then the cancellation can be made with the specified reasons of cancellation or no reason at all. If the reason is not listed the free cancellation time limit is unspecified.

An entry might be left blank if the information is not given for all reasons. In this case the complete element should be left blank.

Date and Time are given in Coordinated Universal Time (UTC)!

Num	Element			L + C
86	Cancellation Time Limits 8 x : time limit per reason code			96 C
		Num	Element	L + C	
		74	Reason for cancellation 00 == cancellation without reason	2 N	
		326	Date DDMMYY	6 N	
		41	Time HHmm	4 N	

If a reason for cancellation is missing the free cancellation time limit is unspecified for that reason and might have any date and time.

88 – Original Cancellation Date

Length = 6, coding = numerical YYMMDD

In case of a cancellation request on a reservation that was already cancelled before the allocating system has two options to react. It can return a negative reply with the appropriate error code indicating that the reservation was already cancelled.

As a second option the allocating system can return the cancellation confirmation again and must then indicate the date of the original cancellation in the reply message with using this element. This option can be used to limit the impact of errors in case of time out in a cancellation message exchange.

The date is given in the time zone of the allocating system.

89 – Original Cancelling reservation system

Length = 2, coding = numerical

Codes from the reservation systems code list element 01.

In case of a cancellation request on a reservation that was already cancelled before the allocating system has two options to react. It can return a negative reply with the appropriate error code indicating that the reservation was already cancelled.

As a second option the allocating system can return the cancellation confirmation again and must then indicate the reservation system that made the original cancellation in the reply message with using this element. This option can be used to limit the impact of errors in case of time out in a cancellation message exchange.

90 - FulfillmentMedium

Length = 3, coding = alphanumerical

Up to 3 ordered entries of fulfillment Medium possible ordered by preference.

Corresponds to FulfillmentMedium Tag in XML.

Codes:

- " " – blank in case less than 3 Medium are provided
- A - "RCT2" security feature for secure paper RCT2
- B - "RCCST" security feature for secure paper RCCST
- C - "paper" security feature for blank paper
- D - "phone" security feature for smart phone
- E - "noMedium" travelling with a name an Id or Card (SIS Security in System)
  F = A or B
  H = C or D

In the request message the fulfilment Medium supported by the issuer are indicated ordered by the preference of the passenger. In the reply message the fulfilment Medium allowed are indicated ordered by preference of the allocator.

91 PassengerData

Length = 400, coding = alphanumerical with special characters (C)

A comma separated list of passenger data containing a list of the following elements. Multiple passengers are separated by a semicolon.

- PassengerLink and birth date:
  - PassengerLink: 1 character – linking the passenger in the request with the passenger in the reply in case of ticket URLs or ids per passenger (Elements

94/95). The Linking should start with 1 and continue with letters in case more than 9 passengers are used.

   o Date of Birth: DDDYYYY to be filled with blanks if not provided
- "," separator
- First Name: alphanumeric
   o In info requests "Xx" is used
- "," separator
- Last Name: alphanumeric
   o In info requests "Yy" is used
- "," separator
- E-mail
- "," separator
- Country of birth (ISO-Code 2A)
- ";" separator

Data of the passengers are separated by a semicolon ";", data of one passenger are separated with a ",".

e.g.:

Passengers:

John Doe born 1.1.1954

Jane Doe born 20.11.1985

10011954,John,Doe,john.doe@yahoo.com;23241985,Jane,Doe,jane.doe@yahoo.com

The remaining space of the element has to be filled with blanks.

In case the space is not sufficient the element 92 can be used to continue the data.

Note: SNCF will not be able to process the large element.

In case of a partial cancellation request the passenger data of the passengers kept are provided.

In case the space is not sufficient the content needs to be shortened. Optional elements (e-mails) can be removed. The first name can be shortened.

92 - PassengerDataExtension

Length = 1000, coding = alphanumerical with special characters (C)

For content specification see Element 91.

93 - CancelledPassengerIds

Length = 70, coding = alphanumerical

Comma separated list of passengerIds for the passengers to be cancelled from the original booking. The passengerIds must have been provided in the reservation reply.

94 - eTicketData

Length = 500, coding = alphanumerical with special characters (C)

A comma and semicolon separated list of the following elements:

- ControlId
- " , "
- URL document type – default is pdf download for eticket
- " , "
- URL
- Per Passenger:
    - ";" semicolon to indicate the start of the data for one passenger.
    - PassengerLink: 1 character to link the passenger in the request to the passenger data in the reply. This is the passengerLink received in the elements 91/92 identifying the passenger.
    - " , "
    - passengerId: allocators id of the passenger in this ticket
    - " , "
    - URL document type
    - " , "
    - URL

e.g.:

ABCZYX,,;http://example.com/myticket.pdf

or

ABCZYX,,;1,3425653276,,http://example.com/JohnDoesTicket.pdf;2,5268767,,http://example.com/JaneDoesTicket.pdf

URL document type:

 Default: download link for a pdf ticket

 The URL type provides information on the format of the ticket to be downloaded. The issuer can decide whether the format is supported for his clients before downloading the file.

 A: pdf

 B: any

95 - eTicketDataExtension

Length = 2000, coding = alphanumerical with special characters (C)

Element to be used in case the space in element 94 is not sufficient.

SNCF will not be able to process this large element.

96 - Exchange Reference

Length = 12 +5 + 7

N12:   Reference number of reservation to be exchanged

A5:   Train number of reservation to be exchanged

N7:   Travel date of reservation to be exchanged (DDDYYYY)

97 to 299 - Not used

300 - Availability information

Length = 8, coding = alphanumerical

Each element of availability information consists of the following sub-elements:

No.	Element	L + C
308A	Fare code 1	4A
23D	Number of smoking seats	2 N
23E	Number of non-smoking seats	2 N

In Application Version 2:

NUM	Element	L + C
308A	Service Level - Tariff Link	4 A
85	Number of Places	4 N

300A Availability information 1

300B Availability information 2

300C Availability information 3

300D Availability information 4

300E Availability information 5

300F Availability information 6

300G Availability information 7

5.3.1. 301 - Fare information

Length = 29, coding = alphanumerical

More than one element is necessary if the fare code defines a price range or a price step. Each element of fare information consists of the following sub-elements:

No	Element	L + C
318	Service code	2A
308	Service Level - Tariff Link	4 A
52G	VAT-amount	7 N
325	Rate of VAT	3 N
52F	Price	7 N
322A	Conditions of use	3 N
316	Purchase conditions	3N

301A Fare information 1

301B Fare information 2

301C Fare information 3

301D Fare information 4

301E Fare information 5

301F Fare information 6

302 - Details of journey segment
Length = 128, coding = printable characters

Each element of the journey segment details consists of the following sub-elements:

No	Element	L + C
20A	Train number	5 A
315	Product identifier	3N
49A	Name of boarding station	30 C
49B	Name of destination station	30 C
81	**Service brand information**	**40 C**
326A	Departure date	6N
41A	Departure time	4N
326B	Arrival date	6 N
41H	Arrival time	4N

302A Journey segment details 1

302B Journey segment details 2

302C Journey segment details 3

302D Journey segment details 4

302E Journey segment details 5

302F Journey segment details 6

303 - Ticket details

Length = 15, coding = alphanumerical

The ticket details element consists of the following sub-elements:

No	Element	L + C
324	Type of ticket	1 A
313	Print format	1 A
309	Magnetic stripe format	1 A
34G	Reference number of ticket issued	12 N

304 - Booking status
Length = 1, coding = numerical

This element describes the type of requested or confirmed booking.

0 = Not significant

1 = Firm booking

2 = Provisional booking

3 = Confirmed provisional booking

4 = Overbooking

305 - Currency code

Length = 3, coding = alphanumerical

This element describes the currency of a price or a price group. If this element is not given, the price is given in euro. The currency is defined using the ISO 4217 codes "*Codes for the representation of currencies and funds* ".

306 - Customer profile

Length = 30, coding = printable characters

This element could be used to define a customer identification.

307 - File reference number

Length = 12, coding = alphanumerical

This element identifies a certain sales transaction in a product/sales file.

308 - Service Level - Tariff Link

Length = 4, coding = alphanumerical

This element can be used to give special types of price, price ranges or price stages.

The 1st + 2nd positions of this element contain a code which designates the accommodation category.

See Code List B.5.308

The 3rd and 4th position contain an arbitrary code used to provide a unique link between the availability information elements (element 300) and the tariff information element (element 328) in one application text. The code is unique within one application text only. The code has no meaning as a standalone code.

308A Fare code 1

308B Fare code 2

308C Fare code 3

309 – Not used

310 - Maximum excess price

Length = 4, coding = numerical

4 characters for the amount of currency.

This element gives the maximum price which the customer is prepared to pay for an exchange or an alternative product.

311 - Number of combined messages

Length = 2, coding = numerical

This element gives the number of combined requests which belong to a special message.

312 - Forward/return identifier

Length = 1, coding = numerical

This element describes the forward or return part of a forward and return journey.

> 0 = Not significant

> 1 = Not specified

> 2 = Return journey

313 - Print format

Length = 1, coding = alphanumerical

> 0 = Not significant

> 1 = Not specified

> 2 = RCT

> 3 = IRT

314 - Product code

Length = 10, coding = alphanumerical

This element can be used to identify a certain product in a product catalogue.

315 - Product identifier

Length = 3, coding = numerical

This element can be used to identify a certain part of a product.

1st and 2nd position = service (element 15), and

3rd position = partial identifier of product from the product catalogue .

316 - Purchase conditions

Length = 3, coding = numerical .

1st digit: Booking restrictions

See code list B.5.316.1

2nd digit: Conditions for use

See code list B.5.316.2

3rd digit: Refund conditions

See code list B.5.316.3

318 - Service code

Length = 2, coding = alphanumerical

The first position contains the physical class and the second contains the service level. 1st position:

See code list B.5.318 2nd position " " or "0" = Not significant *318A Service code 1*

318B Service code 2 (not used at present)

318C Service code 3 (not used at present)

319 - Service identifier

Length = 1, coding = numerical
See Code List B.5.319

319A Catering identifier

319B Luggage identifier

319C Bicycle identifier

319D Disabled equipment identifier

319E Hotel identifier

3 19F Hire car identifier

319G Connection identifier

319H Public transport identifier

320 - Service information type

Length = 1, coding = numerical
See Code List B.5.320

321 - Text groups - identifier

Length = 2, coding = numerical

The first position contains the group number and the second position the group element.

If application texts are combined in a request or reply, this element allows the identification of a group and its elements. Each position is an independent serial number: for groups the first position, and for the application texts within the group the second position. The numbering is in descending order for both positions, and the lowest value is 1.

322 - Text - identifier

Length = 3, coding = numerical

3-position identifier for a free text format in the language of the receiver of the message.

322A Conditions of use

322B Product information

323 - Ticket issue identifier

Length = 1, coding = numerical

0 = Ticket-issue confirmation not necessary

1 = Ticket-issue confirmation necessary

324 - Type of ticket

Length = 1, coding = alphanumerical

0 = Not significant

1 = Not specified

2 = A T B

3 = Credit Card format

325 - Rate of VAT

Length = 3, coding = numerical

326 - Date

Length = 6, coding = numerical

2 digits for the day

2 digits for the month

2 digits for the year

326A Departure date

326B Arrival date

326C Departure date of the return journey

327 - Tariff code

Length = 2, coding = alphanumerical

Possible values: See Code List B.5.327

Different definition when Application Version = 1 in Element 9

Length = 4, coding = alphanumerical

Possible values: reserved

327A Tariff code 1

327B Tariff code 2

327C Tariff code 3

327D Tariff code 4

328 - Tariff Table

Length = 13, coding = alphanumerical

Each element in the Tariff Table consists of the following sub-elements:

No.	Element	L + C
308A	Fare code 1	4A
67	Type of price	1 N
327A	Tariff code 1	2A
327B	Tariff code 2	2 A
327C	Tariff code 3	2 A
327D	Tariff code 4	2 A

Different definition when Application Version = 1 in Element 9

Length = 21, coding = alphanumerical

Each element in the Tariff Table consists of the following sub-elements:

No.	Element	L + C
308A	Fare code 1	4A
67	Type of price	1 N
327A	Tariff code 1	4A

327B	Tariff code 2	4 A
327C	Tariff code 3	4 A
327D	Tariff code 4	4 A

329 - Tariff Table2

Length = 26, coding = alphanumerical

The element Tariff Table 2 consists of the following sub-elements:

No.	Element	L + C
328	Tariff Table	13 A
328	Tariff Table	13 A

Different definition when Application Version = 1 in Element 9

Length = 42, coding = alphanumerical

The element Tariff Table 2 consists of the following sub-elements:

No.	Element	L + C
328	Tariff Table	21 A
328	Tariff Table	21 A

330 - Tariff Table 4

Length = 52, coding = alphanumerical

The element Tariff Table 4 consists of the following sub-elements:

No.	Element	L + C
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A

Different definition when Application Version = 1 in Element 9

Length = 84, coding = alphanumerical

The element Tariff Table 4 consists of the following sub-elements:

No.	Element	L + C
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A

331 - Tariff Table 8

Length = 104, coding = alphanumerical

The element Tariff Table 8 consists of the following sub-elements:

No.	Element	L + C
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A

Different definition when Application Version = 1 in Element 9

Length = 168, coding = alphanumerical

The element Tariff Table 8 consists of the following sub-elements:

No.	Element	L + C
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A

332 - Tariff Table 16

Length = 208, coding = alphanumerical

The element Tariff Table 16 consists of the following sub-elements:

No.	Element	L + C
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A

328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A
328	Tariff Table	13 A

Different definition when Application Version = 1 in Element 9

Length = 336, coding = alphanumerical

The element Tariff Table 16 consists of the following sub-elements:

No.	Element	L + C
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A
328	Tariff Table	21 A

333 - Tariff code 4 digits

Length = 4, coding = alphanumerical

Possible values:

"   "   = Not significant (blanks)

0000-9999 = UIC tariff code

334 - 339 - Not used

340 - Price Table

Length = 44 coding = alphanumerical

Each element in the Price Table consists of the following sub-elements:

No.	Element	L + C
308	Service Level – Tariff Link	4 A
333	Tariff code	4 A
52 F	Amount	7 N
348	Price Scope	2 N
347	Price Stability	2 N
350	Tariff Flexibility	1 A
67	Type of Price	1 N
nnn	For future use	3 A
349	Tariff Description	20 A

The element "for future use" is included to be able to extend the function in future. The content of this value must be ignored within the systems.

341 - Price Table2

Length = 2 x 44, coding = alphanumerical

The element Price Table 2 consists of the following sub-elements:

No.	Element	L + C
340	Price Table	44 A
340	Price Table	44 A

342 - Price Table4

Length = 4 x 44, coding = alphanumerical

The element Price Table 4 consists of the following sub-elements:

No.	Element	L + C
341	Price Table 2	88 A
341	Price Table 2	88 A

343 - Price Table8

Length = 8 x 44, coding = alphanumerical

The element Price Table 8 consists of the following sub-elements:

No.	Element	L + C
342	Price Table 4	176 A
342	Price Table 4	176 A

344 - Price Table16

Length = 16 x 44, coding = alphanumerical

The element Price Table 16 consists of the following sub-elements:

No.	Element	L + C
343	Price Table 8	352 A
343	Price Table 8	352 A

345 - Price Table32

Length = 32 x 44, coding = alphanumerical

The element Price Table 32 consists of the following sub-elements:

No.	Element	L + C

| 344 | Price Table 16 | 704 A |
| 344 | Price Table 16 | 704 A |

346 - Price Table64

Length = 64 x 44, coding = alphanumerical

The element Price Table 64 consists of the following sub-elements:

No.	Element	L + C
345	Price Table 32	1408 A
345	Price Table 32	1408 A

347 - Price Stability

Length = 2, coding = alphanumerical

00 – no information

01 - transient, might change instantaneously

02 - stable for at least 1 hour

03 - stable for the current day in carrier systems time zone

348 - Price Scope

Length = 2, coding = alphanumerical

00 – no information

02 - Price per passenger

03 - Price per compartment

04 - Price for exact number of requested passengers only (nonlinear dependency on number of passengers)

349 – Tariff Description

Length = 20, coding = alphanumerical

Description text of a fare to be printed on the RCT-2 ticket in case the issuing railway does not provide a translated text.

350 – Tariff Flexibility

Length = 1, coding = alphanumerical

F   fully flexible, can be exchanged without fees

S   Semi flexible, can be exchanged with some restrictions

N   Non flexible, exchange implies high fees

351 – Include Price Flag

Length = 1, coding = numerical

prices should be included in the availability reply

If the element is omitted the price tables and allocating railway elements must not be sent in the availability reply.

352 – Tariff Selection

Length = 32, coding = alphanumerical

The availability reply should give information on the listed tariffs only. The tariff code itself is numerical but empty elements must contain blanks**.**

No.	Element	L + C
333	Tariff code	4A
333	Tariff code	4A
333	Tariff code	4A
333	Tariff code	4A
333	Tariff code	4A
333	Tariff code	4A
333	Tariff code	4A
333	Tariff code	4A

6. Coding of the message elements XML only

6.1. Graphic items

Intentionally free

6.2. FulfillmentMedium

Medium for issuing a ticket. Different Medium might have different restrictions on the content due to size limitations.

- "RCT2"   secure paper RCT
- "RCCST"   secure paper RCCST
- "paper"   blank A4 paper
- "phone"   smart phone
- "nomedium"   travelling with a name, an Id or Card

6.3. FeatureType

Type of a security feature provided as binary data

The FeatureType indicates the type of a security feature and the format in which the data are provided:

- "rawBc" binary data too be included in an bar code

  The base64 encoded byte raw data to be included in an aztec bar code. This includes the data of the ticket and the signature in case the bar code is signed. It does not include the any high level encoding of the bar code (aztec encoding).

- "matrixBc" binary data of the black and white pixel matrix of a square bar code

  A base64 encoded bit-array containing a bit for each square of a bar code. The number of bits is the number of black and white squares in the bar code. The data are padded to full octets for a byte array. The bits start in the upper left corner of the bar code.

- "pngBc" png image data of a bar code

  A base64 encoded byte array containing the image formatted as png (portable network grapgic)

- "jpgBc" jpg data of a bar code

  A base64 encoded byte array containing the image of a bar code formatted as jpg

- "pngVe" png image data of a visual element

  A base64 encoded byte array containing the image of a visual security element code formatted as png.

- "jpgVe" jpg data of a visual element

  A base64 encoded byte array containing the image of a visual security element code formatted as jpg.

- "gifVe" jpg data of a visual element

  A base64 encoded byte array containing the image of a visual security element code formatted as gif. Animated gif images can be used on smartphones.

6.4. FeatureLinkType

The type of a security feature to be downloaded via a link (URI).

- "visual element"   download of visual security element (formats jpg, png, gif)
- "barcode"   download of barcode as image (formats jpg, png)

6.5. SocialMediaAccount.type

Type of the social media account provided:

- facebook
- whatsapp
- skype

- wechat

6.6. URL Download Type:

Format of a document to be downloaded via an URL

- pdf   ("A" in binary messages)
- any ("B" in binary messages)

Appendix A - Measures for communication protocols

A.1 - Principles

Rules which are to be applied by the requesting reservation system, if a message (request or reply) cannot be sent.

A.1.1 - Request message

− Original message = repetition of the request

− Correction = inputting into the litigation file (human readable text prepared for explanation of the problem)

− Synchronisation message = inputting of the request concerned into the litigation file.

A.1.2 - Reply message

− to an original message

- Confirmation = internal cancellation
- Negative reply = nothing to be done

− to a correction request = nothing needs to be done

− to a synchronisation request = nothing to be done

A.2 - Exchange protocol at application level

A.2.0 - General

This transmission protocol can be used regardless of the transmission system used. It concerns

only the requesting and replying applications.

The connection between the terminals and systems to which they are connected, are the exclusive responsibility of these systems.

A requesting system, which has sent a request to the replying system for synchronising the system, uses the rules given in point 3.1, element 10 depending on the code received in the reply.

If a replying system receives a synchronisation request before sending the reply to the request concerned, then in principle it should not reply to the original request.

A.2.1 - Normal operation

sd Enquiry about availability with positive answer

Requesting system

Replying system

Enquiry about availabilty - Phrase 2.14 and Phrase 2.16()

Processing()

Reply to availability - Phrase 2.14 and Phrase 2.16()

sd Reservation request with positive answer

Requesting system

Replying system

Reservation request - Phrase 2.4()

Processing()

Confirmation of reservation request - Phrase 2.8()

sd Cancellation Request

Requesting system

Replying system

Partial cancellation request - Phrase 2.5 or Complete cancellation request - Phrase 2.6()

Processing()

Confirmation of partial cancellation request - Phrase 2.9 or Confirmation of complete cancellation request - Phrase 2.10()

A.2.2 - Defect in replying system, before the reply can be sent

If, after sending a request, the requesting system has not received a reply (from the replying system) after a time "t", it sends a synchronising request to the replying system.

After restoration of the service, the replying system analyses the situation and addresses the reply to the synchronising request using the reply codes given in point 3.1, element 10.

No synchronising request can be given for a synchronising request.

stm reservation request states

reservation
required

reservation at the issuing system

**reservation request
sent to allocating
system**

[receive a reply]
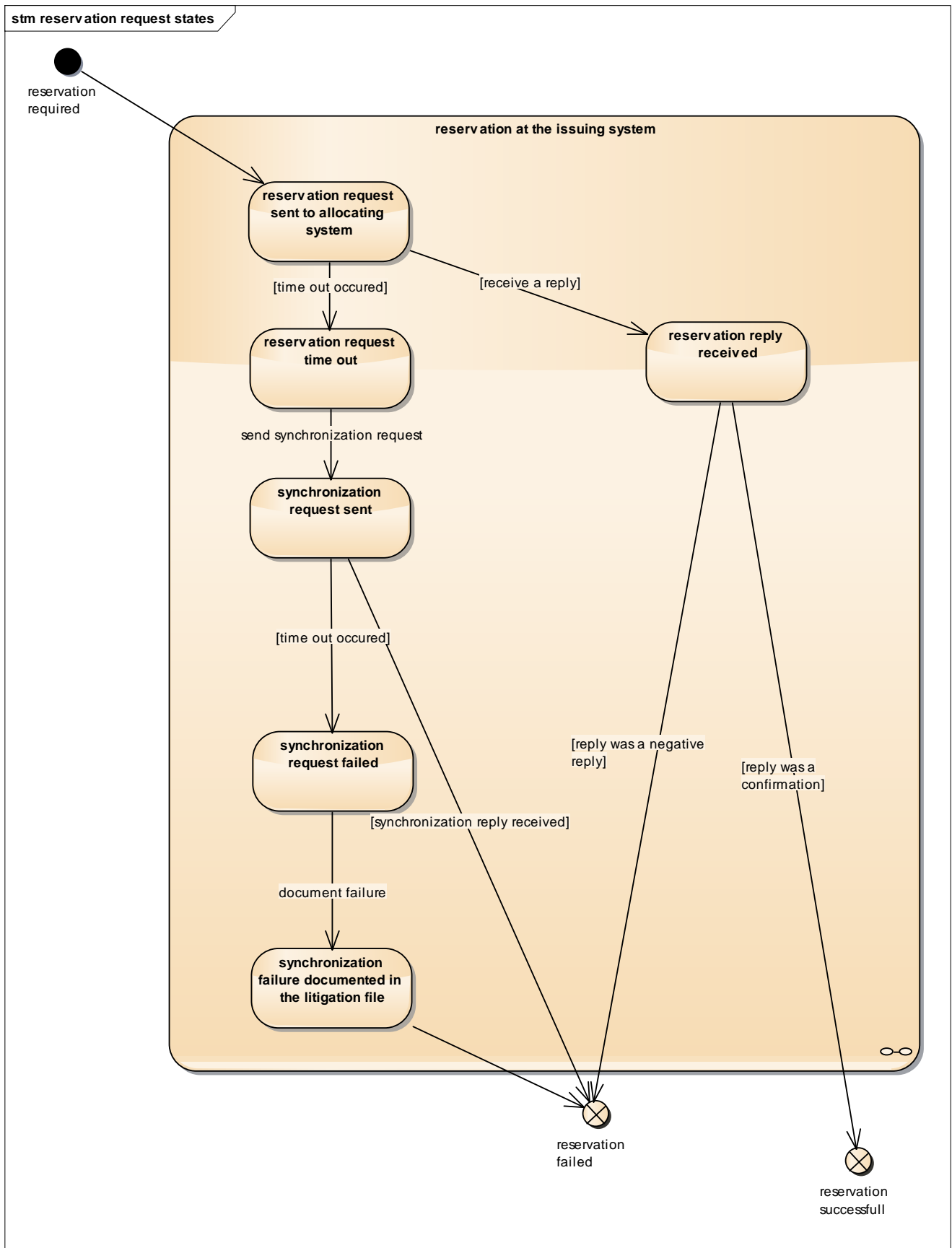
[time out occured]

**reservation request
time out**

**reservation reply
received**

send synchronization request

**synchronization
request sent**

[time out occured]

**synchronization
request failed**

[synchronization reply received]

[reply was a negative
reply]

[reply was a
confirmation]

document failure

**synchronization
failure documented in
the litigation file**

reservation
failed

reservation
successfull

A.2.3 - Defect before the reply is received from the replying system

When service is resumed the requesting system sends a synchronising request for the dialogue concerned to the replying system.
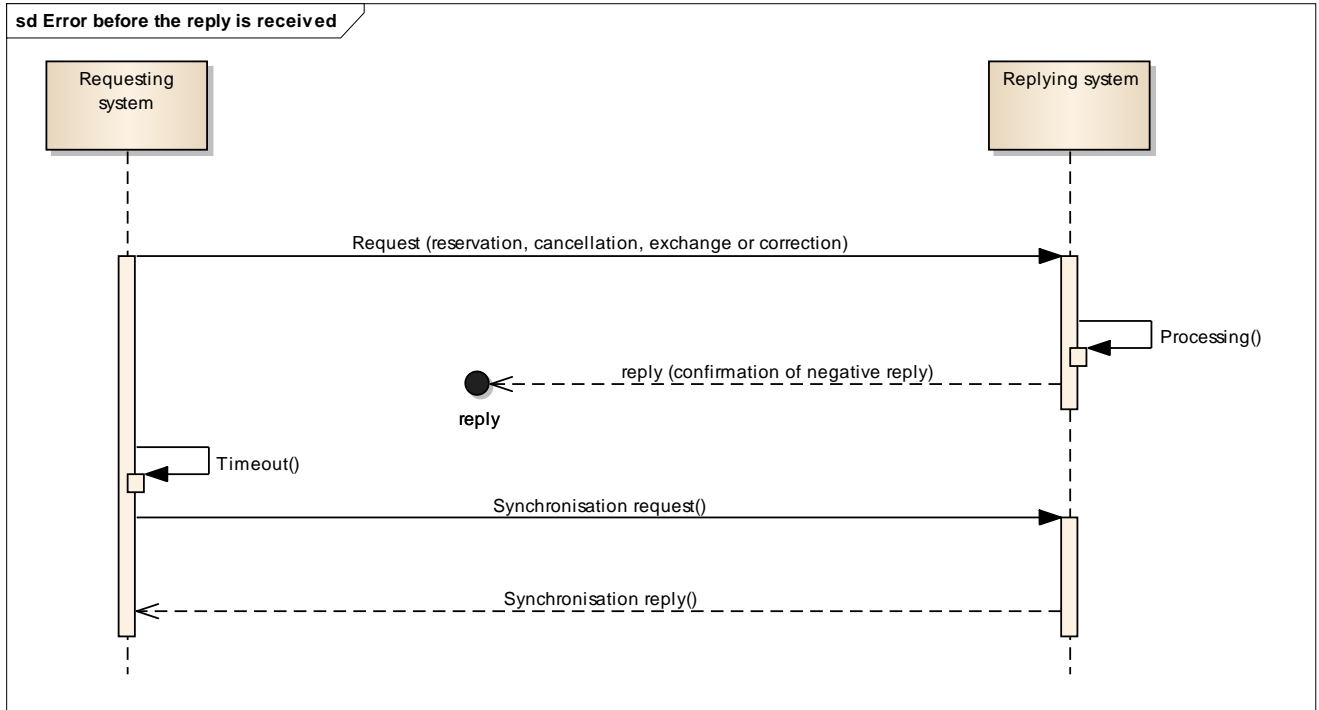
A.2.4 - Defect in requesting system after receipt of reply from the replying system

When operation is resumed, if the reply involves a confirmation and if the document cannot be prepared, the requesting system sends a correction request to the replying system. If this request results in a negative reply from the replying system, the requesting system enters the request in the litigation file.

sd Error in requesting system after receiving a reply
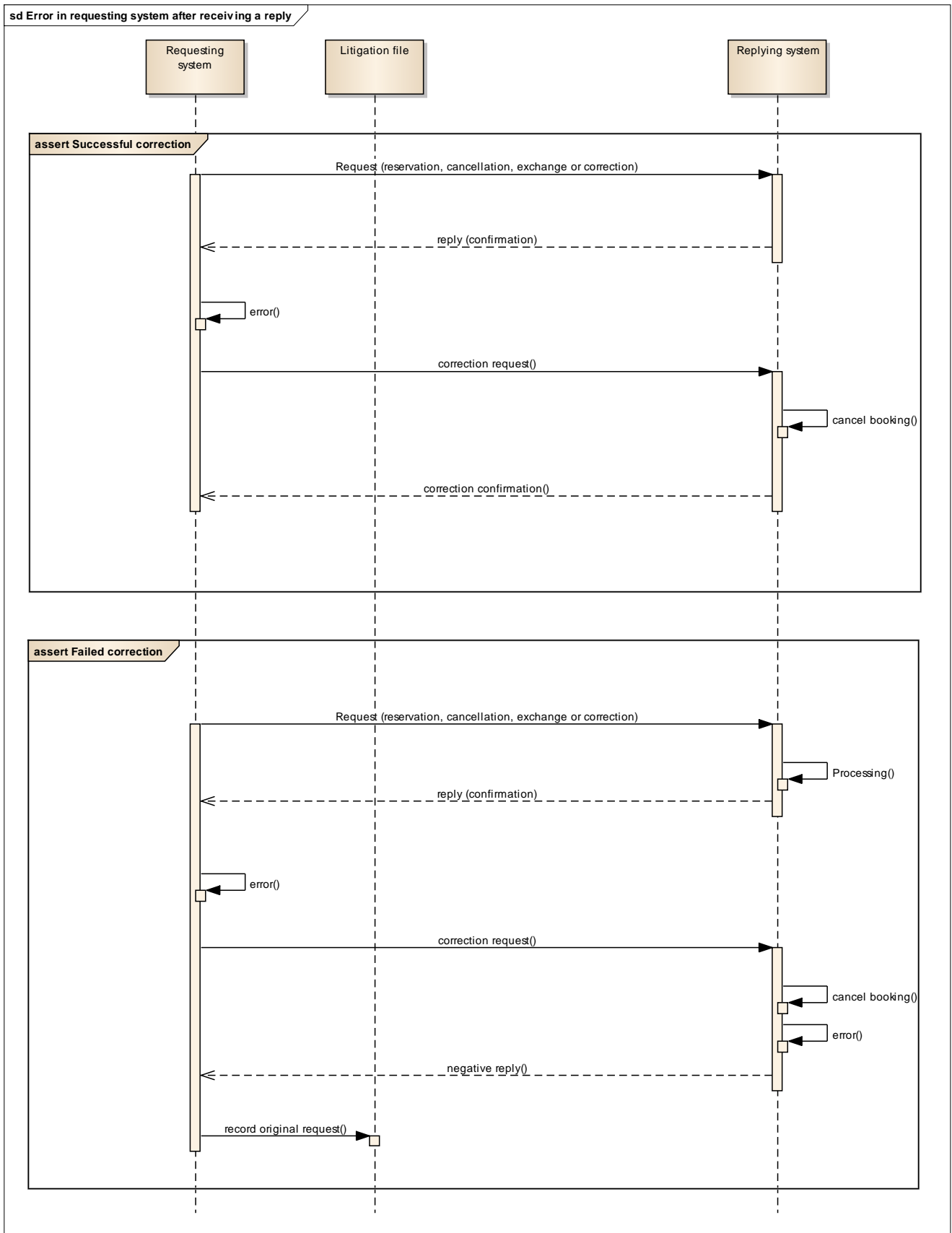
A.2.5 - The requesting system is unable to use the confirmation received

If, for any reason, the requesting system cannot send confirmation of an original request or confirmation of a partial cancellation to the requesting terminal, the requesting system sends a correction request to the replying system. In the case of a negative reply, the event shall be recorded in the litigation file.
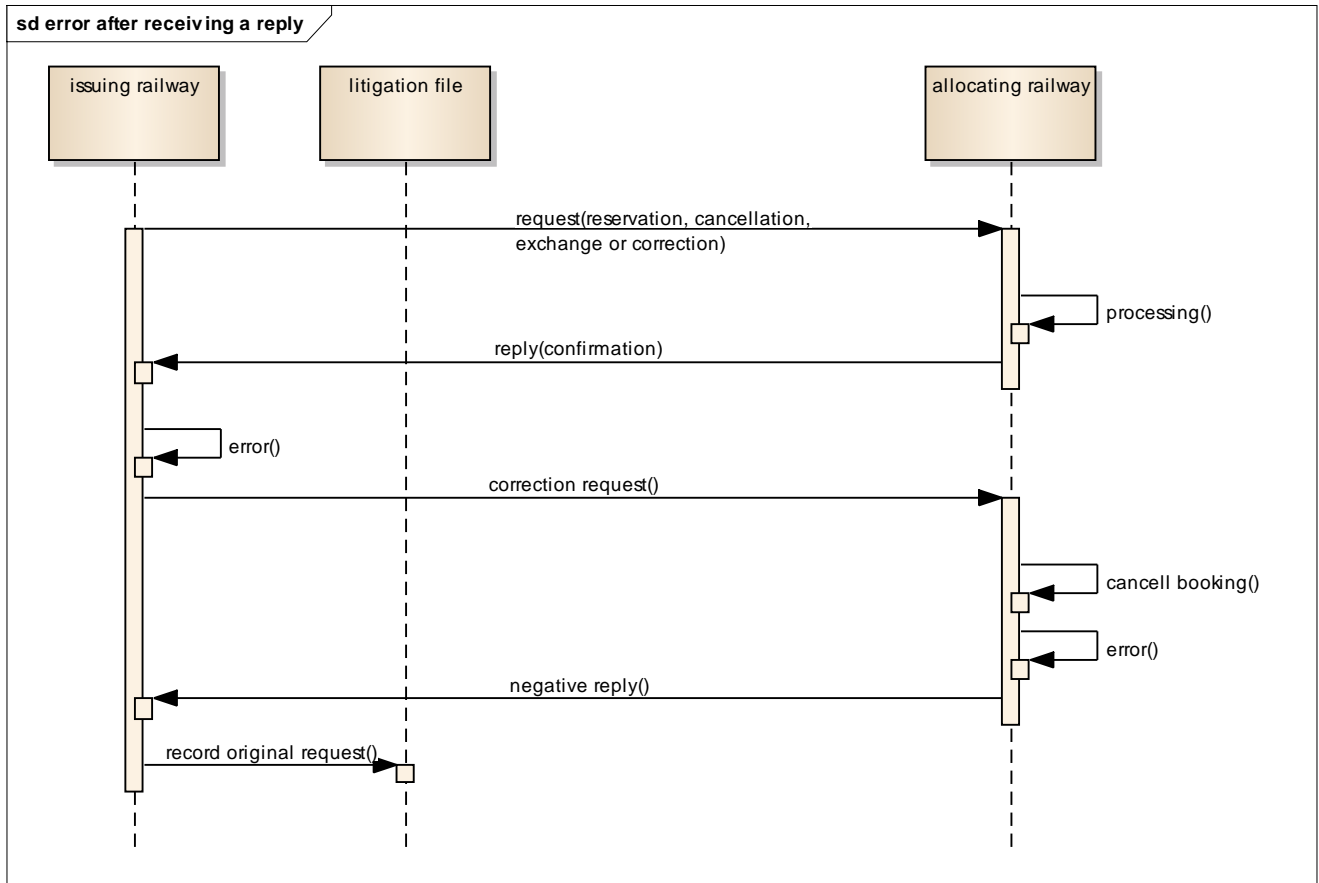
A.2.6 - Extended error recovery in case of Time Out on Reservation

This is the recommended error handling in case of a time out on a reservation request. The scenario extends the mandatory minimal behaviour specified in section "**Error! Reference source not found.**" and "**Error! Reference source not found.**".

In case of a time out on a reservation request the issuing system must send a synchronization request to the allocating system.

Any time out should be documented in the litigation file.

The sending of the synchronization message should be repeated until a reply is received. The repletion should be continued for 72 hours but not beyond the departure date of the train. To avoid network traffic the request should not be repeated more than one time per hour.
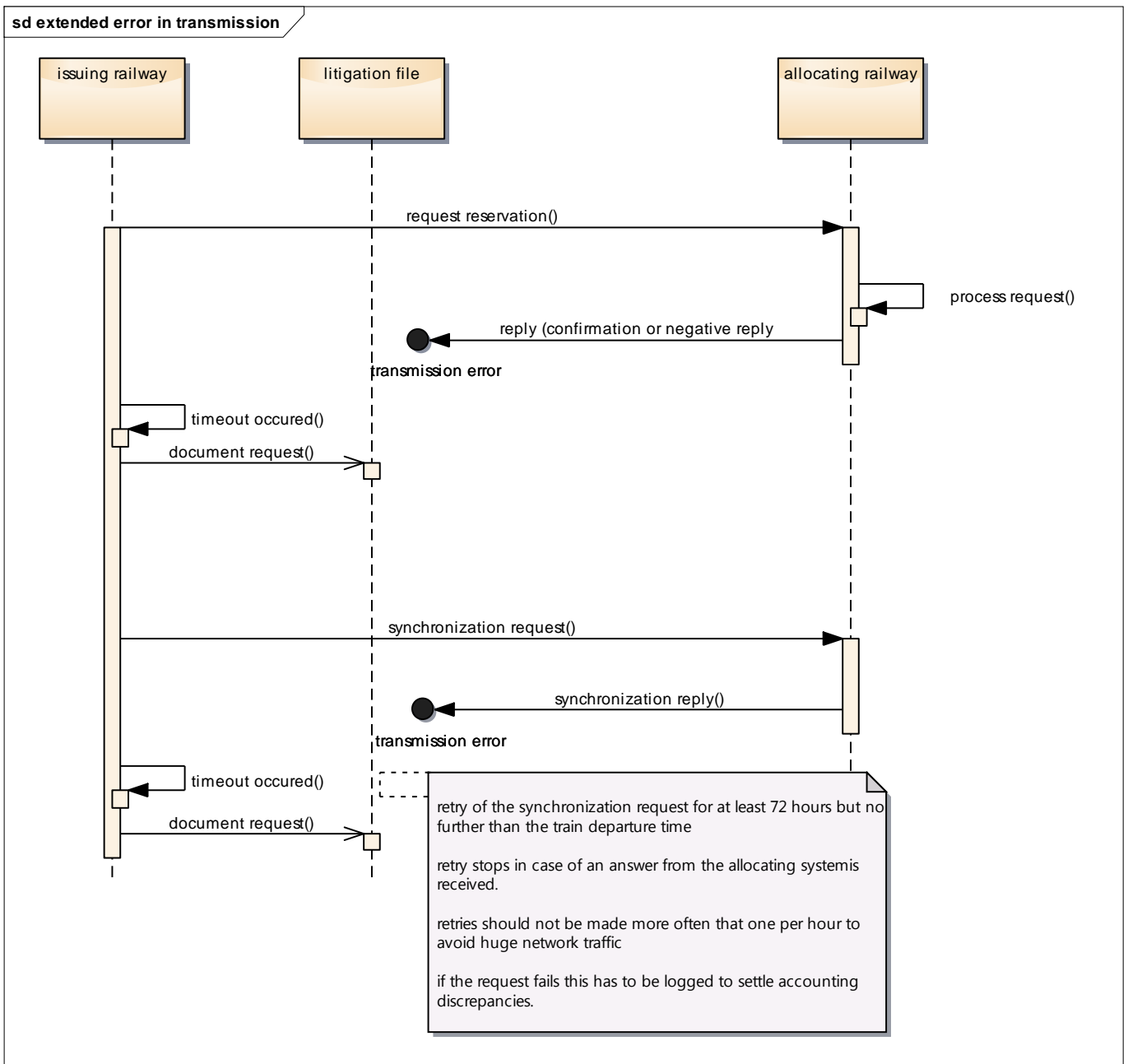
sd extended error in transmission

A.2.7 - Extended error recovery in case of Time Out on Cancelation

This is the recommended error handling in case of a time out on a cancellation or correction request. The scenario extends the mandatory minimal behaviour specified in section "**Error! Reference source not found.**" and "**Error! Reference source not found.**".

In case of a time out on a cancellation or correction request the issuing system must repeat the request to the allocating system until the system received a reply different from a negative reply with an error code 110 and 111.

Any time out should be documented in the litigation file.

The sending of the cancellation or correction message should be repeated until a reply is received. The repletion should be continued for 72 hours but not beyond the departure date of the train. To avoid network traffic the request should not be repeated more than one time per hour.
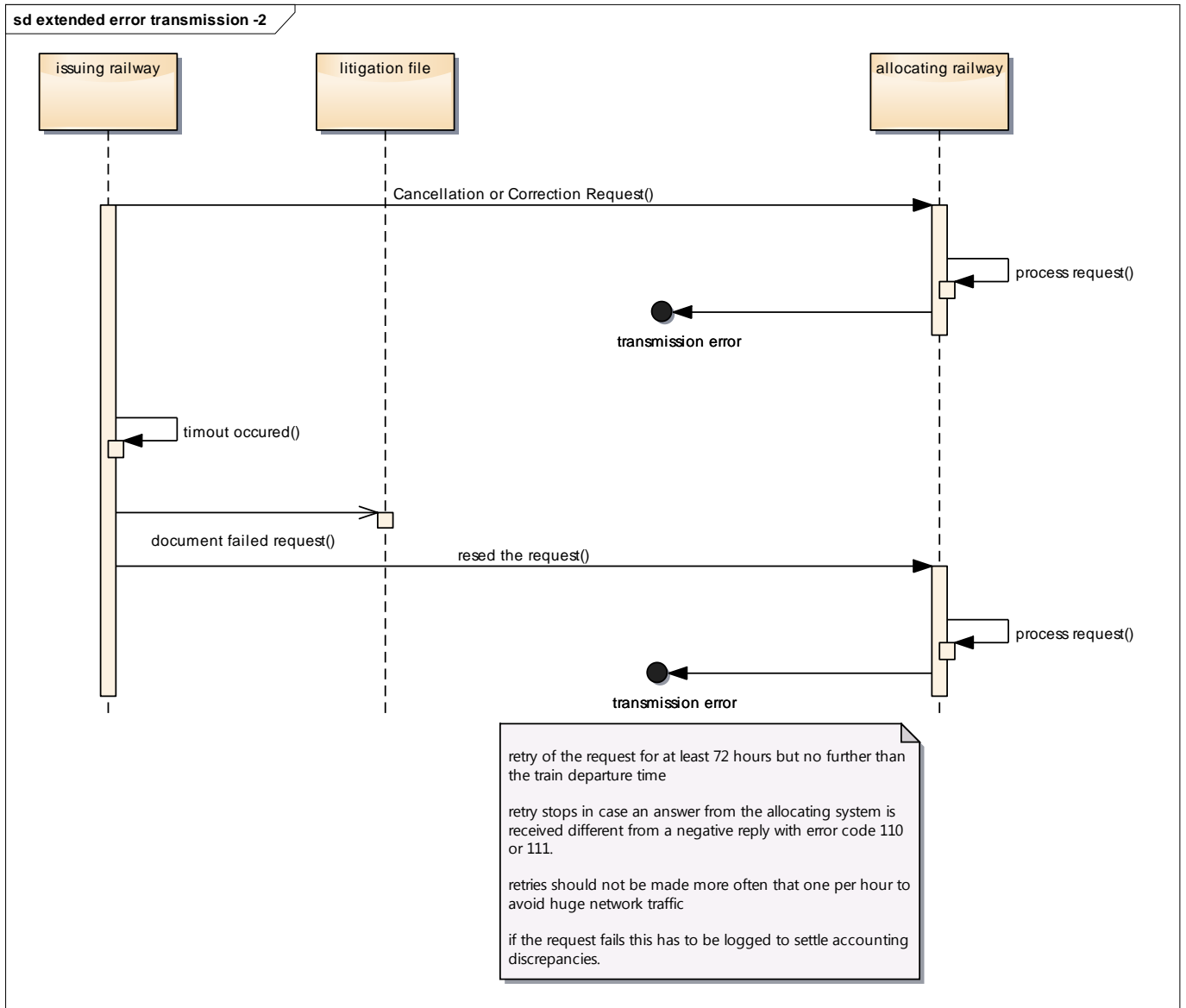
A.2.8 – Repeated requests on Cancellation

The allocating railway can support different scenarios on repeated requests for a cancellation:

Scenario 1: Negative reply on already cancelled reservation

The allocating system returns a negative reply on a request for a reservation already cancelled.
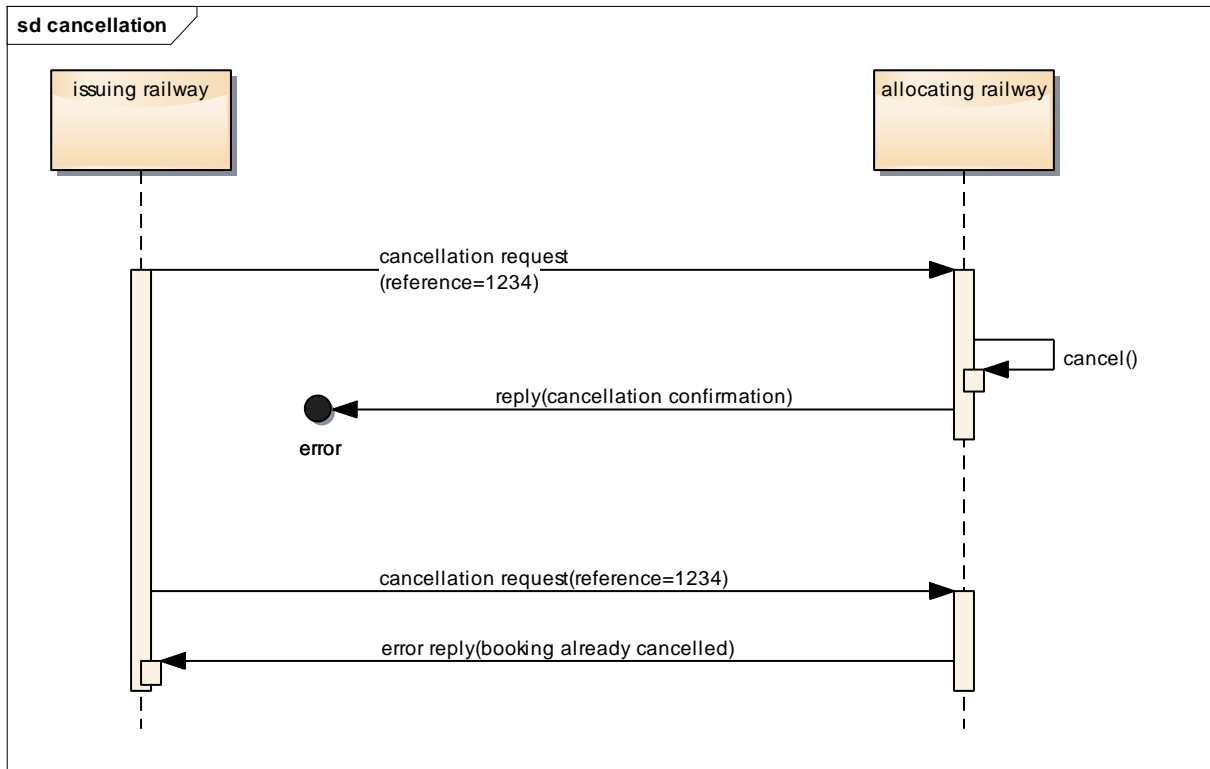
Scenario 2: Repeated reply on already cancelled reservation

The allocating system returns a repeated confirmation of the cancellation indicating the original cancelling railway and the original cancellation date to indicate that this confirmation   has already been sent.

The issuing system must ensure the refund is given to the customer only one time. Thus it has to check whether the cancellation confirmation had already been forwarded to the customer or not.

In case the cancellation was originally made by another issuer no refund should be given to the customer without ensuring that there has not been a refund yet.

sd repeated cancellation confirmation

issuing railway | allocating railway

cancellation request(reference=1234)

cancel()

reply(cancellation confirmation)

error

cancellation request(reference=1234)

reply(cancellation confirmation + original cancellation date + cancelling reservation system)

refund to customer()

sd repeated cancellation confirmation II

issuing railway | allocating railway

cancellation request(reference=1234)

cancel()

reply(cancellation confirmation)

cancellation request(reference=1234)

reply(cancellation confirmation + original cancellation date + cancelling reservation system)

create error message to customer(cancellation already done)

A.3 - Exchange protocol using web services

A.3.0 - General

This transmission protocol can be used in case of communication with a web service. It concerns only the requesting and replying applications. It is assumed, that the xml version of the messages is used.

The connection between the terminals and systems to which they are connected, are the exclusive responsibility of these systems.

A.3.1 – Reservation Request Timeout

Situation:

The issuing system has sent a reservation request and did not receive a reply in time.

Reaction:

The issuing system sends a synchronization request and repeats this request until it is successful.

Responsibilities:

The issuing system is responsible to send the synchronization request(s).

The issuing system is responsible to send synchronization requests that identify a reservation request uniquely by date and dialogue number. It is not allowed to reuse a dialogue number that has been used for a reservation on that date except this reservation was already cancelled.

The allocation system is responsible to clean up any reservation that might have been made in case the issuing system sends the appropriate synchronization requests. The allocating railway must not account for this reservation.

sd time out II

The note in the diagram reads:

retry of the synchronization request for at least 72 hours but no further than the train departure time

retry stops in case of an answer from the allocating system other than system not available (110 or 111 or 001 or 002).

retries should not be made more often that one per hour to avoid huge network traffic.

if the request fails finally this has to be logged to settle accounting discrepancies.

A.3.2 – Cancellation, Synchronization or Rollback Time Out

Situation:

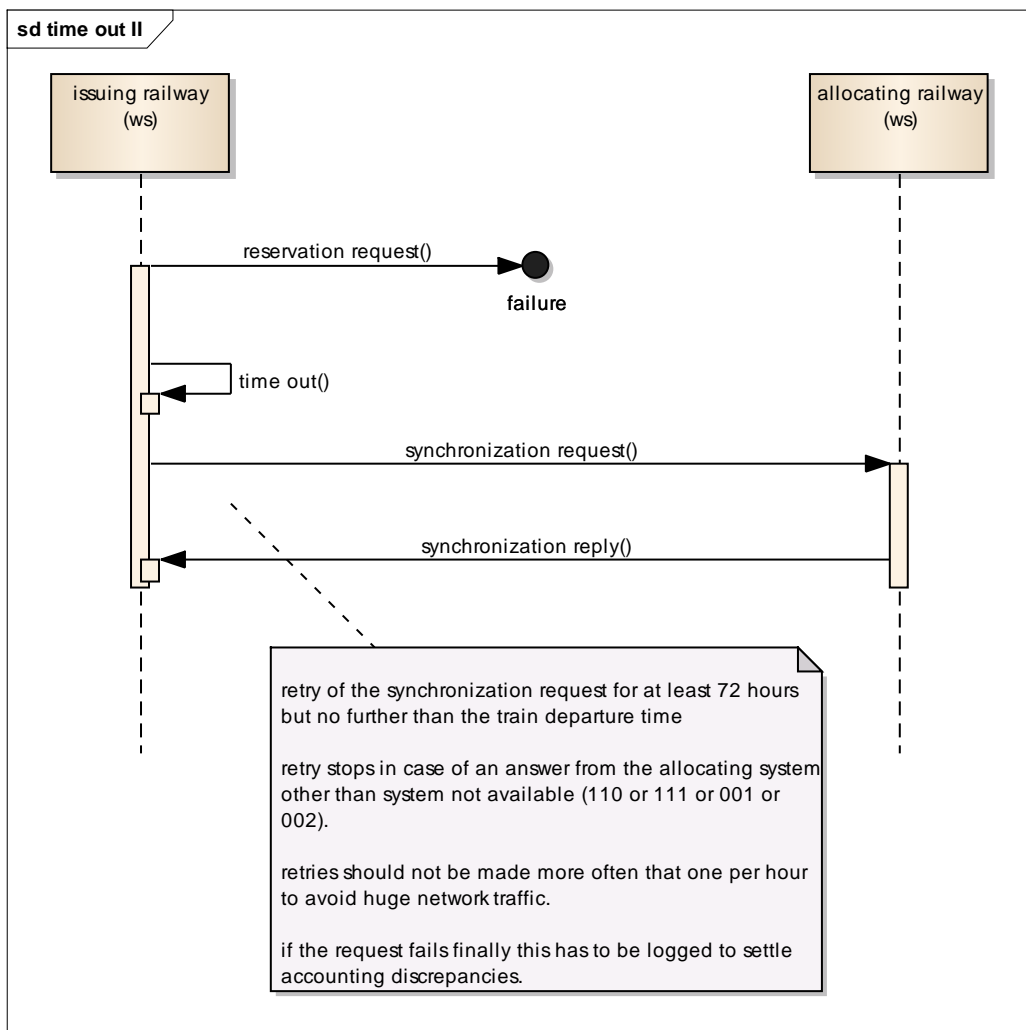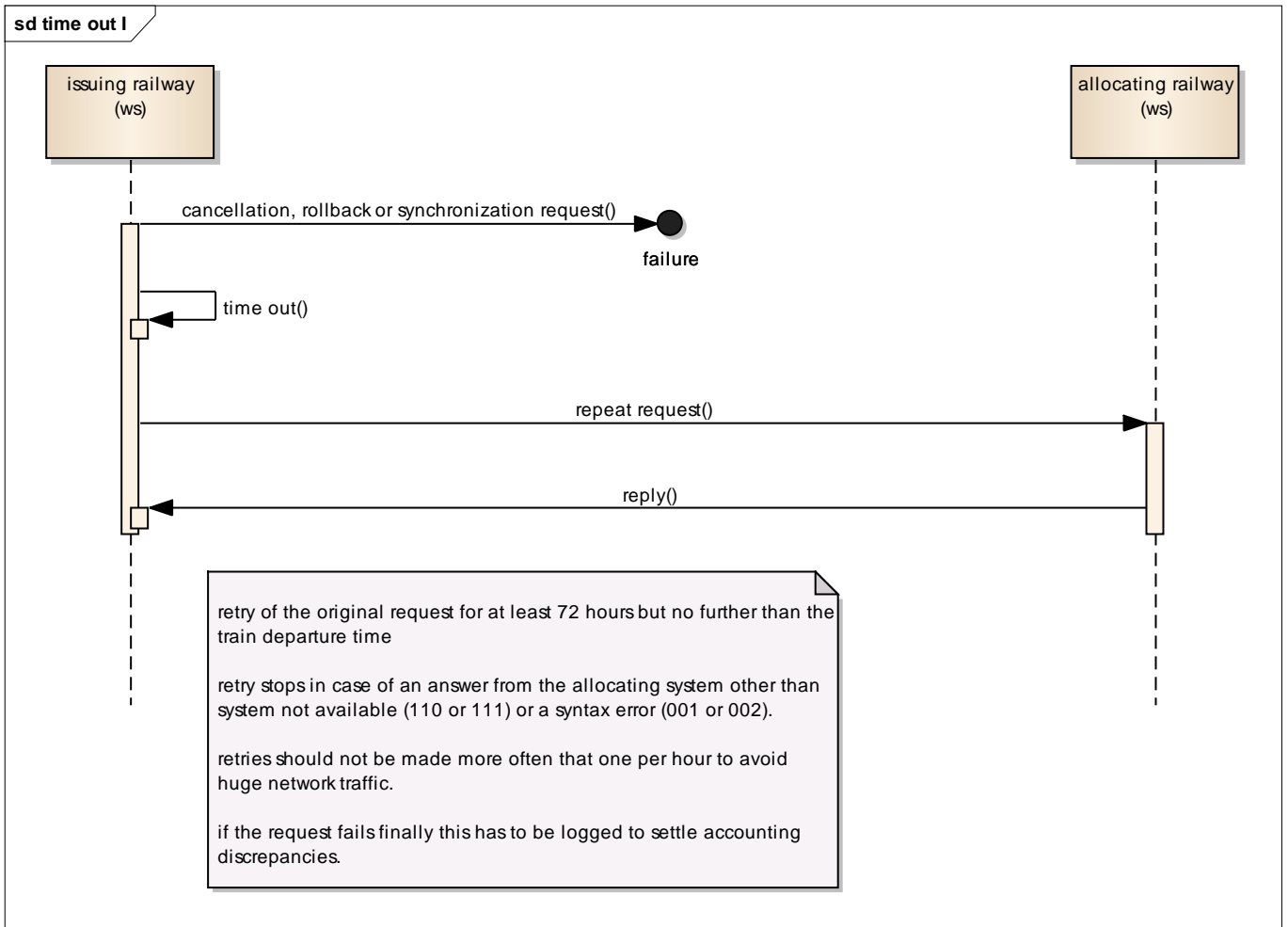The issuing system has sent a cancellation, synchronization or rollback request and did not receive a reply in time.

Reaction:

The issuing system repeats the request until it is successful.

Responsibilities:

The issuing system is responsible to resend the request.

sd time out I

issuing railway
(ws)

allocating railway
(ws)

cancellation, rollback or synchronization request()

failure

time out()

repeat request()

reply()

retry of the original request for at least 72 hours but no further than the train departure time

retry stops in case of an answer from the allocating system other than system not available (110 or 111) or a syntax error (001 or 002).

retries should not be made more often that one per hour to avoid huge network traffic.

if the request fails finally this has to be logged to settle accounting discrepancies.
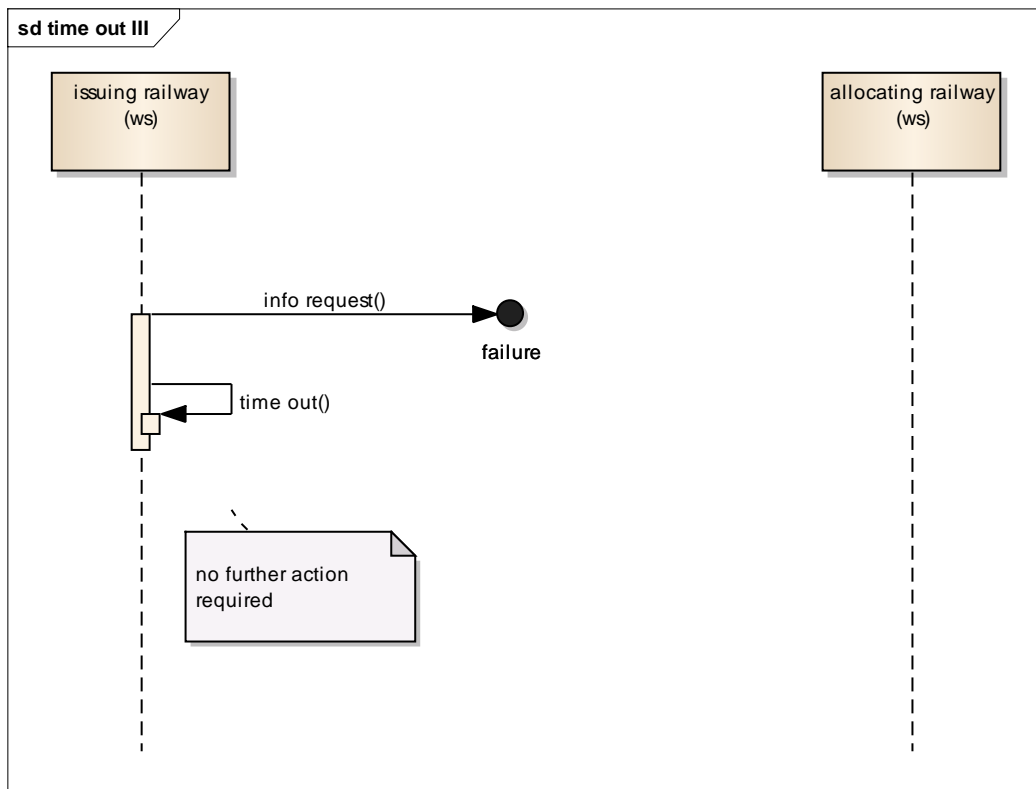
A.3.3 – Information Request Time Out

Situation:

The issuing system has sent an information request (e.g. an availability request or a reservation info request) and did not receive a reply in time.

Reaction:

None.

Responsibilities:

None.

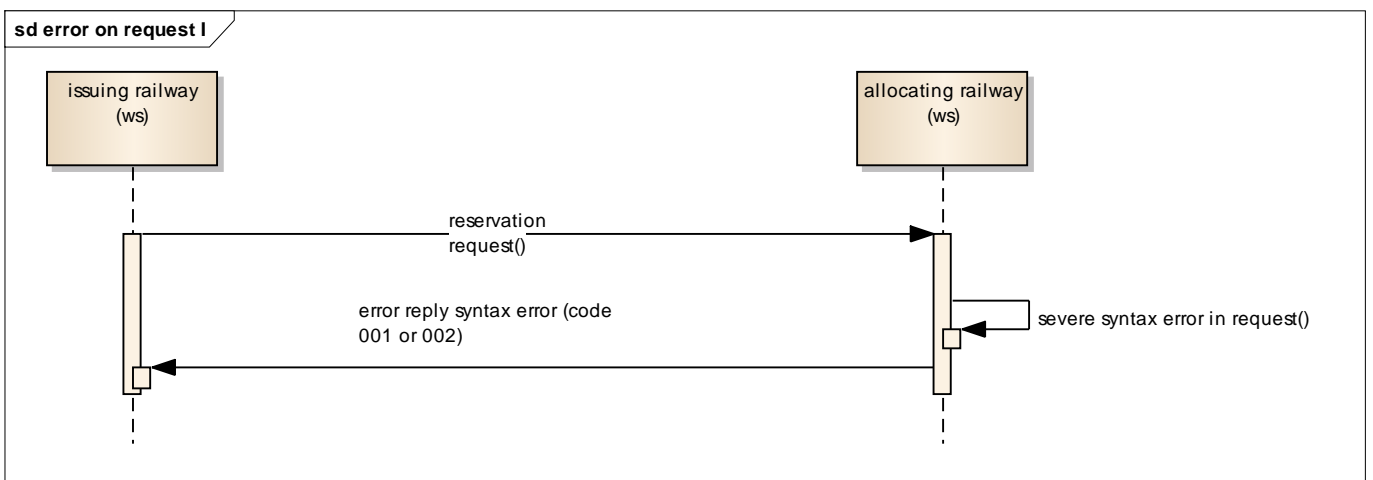### A.3.4 – Reservation Request cannot be processed by allocating system

Situation:

The issuing system has sent a reservation request and did receive a syntax error (code 001 or 002).

Reaction:

None.

Responsibilities:

The allocation system is responsible to clean up any reservation that might have been.

A.3.5 – Cancellation, Synchronization or Rollback Request Syntax Error

Situation:

The issuing system has sent a cancellation, synchronization or rollback request and did receive a syntax error.

Reaction:

The issuing system repeats the request until it is successful. The issuing protocols the issue.

Responsibilities:

The issuing system is responsible to resend the request and to investigate the issue. The issuing system is responsible to close the reservation requests to the allocating system if the error cannot be corrected immediately.

The allocating system might close the reservation service for this issuing system to prevent further damage.

sd error on request II

issuing railway (ws) → allocating railway (ws): cancellation, rollback or synchronization request()

severe syntax error()

allocating railway (ws) → issuing railway (ws): error reply syntax error (code 001 or 002)

immediate action is required. It is recommended to shut down the reservation service with the allocating system who sent the error until the issue is resolved.

issuing railway (ws) → allocating railway (ws): cancellation, rollback or synchronization request()

allocating railway (ws) → issuing railway (ws): reply()

retry of the request for at least 72 hours but no further than the train departure time

retry stops in case of an answer from the allocating system other than system not available (110 or 111 or 001 or 002).

retries should not be made more often that one per hour to avoid huge network traffic.

if the request fails finally this has to be logged to settle accounting discrepancies.

A.3.6 – Reservation Reply cannot be read by issuing system

Situation:

The issuing system has sent a reservation request and did receive a reply. An error occurred during the processing of the reply. The reply was not readable.
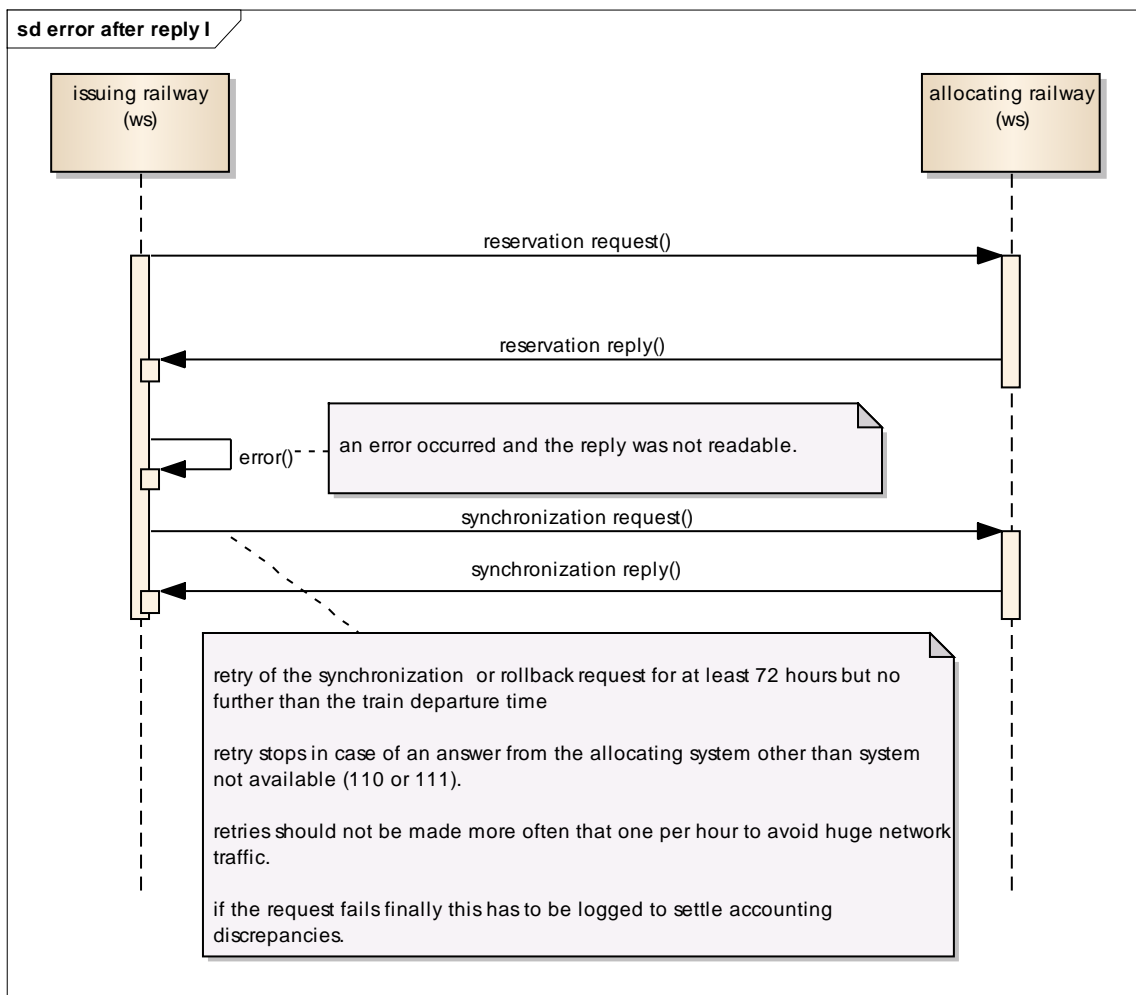
Reaction:

The issuing system sends a synchronization request. The synchronization request has to be repeated if it is not successful.

Responsibilities:

The issuing system is responsible to send the synchronization request.

The issuing system is responsible to send synchronization requests that identify a reservation request uniquely by date and dialogue number. It is not allowed to reuse a dialogue number that has been used for a reservation on that date except when this reservation was already successfully cancelled.

A.3.7 – Reservation Reply cannot be processed by issuing system

Situation:

The issuing system has sent a reservation request and did receive a reply. An error occurred during the processing of the reply. The reservation reference number could be retrieved from the reply.
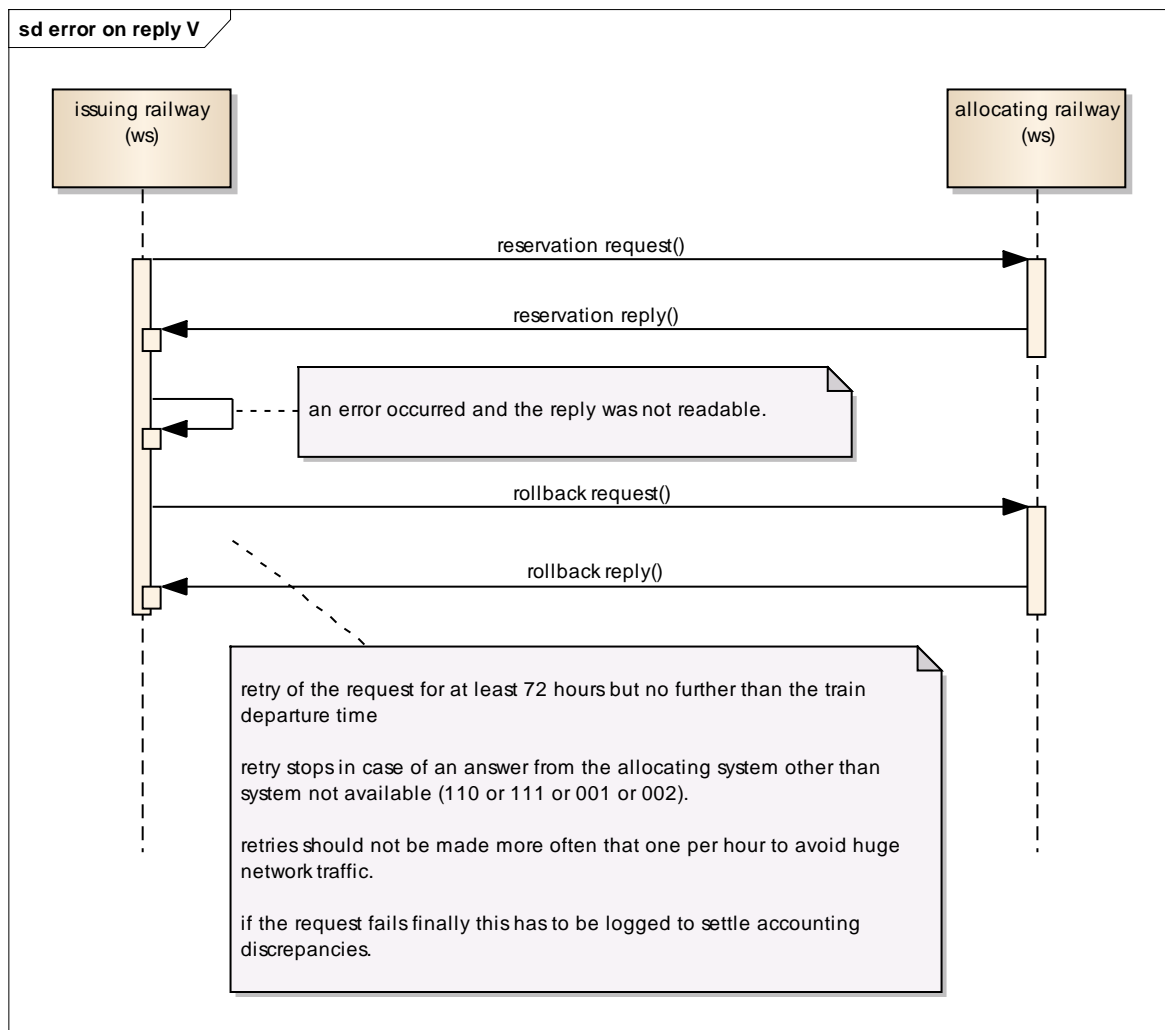
Reaction:

The issuing system sends a rollback request. The rollback request has to be repeated if it is not successful.

Responsibilities:

The issuing system is responsible to send the rollback request.

The allocating system must cancel the reservation if the issuing system sends the request properly.

A.3.8 – Cancellation, Synchronization or Rollback Reply Error

Situation:

The issuing system has sent a cancellation, synchronization or rollback request and did receive a reply. An error occurred on processing the reply.
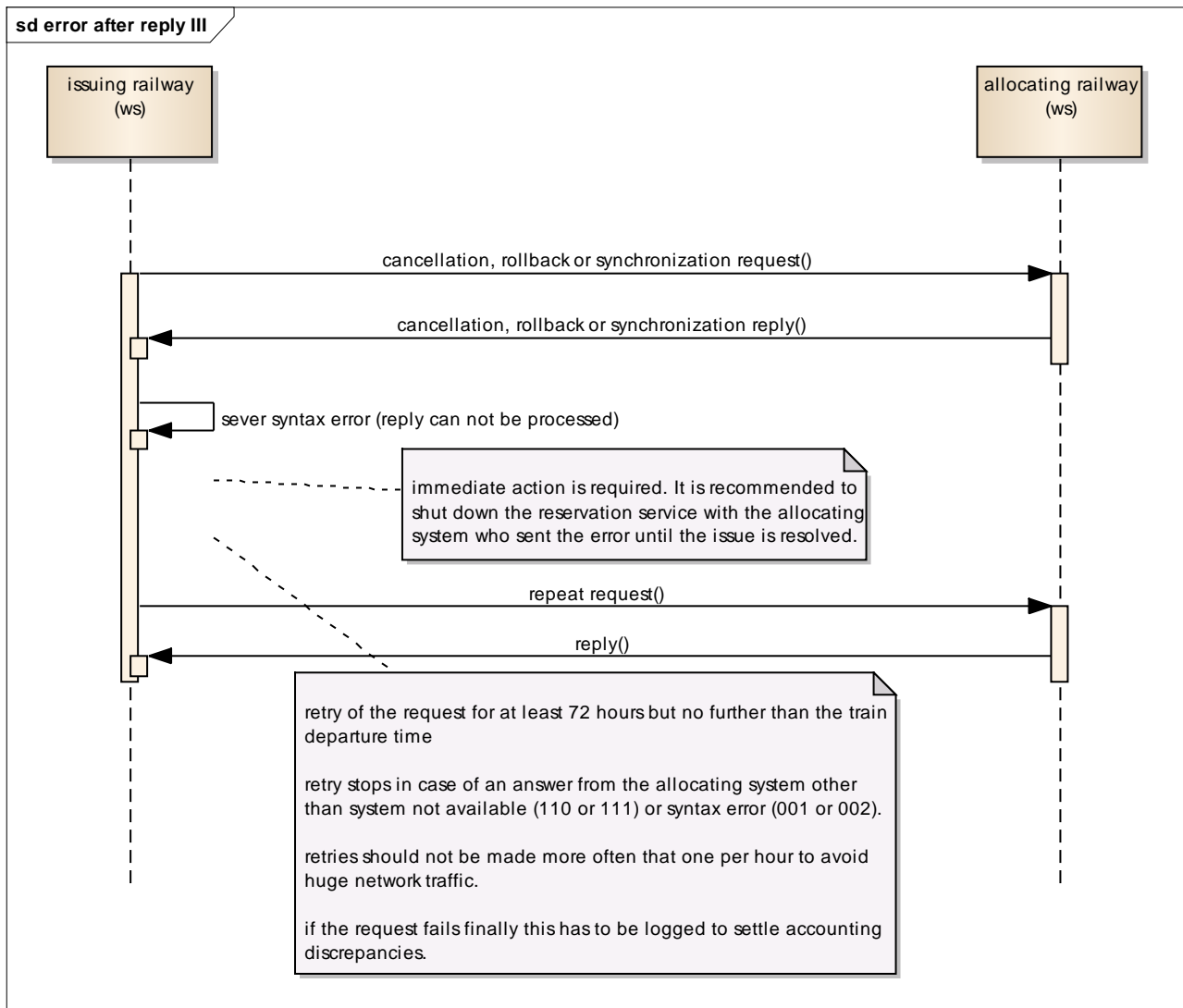
Reaction:

In case that the issuing system cannot decide whether the transaction was successful the issuing system repeats the request until it is successful. The issuing protocols the issue.

Responsibilities:

The issuing system is responsible to resend the request and to investigate the issue. The issuing system is responsible to close the reservation requests to the allocating system if the error cannot be corrected immediately.

The allocating system might close the reservation service for this issuing system to prevent further damage.

sd error after reply III

issuing railway (ws)		allocating railway (ws)

cancellation, rollback or synchronization request()

cancellation, rollback or synchronization reply()

sever syntax error (reply can not be processed)

immediate action is required. It is recommended to shut down the reservation service with the allocating system who sent the error until the issue is resolved.

repeat request()

reply()

retry of the request for at least 72 hours but no further than the train departure time

retry stops in case of an answer from the allocating system other than system not available (110 or 111) or syntax error (001 or 002).

retries should not be made more often that one per hour to avoid huge network traffic.

if the request fails finally this has to be logged to settle accounting discrepancies.

A.3.9 – Information Request Error
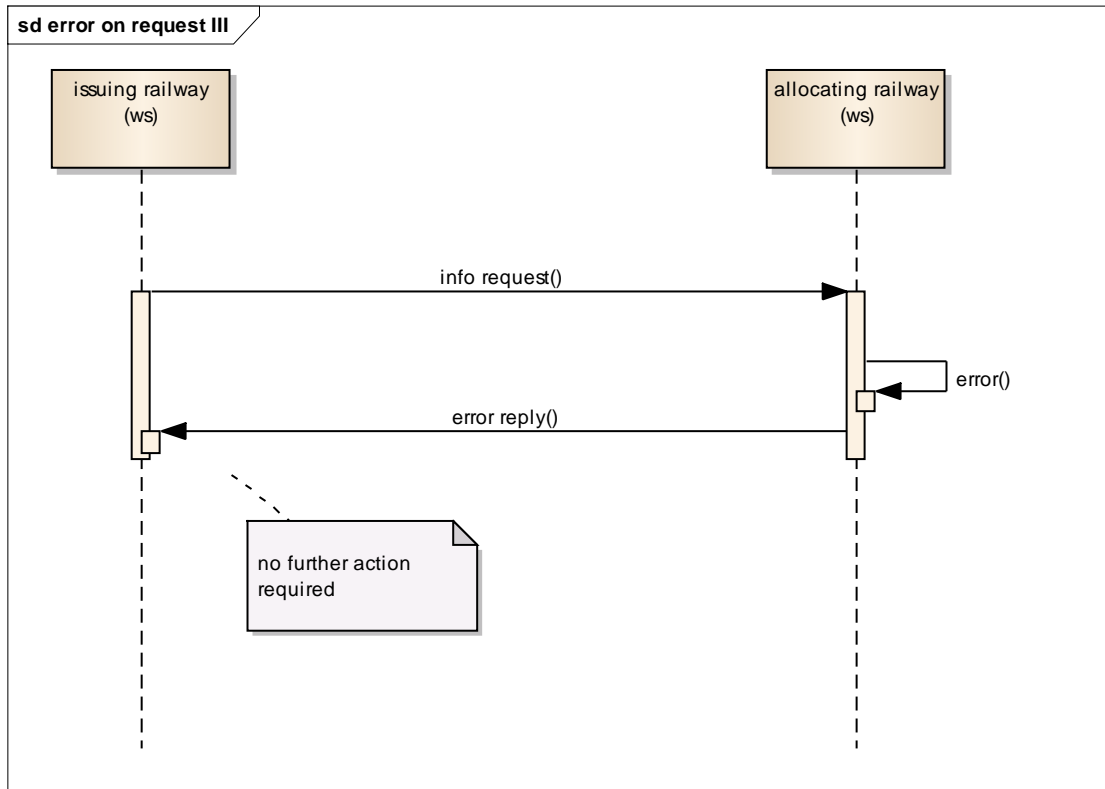
Situation:

The issuing system has sent an information request (e.g. an availability request or a reservation info request) and did receive an error reply

Reaction:

None.

Responsibilities:

None.

sd error on request III

issuing railway
(ws)

allocating railway
(ws)

info request()

error()

error reply()

no further action
required

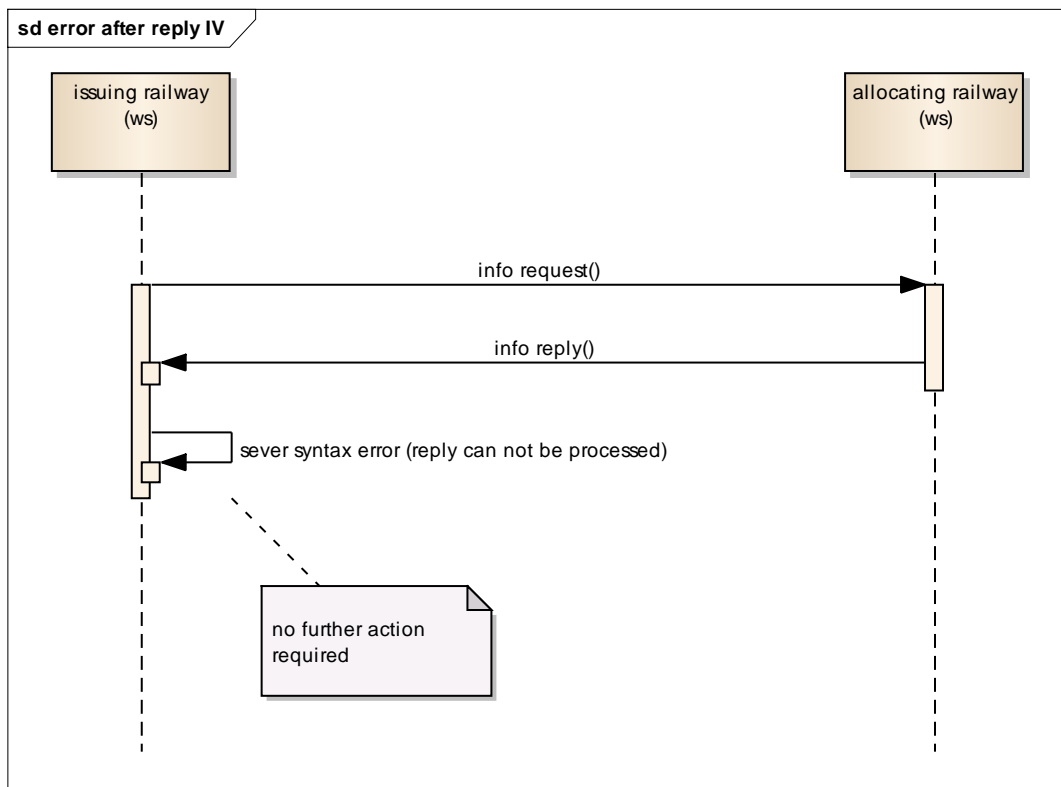## A.3.10 – Information Reply Error at the Issuing System

Situation:

The issuing system has sent an information request (e.g. an availability request or a reservation info request) and cannot process the reply

Reaction:

None.

Responsibilities:

None.

7.   Bibliography

7.1.   ERA Technical Documents

ERA TAP TSI Technical Document B.11: LAYOUT FOR ELECTRONICALLY ISSUED RAIL PASSENGER TICKETS

ERA TAP TSI Technical Document B.12: DIGITAL SECURITY ELEMENTS FOR RAIL PASSENGER TICKETING

ERA TAP TSI Technical Document B.8: Standard numerical coding for railway undertakings, infrastructure managers and others companies involved in rail-transport chains, Version 2.0 FINAL, 25.02.2015

ERA TAP TSI Technical Document B.9: Standard numerical coding of locations, Version 2.0 FINAL, 25.02.2015

7.2. International standards

International Organization for Standardization (ISO)

ISO 4217:2001 - Codes for the representation of currencies and funds, August 2001

ISO 3166:2006 - Codes for the representation of names of countries and their subdivisions, 2006