

**Subject: Business Requirements Document (BRD) for
Aviation Information Data Exchange (AIDX) message**

Revision History:

Version	Reason	Date
Original draft	Draft functional requirement	16th December 2007
IATA 1.0	Reflects final working version presented to IATA following Oct 2008 XML Working Group in GVA.	10 November 2008

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Introduction

A common requirement exists for airlines to send updated flight information to an airport in real time for flights in the current operational window. The operating window varies between airports but typically covers the 48 hour period in advance of the scheduled flight date and may also include 24 hours after the scheduled flight date.

Examples of operational flight data include flight times, airport resources used by the flight, flight status and code share information.

This information is typically required by the airport for multiple purposes including real time updates to various systems such as Flight Information Display System (FIDS), Resource Management System (RMS) or Baggage Handling Systems (BHS).

Prior to this standard, such information was sent in the form of proprietary message structures which do not have the benefit either of new technology or of standardization. As a result each airport had to implement different protocols for each separate airline link, making the implementation complex and costly. Likewise airlines often had to implement and maintain different interfaces for different airports.

This BRD aims to define one or more standard schema to send flight information from an airline to an airport. Use of the message schema is not limited to airline-to-airport messages. It could be used as the basis for other flight information distribution requirements, such as from an Airport Operational Database (AODB) to airport systems (such as FIDS, BHS etc).

The standard includes optional features to:

- a) Enable a receiving system to make requests of the sender for data.
- b) Enable the receiver to send message application acknowledgements and/or data content error messages

The objective is that the schema comprises a superset of information that airlines might wish to send, so typically an individual sender will agree to send only a defined subset.

No recommendation is given to the underlying transport protocol. In the simplest situation, for example, it allows messages to be sent using HTTP Push, but in other situations other protocols can be used.

The XML types (simple types and complex types) defined to support the AIDX message are documented within a schema. The type definitions will also be included in the IATA XML Data Dictionary for reuse across other application areas. Any resulting standard will conform to the IATA XML Best Practices.

The associated Recommended Practice (1797a) document will contain guidance on usage of the message.

An Implementation Guide will accompany the final schema version. That Guide will contain the “State Diagrams” to aid in understanding the various states of a flight assumed during the data transfers.

1.1 Future Enhancements

The policy for future enhancements is to create new versions with minimum impact on installations that are using a previous version. In order to achieve backwards compatibility, it is the intent that future schema changes will be limited to the addition of optional elements as much as possible.

These topics were removed from consideration for the 8.2 version and are to be considered for future enhancements:

1. Elements relating to door id, door status, door time.
2. Various reporting data.
3. Additional filters / selection rules for requesting data by the receiver (section 7.10) and/or acknowledgment by the receiver (section 7.11).
4. Elements to help manage the de-icing process.
5. Various fields to be displayed on RIDS (airline only) and GIDS (public hold room) monitors.
6. Elements relating to ground handling equipment, power or air units, etc.
7. Any discussion of AIDX sending complete flight messages vs. only the “delta” or changes to a flight or leg.
8. Is it possible for a code share flight to detach from its master flight; have different origin dates? Changes made to 8.2 version allow unique origin flight date.
9. Should Unique Flight Leg Identifier allow flight number to be optional? Or allow different values for military and charter?
10. Consider elaborating on the Operational Status field of 7.2 “Flight Leg Data” to allow public/private or landside/airside or other options.
11. Address UTC implications as presented by Qantas et. al. in future versions.
12. Additional data / requirements to handle or assign multiple resources to the same flight leg – currently simply allowed multiple gates and terminals but no classification or details assigned
13. The current requirements related to passenger count data are basic – simply providing a head count in each cabin. More complex requirements e.g. numbers of transfer or transit or local passengers are not included
14. Baggage – requirements may exist where multiple baggage reclaim units are used for different functions. (e.g. ATL where international use 1 unit prior to customs and a different one after). This not currently provided for.

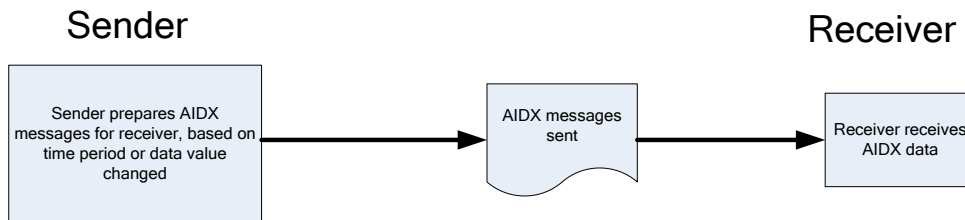
2 Message Data Flows

2.1 AIDX Message Set

The message data flows described below in this Business Requirement Document are comprised of three message types:

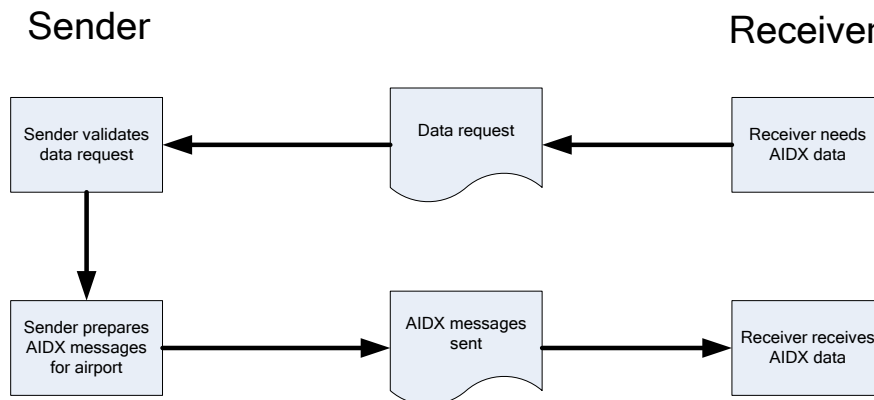
- 1) Flight Leg Message. A message for disseminating flight information
- 2) Flight Data Request Message. A message for requesting flight information
- 3) Flight Data Acknowledgement Message. A message to acknowledge the receipt of flight information

2.2 Basic Dataflow - No Application Acknowledgement



This exchange can be sent for all of an airline's flights or for only one or more of an airline's flights.

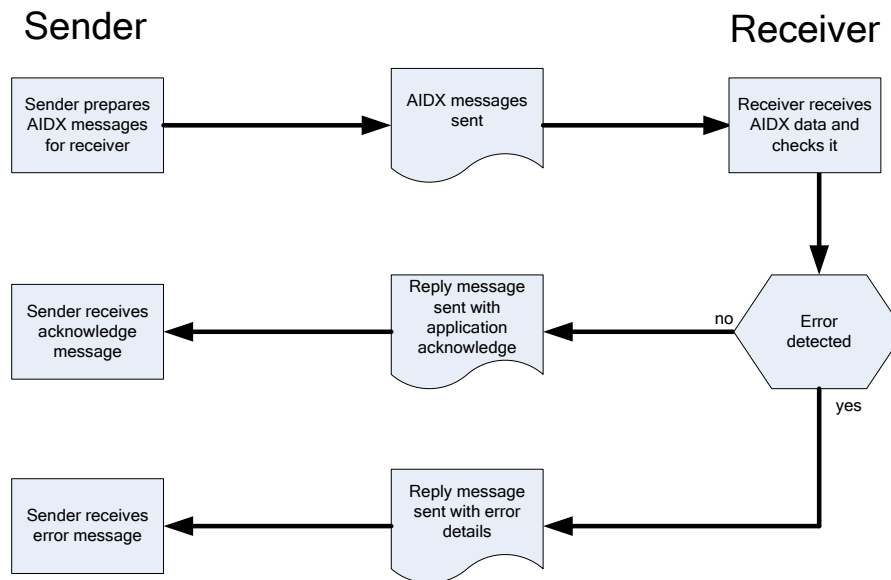
2.3 Data Receiver Request Message



The objective of this optional exchange is for the data receiver to be able to request from the sender data for all flights or all flights for a requested carrier, in order to refresh the receiver's database. Future releases may define the additional options, such as to request and send partial data (one or more specific set of data).

The AIDX data messages will be supplied by the sender as per the normal operational mode of the interface. Therefore if the application level acknowledgment (section 2.3) is normally used it would be used here also.

2.4 Optional - Message Application Acknowledgement by Data Receiver



This optional exchange allows for the transmission of message acknowledgments as well as indicators of message errors. The AIDX data messages will be supplied by the sender as per the normal operational mode of the interface.

3 References

1. AIDX Executive Summary – Located on the IATA AIDX portal <https://extranet.iata.org/sites/padis/xml/default.aspx>
2. ACI AIDX schema 7.1 - Located on the on IATA AIDX portal <https://extranet.iata.org/sites/padis/xml/default.aspx>
3. IATA RP 1797a AIDX Recommended Practice - Located on the on IATA AIDX portal <https://extranet.iata.org/sites/padis/xml/default.aspx>
4. IATA XML Best Practices

4 Terms and Definitions

AIDX – Aviation Information Data Exchange (formally known as FIMS)

AODB – Airport Operational Database

Application Acknowledgement - a data or system level response provided by a message receiver to a message sender to indicate at a data / system level that the message has been accepted and understood or that the message was not understood.

BHS – Baggage Handling System

Bilateral Interface Agreement – A documented agreement made between the sender and the receiver prior to the live operation of each message interface. This agreement defines a number of features which are mandatory and optional within this specification and may include commercial restrictions concerning the proprietary nature of the data.

Carrier/airline – The term “carrier” is used interchangeable with the term “airline” in this Business Requirement Document.

Code Set – A list of required values used to standardize data content and meaning. Existing Code Sets from IATA will be used as the default. Additional necessary codes will be added to this document.

FIDS - Flight Information Display System

FIMS – Flight Information Management System

Flight – the airborne activity of an aircraft defined by one primary identifier and possibly one or more additional identifiers (i.e. code shares). A flight may comprise from one to many flight legs.

Flight Leg – An aircraft movement comprising the flight between a departure airport and the corresponding arrival airport.

Marketing airline – a carrier with an agreement (with an operating airline) to jointly promote a flight, also known as a code share. A passenger may purchase a ticket from the marketing airline for a flight of the operating airline. The marketing airline may assign their own flight number to the flight and often the marketing airline’s name, logo and flight number are displayed to the public.

Multi Sector Flight – A flight comprised of more than one flight leg.

OOOI times – a set of times related to the operation of an aircraft departing from one gate / airport and arriving at the next airport and gate, i.e. covering the start and end of a flight leg. The definition of OOOI is Out, Off, On and In. Each one meaning:

- Out – Out of the gate, i.e. push back or off blocks, related to the departure end of the flight leg
- Off – Off the ground, i.e. take off, airborne or wheels up, related to the departure end of the flight leg

- On – On the ground i.e. landed or touched down, related to the arrival end of the flight leg
- In – In the gate i.e. on blocks or arrived, related to the arrival end of the flight leg

Operating Airline – the airline that carries out the flight, this will be the airline name on the passengers' ticket. In the majority of cases the owner and operating airline are the same, but not all E.g. Air Wisconsin own and fly aircraft for United who are the operating airline. The SSIM definition of the Operating Airline is the 'Administering Carrier'

Operational Window – That period agreed between the relevant parties, in which updates to flights operating in the window are required for distribution to interested parties. Note, the primary use of the AIDX standard is during the operational window, but wider usage is not excluded.

Owner Airline – the organization that owns and maintains the aircraft. This will be the airline name used in the Air Traffic Control (ATC) filed flight plan. The flight number used by the owner airline may differ from that used by the operating airline.

RMS - Resource Management System

Single Sector Flight – A flight comprised of a single flight leg.

Unique Flight Identifier – The data fields which together define a unique flight leg

5 Scope

5.1 Field Of Application – Inclusions

- 5.1.1 The primary field of application is the transmission of flight information from an airline to an airport, within the operational window. It should be noted that data senders may use different operational windows. The resolution of different senders' operational windows is the responsibility of the receiver.
- 5.1.2 Additional usage of the application data may include any flight information transfer where the schema is applicable.
- 5.1.3 A message (Section 2.2 above) will be defined to enable a data recipient to request data from the sender.
- 5.1.4 A message(s) (Section 2.3 above) will be defined which the data recipient may send on receipt of each data message to inform the sender of the following:
 - a) Application Acknowledgement that a properly formatted message has been received
 - b) Indication that data has been received but with content or validation error

5.2 Field Of Application - Exclusions

The following facilities are not in scope

- 5.2.1 The underlying transport mechanism including message delivery is excluded.
- 5.2.2 Details on how a recipient system internally processes, stores or distributes the information are excluded.
- 5.2.3 Details on how a sender system internally constructs or distributes the information are excluded.
- 5.2.4 Additional features to permit request/re-request of partial data may be included in future releases.

5.3 Principles

- 5.3.1 The sender must ensure that when an AIDX message is sent, it contains the latest information.
- 5.3.2 The receiver should process messages in the order received. Where the message sequencing cannot be guaranteed, then the receiver may need to implement corrective action.
- 5.3.3 It is the responsibility of the airline operating the flight leg to provide information on associated code share flights. Code share data is included

with the operating flight data and therefore must not be transmitted as separate flight records.

- 5.3.4 In addition to the AIDX RP and any schemas used to fulfill this BRD, it is suggested that an Bilateral Interface Agreement is made between the sender and recipient prior to implementation, in order to define details of the message exchange.
- 5.3.5 Flight numbers shall be sent without leading zero. If a leading zero is included, then this is assumed as part of the flight number.
- 5.3.6 In some cases there could be multiple parties sending the same flight information, for example estimated arrival time sent from an airline or FAA or third party. There may be differences in the data depending on the Sender. It is the responsibility of the Receiver to resolve this issue based on the provisions of the Bilateral Interface Agreement.

6 Functional Requirements

- 6.1 Each of the AIDX message types includes a message header containing mandatory time stamp and sender identification.
- 6.2 The Flight Leg Message schema allows incorporation of flight information associated with one or more flights within a single message.
- 6.3 The structure of the Flight Leg Message shall be flight leg-based. There may be from one to many flight legs in a Flight Leg Message, each of which describes a single departure followed by an arrival. Whether the receiver can accommodate multiple flight records in a single message should be defined in the interface agreement.
- 6.4 Each flight leg within a Flight Leg Message incorporates a mandatory unique flight leg identifier.
- 6.5 In the Flight Leg Message, with the exception of the message header and the unique flight identifier for each flight leg, all elements are optional, allowing the sender to define the subset it wishes to send.
- 6.6 Every time the sender sends a Flight Leg Message, it will include every data item within the agreed subset with the values known at the time of message transmission. Where values are not known then the item should not be provided in message. An AIDX message will contain no indication of what data may have changed from previous transmissions.
- 6.7 It is required that a sender can clear or blank out a data value previously provided. For example when a gate is now unassigned but previously allocated.
- 6.8 It is suggested that the following features shall be defined within the Bilateral Interface Agreement for each interface:
 1. The maximum subset of the Flight Leg Message schema which the sender is capable of sending.
 2. The use of the optional data request message from the data recipient.
 3. The use of optional message application acknowledgement and/or error detection feature from the data recipient – including any timeout parameters
 4. Any other information which needs to be agreed for the unambiguous implementation and operation of the sender to receiver interface

7 Data Description

7.1 Header

Header					
Field Name	Mandatory /Optional	Description	Format	Codeset/ Enumeration	Note
UPDATE_DATE_TIME	M	Message creation date/time (includes seconds and sub-seconds)	xs:dateTime		Expressed in UTC time; it is proper to include the Z for Zulu time zone. Ex: 2001-11-27T19:32:52Z
ORIGINATOR	M	Identifier of the originator of the message	xs:string		Inverted form of the domain name. ex: gov.ca.sfo or com.united
ORIGINATOR_QUALIFIER	M		xs:string	IATA codeset 9972 (section 9.13)	Airline, ATC, Consolidator, or Ground Handler Ex: A for airline
DELIVERING_SYSTEM	O	Identifier of the delivering system of the data if different from the originator.	xs:string		Inverted form of the domain name. ex: gov.ca.sfo or com.united
SEQUENCE_NUMBER	M	Each message will contain a sender sequence number. The sender will increment the number by one in each message. The number may wrap around or be periodically reset. Within a given operational period, the sequence number should not wrap or be reset. Used by the receiver for message ordering or checking, or for diagnostics purposes.	xs:unsignedLong		This will be as defined in the IATA XML standard payload schema

Header					
Field Name	Mandatory /Optional	Description	Format	Codeset/ Enumeration	Note
TRANSACTION_NUMBER	O	To provide CORRELATION_NUMBER as requested			This will be as defined in the IATA XML standard payload schema

7.2 ***Unique Flight Leg Identifier***

Unique Flight Leg Identifier					
Field Name	Mandatory /Optional	Description	Format	Codeset/ Enumeration	Note
AIRLINE_CODE	M	Operating carrier	xs:string xs:minlength 2 xs:maxlength 3	IATA, ICAO, or Other code	The operating carrier which may differ from the aircraft owner
FLIGHT_NUMBER	M	Actual flight number	xs:string xs:minlength 3 xs:maxlength 4 Values 001-9999		If leading zero is present, this is considered part of flight number ex: 0745
SUFFIX	O	Suffix	xs:string xs:maxlength 1		
ORIGIN_FLIGHT_DATE	M	Scheduled flight origin date based on the flight not the flight leg.	xs:date		Date expressed in UTC. Time is not included. This date MUST not change once initialized in AIDX message. For a flight SFO-DEN-LHR both flight legs SFO-DEN and DEN-LHR will have the ORIGIN_FLIGHT_DATE of the SFO departing date Ex: 2001-11-27
DEP_AIRPORT_CODE	M	Code of scheduled departure airport	xs:string xs:minLength 3 xs:maxLength 4	IATA, ICAO, US-FAA or Other code	This will not change, even in the case of a diversion or other re-routing ex: STL

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ARR_AIRPORT_CODE	M	Code of scheduled arrival airport	xs:string xs:minLength 3 xs:maxLength 4	IATA, ICAO, US-FAA or Other code	This will not change, even in the case of a diversion or other re-routing ex: DEN
REPEAT_NUMBER	O	Repeat or departure attempt	xs:positiveInteger xs:maxInclusive 1		

7.2.1 Special Action Code

Special Action Code					
Field Name	Mandatory /Optional	Description	Format	Codeset/ Enumeration	Note
SPECIAL_ACTION	O	To indicate the action needed for a flight leg record: delete, lock down, no display, empty.	xs:string xs:minLength 2 xs:maxLength 2	DL, LD, DN	<p>Delete the record: DL</p> <p>Lock down the record : LD</p> <p>Do Not display: DN</p> <p>Data Lock down (to be used if there is an operational incident when all information about the flight leg must be protected and access restricted. When the receiver is sent the LD flag then access to the flight leg data should be restricted to admin level access only and not for general use nor does it contribute to the identification of the message).</p>

7.3 *Flight Leg Data*

The different items in this data set are optional but in order for a sender to provide useful information at least one or more of the items should be provided, i.e. the Flight Leg Data is considered mandatory in all AIDX messages.

Flight Leg data					
Field Name	Mandatory /Optional	Description	Format	Codeset/ Enumeration	Note
OWNER_AIRLINE_CODE	O	Aircraft owner code	xs:string xs:minLength 2 xs:maxLength 3	IATA, ICAO, or Other code	The aircraft owner if different from operating carrier ex: UAL, DAL
OWNER_FLIGHT_NUMBER	O	Aircraft owner flight number	xs:string xs:pattern \d{3,4}		The aircraft owners flight number if different from operating flight number. Retain leading zeros. Ex: 030
OWNER_FLIGHT_SUFFIX	O	IATA Suffix	xs:string xs:maxLength 1		Changed to "1"
OPERATING_ALLIANCE	O	Alliance partner of flight leg	xs:string	Codeset 9906 (section 9.11)	
PLANNED_ARRIVAL_AIRPORT_HISTORY	O	Ordered list of stations	xs:string xs:minLength 3 xs:maxLength 4	IATA, ICAO, US-FAA or Other code	Airports that the leg has previously and now been planned to arrive at. The last airport in the list is the currently planned destination See section 10 Ex: ORD
FLIGHT_CLASSIFICATION	O	For express or other sub-carriers for the operating flight.	xs:string xs:maxLength 10	Free text	Commercial name, ex: TED, AmE

Flight Leg data					
Field Name	Mandatory /Optional	Description	Format	Codeset/ Enumeration	Note
SERVICE_TYPE	O	IATA Flight Service Type of the operating flight.	xs:string xs:maxlength 1	IATA codeset	Refer to IATA SSIM service type – appendix C
SPECIAL_EMPHASIS_CODE	O	To flag the flight for special handling. This is a repeating group of up to 3 codes (to allow multiple codes to be provided)	xs:string xs:maxlength ?	New IATA codeset (section 0)	Used to flag that the flight is particular attention / handling e.g. VIP on board. or first flight
TECH_STOP_FLAG	O	Flag indicating this stop is a technical stop.	xs:boolean		A transit flight is defined to be where an aircraft arrives or departs but does not enplane or deplane passengers, cargo or baggage but may conduct fuel, catering, crew change, customs or similar operations
DEP_IRR_DEL	O	This is a repeating group of up to 4 reason codes. Use IATA Irregularity/Delay Code for Departure. See AHM for delay codes and detailed format.	xs:string xs:pattern \d\d	Code reason. IATA PADIS code (section 0)	The code would be as be the IATA standard codes 01-99 check PADIS Codeset (include strike codes). Leading 0 is important ex: 05
DEP_IRR_DURATION	O	This is a repeating group of up to 4 delay durations	xs:duration		Measurements won't use days/years/months, so this field will always begin with PT ex: PT2H15M = 2hrs 15min
ARR_IRR_DEL	O	IATA Irregularity/Delay Code for Arrival	xs:positiveInteger xs:maxInclusive 99	IATA PADIS code (section 0)	The code would be as be the IATA standard codes 1-99 check PADIS Codeset (include strike codes) Leading 0 is important ex: 05
ARR_IRR_DURATION	O	This is a repeating group of up to 4 delay durations	xs:duration		Measurements won't use days/years/months, so this field will always begin with PT ex: PT2H15M = 2hrs 15min

Flight Leg data					
Field Name	Mandatory /Optional	Description	Format	Codeset/ Enumeration	Note
PUBLIC_STATUS	O	Defines status or details about the flight leg that should be used to inform the public. This in addition to the remarks data	xs:string	Codeset 1245 and 2005 (section 9.1 and 9.2)	
OPERATIONAL_STATUS	O	Defines status or details about the flight leg that should be used to inform the airline and airport operational staff. This in addition to the remarks data Multiple occurrences of the current operational state(s) to reflect landside vs. airside statuses.	xs:string	Codeset 1245 and 2005 (section 9.1 and 9.2)	Note that the operational status is needed as an airline may inform the staff of a cancellation before the passengers need to be informed (enabling time to prepare re-routing details etc.) Parking Lot item for Public vs. Private status.
IN_FLIGHT_SERVICE_CODE	O	List of the facilities offered during this flight leg. This is a repeating group of up to 10 to list all the services for each cabin	xs:positiveInteger xs:maxInclusive 99	Codeset 9932 (section 9.12)	Only using the numeric part of the IATA code set.
IN_FLIGHT_MEAL_SERVICE	O	List if the refreshment(s) offered during this flight leg. Defined for each cabin and can be more than one for each cabin (Repeating group).	xs:string xs:maxLength 3	Codeset 7161 (section 9.7)	
DEP_SECURITY_CHECK	O	Specifies that additional security checks are required for the departure part of the flight leg	xs:boolean		
ARR_SECURITY_CHECK	O	Specifies that additional security checks are required for the arrival part of the flight leg	xs:boolean		

Flight Leg data					
Field Name	Mandatory /Optional	Description	Format	Codeset/ Enumeration	Note
SPECIAL_CARGO	O	Details of any special cargo onboard	xs:string	New IATA Codeset (Section 9.17)	Live animals, Hazardous Material, Human remains, dry ice, Special service request
FLIGHT_DURATION	O	Estimated Flight Duration Time Field i.e. the time from off blocks to block time.	xsd:duration		Measurements won't use days/years/months, so this field will always begin with PT ex: PT2H15M = 2hrs 15min

Note: if a flight leg has to be cancelled the sender will indicate this by setting the operational and public status fields to cancelled and updating the remarks as appropriate. The operation may well be informed of a cancelled status before the public to allow time for the staff to prepare for public questions and re-routing etc.

7.4 **Code share Data**

Three items to hold the carrier, flight number and alliance group for each child flight. The data is a repeating group of up to 20 sets.

Code Share data					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
SHARED_CARRIER	O	Marketing airline	xs:string xs:minLength 2 xs:maxLength 3	IATA, ICAO, or Other code	
SHARED_NUMBER	O	Marketing airline flight	xs:string xs:pattern \d{3,4}		Leading 0 must be retained ex: 060
ORIGIN_DATE	O	Scheduled flight origin date of this code share flight	xsd:date		<p>Date expressed in UTC. Time is not included. This date will not change once initialized in AIDX message.</p> <p>Refers to the UTC date of departure of the first sector of this Code share Flight (Code share flights may be single sector or multisector). Note that for a multisector operating flight the Code share ORIGIN_DATE and the operating flightleg ORIGIN_DATE may differ - specifically if the code share starts after the initial sector of the associated operating flightleg, and the initial operating sector goes over a date boundary.</p>

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SHARED_ALLIANCE	O	The alliance partner for each child flight	xs:string	Codeset 9906 (section 9.11)	
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7.5 ***Associated Flight Legs***

This data set replaces the FLIGHT_SEQUENCE and Linked Departure and Arrival Information defined in previous BRDs.





This provides information about the flight legs associated with this flight leg. For each flight leg the following is provided:

- a) sequence of all previous (up line) airports of this flight (i.e. the stations serviced by the same departure date, airline code, flight number and suffix) prior to the departure airport of this flight leg. The data required is only the departure airport and arrival airport of each associated flight leg.
- b) sequence of all following (down line) airports of this flight (i.e. the stations serviced by the same departure date, airline code, flight number and suffix) after the arrival airport of this flight leg. The data required is only the departure airport and arrival airport of each associated flight leg.
- c) details of the previous airport serviced by the aircraft operating this flight leg prior to the departure airport of this flight leg. The data required is the flight leg identifier.
- d) details of the next airport serviced by the aircraft operating this flight leg after the arrival airport of this flight leg. The data required is the flight leg identifier.

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All examples from the instance of the SFO-CGX flight leg.

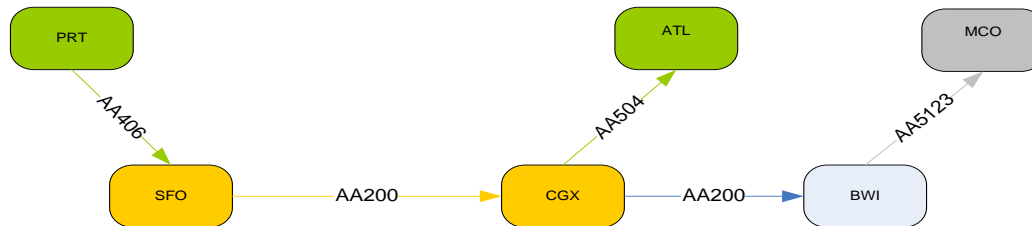
Details of the connected legs would be found by looking up those legs.

KEY		The 2 airports of this flight leg
		Airports associated with this flight leg as using the same aircraft (included in message)
		Airports associated with this flight leg as using the same flight number (included in message)
		Airports not directly associated with this flight leg (not included in message)



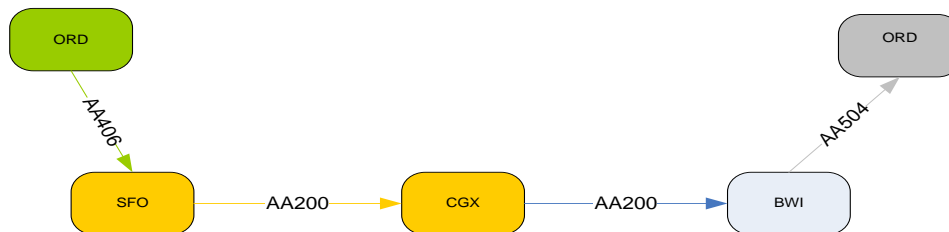
Example 1:
Single flight leg with connected legs with the same aircraft on all legs

This would result in no entries in the 'Associated Flight Legs for the same flight number' and 2 entries (AA406 and AA504) in the 'Associated Flight Legs for the same aircraft'.



Example 2:
Multiple flight legs with connected legs with a change of aircraft at CGX for flight AA200

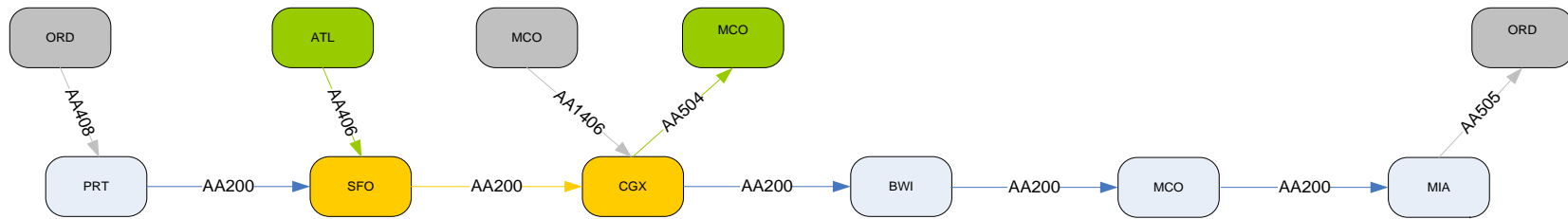
For the SFO-CGX flight leg this would result in 1 entry in the 'Associated Flight Legs for the same flight number' for the CGX-BWI leg and 2 entries (AA406 and AA504) in the 'Associated Flight Legs for the same aircraft'.



Example 3:
Multiple flight legs with connected legs with no aircraft change for flight AA200

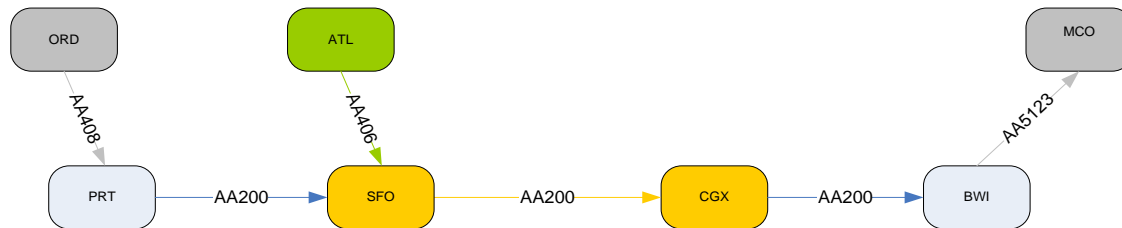
For the SFO-CGX flight leg this would result in 1 entry in the 'Associated Flight Legs for the same flight number' for the CGX-BWI leg and 1 entry in the 'Associated Flight Legs for the same aircraft' (AA406).

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Example 4:
Expansion of example 2 - Multiple flight legs with connected legs, with a change of aircraft in SFO and CGX for AA200

For the SFO-CGX flight leg this would result in 4 entries in the 'Associated Flight Legs for the same flight number' (1 up line and 3 down line) and 2 entries (AA406 and AA504) in the 'Associated Flight Legs for the same aircraft'.



Example 5:
Expansion of example 2 - Multiple flight legs with connected legs with a change of aircraft in SFO for AA200

For the SFO-CGX flight leg this would result in 2 entries in the 'Associated Flight Legs for the same flight number' (1 up line and 1 down line) and 1 entry (AA406) in the 'Associated Flight Legs for the same aircraft'.

7.5.1 Associated Flight Legs for the same flight number

These are two optional elements of repeated groups to allow for multiple associated flight legs in sequence for the same flight number. One repeated group represents the flight legs prior to this flight legs departure airport. The other repeated group represents the flight legs after this flight legs arrival airport. Neither of these elements is provided for single leg flights (example 1 above)

Flight Legs for the same flight number					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
DEP_AIRPORT_CODE	M	Code of scheduled departure airport	xs:string xs:minLength 3 xs:maxLength 4	IATA, ICAO, US-FAA or Other code	
ARR_AIRPORT_CODE	M	Code of scheduled arrival airport	xs:string xs:minLength 3 xs:maxLength 4	IATA, ICAO, US-FAA or Other code	

7.5.2 Associated Flight Legs for the same aircraft

There are two optional elements to allow for an aircraft change on arrival and /or departure movement of the flight leg. One of the elements represents the flight leg flown by the aircraft prior to the departure airport of this flight leg. The other element represents the flight leg flown by the aircraft after the arrival airport of this flight leg. If the flight number and aircraft do not change then this data is not provided. The fields listed as M must be provide when this group is provided.

Flight Legs for the same aircraft					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
AIRLINE_CODE	M	Operating carrier	xs:string xs:minLength 2 xs:maxLength 3	IATA, ICAO, or Other code	The operating carrier which may differ from the aircraft owner
FLIGHT_NUMBER	M	Actual flight number	xs:string xs:pattern \d{3,4}		Must retain leading zero. Ex: 030
SUFFIX	O	Flight number suffix	xs:string xs:maxLength 1		Should be upper case only.
ORIGIN_FLIGHT_DATE	M	Scheduled flight origin date of this connecting flight leg.	Xsd:date		<p>Date expressed in UTC. This date MUST not change once initialized in AIDX message. Ex: 2002-11-27 Date expressed in UTC. Time is not included.</p> <p>For a flight SFO-DEN-LHR both flight legs SFO-DEN and DEN-LHR will have the ORIGIN_FLIGHT_DATE of the SFO departing date</p> <p>Ex: 2001-11-27</p>

Flight Legs for the same aircraft					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
DEP_AIRPORT_CODE	M	Code of scheduled departure airport	xs:string xs:minLength 3 xs:maxLength 4	IATA, ICAO, US-FAA or Other code	
ARR_AIRPORT_CODE	M	Code of scheduled arrival airport	xs:string xs:minLength 3 xs:maxLength 4	IATA, ICAO, US-FAA or Other code	
REPEAT_NUMBER	O	Number of repeats	xs:positiveInteger xs:maxInclusive 9		

7.6 **Remark Information**

The remark type and remarks code are repeated for each remark. The Remarks Free Text is not repeated.

Remark data					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
REMARK_TYPE	Dependant REMARKS_CODE	Defines the type of the remark being provided	xs:string xs:maxlength 3	Codeset 9932 (section 9.12)	When a remark is provided this field MUST be provided. Only using the character part of the IATA code set. For public remarks use TER and for apron remarks use PAR – used by the receive to determine where to display the remark data provided
REMARKS_CODE	Dependant REMARK_T YPE	Remark text related to remark type using fixed data	xs:string xs:maxlength 3	Codeset 2005 and 9750 (sections 9.2 and 9.9)	When a remark type is provided this field MUST be provided (excludes time data from codeset 9.2 and only uses the character part of the IATA code set 9.9). The sender will provide the remark using the defined code sets. Senders will not define the text or words of the remark(s).
REMARKS FREE TEXT	O	Supplementary Info Free Text for staff not part repeating group	xs:string		

7.7 ***Airport Resources***

The airport resources are similar for arrivals and departures and so they are only defined once, with a flag to indicate arrival or departure end of the flight leg. Similarly the data for the planned and actual assignments are defined once with another flag to indicate the type.

If the actual is the same as the planned (i.e. there is no change) then the sender is not required to provide the actual assignments. The receiver will use the planned data for allocations, display etc. then if an actual value is provided then it will be used, i.e. actual assignments have a higher priority than planned.

If a data value is provided, then the arrival or departure flag and the planned or actual flags **MUST** be provided.

Airport resources					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
ARRIVAL_OR_DEPARTURE	Dependant Any assigned Resource	A flag to indicate if this resource is for the arrival or departure end of the flight leg	xs:string	xs:enumeration (ARR/DEP)	Must be provided for each resource assigned
PLANNED_OR_ACTUAL	Dependant ARR_OR_DEP	A flag to indicate if this resource assignment is the intended (i.e. the planned) one or is it the resource that was truly used (i.e. the actual usage)	xs:string	xs:enumeration (PLAN/ACTU)	Must be provided for each resource assigned
AIRPORT_ZONE	O	The area in the airport which the flight uses	xs:string xs:maxLength 30		Ex: "Concourse C", "Charter", "GA"
AIRCRAFT_PARKING_POSTION	O	Gate or hard stand where the aircraft is located. Includes a flag to state the type (i.e. gate, public, remote or other).	xs:string xs:maxLength 5		When set as public this will be the same as PASSENGER_GATE

Airport resources					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
PASSENGER_GATE	O	Public Gate which the passengers will use to board or disembark	xs:string xs:maxLength 5		ex: A5s Repeating 3 times to allow for more than one for the same arrival / departure
REMOTE_OPERATIONAL_GATE	O	An additional location used to transfer passengers to or from a remote parking positions	xs:string xs:maxLength 5		Only used if different from passenger gate Repeating 3 times to allow for more than one for the same arrival / departure
RUNWAY	O	Runway	xs:string xs:maxLength 4		Ex: 19R
AIRCRAFT_TERMINAL	O	Terminal where the aircraft is located.	xs:string xs:maxLength 2	Codeset 3223 and 3233 (sections 9.4 and 9.5)	See SSIM for details about standard terminal information.
PUBLIC_TERMINAL	O	Terminal where the passengers will be processed.	xs:string xs:maxLength 2	Codeset 3223 and 3233 (sections 9.4 and 9.5)	Repeating 3 times to allow for more than one for the same arrival / departure
CREW_BUS	O	Uses Airside Bus for the crew	xs:boolean		
PAX_BUS	O	Uses Airside Bus for the passengers	xs:boolean		

7.7.1 Airport Resources – Arrivals only

These items are only applicable to the arrival end of the flight leg. The resources are repeated for planned and actual assignments. If that data is provided the planned or actual values MUST be provided. Actual and planned usage / definition as above.

Airport resources – arrival part of FLIGHT_LEG only					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
ARRIVAL_OR_DEPARTURE	Dependant Any assigned Resource	A flag to indicate if this resource is for the arrival or departure end of the flight leg	xs:string	xs:enumeration (ARR/DEP)	Must be provided for each resource assigned
PLANNED_OR_ACTUAL	Dependant ARR_OR_DEP	A flag to indicate if this resource assignment is the intended (i.e. the planned) one or is it the resource that was truly used (i.e. the actual usage)	xs:string	xs:enumeration (PLAN/ACTU)	Must be provided for each resource assigned
BAG_CLAIM_UNIT	O	The name or number of the assigned Baggage claim unit	xs:string xs:maxLength 5		Repeating group with type and areas to provide for more than one assignment and assignments of different types and different locations ex: T1A
BAG_CLAIM_TYPE	Dependent BAG_CLAIM_UNIT	Defines the type of the Baggage claim device assigned	xs:string xs:maxLength 5	New IATA Codeset (section 9.18)	Must be provided for each bag claim unit (default is standard bags)

Airport resources – arrival part of FLIGHT_LEG only

Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
BAG_CLAIM_AREA	Dependent BAG_CLAIM _UNIT	Defines the location of the assigned Baggage claim device	xs:string xs:maxLength 5	Codeset 9988 (section 9.14)	Must be provided for each bag claim unit (default is none) (Only use – INT, DOM, TRA, TRS or SCH)

7.7.2 Airport Resources – Departures only

These items are only applicable to the departure end of the flight leg. The resources are repeated for planned and actual assignments. If that data is provided the planned or actual values MUST be provided. Actual and planned usage / definition as above.

Airport resources – departure part of FLIGHT_LEG only					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
ARRIVAL_OR_DEPARTURE	Dependant Any assigned Resource	A flag to indicate if this resource is for the arrival or departure end of the flight leg	xs:string	xs:enumeration (ARR/DEP)	Must be provided for each resource assigned
PLANNED_OR_ACTUAL	Dependant ARR_OR_DEP	A flag to indicate if this resource assignment is the intended (i.e. the planned) one or is it the resource that was truly used (i.e. the actual usage)	xs:string	xs:enumeration (PLAN/ACTU)	Must be provided for each resource assigned
BAGGAGE_MAKEUP	O	The baggage makeup belt(s) assigned for outgoing bags – a repeating group (up to 5 items)	xs:string xs:maxLength 3		Ex: E4
CHECK_IN_FIRST_POSITION	O	The start of an allocated range of positions for check-in activities. This will be a repeating group to allow for the different types, locations and non-contiguous ranges. If only a single position is allocated then the first and last position will be the same	xs:string xs:maxLength 15		If provided , last position, type and location must also be provided

Airport resources – departure part of FLIGHT_LEG only

Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
CHECK_IN_LAST_POSITION	Dependent CHECK_IN_FIRST_POSITION	<p>The last of an allocated range of positions for check-in activities.</p> <p>This will be a repeating group to allow for the different types, locations and non-contiguous ranges.</p> <p>If only a single position is allocated then the first and last position will be the same</p>	xs:string xs:maxLength 15		
CHECK_IN_TYPE	Dependent CHECK_IN_FIRST_POSITION	<p>The type of the allocated range of positions for check-in activities.</p> <p>This will be a repeating group to allow for the different types, locations and non-contiguous ranges.</p>	xs:string xs:maxLength 3	New IATA Codeset (section 9.19)	
CHECK_IN_LOCATION	Dependent CHECK_IN_FIRST_POSITION	<p>Where within the passenger terminal the allocated range of positions for check-in activities is located</p> <p>This will be a repeating group to allow for the different types, locations and non-contiguous ranges.</p>	xs:string xs:maxLength 3	Codeset 9932 (section 9.12)	only uses the character part of the IATA code set 9.12

Airport resources – departure part of FLIGHT_LEG only

Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
CHECK_IN_CLASS	Dependent CHECK_IN_ FIRST_POS TION	The passenger class of the allocated range of positions for check-in activities. This will be a repeating group to allow for the different types, locations and non-contiguous ranges.	xs:string xs:maxLength 15	Codeset 9873 (section 9.10)	
PRE_CLEARED_GATE	O	Flag to indicate that the departure gate used for this flight leg is an immigration 'pre-cleared' gate (also known as a Schengen or trans-border gate).	xs:boolean	-	

7.8 *Time data*

This is repeating group with a qualifier to define what type of time. Some or all of the time sets may be on departure and/or arrival. Time expressed as date/time in UTC

Time data					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
TIME_DATE	O	Date and time value	xsd:dateTime	UTC	Ex: 2004-09-28T14:46Z
TIME_ Qualifier	Dependent TIME_DATE	The type of the TIME_DATE value being provided. This is will defined in a code list	xs:string	Codeset 2005 and 9750 (sections 9.2 and 9.9)	For each date_time provided a time_qualifier item must be provided (includes time data only but no local time values from codeset 9.2 and only uses the character part of the IATA code set 9.9)

7.9 **Aircraft data**

Aircraft data					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
AIRCRAFT_TYPE	O	Aircraft IATA Type	xs:string xs:minLength3 xs:maxLength 3	IATA code 7800 (section 9.8)	Use SSIM code list – Appendix A (aircraft group) Ex: DC9, M80
AIRCRAFT_SUBTYPE	O	Aircraft IATA Sub-Type	xs:string xs:minLength3 xs:maxLength 3	IATA code 7800 (section 9.8)	USE SSIM code list – Appendix A (aircraft type) EX: M83, D95
AIRCRAFT_REG	O	Aircraft Registration Number as assigned by aircraft manufacturer	xs:string xs:maxLength 10		Ex: N651UA Per SSIM manual, no hyphen or other special character is permitted.
FLEET_NUM	O	Airline ship / fleet number – as assigned by the airline	xs:string xs:maxLength 10		
TAIL_NUM	O	Tail number as painted in the tail – used by some airlines as the aircraft identifier. Often the last 3 characters of the aircraft reg	xs:string xs:maxLength 5		Ex: 1UA
CALL_SIGN	O	Airline assigned. Check Eurocontrol documentation for details.	xs:string xs:maxLength 7		Ex: PHVHA, N9876Q

Aircraft data					
Field Name	Mandatory/Optional	Description	Format	Codeset/Enumeration	Note
PAX_COUNT	O	The number of passengers of a specified type – repeating group to cover the different types and planned and actual	xs:nonNegative maxInclusive 999		Must be provided if PAX_COUNT_TYPE provided
PAX_COUNT_QUALIFIER	Dependent PAX_COUNT	The type of the passenger count data being provided. – repeating group to cover the different types and planned and actual	xs:string	Codeset 6353 (section 9.6)	Must be provided if PAX_COUNT provided
PAX_COUNT_PLAN_OR_ACTUAL	Dependent PAX_COUNT	Flag to indicate if the passenger count data is planned or actual – repeating group to cover the different types and planned and actual	xs:string	xs:enumeration (Planned/Actual)	Must be provided if PAX_COUNT and PAX_COUNT_TYPE provided
SEAT_CAP	O	Seating Capacity in each cabin. Use a repeating group with cabin type	xs:nonNegativeInteger maxInclusive 999		Number of seats onboard for all cabin classes

Aircraft data					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
CABIN_QUALIFIER	Dependent SEAT_CAP	Cabin type to be used with the seat capacity values in the repeating group. Defines each cabin and all	xs:string	Codeset 9873 (section 9.10)	Must be provided when SEAT_CAP provided Ex: Business
NUMBER_BAGS	O	Number of Bags on the flight leg of the specified type – repeating group to cover the different bins and total	xs:nonNegativeInteger maxInclusive 9999		
BAG_COUNT_LOCATION	Dependent NUMBER_BAGS	Where the provided bag count is stored in the aircraft, i.e. Bin name or ULD ID. Repeating group to cover the different bins and total	xs:string		Ex: AKN 12345 DL, DQF 3525 AA, Forward Bin, aft bin, total
CREW	O	Number of Crew Members (cockpit & cabin, jump seat)	xs:nonNegativeInteger maxInclusive 99		Can repeat.
CREW_QUALIFIER	Dependent CREW	Cabin type to be used with the Crew capacity values in the repeating group. Defines each cabin and all	xs:string	Codeset 9873 (section 9.10)	Must be provided when CREW provided
AGENT_ID	Dependant AGENT_NAME	Identifier or company / name of Handling Agent for Flight	xs:string	New IATA Codeset (section 9.20)	ID provided only included if other than the airline. Ex: OGD Not provided if Agent_NAME provided

Aircraft data					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
AGENT_NAME	Dependant AGENT_ID	Identifier or company / name of Handling Agent for Flight	xs:string	New IATA Codeset (section 9.20)	Name provided only included if other than the airline. Ex: Aviation Servisair, Menzies Aviation can repeat. Not provided if Agent_ID provided
AGENT_QUALIFIER	Dependent AGENT_NAME and Agent_ID	Handling Agent type for arrival or departure – repeating group	xs:string	Codeset 3035 (section 9.3)	Must be provided if agent name or id provided
ARRIVAL_OR_DEPARTURE	Dependent AGENT_QUALIFIER	A flag to indicate if the agent details are for the arrival or departure end of the flight leg	xs:string	xs:enumeration (ARR/DEP)	Must be provided for if agent type

7.10 *Optional Data request message*

Used by a receiver system to 'ask for' data from a sending system for the current state of the flight legs within the operational window. This may be expanded to allow for requests for specific data messages or groups in future iterations.

Request data					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
AIRLINE_CODE	O	Operating Airline carrier code for which the data is requested	xs:string xs:minLength 2 xs:maxLength 3	IATA, ICAO, or Other code	This will be for the Operating Airline (not for code shares or others)

If a data is required for more than one airline then multiple data request messages are sent. If no airline code is supplied in this request message then the sender will supply data for all operating airlines for which they have data and / or as defined in the Bilateral Interface Agreement.

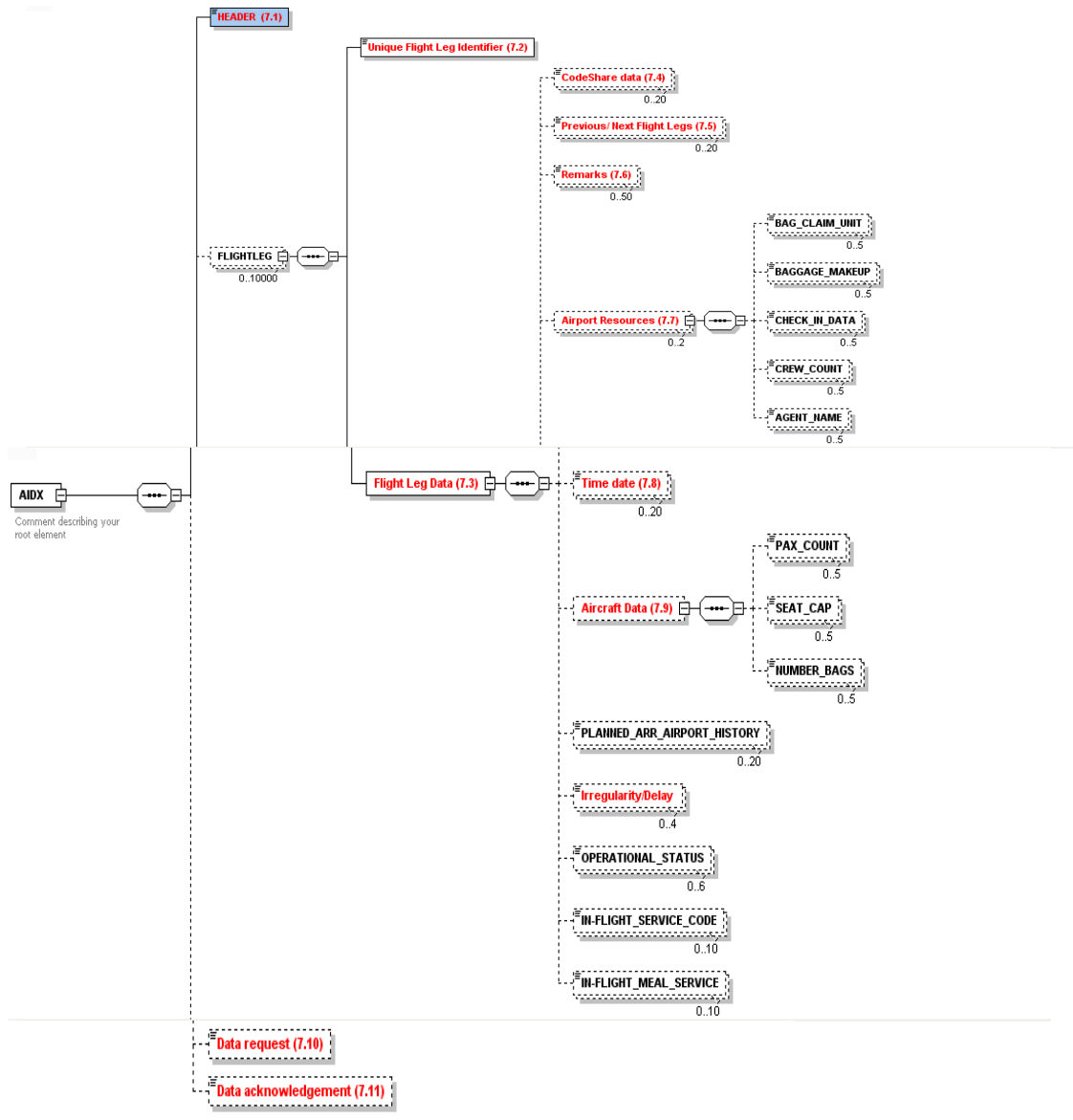
7.11 ***Optional Data acknowledgment***

Used by a receiver system to report to the sending system

Optional data acknowledgement					
Field Name	Mandatory/ Optional	Description	Format	Codeset/ Enumeration	Note
SEQUENCE_NUMBER	O	Cross reference to the data message received	xs:unsignedLong		Optional
STATUS	O	Statement if the message is accepted by the receiver	xs:string	xs:enumeration (Accept/Reject)	
ERROR_DETAILS	O/M	Code describing the error	xs:string	xs:enumeration (XML/DAT)	Mandatory when STATUS is set to Reject XML for schema validation error or DAT for data validation error

8 Message structure

The following diagram shows the layout of the data in this BRD. In summary for each header, one or more flight leg messages will be provided and each flight leg message will have a unique Flight Leg Identifier and data associated with it.



Current proposals for the header and content structuring of FIMS messages include the following relevant points.

1. The header contains the originator system as a mandatory element and also an optional intermediate system identity (currently called 'delivering system'.)
2. The body content may contain multiple flight leg messages. Each message contains the unique flight id and as a result there is no need for the different parts message to have anything in common.

Overall AIDX Message					
Header		BodyPart1		BodyPartN	
Delivering System (M)	Originator System(O)	Flight ID	Flight leg data	Flight ID	Flight leg data

9 Code sets

The following code lists (code sets) are required – if they already exist in the IATA XMLWG code set document then this is noted. These code sets are distributed by IATA and posted on the IATA/CUPPS intranet site(s) for use by registered users:

9.1 *PADIS 1245 – Status indicator, coded*

7CG	Change of gauge flight
7DO	Domestic flight
C	Connecting baggage
OL	Baggage offloaded
S	Schedule change
SA	Flight open for check-in
SB	Flight temporarily closed
SC	Flight closed for check-in
SD	Flight closed for finalizing
SE	Flight held (entire flight)
SG	Flight emergency closed (flight & passenger records frozen)
SH	Flight gated (gate check-in only)
SI	Flight open for weight & balance
SJ	Flight editing
SK	Flight open for through check-in
SL	Flight boarding
SM	Flight deboarding
SN	Flight closed for through check-in
SO	Flight cancelled
SP	Flight late
SQ	Flight re-instated
VIP	Very Important Passenger
Y	Authorize to load

9.2 *PADIS 2005 – Date/Time/Period qualifier*

714	Time stamp – when flight IRR received related to ARR station
715	Time stamp – when flight IRR received related to DEP station
716	Time stamp – when flight IRR received related to flight
AA	Actual arrival information
ACL	Actual time, in local
ACT	Actual time
AD	Actual departure off blocks information
AI	Airborne information
ALL	Allocated time, in local
ALT	Allocated time
DEL	Delayed

DV	Flight diverted
DX	Flight cancelled
E	Early
EA	Estimated arrival touchdown information
EAL	Earliest time, in local
EAT	Earliest time
EB	Estimated on blocks information
ED	Estimated departure off blocks information
EET	Estimated elapsed time (EET) in HHMM
EO	Estimated take off information
ESL	Estimated time, in local
EST	Estimated time
FLT	Estimated flying time in HHMM
HEL	Hidden Estimate, in local
HET	Hidden Estimate
HIL	Hidden time, in local
HIT	Hidden time
HNL	Hidden Next Info, in local
HNT	Hidden Next Info
L	Local time mode
LA	Late
LAL	Latest time, in local
LAT	Latest time
LT	Local time
LX	Landing cancelled
MNG	Minimum ground time in HHMM
NIL	Next Info, in local
NIT	Next Info
OB	Actual on blocks information
RC	Reclearance information
REL	Recommended time, in local
RET	Recommended time
RR	Return to ramp information
SCL	Scheduled time, in local
U	UTC time mode
ZT	GMT time
RT	Re-route
GRT	Ground Return

9.3 **PADIS 3035 – Party qualifier**

B	Business
BAG	Baggage handling
CAT	Catering
FRT	Freight handling
FUE	Fuel handling
PAX	Passenger handling

PLT	Platform handling
ROU	Route owner
TEC	Technical handling
WAR	Freight warehouse
MAL	Mail

9.4 **PADIS 3223 – Related place/location one identification**

Note: To indicate 1-2 character terminal of departure/arrival. (See SSIM Appendix D).

9.5 **PADIS 3233 – Related place/location two identification**

Note: To indicate 1-2 character terminal of departure/arrival. (See SSIM Appendix D).

9.6 **PADIS 6353 – Number of units qualifier**

70A	Total number of passengers
70S	Airline staff standby
70Z	Disabled person
71A	Blind passenger
71B	Baggage
71T	Passenger occupying two seats
71U	Patients traveling for medical treatment
UM	Unaccompanied Minor
	IATA ones to be added
C	Child
IN	Infant
BUS	Number of seats occupied by Business class on board
FIR	Number of seats occupied by First Class on board
ECO	Number of seats occupied by Economy class on board
DPL	Total deplaned for this flight leg

9.7 **PADIS 7161 – Special service, coded**

Note: User or associated defined code.

A	Luxury or premium meal
B	Breakfast
BR	Brunch
C	Alcoholic beverages – complimentary
D	Dinner
E	Entertainment
F	Food for purchase
G	Lite Lunch

K	Cold Buffet
L	Lunch
M	Meal (to be used as a generalization)
P	Alcoholic beverages for purchase
R	Refreshment
S	Snack or light meal
V	Continental breakfast

9.8 **PADIS 7800 – Equipment code**

Note: Use ATA/IATA industry defined aircraft type codes, (See SSIM Appendix A, IATA Airline coding Directory Chapter 8).

9.9 **PADIS 9750 - Option**

2	Group
700	Number of Days
701	Day(s) of Week
702	Hours
703	Minutes
704	Months
705	Weeks
706	Conversion from
707	Conversion to
724	Non-stop
761	Actual number of baggage for accepted passengers on segment
762	Actual total weight of baggage for accepted passengers on segment
ATC	ATC notification (see text segment)
BCL	Baggage belt clear
BEN	End Boarding
BST	Start Boarding
CHC	Check-in closed
CHK	Check-in open
CRD	Cabin ready
CTO	Clear to takeoff
DCL	Doors Closed
DIS	Dis-embarkation complete
DIV	Diversion
DOP	Doors Open
ENG	Start Engine
FBG	First Bag unloaded
FCL	Flight Closed
FIN	Finals
FND	Fueling complete
FST	Fueling start
GCL	Gate Closed

GFR	Gate Free
GRD	Ground movement
GTG	Go to gate
GTO	Gate Open
HEN	Hold Finish
HST	Hold Start
JET	Jetway/Stairs
LAN	Landed
LBG	Last Bag unloaded
MND	Maintenance finish
MST	Maintenance start
MZC	Maneuvering zone clear
MZO	Maneuvering zone occupied
OFB	Off Blocks
OFS	Off stand
ONB	On Blocks
ONS	On stand
PBK	Push Back
RFA	Return from airborne
RST	Return to stand
SCT	Scheduled time
SPE	Special – see text
STK	Stack
TDN	Touch down
TDP	Ten minutes before departure
TEN	10 minutes out
THM	30 minutes out
TKO	Take Off
UNS	Aircraft unserviceable
WAB	Weight and balance

9.10 ***PADIS 9873 – Cabin class of Service, coded***

Code Value	Meaning
1	First
2	Business
3	Third Class (All economy)
5	Economy
4	Economy Premium

9.11 ***PADIS 9906 Company identification***

Note: Use ATA/IATA defined 2-3 character airline designator codes, (IATA Airline code Directory, Section 3)

700	Star Alliance
701	One World Alliance
702	Sky Team
703	Wings

9.12 **PADIS 9932 – Facility type, coded**

1	Movie
2	Telephone
3	Telex
4	Audio programming
5	Television
6	Reservation booking service
7	Duty free sales
8	Smoking
9	Non-smoking
10	Short feature video
11	No duty free sales
12	In-seat power source
13	Internet access
14	E-Mail
15	Inseat Video Player/Library
16	Lie-flat seats
700	Meal service
701	Entertainment
ABU	Aerobus
BAG	Baggage Area
BEL	Conveyor Belt
BUS	Bus
CAT	Catering
CHK	Check-in area
CLN	Cleaning
COU	Check-in counter
CRW	Crew bus
FIR	Fire-engine equipment
FUE	Re-Fueling
GAN	Gangway
GTE	Gate area
ICE	De-Icing equipment
JET	Jetway
LIT	Lighting
LOU	Boarding Lounge
LUG	Luggage
PAR	Parking area of stand
PIE	Pier
POW	Ground Power
SAT	Satellite

SHU	Shuttle
STD	Stand
TAN	Tank truck
TER	Terminal
TOW	Tow tractor with towbar
TWB	Tow tractor without towbar
WAS	A/C washing equipment
WAT	Fresh water equipment
STF	Staff in-terminal e.g. breakroom or operational room
CUE	Curbside

9.13 **PADIS 9972 – Originator type code**

A	Airline
B	Business (Corporate) account
C	Consolidator
D	Direct consumer
E	Electronic selling system (e.g. Minitel, Compuserve)
G	General Sales Agent
H	Ticket handler system
I	Internal CRS locations (sales, development, etc.)
S	Self service machine
V	Vendor (car, hotel, airline, travel supplier, etc.)
W	Wholesaler (Tour operator)
X	“Bogus subscribers”, used for testing
Y	Ground handling system
T	Air Traffic Control

9.14 **PADIS 9988 Data indicator**

Note: Use Airport Handling Manual section AHM011.

0	Non secured print material
1	Secured print material – Originator of request information is required
3	Old
4	New
AFT	After take-off
BEF	Before take-off
EMP	Empty
INT	International
LOC	Local
NOT	Not displayable
SCH	International – Schengen zone
TIM	Time Difference
TRA	Transit

TRS	Transfer
TWT	Total weight
VAL	Value
DOM	Domestic

9.15 *the IATA standard codes 01-99 check PADIS IRR codes*

Code Value	Meaning
01	Airline internal
02	Airline internal
09	Scheduled ground time less than declared minimum ground time
PASSENGER AND BAGGAGE	
11	Late check-in (acceptance after deadline)
12	Late check-in (congestion in check-in area)
13	Check-in error
14	Oversales, booking errors
15	Boarding (missing checked-in passenger)
16	Commercial publicity / Passenger convenience (VIP, press)
17	Catering order (late or incorrect order given to supplier)
18	Baggage processing
CARGO AND MAIL	
21	Documentation
23	Late acceptance
24	Inadequate packing
25	Oversales
AIRCRAFT AND RAMP HANDLING	
31	Aircraft documentation late / inaccurate (weight and balance)
32	Loading / unloading (lack of staff)
33	Loading / equipment (lack of staff)
34	Servicing equipment (lack of staff)
35	Aircraft cleaning
36	Fuelling / defuelling
37	Catering
39	Technical equipment (lack of staff,pushback)
TECHNICAL AND AIRCRAFT EQUIPMENT	
41	Aircraft defects
42	Scheduled maintenance
43	Non-scheduled maintenance
44	Spares and maintenance equipment
45	AOG spares
46	Aircraft change for technical reasons

Code Value	Meaning
48	Scheduled cabin configuration / version adjustments
DAMAGE TO AIRCRAFT AND EPD / AUTOMATED EQUIPMENT FAILURE	
51	Damage during flight operations (bird, turbulence)
52	Damage during ground operations
55	Departure control
56	Cargo preparation, documentation
57	Flight plans
FLIGHT OPERATIONS AND CREWING	
61	Flight plan
62	Operational requirements (fuel, load alteration)
63	Late crew boarding or departure procedures
64	Flight deck crew shortage
65	Flight deck crew special request
66	Late cabin crew boarding or departure procedures
67	Cabin crew shortage
68	Cabin crew error or special request
69	Captain request for security check
WEATHER	
71	Departure station
72	Destination station
73	En-route or alternate
75	De-icing of aircraft
AFTM RESTRICTIONS / AIRPORT AND GOVERNMENTAL AUTHORITIES	
81	AFTM due to ATC en-route Demand / Capacity
82	AFTM due to ATC Saff / Equipment en-route
83	AFTM due to ATC Restriction at Destination Airport
84	AFTM due to Weather at Destination
85	Mandatory Security
86	Immigration, customs, health
87	Airport facilities
88	Restrictions at airport of destination
89	Restrictions at airport of departure (with or without AFTM)

9.16 ***SPECIAL_EMPHASIS (no PADIS codes)***

Code Value	Meaning

Code Value	Meaning
CH	Church Group charter
FF	First Flight of the day
IN	Inaugural flight for this aircraft or route
MT	Medical team on board
NC	New Captain / crew
OL	Flight often late
PC	Pre-cleared - indicates that immigration activities will take place at the departure airport for this flight leg. So at the arrival airport the passengers will have pre-cleared immigration and customs requirements and so do NOT need to be routed to an international gate (also known as Schengen or trans-border status).
PO	Police and / or Prisoners on board
RD	Redline
SC	School or college group charter
ST	Sports team charter
TM	Terminator / Last flight of the day
UN	Union Group charter
VP	VIP on board

9.17 ***SPECIAL_CARGO (no PADIS codeset)***

Code Value	Meaning
Animals	Live animals
Hazard	Hazardous Material
Human	Human remains
Dry Ice	dry ice
Special	Special cargo handling service requested
Flower	Cut Flowers

9.18 ***BAG_CLAIM_TYPE (no PADIS codeset)***

Code Value	Meaning
OTH	Other
REG	Standard (regular baggage)
SIZ	Odd size baggage
SKI	For Ski or golf clubs

9.19 **CHECK IN TYPE (no PADIS codeset)**

Code Value	Meaning
BAG	Bag drop
DSK	Check-in counter
GRP	Group Check-in area
KIK	Self service kiosk
ODD	Odd size bag drop

9.20 **AGENT Code set (no PADIS codeset)**

Code Value	Meaning
ASE	Aero Services Egypt
ATS	Airport Terminal Services
AVI	Aviance
AVP	Aviapartner
BOH	Big Orange Handling Company
CAR	Cara Operations
CWF	CanWest Flight Services
DEL	New Delhi Aviation - Leading Aviation Group
DGL	Delta Global
FTC	Flightcare
FTS	Flight Support
GAT	Gate Gourmet
JET	Jet Aviation
KDM	Kion de Mexico
LGS	LOT Ground Services
LSG	LSG Sky Chefs
MAL	MALÉV Ground Handling Budapest
MNZ	Menzies Aviation
NAT	National Handling Services Company Ltd.
OCS	One Complete Service
OGD	Ogden
PLN	Plane Handling
PRM	PrimeFlight Aviation Services
SAS	SAS Ground Services

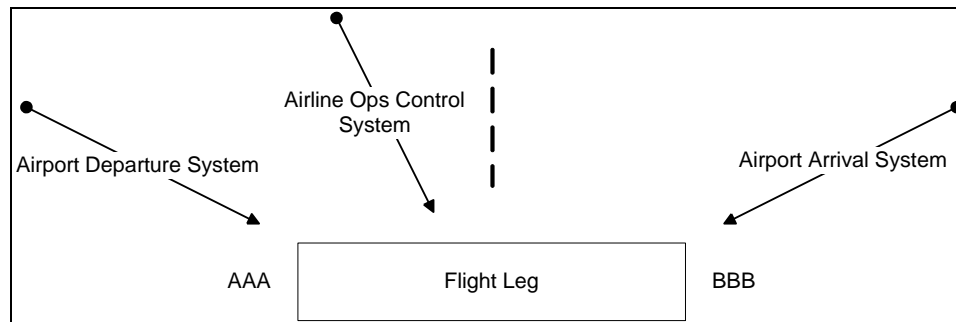
Code Value	Meaning
SER	Servisair
SHT	SheltAir Aviation Services
SKT	Skytrails Aviation
SKY	Sky Handling Partner
SRV	Servair
SWP	SwissPort
UWA	Universal Weather and Aviation, Inc.
VAL	Valley Fliers
WAS	Warsaw Airport Services sp. z o.o. (WAS)
WTS	WingTips Airport Services

10 Re-Routing scenarios - Analysis of Different Cases of Flight Leg Route Changes

The purpose of this section is to outline the different Re-Routing scenarios from an airline perspective.

10.1 Associated AIDX XML Schema Fields

The aim of the AIDX XML Schema is to support messaging for three types of recipient with two opposite perspectives, as illustrated below.



The Ops Control System and Airport Departure System will identify a flight leg from the perspective of its departure whilst the Airport Arrival System will identify a flight leg from the perspective of its arrival. The use of "Airline" and "Airport" in this section does not infer ownership or segregation of systems. Any such systems could be combined / owned / managed by either one of these or even an unconnected third party.

The following BRD data sections are relevant to this analysis:

- a) 7.2 Unique Flight Leg Identifier
- b) 7.3 Flight Leg Data - OPERATIONAL_STATUS and PLANNED_ARRIVAL_AIRPORT_HISTORY
- c) 7.5 Associated Flight Legs

10.2 **Notes**

- a. The FLIGHT_STATION_SEQUENCE field (used below) maps to the content of the Previous And Next Flight Legs For The Same Flight Number data structure in the AIDX Data Description – section 7.5
- b. The leg does not operate if and only if the OPERATIONAL_STATUS field is set to DX.
- c. The DEP_AIRPORT_CODE and ARR_AIRPORT_CODE values are fixed based on the original schedule of the leg (section 7.2). If the arrival station changes then this is reflected in the PLANNED_ARRIVAL_AIRPORT_HISTORY field. If the departure station changes then the leg would be cancelled and a new leg created.
- d. The PLANNED_ARRIVAL_AIRPORT_HISTORY tracks whether the leg's route has changed from the original schedule to go to a new destination. The current destination is always the last station on the list. Previous destinations are maintained in this list to enable recipients concerned with these stations to be aware that the leg is no longer destined to arrive at these stations.
- e. A working assumption is that an update message is sent to all recipients interested in messages concerning either the given carrier or those concerning the stations held in either the leg's DEP_AIRPORT_CODE, ARRIVAL_AIRPORT_CODE, PLANNED_ARRIVAL_AIRPORT_HISTORY fields or the Previous And Next Flight Legs For The Same Flight Number data structure.

10.3 **Single Leg Flight Route Change Scenarios**

Considered here are the cases relating to single leg flights. The original route is AAA-BBB. The following scenarios are considered: -

Post the departure of the given flight leg: -

1. Ground Return – where the aircraft never gets airborne, also referenced as Return to Stand, Gate Return. Two different scenarios after the ground return: -
 - a. The flight leg is not operated with the aircraft never getting airborne.
 - b. The original leg's route is operated.
2. Return from Airborne – where the aircraft gets airborne but then returns to the airport it has departed from. Two different scenarios after the return from airborne: -
 - a. The flight terminates at the origin station. AAA-BBB becomes AAA-AAA only.
 - b. The original leg's route is operated. AAA-BBB becomes AAA-AAA AAA-BBB.

3. Diversion – a change is made to the destination airport subsequent to the aircraft getting airborne. Two different scenarios after the completion of the diverted leg: -
 - a. The flight terminates at the diversion station. AAA-BBB becomes AAA-CCC.
 - b. The flight continues to the original destination. AAA-BBB becomes AAA-CCC-BBB.

Prior to departure of the given flight leg: -

4. Flight Leg Planned Re-route – corresponding to an IATA standard schedule change messages for an ad-hoc re-route change.
5. Flight Leg cancelled – corresponding to an IATA cancellation message for an ad-hoc or standard change.

For each of the above scenarios a further case to consider is that the original route is reinstated after the decision to change the route has been made.

These separate scenarios are now discussed in more depth.

Note in the tables given below to illustrate the behaviour the changes between the values in the current table and the equivalent values in the previous table are highlighted in blue.

10.3.1 Ground Return

10.3.1.1 Before the event

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out	–	BBB

10.3.1.2 After the event, original leg still to be operated

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out In	GRT	BBB / AAA
AAA	2	AAA/BBB	–	–	BBB

10.3.1.3 After the event, original leg now cancelled

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out In	GRT	BBB / AAA
AAA	2	AAA/BBB	–	DX	BBB

10.3.1.4 Notes:

- What indicates a Ground Return event is that last station in the PLANNED_ARRIVAL_AIRPORT_HISTORY list matches the DEP_AIRPORT_CODE and the OUT and IN times is held but no OFF or ON times are recorded because the aircraft never got airborne.
- The time range between the decision to Ground Return and completion of the Ground Return is relatively short i.e. in the order of taxi times; and has no intermediary stage i.e. unlike an Airborne Return when both an ON and then an

IN times are recorded in separate events before the Return is completed. From a British Airways perspective it is therefore viewed as sufficient to only acknowledge the Ground Return event when the IN time is recorded. For an Airport or Ground Services system it may be worthwhile knowing about the Ground Return before the event is completed and therefore more detail will be required.

- c. Event 10.3.1.2 may happen for a number of reasons. E.g. a passenger medical emergency or a flight deck technical alert happening before take-off.
- d. Event 10.3.1.3 happens when the issue cannot be resolved in time for the flight to operate. E.g. the technical alert cannot be resolved.

10.3.2 Airborne Return

10.3.2.1 Before the event

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out Off	-	BBB

10.3.2.2 After the Return from Airborne Decision

10.3.2.2.a With the original leg cancelled

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out Off	DV	BBB / AAA

10.3.2.2.b ***With the original leg still to be operated***

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out Off	DV	BBB / AAA
AAA	2	AAA/BBB	–	–	BBB

10.3.2.2.c ***With the original leg cancelled at a later stage e.g. after the leg has arrived back***

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out Off On In	DV	BBB / AAA
AAA	2	AAA/BBB	–	DX	BBB

10.3.2.3 **Original Route Reinstated Before Return From Airborne Completed**

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out Off	I	BBB / AAA / BBB

10.3.2.4 **Notes:**

- For case 10.3.2.3 the PLANNED_ARRIVAL_AIRPORT_HISTORY contains AAA for no other reason than to keep a record that a Return From Airborne was considered.
- Note for case 10.3.2.3 the OPERATIONAL_STATUS has been reset to be empty from DV because the leg is now back to operating the original route.
- Events 10.3.2.2.a and 10.3.2.2.b happens for a number of reasons. E.g. when a passenger medical emergency or a flight deck technical alert happen after

take-off. The decision on whether to expect to continue on the original route or not will depend on the circumstances of the event e.g. if the operating hours of AAA mean the leg will be too late to depart again. Event 10.3.2.2.c may happen if the circumstances change further either before or after landing e.g. it becomes apparent that the aircraft needs significant maintenance at AAA.

- d. Event 10.3.2.3 may happen if the cause of the return from airborne is resolved before the aircraft lands e.g. the crew resolves the technical alert.

10.3.3 Diversion to a New Station

10.3.3.1 Before the event

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out Off	-	BBB

10.3.3.2 After the Diversion Decision

Diversion is to station CCC.

10.3.3.2.a *With the flight terminating at the new station (Divert and Terminate)*

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/CCC	Out Off	DV	BBB / CCC

10.3.3.2.b *With the flight continuing from the new station to the original destination (Divert and continue)*

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/CCC/BBB	Out Off	DV	BBB / CCC
CCC	1	AAA/CCC/BBB	-	-	BBB

10.3.3.3 With the flight continuation to the original destination cancelled at a later stage e.g. after the arrival at the new station

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/CCC	Out Off On In	DV	BBB / CCC
CCC	1	AAA/CCC/BBB	–	DX	BBB

10.3.3.4 Original Route Reinstated Before the Arrival at the New Station Completed

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	Out Off	–	BBB / CCC / BBB

10.3.3.5 Notes:

- For event 10.3.3.4 the PLANNED_ARRIVAL_AIRPORT_HISTORY contains CCC for no other reason than to keep a record that a Diversion was considered at some point. The second message is optional; it is a question of whether a record of a non-operating leg is desired.
- For event 10.3.3.4 the OPERATIONAL_STATUS is reset to be empty from DV because the leg is now back to operating the original route.
- For event 10.3.2.2.a it is assumed not necessary to provide a message for the now non-operating AAA-BBB leg because this status of this leg can be derived from BBB being in the PLANNED_ARRIVAL_AIRPORT_HISTORY field but with BBB not the last station held in the list.
- Events 10.3.3.2.a and 10.3.3.2.b happens for a number of reasons. E.g. the weather deteriorates at the arrival airport, BBB, during a longhaul flight. The decision on whether to expect to continue to the original station or not will depend on the circumstances of the event e.g. the practicalities of terminating the service at CCC. Event 10.3.3.3 may happen if the circumstances change further either before or after landing at CCC e.g. the weather at BBB will be bad for longer than expected or the delay means BBB will be closed by the time the flight can now reach it.
- Event 10.3.3.4 may happen if the cause of the diversion is resolved while the aircraft is still in the air e.g. the weather improves at BBB.

10.3.4 Re-Route

10.3.4.1 Re-Route to a New Station

A Re-Route to a new station is essentially equivalent to a diversion to a new station, see Sec 10.3.3, except the re-route events happen *before* the OUT and OFF times have been recorded for the flight leg in question. For a re-routed leg the OPERATIONAL_STATUS field would be set to RT (re-routed) rather than DV.

10.3.4.2 Notes:

- No distinction is made here between a Scheduled Re-Route (SSM based) and an ad-hoc Re-Route (ASM based) event.
- The PLANNED_ARRIVAL_AIRPORT_HISTORY field is populated for Re-Route cases to provide a history of what the previous routing was, which may have some value.
- It is assumed that for a re-route having BBB in the PLANNED_ARRIVAL_AIRPORT_HISTORY field but not held, as the last station in the list will mean that BBB will know to no longer expect this service to arrive.
- Re-routes can also extend a route as well as redirect it e.g. a flight with route AAA-BBB can be extended to have route AAA-BBB-EEE. In this circumstance a new leg would be added to the flight sequence and the ARRIVAL_AIRPORT_HISTORY field of the original leg is leg unchanged. Note in this case the OPERATIONAL_STATUS remains empty because the re-route has not changed the arrival station of the legs, just a new leg has been added. This case is illustrated here: -

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB/EEE	–	–	BBB
BBB	1	AAA/BBB/EEE	–	–	EEE

- There is a working assumption that if a Re-Route caused the origin station of the first leg of a flight to be changed i.e. the route changes from AAA-BBB to FFF-BBB, then the flight from AAA is first cancelled and a new flight from FFF is then created.
- Re-Routes happen for a number of reasons e.g. a multi-leg flight no longer stops at an intermediary station or a decision is made not to night-stop at a given location for a temporary period so the flight continues to where a night-stop is valid.
- Consider the case of a flight operating AAA-BBB diverted to CCC such that the route becomes AAA-CCC. If later A decision is made to continue the flight to

BBB after landing at CCC then the CCC-BBB leg would be created by Re-
Routing the AAA-CCC leg to extend to BBB rather than a further Diversion
because a Diversion event is dependent on the leg in question being airborne.

10.3.4.3 Special Case: A Diverted Re-Route

Take the example where a leg has been re-routed to a new station and the leg now terminates at the new station. The message for this event, derived from Sec 10.3.3.2.a, is as follows: -

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/CCC	–	RT	BBB / CCC

Now suppose the leg gets airborne from AAA, recorded with the following message

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/CCC	OUT OFF	RT	BBB / CCC

An issue causes the leg to be diverted to a new station, DDD, with the flight terminating there. This would be recorded as follows

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/DDD	OUT OFF	RT DV	BBB / CCC / DDD

10.3.4.3.a Notes

- The above case is used to demonstrate what happens when two separate events happen to the same leg and to justify why PLANNED_ARRIVAL_AIRPORT_HISTORY field is required. It also illustrates why more than one OPERATIONAL_STATUS field entry may be required.
- If a BBB based system is still concerned with this flight leg then its interest can be derived from BBB still being held in the PLANNED_ARRIVAL_AIRPORT_HISTORY field. An example of why BBB may still be interested in this leg is so members of the public waiting for the arrival of the leg can be told where the leg is now arriving instead of BBB.
- If a DDD based system needs to know that the leg was originally destined for BBB then this can be derived from the

PLANNED_ARRIVAL_AIRPORT_HISTORY field. An example for this requirement is that where BBB and DDD are in different countries then there may be security or access issues causing the ground staff at DDD to need to know that the passengers were expecting to arrive at BBB.

10.3.5 Cancellation

10.3.5.1 Before the event

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	–	–	BBB

10.3.5.2 After the Cancellation Has Been Actioned

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB	–	DX	BBB

10.3.5.3 Notes:

- Although a record of a cancelled flight leg may not be of importance to an airport it can be valuable for an airline to have a record of any cancelled legs and the associated cancellation reason e.g. for EU Passenger Compensation Rules.
- Note BBB is not removed from the PLANNED_ARRIVAL_AIRPORT_HISTORY field even though the cancellation means that the leg does not actually arrive at this station.

10.4 ***Route Change Scenarios For Multi-Leg Flights***

Where a flight has multiple legs there are a few special cases that need to be considered. A multi-leg is taken to be a two-leg flight i.e. with route AAA-BBB BBB-CCC. The cases when the route change is made to the last leg of the flight are exactly the same as those covered in Section 10.2 above. Further consideration is required only when the change is made to other legs i.e. the first leg in a two-leg flight. Similarly the behaviour around Ground Returns, Returns From Airborne and Cancellations for all leg is exactly the same as that outlined in 10.3.1, 10.3.2 and 10.3.5 respectively. The behaviour for reinstating the disrupted legs is also covered by the different cases outlined in Section 10.2 above.

The following scenarios are to be considered for multi-leg flights. For a flight with legs AAA-BBB BBB-CCC there are four specific cases: -

1. An over-fly – the flight operates AAA-CCC only.
2. The flight diverts to a new destination and stops there – the route becomes AAA-DDD.
3. The flight diverts to a new destination but then continues to the original destination of the given leg – the route becomes AAA-DDD DDD-BBB BBB-CCC
4. The flight diverts to a new destination but then continues to the final destination, missing the intermediary stop – the route becomes AAA-DDD DDD-CCC i.e. no arrival at BBB.

The examples used below to illustrate these cases are all based on Diversions but, as with the single leg flights, a Re-Route is equivalent to a Diversion except it happens before the leg has the OUT and OFF times recorded. Cancellations, Ground Returns and Returns from Airborne for multi-leg flights are handled in a similar fashion to when these events happen to single leg flights.

10.4.1 Multi-Leg Over-Fly Diversion

10.4.1.1 Before the event

The starting point for each of these multi-leg diversion cases is the same, as shown here for a flight leg originally scheduled to operate route AAA-BBB BBB-CCC

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/BBB/CCC	OUT OFF	–	BBB
BBB	1	AAA/BBB/CCC	–	–	CCC

10.4.1.2 After the Diversion Decision

Where the route becomes AAA-CCC, the event would be represented as follows: -

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/CCC	OUT OFF	DV	BBB / CCC
BBB	1	AAA/BBB/CCC	–	DX	CCC

10.4.1.3 Notes

- In the above it is necessary to set the BBB-CCC leg to have an OPERATIONAL_STATUS of DX because the flight is not operating but it has not be explicitly cancelled, it is not operating because of a route change.
- This may happen on a flight where the aircraft has the range to reach CCC as a single leg and if; for example, bad weather prevents the arrival at BBB.

10.4.2 Multi-Leg Divert and Terminate to New Station

10.4.2.1 Before the event

As already depicted above in 10.4.1.1.

10.4.3 After the Diversion Decision

Where the route becomes AAA-CCC, the event would be represented as follows: -

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/DDD	–	DV	BBB / DDD
BBB	1	AAA/BBB/CCC	–	DX	CCC

10.4.3.1 Notes

- In the above it is necessary to set the BBB-CCC leg to have an OPERATION_STATUS field of DX because the flight is not operating but it has not be explicitly cancelled, it is not operating because of a route change.
- In the above the details that the leg is no longer arriving at BBB can be detected from BBB appearing in the PLANNED_ARRIVAL_AIRPORT_HISTORY field for the AAA-DDD leg.
- This case may happen for the causes of a diversion of the AAA-BBB leg already discussed.

10.4.4 Multi-Leg Divert to New Station with Continuation

10.4.4.1 Before the event

As already depicted above in 10.4.1.1.

10.4.4.2 After the Diversion Decision

Where the route becomes AAA-DDD DDD-BBB BBB-CCC, the event would be represented as follows: -

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/DDD/BBB/CCC	OUT OFF	DV	BBB / DDD
DDD	1	AAA/DDD/BBB/CCC	–	–	BBB
BBB	1	AAA/DDD/BBB/CCC	–	–	CCC

10.4.4.3 Notes

- For this case if for some reason the service was terminated at DDD then both the DDD-BBB and BBB-CCC legs would be cancelled.
- This case may happen for the causes of a diversion of the AAA-BBB leg already discussed.

10.4.5 Multi-Leg Divert to a New Station and Continue But Skipping the Next Destination in the Original Route

10.4.5.1 Before the event

As already depicted above in 10.4.1.1.

10.4.5.2 After the Diversion Decision

Where the route becomes AAA-DDD DDD-CCC, the event would be represented as follows: -

DEP AIRPORT CODE	REPEAT NUMBER	FLIGHT STATION SEQUENCE	OOOI TIMES RECORDED	OPERATIONAL STATUS	PLANNED ARRIVAL AIRPORT HISTORY
AAA	1	AAA/DDD/CCC	OUT OFF	DV	BBB / DDD
DDD	1	AAA/DDD/CCC	—	—	CCC

10.4.5.3 Notes

- In the above the messages there is an assumption that the fact that the original AAA-BBB leg is not operating can be derived by BBB based system from the fact that BBB appears in the PLANNED_ARRIVAL_AIRPORT_HISTORY for the now AAA-DDD leg.
- This case may happen when there is a disruption causing the diversion from BBB e.g. bad local weather, and this has not cleared before the decision is made to continue on to CCC.