DEL Airport Interface –

Flight Feed Service

18 February 2021

Version 1.3

aMaDEUS

Document control

Security level	Internal			
Company	Amadeus			
Department	R&D-NBU-APT			
Author	Alphy KANATT & Param Biyani			
Reviewed by	Masoud Assdy Khansary		**Date**	01 / 09 / 2020
Approved by	Masoud Assdy Khansary		**Date**	01 / 09 / 2020
Version	**Date**	**Change**	**Comment**	**By**
0.1	12/09/2019	Initial	Initial draft	Alphy KANATT
0.2	03/10/2019	Second	Second Draft	Alphy KANATT
0.3	28/07/2020	Third	Third Draft	Param Biyani
0.4	04/08/2020	Final	Final	Param Biyani
1.0	21/08/2020	Released version with typo corrections	Released version with typo corrections	Param Biyani
1.1	31/08/2020	Final	Final	Param Biyani
1.2	07/09/2020	Final – Added explicit Clarification and typo corrected	Final – Added explicit Clarification and typo corrected	Param Biyani
1.3	18/02/2021	Added TIME attribute to INFOBJ_REMARK	Internal reference : APTINT-2437	Param Biyani

Table of Contents

aMaDEUS

1 General Information

This document is generated as part of the project AODB Suite for Delhi International Airport.

1.1 Purpose

This ICD describes the interface between Central Application Hosted by DIAL and Amadeus AMS to exchange operational flight information. This will serve as a reference for Amadeus and DIAL teams to validate and confirm the functional/technical aspects of this interface before the start of development. At the same time this will also serve as a guide for the Amadeus (henceforth referred as 1A) development and quality teams to build and test this interface.

1.2 Scope

This document will cover the functional and technical aspects of this interface.

2 Interface Description
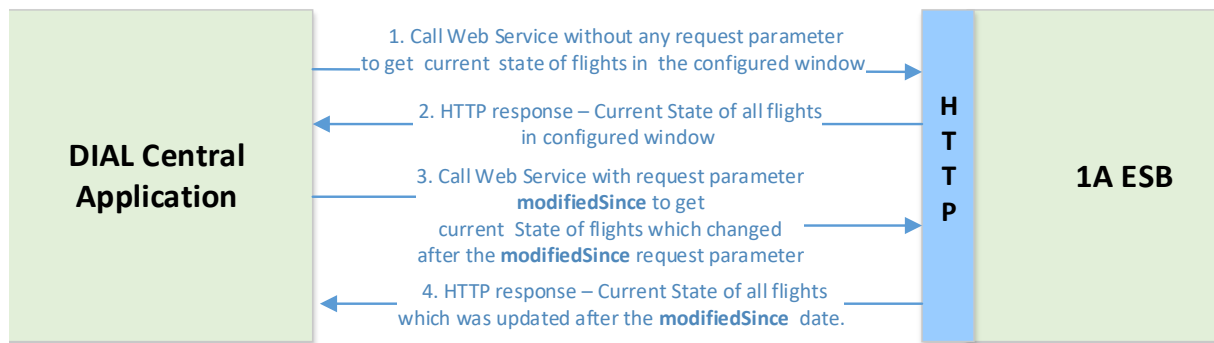
2.1 Physical Characteristics

1. On restart of service or to reinitialise the flights , DIAL Central Application system will call the Web Service hosted by 1A ESB without any request parameter
2. 1A ESB will send the current state of all flights in the Operational Window range with all the available data fields defined.
3. After initialising the flights, DIAL Central Application system will call the Web Service with a request parameter modifiedSince with a date value .
4. 1A ESB will send the current state of all flights in the Operational window range which was updated after the specified date in the request parameter modifiedSince.

2.1.1 Operational Window Range

The flight window for the 1A Flight Feed service will typically comprise a period of 3 days consisting of **D-1** (yesterday) to **D+1** (1 day from now). **D+1** refers to a flight record at 1 day in the future of the scheduled operational (local) date. **D0** is the operational date for today and **D-1** refers to yesterday.

Daily at 2AM (Local Time), 1A ESB will move the Operational Window Range. DIAL Central Application should initialise the flights by requesting the initial state from 1A ESB at 2.30 AM (Local Time).

E.g.:- On 20th Jun 2019 at 2 AM (Local), the Operational Window Range will be from 19th Jun 2019 00:01 (Local) to 21st Jun 2019 23:59 (Local).

2.2 Transport Characteristics

Standard non-SOAP HTTP calls will be adopted and 1A ESB exposes a HTTP GET endpoint.

2.3 Session Characteristics

2.3.1 Session Description

 DIAL Central Application will call web service to get full flight image of the flights for initialisation and subsequently will call web service at an interval of 30 sec to get the modified flights based on http request parameter provided .

If any of the system drops the connection, or if there are any network disruptions, the sender system should attempt to call the web service with the same message till the response code is as per expected. If the call fails, the sender system should re-call with the same message with a deliberate pause of 10 sec in between each repeat calls until the expected response code is received.

2.3.2 Authentication Mechanism

Since both 1A ESB and DIAL Central Application system are in the private cloud of DIAL, no specific authentication mechanism will be introduced at the application level. Infrastructure security should be in place, e.g. firewall blockage to allow server IP/port accessibility.

2.3.3 Message Acknowledgement

Every web service call will require a HTTP response of the below:

200 OK

Standard response for successful HTTP requests.

2.4 Exception Handling

2.4.1 1A ESB is down or Connectivity is down

DIAL Central Application (Client) will get a Service Unavailable error. Client will retry its request until it gets a connection from server. If the client request refers to a `modifiedSince` value time entry before the server was active, the 1A ESB will reply with a response code 409.

If response code 409 is received, the Client will send an initialisation request with request without any `modifiedSince` parameter.

1A ESB is down refers to the scenario when all nodes of ESB are down.

3 Data Format

3.1 HTTP Request Parameters

Parameter	Description	Typical Value(s)
modifiedSince	If undefined the entire state is returned in the resulting response defined (*Conditional Get*): Requests entries provided at least one is timestamped later than `modifiedSince` parameter. If there is no flight record changed after the `modifiedSince` parameter, HTTP 304(Not Modified) is returned. If `modifiedSince` parameter specifies a timestamp which is earlier than currentTime minus **5 minutes (configurable)**, Response status 409 (Conflict) is returned. The value of the `modifiedSince` parameter should be fetched from the previous request's `modifiedSince` parameter.	2020-03-15T18:20:33Z

3.2 HTTP Response Status Codes

Code	Mnemonic	Description
200	OK	The HTTP response body contains a valid document (XML)
304	Not Modified	In response to a request with a `modifiedSince` parameter: indicates that no entries later that the value of `modifiedSince` was available at the time of the response
409	Conflict	A request was made for data (events) that are no longer available from the service, as they have expired Resolve this problem by initiating a new connection and request a new initial state.
404	Not found	Server could not be reached or service not found. The caller should repeat the call with same message with a deliberate pause of 10 sec interval until a successful response.
503	Service Unavailable	Server not able to handle the request. The caller should repeat the call with same message with a deliberate pause of 10 sec interval until a successful response.

aMaDEUS

3.3 Data Fields

3.3.1 Assumptions

UTC Date and Time is used throughout the whole document unless stated otherwise.

The Data Format represented as DataType(x) means that x is the maximum length this Data Field can hold. For example, Char(10) implies that the maximum number of characters which can be passed in the corresponding Data Field is 10.

3.3.2 Message Format

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
INFOBJ_GENERIC (M)	NA	Start of header		
MESSAGETYPE (M)	NA	Type of message sent. Part of META data section.	Char(9)	STATE - Indicates this is current state of all flights in the configured operational window. Used for initialisation CHANGE - Indicates this is current state of all flights in the configured operational window updated after modifiedSince request parameter
TIMEID (M)	NA	Time Type UTC	Char(3)	Fixed value – "UTC" Timings in 24 Hours format
TIMESTAMP (M)	NA	Time Stamp of message creation	Char(14)	YYYYMMDDHHMMSS
SCHEDULEDSTART (O)	NA	Start Time of the Window	Char(14)	YYYYMMDDHHMMSS

Interface Control Document – AMS Flight Feed Service

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
SCHEDULEDEND (O)	NA	End Time of the Window	Char(14)	YYYYMMDDHHMMSS
MODIFIEDSINCE (O)	NA	modifiedSince parameter received in the request	Char(14)	YYYYMMDDHHMMSS
INFOBJ_FLIGHTS (M)	NA	Identifies start of the daily flight data. Occurs once per message	-	Start Section for AMS ESB Repeat in case of multiple terminals
STEV (M)	Public terminal	Identifies start of one terminal record.	Char(1)	The terminals that are currently supported by AODB is provided in the list below: A Terminal1A B Terminal1C C Domestic Arrival D Terminal1D 2 International 3 Terminal 3 5 Haj Terminal
RECS (M)	NA	No of common counter records contained	Number(4)	0-9999
INFOBJ_FLIGHT (M)	NA	Identifies start of one flight record. At least one flight record is required per daily schedule message. This section repeats for each flight record	See sub tags below	This starts a section and encloses details of one flight element. Will be absent if RECS = 0.

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
URNO (M)	Functional ID	Unique AODB ID for identifying a flight	CHAR(64)	The functional identifier is the unique identifier of all movements in Amadeus AODB and is constructed based on the following data: _ Flight identifier (Airline code, flight number, operational suffix). _ Movement type (Departure or arrival). _ Movement UTC operational date (computed from SIBT/SOBT if not present in the request). _ Reference airport
ALC2 (M)	Airline -IATA Code	Airline code	Char(2)	IATA operator code Sample data: 9W
ALC3 (O)	Airline -ICAO Code	Airline code	Char(3)	ICAO operator code Sample data: JAI
FLNO (M)	Flight number	Flight number	Char(4)	This is the flight number of the flight Sample data: 652
FLSF (O)	Flight Suffix	Flight Suffix	Char(1)	This is the flight suffix of the flight Sample data: C

Interface Control Document – AMS Flight Feed Service

AMADEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
ADID (M)	Routing	Movement indicator	Char(1)	If Origin is DEL, ADID = 'D' If Destination is DEL, ADID ='A'
FLDA (M)	Flight Date	Flight Date	Char(8)	YYYYMMDD UTC
STOA/STOD (M)	Scheduled date	Scheduled operation date / time of flight. SIBT in case of arrival and SOBT in case of departure	Char(14)	YYYYMMDDHHMMSS
FLTI (M)	Traffic Type	Flight indicator	Char(1)	D- Domestic I-International
ORG3 (M)	Routing	Airport code of the departing airport	Char(3)	IATA airport code Sample Data: DEL
ORG4 (M)	Routing	Airport code of the departing airport	Char(4)	ICAO airport code Sample Data: VIDP
DES3 (M)	Routing	Airport code of the arriving airport	Char(3)	IATA airport code Sample Data: DEL
DES4 (M)	Routing	Airport code of the arriving airport	Char(4)	ICAO airport code Sample Data: VIDP
ACT3 (M)	Aircraft Type IATA Code	Aircraft type used in this flight	Char(3)	IATA aircraft type Sample Data:345

Interface Control Document – AMS Flight Feed Service

aMaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
ACT5 **(M)**	Aircraft Type – ICAO Code	Aircraft type used in this flight. If the type contains more than 3 characters	Char(5)	IATA ICAO aircraft type Sample Data: A345
REGN **(O)**	Registration Number	Registration or tail number of flight.	Char(12)	Sample Data: VTABK
JFNO **(O)**	Codeshares Airline IATA Code ,Flight Number	Codeshare Flight number	CHAR(100)	This starts a new section and includes code share specific information as below. This information repeats for each code share assigned to a master flight. Each Code Share Flight is separated with delimiter pound character "#" Includes airline code(2-3), flight number (1-4) and suffix (0-1). Each field is separated by a space(" "). Sample Data: IT 235#BA 123 C This section will be absent if no code shares are assigned to flight
FTYP **(M)**	Operational Status		Char(1)	O- Operational X - Cancelled N - Not Operating D – Diverted Schedule, Ground Return and Air Return will be considered as O
STYP **(O)**	Service Type	IATA Service Type	Char(2)	

Interface Control Document – AMS Flight Feed Service

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
CSGN (M)	Call Sign	Call Sign of Flight	CHAR(10)	
RWYD (O)	Runway Departure	Runway Departure	CHAR(4)	
RWYA (O)	Runway Arrival	Runway Arrival	CHAR(4)	
RKEY (M)	Associated Leg ID	Rotation Key ID of Unique Flight	Char(64)	For Arrival Flight, RKEY is the functional ID of departure. For Departure Flight, RKEY is the functional ID of arrival. For single arrival/departure, this will be set as an empty tag.
OFBL/ONBL (O)	AOBT – Actual Off Block Time AIBT – Actual In block Time	Off block Time/ Onblock Time	CHAR(14)	YYYYMMDDHHMMSS UTC time 24 hr format. OFBL – Departure Flight ONBL – Arrival Flight
ETOA /ETOD (O)	EIBT- Estimated In Block Time EOBT- Estimated Off Block Time	Estimated time of flight operating at DEL. This will point to ETA for Arrivals and ETD for departures	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. This will be empty for starting point of flight. ETOA – Arrival Flight. This corresponds to the Estimated In Block Time. ETOD – Departure Flight. This corresponds to the Estimated Off Block Time.

Interface Control Document – AMS Flight Feed Service

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
LAND/AIRB (O)	ATOT - Actual Take Off Time ALDT - Actual Landing Time	Actual time of flight operating at DEL. This will point to ATA for Arrivals and ATD for departures	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. This will be empty for starting point of flight. LAND – In case of Arrival Flight AIRB – In case of Departure Flight
PAXC (O)	Total Child Pax Count	Total Child Pax Count	Char(3)	
PAXA (O)	Total Adult Pax Count	Total Adult Pax Count	Char(3)	
PAXI (O)	Total Infant Pax Count	Total Infant Pax Count	Char(3)	
PAXT (O)	Total Pax Count	Total Pax Count	Char(3)	
TMOA (O)	ATEN – Actual Ten Miles Out Time	Ten Miles Out	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Arrival Flight only.
PBRED (O)	APBRED – Actual Push Back Ready Time	Actual Push Back Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Departure Flight only.
BOAC (O)	ASBG – Actual Start Boarding Gate Time	Gate Boarding Actual Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Departure Flight only.

Interface Control Document – AMS Flight Feed Service

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
FCAL (O)	AFCT – Actual Final Call Time	Final Call Actual Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Departure Flight only.
ELDT (O)	ELDT – Estimated Landing Time	Estimated Landing Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Arrival Flight only.
TOBT (O)	TOBT- Target Off Block Time	Target Off Block Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Departure Flight only.
TSAT (O)	TSAT - Target Startup Approval Time	Target Startup Approval Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Departure Flight only.
TTOT (O)	TTOT - Target Take Off Time	Target Take Off Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Departure Flight only.
CTOT (O)	CTOT - Calculated Take Off Time	Calculated Take Off Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. In case of Departure Flight only.
TTYP (M)	Flight Activity	Nature Code	Char(2)	
BAGC (O)	Total Cargo Weight	Total Cargo Weight in KG	Char(10)	
BAGM (O)	Total Mail Weight	Total Mail Weight in KG	Char(10)	

aMaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
BAGW (O)	Total Baggage Weight	Total Baggage Weight in KG	Char(7)	
BAGN (O)	Total Baggage Count	Number of bags processed by flights	Number(4)	
OFLC (O)	Custom Data-OFLC	Off-Load Cargo	Char(10)	
OFLM (O)	Custom Data-OFLM	Off-Load Mail	Char(10)	
RCST (O)	Custom Data - RCST	Reconciled Status	Char(3)	UNR – UnReconciled REC - Reconciled
REM1 (O)	Custom Data Remark – REM1	Remarks Associated with the Reconciled Status	Char(256)	Free Text
LSTU (O)	Last Update Time	Last Updated Timestamp	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format.
INFOBJ_HNTP (O)	NA	Identifies start of one handling type record. Repeats for each handling type record.		This starts a new section and encloses the handling type details of flight.
HNAM (O)	Handling Task	Full name of the Handling Type	Char(50)	

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
INFOBJ_ROUT (O)	NA	Identifies start of one routing record		This starts a new section and encloses the routing details of flight. This section would repeat for each VIA Location.
VIA3 (M)	Routing	Airport code of the arriving/departing airport	Char(3)	IATA airport code Sample Data: DEL
VIA4 (M)	Routing	Airport code of the arriving/departing airport	Char(4)	ICAO airport code Sample Data: VIDP
STOA (O)	Routing	The scheduled date time of arrival at this route stop	Char(14)	
STOD (O)	Routing	The scheduled date time of departure from this route stop	Char(14)	

Interface Control Document – AMS Flight Feed Service

aMaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
INFOBJ_REMARK REMP (O)	Status	Public Status	Char(3)	LAN - Landed DLY - Delayed ARR - Arrived COP - Check in open COC - Check in Close GTO - Gate Open BRD - Boarding FCL- Final Call GCL - Gate Close AIB - Airborne CXX - Cancelled NOP - Not operating DIV - Diverted
TIME (O)	Operational Time	Remark Time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. This field will be encoded for Gate Open, Gate Close, Boarding and Final Call remark only.
INFOBJ_ACPOSITION (O)	NA	This indicates the start of stands allocation data for a flight record.		This starts a new section and includes stand specific information as below. This section will be absent if no stands assigned to flight.
ACPOSITIONDEP (O)	NA			Start Section of Departure Stand
PSTD (M)	Stand Departure	This is the parking stand for current stand record	Char(5)	In case of Departure Flight Stand code reference table to be decided by DIAL.

Interface Control Document – AMS Flight Feed Service

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
PDBS (M)		Planned start time of stand allocation for the flight.	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. Best Time of Arrival(SIBT/EIBT) if linked else -X mins from PDES where X is configurable default to 30 minutes. If X is set to 0, then the corresponding timing will be sent as an empty tag for unlinked flights.
PDES (M)		Planned end time of stand allocation for the flight.	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. Best Time of Departure (SOBT/EOBT)
PDBA (O)		Actual start time of stand allocation for the flight.	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. AIBT of arrival if linked else -X mins from PDEA where X is configurable default to 30 minutes. If X is set to 0, then the corresponding timing will be sent as an empty tag for unlinked flights.
PDEA (O)		Actual end time of stand allocation for the flight.	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. AOBT of flight
ACPOSITIONARR (O)	NA			Start Section of Arrival Stand
PSTA (M)	Stand Arrival	This is the parking stand for current stand record	Char(5)	In case of Arrival Flight Stand code reference table to be decided by DIAL.
PABS (M)		Planned start time of stand allocation for the flight.	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. Best time of Arrival (SIBT/EIBT)

Interface Control Document – AMS Flight Feed Service

aMaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
PAES (M)		Planned end time of stand allocation for the flight.	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. Best time of Departure flight (SOBT/EOBT) if linked else +X mins to PABS where X is configurable default to 30 minutes. If X is set to 0, then the corresponding timing will be sent as an empty tag for unlinked flights.
PABA (O)		Actual start time of stand allocation for the flight.	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format. AIBT of flight
PAEA (O)		Actual end time of stand allocation for the flight.	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format AOBT of departure flight if it is linked else +X mins to PABA where X is configurable default to 30 minutes. If X is set to 0, then the corresponding timing will be sent as an empty tag for unlinked flights.
INFOBJ_GATE (O)	NA	This indicates the start of gate related data for a flight record.		This starts a new section and includes gate specific information as below. This section will be absent if no gates assigned to flight.
GATEDEP1 (O)		Start section of first Gate Info		
GTD1 (M)		Gate number assigned to this flight	Char(5)	Gate code reference table to be decided by DIAL.
GD1B (M)	Allocation Usage - Planned Start	Planned time for boarding open for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format.

Interface Control Document – AMS Flight Feed Service

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
GD1E (M)	Allocation Usage - Planned End	Planned time for boarding close for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
GD1X (O)	Allocation Usage - Actual Start	Time when the flight actually started boarding	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
GD1Y (O)	Allocation Usage - Actual End	Time when the boarding was closed	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
GATEDEP2 (O)		Start section of Second Gate Info		
GTD2 (M)		Gate number assigned to this flight	Char(5)	Gate code reference table to be decided by DIAL.
GD2B (M)	Allocation Usage - Planned Start	Planned time for boarding open for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format.

Interface Control Document – AMS Flight Feed Service

aMaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
GD2E (M)	Allocation Usage - Planned End	Planned time for boarding close for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
GD2X (O)	Allocation Usage - Actual Start	Time when the flight actually started boarding	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
GD2Y (O)	Allocation Usage - Actual End	Time when the boarding was closed	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
INFOBJ_COUNTER (O)	NA	This indicates the start of check-in counter related data for a flight record.		This starts a new section and includes check-in specific information as below. This information repeats for each counter assigned to flight. This section will be absent if no counters assigned to flight. This section will be repeated for multiple counters
CTYP (M)	Counter Type	Counter Type	Char(1)	C – Common D - Dedicated

Interface Control Document – AMS Flight Feed Service

aMaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
CCID (M)	Allocation ID for Common Counters. URNO for Dedicated Counters.	Unique Allocation Identifier	Char(64)	This will be a unique id of the allocation/flight.
CKIC (M)	Check-in desks	Check-in counter number assigned to this departure flight	Char(5)	Check-in counter reference table to be decided by DIAL.
CKBS (M)	Resource Usage Planned Start	Planned time for start check-in for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
CKES (M)	Resource Usage Planned End	Planned time for close check-in for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
CKBA (O)	Resource Usage Actual Start	Time when check-in was open for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
CKEA (O)	Resource Usage Actual End	Time when check-in was closed for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format

Interface Control Document – AMS Flight Feed Service

amaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
INFOBJ_CHUTE (O)		Time when check-in was closed for flight start of chute related data for a flight record.		This starts a new section and includes chute specific information as below. This information repeats for each chute assigned to flight. This section will be absent if no chutes assigned to flight.
BAZ1 (M)		This is the baggage chute allocated for a departure flight	Char(8)	Chute code reference table to be decided by DIAL
BSO1 (M)	Resource Usage Planned Start	Planned time for chute start usage for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
BSC1 (M)	Resource Usage Planned End	Planned time for chute end usage for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
BAO1 (O)	Resource Usage Actual Start	Actual time when the flight started using the chute	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
BAC1 (O)	Resource Usage Actual End	Actual Time when the flight stopped using the chute	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format

Interface Control Document – AMS Flight Feed Service

aMaDEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
INFOBJ_BELT (O)	NA	This indicates the start of belt related data for a flight record.		This starts a new section and includes carousel specific information as below. This information repeats for each carousel assigned to flight. This section will be absent if no carousels assigned to flight.
BLT1 (M)	Belt	belt number assigned to this departure flight	Char(5)	Carousel reference table to be decided by DIAL.
B1BS (M)	Resource Usage Planned Start	Planned time for belt start usage for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
B1ES (M)	Resource Usage Planned End	Planned time for belt end usage for flight	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
B1BA (O)	Resource Usage Actual Start	Actual time when the flight started using the belt corresponds to first bag time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format
B1EA (O)	Resource Usage Actual End	Actual Time when the flight stopped using the belt corresponds to last bag time	Char(14)	YYYYMMDDHHMMSS UTC time 24 hr format

Interface Control Document – AMS Flight Feed Service

AMADEUS

Data Field (Mandatory or Optional)	AMS Field	Description	Format	Values
PHAG (O)	Primary handling agent	Handling agent code for flight corresponding to TOBT handling type	Char(5)	Note: If multiple primary handling agents are present, only one value will be populated. This is only required for departure flights.

4 Appendix

4.1 Sample Message

```xml
<?xml version="1.0"?>
<MSG>
 <MSGSTREAM_OUT>
  <INFOBJ_GENERIC>
   <MESSAGETYPE>AODBFLTUD</MESSAGETYPE>
   <TIMEID>UTC</TIMEID>
   <TIMESTAMP>20190214044240</TIMESTAMP>
   <SCHEDULEDSTART>20190213000000</SCHEDULEDSTART>
   <SCHEDULEDEND>20190215000000</SCHEDULEDEND>
  </INFOBJ_GENERIC>
  <INFOBJ_FLIGHTS>
   <STEV>3</STEV>
   <RECS>2</RECS>
   <INFOBJ_FLIGHT>
    <URNO>C_JAI_123__20190221_DEPARTURE_VIDP</URNO>
    <ADID>D</ADID>
    <FLNO>123</FLNO>
    <FLDA>20190221</FLDA>
    <ALC2>9W</ALC2>
    <ALC3>JAI</ALC3>
    <FLTI>D</FLTI>
    <ORG3>DEL</ORG3>
    <ORG4>VIDP</ORG4>
    <DES3>VTZ</DES3>
    <DES4>VOVZ</DES4>
    <STOD>20190221054000</STOD>
    <FTYP>O</FTYP>
    <ACT3>32A</ACT3>
    <ACT5>A320</ACT5>
    <REGN>VTIJAR</REGN>
    <STYP>J</STYP>
    <JFNO>SG 123</JFNO>
    <RKEY>C_JAI_122__20190221_ARRIVAL_VIDP</RKEY>
    <CSGN>JAI123</CSGN>
    <OFBL>20190221054000</OFBL>
    <PHAG>SYG</PHAG>
    <PAXC>2</PAXC>
    <PAXA>8</PAXA>
    <PAXI>3</PAXI>
    <PAXT>13</PAXT>
    <PBRED>20190214055000</PBRED>
    <BOAC>20190214050000</BOAC>
    <FCAL>20190214054000</FCAL>
    <TOBT>20190214070000</TOBT>
    <TTOT>20190214071000</TTOT>
    <TSAT>20190214064500</TSAT>
    <CTOT>20190214064200</CTOT>
    <TTYP>22</TTYP>
    <BAGC>89</BAGC>
    <BAGM>62</BAGM>
    <BAGW>178</BAGW>
    <BAGN>36</BAGN>
    <RCST>REC</RCST>
    <REM1>All bag(s) identified</REM1>
```

```
            <LSTU>20190214044240</LSTU>
            <INFOBJ_HNTP>
             <HNAM>PRIMARY</HNAM>
            </INFOBJ_HNTP>
            <INFOBJ_ROUT>
             <VIA3>BLR</VIA3>
             <VIA4>VOBL</VIA4>
            </INFOBJ_ROUT>
            <INFOBJ_REMARK>
             <REMP>COP</REMP>
            </INFOBJ_REMARK>
            <INFOBJ_COUNTER>
             <CTYP>C</CTYP>
             <CCID>ALLOC241461</CCID>
             <CKIC>A01</CKIC>
             <CKBS>20190213015000</CKBS>
             <CKES>20190213045000</CKES>
            </INFOBJ_COUNTER>
            <INFOBJ_COUNTER>
             <CTYP>C</CTYP>
             <CCID>ALLOC241462</CCID>
             <CKIC>A02</CKIC>
             <CKBS>20190213015000</CKBS>
             <CKES>20190213045000</CKES>
            </INFOBJ_COUNTER>
            <INFOBJ_ACPOSITION>
             <ACPOSITIONDEP>
              <PSTD>016</PSTD>
              <PDBS>20190221051000</PDBS>
              <PDES>20190221054000</PDES>
             </ACPOSITIONDEP>
            </INFOBJ_ACPOSITION>
            <INFOBJ_GATE>
             <GATEDEP1>
              <GTD1>8</GTD1>
              <GD1B>20190214050000</GD1B>
              <GD1E>20190214060000</GD1E>
             </GATEDEP1>
            </INFOBJ_GATE>
            <INFOBJ_CHUTE>
             <BAZ1>C09</BAZ1>
             <BSO1>20181201013000</BSO1>
             <BSC1>20181201090000</BSC1>
            </INFOBJ_CHUTE>
           </INFOBJ_FLIGHT>
           <INFOBJ_FLIGHT>
            <URNO>C_JAI_222__20190221_ARRIVAL_VIDP</URNO>
            <ADID>A</ADID>
            <FLNO>222</FLNO>
            <FLDA>20190221</FLDA>
            <ALC2>9W</ALC2>
            <ALC3>JAI</ALC3>
            <FLTI>D</FLTI>
            <ORG3>VTZ</ORG3>
            <ORG4>VOVZ</ORG4>
            <DES3>DEL</DES3>
            <DES4>VIDP</DES4>
            <STOA>20190221054000</STOA>
            <FTYP>O</FTYP>
```

```
            <ACT3>32A</ACT3>
            <ACT5>A320</ACT5>
            <REGN>VTIJDR</REGN>
            <STYP>J</STYP>
            <JFNO>SG 122</JFNO>
            <RKEY></RKEY>
            <CSGN>JAI222</CSGN>
            <ONBL>20190221054000</ONBL>
            <PHAG>SYG</PHAG>
            <PAXC>2</PAXC>
            <PAXA>8</PAXA>
            <PAXI>3</PAXI>
            <PAXT>13</PAXT>
            <TMOA>20190221053000</TMOA>
            <ELDT>20190221054000</ELDT>
            <TTYP>23</TTYP>
            <BAGC>89</BAGC>
            <BAGM>62</BAGM>
            <BAGW>178</BAGW>
            <BAGN>36</BAGN>
            <LSTU>20190214044240</LSTU>
            <INFOBJ_HNTP>
             <HNAM>PRIMARY</HNAM>
            </INFOBJ_HNTP>
            <INFOBJ_ROUT>
             <VIA3>BLR</VIA3>
             <VIA4>VOBL</VIA4>
            </INFOBJ_ROUT>
            <INFOBJ_REMARK>
             <REMP>ARR</REMP>
            </INFOBJ_REMARK>
            <INFOBJ_BELT>
             <BLT1>1</BLT1>
             <B1BS>20190824001030</B1BS>
             <B1ES>20190824001100</B1ES>
            </INFOBJ_BELT>
            <INFOBJ_ACPOSITION>
             <ACPOSITIONARR>
              <PSTA>016</PSTA>
              <PABS>20190221054000</PABS>
              <PAES>20190221061000</PAES>
             </ACPOSITIONARR>
            </INFOBJ_ACPOSITION>
           </INFOBJ_FLIGHT>
          </INFOBJ_FLIGHTS>
          <INFOBJ_FLIGHTS>
           <STEV>2</STEV>
           <RECS>2</RECS>
           <INFOBJ_FLIGHT>
            <URNO>C_JAI_121__20190221_DEPARTURE_VIDP</URNO>
            <ADID>D</ADID>
            <FLNO>121</FLNO>
            <FLDA>20190221</FLDA>
            <ALC2>9W</ALC2>
            <ALC3>JAI</ALC3>
            <FLTI>D</FLTI>
            <ORG3>DEL</ORG3>
            <ORG4>VIDP</ORG4>
            <DES3>VTZ</DES3>
```

```xml
<DES4>VOVZ</DES4>
<STOD>20190221054000</STOD>
<FTYP>O</FTYP>
<ACT3>32A</ACT3>
<ACT5>A320</ACT5>
<REGN>VTIJAR</REGN>
<STYP>J</STYP>
<JFNO>SG 123</JFNO>
<RKEY>C_JAI_120__20190221_ARRIVAL_VIDP</RKEY>
<CSGN>JAI123</CSGN>
<OFBL>20190221054000</OFBL>
<PHAG>SYG</PHAG>
<PAXC>2</PAXC>
<PAXA>8</PAXA>
<PAXI>3</PAXI>
<PAXT>13</PAXT>
<PBRED>20190214055000</PBRED>
<BOAC>20190214050000</BOAC>
<FCAL>20190214054000</FCAL>
<TOBT>20190214070000</TOBT>
<TTOT>20190214071000</TTOT>
<TSAT>20190214064500</TSAT>
<CTOT>20190214064200</CTOT>
<TTYP>22</TTYP>
<BAGC>89</BAGC>
<BAGM>62</BAGM>
<BAGW>178</BAGW>
<BAGN>36</BAGN>
<RCST>REC</RCST>
<REM1>All bag(s) identified</REM1>
<LSTU>20190214044240</LSTU>
<INFOBJ_HNTP>
 <HNAM>PRIMARY</HNAM>
</INFOBJ_HNTP>
<INFOBJ_HNTP>
 <HNAM>CATERING</HNAM>
</INFOBJ_HNTP>
<INFOBJ_ROUT>
 <VIA3>BLR</VIA3>
 <VIA4>VOBL</VIA4>
</INFOBJ_ROUT>
<INFOBJ_REMARK>
 <REMP>COP</REMP>
</INFOBJ_REMARK>
<INFOBJ_COUNTER>
 <CTYP>D</CTYP>
 <CCID>C_JAI_121__20190221_DEPARTURE_VIDP</CCID>
 <CKIC>A01</CKIC>
 <CKBS>20190213015000</CKBS>
 <CKES>20190213045000</CKES>
</INFOBJ_COUNTER>
<INFOBJ_COUNTER>
 <CTYP>D</CTYP>
 <CCID>C_JAI_121__20190221_DEPARTURE_VIDP</CCID>
 <CKIC>A02</CKIC>
 <CKBS>20190213015000</CKBS>
 <CKES>20190213045000</CKES>
</INFOBJ_COUNTER>
<INFOBJ_ACPOSITION>
```

```xml
    <ACPOSITIONDEP>
     <PSTD>016</PSTD>
     <PDBS>20190221051000</PDBS>
     <PDES>20190221054000</PDES>
    </ACPOSITIONDEP>
   </INFOBJ_ACPOSITION>
   <INFOBJ_GATE>
    <GATEDEP1>
     <GTD1>8</GTD1>
     <GD1B>20190214050000</GD1B>
     <GD1E>20190214060000</GD1E>
    </GATEDEP1>
   </INFOBJ_GATE>
   <INFOBJ_CHUTE>
    <BAZ1>C09</BAZ1>
    <BSO1>20181201013000</BSO1>
    <BSC1>20181201090000</BSC1>
   </INFOBJ_CHUTE>
  </INFOBJ_FLIGHT>
  <INFOBJ_FLIGHT>
   <URNO>C_JAI_120__20190221_ARRIVAL_VIDP</URNO>
   <ADID>A</ADID>
   <FLNO>120</FLNO>
   <FLDA>20190221</FLDA>
   <ALC2>9W</ALC2>
   <ALC3>JAI</ALC3>
   <FLTI>D</FLTI>
   <ORG3>VTZ</ORG3>
   <ORG4>VOVZ</ORG4>
   <DES3>DEL</DES3>
   <DES4>VIDP</DES4>
   <STOA>20190221054000</STOA>
   <FTYP>O</FTYP>
   <ACT3>32A</ACT3>
   <ACT5>A320</ACT5>
   <REGN>VTIJDR</REGN>
   <STYP>J</STYP>
   <JFNO>SG 122</JFNO>
   <RKEY></RKEY>
   <CSGN>JAI122</CSGN>
   <ONBL>20190221054000</ONBL>
   <PHAG>SYG</PHAG>
   <PAXC>4</PAXC>
   <PAXA>29</PAXA>
   <PAXI>3</PAXI>
   <PAXT>36</PAXT>
   <TMOA>20190221053000</TMOA>
   <ELDT>20190221054000</ELDT>
   <TTYP>23</TTYP>
   <BAGC>176</BAGC>
   <BAGM>89</BAGM>
   <BAGW>198</BAGW>
   <BAGN>62</BAGN>
   <LSTU>20190214044240</LSTU>
   <INFOBJ_HNTP>
    <HNAM>PRIMARY</HNAM>
   </INFOBJ_HNTP>
   <INFOBJ_HNTP>
    <HNAM>CATERING</HNAM>
```

```xml
        </INFOBJ_HNTP>
        <INFOBJ_ROUT>
         <VIA3>BLR</VIA3>
         <VIA4>VOBL</VIA4>
        </INFOBJ_ROUT>
        <INFOBJ_REMARK>
         <REMP>ARR</REMP>
        </INFOBJ_REMARK>
        <INFOBJ_BELT>
         <BLT1>1</BLT1>
         <B1BS>20190824001030</B1BS>
         <B1ES>20190824001100</B1ES>
        </INFOBJ_BELT>
        <INFOBJ_ACPOSITION>
         <ACPOSITIONARR>
          <PSTA>016</PSTA>
          <PABS>20190221054000</PABS>
          <PAES>20190221061000</PAES>
         </ACPOSITIONARR>
        </INFOBJ_ACPOSITION>
       </INFOBJ_FLIGHT>
      </INFOBJ_FLIGHTS>
     </MSGSTREAM_OUT>
    </MSG>
```

4.2 Schema Definition

```xml
<?xml version="1.0" ?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
 <xs:complexType name="INFOBJ_GENERIC">
  <xs:sequence>
   <xs:element name="MESSAGETYPE" type="xs:string" />
   <xs:element name="TIMEID" type="xs:string" />
   <xs:element name="TIMESTAMP" type="xs:string" />
   <xs:element name="SCHEDULEDSTART" type="xs:string" minOccurs="0" />
   <xs:element name="SCHEDULEDEND" type="xs:string" minOccurs="0" />
   <xs:element name="MODIFIEDSINCE" type="xs:string" minOccurs="0" />
  </xs:sequence>
 </xs:complexType>
 <!-- End definition of Generic info -->
 <!-- Start definition of file info (request file header) -->
 <!-- Start definition of Flightinfo -->
 <xs:complexType name="INFOBJ_FLIGHT">
  <xs:sequence>
   <xs:element name="URNO" type="xs:string" />
   <xs:element name="ADID" type="xs:string" />
   <xs:element name="FLNO" type="xs:string" />
   <xs:element name="FLSF" type="xs:string" minOccurs="0" />
   <xs:element name="FLDA" type="xs:string" />
   <xs:element name="ALC2" type="xs:string" />
   <xs:element name="ALC3" type="xs:string" minOccurs="0" />
   <xs:element name="FLTI" type="xs:string" />
   <xs:element name="ORG3" type="xs:string" />
   <xs:element name="ORG4" type="xs:string" />
   <xs:element name="DES3" type="xs:string" />
   <xs:element name="DES4" type="xs:string" />
```

```xml
<xs:element name="STOA" type="xs:string" minOccurs="0" />
<xs:element name="STOD" type="xs:string" minOccurs="0" />
<xs:element name="FTYP" type="xs:string" />
<xs:element name="ACT3" type="xs:string" />
<xs:element name="ACT5" type="xs:string" />
<xs:element name="REGN" type="xs:string" minOccurs="0" />
<xs:element name="STYP" type="xs:string" minOccurs="0" />
<xs:element name="JFNO" type="xs:string" minOccurs="0" />
<xs:element name="RKEY" type="xs:string" />
<xs:element name="CSGN" type="xs:string" />

<xs:element name="ETOA" type="xs:string" minOccurs="0" />
<xs:element name="ETOD" type="xs:string" minOccurs="0" />
<xs:element name="LAND" type="xs:string" minOccurs="0" />
<xs:element name="RWYA" type="xs:string" minOccurs="0" />
<xs:element name="ONBL" type="xs:string" minOccurs="0" />
<xs:element name="OFBL" type="xs:string" minOccurs="0" />
<xs:element name="AIRB" type="xs:string" minOccurs="0" />
<xs:element name="RWYD" type="xs:string" minOccurs="0" />

<xs:element name="PHAG" type="xs:string" minOccurs="0" />
<xs:element name="PAXC" type="xs:string" minOccurs="0"  />
<xs:element name="PAXA" type="xs:string" minOccurs="0" />
<xs:element name="PAXI" type="xs:string" minOccurs="0" />
<xs:element name="PAXT" type="xs:string" minOccurs="0" />
<xs:element name="TMOA" type="xs:string" minOccurs="0" />
<xs:element name="PBRED" type="xs:string" minOccurs="0" />
<xs:element name="BOAC" type="xs:string" minOccurs="0" />
<xs:element name="FCAL" type="xs:string" minOccurs="0" />
<xs:element name="ELDT" type="xs:string" minOccurs="0" />
<xs:element name="TOBT" type="xs:string" minOccurs="0" />
<xs:element name="TSAT" type="xs:string" minOccurs="0" />
<xs:element name="TTOT" type="xs:string" minOccurs="0" />
<xs:element name="CTOT" type="xs:string" minOccurs="0" />
<xs:element name="TTYP" type="xs:string" />
<xs:element name="BAGC" type="xs:string" minOccurs="0" />
<xs:element name="BAGM" type="xs:string" minOccurs="0" />
<xs:element name="BAGW" type="xs:string" minOccurs="0" />
<xs:element name="BAGN" type="xs:string" minOccurs="0" />
<xs:element name="OFLC" type="xs:string" minOccurs="0" />
<xs:element name="OFLM" type="xs:string" minOccurs="0" />
<xs:element name="RCST" type="xs:string" minOccurs="0" />
<xs:element name="REM1" type="xs:string" minOccurs="0" />
<xs:element name="LSTU" type="xs:string" minOccurs="0" />
<xs:element name="INFOBJ_HNTP" type="INFOBJ_HNTP"
 minOccurs="0" maxOccurs="unbounded" />
<xs:element name="INFOBJ_ROUT" type="INFOBJ_ROUT"
 minOccurs="0" maxOccurs="unbounded" />
<xs:element name="INFOBJ_REMARK" type="INFOBJ_REMARK"
 minOccurs="0" />
<xs:element name="INFOBJ_BELT" type="INFOBJ_BELT"
 minOccurs="0" maxOccurs="unbounded" />
<xs:element name="INFOBJ_COUNTER" type="INFOBJ_COUNTER"
 minOccurs="0" maxOccurs="unbounded" />
<xs:element name="INFOBJ_ACPOSITION" type="INFOBJ_ACPOSITION"
 minOccurs="0" />
<xs:element name="INFOBJ_GATE" type="INFOBJ_GATE"
```

```xml
     minOccurs="0" />

  <xs:element name="INFOBJ_CHUTE" type="INFOBJ_CHUTE"
   minOccurs="0" maxOccurs="unbounded" />
 </xs:sequence>
</xs:complexType>
<!--End definition of flightinfo -->
<!-- Start definition of Chute Info -->
<xs:complexType name="INFOBJ_CHUTE">
 <xs:sequence>
  <xs:element name="BAZ1" type="xs:string" />
  <xs:element name="BSO1" type="xs:string" />
  <xs:element name="BSC1" type="xs:string" />
  <xs:element name="BAO1" type="xs:string" minOccurs="0" />
  <xs:element name="BAC1" type="xs:string" minOccurs="0" />
 </xs:sequence>
</xs:complexType>

<!-- Start definition of Gateinfo -->

<xs:complexType name="GATEDEP1">
 <xs:sequence>
  <xs:element name="GTD1" type="xs:string" />
  <xs:element name="GD1B" type="xs:string" />
  <xs:element name="GD1E" type="xs:string" />
  <xs:element name="GD1X" type="xs:string" minOccurs="0" />
  <xs:element name="GD1Y" type="xs:string" minOccurs="0" />
 </xs:sequence>
</xs:complexType>
<xs:complexType name="GATEDEP2">
 <xs:sequence>
  <xs:element name="GTD2" type="xs:string" />
  <xs:element name="GD2B" type="xs:string" />
  <xs:element name="GD2E" type="xs:string" />
  <xs:element name="GD2X" type="xs:string" minOccurs="0" />
  <xs:element name="GD2Y" type="xs:string" minOccurs="0" />
 </xs:sequence>
</xs:complexType>
<xs:complexType name="INFOBJ_GATE">
 <xs:sequence>
  <xs:element name="GATEDEP1" type="GATEDEP1" minOccurs="0" maxOccurs="1" />
  <xs:element name="GATEDEP2" type="GATEDEP2" minOccurs="0" maxOccurs="1" />
 </xs:sequence>
</xs:complexType>
<!-- End definition of Gateinfo -->
<!-- Start definition of Beltinfo -->
<xs:complexType name="INFOBJ_BELT">
 <xs:sequence>
  <xs:element name="BLT1" type="xs:string" />
  <xs:element name="B1BS" type="xs:string" />
  <xs:element name="B1ES" type="xs:string" />
  <xs:element name="B1BA" type="xs:string" minOccurs="0" />
  <xs:element name="B1EA" type="xs:string" minOccurs="0" />
 </xs:sequence>
</xs:complexType>
<xs:complexType name="INFOBJ_REMARK">
 <xs:sequence>
  <xs:element minOccurs="0" name="REMP" type="xs:string" />
  <xs:element minOccurs="0" name="TIME" type="xs:string" />
```

```xml
   </xs:sequence>
  </xs:complexType>
  <!-- End definition of Beltinfo -->
  <!-- Start definition of Positioninfo -->
  <xs:complexType name="ACPOSITIONARR">
   <xs:sequence>
    <xs:element name="PSTA" type="xs:string" />
    <xs:element name="PABS" type="xs:string" />
    <xs:element name="PAES" type="xs:string" />
    <xs:element name="PABA" type="xs:string" minOccurs="0" />
    <xs:element name="PAEA" type="xs:string" minOccurs="0" />
   </xs:sequence>
  </xs:complexType>
  <xs:complexType name="ACPOSITIONDEP">
   <xs:sequence>
    <xs:element name="PSTD" type="xs:string" />
    <xs:element name="PDBS" type="xs:string" />
    <xs:element name="PDES" type="xs:string" />
    <xs:element name="PDBA" type="xs:string" minOccurs="0" />
    <xs:element name="PDEA" type="xs:string" minOccurs="0" />
   </xs:sequence>
  </xs:complexType>
  <xs:complexType name="INFOBJ_ACPOSITION">
   <xs:choice>
    <xs:element name="ACPOSITIONARR" type="ACPOSITIONARR" />
    <xs:element name="ACPOSITIONDEP" type="ACPOSITIONDEP" />
   </xs:choice>
  </xs:complexType>
  <!-- End definition of Positioninfo -->
  <!-- Start definition of Checkin-Counterinfo -->
  <xs:complexType name="INFOBJ_COUNTER">
   <xs:sequence>
    <xs:element name="CTYP" type="xs:string" />
    <xs:element name="CCID" type="xs:string" />
    <xs:element name="CKIC" type="xs:string" />
    <xs:element name="CKBS" type="xs:string" />
    <xs:element name="CKES" type="xs:string" />
    <xs:element name="CKBA" type="xs:string" minOccurs="0" />
    <xs:element name="CKEA" type="xs:string" minOccurs="0" />
   </xs:sequence>
  </xs:complexType>
  <!-- End definition of Checkin-Counterinfo -->

  <xs:complexType name="INFOBJ_HNTP">
   <xs:sequence>
    <xs:element name="HNAM" type="xs:string" minOccurs="0" />
   </xs:sequence>
  </xs:complexType>
  <xs:complexType name="INFOBJ_ROUT">
   <xs:sequence>
    <xs:element name="VIA3" type="xs:string" />
    <xs:element name="VIA4" type="xs:string" />
    <xs:element name="STOA" type="xs:string" minOccurs="0" />
    <xs:element name="STOD" type="xs:string" minOccurs="0" />
   </xs:sequence>
  </xs:complexType>
  <xs:complexType name="INFOBJ_FLIGHTS">
   <xs:sequence>
    <xs:element name="STEV" type="xs:string" />
```

```xml
    <xs:element name="RECS" type="xs:string" />
    <xs:element name="INFOBJ_FLIGHT" type="INFOBJ_FLIGHT"
     maxOccurs="unbounded" />
  </xs:sequence>
 </xs:complexType>
 <xs:complexType name="MSGSTREAM_OUT">
  <xs:sequence>
   <xs:element name="INFOBJ_GENERIC" type="INFOBJ_GENERIC" />
   <xs:element name="INFOBJ_FLIGHTS" type="INFOBJ_FLIGHTS"
    maxOccurs="unbounded" />
  </xs:sequence>
 </xs:complexType>
 <!-- End complex type combination possibilities -->
 <!-- Start root type definition -->
 <xs:element name="MSG">
  <xs:complexType>
   <xs:choice>
    <xs:element name="MSGSTREAM_OUT" type="MSGSTREAM_OUT" />
   </xs:choice>
  </xs:complexType>
 </xs:element>
 <!-- End root type definition -->
</xs:schema>
```