



# NM 23.0.0 - NOP/B2B Reference Manuals - FlightServices

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# References

## External

This document makes reference to the following external documents (an external document being defined as a document not produced by NM):

[1] Flight Object Interface Control Description for ICOG IOP Interface Specification

## NM

[2] NOP/B2B Reference Manuals - CommonServices

[3] NOP/B2B Reference Manuals - AirspaceServices

[4] NOP/B2B Reference Manuals - FlowServices

[5] NOP/B2B Reference Manuals - FIXM 4.0 and NM extensions validations rules for NM B2B.  
[FIXMValidationRulesForNMB2B.pdf](#)

[6] ANNEX to the IFPS USERS MANUAL; Generated Errors. [IFPS USERS MANUAL](#)

[7] [DPI Implementation Guide, ref URB/USD/DPI Impl Guide, version 2.100, dated 01/08/2017](#)

[8] [Flight Progress messages document, ref URB/USD/MSG INTF, Edition 2.400, dated 01/08/2017](#)

[9] [DPI and FUM Implementation Road Map, ref URB/USD/DPI FUM Impl RM, version 1.900, dated 01/08/2017](#)

[10] Site of European Airport CDM: <http://www.euro-cdm.org>

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# Terminology

## Main Abbreviations and Acronyms

EFPM (Extended Flight Plan Message.)

When referring to IFPS error class EFPM, NM means errors that are related to the semantic of the message (see [6]).

PROF (Error class Profile)

When referring to IFPS error class PROF, NM means errors that are related to the four dimensional profile. They are typically errors on RAD and CDR availability (see [6]).

RA (Error class Routing Assistance)

When referring to IFPS error class RA, NM means errors related to Routing Assistance. They are errors on the constraint that can be specified when requesting the generation of alternate route (e.g.: error on via point being unknown) (see [6]).

ROUTE (Error class ROUTE)

When referring to IFPS error class ROUTE, NM means errors that are related to the semantic of the field 15 and to the two dimensional route description (see [6]).

SYN (Syntax Error)

When referring to IFPS error class ROUTE, NM means errors that are related to the syntax of the message (see [6]).

ICAO2012 (ICAO 2012)

Refers to the new ICAO flight plan content defined for implementation on the 15/11/2012.



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# Chapter 1. Introduction

## 1.1. Identification

- (1) This document forms part of the set of the NM 23.0.0 - NOP/B2B Reference Manuals, which all together form the NM 23.0.0 - NOP/B2B Documentation.
- (2) Its reference is B2B/23.0.0/Flight.
- (3) Its title is NM 23.0.0 - NOP/B2B Reference Manuals - FlightServices.

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## Chapter 2. Context

- (1) NM NOP/B2B provides three flight services corresponding to the three stages of a flight:
  - a) Flight preparation: services used during the preparation of a flight plan, before filing it to NM
  - b) Flight filing: services related to the flight plan filing activity, including creation, update and cancellation
  - c) Flight management: services used to query and retrieve information on existing flight plans and flights
- (2) Due to the nature of the NM backend systems, NM distinguishes between **flight plan data** (or simply **flight plan**) and **flight data** (or simply **flight**).
  - The **flight plan** is a well known concept as per ICAO Document 4444. Flight plans for flights operated or crossing PAN European airspace must be filed to the NM IFPS system. The IFPS system validates the flight plan against the relevant AIRAC data and RAD restrictions and if valid distributes the flight plan to the relevant actors, including concerned ATS units.
  - The **flight** refers to the execution phase of the flight plan, i.e. the actual flight. Flights are handled by a second NM system called ETFMS. A flight starts to exist in the ETFMS system maximum 20 hours before EOBT. A flight contains many more properties than a flight plan and may significantly evolve in time regardless of the flight plan as the take-off time approaches or once airborne (for example due to A-CDM, CASA slot information, position reports, etc).

As mentioned before, flight plans are transferred from IFPS to ETFMS 20 hours before EOBT. So if a flight plan is filed 2 days in advance (with respect to its EOBT), it remains in IFPS and only 20 hours before EOBT the flight plan is transferred into ETFMS and "becomes" a flight. If a flight plan is filed less than 20 hours in advance, then it is transferred immediately to ETFMS. Once the flight plan has been transferred to ETFMS flight data (i.e. the flight) becomes available.

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## Chapter 3. Port Types

### 3.1. FlightPreparationService Port Type

#### 3.1.1. Overview

- (1) FlightPreparationService is intended to provide requests aimed at easing the preparation phase of the flight plan (prior to its filing to NM):
- a) [FlightPlanValidationRequest](#) / [FlightPlanValidationReply](#)
  - b) [RoutingAssistanceRequest](#) / [RoutingAssistanceReply](#)

#### 3.1.2. Flight Plan Validation

##### 3.1.2.1. SOAP

- (1) The associated SOAP operation is:

```
FlightPlanValidationReply validateFlightPlan(
    FlightPlanValidationRequest request
)
```

##### 3.1.2.2. FlightPlanValidationRequest

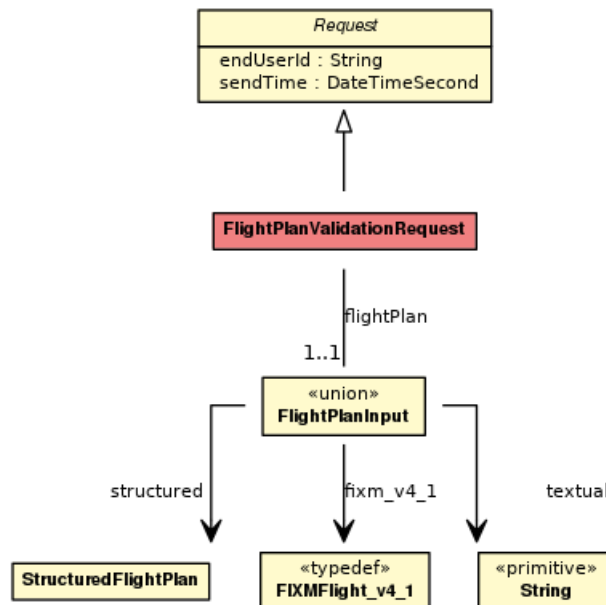


Figure 3.1. *FlightPlanValidationRequest* Class Diagram

- (1) Request to query the validation of an FPL according to the NM/IFPS validation rules.

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- (2) The request provides the input flight plan information via a choice: either in string format or via a [FlightPlan](#) structure.
- (3) Inherits from: [Request](#)
- (4) Attributes:
- a) **FlightPlanInput flightPlan** (Mandatory)  
Flight plan to be validated.  
Constraint: See [INVALID\\_FIXM\\_FLIGHT\\_PLAN](#)
- (5) Constraint:

a)

Name	INVALID_FIXM_FLIGHT_PLAN
Attribute	<a href="#">flightPlan</a>
Context	<a href="#">FlightPlanValidationRequest</a>
Description	The FIXM flightPlan does not satisfy some business rules (e.g., missing mandatory fields).

### 3.1.2.3. FlightPlanValidationReply

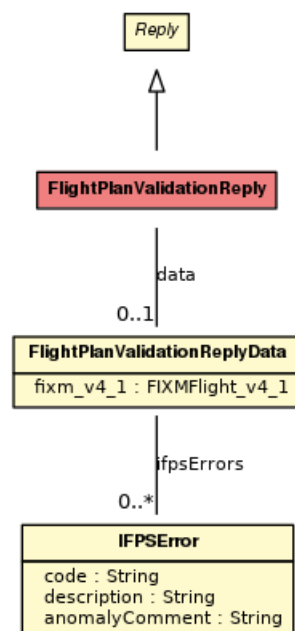


Figure 3.2. *FlightPlanValidationReply* Class Diagram

- (1) Reply returned in response to [FlightPlanValidationRequest](#).
- (2) Inherits from: [Reply](#)

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(3) Attributes:

- a) **IFPSError[] ifpsErrors** (*Mandatory*)  
Array of NM/IFPS errors in response to the flight plan validation.  
Mandatory: the array is empty if there is no such error.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- b) **FIXMFlight\_v4\_1 fixm\_v4\_1** (*Optional*)  
FIXM flight plan with FIXM trajectory

### 3.1.3. Routing Assistance

#### 3.1.3.1. SOAP

- (1) The associated SOAP operation is:

```
RoutingAssistanceReply proposeRoutes(
    RoutingAssistanceRequest request
)
```

#### 3.1.3.2. RoutingAssistanceRequest

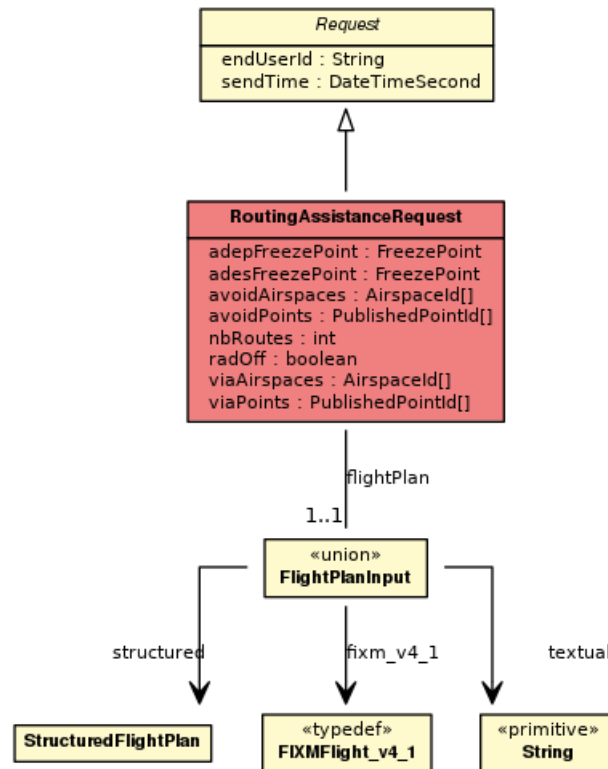


Figure 3.3. RoutingAssistanceRequest Class Diagram

- (1) Request to query the generation of NM/IFPS-compliant routes for a given flight plan.

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- (2) The request provides the input flight plan information via a choice: either in string format or via a [FlightPlan](#) structure ([FlightPlanInput](#)flightPlan attribute).
- (3) The request provides also a set of constraints apply to the route generation algorithm. These constraints are all applied: they are interpreted as combined via the AND logical operator.
- (4) Inherits from: [Request](#)
- (5) Attributes:
  - a) [FreezePoint](#) **adepFreezePoint** (*Optional*)  
Field15 information must be provided via the flightPlan attribute. The referenced point is a point of the given field 15 from which the route generation will start.  
The part of the route from the ADEP to that point is "frozen". The resulting routes will all start with this "frozen" part of the field15.
  - b) [FreezePoint](#) **adesFreezePoint** (*Optional*)  
Field15 information must be provided via the flightPlan attribute. The referenced point is a point of the given field 15 where the route generation will stop. The part of the route from that point to the ADES is "frozen". The resulting routes will all end with this "frozen" part of the field15.
  - c) [AirspaceId\[\]](#) **avoidAirspaces** (*Optional*)  
NM airspace identifiers. The 2D projection of the proposed alternative routes will avoid the 2D projection of all given airspaces.  
NM rejects generation requests requiring more than 10 "via" and/or "avoid" constraints.  
Constraints:
    - i) Size must be comprised between 0 and  $\infty$ .
    - ii) See [TOO\\_MANY\\_VIA\\_AND\\_AVOID\\_CONSTRAINTS](#)
  - d) [PublishedPointId\[\]](#) **avoidPoints** (*Optional*)  
ICAO published point identifiers. The proposed alternative routes will avoid all given points.  
Constraints:
    - i) Size must be comprised between 0 and  $\infty$ .
    - ii) See [TOO\\_MANY\\_VIA\\_AND\\_AVOID\\_CONSTRAINTS](#)
  - e) [FlightPlanInput](#) **flightPlan** (*Mandatory*)  
Flight plan.  
Constraint: See [INVALID\\_FIXM\\_FLIGHT\\_PLAN](#)
  - f) **int nbRoutes** (*Optional*)  
Maximum number of routes to be generated.  
Maximum value is 10. If greater than 10, the request is accepted and the service is realised with a value of 10.  
Optional. When not set, defaults to 5.  
Constraint: Range: ] -  $\infty$ ,  $\infty$  [.

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g) **boolean radOff** (*Optional*)

When set to true, the errors generated by the RAD validation are ignored. The proposed alternative routes may not be RAD-compliant. If this is the case, the corresponding errors will be given together with the route.  
When omitted, defaults to false.

h) **AirspaceId[] viaAirspaces** (*Optional*)

NM airspace identifiers. The 2D projection of the proposed alternative routes will traverse the 2D projection of all given airspaces.

Constraints:

- i) Size must be comprised between 0 and  $\infty$ .
- ii) See [TOO\\_MANY\\_VIA\\_AND\\_AVOID\\_CONSTRAINTS](#)

i) **PublishedPointId[] viaPoints** (*Optional*)

ICAO published point identifiers. The proposed alternative routes will pass over all given points.

Constraints:

- i) Size must be comprised between 0 and  $\infty$ .
- ii) See [TOO\\_MANY\\_VIA\\_AND\\_AVOID\\_CONSTRAINTS](#)

(6) Constraints:

a)

Name	TOO_MANY_VIA_AND_AVOID_CONSTRAINTS
Attributes	<a href="#">avoidPoints</a> , <a href="#">avoidAirspaces</a> , <a href="#">viaPoints</a> , <a href="#">viaAirspaces</a>
Description	NM rejects generation requests requiring more than 10 "via" and/or "avoid" constraints.

b)

Name	INVALID_FIXM_FLIGHT_PLAN
Attribute	<a href="#">flightPlan</a>
Context	<a href="#">FlightPlanUpdateRequest</a>
Description	The FIXM flightPlan does not satisfy some business rules (e.g., missing mandatory fields).

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### 3.1.3.3. RoutingAssistanceReply

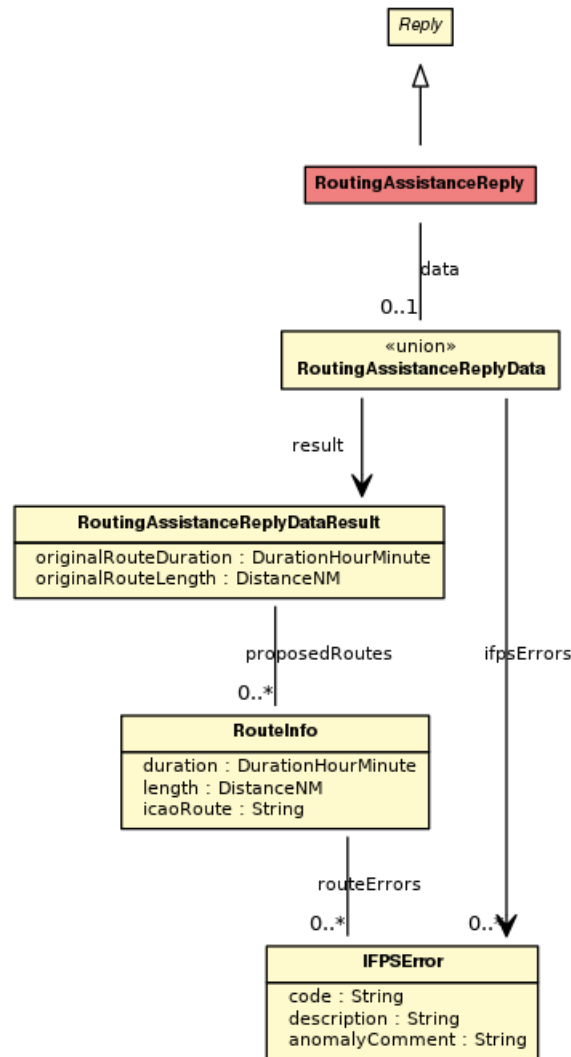


Figure 3.4. RoutingAssistanceReply Class Diagram

- (1) Reply returned in response to [RoutingAssistanceRequest](#).
- (2) The proposed routes (if any) are expressed as an array of [RouteInfo](#) structures.
- (3) Inherits from: [Reply](#)
- (4) Choices:
  - a) [RoutingAssistanceReplyDataResult](#) **result**  
Contains the generated alternate routes if no NM/IFPS errors occurred.
  - b) [IFPSError](#)[] **ifpsErrors**



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Array of NM/IFPS errors in response to the routing assistance request. They are errors on the constraint that can be specified when requesting the generation of alternate route (e.g.: error on via point being unknown)  
If not null, the array cannot be empty. The array cannot contain null or duplicate items.  
Constraint: Size must be comprised between 0 and  $\infty$ .

## 3.2. FlightFilingService Port Type

### 3.2.1. Overview

- (1) FlightFilingService is intended to provide requests aimed at filing flight plan messages:
- a) [FlightPlanCreationRequest](#) / [FlightPlanCreationReply](#)
  - b) [FlightPlanUpdateRequest](#) / [FlightPlanUpdateReply](#)
  - c) [FlightPlanCancellationRequest](#) / [FlightPlanCancellationReply](#)
  - d) [FlightDelayRequest](#) / [FlightDelayReply](#)
  - e) [FlightDepartureRequest](#) / [FlightDepartureReply](#)
  - f) [FlightArrivalRequest](#) / [FlightArrivalReply](#)
  - g) [FilingStatusRequest](#) / [FilingStatusReply](#)

### 3.2.2. Flight Plan Creation

#### 3.2.2.1. SOAP

- (1) The associated SOAP operation is:

```
FlightPlanCreationReply fileNewFlightPlan(
    FlightPlanCreationRequest request
)
```

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### 3.2.2.2. FlightPlanCreationRequest

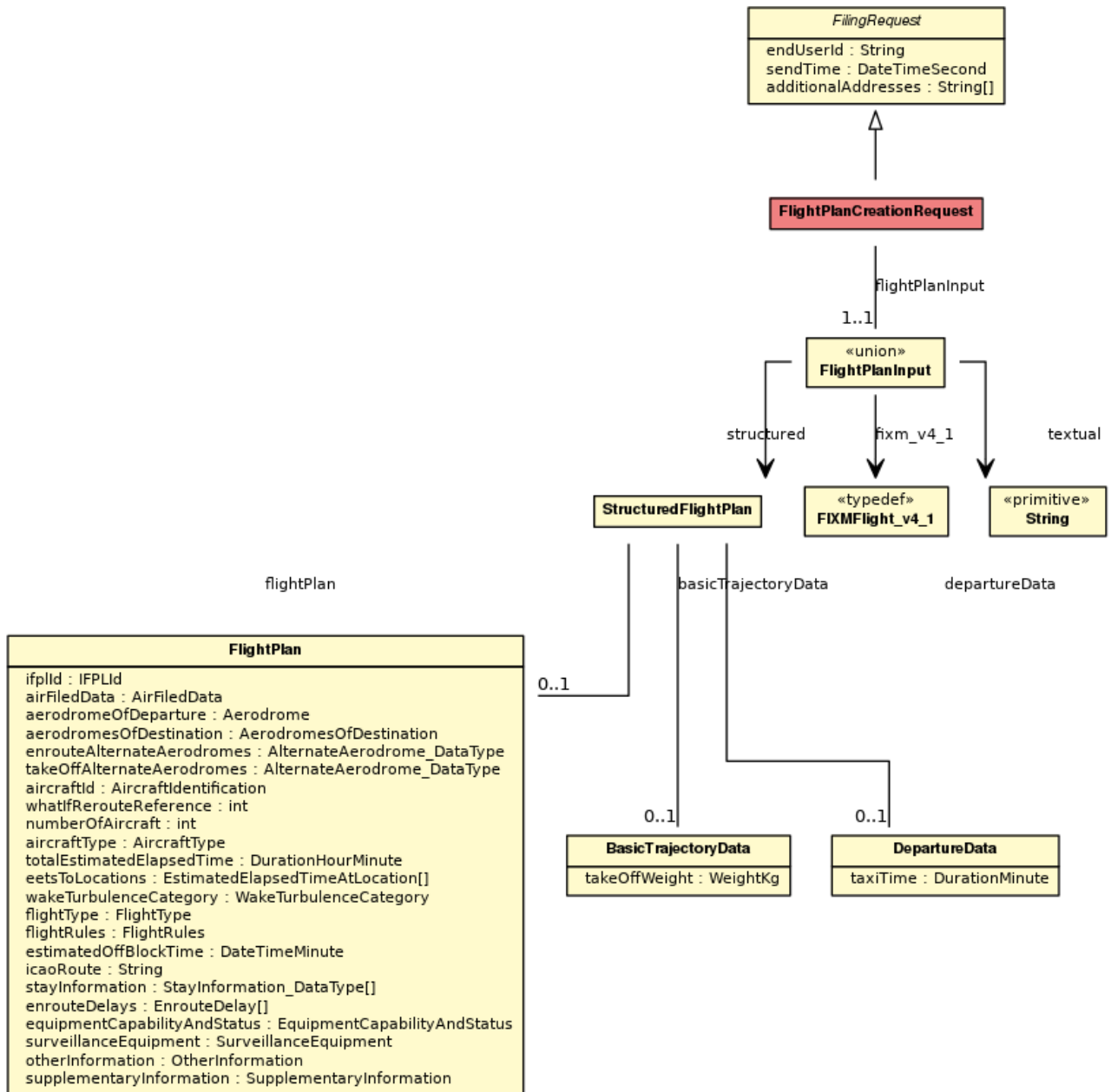


Figure 3.5. FlightPlanCreationRequest Class Diagram

- (1) Request the submission (or filing) of a new flight plan to the NM.
- (2) The same new flight plan cannot be created more than once: if NM detects that the submitted new flight plan has the same flight keys as an existing flight plan, the request is rejected with an error.
- (3) Inherits from: [FilingRequest](#)

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(4) Attributes:

a) **[FlightPlanInput](#) flightPlanInput** (*Mandatory*)

The submitted flight plan.

Constraints:

- i) See [INVALID\\_FIXM\\_FLIGHT\\_PLAN](#)
- ii) See [TEXTUAL\\_FORMAT\\_NOT\\_ALLOWED](#)

(5) Constraints:

a)

Name	TEXTUAL_FORMAT_NOT_ALLOWED
Attribute	<a href="#">flightPlanInput</a>
Context	<a href="#">FlightPlanCreationRequest</a>
Description	The flightPlanInput cannot be expressed in textual format.

b)

Name	INVALID_FIXM_FLIGHT_PLAN
Attribute	<a href="#">flightPlanInput</a>
Context	<a href="#">FlightPlanCreationRequest</a>
Description	The FIXM flightPlanInput does not satisfy some business rules (e.g., missing mandatory fields).

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### 3.2.2.3. FlightPlanCreationReply

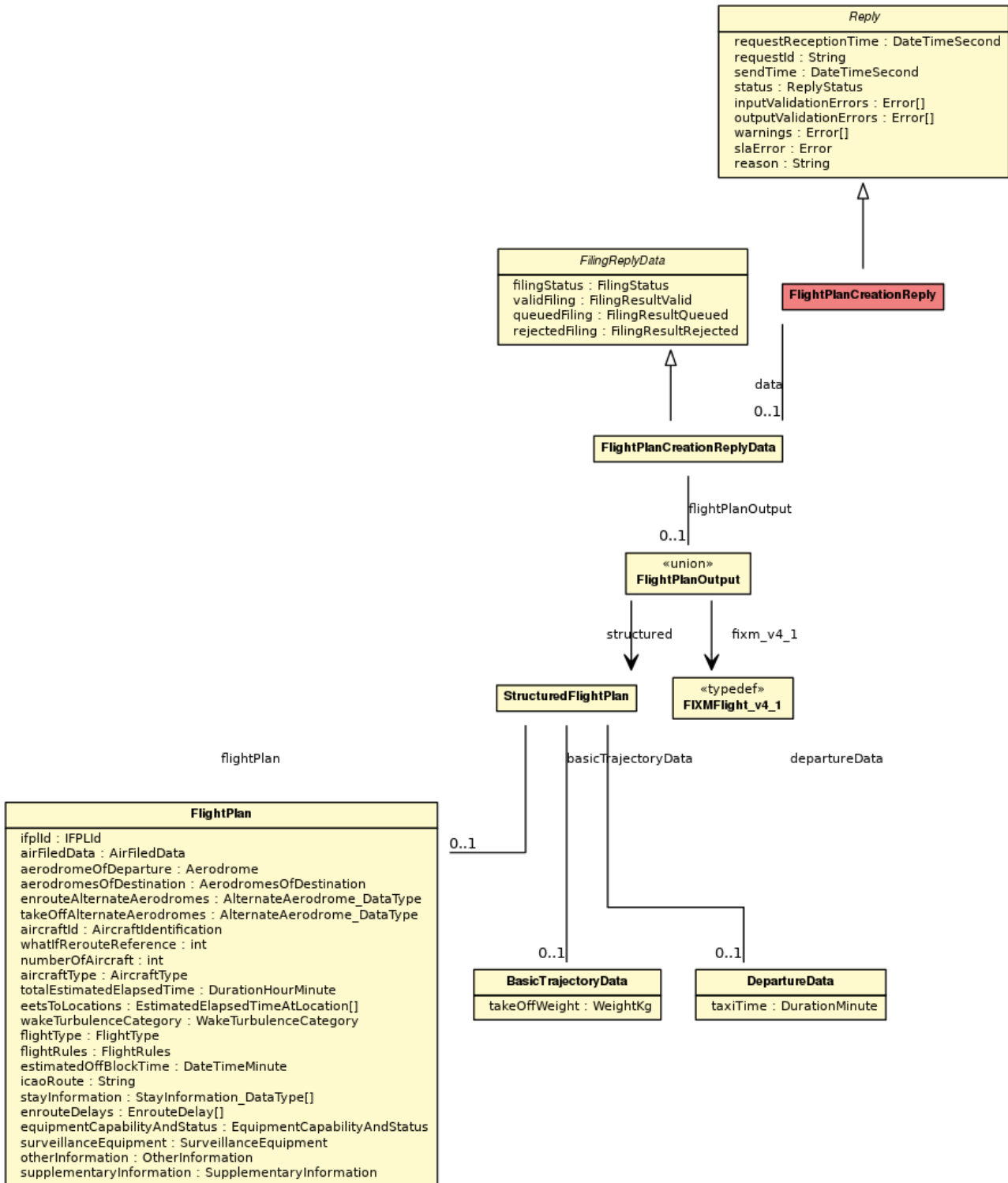


Figure 3.6. FlightPlanCreationReply Class Diagram

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- (1) Reply returned in response to [FlightPlanCreationRequest](#).
- (2) Inherits from: [Reply](#)
- (3) Attributes:
  - a) [FlightPlanOutput](#) **flightPlanOutput** (*Optional*)  
The flight plan as accepted by NM, may have been automatically or manually corrected.  
Cannot be null if `FilingReply.filingStatus` is `VALID`; must be null otherwise.

### 3.2.3. Flight Plan Update

#### 3.2.3.1. SOAP

- (1) The associated SOAP operation is:

```
FlightPlanUpdateReply fileFlightPlanUpdate(
    FlightPlanUpdateRequest request
)
```

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### 3.2.3.2. FlightPlanUpdateRequest

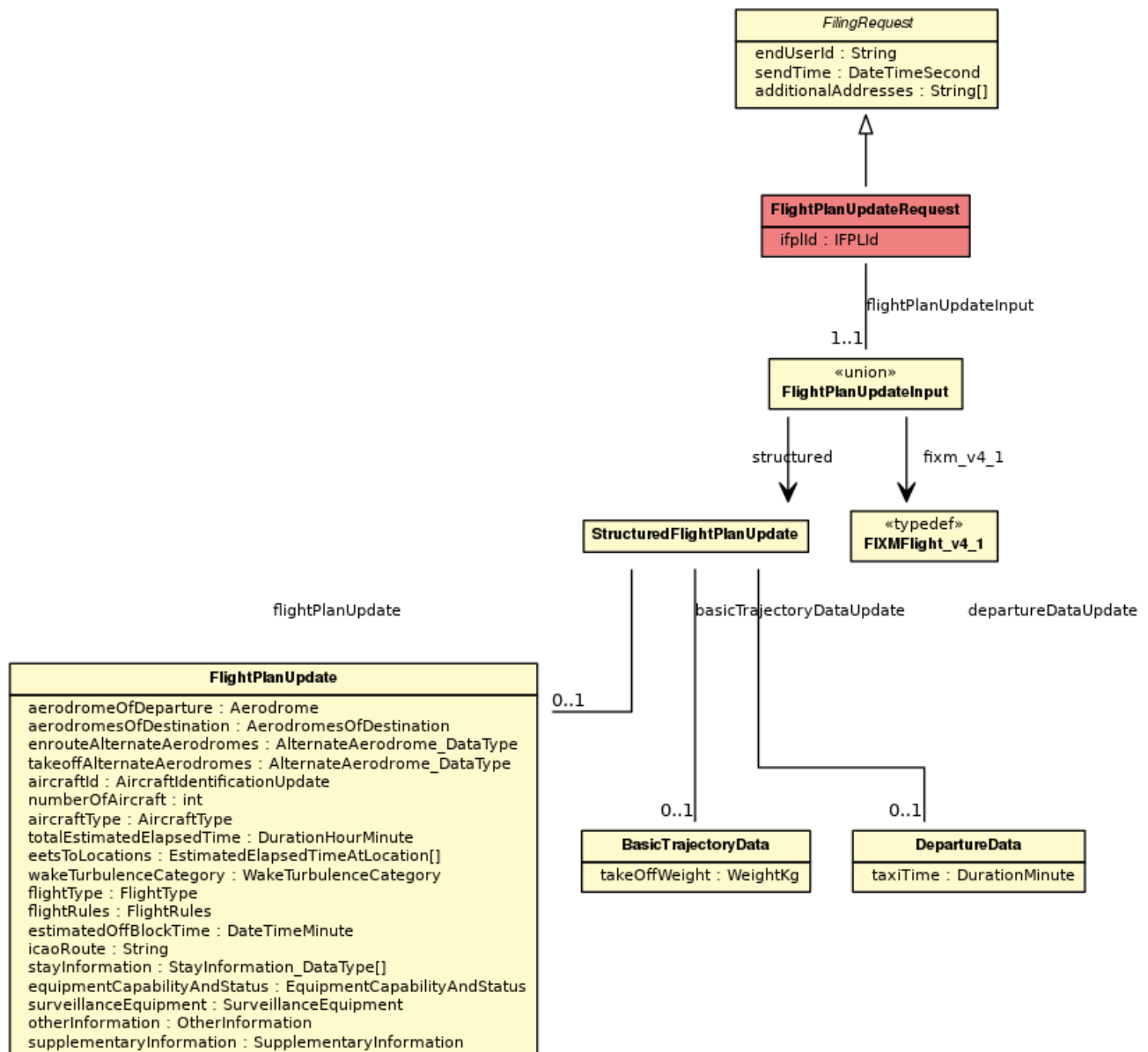


Figure 3.7. FlightPlanUpdateRequest Class Diagram

- (1) Request for the update of a flight plan.
- (2) The FlightPlanUpdateRequest supports the update of some selective fields which are updated in the existing flight plan while others are left unchanged.
- (3) Inherits from: [FilingRequest](#)
- (4) Attributes:

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- a) **IFPLId ifplId** (*Optional*)  
Identification of the flight plan to be updated.  
Constraint: See [IFPLID\\_PRESENCE](#)
- b) **FlightPlanUpdateInput flightPlanUpdateInput** (*Mandatory*)  
Update of selective fields in the existing flight plan.  
Constraints:
- i) See [IFPLID\\_PRESENCE](#)
  - ii) See [INVALID\\_FIXM\\_FLIGHT\\_PLAN](#)

(5) Constraints:

- a)
- |             |   |
|-------------|---|
| Name        | IFPLID_PRESENCE   |
| Attributes  | <a href="#">ifplId</a> , <a href="#">flightPlanUpdateInput</a>  |
| Context     | <a href="#">FlightPlanUpdateRequest</a>   |
| Description | ifplId is mandatory if flightPlanUpdateInput is structured. ifplId must not be present if flightPlanUpdateInput is fixm: in such a case, the ifpl identifier shall be placed in flightPlanUpdateInput.fixm.ifp-sIdentifier attribute. |
- b)
- |             |   |
|-------------|---|
| Name        | INVALID_FIXM_FLIGHT_PLAN  |
| Attribute   | <a href="#">flightPlanUpdateInput</a>   |
| Context     | <a href="#">FlightPlanUpdateRequest</a>   |
| Description | The FIXM flightPlanUpdateInput does not satisfy some business rules (e.g., missing mandatory fields). |

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### 3.2.3.3. FlightPlanUpdateReply

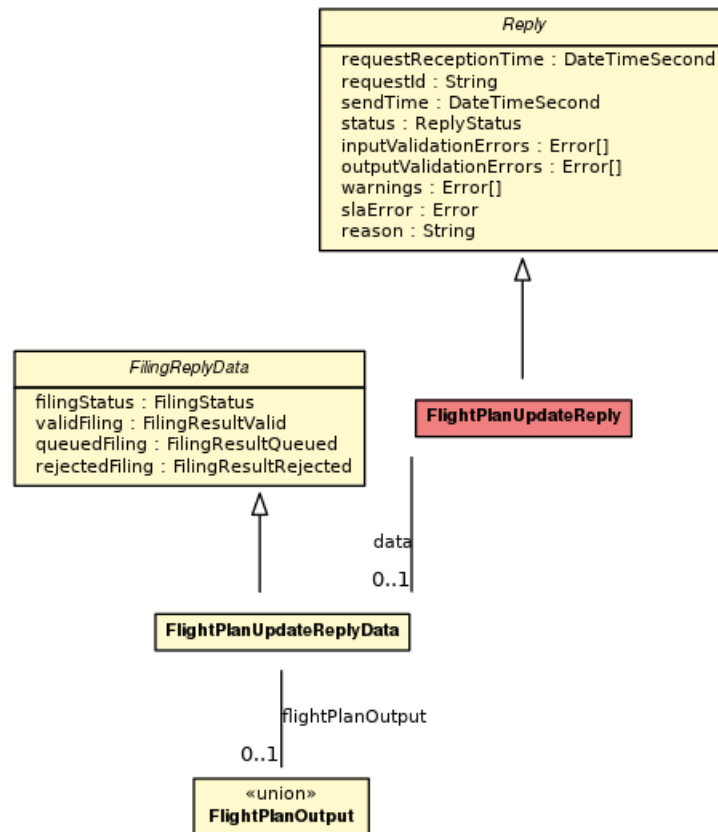


Figure 3.8. FlightPlanUpdateReply Class Diagram

- (1) Reply returned in response to [FlightPlanUpdateRequest](#).
- (2) If the given flight identification is unknown or ambiguous, the error is reported as a generic input validation error (object not found), as described in [NM References](#).
- (3) Inherits from: [Reply](#)
- (4) Attributes:
  - a) **FlightPlanOutput** `flightPlanOutput` (Optional)  
The flight plan as updated by NM, may have been automatically or manually corrected. Cannot be null if `FilingReply.filingStatus` is VALID, meaning that the flight plan was indeed updated; must be null otherwise.

### 3.2.4. Flight Plan Cancellation

#### 3.2.4.1. SOAP

- (1) The associated SOAP operation is:



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```
FlightPlanCancellationReply fileFlightPlanCancellation(
    FlightPlanCancellationRequest request
)
```

### 3.2.4.2. FlightPlanCancellationRequest

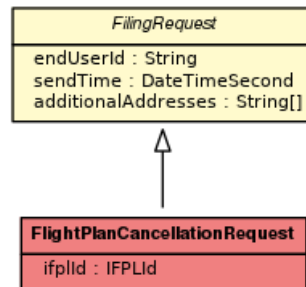


Figure 3.9. *FlightPlanCancellationRequest* Class Diagram

- (1) Request for the cancellation of a flight plan.
- (2) Inherits from: [FilingRequest](#)
- (3) Attributes:
  - a) **IFPLId ifplId** (Mandatory)  
Identification of the flight plan to be cancelled.

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### 3.2.4.3. FlightPlanCancellationReply

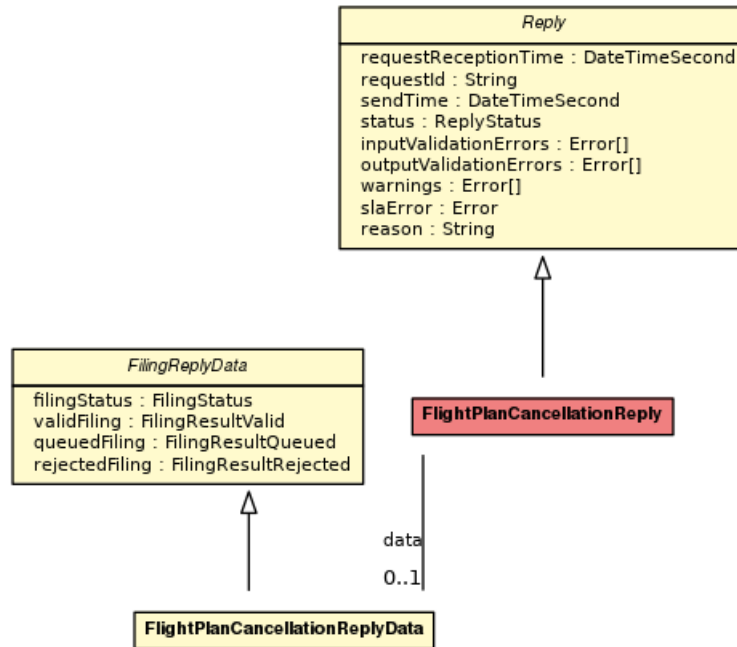


Figure 3.10. *FlightPlanCancellationReply* Class Diagram

- (1) Reply returned in response to [FlightPlanCancellationRequest](#).
- (2) If the given flight identification is unknown or ambiguous, the error is reported as a generic input validation error (object not found), as described in the manual [CommonServices](#).
- (3) Inherits from: [Reply](#)

### 3.2.5. Flight Delay

#### 3.2.5.1. SOAP

- (1) The associated SOAP operation is:

```

FlightDelayReply fileFlightDelay(
    FlightDelayRequest request
)
  
```

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### 3.2.5.2. FlightDelayRequest

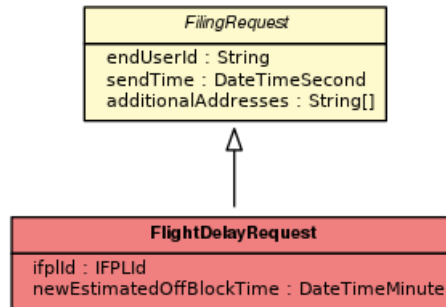


Figure 3.11. *FlightDelayRequest* Class Diagram

- (1) Request to notify the delay of a flight.
- (2) Inherits from: [FilingRequest](#)
- (3) Attributes:
  - a) **[IFPLId](#) ifplId** (Mandatory)  
Identification of the flight plan to be updated.
  - b) **[DateTimeMinute](#) newEstimatedOffBlockTime** (Mandatory)  
New estimated off-block date/time.

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### 3.2.5.3. FlightDelayReply

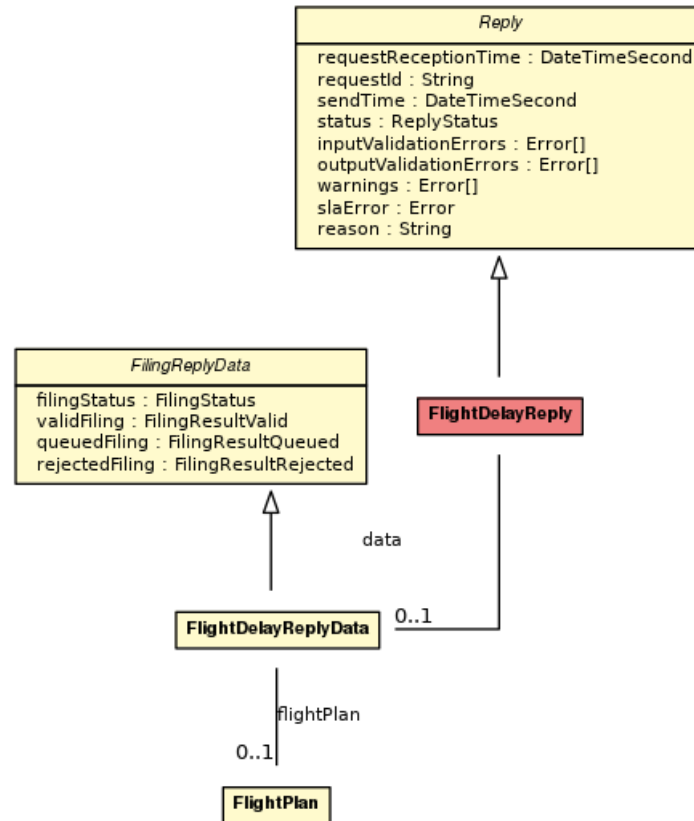


Figure 3.12. *FlightDelayReply* Class Diagram

- (1) Reply returned in response to [FlightDelayRequest](#).
- (2) If the given flight identification is unknown or ambiguous, the error is reported as a generic input validation error (object not found), as described in the manual [CommonServices](#).
- (3) Inherits from: [Reply](#)
- (4) Attributes:
  - a) [FlightPlan](#) **flightPlan** (Optional)  
The updated flight plan.

### 3.2.6. Flight Departure

#### 3.2.6.1. SOAP

- (1) The associated SOAP operation is:

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```
FlightDepartureReply fileFlightDeparture(
    FlightDepartureRequest request
)
```

### 3.2.6.2. FlightDepartureRequest

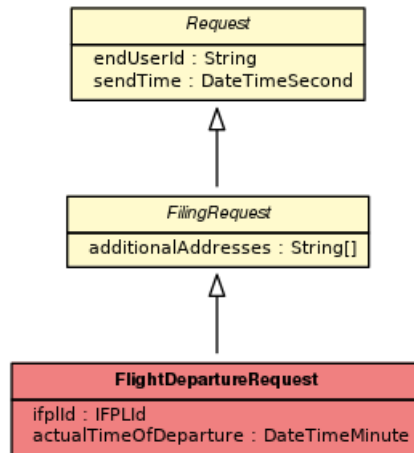


Figure 3.13. *FlightDepartureRequest* Class Diagram

- (1) Request to notify the departure of a flight.
- (2) Inherits from: [FilingRequest](#)
- (3) Attributes:
  - a) **IFPLId** `ifplId` (Mandatory)  
Identification of the flight to be updated.
  - b) **DateTimeMinute** `actualTimeOfDeparture` (Mandatory)  
Actual date/time of departure.

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### 3.2.6.3. FlightDepartureReply

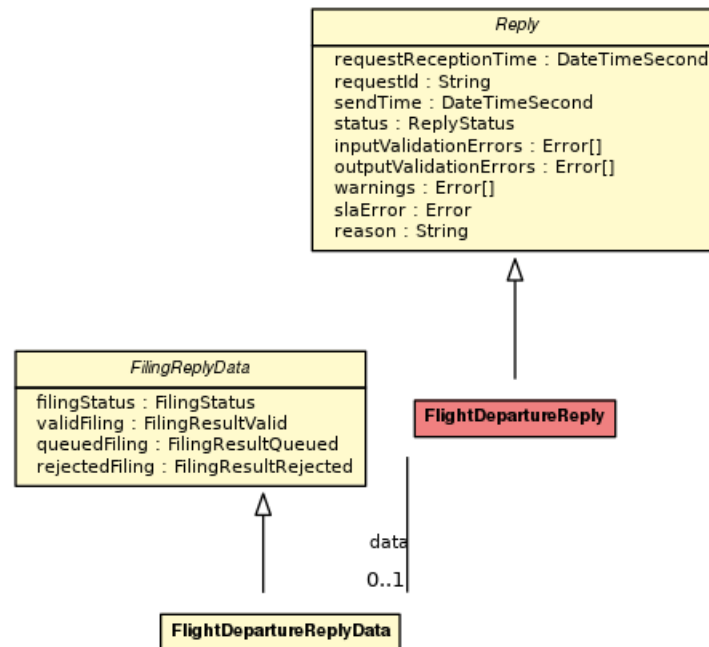


Figure 3.14. FlightDepartureReply Class Diagram

- (1) Reply returned in response to [FlightDepartureRequest](#).
- (2) If the given flight identification is unknown or ambiguous, the error is reported as a generic input validation error (object not found), as described in the manual [CommonServices](#).
- (3) Note that flight departure filing is always either accepted or rejected; it never results in queuing for manual correction by an NM operator. In model terms, this means that the filingStatus associated to the returned FilingReply never takes the INVALID\_QUEUED\_FOR\_CORRECTION value, and therefore its queuedFiling attribute is always null in the case of flight departure filing.
- (4) Inherits from: [Reply](#)

### 3.2.7. Flight Arrival

#### 3.2.7.1. SOAP

- (1) The associated SOAP operation is:

```

FlightArrivalReply fileFlightArrival(
    FlightArrivalRequest request
)
  
```

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### 3.2.7.2. FlightArrivalRequest

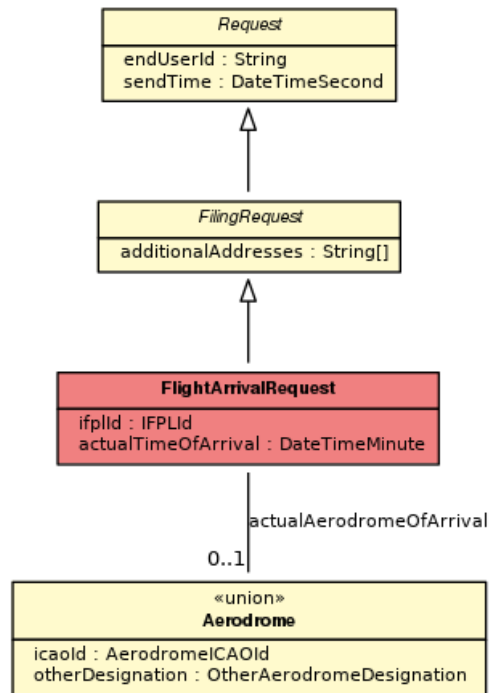


Figure 3.15. FlightArrivalRequest Class Diagram

- (1) Request to notify the arrival of a flight.
- (2) Inherits from: [FilingRequest](#)
- (3) Attributes:
  - a) **IFPLId ifplId** (Mandatory)  
Identification of the flight to be updated.
  - b) **DateTimeMinute actualTimeOfArrival** (Mandatory)  
Actual date/time of arrival.
  - c) **Aerodrome actualAerodromeOfArrival** (Optional)  
Actual aerodrome of arrival.

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### 3.2.7.3. FlightArrivalReply

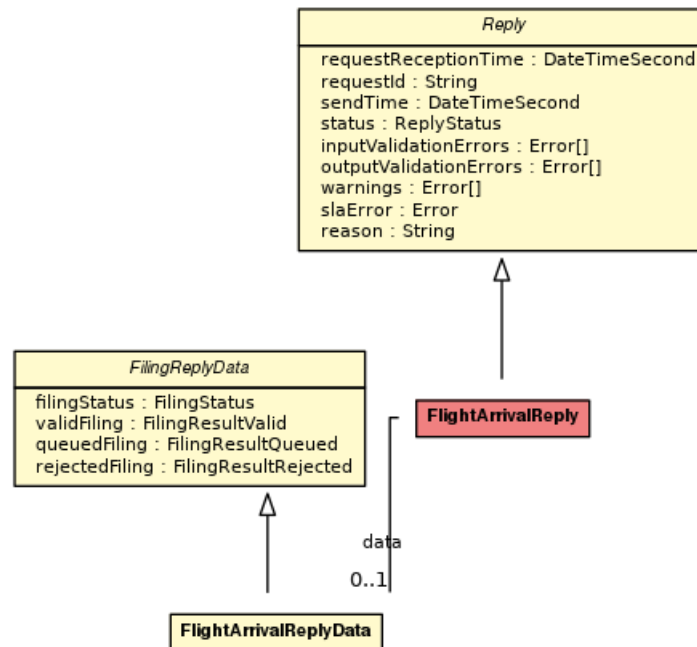


Figure 3.16. FlightArrivalReply Class Diagram

- (1) Reply returned in response to [FlightArrivalRequest](#).
- (2) If the given flight identification is unknown or ambiguous, the error is reported as a generic input validation error (object not found), as described in the manual [CommonServices](#).
- (3) Note that flight arrival filing is always either accepted or rejected; it never results in queuing for manual correction by an NM operator. In model terms, this means that the filingStatus associated to the returned FilingReply never takes the INVALID\_QUEUED\_FOR\_CORRECTION value, and therefore its queuedFiling attribute is always null in the case of flight arrival filing.
- (4) Inherits from: [Reply](#)

### 3.2.8. Filing Status

#### 3.2.8.1. SOAP

- (1) The associated SOAP operation is:

```

FilingStatusReply retrieveFilingStatus(
    FilingStatusRequest request
)
  
```



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### 3.2.8.2. FilingStatusRequest

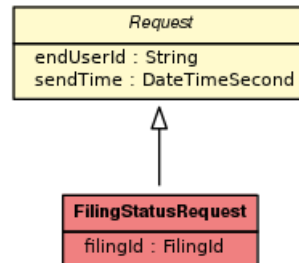


Figure 3.17. *FilingStatusRequest Class Diagram*

- (1) Request for the current status of a previous filing request that resulted into queuing for manual correction by an NM operator, i.e. valid (after manual correction), still queued for manual correction, or rejected (after manual correction).
- (2) Inherits from: [Request](#)
- (3) Attributes:
  - a) **FilingId** `filingId` (Mandatory)  
Filing id that was returned by the filing reply via `FilingResultQueued`.

### 3.2.8.3. FilingStatusReply

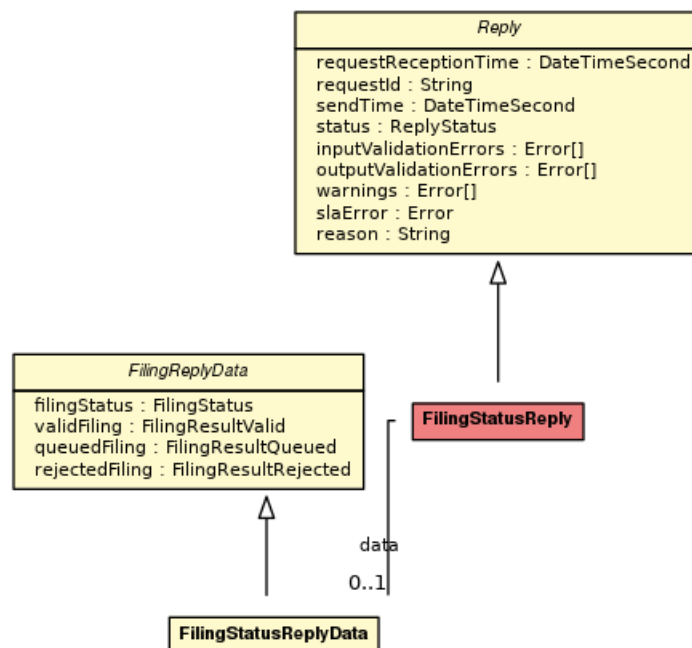


Figure 3.18. *FilingStatusReply Class Diagram*

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- (1) Reply returned in response to [FilingStatusRequest](#).
- (2) Note that this reply is a [FilingReply](#), although the [FilingStatusRequest](#) is not a [FilingRequest](#). This conveys the fact that requesting a filing status is typically achieved asynchronously (in polling) after a filing request, but still returns status information as if the filing reply has been returned synchronously when the original request was filed.
- (3) Inherits from: [Reply](#)

### 3.3. FlightManagementService Port Type

#### 3.3.1. Overview

##### 3.3.1.1. Operations

- (1) FlightManagementService provides requests aimed at managing flight plans and flights:
  - a) [FlightPlanListRequest](#) / [FlightPlanListReply](#)
  - b) [FlightListByKeysRequest](#) / [FlightListByKeysReply](#)
  - c) [FlightListByAircraftOperatorRequest](#) / [FlightListByAircraftOperatorReply](#)
  - d) [FlightListByAerodromeRequest](#) / [FlightListByAerodromeReply](#)
  - e) [FlightListByAerodromeSetRequest](#) / [FlightListByAerodromeSetReply](#)
  - f) [FlightListByAirspaceRequest](#) / [FlightListByAirspaceReply](#)
  - g) [FlightListByPointRequest](#) / [FlightListByPointReply](#)
  - h) [FlightListByTrafficVolumeRequest](#) / [FlightListByTrafficVolumeReply](#)
  - i) [FlightListByMeasureRequest](#) / [FlightListByMeasureReply](#)
  - j) [FlightListByHotspotRequest](#) / [FlightListByHotspotReply](#)
  - k) [FlightListByAircraftRegistrationMarkRequest](#) / [FlightListByAircraftRegistrationMarkReply](#)
  - l) [FlightRetrievalRequest](#) / [FlightRetrievalReply](#)
  - m) [EarlyDPIRequest](#) / [EarlyDPIReply](#)
  - n) [TargetDPIRequest](#) / [TargetDPIReply](#)
  - o) [TargetDPISequencedRequest](#) / [TargetDPISequencedReply](#)
  - p) [ATCDPIRequest](#) / [ATCDPIReply](#)
  - q) [CancelDPIRequest](#) / [CancelDPIReply](#)
  - r) [PredictedDPIRequest](#) / [PredictedDPIReply](#)

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- s) [FlightUpdateRequest](#) / [FlightUpdateReply](#)
- t) [GeneralAPIRequest](#) / [GeneralAPIReply](#)
- u) [TargetTakeOffAPIRequest](#) / [TargetTakeOffAPIReply](#)
- v) [TargetTimeOverAPIRequest](#) / [TargetTimeOverAPIReply](#)

### 3.3.1.2. Forecast and Operational Datasets

- (1) The forecast and operational datasets are concepts that the NM customers (ANSPs in particular) are already familiar with.  
In short, the NM system prepares the plan (containing regulations/tactical updates) between D-6 (6 days in advance) and D-1 (1 day in advance) within the forecast dataset.
- (2) To be able to do this accurately, also a traffic forecast is constructed/maintained.  
So in this forecast dataset there are only predicted flights (CFMUFlightType: PREDICTED\_FLIGHT & RPL). NM takes into account wind and NAT traffic predictions, airport slots, airline schedules, the traffic from a similar day in the past (typically the traffic from exactly one week earlier) to build up this forecast dataset.  
The plan (including the prepared regulations and other tactical updates), is transferred to the operational dataset on D-1 around 16:00 UTC.
- (3) The plan (and associated forecast traffic) remains available in the forecast dataset after transfer, until the end of D (day of operations), even though it does not evolve anymore in that dataset.
- (4) To fix the ideas:
  - a) the forecast dataset can be accessed : in [ D-5 (5 days in the future), D 24:00 UTC ]
  - b) the operational dataset can be accessed : at any point in time on D-1 and D via B2B,
- (5) In parallel there exists the IFPS backend system that is handling the FlightFilingServices and flightplans.  
The user can file his flightplan up to several days into advance.  
These flightplans are then fed into the operational FlightManagement backend system (ETFMS) around 24 hours before off-block-time.  
So wrt to FlightFilingServices and flightplans, the concept of operational/forecast does not apply. There exists only one operational dataset : supporting flightplan filing multiple days in advance.  
On the other hand, the forecast FlightManagement dataset is really a forecast containing predicted flights.  
So even if a flightplan has been filed well in advance, in the forecast FlightManagement services, one might not find exactly the same flight back (as it can be adapted according to NAT predictions, closure of airspace predictions, etc).  
As these flights are really predicted flights, they do not have an IFPL id.
- (6) So this operational/forecast DataSet concept is not related to the FlightDataset type
- (7) Note that access to forecast Dataset is subject to specific user authorisation: it is enabled/authorized on test platforms, otherwise when specifically requested by the user.

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### 3.3.1.3. Simulation Datasets

- (1) See [Simulations](#).

### 3.3.1.4. Proposal Flights

- (1) The NM systems (FlightManagement specifically) can have more than one version of a flight:
- a) The normal flight (corresponding to what the airspace user has filed)
  - b) A proposal flight: a proposition from NM/ANSP to an airspace user/other ANSP. There can be maximum one proposal flight for a given flight at a moment in time. These proposal flights can be generated for example
    - i) in the context of regulations (when NM systems have a proposal to improve)
    - ii) in the context to avoid flight suspension
    - iii) in the context of rerouting/level caps (RRP/RRN):  
Typically a rerouting proposal flight is used in the context of flight efficiency or ATFCM (a proposal to for example reroute around a zero rate regulation) or STAM trials (ANSP initiated) or Aircraft operator initiated (AO-What-if-Reroute (AOWIR))
  - c) A proposal flight also comes with a mechanism to try to commit to the proposed delay. So if, during the time the proposal exists (limited), a proposal flight is accepted (depending on the kind of proposal either by airspace users or by ANSP), then the proposed delay becomes the real delay (nominal case but there are exceptions).
  - d) In flight list/flight details (flight management services) and counts (flow services) the user can request to include proposals. If include proposal is requested, then if there exists a proposal flight, then the proposal flight is returned otherwise the normal flight is returned. This allows airspace users (AO) or ANSP to view/display/plot the proposal flight.
  - e) Note that access to proposal flights is subject to specific user authorisation: it is enabled/authorized on test platforms, otherwise when specifically requested by the user.

### 3.3.1.5. DPI - Departure Planning Information

#### 3.3.1.5.1. Introduction

- (1) The exchange of dynamic CDM information between the NMOC and the airport is a two-way process which consists in:
- a) Sending DPI messages from the airport concerned to the NMOC. These messages contain the latest information on, for example, estimated or target times for the take-off of a particular flight, the aircraft type, taxi times, and the SID.
  - b) Sending Flight Update Messages (FUM) from the NMOC to the airports concerned, providing the Airport CDM platform with the flight status, the estimated landing times, etc. The main information to be received via the DPI message is:

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- a) An accurate estimate of the take-off time;.
  - b) The taxi time.
  - c) The departure route (SID).
  - d) The aircraft type and registration.
- This allows the proactive sharing of real time data with the NMOC, therefore optimising the ATFCM slot allocation process and achieving a more efficient use of the ATFCM network capacity.

### 3.3.1.5.2. General Overview

(1)

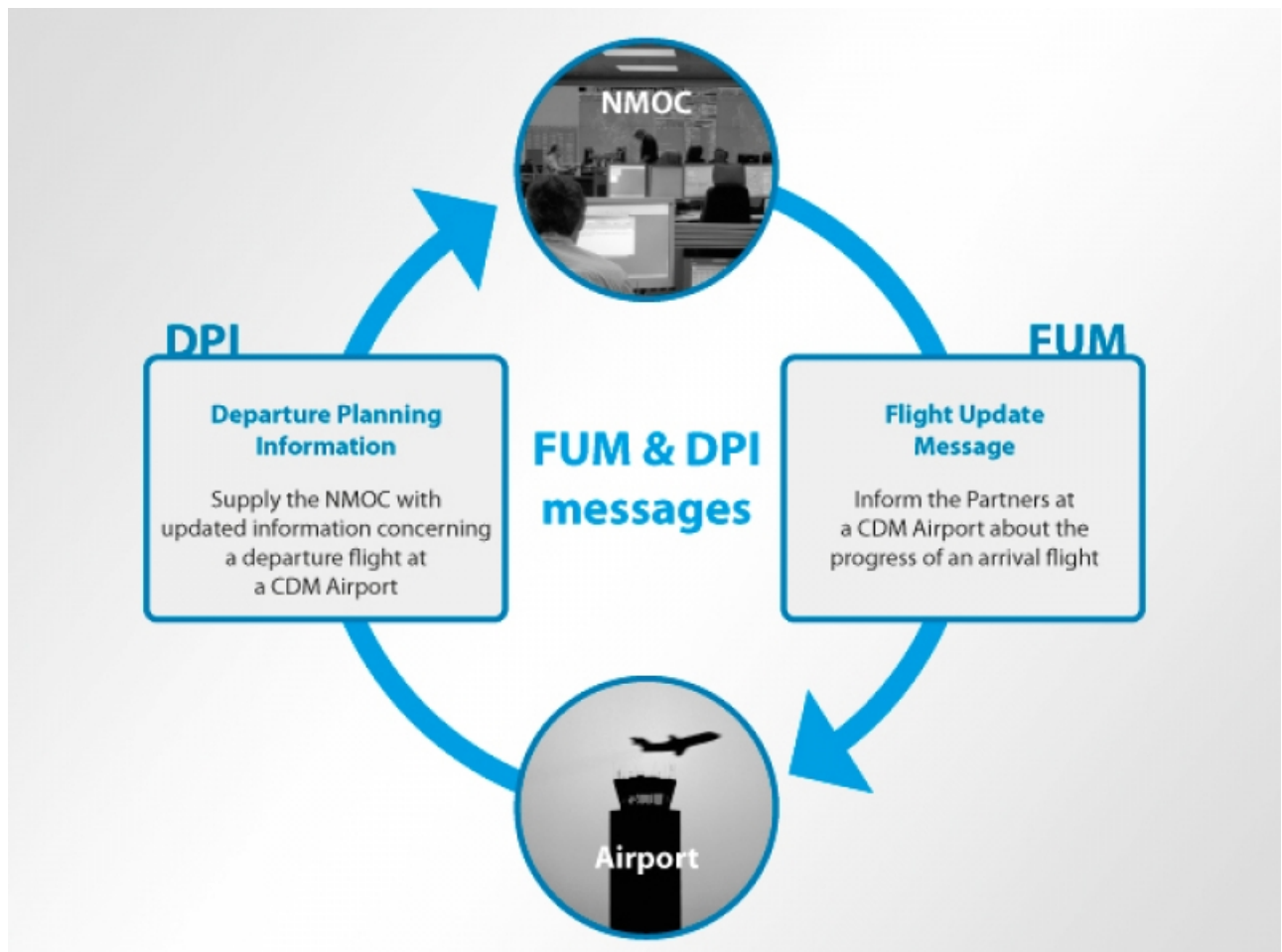


Figure 3.19. Departure Planning Information - General Overview

The airport situational information is collected direct from the Airport CDM systems in order to update the real-time flight situation, prior to take-off, in the Network Operations systems. Thanks to this improved accuracy of flight information, DPI ultimately serves to improve ATFCM traffic predictions and consequently, the effectiveness of the ATFM measures to be taken. Four phases have been identified which require coordination with ATFCM:

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- a) *Planning phase:* Airport schedule and flight plan estimates must be reconciled and consistent information must be sent to the Network Manager. Ghost flights and duplicated flights have to be deleted. A first evaluation of the realistic taxi-time and SID will be indicated to the Network Manager Operations Centre in order to facilitate a more realistic calculation of the ATFM slot.
- b) *Turn-around phase:* Based on the flight connection, a more realistic estimate of the Off Block time will be available, based on the arrival time of the inbound flight and turn around time. It generally results in the creation and accurate maintenance of the Target Off-Block Time (TOBT) by AOs and handlers.
- c) *Pre-sequencing:* 30-40mins before the TOBT, the flight is included in the ATC pre-departure sequence, which will result in a Target Start-up Approval Time (TSAT). For regulated flights, the TSAT takes the ATFM slot into account.
- d) *ATC phase or pre-sequencing:* At delivery of engine start-up clearance delivery, the flight is handed over to the tower for push-back, taxiing and take-off. Local control units (ATC/Apron) will ensure that the flight goes off-blocks and takes-off as close as possible to the local target times (TSAT, TTOT).

At any time during these four phases a change in the Airport operating conditions may alter the taxi-time and/or SID.

### **3.3.1.5.3. Extended DPI**

#### **3.3.1.5.3.1. Purpose**

- (1) Currently, the collaboration between airports and the Network can be achieved either via A-CDM or the Advanced ATC TWR Airport concept. These types of airports are sending DPI (Departure Planning Information) messages to the Network in a pre-determined time horizon which starts no earlier than EOB - 3 hours. The DPI messages inform NM on more accurate Target times for Off-block or Take-off, taxi times, SID information, aircraft type or registration for individual flights.
- (2) A-CDM, although providing benefits for both NM and airports, only covers the exchange of a limited set of data, in a limited time frame. Building on A-CDM, the extension of the collaboration between airport operations and the network operations in the pre-tactical and tactical timeframe as well as with regards to the nature of the exchanged information is required and the overall processes need to be improved, supported by appropriate extended data system interfaces. This concept is called Extended DPI. The aim is to achieve a thorough AOP-NOP collaborative process which ensures the exchange of common AOP-NOP data properly coordinated among the different stakeholders and is a means of achieving the rolling NOP as required by the ATM Masterplan.
- (3) The main elements of the Extended DPI concept are the extension of the time scope, and the enrichment of departure information with a more detailed view on the different sources of constraints impacting take-off time.

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#### 3.3.1.5.3.2. Link to A-CDM

- (1) The Extended DPI concept does not interfere with the existing A-CDM concept. On the other hand no relevant departure information shall be lost due to the current definition of the A-CDM concept. Therefore the DPIs defined in the A-CDM context will be expanded with additional fields to close the gap in departure capacity based information until submission of T-DPI-s.
- (2) A-CDM airports not participating to the AOP-NOP integration are not affected. The existing DPI provision does not have to be changed.
- (3) A-CDM live exchange of DPI's is a pre-requisite for moving towards Extended DPI concept.

#### 3.3.1.5.3.3. Scope of extended DPI

- (1) Extended DPI consists of exchanging departure planning information:
  - a) Before the A-CDM horizon
  - b) Within the A-CDM horizon
- (2) Departure planning information before the A-CDM horizon is called P-DPI (Predicted DPI) and is used until A-CDM Milestone 1.
- (3) In order to close the gap in predictability with respect to departure capacity information, it is also necessary to extend the existing set of DPI messages with additional fields. The existing DPI message names is not changed.

#### 3.3.1.5.3.4. Time horizon of P-DPI

- (1) In the current setup of the NM system, the pre-tactical (FORECAST system) contains data up to D-6.  
Therefore it is proposed to allow sending of P-DPIs from D-6 onwards.
- (2) However, as reliable information will likely not be available before D-1 it is expected that P-DPI submission in most cases will begin at D-1.
- (3) P-DPIs must stop to be sent at A-CDM Milestone 1 which is earliest at EOBT-3hrs.  
From there onward the E-DPIs from the A-CDM concept can be sent.
- (4) However an E-DPI can only be sent for flights that have been filed, and in some cases the flight plan arrives later than EOBT-3hrs.  
Therefore, P-DPI sending shall be stopped when first E-DPI is sent (not at EOBT-3hrs).
- (5) **Note**  
*P-DPI are not processed on predicted flights yet. This is postponed to a future release.*

#### 3.3.1.5.3.5. Transmission of a P-DPI

- (1) P-DPI is sent to NM by the airports using a new B2B service called submitPredictedDPI.

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(2) **Warning**

- a) Transmission of a P-DPI via the AFTN network will NOT be authorized.
- b) This statement has some implications:
  - i) as all the existing DPI messages can be sent today via AFTN
  - ii) and the address used is the same for all DPIs coming from a single airport
  - iii) an explicit check is done in the Flow Management system to reject any P-DPI sent via AFTN even if it originates from an address which is known and valid for other types of DPI messages.

### 3.3.1.5.3.6. Provision of a rolling demand picture

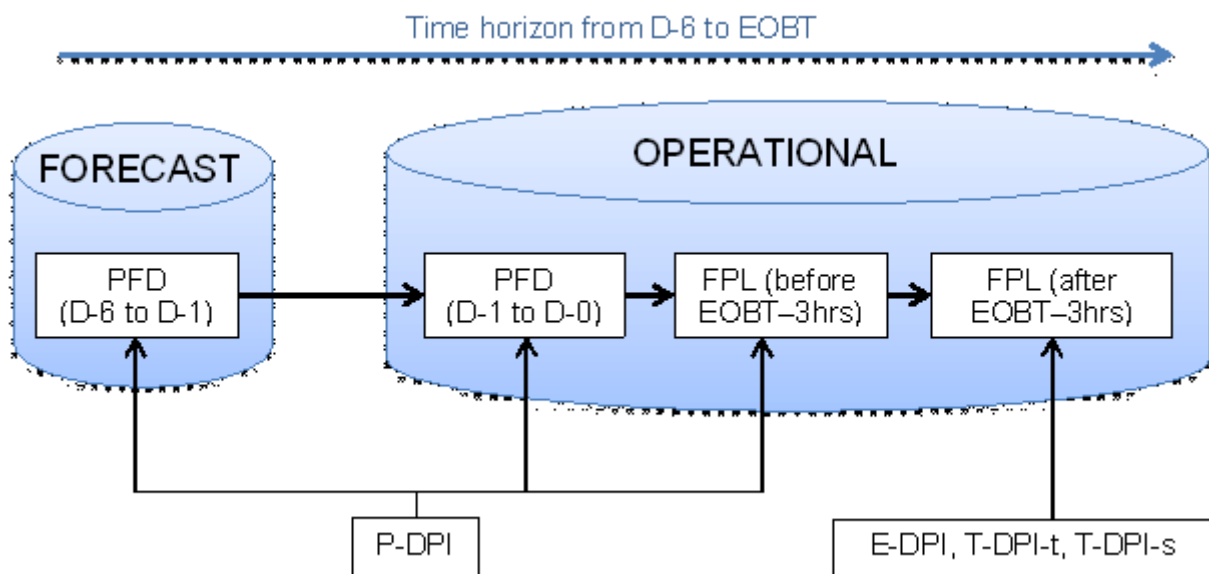


Figure 3.20. Departure Planning Information - General Overview

- (1) The diagram below illustrates how the various types of DPI messages are used to update the demand picture in a rolling manner.

**Note**

*The diagram reflects the desired final implementation but P-DPI on predicted flights is not implemented yet and postponed to a future release.*

- (2) NM currently has Planned Flight Data compounding of Airport Slots, Schedule Airline data and historic flight plan data updated with NAT Track information, generally referred to as PFDs.
- (3) The PFDs exist in the FORECAST system as of D-6.



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These are used in the pre-tactical phase by the FORECAST system (D-1) before a flight plan is filed but are currently not copied to OPERATIONAL system as traffic demand baseline for D-0. Bringing back PFDs into the OPERATIONAL system must be considered in order to obtain a stable rolling demand picture.

- (4) The demand in the FORECAST system is based on PFD data alone.  
Any pre-tactical ATFCM measures considered by FMP or NMOC staff are derived on basis of the demand formed by the PFDs.  
All planned ATFCM measures (ATFCM Daily Plan) are transferred from the FORECAST to the OPERATIONAL system in the late afternoon of D-1.  
Normally this is done around 18:00 CET but it could be delayed until 20:00/21:00 if operations require.
- (5) Flight data in the FORECAST system is currently not subject to any real time updates. Feeding Extended DPIs into the FORECAST system to update the PFDs will improve the pre-tactical demand picture.
- (6) When PFD data is transferred to the OPERATIONAL system any departure planning information received updates the PFD contained within the OPERATIONAL system until the flight plan is filed. After that the FPL will be updated to maintain the best possible accuracy of demand in a rolling manner.
- (7) A P-DPI will update a flight which can be present:
  - a) In the FORECAST system only, in the form of a PFD.  
This is the case if the P-DPI is received before the PFD has been loaded into the OPERATIONAL system, and no FPL has been received yet on the OPERATIONAL system.
  - b) In the OPERATIONAL system (and in the FORECAST system) in the form of a PFD.
  - c) In the OPERATIONAL system in the form of an FPL (and possibly also in the FORECAST system) in the form of a PFD.
  - d) In none of the two systems, when no PFD exists for this flight and no FPL has been received yet.  
In this case, and under some circumstances, a PFD may be created, either on the FORECAST system or on the OPERATIONAL system.

#### **3.3.1.5.4. Documents**

Detailed information on DPI messages can be found in the following documents:

- (1) DPI Implementation Guide - [7]
- (2) Flight Progress Messages - [8]
- (3) DPI and FUM Implementation Road Map - [9]
- (4) Site of European Airport CDM - [10]

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### 3.3.1.6. API - Arrival Planning Information

#### 3.3.1.6.1. Introduction

##### **Note:**

The APIs related services are OPS trial related: they are only accessible (authorized) during specific OPS trials.

The use will be restricted to invited users.

- (1) The APIs related services will support Airport, ATFM, extended AMAN and XMAN process evolutions.
- (2) There are three different API requests:
  - a) General API (see [submitGeneralAPI](#))  
AMAN tool can use this request to inform the network about general arrival information like STAR, arrival taxi time, estimated or actual landing time, etc...
  - b) Target take-off API (see [submitTargetTakeOffAPI](#))  
This request is intended to be sent while the aircraft is still on the ground (before departure). The latest acceptable time for submission of this request can be retrieved as part of the flight data (Flight.apiSubmissionRules.latestSubmissionTargetTakeOffAPI). AMAN tool can use this request to delay the departure of the flight in order to meet the arrival sequence, by exchanging target time information (time over a coordination fix point or the aerodrome) in case of hotspots. ETFMS will use the received TTO over the fix point or aerodrome to impose a constraint on take-off time (CTOT). This request can also be used to remove any previously received target time information.
  - c) Target time over API (see [submitTargetTimeOverAPI](#))  
This request is intended to be sent after the aircraft has departed or will depart soon. The earliest acceptable time for submission of this request can be retrieved as part of the flight data (Flight.apiSubmissionRules.earliestSubmissionTargetTimeOverAPI). AMAN tool can use this request to (slightly) change the speed of the aircraft in order to meet the arrival sequence, without imposing any (additional) delay to the departure of the flight, by exchanging target time information (time over a coordination fix point or the aerodrome) in case of hotspots. ETFMS will use the received TTO over the fix point or aerodrome to fine-tune the trajectory without changing the take-off time, provided that the new speed is realistic. This request can also be used to remove any previously received target time information.

#### 3.3.1.6.2. Processing of `submitTargetTakeOffAPI`

##### 3.3.1.6.2.1. Definitions

- (1) `submitTargetTakeOffAPI` will provide an `Earliest_TTO` and/or a `Consolidated_TTO`.
- (2) `Earliest_TTO` is the earliest possible target time over the coordination fix that the arrival tool can accommodate in its arrival sequence, stemming from local capacity constraints, regardless of the CTOT that could be allocated to this flight. This information will be used by NM as a minimum calculated time over (min CTO): in case of a potential delay reduction for this flight, the CTO will

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always be equal or later than Earliest\_TTO. When no Earliest\_TTO is provided, the minimum CTO is the estimated time over from the flight plan possibly amended by minimum take-off times from departure airport.

- (3) When a departure or en-route regulation is more penalizing than the arrival regulation, the Consolidated\_TTO allows fine-adjustment of the CTO by the arrival tool, in a window around the CTO which is known as "slot zone". The slot zone is a [ -5 min, +10 min ] window around the initial CTO when it has been recalculated by NM. The slot zone is NOT shifted when the CTO is adjusted by a Consolidated\_TTO or when the CTO is slightly changed by a DLA or CHG message. The current value of the slot zone can be retrieved as part of the flight data (Flight.slotZone).

#### 3.3.1.6.2.2. Checking the coordination fix

- (1) The coordination fix will only be considered valid if it is along the current trajectory of the flight, including ADES but excluding ADEP (in order to avoid ambiguities with flights with ADEP = ADES). If the coordination fix is invalid, the API will be rejected.

#### 3.3.1.6.2.3. Changing the TOT

- (1) Modifying the TOT of a flight will be done by ETFMS via issuance of CTOT (so that departure aerodrome will be informed by SAM/SRM messages). To achieve this, the flights arriving at the airport must be regulated. In this implementation, a process workaround is needed. NMOC will not create cherry-pick manually. The ADES will have to submit a regulation proposal via B2B, and then NMOC has to accept it. Coordination is done by phone. The naming of this regulation must be known by the XMAN, Extended AMAN or airport (ADES) too. API messages must therefore include the regulation id. On reception of an API message containing the regulation id, NM will automatically include the concerned flight in the cherry-pick regulation.
- (2) The cherry-pick regulation shall have a rate large enough (e.g. 120 slots/hour) so that CASA will be able to place the flights into optimal slots, depending on TTOs and other regulations (i.e. the rate of the cherry-pick regulation shall not generate additional delay other than the delay induced by TTOs and other regulations).
- (3) Alternatively, the arrival regulation may be a normal regulation (not cherry-pick) with a rate corresponding to the actual arrival capacity. In this case the arrival regulation will smooth the traffic and APIs can be sent only for some flights to push them further in the sequence and leave some slots available to higher priority flights.
- (4) It is expected that there might be other regulations impacting flights.
- (5) Flights may depart from CDM airports and for these flights NM has to negotiate the take-off time to accommodate the departure sequence.
- (6) If the flight crosses other regulations and the CTOT has been manually forced by a flow controller (including slot swap or slot extension on behalf of AO), then the TTO constraints will be ignored.

#### 3.3.1.6.2.4. Interaction with T-DPI-s messages

- (1) For flights subject to both CDM departures and Arrival Planning there will be two constraints: one corresponding to the TTOT of T-DPI-s messages and one corresponding to the Earliest\_TTO

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from API messages. In such a case, the minimum CTO over the coordination fix will be derived from the most penalizing of the two constraints.

- (2) This can have some impact on the status of a flight. E.g. a regulated flight gets TACT\_Activated on reception of a T-DPI-s message with TTOT inside Slot Tolerance Window (STW). Then NM receives an Earliest\_TTO which is after the end of STW. The consequence is that the ETFMS Flight status will be de-activated.

#### 3.3.1.6.2.5. Example of CTO-TTO rolling exchange

- (1) Initial situation: CTOT = ETOT = 10:00, CTO (over coordination fix) = ETO = 12:00.
- (2) *1st API*: Earliest\_TTO = 12:07, no Consolidated\_TTO provided.  
 ⇒ Earliest\_TTO inside slot zone [11:55, 12:10]  
 ⇒ CTO updated = 12:07, CTOT = 10:07  
 ⇒ The STW for departure airport is shifted to [10:02, 10:17], but the slot zone for API's TTO remains the same ([11:55, 12:10] at coordination fix)
- (3) T-DPI-s: TTOT = 10:12  
 ⇒ TTOT inside STW [10:02, 10:17]  
 ⇒ ETFMS Flight status becomes TACT\_Activated  
 ⇒ CTOT and CTO are unchanged: CTOT = 10:07, CTO = 12:07
- (4) *2nd API*: Earliest\_TTO = 12:10, no Consolidated\_TTO provided  
 ⇒ Earliest\_TTO outside slot zone [11:55, 12:10]  
 ⇒ NM searches a new slot: CTOT = 10:30, CTO = 12:30  
 ⇒ Earliest\_TTO outside slot zone [12:25, 12:40]  
 ⇒ CTO is not adjusted and remains 12:30
- (5) *3rd API*: Earliest\_TTO = 12:10, Consolidated\_TTO = 12:28  
 ⇒ Consolidated\_TTO inside slot zone [12:25, 12:40]  
 ⇒ CTO is adjusted, CTO = TTO = 12:28  
 ⇒ slot zone remains [12:25, 12:40]
- (6) Later on, NM finds a better slot for the flight (respecting the Earliest\_TTO constraint)  
 ⇒ CTOT = 10:17, CTO = 12:17  
 ⇒ slot zone is updated to [12:12, 12:27]  
 ⇒ Consolidated\_TTO from previous API is not inside the new slot zone  
 ⇒ CTO is not adjusted and remains 12:17
- (7) Etc...

### 3.3.2. Flight Plan List

#### 3.3.2.1. SOAP

- (1) The associated SOAP operation is:

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```
FlightPlanListReply queryFlightPlans(
    FlightPlanListRequest request
)
```

### 3.3.2.2. FlightPlanListRequest

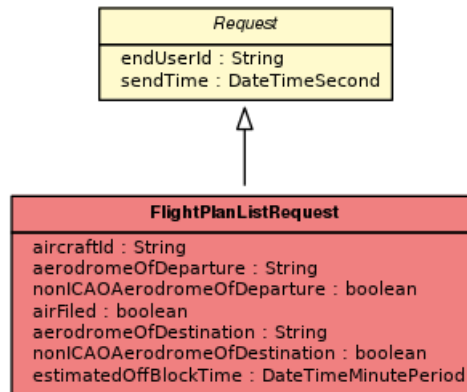


Figure 3.21. FlightPlanListRequest Class Diagram

- (1) Request to query a flight plan list. Each item in the flight plan list is made of:
  - a) The summary of the last valid flight plan, if it exists.
  - b) The list of invalid filing summaries that are currently under manual correction by an NM operator.
- (2) In order to get the full flight plan and/or the full flight plan history, the caller must use the [FlightRetrievalRequest](#).
- (3) The logical AND operator applies between all the query fields described below.
- (4) The query supports wildcards, but is limited to some combinations of these wildcards in the sense that at least:
  - a) The aircraft id, or
  - b) The aerodrome of departure, or
  - c) The aerodrome of destination
must be fully specified. This is further detailed in the attribute definitions.
- (5) Inherits from: [Request](#)
- (6) Attributes:
  - a) **string aircraftId** (Optional)  
ICAO aircraft id, with basic wildcard support ("\*" is supported at the end of the field).  
Optional: default value is "".

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(ALPHA|DIGIT){2,7} | (ALPHA|DIGIT){0,6}\*  
 NM accepts a wildcard in this field if either:

- i) aerodromeOfDeparture is fully specified, or
- ii) nonICAOAerodromeOfDeparture is true, or
- iii) airFiled is set to true, or
- iv) aerodromeOfDestination is fully specified, or
- v) nonICAOAerodromeOfDestination is true

Constraints:

- i) Pattern: ((U|ALPHA|DIGIT){0,6}\*|(U|ALPHA|DIGIT){2,7})
- ii) See [NONE\\_FULLY\\_SPECIFIED](#)

b) **string aerodromeOfDeparture** (*Optional*)

ICAO id of the aerodrome of departure, with basic wildcard support ("\*" is supported at the end of the field).

Optional: default value is "".

ALPHA{0,4} | ALPHA{0,3}\*  
 This query field must be null if nonICAOAerodromeOfDeparture is set to true or if airFiled is set to true.

NM accepts a wildcard in this field if either:

- i) aircraftId is fully specified, or
- ii) aerodromeOfDestination is fully specified, or
- iii) nonICAOAerodromeOfDestination is true

Constraints:

- i) Pattern: (U|ALPHA{0,3}\*|U|ALPHA{4})
- ii) See [ADEP\\_AIRFILED\\_NONICAOADEP\\_NOT\\_ALLOWED](#)
- iii) See [AIRFILED\\_ICAOADEP\\_NOT\\_ALLOWED](#)
- iv) See [NONE\\_FULLY\\_SPECIFIED](#)

c) **boolean nonICAOAerodromeOfDeparture** (*Mandatory*)

True if the query concerns non ICAO aerodromes of departure; there is no way at the moment to specify what non ICAO aerodrome of departure is queried.

Cannot be true if airFiled is true.

Constraints:

- i) See [ADEP\\_AIRFILED\\_NONICAOADEP\\_NOT\\_ALLOWED](#)

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ii) See [AIRFILED\\_NONICA0ADEP\\_NOT\\_ALLOWED](#)

d) **boolean airFiled** (*Mandatory*)

True if the query concerns flight plans that were filed airborne.  
Cannot be true if nonICA0AerodromeOfDeparture is true.

Constraints:

i) See [ADEP\\_AIRFILED\\_NONICA0ADEP\\_NOT\\_ALLOWED](#)

ii) See [AIRFILED\\_ICA0ADEP\\_NOT\\_ALLOWED](#)

iii) See [AIRFILED\\_NONICA0ADEP\\_NOT\\_ALLOWED](#)

e) **string aerodromeOfDestination** (*Optional*)

ICAO id of the aerodrome of destination, with basic wildcard support ("\*" is supported at the end of the field).

Optional: default value is "".

ALPHA{4} | ALPHA{0,3}\*

This query field must be null if nonICA0AerodromeOfDestination is set to true.

NM accepts a wildcard in this field if either:

i) aircraftId is fully specified, or

ii) aerodromeOfDeparture is fully specified, or

iii) nonICA0AerodromeOfDeparture is true, or

iv) airFiled is true

Constraints:

i) Pattern: (UALPHA{0,3}\* | UALPHA{4})

ii) See [NONE\\_FULLY\\_SPECIFIED](#)

f) **boolean nonICA0AerodromeOfDestination** (*Mandatory*)

True if the query concerns non ICAO aerodromes of destination; there is no way at the moment to specify what non ICAO aerodrome of destination is queried.

g) **DateTimeMinutePeriod estimatedOffBlockTime** (*Mandatory*)

Period in which the estimated off-block date/time of the matching flight plans must belong.

Constraint: See [PERIOD\\_EXTENSION\\_CANNOT\\_BE\\_GREATER\\_THAN\\_24\\_HOURS](#)

(7) Constraints:

a)	<table border="1"> <tr> <td>Name</td><td>ADEP_AIRFILED_NONICA0ADEP_NOT_ALLOWED</td></tr> <tr> <td>Attributes</td><td><a href="#">airFiled</a>, <a href="#">aerodromeOfDeparture</a>, <a href="#">nonICA0AerodromeOfDeparture</a></td></tr> <tr> <td>Description</td><td>aerodromeOfDeparture must be null or * if airFiled is true and nonICA0AerodromeOfDeparture is true</td></tr> </table>	Name	ADEP_AIRFILED_NONICA0ADEP_NOT_ALLOWED	Attributes	<a href="#">airFiled</a> , <a href="#">aerodromeOfDeparture</a> , <a href="#">nonICA0AerodromeOfDeparture</a>	Description	aerodromeOfDeparture must be null or * if airFiled is true and nonICA0AerodromeOfDeparture is true
Name	ADEP_AIRFILED_NONICA0ADEP_NOT_ALLOWED						
Attributes	<a href="#">airFiled</a> , <a href="#">aerodromeOfDeparture</a> , <a href="#">nonICA0AerodromeOfDeparture</a>						
Description	aerodromeOfDeparture must be null or * if airFiled is true and nonICA0AerodromeOfDeparture is true						

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- b)
- |             |  |
|-------------|--|
| Name        | NONE_FULLY_SPECIFIED   |
| Attributes  | <a href="#">aircraftId</a> , <a href="#">aerodromeOfDeparture</a> , <a href="#">aerodromeOfDestination</a> |
| Description | At least one of aircraftId, aerodromeOfDeparture, aerodromeOfDestination should be fully specified         |
- c)
- |             |  |
|-------------|--|
| Name        | AIRFILED_NONICAOADEP_NOT_ALLOWED                                       |
| Attributes  | <a href="#">airFiled</a> , <a href="#">nonICAOAerodromeOfDeparture</a> |
| Description | nonICAOAerodromeOfDeparture and airFiled cannot both be true           |
- d)
- |             |  |
|-------------|--|
| Name        | AIRFILED_ICAOADEP_NOT_ALLOWED                                      |
| Attributes  | <a href="#">airFiled</a> , <a href="#">aerodromeOfDeparture</a>    |
| Description | airFiled cannot be true if aerodromeOfDeparture has been specified |
- e)
- |             |  |
|-------------|--|
| Name        | PERIOD_EXTENSION_CANNOT_BE_GREATER_THAN_24_HOURS |
| Attribute   | <a href="#">estimatedOffBlockTime</a>            |
| Description | The period cannot extend more than 24 hours.     |



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### 3.3.2.3. FlightPlanListReply

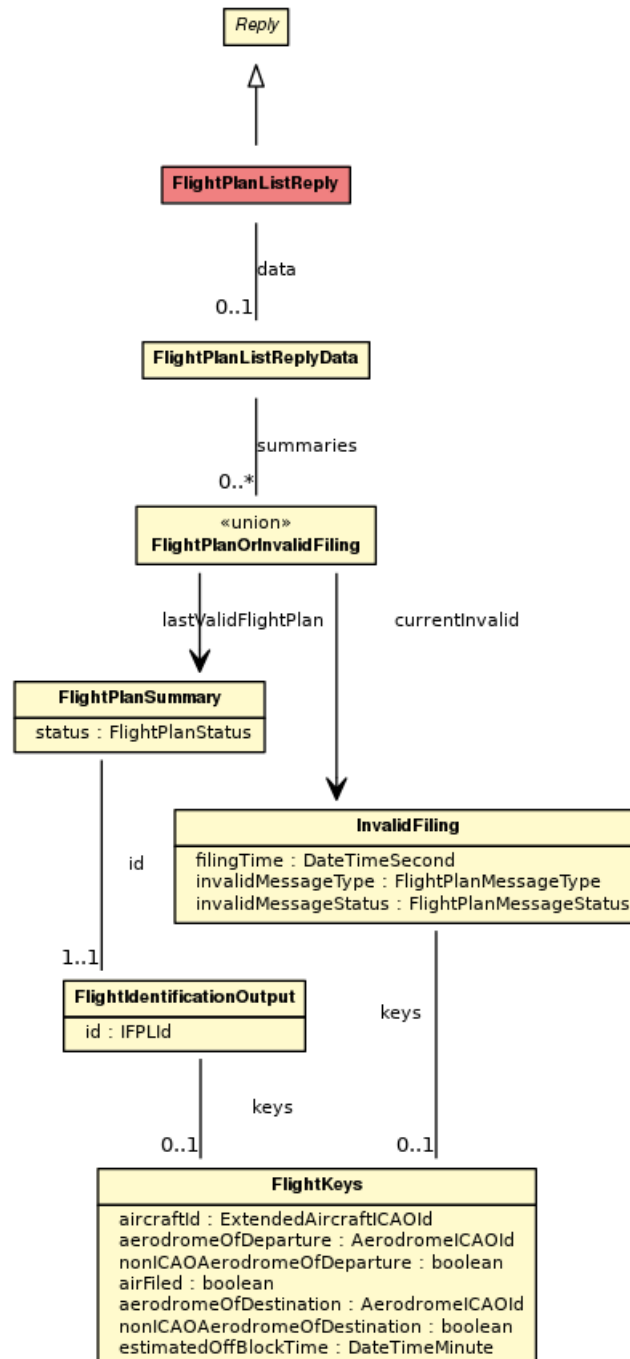


Figure 3.22. FlightPlanListReply Class Diagram

- (1) Reply returned in response to [FlightPlanListRequest](#).
- (2) Inherits from: [Reply](#)

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(3) Attributes:

- a) **FlightPlanOrInvalidFiling[] summaries** (Mandatory)  
The summaries of the valid flight plans and invalid filings matching the query fields.  
Mandatory: if no match was found, the returned array is empty.  
The array does not contain null or duplicate items.  
Constraint: Size must be comprised between 0 and  $\infty$ .

### 3.3.3. Flight List by Keys

#### 3.3.3.1. SOAP

- (1) The associated SOAP operation is:

```
FlightListByKeysReply queryFlightsByKeys(
    FlightListByKeysRequest request
)
```

#### 3.3.3.2. FlightListByKeysRequest

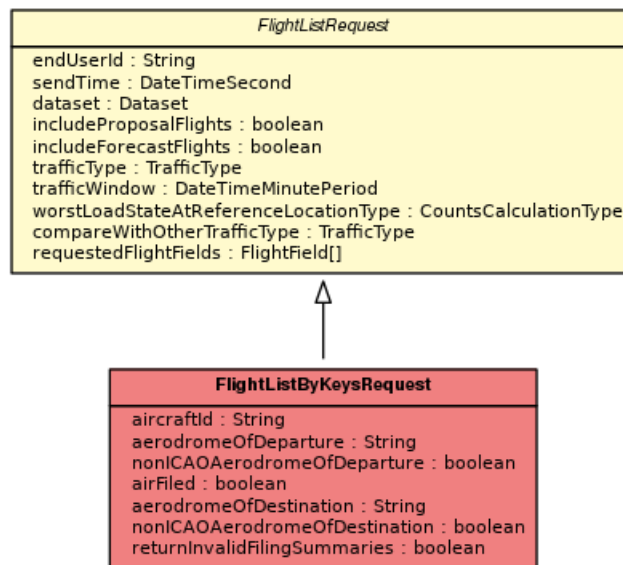


Figure 3.23. *FlightListByKeysRequest* Class Diagram

- (1) Request to query a flight list from flight keys.
- (2) If the request attribute `returnInvalidFilingSummaries` is true, the `flights` array contains flight plans or invalid filing summary information in addition to the `Flight` data.
- (3) The logical AND operator applies between all the query fields described below and the query fields of its ancestor request.
- (4) The query supports wildcards, but is limited to some combinations of these wildcards in the sense that at least:

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- a) The aircraft id, or
- b) The aerodrome of departure, or
- c) The aerodrome of destination  
must be fully specified. This is further detailed in the attribute definitions.

(5) Inherits from: [FlightListRequest](#)

(6) Attributes:

- a) **string aircraftId** (*Optional*)  
ICAO aircraft id, with basic wildcard support ("\*" is supported at the end of the field).  
Optional: default value is "".  
The aircraft identifier may include special characters ("\$", "#") for flights created by NM during prediction and simulation exercises.  
NM accepts a wildcard in this field if either:
  - i) aerodromeOfDeparture is fully specified, or
  - ii) aerodromeOfDestination is fully specifiedConstraints:
  - i) Pattern: (ALPHA | DIGIT) {2, 7} | (ALPHA | DIGIT) {0, 6}\*
  - ii) See [NONE\\_FULLY\\_SPECIFIED](#)
- b) **string aerodromeOfDeparture** (*Optional*)  
ICAO id of the aerodrome of departure, with basic wildcard support ("\*" is supported at the end of the field).  
Optional: default value is "".  
This query field must be null if nonICAOAerodromeOfDeparture is set to true or if airFiled is set to true.  
NM accepts a wildcard in this field if either:
  - i) aircraftId is fully specified, or
  - ii) aerodromeOfDestination is fully specifiedConstraints:
  - i) Pattern: ALPHA{4} | ALPHA{0, 3}\*
  - ii) See [ADEP\\_AIRFILED\\_NONICAOADEP\\_NOT\\_ALLOWED](#)
  - iii) See [AIRFILED\\_ICAOADEP\\_NOT\\_ALLOWED](#)
  - iv) See [NONE\\_FULLY\\_SPECIFIED](#)
- c) **boolean nonICAOAerodromeOfDeparture** (*Mandatory*)

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True if the query concerns non ICAO aerodromes of departure; there is no way at the moment to specify what non ICAO aerodrome of departure is queried.

Cannot be true if `airFiled` is true.

Constraints:

- i) See [ADEP\\_AIRFILED\\_NONICAOADEP\\_NOT\\_ALLOWED](#)
- ii) See [AIRFILED\\_NONICAOADEP\\_NOT\\_ALLOWED](#)
- d) **boolean `airFiled`** (*Mandatory*)  
True if the query concerns flight plans that were filed airborne.  
Cannot be true if `nonICAOAerodromeOfDeparture` is true.  
Constraints:
  - i) See [ADEP\\_AIRFILED\\_NONICAOADEP\\_NOT\\_ALLOWED](#)
  - ii) See [AIRFILED\\_ICAOADEP\\_NOT\\_ALLOWED](#)
  - iii) See [AIRFILED\\_NONICAOADEP\\_NOT\\_ALLOWED](#)
- e) **string `aerodromeOfDestination`** (*Optional*)  
ICAO id of the aerodrome of destination, with basic wildcard support ("\*" is supported at the end of the field).  
Optional: default value is "".  
This query field must be null if `nonICAOAerodromeOfDestination` is set to true.  
NM accepts a wildcard in this field if either:
  - i) `aircraftId` is fully specified, or
  - ii) `aerodromeOfDeparture` is fully specifiedConstraints:
  - i) Pattern: ALPHA{4} | ALPHA{0,3}\*
    - ii) See [NONE\\_FULLY\\_SPECIFIED](#)
- f) **boolean `nonICAOAerodromeOfDestination`** (*Optional*)  
True if the query concerns non ICAO aerodromes of destination; there is no way at the moment to specify what non ICAO aerodrome of destination is queried.  
Constraint: See [NONICAOADES\\_CANNOT\\_BE\\_NULL](#)
- g) **boolean `returnInvalidFilingSummaries`** (*Optional*)  
Indicates that the flight plan filing summary is to be returned.  
If true, the objects returned in the `flights` array contain a summary of the flight plan filing information.  
Constraints:
  - i) See [NONICAOADES\\_CANNOT\\_BE\\_NULL](#)
  - ii) See [RETURN\\_INVALID\\_FILING\\_SUMMARIES\\_NEEDS\\_TO\\_BE\\_SET\\_TO\\_FALSE](#)

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(7) Constraints:

- a)
- |             |   |
|-------------|---|
| Name        | ADEP_AIRFILED_NONICA0ADEP_NOT_ALLOWED   |
| Attributes  | <a href="#">airFiled</a> , <a href="#">aerodromeOfDeparture</a> , <a href="#">nonICA0AerodromeOfDeparture</a> |
| Description | aerodromeOfDeparture must be null or * if airFiled is true and nonICA0AerodromeOfDeparture is true            |
- b)
- |             |  |
|-------------|--|
| Name        | NONE_FULLY_SPECIFIED   |
| Attributes  | <a href="#">aircraftId</a> , <a href="#">aerodromeOfDeparture</a> , <a href="#">aerodromeOfDestination</a> |
| Description | At least one of aircraftId, aerodromeOfDeparture, aerodromeOfDestination should be fully specified         |
- c)
- |             |  |
|-------------|--|
| Name        | AIRFILED_NONICA0ADEP_NOT_ALLOWED                                       |
| Attributes  | <a href="#">airFiled</a> , <a href="#">nonICA0AerodromeOfDeparture</a> |
| Description | nonICA0AerodromeOfDeparture and airFiled cannot both be true           |
- d)
- |             |  |
|-------------|--|
| Name        | AIRFILED_ICA0ADEP_NOT_ALLOWED                                      |
| Attributes  | <a href="#">airFiled</a> , <a href="#">aerodromeOfDeparture</a>    |
| Description | airFiled cannot be true if aerodromeOfDeparture has been specified |
- e)
- |             |   |
|-------------|---|
| Name        | RETURN_INVALID_FILING_SUMMARIES_NEEDS_TO_BE_SET_TO_FALSE  |
| Attribute   | <a href="#">returnInvalidFilingSummaries</a>  |
| Description | returnInvalidFilingSummaries needs to be false if <a href="#">FlightListRequest.dataset</a> is FORECAST or SIMULATION |
- f)
- |             |  |
|-------------|--|
| Name        | NONICA0ADES_CANNOT_BE_NULL   |
| Attributes  | <a href="#">nonICA0AerodromeOfDestination</a> , <a href="#">returnInvalidFilingSummaries</a> |
| Description | nonICA0AerodromeOfDestination cannot be null if returnInvalidFilingSummaries is true         |

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### 3.3.3.3. FlightListByKeysReply

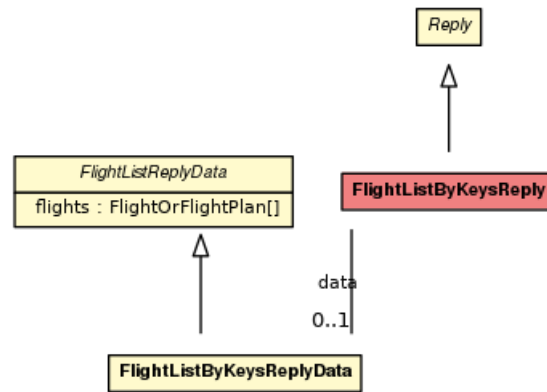


Figure 3.24. *FlightListByKeysReply* Class Diagram

- (1) Reply returned in response to [FlightListByKeysRequest](#)
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.4. Flight List by Aircraft Operator

#### 3.3.4.1. SOAP

- (1) The associated SOAP operation is:

```

FlightListByAircraftOperatorReply queryFlightsByAircraftOperator(
    FlightListByAircraftOperatorRequest request
)
  
```

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### 3.3.4.2. FlightListByAircraftOperatorRequest

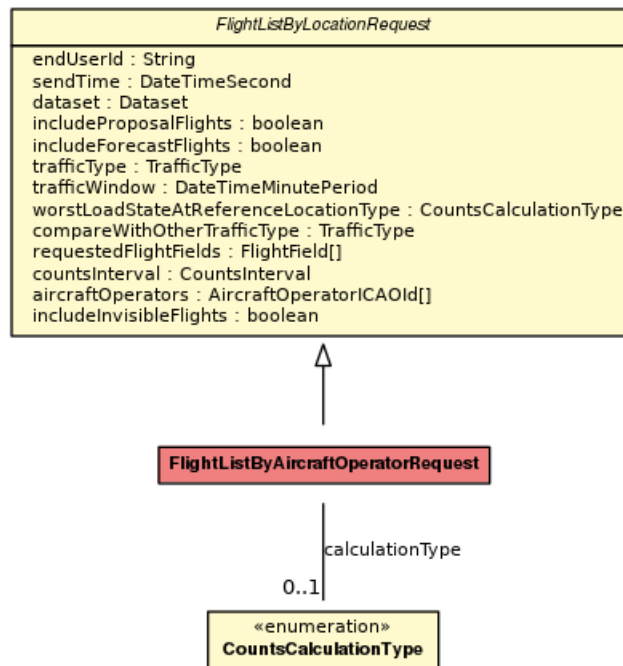


Figure 3.25. *FlightListByAircraftOperatorRequest* Class Diagram

- (1) Request to query a flight list by aircraft operator only.
- (2) Inherits from: [FlightListByLocationRequest](#)
- (3) Attributes:
  - a) [CountsCalculationType](#) **calculationType** (Optional)  
Indicates what is the calculation type of the count (entry or occupancy).  
By default, calculationType is ENTRY.

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### 3.3.4.3. FlightListByAircraftOperatorReply

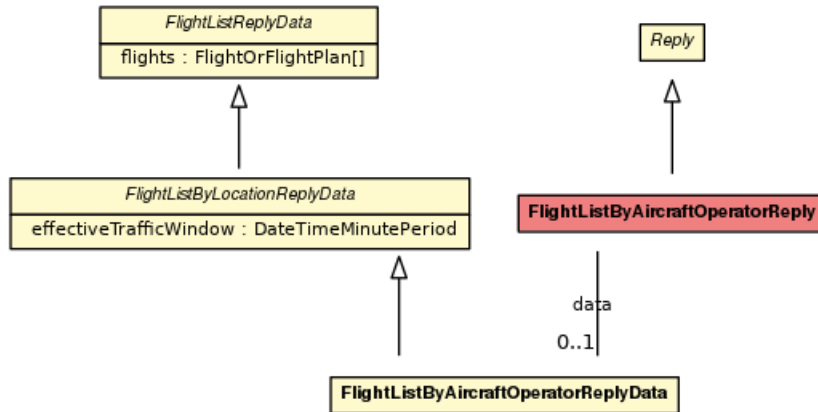


Figure 3.26. *FlightListByAircraftOperatorReply* Class Diagram

- (1) Reply returned in response to [FlightListByAircraftOperatorRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.5. Flight List by Aerodrome

#### 3.3.5.1. SOAP

- (1) The associated SOAP operation is:

```

FlightListByAerodromeReply queryFlightsByAerodrome(
    FlightListByAerodromeRequest request
)
  
```



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### 3.3.5.2. FlightListByAerodromeRequest

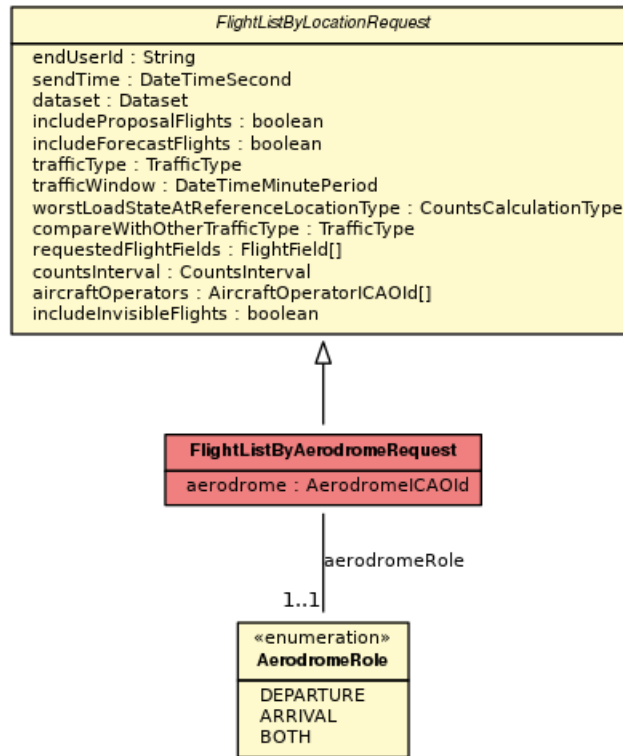


Figure 3.27. *FlightListByAerodromeRequest* Class Diagram

- (1) Request to query a flight list by aerodrome.
- (2) The logical AND operator applies between all the query fields described below and those inherited from [FlightListByLocationRequest](#).
- (3) Inherits from: [FlightListByLocationRequest](#)
- (4) Attributes:
  - a) **AerodromeICAOId aerodrome** (Mandatory)  
ICAO id of the aerodrome.
  - b) **AerodromeRole aerodromeRole** (Mandatory)  
Specifies whether the aerodrome is meant to be departure, arrival or both.  
If `aerodromeRole` is set to `AerodromeRole.DEPARTURE`, the traffic window specifies that only those flights taking off in the time window are requested.  
If `aerodromeRole` is set to `AerodromeRole.ARRIVAL`, the traffic window specifies that only those flights arriving in the time window are requested.  
If `aerodromeRole` is set to `AerodromeRole.BOTH`, the traffic window specifies that only those flights taking off or arriving in the time window are requested.

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### 3.3.5.3. FlightListByAerodromeReply

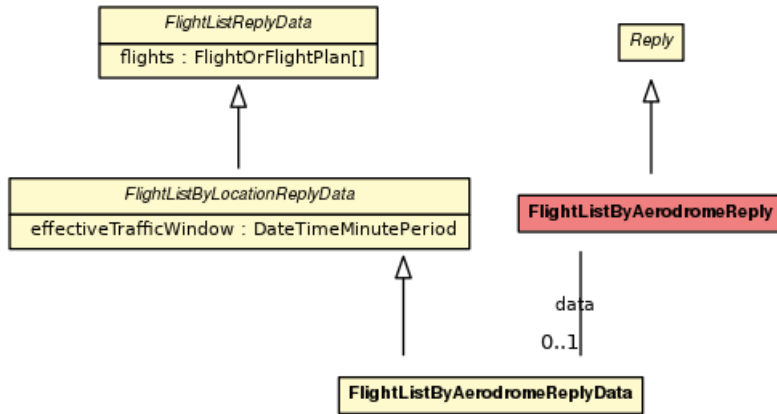


Figure 3.28. *FlightListByAerodromeReply* Class Diagram

- (1) Reply returned in response to [FlightListByAerodromeRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.6. Flight List by Aerodrome Set

#### 3.3.6.1. SOAP

- (1) The associated SOAP operation is:

```

FlightListByAerodromeSetReply queryFlightsByAerodromeSet(
    FlightListByAerodromeSetRequest request
)
  
```

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### 3.3.6.2. FlightListByAerodromeSetRequest

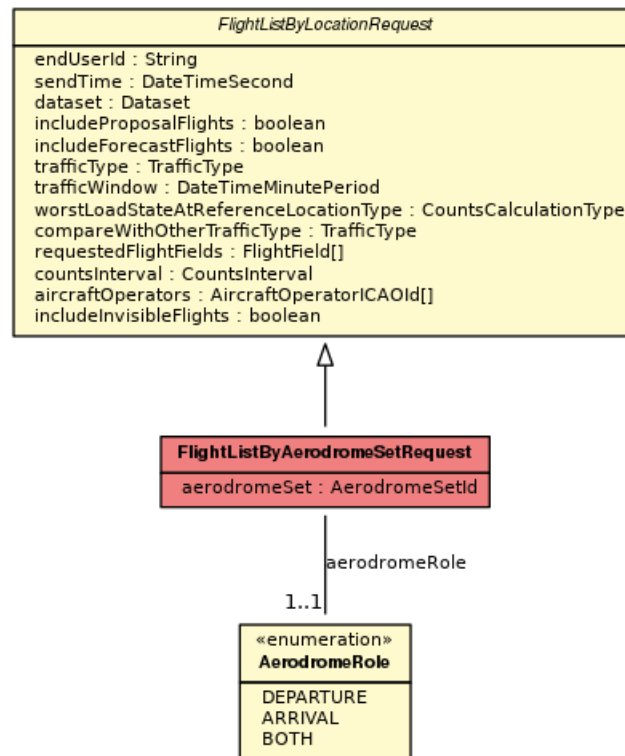


Figure 3.29. *FlightListByAerodromeSetRequest* Class Diagram

- (1) Request to query a flight list by aerodrome set.
- (2) The logical AND operator applies between all the query fields described below and those inherited from [FlightListByLocationRequest](#).
- (3) Inherits from: [FlightListByLocationRequest](#)
- (4) Attributes:
  - a) **AerodromeSetId** **aerodromeSet** (Mandatory)  
Id of the aerodrome set.
  - b) **AerodromeRole** **aerodromeRole** (Mandatory)  
Specifies whether the aerodrome is meant to be departure, arrival or both.  
If `aerodromeRole` is set to `AerodromeRole.DEPARTURE`, the traffic window specifies that only those flights taking off in the time window are requested.  
If `aerodromeRole` is set to `AerodromeRole.ARRIVAL`, the traffic window specifies that only those flights arriving in the time window are requested.  
If `aerodromeRole` is set to `AerodromeRole.BOTH`, the traffic window specifies that only those flights taking off or arriving in the time window are requested.

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### 3.3.6.3. FlightListByAerodromeSetReply

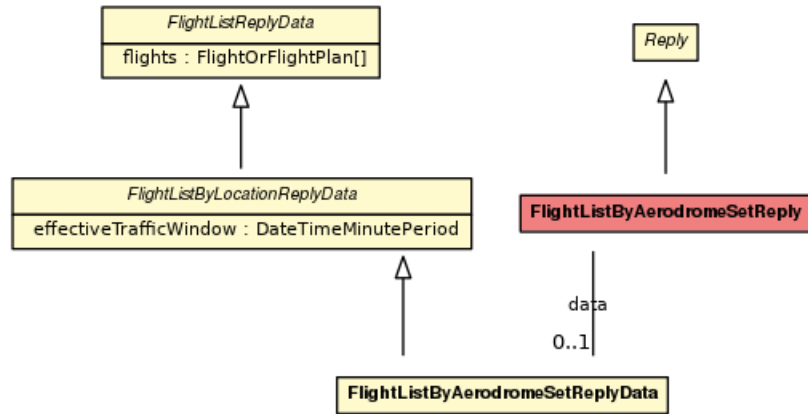


Figure 3.30. *FlightListByAerodromeSetReply* Class Diagram

- (1) Reply returned in response to [FlightListByAerodromeSetRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.7. Flight List by Airspace

#### 3.3.7.1. SOAP

- (1) The associated SOAP operation is:

```

FlightListByAirspaceReply queryFlightsByAirspace(
    FlightListByAirspaceRequest request
)
  
```

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### 3.3.7.2. FlightListByAirspaceRequest

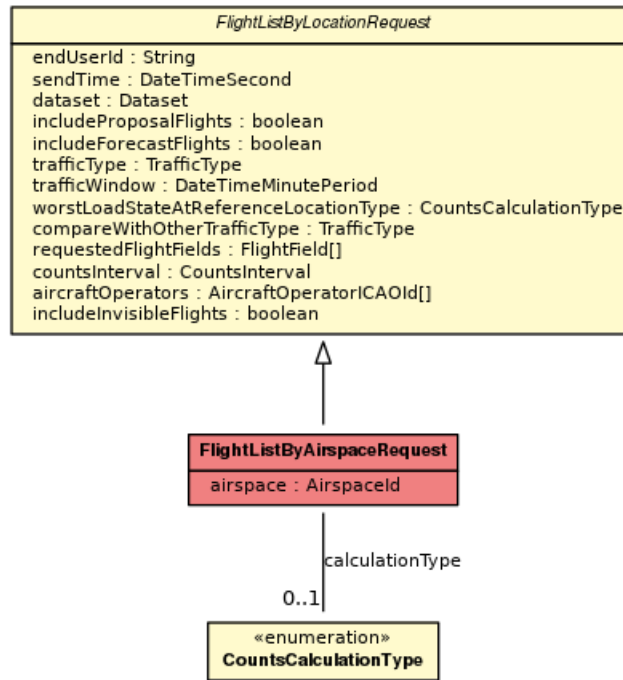


Figure 3.31. *FlightListByAirspaceRequest* Class Diagram

- (1) Request to query a flight list by airspace, i.e. returns all flights occupying the given airspace during the given traffic window.
- (2) The logical AND operator applies between all the query fields described below and those inherited from [FlightListByLocationRequest](#).
- (3) Inherits from: [FlightListByLocationRequest](#)
- (4) Attributes:
  - a) [CountsCalculationType](#) **calculationType** (*Optional*)  
Indicates what is the calculation type of the count (entry or occupancy).  
By default, calculationType is ENTRY.
  - b) [AirspaceId](#) **airspace** (*Mandatory*)  
Id of the airspace.

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### 3.3.7.3. FlightListByAirspaceReply

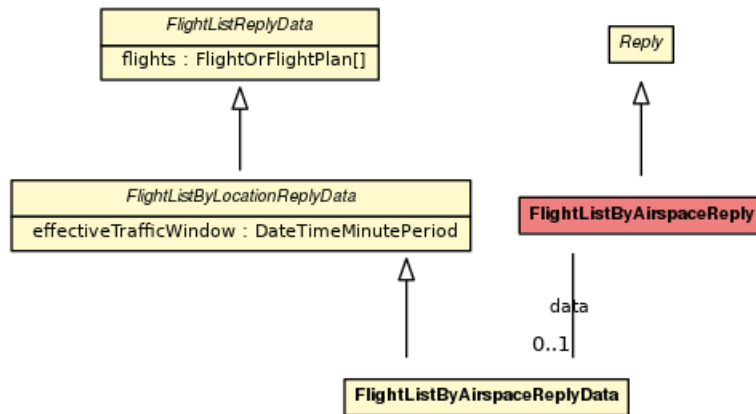


Figure 3.32. FlightListByAirspaceReply Class Diagram

- (1) Reply returned in response to [FlightListByAirspaceRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.8. Flight List by Point

#### 3.3.8.1. SOAP

- (1) The associated SOAP operation is:

```

FlightListByPointReply queryFlightsByPoint(
    FlightListByPointRequest request
)
  
```

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### 3.3.8.2. FlightListByPointRequest

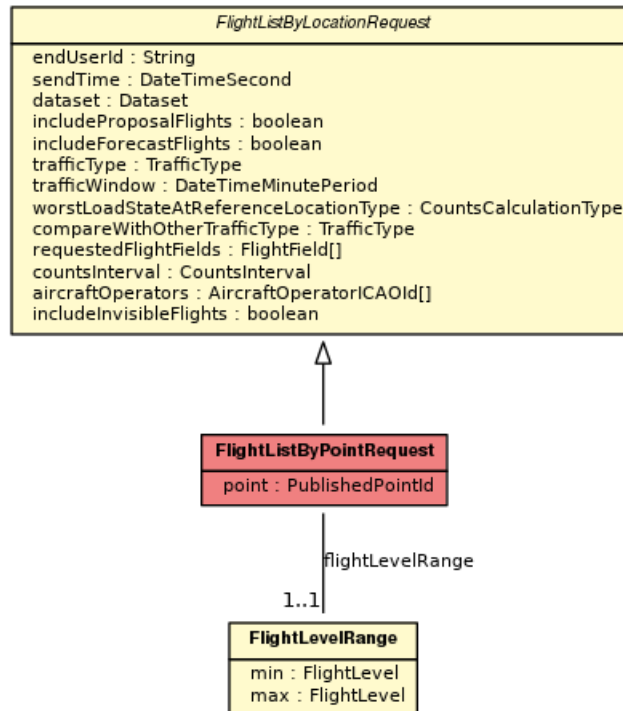


Figure 3.33. *FlightListByPointRequest* Class Diagram

- (1) Request to query a flight list by point, i.e. returns flights being over that point at a time included in the given traffic window.
- (2) The logical AND operator applies between all the query fields described below and those inherited from [FlightListByLocationRequest](#).
- (3) Inherits from: [FlightListByLocationRequest](#)
- (4) Attributes:
  - a) **PublishedPointId point** (Mandatory)  
Id of the published point.
  - b) **FlightLevelRange flightLevelRange** (Mandatory)  
The range in which the flight level should be over the point.

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### 3.3.8.3. FlightListByPointReply

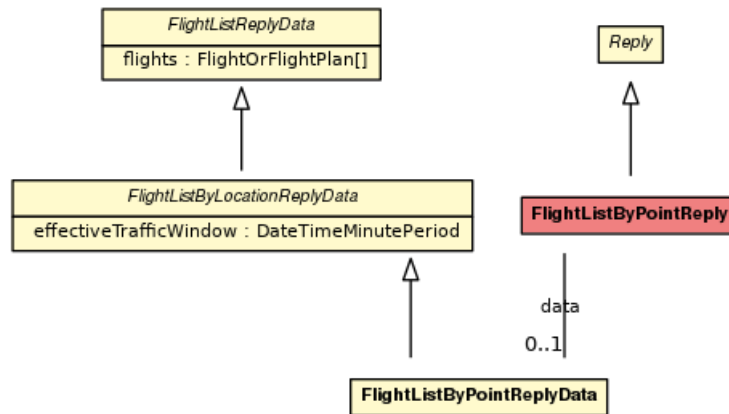


Figure 3.34. FlightListByPointReply Class Diagram

- (1) Reply returned in response to [FlightListByPointRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

## 3.3.9. Flight List by Traffic Volume

### 3.3.9.1. SOAP

- (1) The associated SOAP operation is:

```

FlightListByTrafficVolumeReply queryFlightsByTrafficVolume(
    FlightListByTrafficVolumeRequest request
)
  
```



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### 3.3.9.2. FlightListByTrafficVolumeRequest

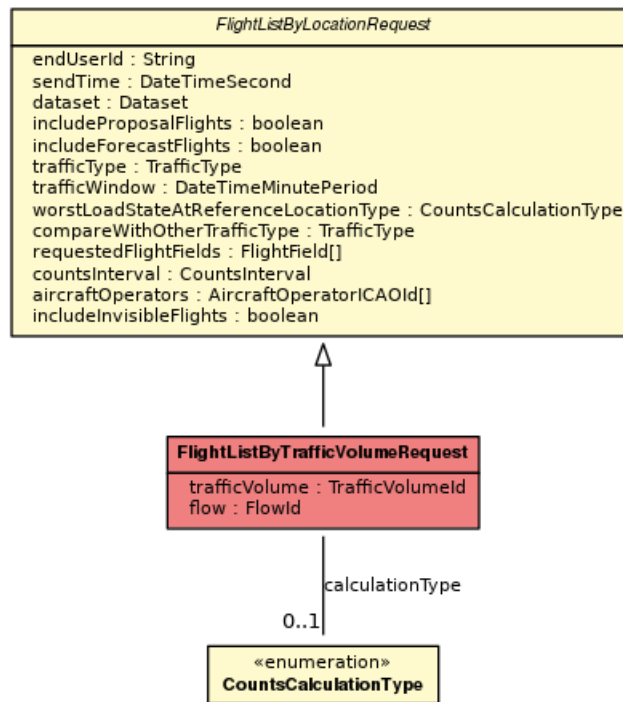


Figure 3.35. *FlightListByTrafficVolumeRequest* Class Diagram

- (1) Request to query a flight list by traffic volume.
- (2) The logical AND operator applies between all the query fields described below and those inherited from [FlightListByLocationRequest](#).
- (3) Inherits from: [FlightListByLocationRequest](#)
- (4) Attributes:
  - a) [CountsCalculationType](#) **calculationType** (Optional)  
Indicates what is the calculation type of the count (entry or occupancy).  
Note: Occupancy counts for traffic volumes are only supported for traffic volumes defined on an airspace.
  - b) [TrafficVolumeId](#) **trafficVolume** (Mandatory)  
Id of the traffic volume.
  - c) [FlowId](#) **flow** (Optional)  
Id of the traffic flow.

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### 3.3.9.3. FlightListByTrafficVolumeReply

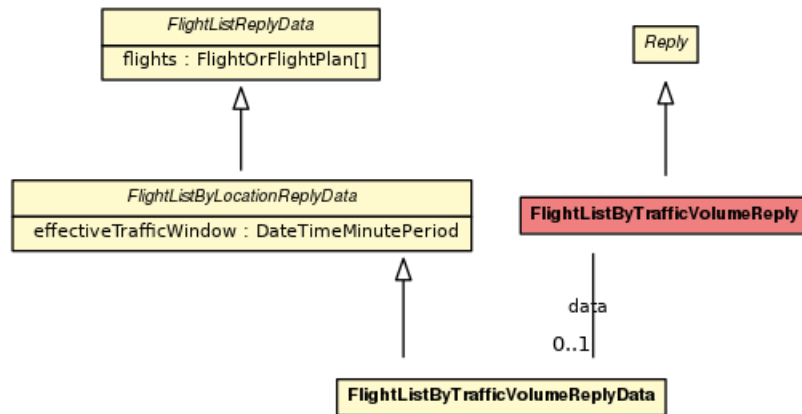


Figure 3.36. FlightListByTrafficVolumeReply Class Diagram

- (1) Reply returned in response to [FlightListByTrafficVolumeRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.10. Flight List by Measure

#### 3.3.10.1. SOAP

- (1) The associated SOAP operation is:

```

FlightListByMeasureReply queryFlightsByMeasure(
    FlightListByMeasureRequest request
)
  
```

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### 3.3.10.2. FlightListByMeasureRequest

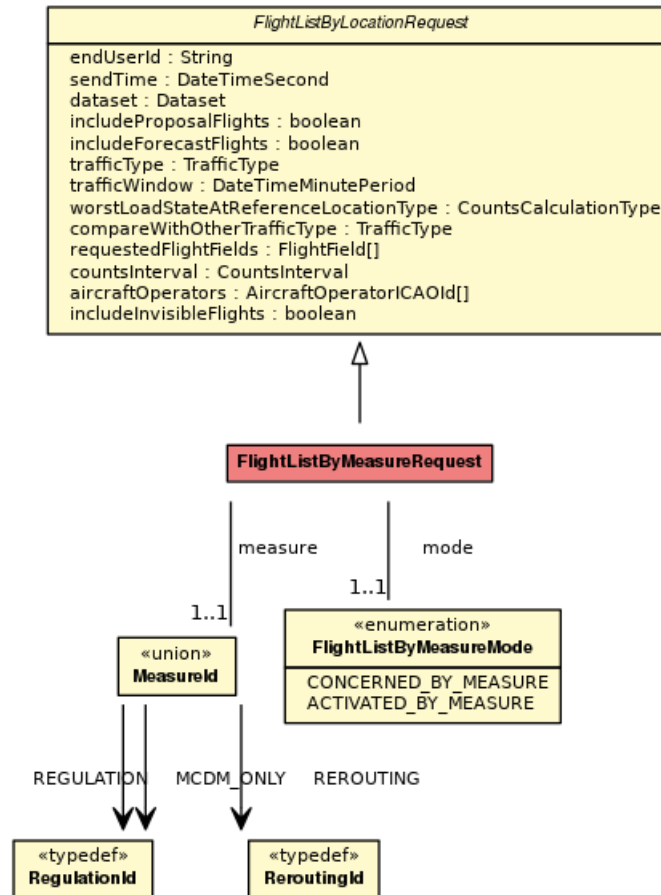


Figure 3.37. FlightListByMeasureRequest Class Diagram

- (1) Request to query a flight list by measure (regulation/rerouting/MCDM-only measure). The reply only contains the flights that are concerned by that measure or alternatively only the flights that the measure has impacted. Note that the [FlightListByLocationRequest.trafficWindow](#) is used to find the concerned regulation. Note that [FlightListByMeasureRequest](#) is subject to specific user authorization: it is enabled/authorized on test platforms, otherwise when specifically requested by the user.
- (2) The logical AND operator applies between all the query fields described below and those inherited from [FlightListByLocationRequest](#).
- (3) Inherits from: [FlightListByLocationRequest](#)
- (4) Attributes:
  - a) **MeasureId** **measure** (Mandatory)  
Measure id.

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b) **[FlightListByMeasureMode](#) mode** (Mandatory)

Indicates if the reply must contain the flights that are concerned by the given measure or the flights that the measure has impacted (measure activated).

For a regulation the concerned flights are those flights that use a regulation slot. However not all of them have an actual delay/have received a slot allocation message (typically exempted flights do not get regulated in a normal regulation (non-exceptional-conditions regulation). For a regulation, the flights that the measure has impacted (measure activated), are a subset of those flights: only those flights that did get a delay (can be 0 minutes) and have/will receive a SAM (Slot Allocation Message).

For a rerouting/MCDM-only measure, the concerned flights are those flights that cross the location/traffic volume during the period on the optional flow, while the the flights that the measure has impacted (measure activated), are a subset of those flights: only those flights that have been cherry picked for the rerouting/MCDM-only measure. Note that even if a flight has been cherry picked for a rerouting, it does not mean that the rerouting could find an alternate route/improvement (the result can be found inside the flight field: [FlightAt-fcmMeasureLocation](#)).

### 3.3.10.3. FlightListByMeasureReply

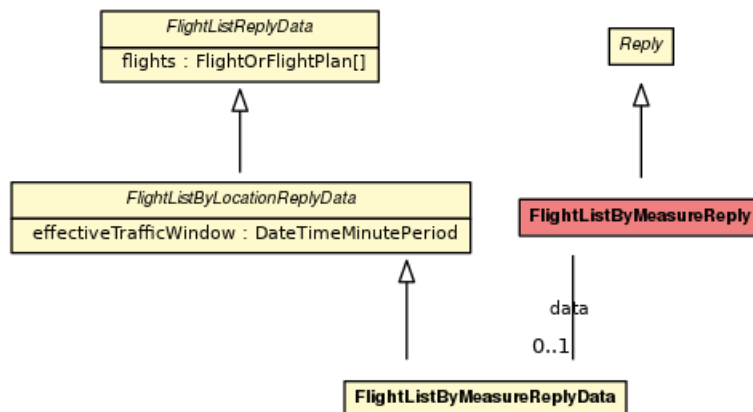


Figure 3.38. *FlightListByMeasureReply* Class Diagram

- (1) Reply returned in response to [FlightListByMeasureRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.11. Flight List by Hotspot

#### 3.3.11.1. SOAP

- (1) The associated SOAP operation is:

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```
FlightListByHotspotReply queryFlightsByHotspot(
    FlightListByHotspotRequest request
)
```

### 3.3.11.2. FlightListByHotspotRequest

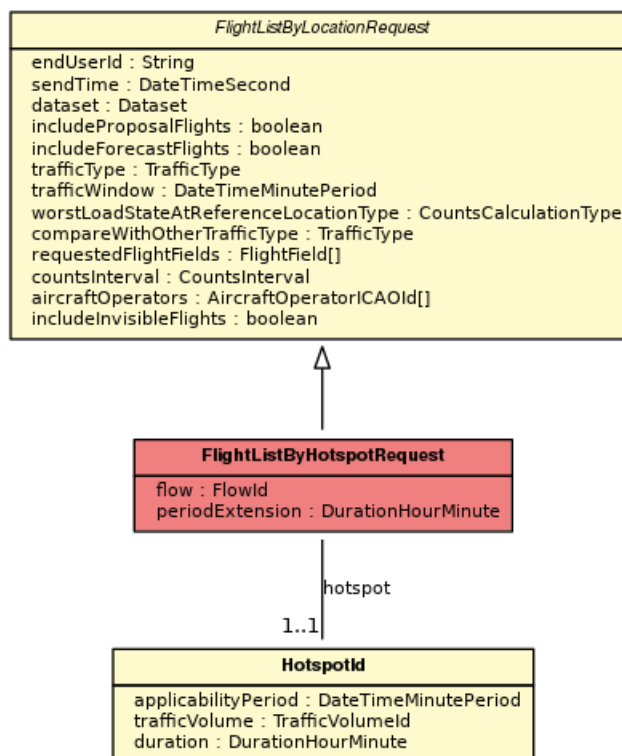


Figure 3.39. *FlightListByHotspotRequest Class Diagram*

- (1) Request to query a flight list by hotspot. Note that hotspot related fields/services are trial related (STAM) fields : they are only accessible (authorized) during specific trials or on test platforms.
- (2) A flight list by hotspot is always done on occupancy (as it is linked to a hotspot which is inherently linked to occupancy counts).
- (3) The logical AND operator applies between all the query fields described below and those inherited from [FlightListByLocationRequest](#).
- (4) Inherits from: [FlightListByLocationRequest](#)
- (5) Attributes:
  - a) [HotspotId](#) **hotspot** (Mandatory)  
Hotspot id.
  - b) [FlowId](#) **flow** (Optional)  
Id of the traffic flow. This allows to list only the flights for a specific flow.

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c) **DurationHourMinute periodExtension** (Mandatory)

Period extension: For a hotspot flightlist, the FlightListRequest: trafficWindow is used to find the hotspot. However the HotspotId:applicabilityPeriod is used to query the flights. In some cases, the user wants to see a the flights around the real hotspot (typically to be able to choose to what time over to cherry pick delay a flight). The periodExtension does exactly that: the effectiveTrafficWindow is the extended [HotspotId.applicabilityPeriod](#) (using the duration of the hotspot) and then extended some more (earlier and later) by the periodExtension.

Period extension: For a hotspot flightlist, the FlightListRequest: trafficWindow is not used. Instead the HotspotId:applicabilityPeriod is used to query the flights. In some cases, the user wants to see the flights around the real hotspot (typically to be able to choose to what time over to cherry pick delay a flight). The periodExtension does exactly that: the effectiveTrafficWindow is the extended [HotspotId.applicabilityPeriod](#) (using the duration of the hotspot) and then extended some more (earlier and later) by the periodExtension. For example: for a hotspot applicabilityPeriod=[10:20, 10:50[ and hotspot duration=10 minutes and periodExtension=2 minutes (and for all OTMV/hotspot : step=1 minute), the effectiveTrafficWindow for the occupancy flightlist is [10:18,11:01[

### 3.3.11.3. FlightListByHotspotReply

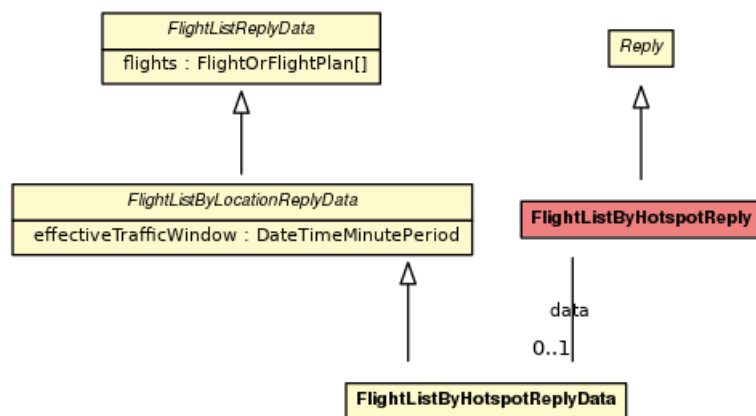


Figure 3.40. FlightListByHotspotReply Class Diagram

- (1) Reply returned in response to [FlightListByHotspotRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.12. Flight List by Aircraft Registration Mark

#### 3.3.12.1. SOAP

- (1) The associated SOAP operation is:

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```
FlightListByAircraftRegistrationMarkReply queryFlightsByAircraftRegistrationMark(
    FlightListByAircraftRegistrationMarkRequest request
)
```

### 3.3.12.2. FlightListByAircraftRegistrationMarkRequest

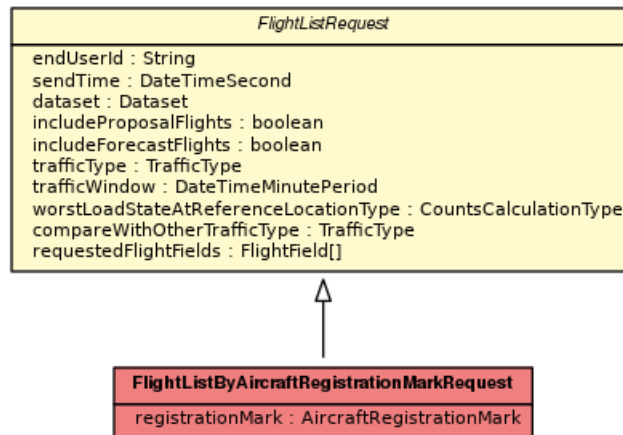


Figure 3.41. *FlightListByAircraftRegistrationMarkRequest Class Diagram*

- (1) Request to query a flight list by aircraft registration mark.
- (2) The logical AND operator applies between all the query fields described below and those inherited from [FlightListRequest](#).
- (3) Inherits from: [FlightListRequest](#)
- (4) Attributes:
  - a) [AircraftRegistrationMark](#) **registrationMark** (Mandatory)  
Aircraft registration mark.

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### 3.3.12.3. FlightListByAircraftRegistrationMarkReply

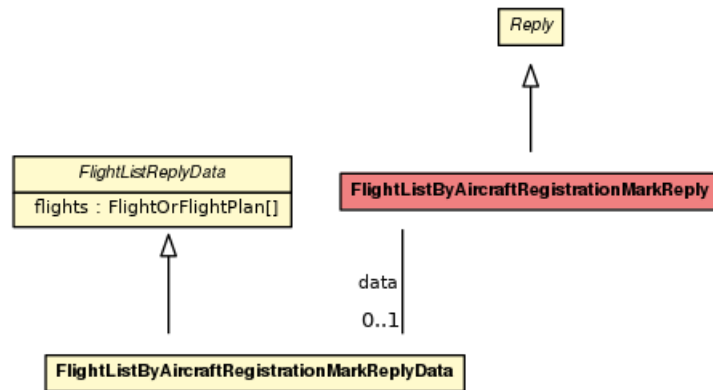


Figure 3.42. *FlightListByAircraftRegistrationMarkReply* Class Diagram

- (1) Reply returned in response to [FlightListByAircraftRegistrationMarkRequest](#).
- (2) See [FlightListReplyData](#).
- (3) Inherits from: [Reply](#)

### 3.3.13. Flight Retrieval

#### 3.3.13.1. SOAP

- (1) The associated SOAP operation is:

```

FlightRetrievalReply retrieveFlight(
    FlightRetrievalRequest request
)
  
```



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### 3.3.13.2. FlightRetrievalRequest

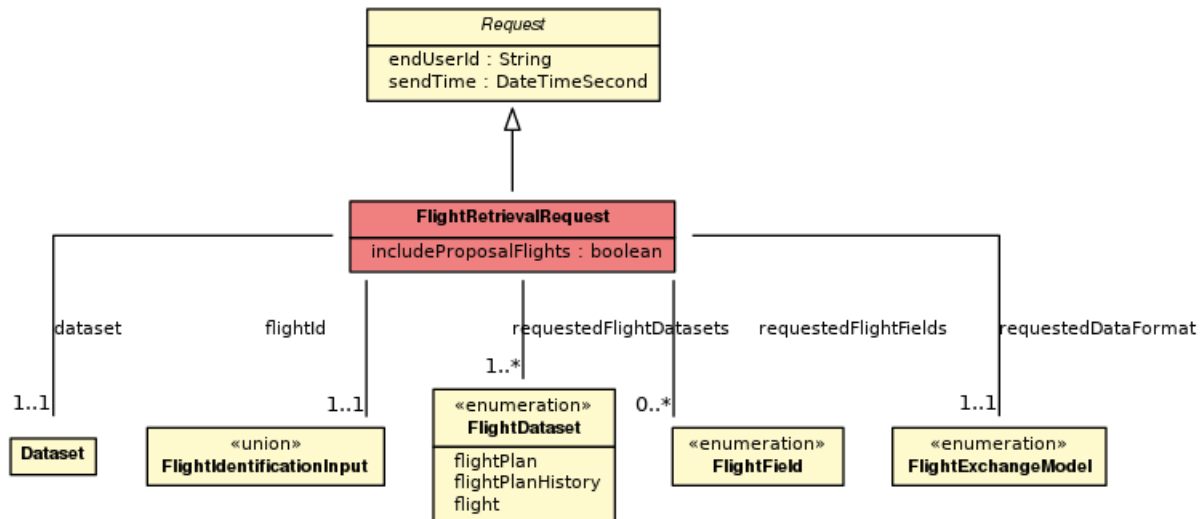


Figure 3.43. *FlightRetrievalRequest* Class Diagram

- (1) Request to selectively retrieve all or part of the information regarding a single flight, i.e.:
  - a) The flight plan ([FlightPlan](#)), and/or
  - b) The flight plan history ([FlightPlanHistory](#)), and/or
  - c) The flight ([Flight](#))
- (2) These are specified using the **requestedFlightDatasets** request field.
- (3) In addition, the flight fields (i.e. the attributes in [Flight](#)) are also selectively returned based on the caller's selection, expressed via **requestedFlightFields**, if they are available at NM.
- (4) Note that the flight keys are always returned.
- (5) **REMARKS:**
  - a) It is possible that according to the data set selected, a **FlightPlan** is returned and not a **Flight**. This can be for a temporary situation or for flight created with an EOB in a far future (when EOBT-now > 22h).
  - b) For a CANCELLED **FlightPlan** NM returns:
    - i) A **FlightPlan** object when the **flightId.id** and a **FlightPlan** data set is specified and that until the **FlightPlan** object is archived.
    - ii) **OBJECT\_NOT\_FOUND** if the **flightId.keys** and a **FlightPlan** data set is specified.
    - iii) **OBJECT\_NOT\_FOUND** if the **flightId.keys** and a **Flight** data set is specified.

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- c) For a TERMINATED Flight NM returns:
- i) A FlightPlan object when the flightId.id or flightId.keys and a FlightPlan data set is specified and that until the FlightPlan object is archived.
  - ii) A Flight object if the flightId.keys and a Flight data set is specified and that until the Flight object is archived.
- (6) Inherits from: [Request](#)
- (7) Attributes:
- a) **Dataset dataset** (Mandatory)  
Dataset from which the flight list is requested.  
Constraint: See [REQUESTED\\_FLIGHT\\_DATASETS\\_CAN\\_ONLY\\_CONTAIN\\_FLIGHT](#)
  - b) **boolean includeProposalFlights** (Mandatory)  
If specified, the result will include also proposal flights.
  - c) **FlightIdentificationInput flightId** (Mandatory)  
Identification of the requested flight plan.  
The flightId.id or the flightId.keys can be used to retrieve flightPlan and flightPlanHistory data sets  
Only flightId.keys can be used to retrieve flight data set.  
Constraints:
    - i) See [ADES\\_OR\\_NONICA0ADES\\_KEYS\\_MUST\\_BE\\_SET\\_FOR\\_FLIGHTPLAN\\_DATASET](#)
    - ii) See [KEYS\\_MUST\\_BE\\_PRESENT\\_IF\\_FLIGHT\\_IS\\_SPECIFIED\\_AS\\_REQUESTED\\_DATASET](#)
  - d) **FlightDataset[] requestedFlightDatasets** (Mandatory)  
The reply returns only the requested datasets, and only if the requested datasets are available at NM. It can be for example that a flight plan is available but not the corresponding flight, or conversely.  
Constraints:
    - i) Size must be comprised between 1 and  $\infty$ .
    - ii) See [ADES\\_OR\\_NONICA0ADES\\_KEYS\\_MUST\\_BE\\_SET\\_FOR\\_FLIGHTPLAN\\_DATASET](#)
    - iii) See [CANNOT\\_CONTAIN\\_DUPLICATE\\_REQUESTED\\_DATASETS](#)
    - iv) See [KEYS\\_MUST\\_BE\\_PRESENT\\_IF\\_FLIGHT\\_IS\\_SPECIFIED\\_AS\\_REQUESTED\\_DATASET](#)
  - e) **FlightField[] requestedFlightFields** (Optional)  
The reply returns only the requested attributes of the returned [Flight](#), and only if the values of these requested fields are available at NM.

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Cannot be null or empty or contain duplicates if the flight dataset is requested; must be null otherwise.

Constraints:

- i) Size must be comprised between 0 and  $\infty$ .
- ii) See [CANNOT\\_CONTAIN\\_DUPLICATE\\_REQUESTED\\_FIELDS](#)
- iii) See [REQUESTED\\_FIELD\\_NOT\\_ALLOWED\\_FOR\\_OPERATION](#)
- f) **FlightExchangeModel requestedDataFormat** (Mandatory)  
The requested flight data format.

(8) Constraints:

- a)

Name	KEYS_MUST_BE_PRESENT_IF_FLIGHT_IS_SPECIFIED_AS_REQUESTED_DATASET
Attributes	<a href="#">flightId</a> , <a href="#">requestedFlightDatasets</a>
Description	If 'FLIGHT' is specified in the requestedFlightDataSet - the flight-Id . keys cannot be null.
- b)

Name	CANNOT_CONTAIN_DUPLICATE_REQUESTED_DATASETS
Attribute	<a href="#">requestedFlightDatasets</a>
Description	Cannot contain duplicates.
- c)

Name	CANNOT_CONTAIN_DUPLICATE_REQUESTED_FIELDS
Attribute	<a href="#">requestedFlightFields</a>
Description	Cannot contain duplicates.
- d)

Name	REQUESTED_FLIGHT_DATASETS_CAN_ONLY_CONTAIN_FLIGHT
Attribute	<a href="#">dataset</a>
Description	if the dataset type is set as FORECAST or SIMULATION, then returnInvalidFilingSummaries needs to be set to false (otherwise an error is returned).
- e)

Name	REQUESTED_FIELD_NOT_ALLOWED_FOR_OPERATION
Attribute	<a href="#">requestedFlightFields</a>
Description	The fields worstLoadStateAtReferenceLocation, compareWithOther-TrafficType are not valid in the <a href="#">FlightRetrievalRequest</a> .

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f)	Name	ADES_OR_NONICA0ADES_KEYS_MUST_BE_SET_FOR_FLIGHTPLAN_DATA-SET
	Attributes	<a href="#">flightId</a> , <a href="#">requestedFlightDatasets</a>
	Description	If requestedFlightDatasets contains FlightDataset.flightPlan or FlightDataset.flightPlanHistory, and if flightId's choice is keys, then the attributes flightId.keys.aerodromeOfDestination and/or flightId.keys.nonICA0AerodromeOfDestination must be set.

### 3.3.13.3. FlightRetrievalReply

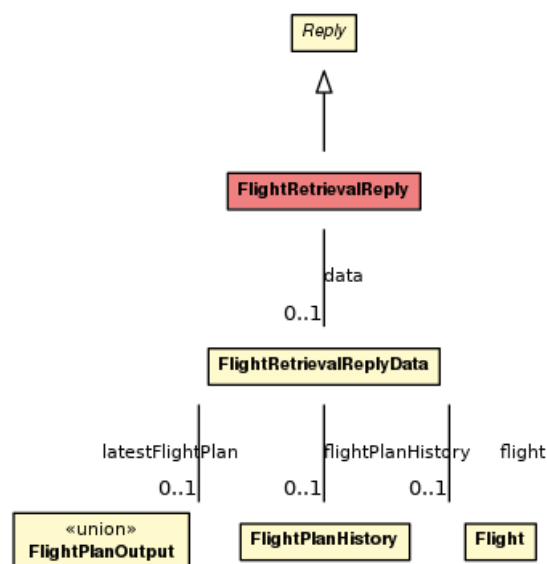


Figure 3.44. *FlightRetrievalReply* Class Diagram

- (1) Reply returned in response to [FlightRetrievalRequest](#).
- (2) Inherits from: [Reply](#)
- (3) Attributes:
  - a) [FlightPlanOutput](#) **latestFlightPlan** (Optional)  
The flight plan, if requested.  
Represents a flight plan with ICAO 2012 content.
  - b) [FlightPlanHistory](#) **flightPlanHistory** (Optional)  
The flight plan history, if requested.
  - c) [Flight](#) **flight** (Optional)  
The flight, if requested.  
Represents a flight with ICAO 2012 content

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### 3.3.14. Early DPI

#### 3.3.14.1. SOAP

- (1) The associated SOAP operation is:

```
EarlyDPIReply submitEarlyDPI(
    EarlyDPIRequest request
)
```

#### 3.3.14.2. EarlyDPIRequest

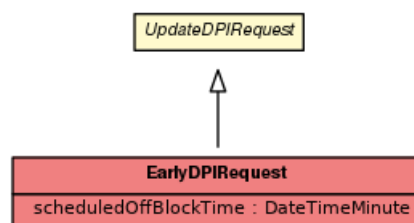


Figure 3.45. EarlyDPIRequest Class Diagram

- (1) The Airport confirms to NMOC that an airport slot and flight plan for a particular flight have been correlated in accordance with local rules at the airport (A-CDM Mile stone 1).
- (2) Detailed information regarding Early DPI messages can be found in the document [DPI Implementation Guide](#) section "E-DPI".
- (3) Inherits from: [UpdateDPIRequest](#)
- (4) Attributes:
- a) **DateTimeMinute scheduledOffBlockTime** (Optional)  
 IATA schedule time of departure.  
 The prime originator is the Airline. It is the time that an aircraft is scheduled to depart.  
 For example: for passenger flights it is the time the passenger has on his ticket.  
 Acronym: SOBT.  
 NOTE: this attribute is used only for post-Ops analysis.

#### 3.3.14.3. EarlyDPIReply

- (1) Reply returned in response to [EarlyDPIRequest](#).
- (2) Inherits from: [Reply](#)

### 3.3.15. Target DPI Target

#### 3.3.15.1. SOAP

- (1) The associated SOAP operation is:

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```
TargetDPITargetReply submitTargetDPITarget(
    TargetDPITargetRequest request
)
```

### 3.3.15.2. TargetDPITargetRequest

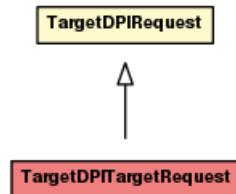


Figure 3.46. TargetDPITargetRequest Class Diagram

- (1) T - DPI - t -- The T-DPI-t message must contain the Target Take-Off Time (TTOT) that takes into account all constraints from an AO and Handling Agent perspective.
- (2) Detailed information regarding Target DPI target can be found in the document [DPI Implementation Guide](#) section "T-DPI-t".
- (3) Inherits from: [TargetDPIRequest](#)

### 3.3.15.3. TargetDPITargetReply

- (1) Reply returned in response to [TargetDPITargetRequest](#).
- (2) Inherits from: [Reply](#)

## 3.3.16. Target DPI Sequence

### 3.3.16.1. SOAP

- (1) The associated SOAP operation is:

```
TargetDPISequencedReply submitTargetDPISequenced(
    TargetDPISequencedRequest request
)
```

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### 3.3.16.2. TargetDPISequencedRequest

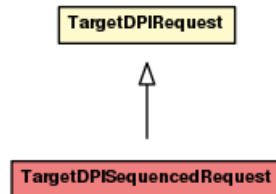


Figure 3.47. TargetDPISequencedRequest Class Diagram

- (1) T - DPI - s -- The T-DPI-s contains the Take-Off-Time as calculated by the Pre-Departure Sequence. This Take-Off-Time (target take-off-time) is included in the TTOT-field.
- (2) Detailed information regarding Target DPI sequenced messages can be found in the document [DPI Implementation Guide](#) section [T-DPI-s](#).
- (3) Inherits from: [TargetDPIRequest](#)

### 3.3.16.3. TargetDPISequencedReply

- (1) Reply returned in response to [TargetDPISequencedRequest](#).
- (2) Inherits from: [Reply](#)

## 3.3.17. ATC DPI

### 3.3.17.1. SOAP

- (1) The associated SOAP operation is:

```

ATCDPIReply submitATCDPI(
    ATCDPIRequest request
)
  
```

### 3.3.17.2. ATCDPIRequest

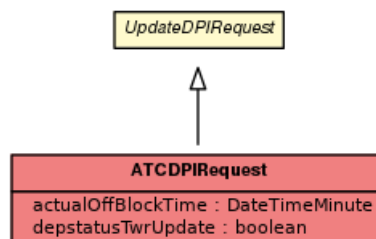


Figure 3.48. ATCDPIRequest Class Diagram

<b>DNM</b>		<b>EUROCONTROL</b>
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- (1) The purpose of the A-DPI is to inform NM that the flight has off-blocked, i.e. the flight is "under ATC (or Apron) control" and taxiing to take-off.
- (2) Detailed information regarding ATC DPI messages can be found in the document [DPI Implementation Guide](#) section "[A-DPI](#)".
- (3) Inherits from: [UpdateDPIRequest](#)
- (4) Attributes:
  - a) **DateTimeMinute actualOffBlockTime** (*Optional*)  
Actual Off Block Time.  
Prime originator is tower ATC. The actual date and time the aircraft has vacated the parking position (pushed back or on its own power).  
Acronym: AOBT.
  - b) **boolean depstatusTwrUpdate** (*Optional*)  
If true, the TTOT will be accepted even if after the Slot Tolerance Window of a regulated flight, in which case the CTOT will be extended by 10 minutes or recalculated. False by default.

### 3.3.17.3. ATCDPIReply

- (1) Reply returned in response to [ATCDPIRequest](#).
- (2) Inherits from: [Reply](#)

### 3.3.18. Cancel DPI

#### 3.3.18.1. SOAP

- (1) The associated SOAP operation is:

```
CancelDPIReply submitCancelDPI(
    CancelDPIRequest request
)
```



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### 3.3.18.2. CancelDPIRequest

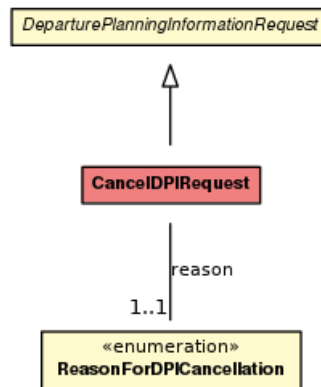


Figure 3.49. CancelDPIRequest Class Diagram

- (1) The Airport informs NMOC that previously sent DPI information is no longer valid.
- (2) Detailed information regarding Cancel DPI messages can be found in the document [DPI Implementation Guide](#) section "C-DPI".
- (3) Inherits from: [DeparturePlanningInformationRequest](#)
- (4) Attributes:
  - a) **ReasonForDPICancellation reason** (Mandatory)  
Reason for requesting a cancelDPI.  
Acronym: REASON.

### 3.3.18.3. CancelDPIReply

- (1) Reply returned in response to [CancelDPIRequest](#).
- (2) Inherits from: [Reply](#)

## 3.3.19. Predicted DPI

### 3.3.19.1. SOAP

- (1) The associated SOAP operation is:

```

PredictedDPIReply submitPredictedDPI(
    PredictedDPIRequest request
)
  
```

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### 3.3.19.2. PredictedDPIRequest

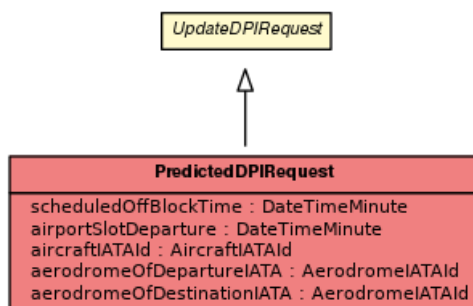


Figure 3.50. PredictedDPIRequest Class Diagram

- (1) The P-DPI (Predicted DPI) is used to communicate target take-off time changes to the NOP before the time at which the data is sent in the A-CDM context. Its purpose is a timely update of the expected traffic load.
- (2) P-DPI can be sent to create or update scheduled flights for which no flight plan has been filed yet, but also to update flights that have been filed. P-DPI sending shall be stopped at A-CDM Milestone 1 when first E-DPI is sent which is earliest at EOBT - 3 hours.
- (3) P-DPI are also used for cancellation of scheduled flights (when attribute `flightStatusOutbound` contains the value CNX). If a P-DPI is sent for an existing flight plan, the CNX has no effect. Flight plan cancellations are to be handled in established manner.
- (4) Inherits from: [UpdateDPIRequest](#)
- (5) Attributes:
  - a) **[DateTimeMinute](#) scheduledOffBlockTime** (Mandatory)  
IATA schedule time and date of departure.  
The prime originator is the Airline. It is the time that an aircraft is scheduled to depart.  
Acronym: SOBT.
  - b) **[DateTimeMinute](#) airportSlotDeparture** (Optional)  
The airport departure slot date and time in case the flight departs from a coordinated airport.
  - c) **[AircraftIATAId](#) aircraftIATAId** (Optional)  
Aircraft IATA identifier.  
Constraint: See [MISSING\\_AIRCRAFT\\_ID](#)
  - d) **[AerodromeIATAId](#) aerodromeOfDepartureIATA** (Optional)  
Departure airport IATA.  
Constraint: See [MISSING\\_AERODROME\\_OF\\_DEPARTURE](#)
  - e) **[AerodromeIATAId](#) aerodromeOfDestinationIATA** (Optional)  
Destination airport IATA.

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Constraint: See [MISSING\\_AERODROME\\_OF\\_DESTINATION](#)

(6) Constraints:

- a)
- |             |  |
|-------------|--|
| Name        | MISSING_AIRCRAFT_ID  |
| Attribute   | <a href="#">aircraftIATAId</a>                                     |
| Description | If aircraftId (ICAO) is null then aircraftIATAId must not be null. |
- b)
- |             |  |
|-------------|--|
| Name        | MISSING_AERODROME_OF_DEPARTURE   |
| Attribute   | <a href="#">aerodromeOfDepartureIATA</a>   |
| Description | If aerodromeOfDeparture (ICAO) is null then aerodromeOfDepartureIATA must not be null. |
- c)
- |             |  |
|-------------|--|
| Name        | MISSING_AERODROME_OF_DESTINATION   |
| Attribute   | <a href="#">aerodromeOfDestinationIATA</a>   |
| Description | If aerodromeOfDestination (ICAO) is null then aerodromeOfDestinationIATA must not be null. |

### 3.3.19.3. PredictedDPIReply

- (1) Reply returned in response to [PredictedDPIRequest](#).
- (2) Inherits from: [Reply](#)

### 3.3.20. Submit flight update

#### 3.3.20.1. SOAP

- (1) The associated SOAP operation is:

```
FlightUpdateReply submitFlightUpdate(
    FlightUpdateRequest request
)
```

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### 3.3.20.2. FlightUpdateRequest

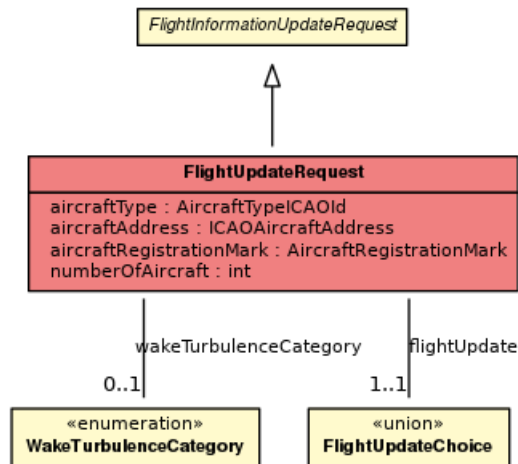


Figure 3.51. FlightUpdateRequest Class Diagram

- (1) This request allows the provision to NM of flight update information such as departure information or en-route information.
- (2) This request requires special authorization.
- (3) Inherits from: [FlightInformationUpdateRequest](#)
- (4) Attributes:
  - a) [AircraftTypeICAOId](#) **aircraftType** (Optional)  
The actual aircraft type used for the flight.
  - b) [ICAOAircraftAddress](#) **aircraftAddress** (Optional)  
The aircraft address.
  - c) [AircraftRegistrationMark](#) **aircraftRegistrationMark** (Optional)  
The aircraft registration mark.
  - d) **int numberOfAircraft** (Optional)  
The number of aircraft.  
Constraint: Range: [0, ∞[.
  - e) [WakeTurbulenceCategory](#) **wakeTurbulenceCategory** (Optional)  
Wake turbulence category.
  - f) [FlightUpdateChoice](#) **flightUpdate** (Mandatory)  
Either an update of departure information or en-route data.

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### 3.3.20.3. FlightUpdateReply

- (1) Reply returned in response to [FlightUpdateRequest](#).
- (2) Inherits from: [Reply](#)
- (3) Attributes:
  - a) [AirborneFilingReplyData](#) **ifpsProcessingResult** (Optional)  
Details about the processing of FNM/MFS requests.

### 3.3.21. API

#### 3.3.21.1. SOAP

- (1) The associated SOAP operation is:

```
GeneralAPIReply submitGeneralAPI(
    GeneralAPIRequest request
)
```

#### 3.3.21.2. GeneralAPIRequest

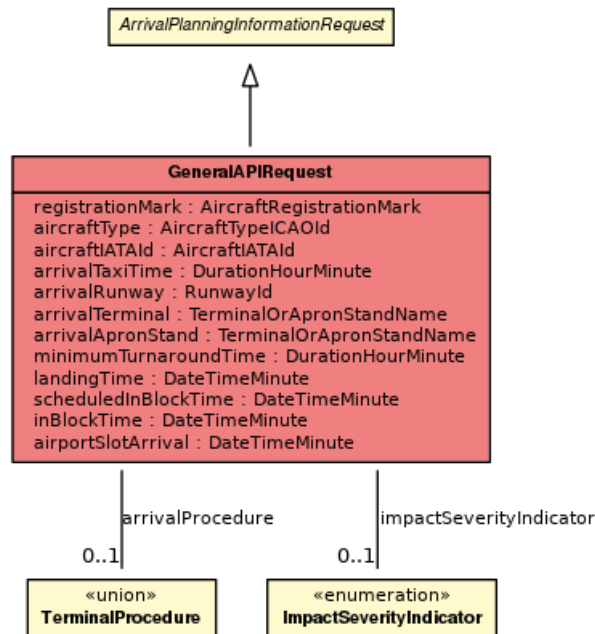


Figure 3.52. GeneralAPIRequest Class Diagram

- (1) The airport informs NMOC about arrival information like SLDT, STAR, arrival taxi time, etc...

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(2)

**Note:**

The APIs related services are OPS trial related: it is only accessible (authorized) during specific OPS trials.

The use will be restricted to invited users.

(3)

Inherits from: [ArrivalPlanningInformationRequest](#)

(4)

Attributes:

- a) [AircraftRegistrationMark](#) **registrationMark** *(Optional)*  
Aircraft registration mark. It is the unique alphanumeric string that identifies a civil aircraft.  
ADEXP: -REG
- b) [AircraftTypeICAOId](#) **aircraftType** *(Optional)*  
ICAO Aircraft type.  
ADEXP: -ARCTYP
- c) [AircraftIATAId](#) **aircraftIATAId** *(Optional)*  
The aircraft IATA identifier.
- d) [DurationHourMinute](#) **arrivalTaxiTime** *(Optional)*  
Estimated or actual taxi time from landing to gate.  
Acronym: EXIT.
- e) [TerminalProcedure](#) **arrivalProcedure** *(Optional)*  
Standard Instrument Arrival Route identifier.  
Acronym: STAR.
- f) [RunwayId](#) **arrivalRunway** *(Optional)*  
Identifier of the assigned arrival runway.
- g) [TerminalOrApronStandName](#) **arrivalTerminal** *(Optional)*  
Identifier of the arrival terminal.
- h) [TerminalOrApronStandName](#) **arrivalApronStand** *(Optional)*  
Identifier of the arrival apron stand.
- i) [DurationHourMinute](#) **minimumTurnaroundTime** *(Optional)*  
Minimum turn-around time.  
Acronym: MTTT.
- j) [DateTimeMinute](#) **landingTime** *(Optional)*  
The time the aircraft is expected to land (when ATV flightStatusInbound is not yet TXI) or the time the aircraft has landed (when ATV flightStatusInbound is TXI, IBK, DBR or DBC). NMOC uses actual landing time to update the CTFM profile of the flight. NMOC will collect the estimated landing time during the OPS trials and will evaluate its quality, then assess the possibility to use this information to improve the traffic load picture in a future release.  
Acronym: ELDT/ALDT  
Constraint: See [INVALID\\_LANDING\\_TIME](#)

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k) **[DateTimeMinute](#) scheduledInBlockTime** *(Optional)*

IATA Scheduled In-Block Time.

Prime originator is the airline.

Acronym: SIBT

l) **[DateTimeMinute](#) inBlockTime** *(Optional)*

The time the aircraft is expected to arrive at stand/gate (when ATV flightStatusInbound is not yet IBK) or the time the aircraft has arrived at the stand/gate (when ATV flightStatusInbound is IBK, DBR or DBC).

Acronym: EIBT/AIBT

m) **[DateTimeMinute](#) airportSlotArrival** *(Optional)*

The airport arrival slot date and time in case the flight arrives at a coordinated airport.

n) **[ImpactSeverityIndicator](#) impactSeverityIndicator** *(Optional)*

Impact assessment of non-punctual arrival upon the airport planning and AUs business needs.

(5) Constraint:

a)

Name	INVALID_LANDING_TIME
Attribute	<a href="#">landingTime</a>
Description	The actual landingTime (when flightStatusInbound is either TXI or IBK or DBR or DBC) is not later than current time + 10 minutes.

### 3.3.21.3. GeneralAPIReply

(1) Reply returned in response to [GeneralAPIRequest](#).

(2) Inherits from: [Reply](#)

### 3.3.22. Target Take-Off API

#### 3.3.22.1. SOAP

(1) The associated SOAP operation is:

```
TargetTakeOffAPIReply submitTargetTakeOffAPI(
    TargetTakeOffAPIRequest request
)
```

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### 3.3.22.2. TargetTakeOffAPIRequest

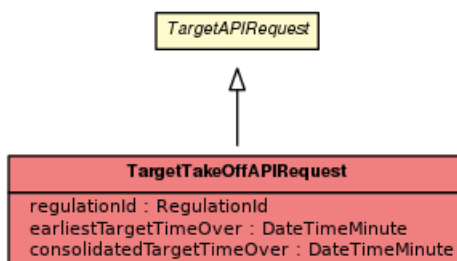


Figure 3.53. TargetTakeOffAPIRequest Class Diagram

- (1) The airport provides to NMOC the target time over the AOP-NOP coordination fix point, to negotiate a new CTOT (when TargetAPIRequest.targetAPIUseCase = Update), or removes previous target time information (when TargetAPIRequest.targetAPIUseCase = Remove).

(2) **Note:**

The APIs related services are OPS trial related: it is only accessible (authorized) during specific OPS trials.

The use will be restricted to invited users.

- (3) Inherits from: [TargetAPIRequest](#)

(4) Attributes:

- a) **[RegulationId](#) regulationId** (Optional)

The arrival related regulation that was created in coordination with NMOC to regulate all the flights subject to API, and used in the communication of the CTOT to the ADEP.

Constraints:

- i) See [ATTRIBUTE\\_MISSING\\_FOR\\_TARGET\\_API\\_UPDATE](#)

- ii) See [ATTRIBUTE\\_PRESENT\\_FOR\\_TARGET\\_API\\_REMOVE](#)

- b) **[DateTimeMinute](#) earliestTargetTimeOver** (Optional)

The earliest possible time over the AOP-NOP coordination fix that the AMAN tool could accommodate in its arrival sequence, stemming from local capacity constraints, regardless of the CTOT that could be allocated by NM to this flight.

This information will be used by NM as a minimum calculated time over (min CTO): in case of a potential delay reduction for this flight, the CTO will always be equal or later than earliestTargetTimeOver.

When earliestTargetTimeOver is null, there will be no minimum value (other than the flight plan and possibly departure constraints) for the calculated time over, and in case of delay reduction opportunities NM may reduce the delay down to zero.

Constraints:

- i) See [ATTRIBUTE\\_MISSING\\_FOR\\_TARGET\\_API\\_UPDATE](#)



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ii) See [ATTRIBUTE\\_PRESENT\\_FOR\\_TARGET\\_API\\_REMOVE](#)

c) **DateTimeMinute consolidatedTargetTimeOver** (*Optional*)

When a departure or en-route regulation is more penalizing than the arrival regulation, this field allows fine adjustment of the CTO by the AMAN tool, in a window around the CTO which is known as "slot zone".

The slot zone is a [ -5 min, +10 min ] window around the initial CTO when it has been recalculated by NM.

The slot zone is not shifted when the CTO is adjusted by a consolidatedTargetTimeOver or when the CTOT is slightly changed by a DLA or CHG message.

The current value of the slot zone can be retrieved as part of the flight data (Flight.slotZone).

Constraints:

i) See [ATTRIBUTE\\_MISSING\\_FOR\\_TARGET\\_API\\_UPDATE](#)

ii) See [ATTRIBUTE\\_PRESENT\\_FOR\\_TARGET\\_API\\_REMOVE](#)

(5) Constraints:

a)

Name	ATTRIBUTE_MISSING_FOR_TARGET_API_UPDATE
Attributes	<a href="#">targetAPIUseCase</a> , <a href="#">regulationId</a> , <a href="#">earliestTargetTimeOver</a> , <a href="#">consolidatedTargetTimeOver</a>
Description	When targetAPIUseCase = Update, regulationId, and at least one of the two attributes earliestTargetTimeOver and/or consolidatedTargetTimeOver must not be null.

b)

Name	ATTRIBUTE_PRESENT_FOR_TARGET_API_REMOVE
Attributes	<a href="#">targetAPIUseCase</a> , <a href="#">regulationId</a> , <a href="#">earliestTargetTimeOver</a> , <a href="#">consolidatedTargetTimeOver</a>
Description	When targetAPIUseCase = Remove, all other attributes must be null.

### 3.3.22.3. TargetTakeOffAPIReply

(1) Reply returned in response to [TargetTakeOffAPIRequest](#).

(2) Inherits from: [Reply](#)

### 3.3.23. Target Time-Over API

#### 3.3.23.1. SOAP

(1) The associated SOAP operation is:

```
TargetTimeOverAPIReply submitTargetTimeOverAPI(
    TargetTimeOverAPIRequest request
)
```

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### 3.3.23.2. TargetTimeOverAPIRequest

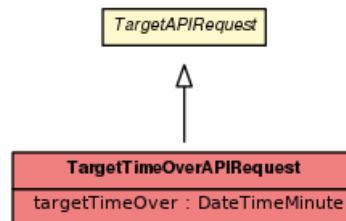


Figure 3.54. TargetTimeOverAPIRequest Class Diagram

- (1) The airport provides to NMOC the target time over the AOP-NOP coordination fix point, in order to allow fine-tuning of the 4D trajectory by NM without changing the take-off time.

(2) **Note:**

The APIs related services are OPS trial related: it is only accessible (authorized) during specific OPS trials.

The use will be restricted to invited users.

- (3) Inherits from: [TargetAPIRequest](#)

(4) Attributes:

- a) **DateTimeMinute targetTimeOver** (Optional)

The target time over the coordinationFix given by the airport.

Used by NM to fine-tune the 4D trajectory and accommodate the target time without changing the take-off time.

Constraints:

- i) See [ATTRIBUTE\\_MISSING\\_FOR\\_TARGET\\_API\\_UPDATE](#)
- ii) See [ATTRIBUTE\\_PRESENT\\_FOR\\_TARGET\\_API\\_REMOVE](#)

(5) Constraints:

- a)
- |             |  |
|-------------|--|
| Name        | ATTRIBUTE_MISSING_FOR_TARGET_API_UPDATE                          |
| Attribute   | <a href="#">targetTimeOver</a>                                   |
| Description | When targetAPIUseCase = Update, targetTimeOver must not be null. |
- b)
- |             |  |
|-------------|--|
| Name        | ATTRIBUTE_PRESENT_FOR_TARGET_API_REMOVE                      |
| Attribute   | <a href="#">targetTimeOver</a>                               |
| Description | When targetAPIUseCase = Remove, targetTimeOver must be null. |

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### 3.3.23.3. TargetTimeOverAPIReply

- (1) Reply returned in response to [TargetTimeOverAPIRequest](#).
- (2) Inherits from: [Reply](#)

## 3.4. FlightSafetyService Port Type

### 3.4.1. Overview

- (1) The EC maintains a list of "green" third countries (understand, not in the EU territory). All aircraft operators that are SAFA-compliant may fly from all airports of these green countries. For airports that are not in the green country list neither in the EU territory, aircraft operators must get accreditations for their departure airports. So an ACC3 accreditation applies to a (AO, AD) pair. The EC requests Eurocontrol to operate an alerting service when a flight plan is submitted by a non-accredited (AO, AD) pair - also in case of diversion (airborne). In this context, the FlightSafety service is limited to setting the full accreditation list, typically sent to us once a day:
  - a) [ACC3AccreditationListReplacementRequest](#) / [ACC3AccreditationListReplacementReply](#)
  - b) [TCOAuthorisationListReplacementRequest](#) / [TCOAuthorisationListReplacementReply](#)
  - c) [TCOAuthorisationListUpdateRequest](#) / [TCOAuthorisationListUpdateReply](#)

### 3.4.2. Flight Safety - ACC3 Accreditation

#### 3.4.2.1. SOAP

- (1) The associated SOAP operation is:

```
ACC3AccreditationListReplacementReply replaceACC3AccreditationList(
    ACC3AccreditationListReplacementRequest request
)
```

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### 3.4.2.2. ACC3AccreditationListReplacementRequest

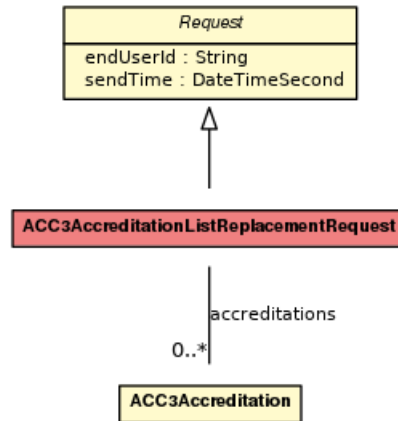


Figure 3.55. ACC3AccreditationListReplacementRequest Class Diagram

- (1) An ACC3 accreditation list replacement request.
- (2) Inherits from: [Request](#)
- (3) Attributes:
  - a) [ACC3Accreditation\[\] accreditations](#) (Mandatory)  
The accreditations.  
Constraint: Size must be comprised between 0 and  $\infty$ .

### 3.4.2.3. ACC3AccreditationListReplacementReply

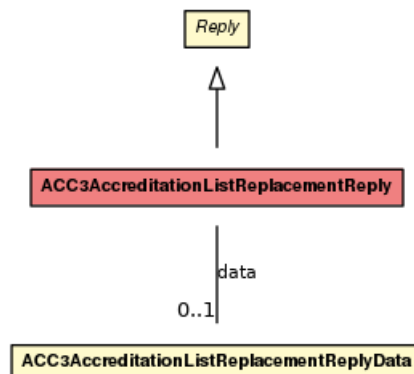


Figure 3.56. ACC3AccreditationListReplacementReply Class Diagram

- (1) An ACC3 accreditation list replacement reply.
- (2) Inherits from: [Reply](#)

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### 3.4.3. Flight Safety - TCO Authorisation (replace)

#### 3.4.3.1. SOAP

- (1) The associated SOAP operation is:

```
TCOAuthorisationListReplacementReply replaceTCOAuthorisationList(
    TCOAuthorisationListReplacementRequest request
)
```

#### 3.4.3.2. TCOAuthorisationListReplacementRequest

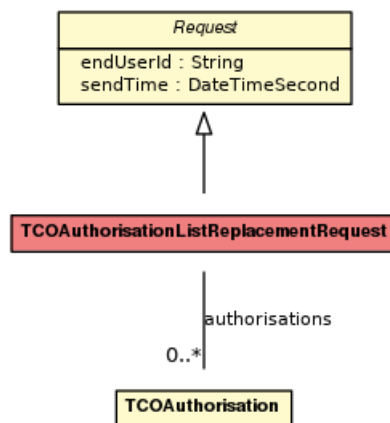


Figure 3.57. *TCOAuthorisationListReplacementRequest* Class Diagram

- (1) A TCO authorisation list replacement request.
- (2) Inherits from: [Request](#)
- (3) Attributes:
- Set<[TCOAuthorisation](#)> authorisations** (Mandatory)  
The authorisations.  
Constraint: Size must be comprised between 0 and ∞.

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### 3.4.3.3. TC0AuthorisationListReplacementReply

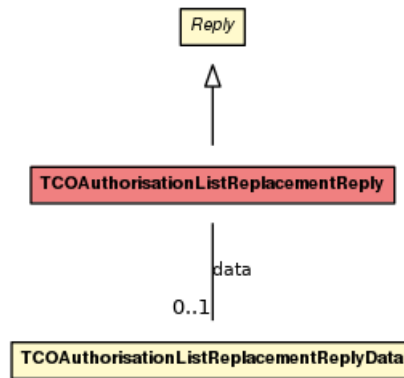


Figure 3.58. TC0AuthorisationListReplacementReply Class Diagram

- (1) A TCO authorisation list replacement reply.
- (2) Inherits from: [Reply](#)

### 3.4.4. Flight Safety - TCO Authorisation (update)

#### 3.4.4.1. SOAP

- (1) The associated SOAP operation is:

```

TC0AuthorisationListUpdateReply updateTC0AuthorisationList(
    TC0AuthorisationListUpdateRequest request
)
  
```

#### 3.4.4.2. TC0AuthorisationListUpdateRequest

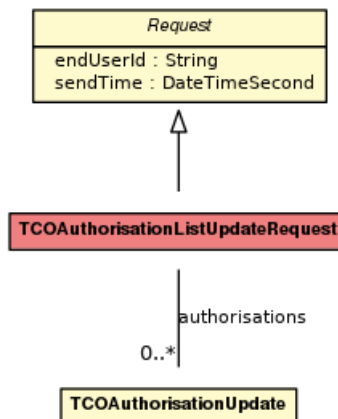


Figure 3.59. TC0AuthorisationListUpdateRequest Class Diagram

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- (1) A TCO authorisation list update request.
- (2) Inherits from: [Request](#)
- (3) Attributes:
  - a) **Set<[TCOAuthorisationUpdate](#)> authorisations** (*Mandatory*)  
 The authorisations.  
Constraint: Size must be comprised between 0 and  $\infty$ .

#### 3.4.4.3. TCOAuthorisationListUpdateReply

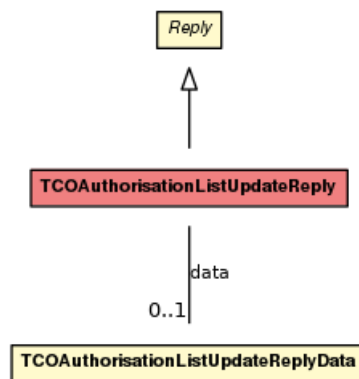


Figure 3.60. TCOAuthorisationListUpdateReply Class Diagram

- (1) A TCO authorisation list update reply.
- (2) Inherits from: [Reply](#)

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## Chapter 4. Data Types

### 4.1. ACC3Accreditation

- (1) An ACC3 accreditation applies to an aircraft operator departing from an aerodrome. The whole accreditation list replacement is a single transaction: it fully succeeds or fully fails.
- (2) Attributes:
  - a) **[ACC3AccreditationId](#) id** (*Mandatory*)  
Unique id of the accreditation - unique within the accreditation list that applies at any point in time.
  - b) **[AerodromeIATAOrICAOId](#) adId** (*Mandatory*)  
Contains either the IATA id or the ICAO id of the departure aerodrome to which the accreditation applies.
  - c) **[AircraftOperatorIATAOrICAOId](#) aoId** (*Mandatory*)  
Contains either the IATA id or the ICAO id of the aircraft operator to which the accreditation applies.
- (3) Used by: [ACC3AccreditationListReplacementRequest](#).

### 4.2. typedef<string> ACC3AccreditationId

- (1) Uniquely identifies an ACC3 accreditation.
- (2) Pattern: (ALPHA|DIGIT|/|\_|\*|-){0,100}
- (3) Used by: [ACC3Accreditation](#).

### 4.3. ActualTimeAtTarget

- (1) Attributes:
  - a) **[DateTimeMinute](#) estimatedActualTimeAtTarget** (*Mandatory*)  
The actual time over (estimated according to the CTFM point profile)
  - b) **[IntervalPosition](#) targetTimeCompliance** (*Mandatory*)  
Indicates if the actualTimeOver is compliant or outside of the target time window (target time +/- 3 minutes)
- (2) Used by: [TargetTime](#).

### 4.4. Aerodrome

- (1) Describes an aerodrome in the flight plan context.
- (2) Choices:



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- a) [AerodromeICA0Id](#) **icaoId**  
The ICAO id of this aerodrome.
- b) [OtherAerodromeDesignation](#) **otherDesignation**  
Name and location of the aerodrome if the ICAO id is not provided for this aerodrome.

(3) Used by: [FlightArrivalRequest](#), [AerodromesOfDestination](#), [FlightPlanUpdate](#), [FlightPlan](#).

## 4.5. AerodromeDAL

(1) Attributes:

- a) [AerodromeICA0Id](#) **aerodrome** (*Mandatory*)
- b) [DistanceM](#) **cumulativeDistance** (*Mandatory*)

## 4.6. typedef<string> AerodromeName\_DataType

- (1) The name of the aerodrome.
- (2) Pattern: ANY{1, 50}
- (3) Used by: [OtherAerodromeDesignation](#).

## 4.7. typedef<string> AerodromeNameLocationDescription\_Data-Type

- (1) Description of name and location of the aerodrome.
- (2) Pattern: ANY{1, 100}
- (3) Used by: [AlternateAerodrome](#).

## 4.8. <<enumeration>> AerodromeRole

- (1) Used to specified if an aerodrome is meant as of departure, arrival or both.
- (2) Values:
  - a) **ARRIVAL**
  - b) **BOTH**
  - c) **DEPARTURE**
- (3) Used by: [FlightListByAerodromeRequest](#), [TrafficCountsByAerodromeRequest](#), [TrafficCountsBy-AerodromeSetRequest](#), [FlightListByAerodromeSetRequest](#).

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## 4.9. AerodromesOfDestination

(1) Represents an aerodrome of destination in a flight plan, together with its alternates.

(2) Attributes:

- a) **[Aerodrome](#) aerodromeOfDestination** (*Mandatory*)  
Aerodrome of destination.
- b) **[AlternateAerodrome](#) alternate1** (*Optional*)  
First alternate aerodrome of destination.  
Constraint: See [ALTERNATE2\\_MUST\\_BE\\_NULL\\_IF\\_ALTERNATE1\\_IS\\_NULL](#)
- c) **[AlternateAerodrome](#) alternate2** (*Optional*)  
Second alternate aerodrome of destination.  
Constraint: See [ALTERNATE2\\_MUST\\_BE\\_NULL\\_IF\\_ALTERNATE1\\_IS\\_NULL](#)

(3) Constraint:

a)	Name	ALTERNATE2_MUST_BE_NULL_IF_ALTERNATE1_IS_NULL
	Attributes	<a href="#">alternate1</a> , <a href="#">alternate2</a>
	Description	alternate2 must be null if alternate1 is null.

(4) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

## 4.10. AirborneFilingReplyData

(1) Details about the processing of FNM/MFS requests.

(2) Inherits from: [FilingReplyData](#).

(3) Used by: [FlightUpdateReply](#).

## 4.11. typedef<string> AircraftIATAId

(1) Concatenation of the carrierIdentification, the iataFlightNumber and optionally a suffix.

- (2) a) carrierIdentification - Code of the Aircraft Operator of the identified flight as defined in the Schedule [AIDX, UFI].  
Examples: - BA
- b) iataFlightNumber - IATA flight number of the identified flight as defined in the Schedule [AIDX, UFI].  
Examples: - 066
- c) suffix - Suffix of the IATA flight number as defined in the Schedule [AIDX, UFI].  
Examples: - Z

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(3) Pattern: (UALPHA|DIGIT){2}(UALPHA|DIGIT|\*){0,1}DIGIT{3,4}UALPHA{0,1}

(4) Used by: [GeneralAPIRequest](#), [ArrivalInformation](#), [PredictedDPIRequest](#).

## 4.12. typedef<string> AircraftICA0Id

(1) ICAO aircraft identification as defined in ICAO doc 4444 Appendix 2, section 2.

(2) Pattern: (ALPHA|DIGIT){2,7}

(3) Used by: [CDMInfo](#), [AircraftIdentification](#), [FlightInformationUpdateRequest](#), [UpdateDPIRequest](#).

## 4.13. AircraftIdentification

(1) Aircraft identification: groups the ICAO aircraft id (designator of the aircraft operator followed by the flight identifier) possibly completed with other related data, e.g. registration mark and ICAO aircraft address.

(2) Attributes:

a) [AircraftICA0Id](#) **aircraftId** (*Contextual*)

Aircraft ICAO id.

Presence:

i) Optional in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Mandatory otherwise.

b) [AircraftRegistrationMark](#) **registrationMark** (*Optional*)

Registration mark of the aircraft.

c) [ICA0AircraftAddress](#) **aircraftAddress** (*Contextual*)

ICAO address of the aircraft, formerly known as mode S address.

Presence:

i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Optional otherwise.

d) [SSRInfo](#) **ssrInfo** (*Contextual*)

SSR code assigned to the aircraft by the ATS and its transmission mode.

Presence:

i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Optional otherwise.

(3) Used by: [FlightPlan](#).

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#### 4.14. AircraftIdentificationUpdate

- (1) See [AircraftIdentification](#).
- (2) Attributes:
  - a) [AircraftRegistrationMark](#) registrationMark (Optional)
  - b) [ICAOAircraftAddress](#) aircraftAddress (Optional)
  - c) [SSRInfo](#) ssrInfo (Optional)
- (3) Used by: [FlightPlanUpdate](#).

#### 4.15. typedef<string> AircraftOperatorIATAId

- (1) IATA id of an aircraft operator.
- (2) Examples: AF, BA, AAL, A3, 9P, 2V\*,...
- (3) Pattern: (UALPHA|DIGIT){2}(UALPHA|DIGIT|\*){0,1}
- (4) Used by: [FlightSetDefinitionElement](#).

#### 4.16. typedef<string> AircraftOperatorIATAOrICAOId

- (1) IATA or ICAO id of an aircraft operator.
- (2) Pattern: UALPHA{3}|(UALPHA|DIGIT){2}(UALPHA|DIGIT|\*){0,1}
- (3) Used by: [ACC3Accreditation](#).

#### 4.17. typedef<string> AircraftOperatorICAOId

- (1) Examples: AFR, BAW, TAP,...
- (2) Pattern: ALPHA{3}
- (3) Used by: [FlightListByLocationRequest](#), [TrafficCountsByAircraftOperatorRequest](#), [Flight](#), [StructuredFlightPlanData](#).

#### 4.18. typedef<string> AircraftOperatorName\_DataType

- (1) Examples: XJC XCLUSIVE JET CHARTER AND MANAGEMENT 442380696992, ZENITH AVIATION, TURKISH AIR FORCE,...
- (2) Pattern: (UALPHA|DIGIT|'|\(|\)|+|,|=|?|.|/|:|WHITESPACE){0,50}
- (3) Used by: [OtherInformation](#).

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## 4.19. <<enumeration>> AircraftPerformanceCategory

- (1) Aircraft performance categories as defined in the Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS, Doc 8168).
- (2) Values:

Value	Description
CAT_A	less than 169 km/h indicated airspeed (IAS)
CAT_B	169 km/h or more but less than 224 km/h IAS
CAT_C	224 km/h or more but less than 261 km/h IAS
CAT_D	261 km/h or more but less than 307 km/h IAS
CAT_E	307 km/h or more but less than 391 km/h IAS
CAT_H	Helicopters

Table 4.1. <<enumeration>> AircraftPerformanceCategory

- (3) Used by: [OtherInformation](#).

## 4.20. AircraftPositionReport

- (1) This type is used to provide aircraft position report.
- (2) Attributes:
  - a) **[FourDFlightPoint](#) position** (Mandatory)  
The position.
- (3) Used by: [FlightUpdateChoice](#).

## 4.21. typedef<string> AircraftRegistrationMark

- (1) Examples:011, 0216, GEUYC, Z BAM, YV2726, QH3023T, HT21A 1 ...
- (2) Pattern: (ALPHA|DIGIT|'|+|=|?|.|/|:| ) {1,50}
- (3) Used by: [FlightUpdateRequest](#), [GeneralAPIRequest](#), [ArrivalInformation](#), [FlightListByAircraftRegistrationMarkRequest](#), [AircraftIdentificationUpdate](#), [TCOAuthorisation](#), [CDMInfo](#), [Flight](#), [FlightSetDefinitionElement](#), [AircraftIdentification](#), [UpdateDPIRequest](#).

## 4.22. AircraftType

- (1) Describes an aircraft type in the flight plan context.
- (2) Choices:

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- a) [AircraftTypeICAOId](#) **icaoId**  
The ICAO id of this aircraft type.
- b) [OtherAircraftTypeDesignation\\_DataType](#) **otherDesignation**  
Name of the aircraft type if no ICAO id exists for this aircraft type (ICAO TYP/ field).

(3) Used by: [CDMInfo](#), [FlightPlanUpdate](#), [FlightPlan](#).

#### 4.23. typedef<string> AircraftTypeIATAId

- (1) IATA identifier of an aircraft type.
- (2) Examples: 320, 744, D20,...
- (3) Pattern: (UALPHA|DIGIT){3}
- (4) Used by: [CDMInfo](#), [UpdateDPIRequest](#).

#### 4.24. typedef<string> AircraftTypeICAOId

- (1) ICAO identifier of an aircraft type.
- (2) Examples: A7, A50, A310, A30B, AA1, AC5A,...
- (3) Pattern: ALPHA{1}(ALPHA|DIGIT){1,3}
- (4) Used by: [FlightUpdateRequest](#), [GeneralAPIRequest](#), [AircraftType](#), [ArrivalInformation](#), [Flight](#), [DepartureInformation](#), [EnRouteInformation](#), [UpdateDPIRequest](#).

#### 4.25. AirFiledData

- (1) Estimate data for an air-filed (AFIL) flight plan, i.e. a point, the joining flight level and the estimate date/time at this point. Note that the flight level indicated is the level at which the flight has been cleared to join controlled airspace over the point indicated: it does not have to be the same as the requested flight level.
- (2) Attributes:
  - a) [AtsUnitId\\_DataType](#) **atsUnitId** (*Optional*)  
ICAO id of the ATS unit from which supplementary flight plan data can be obtained.
  - b) [ICAOPoint](#) **startingPoint** (*Mandatory*)  
Starting point.
  - c) [FlightLevel](#) **clearedLevel** (*Mandatory*)  
Level at which the aircraft has been cleared to join controlled airspace over the given point.
  - d) [DateTimeSecond](#) **estimatedTimeOver** (*Mandatory*)  
Estimated date/time over the given point.

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- (3) Used by: [FlightPlan](#).

## 4.26. AlternateAerodrome

- (1) An alternate aerodrome. It is represented as either an ICAO aerodrome code or a free text description of the aerodrome if no ICAO code exist (ZZZZ used in ICAO message).
- (2) Choices:
- a) **[AerodromeICAOId](#) icaoId**  
The ICAO id of this aerodrome.
  - b) **[AerodromeNameLocationDescription\\_DataType](#) nameLocationDescription**  
Description of name and location of the aerodrome if the ICAO id is not provided for this aerodrome.

- (3) Used by: [AerodromesOfDestination](#), [FlightPlanUpdate](#).

## 4.27. typedef<string> AlternateAerodrome\_DataType

- (1) Aerodromes where the aircraft may land in case of emergency along the route.
- (2) Pattern: ANY{1,100}
- (3) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

## 4.28. APISubmissionRules

- (1) Identifies the API (Arrival Planning Information) service(s) that can be used to submit TTA (Target Time of Arrival) requests for this flight.
- (2) The general rule is that TargetTakeOffAPIRequest should be used for pre-departure flights, and TargetTimeOverAPIRequest should be used for flights in execution phase, with an overlapping time period before off-block when any of the two services can be used.
- (3) Attributes:
- a) **[DateTimeMinute](#) latestSubmissionTargetTakeOffAPI** *(Optional)*  
The deadline for submission of a TTA request using TargetTakeOffAPIRequest service. Usually the deadline is OBT - TRS but other rules may apply.  
If the field is not present, it means that TargetTakeOffAPIRequest cannot be used, because the deadline has already expired, or any other reason (e.g. the flight status doesn't allow it, or the CTOT has been forced in an en-route regulation).
  - b) **[DateTimeMinute](#) earliestSubmissionTargetTimeOverAPI** *(Optional)*  
The starting time for submission of a TTA request using TargetTimeOverAPIRequest service. If the field is not present, it means that TargetTimeOverAPIRequest cannot be used (e.g. because the flight status doesn't allow it).
- (4) Used by: [Flight](#).

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## 4.29. ArrivalInformation

(1) Attributes:

- a) [ATVFlightStatusInbound](#) **flightStatusInbound** *(Mandatory)*  
The last ATV flight status inbound provided by a valid API.
- b) [AircraftRegistrationMark](#) **registrationMark** *(Optional)*  
The last aircraft registration mark provided by a valid GeneralAPI.
- c) [AircraftTypeICAOId](#) **aircraftType** *(Optional)*  
The last ICAO Aircraft type provided by a valid GeneralAPI.
- d) [AircraftIATAId](#) **aircraftIATAId** *(Optional)*  
The last aircraft IATA identifier provided by a valid GeneralAPI.
- e) [DurationHourMinute](#) **arrivalTaxiTime** *(Optional)*  
The last estimated or actual taxi time from landing to gate provided by a valid GeneralAPI.
- f) [TerminalProcedure](#) **apiArrivalProcedure** *(Optional)*  
The last Standard Instrument Arrival Route identifier provided by a valid GeneralAPI and known by NMOC.
- g) [TerminalProcedure](#) **nmArrivalProcedure** *(Optional)*  
The identifier of the Standard Instrument Arrival Route currently selected by NMOC. It may differ from apiArrivalProcedure (if any) e.g. in case the apiArrivalProcedure doesn't connect to the en-route part.
- h) [RunwayId](#) **arrivalRunway** *(Optional)*  
The identifier of the last assigned arrival runway provided by a valid GeneralAPI.
- i) [TerminalOrApronStandName](#) **arrivalTerminal** *(Optional)*  
The identifier of the last arrival terminal provided by a valid GeneralAPI.
- j) [TerminalOrApronStandName](#) **arrivalApronStand** *(Optional)*  
The identifier of the last arrival apron stand provided by a valid GeneralAPI.
- k) [DurationHourMinute](#) **minimumTurnaroundTime** *(Optional)*  
The last minimum turn-around time provided by a valid GeneralAPI.
- l) [DateTimeMinute](#) **landingTime** *(Optional)*  
The last estimated or actual landing time provided by a valid GeneralAPI.
- m) [DateTimeMinute](#) **scheduledInBlockTime** *(Optional)*  
The last scheduled in-block time provided by a valid GeneralAPI.
- n) [DateTimeMinute](#) **inBlockTime** *(Optional)*  
The last estimated or actual in-block time provided by a valid GeneralAPI.
- o) [DateTimeMinute](#) **airportSlotArrival** *(Optional)*



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The last airport arrival slot provided by a valid GeneralAPI.

- p) **ImpactSeverityIndicator impactSeverityIndicator** *(Optional)*  
The last impact assessment of a non-punctual arrival provided by a valid GeneralAPI.
- q) **AerodromeOrPublishedPointId coordinationFix** *(Optional)*  
The coordination fix for the target time(s) provided by the last valid TargetTakeOffAPI or TargetTimeOverAPI.
- r) **DateTimeMinute targetTimeOver** *(Optional)*  
The target time over the coordination fix provided by the last valid TargetTimeOverAPI. Reset to null on reception of a TargetTakeOffAPI.
- s) **DateTimeMinute earliestTargetTimeOver** *(Optional)*  
The earliest target time over the coordination fix provided by the last valid TargetTakeOffAPI. Reset to null on reception of a TargetTimeOverAPI.
- t) **DateTimeMinute consolidatedTargetTimeOver** *(Optional)*  
The consolidated target time over the coordination fix provided by the last valid TargetTakeOffAPI. Reset to null on reception of a TargetTimeOverAPI.
- u) **DateTimeMinute calculatedTimeOver** *(Optional)*  
The calculated (by NMOC) time over the coordination fix in response to the last valid TargetTakeOffAPI.
- v) **RegulationId regulationId** *(Optional)*  
The identifier of the arrival-related regulation indicated by the last valid TargetTakeOffAPI. Reset to null on reception of a TargetTimeOverAPI.
- w) **DateTimeMinute minCalculatedTimeOver** *(Optional)*  
The minimum possible calculated time over the coordination fix that could be returned in calculatedTimeOver if there were no regulation more penalising than regulationId. This value depends on the flight plan time over and the target take-off times from departure airport (if A-CDM).  
It is null if the flight no longer crosses the coordination fix or is no longer subject to regulationId.
- x) **DateTimeMinute maxCalculatedTimeOver** *(Optional)*  
The maximum possible calculated time over the coordination fix that can be returned in calculatedTimeOver. This value corresponds to the end of the period of regulationId, adjusted by the duration between entry time into regulationId and time over the coordination fix.  
It is null if the flight no longer crosses the coordination fix or is no longer subject to regulationId.
- y) **DateTimeMinute estimatedOrActualTimeOver** *(Optional)*  
The most accurate time over the coordination fix known by NMOC.  
It is null if the flight no longer crosses the coordination fix.

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- (2) Used by: [Flight](#).

## 4.30. <<abstract>> ArrivalPlanningInformationRequest

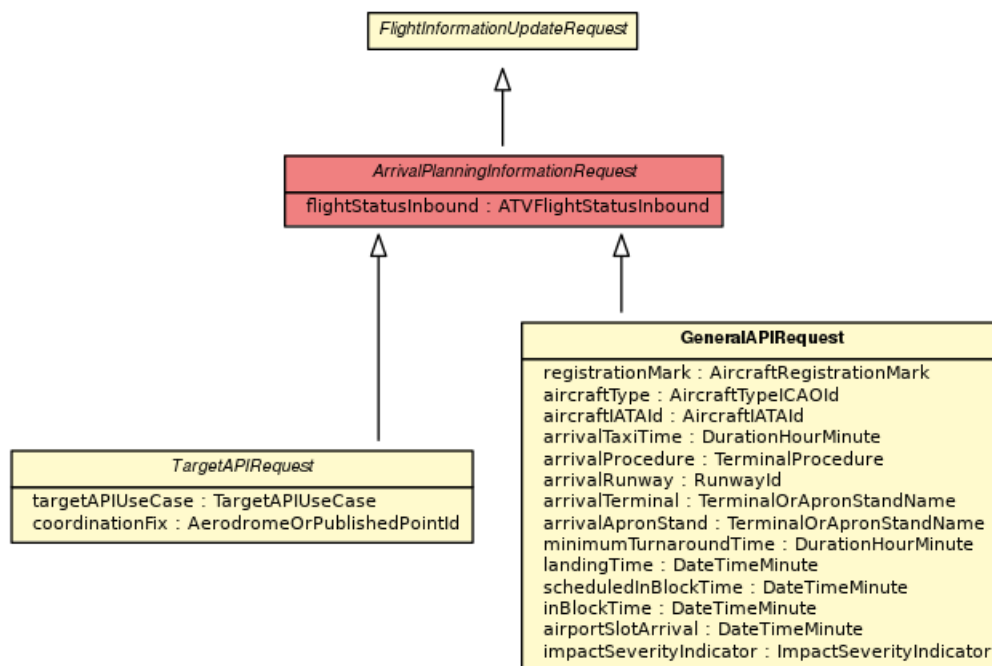


Figure 4.1. <<abstract>> ArrivalPlanningInformationRequest Class Diagram

- (1) Base class of all Arrival Planning Information requests.
- (2) Inherits from: [FlightInformationUpdateRequest](#).
- (3) Attributes:
- [ATVFlightStatusInbound](#) **flightStatusInbound** (Mandatory)  
Flight Status as known by the airport, for an inbound flight.
- (4) Extended by: [GeneralAPIRequest](#), [TargetAPIRequest](#).

## 4.31. ATFMComment

- (1) Mapping between an enumeration and a textual message for a particular ATFM information.
- (2) Attributes:
- [ATFMCommentType](#) **code** (Mandatory)  
Enumerated list of codes representing the different textual message associated to ATFM information.
  - string message** (Mandatory)

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Textual representation of *code* defined in [ATFMCommentType](#).

- (3) Used by: [FlightInformationUpdateReplyData](#).

## 4.32. <<enumeration>> **ATFMCommentType**

- (1) Represents a comment returned by the ETFMS system in a reply to some operations (e.g. DPI submission).
- (2) The comment may represent an error that prevented an operation from being executed or a warning in case the operation could still be executed (or partially executed).
- (3) Values:
- a) **AD\_AS\_PT\_NOT\_AVAILABLE**  
AERODROME OR AIRSPACE OR POINT NOT AVAILABLE
  - b) **ATFM\_MSGS\_AT\_EOBT\_MINUS\_2\_HOURS**  
NEW ATFM MESSAGES MAY POSSIBLY BE PUBLISHED AT 2 HOURS BEFORE THE EOBT
  - c) **CCACS\_NO\_CODE\_YET**  
MESSAGE RECEIVED BUT CCAMS DID NOT SELECT A CODE YET
  - d) **CTOT\_ALREADY\_EXTENDED**  
CTOT ALREADY EXTENDED
  - e) **CTOT\_OUTSIDE\_RANGE**  
THE NEW CTOT OF SPA/SRJ MESSAGE IS OUTSIDE ACCEPTABLE RANGE AROUND THE NEW CTOT OF SIP MESSAGE
  - f) **DO\_NOT\_CONFIRM\_NON\_SUSPENDED\_FLIGHT**  
NO NEED TO CONFIRM NON SUSPENDED FLIGHT
  - g) **DPI\_MSGS\_INCORRECT\_SEQUENCE**  
DPI MESSAGES NOT IN CORRECT SEQUENCE
  - h) **EOBT\_BEFORE\_LAST\_OBT**  
THE NEW EOBT IS BEFORE THE LAST RECEIVED OBT
  - i) **EOBT\_DLA\_EXPECTED**  
PLEASE UPDATE EOBT WITH A DLA MSG
  - j) **FCM\_CONFIRMING\_DELAY\_ONLY\_AFTER\_SIT1**  
FCM CONFIRMING DELAY ONLY ALLOWED AFTER SIT1
  - k) **FCM\_IGNORED\_FOR\_FAM\_SUSPENDED**  
CONFIRMATION MSG IGNORED FOR FLIGHT SUSPENDED BY FAM PLEASE USE DLA OR CHG INSTEAD

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- l) **FCM\_IGNORED\_FOR\_PAST\_TOT**  
CONFIRMATION MSG IGNORED FOR FLIGHT WITH TAKE OFF TIME IN THE PAST  
PLEASE USE DLA OR CHG INSTEAD
- m) **FILING\_TIME\_OUTSIDE\_RANGE**  
FILING TIME TOO OLD OR IN FUTURE
- n) **FIX\_NOT\_ON\_ROUTE**  
COORDINATION FIX NOT ON ROUTE
- o) **FIX\_UNKNOWN**  
COORDINATION FIX UNKNOWN
- p) **FLIGHT\_ALREADY\_ACTIVATED**  
FLIGHT ALREADY ACTIVATED
- q) **FLIGHT\_ALREADY\_IN\_THAT\_STATE**  
FLIGHT ALREADY IN THAT STATE
- r) **FLIGHT\_ALREADY\_READY**  
FLIGHT ALREADY READY TO DEPART
- s) **FLIGHT\_ALREADY\_TERMINATED**  
FLIGHT ALREADY TERMINATED
- t) **FLIGHT\_ALREADY\_UNDER\_ATC\_CONTROL**  
FLIGHT ALREADY UNDER ATC CONTROL
- u) **FLIGHT\_HAS\_RECEIVED\_ARR\_MSG**  
MESSAGE IGNORED FOR FLIGHT THAT HAS RECEIVED ARR MESSAGE
- v) **FLIGHT\_IS\_CANCELLED**  
FLIGHT IS CANCELLED
- w) **FLIGHT\_IS\_MANUALLY\_SUSPENDED**  
FLIGHT IS MANUALLY SUSPENDED
- x) **FLIGHT\_IS\_SUPPOSED\_AIRBORNE**  
FLIGHT IS SUPPOSED AIRBORNE
- y) **FLIGHT\_IS\_SUSPENDED**  
FLIGHT IS SUSPENDED
- z) **FLIGHT\_IS\_SUSPENDED\_DUE\_TO\_INVALID\_ROUTE**  
FLIGHT IS SUSPENDED, ROUTE INVALID DUE TO DELAY, SEE ERROR(S),  
PLEASE SEND DLA/CHG OR REROUTE THE FLIGHT
- aa) **FLIGHT\_NOT\_YET\_CONFIRMED\_BY\_FPL**  
MESSAGE RECEIVED BUT FLIGHT NOT YET CONFIRMED BY FLIGHT PLAN

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- ab) **FLIGHT\_REROUTED\_BY\_AO**  
FLIGHT REROUTED BY AO
- ac) **FLIGHT\_REROUTED\_FPL\_CANCELED**  
FLIGHT REROUTED BY AO FPL CANCELLED
- ad) **FLIGHT\_SUSPENDED\_BY\_IFPS\_REVAL**  
FLIGHT IS SUSPENDED BY IFPS REVALIDATION
- ae) **GENERALLY\_EXEMPTED**  
FLIGHT IS GENERALLY EXEMPTED FROM REGULATIONS
- af) **HOURLY\_LIMIT\_FOR\_AUTOMATIC\_CTOT\_EXTENSIONS\_EXCEEDED**  
HOURLY LIMIT FOR AUTOMATIC CTOT EXTENSIONS EXCEEDED
- ag) **INCONSISTENT\_IFPLID**  
IFPLID IN MESSAGE DOES NOT MATCH IFPLID OF FOUND FLIGHT
- ah) **INVALID\_ROUTE\_BY\_IFPS\_REVAL**  
INVALID ROUTE BY IFPS REVALIDATION
- ai) **INVALID\_ROUTE\_DUE\_TO\_TTOT\_OR\_SID\_CHANGE**  
INVALID ROUTE DUE TO TTOT OR SID CHANGE
- aj) **IRRELEVANT\_REGULATIONS**  
MESSAGE CONTAINS IRRELEVANT REGULATIONS
- ak) **METEO\_UPDATE**  
METEO UPDATE
- al) **MINLINEUP\_OUTSIDE\_RANGE**  
PROVIDED MINLINEUP OUTSIDE ACCEPTED RANGE [<MIN\_MINLINEUP>,<MAX\_MINLINEUP>]
- am) **MISSING\_RVR\_OR\_REGUL**  
MESSAGE REJECTED BECAUSE RVR AND/OR REGULATION MUST BE PROVIDED
- an) **NOT\_AUTHORIZED**  
NOT AUTHORISED TO SEND THIS MESSAGE
- ao) **NOT\_EXISTING\_FLIGHT**  
NOT EXISTING FLIGHT
- ap) **NOT\_IN\_VALID\_PERIOD**  
NOT IN VALID PERIOD
- aq) **NOT\_REPORTED\_AIRBORNE**  
NOT REPORTED AS AIRBORNE
- ar) **NOT\_REPORTED\_OFF\_BLOCK**

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NOT REPORTED OFF BLOCK

- as) **NOT\_SUBJECT\_TO\_REGUL**  
NOT SUBJECT TO REGULATION
- at) **NO\_MORE\_SSR\_CODES**  
NO MORE SSR CODES AVAILABLE FOR THIS FLIGHT
- au) **NO\_SLOT\_ISSUED**  
MESSAGE RECEIVED BUT NO SLOT HAS BEEN ISSUED
- av) **REJECTED\_DUE\_TO\_FORCED\_CTOT**  
REJECTED DUE TO FORCED CTOT
- aw) **REROUTE\_CONDITION\_CHANGED**  
REROUTE CONDITION CHANGED
- ax) **REROUTE\_TIMEOUT**  
REROUTE TIMEOUT
- ay) **RVR\_CRITERIA\_NOT\_MET**  
RVR CRITERIA NOT MET
- az) **RVR\_UNKNOWN**  
UNKNOWN RVR
- ba) **SMM\_FOR\_SUSPENDED\_FLIGHT**  
SLOT MISSED MESSAGE RECEIVED FOR A SUSPENDED FLIGHT
- bb) **SMM\_RECEIVED**  
SMM RECEIVED
- bc) **SPA\_BUT\_NO\_SIP**  
SPA MESSAGE WHILE NO ON GOING SIP
- bd) **SPA\_BUT\_RRP\_ONGOING**  
SPA MESSAGE WHILE AN RRP IS ON GOING
- be) **SUSPENDED\_BY\_DEP\_AIRPORT**  
SUSPENDED BY DEPARTURE AIRPORT
- bf) **SUSPENDED\_DELAY\_EXCEEDING\_THRESHOLD**  
SUSPENDED DUE TO DELAY EXCEEDING THRESHOLD VALUE.  
SEND FCM BEFORE RESPBY TO SECURE PTOT. ALTERNATIVELY, REROUTE, OR  
UPDATE EOBT WITH A DLA MSG, OR CNL
- bg) **TAKE\_OFF\_TIME\_OUT\_OF\_BOUNDS**  
PROVIDED TAKE OFF TIME OUT OF BOUNDS
- bh) **TAXI\_TIME\_OUT\_OF\_RANGE**

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TAXI TIME OUT OF RANGE

- bi) **TIME\_OUT\_OF\_RANGE**  
A TIME FIELD IS OUTSIDE ACCEPTABLE RANGE
- bj) **TOO\_EARLY**  
MESSAGE RECEIVED TOO EARLY
- bk) **TOO\_EARLY\_OR\_TOO\_LATE**  
MESSAGE RECEIVED TOO EARLY OR TOO LATE
- bl) **TOO\_LATE**  
MESSAGE RECEIVED TOO LATE
- bm) **TTOT\_OUTSIDE\_TOLERANCE\_WINDOW**  
TTOT OUTSIDE SLOT TOLERANCE WINDOW
- bn) **TTO\_OUTSIDE\_REGUL**  
TTO OUTSIDE REGULATION PERIOD
- bo) **UNDER\_CDM\_AT\_DEP\_AIRPORT**  
FLIGHT MANAGED BY CDM PROCESS AT DEPARTURE AIRPORT
- bp) **UNIT\_DIFFERENT\_THAN\_ASSIGNING\_UNIT**  
MESSAGE RECEIVED FROM UNIT OTHER THAN THE ASSIGNING UNIT
- bq) **UNREALISTIC\_TTO**  
UNREALISTIC TTO

(4) Used by: [ATFMComment](#).

### 4.33. <<enumeration>> ATFMMessageType

- (1) Enumerates ATFM message types.
- (2) Values:
  - a) **DES**  
DE-Suspension message  
NM sends a DES when a flight not subject to ATFCM restrictions is de-suspended.
  - b) **ERR**  
ERRor message  
NM sends an ERR message when a message is received where:
    - i) Its syntax is incorrect and, therefore, cannot be processed or
    - ii) The message or a part of the message is not relevant.
  - c) **FCM**

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Flight Confirmation Message.  
when:

- i) An AO indicates to ETFMS the RVR capability of a flight with an EOBT in the future. Flight Confirmation Message.
- ii) An AO indicates to ETFMS that a flight with an EOBT in the future is now confirmed for the regulation(s) provided in this FCM.
- iii) An AO indicates to ETFMS that a flight with an EOBT in the future is now confirmed for the regulation(s) provided in this FCM.
- d) **FLS**  
FLight Suspension message  
Flight suspension until further notice. In case of:
  - i) Aerodrome closure.
  - ii) Runway Visual Range (RVR) unknown.
  - iii) Reception of an SMM message.
  - iv) Not reported as airborne.
  - v) Suspended by departure airport (cancel DPI message).
- e) **FUM**  
Flight Update Message.  
The FUM provides the airport of destination with the estimated landing time (ELDT). It also informs about the status of the flight (e.g. received a-DPI, Airborne, ATFM status...).
- f) **REA**  
REAdy message.  
The REA message can only be sent by ATC following a request from AO.  
AO may ask ATC to send REA in 2 situations:
  - i) The flight is ready to depart before the EOBT (maximum 30 minutes before).
  - ii) The flight is ready to depart before its CTOT.
- g) **RFI**  
Ready For Improvement message.  
The RFI message can be sent by the AO in order to receive improvements directly with an SRM.
- h) **RJT**  
Rerouteing reJecTion (RJT) message  
An RJT is a negative response to a Rerouteing Proposal (RRP) message.
- i) **RRN**  
ReRouteing Notification message



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The RRN message is issued in case of an acceptance of the rerouteing with option 'CNL original FPL', book slot and flight plan refile by the AO via SITA/AFTN.

- j) **RRP**  
ReRouteing Proposal message  
A sudden deterioration across the network would certainly be noticed when one of the ACCs reduces capacity resulting in excessive delays for example. ATFCM staff shall assess the situation before any decision is made. Assessment would include the best and worst case scenarios with alternatives to both. RRP will be one of the solutions to mitigate potential delays.ReRouteing Proposal message
- k) **SAM**  
Slot Allocation Message.  
A SAM is sent to AOs/ATS any time a flight becomes regulated (new flight entering the system, new period of regulation in the system, in response to an FCM or CHG providing new RVR after a suspension) but at the earliest 2 hours before the last received EOBT.
- l) **SIP**  
Slot Improvement Proposal message.  
A SIP message is sent to the AO by NM for a flight not being in an RFI status to propose a new take-off time if it is possible to improve the existing CTOT by a significant amount.
- m) **SLC**  
SLOT requirement Cancellation message  
An SLC is sent to AOs/ATS to advise that a flight which has received a CTOT is no longer subject to an ATFCM restriction. It may be due to the change in parameters of an existing restriction or its cancellation, or to the reception of a message from AOs such as DLA, CHG, and FCM.
- n) **SMM**  
Slot Missed Message.  
An SMM is sent when the last received CTOT issued cannot be met and a new EOBT is NOT known.
- o) **SPA**  
Slot improvement Proposal Acceptance (SPA) message  
An SPA is a positive response to a SIP which is received from NM. The AO will send an SPA if the proposed NEWCTOT in the SIP is acceptable.
- p) **SRJ**  
Slot improvement proposal ReJection (SRJ) message.  
An SRJ is a negative response to a SIP received from NM. The AO will send an SRJ if they are unable to accept the proposed improvement.
- q) **SRM**  
Slot Revision Message.  
An SRM may be sent by NM:

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- i) To notify all concerned of either a significant change (>5') to the original CTOT or a modification of the most penalising regulation or both.  
Such changes are due to circumstances unrelated to the flight e.g. the introduction of a new restriction or a change to the parameters of an existing restriction.  
By default, only flights in an RFI status or in a Ready (REA) status are considered for improvement but if the situation requires it, the NM Flow Controllers are able to let all flights, including those in SWM status, be considered for improvement.
- ii) In response to a DLA or CHG when the current CTOT is no longer compliant with the new information.
- iii) To notify all concerned of a routine improvement of the CTOT by the revision process for a flight in an RFI status or in a Ready (REA) situation.
- iv) In response to a valid SPA to notify all concerned of the improvement of the CTOT.
- r) **SWM**  
SIP Wanted Message.  
The SWM allows the flight to receive a SIP when there is a possibility to improve the flight.
- s) **UNK**  
Unknown message.

(3) Used by: [Flight](#).

#### **4.34. typedef<string> AtsUnitId\_DataType**

- (1) ICAO id of the ATS unit from which supplementary flight plan data can be obtained.
- (2) Pattern: ANY{1,50}
- (3) Used by: [AirFiledData](#).

#### **4.35. <<enumeration>> ATVFlightStatusInbound**

- (1) Flight Status as known by the airport, for an inbound flight.
- (2) The Flight Status will be shared with operational stakeholders such as AOs, airports,... via e.g. NOP portal, B2B web services, P/S...
- (3) The Flight Status is defined in OFA 05.01.01 appendix E.
- (4) Values:
  - a) **AIR**  
Airborne - The aircraft has just taken off from the origin airport.
  - b) **CNX**  
Cancelled - Flight has been cancelled.

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- c) **DBC**  
De-Boarding Completed - The aircraft is on stand and all passengers disembarked the aircraft.
- d) **DBR**  
De-Boarding - The de-boarding of passenger has started.
- e) **DIV**  
Diverted - Flight has been diverted.
- f) **FIR**  
Within FIR boundary - The aircraft has entered local FIR of destination airport.
- g) **FNL**  
On final approach - The aircraft has got to the FAF or FAP (Final Approach Fix point) and proceeds to fly the final approach segment towards the airport.
- h) **GOA**  
Go Around - Going around not yet landed.
- i) **IBK**  
In block at the stand.
- j) **IDH**  
In definitive hold - The aircraft is airborne, normally in a stack, and unable to continue approach.
- k) **INI**  
Initiated - The aircraft operation has been confirmed (ICAO FPL filed/activated in airport system).  
This status has the equivalent objective as the 'Initial' status in CDM.
- l) **SCH**  
Schedule data - Flight is scheduled.
- m) **TMA**  
Terminal Area - The aircraft has entered local TMA of destination airport.
- n) **TXI**  
Landed / Taxi-ing - The aircraft is on ground and rolling to the stand.

(5) Used by: [ArrivalInformation](#), [ArrivalPlanningInformationRequest](#).

#### **4.36. <<enumeration>> ATVFlightStatusOutbound**

- (1) Flight Status as known by the airport, for an outbound flight.
- (2) FlightStatus is defined in OFA 05.01.01 appendix E.
- (3) Values:

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- a) **BRC**  
Boarding Completed - The aircraft is on the stand and all passengers are on board.
- b) **BRD**  
Boarding - The aircraft is on the stand and passengers are boarding.
- c) **CNX**  
Cancelled - The IATA Flight has been cancelled by the airline.
- d) **DEI**  
De-icing in Progress - The aircraft is being de-iced (either on its stand or on the de-icing pad).
- e) **DEP**  
Departure - The aircraft has taken off from the origin airport.
- f) **INI**  
Initiated - The aircraft operation has been confirmed (ICAO FPL filed/activated in airport system).
- g) **OBK**  
Off Block - Off block/taxi-out. The aircraft is taxiing to the departure runway (either from the stand or from the de-icing pad).
- h) **RDI**  
Ready for De-icing - The aircraft is on the de-icing position (either on its stand or on the de-icing pad).
- i) **RDY**  
Ready - Aircraft is ready to depart immediately upon reception of TWR instructions.
- j) **RET**  
Returning - The aircraft is returning after take-off.
- k) **RPO**  
Repositioning or Towing - Aircraft is being towed or is taxiing from another stand (e.g. maintenance, engine test).
- l) **RTN**  
Returning on Ground - The aircraft is returning to the stand before taking off.
- m) **SCH**  
Schedule data - The flight is scheduled.
- n) **TXD**  
De-icing Taxi - The aircraft is taxiing to a remote de-icing position.

(4) Used by: [CDMInfo](#), [DeparturePlanningInformationRequest](#).

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## 4.37. BasicTrajectoryData

- (1) The BasicTrajectoryData groups together information helping NM calculating the trajectory as close as possible to the trajectory calculated by the AO's. This is an alternative to the exchange of the full 4D Trajectory between AO's and NM. This full 4D trajectory exchange is currently (2012-2013) under validation within SESAR projects.
- (2) Attributes:
  - a) **WeightKg takeOffWeight** *(Optional)*  
The weight of the aircraft at take-off.
- (3) Used by: [StructuredFlightPlanUpdate](#), [StructuredFlightPlan](#).

## 4.38. CDM

- (1) CDM (Collaborative Decision Making) systems located at airports provide DPI (Departure Planning Information) messages. Those DPI messages provide the NM system with more accurate information regarding the progression of the flights towards their take-off (taxi-time, target take-off time and departure procedure).
- (2) Detailed information regarding CDM and DPI can be found in the documents [DPI Implementation Guide](#) and [European Airport CDM](#).
- (3) Attributes:
  - a) **CDMStatus status** *(Mandatory)*  
Last known CDM status.
  - b) **DepartureAirportType AirportType** *(Mandatory)*  
Departure Airport Type.
  - c) **CDMInfo info** *(Optional)*  
CDM information, if available.
- (4) Used by: [Flight](#).

## 4.39. CDMInfo

- (1) CDM information regarding the progression of the flights towards their take-off (taxi-time, target take-off time and departure procedure).
- (2) Detailed information regarding CDM and DPI can be found in the documents [DPI Implementation Guide](#) and [European Airport CDM](#).
- (3) Attributes:
  - a) **DateTimeMinute turnaroundTargetTakeOffTime** *(Optional)*  
Corresponds to the turnaround target take-off time provided in an extended DPI, or to the (single) take-off time provided in an Early DPI (E-DPI) or Target DPI (T-DPI-t).

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- b) **[DateTimeMinute](#) earliestTargetTakeOffTime** *(Optional)*  
Corresponds to the earliest target take-off time provided in an extended DPI, or to the (single) take-off time provided in a Sequence DPI (T-DPI-s).
- c) **[DateTimeMinute](#) consolidatedTargetTakeOffTime** *(Optional)*  
Corresponds to the consolidated target take-off time provided in an extended DPI.
- d) **[DateTimeMinute](#) atcTargetTakeOffTime** *(Optional)*  
Corresponds to the ATC take-off time provided in an ATC DPI message (A-DPI).
- e) **[DurationHourMinuteSecond](#) taxiTime** *(Optional)*  
Corresponds to the latest taxi time received in a DPI message.  
Note that this might not be the same as the taxi time of any of the FTFM and RTFM and CTFM flight profile.
- f) **[boolean](#) offBlockTimeDiscrepancy** *(Mandatory)*  
Indicates if there exists a significant difference between the filed off-block time and the off-block time that NM possibly received through DPI messages.
- g) **[ATVFlightStatusOutbound](#) flightStatusOutbound** *(Optional)*  
Corresponds to the latest ATV flight status outbound received in an extended DPI.
- h) **[TerminalProcedure](#) departureProc** *(Optional)*  
Corresponds to the latest departure procedure received in a DPI message.
- i) **[RunwayId](#) departureRunway** *(Optional)*  
Corresponds to the latest departure runway received in an extended DPI.
- j) **[TerminalOrApronStandName](#) departureTerminal** *(Optional)*  
Corresponds to the latest departure terminal received in an extended DPI.
- k) **[TerminalOrApronStandName](#) departureApronStand** *(Optional)*  
Corresponds to the latest departure apron stand received in an extended DPI.
- l) **[boolean](#) aircraftTypeDiscrepancy** *(Optional)*  
Indicates if there exists a difference between the filed aircraft type and the aircraft type that NM possibly received through DPI messages.  
Optional: not present if aircraftType is null.
- m) **[AircraftType](#) aircraftType** *(Optional)*  
Corresponds to the latest aircraft type received in a DPI message.  
Cannot be null if aircraftTypeDiscrepancy is true.
- n) **[AircraftTypeIATAId](#) aircraftTypeIATA** *(Optional)*  
Corresponds to the latest aircraft type IATA code received in an extended DPI.
- o) **[AircraftRegistrationMark](#) registrationMark** *(Optional)*  
Corresponds to the latest registration mark received in a DPI message. It will not exceed 7 characters length as only one registration mark is passed (max length of the type is 50).

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- p) **boolean registrationMarkDiscrepancy** *(Optional)*  
Indicates if there exists a difference between the filed registration mark and the registration mark that NM possibly received through DPI messages.  
Optional: not present if registrationMark is null.
- q) **DepartureStatus departureStatus** *(Mandatory)*  
Indicates the currently known departing status of the flight.
- r) **DateTimeMinute targetOffBlockTime** *(Optional)*  
Target Off-Block Time (TOBT) that is received from the CDM Airport.
- s) **DateTimeMinute targetStartupApprovalTime** *(Optional)*  
Target Start-up Approval Time (TSAT) that is received from the CDM Airport.
- t) **AircraftICA0Id aircraftIdInbound** *(Optional)*  
Corresponds to the latest aircraft ICAO id of preceding leg received in an extended DPI.
- u) **IFPLId ifplIdInbound** *(Optional)*  
Corresponds to the latest unique IFPL identifier of preceding leg received in an extended DPI.
- v) **AircraftRegistrationMark registrationMarkInbound** *(Optional)*  
Corresponds to the latest aircraft registration mark of preceding leg received in an extended DPI.
- w) **ReasonForDPICancellation cancelReason** *(Optional)*  
Corresponds to the reason provided with the last CancelDPI message (C-DPI) if any.  
Available only when a C-DPI message has been received, and has not been followed by any other kind of DPI message.

(4) Used by: [CDM](#).

#### 4.40. <<enumeration>> CDMStatus

(1) Enumerates the possible CDM status values.

(2) Values:

- a) **ACTUAL\_OFFBLOCK**  
ATC DPI received from a CDM airport or from an advanced ATC/TWR.
- b) **DEPARTING\_FROM\_CDM\_AIRPORT**  
no DPI received yet from a CDM airport or from an advanced ATC/TWR.
- c) **DEPARTING\_FROM\_STANDARD\_AIRPORT**
- d) **ESTIMATED**  
early DPI received from a CDM airport or from an advanced ATC/TWR.
- e) **PREDICTED**

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Predicted DPI (P-DPI) received from a CDM airport.

f) **PRE\_SEQUENCED**  
target start-up approval DPI (T-DPI-s) received from a CDM airport and compliant with the departure tolerance window.

g) **TARGETED**  
aircraft operator target DPI (T-DPI-t) received from a CDM airport.

(3) Used by: [CDM](#).

#### 4.41. <<enumeration>> CfmufFlightType

(1) Indicates state and/or origin of flight in the NM system.

(2) Values:

Value	Description
<b>ACT</b>	Flight is ATC activated.
<b>IFPL</b>	Flight created from a flight plan filed to IFPS.
<b>MFD</b>	Mini-flight created for the usage of CCAMS when the flight is unknown to NM.
<b>PREDICTED_FLIGHT</b>	Predicted flight data.
<b>RPL</b>	Flight created from a repetitive flight plan prior to the generation of the individual flight plan.
<b>TACT_ACTIVATED</b>	Flight activated by NM.
<b>TERMINATED</b>	Flight is terminated.

Table 4.2. <<enumeration>> CfmufFlightType

(3) Used by: [Flight](#).

#### 4.42. typedef<string> Colour\_DataType

(1) Colour of the dinghies carried by the aircraft.

(2) Pattern: (ALPHA|DIGIT){1,51}

(3) Used by: [Dinghies](#).

#### 4.43. <<enumeration>> CTOTLimitReason

(1) Possible exceptional reasons that may affect the CTOT allocation of a flight.

(2) When a flight is regulated, its CTOT may delay the flight into one or more Flight Plan time dependent constraints (e.g. RAD restrictions, CDR2), therefore violating route and/or airspace restrictions.



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- (3) NM takes into account the route and airspace restrictions when a CTOT is allocated so that violations are avoided. The CASA algorithm takes into account the maximum delay to which the flight could be subject before it violates a route or an airspace restriction. When a slot is allocated by CASA `ctotLimitReason` attribute of the flight will be set to indicate if the delay was limited by the `Last Valid EOBT`. The `Last Valid EOBT` is the last valid EOBT acceptable for a flight before triggering Flight Plan processing errors.
- (4) The following cases are foreseen:
- (5)
- a) There is no `Last Valid EOBT` for the flight so the slot time has not been limited.
  - b) The flight's CTOT has been forced.
  - c) The delay of the flight is limited to the `Last Valid EOBT`.
  - d) The delay of the flight was limited firstly by the `Last Valid EOBT` but also by a yet more restrictive zero-rate or suspending regulation measure.
- (6) Values:
- a) **FORCED\_BY\_CHAMAN**  
The CTOT has been forced by Chaman.
  - b) **FORCED\_BY\_NMOC**  
The CTOT has been forced by NMOC.
  - c) **FORCED\_BY\_STAM\_MEASURE**  
The CTOT has been forced by a STAM measure.
  - d) **FORCED\_BY\_TOWER**  
The CTOT has been forced by the tower.
  - e) **LIMITED\_BY\_VIOLATION**  
CASA has based the CTOT on the `Last Valid EOBT` to avoid violations.
  - f) **LIMITED\_BY\_VIOLATION\_THEN\_ZERO\_RATE\_OR\_RVR**  
The same as for the `LIMITED_BY_VIOLATION` but, because this CTOT would give overlap with a (non-suspending) zero-rate or RVR subperiod, CASA has limited the CTOT further to the start time of the zero-rate or RVR subperiod.
  - g) **SLOT\_EXTENSION**  
The CTOT has been forced by NMOC on request from Aircraft Operator or departure tower (Slot Extension)
  - h) **SLOT\_TIME\_NOT\_LIMITED**  
There is no forced CTOT neither limitations by the `Last Valid EOBT` for the flight so the slot time has not been limited.
  - i) **WAS\_FORCED\_BY\_NMOC**  
The CTOT was manually forced by NMOC but is no longer forced.

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- (7) Used by: [Flight](#).

## 4.44. DataLinkCapabilities

- (1) Describes the data-link applications or capabilities of an aircraft.

- (2) Attributes:

a) [DataLinkCapabilities\\_DataType](#) value (Optional)

- (3) Used by: [OtherInformation](#).

## 4.45. typedef<string> DataLinkCapabilities\_DataType

- (1) Describes the data-link applications or capabilities of an aircraft.

- (2) Pattern: ANY{1, 50}

- (3) Used by: [DataLinkCapabilities](#).

## 4.46. <<enumeration>> DelayCharacteristics

- (1) Identifies the characteristics of the delay value associated to the flight.

- (2) Values:

Value	Description
<b>ADJUSTED_TO_CLOCK</b>	Set when the delay value of the flight is adjusted to the clock.
<b>EXCEEDS_DELAY_CONFIRMATION</b>	Set when the delay value calculated for the flight is exceeding the delay confirmation threshold of a regulation affecting the flight.

Table 4.3. <<enumeration>> DelayCharacteristics

- (3) Used by: [Flight](#).

## 4.47. DeltaEntry

- (1) Reports on flight deviation and intrusion by comparing the flight list for traffic type with demand or regulated demand or load.

- (2) The result indicates:

- (3) a) If the flight is an intruder versus the compared traffic type and if so, what kind of deviation causes the intrusion.
- b) The airspace origin of the deviation for an intruder, if applicable and identified.

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- c) The difference between the times, flight levels and geographical positions of the flight's entry point in the flight list and the flight list that is compared with.

(4) Attributes:

- a) **IntruderKind intruderKind** (*Mandatory*)  
Indicates if the flight in the other traffic type is an intruder and if so, what kind of deviation causes the intrusion.
- b) **AirspaceId originOfIntruder** (*Optional*)  
The origin of an airspace intruder is defined as the active ATC sector in which the deviation that caused the intrusion was initiated.
- c) **int deltaMinutes** (*Mandatory*)  
The difference between the first entry time in the flight list ([FlightListRequest.trafficType](#)) and the flight list that is compared with ([FlightListRequest.compareWithOtherTrafficType](#)). `deltaMinutes` returned by NM are always truncated to 999 minutes.  
Constraint: Range: [ - 999 , 999 ].
- d) **int deltaFlightLevel** (*Mandatory*)  
The difference between the first level at first entry in the flight list ([FlightListRequest.trafficType](#)) and the flight list that is compared with ([FlightListRequest.compareWithOtherTrafficType](#)).  
Constraint: Range: [ - 999 , 999 ].
- e) **DistanceNM deltaPosition** (*Mandatory*)  
The distance in nautical miles between the geographical positions of the flight's entry point in the flight list ([FlightListRequest.trafficType](#)) and the flight list that is compared with ([FlightListRequest.compareWithOtherTrafficType](#)).  
`deltaPosition` returned by NM are always truncated to 999 nautical miles.

- (5) Used by: [Flight](#).

#### 4.48. <<enumeration>> DepartureAirportType

- (1) Enumerates the possible Departure Airport Type values from which DPI messages could be received.
- (2) Values:

Value	Description
<b>ADVANCED_ATC_TWR</b>	Advanced ATC TWR Airport.
<b>CDM</b>	CDM airport.
<b>STANDARD</b>	Standard airport.

Table 4.4. <<enumeration>> DepartureAirportType

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- (3) Used by: [CDM](#).

## 4.49. DepartureData

- (1) Provide information related to the departure of the aircraft before it takes-off, so from off block to take-off.

- (2) Attributes:

- a) **[DurationMinute](#) taxiTime** (Mandatory)

The duration of the taxi time. This will be used by NM to calculate the take-off time by adding the taxiTime to the off-block time given for the flight plan. The taxiTime is provided in number of minutes that corresponds to what can be provided in an ICAO flight plan by using the RMK/TAXI:mi or in an ADEXP flight plan by using the field -TAXI mi; where mi is a number of minutes on 2 digits.

Constraint: See [INVALID\\_TAXI\\_TIME](#)

- (3) Constraint:

a)

Name	INVALID_TAXI_TIME
Attribute	<a href="#">taxiTime</a>
Description	The taxi time is limited to 90 minutes

- (4) Used by: [StructuredFlightPlanUpdate](#), [StructuredFlightPlan](#).

## 4.50. DepartureInformation

- (1) This type is used to provide information about a departing flight. For example it can be used by an airport ATC Tower to provide the actual take-off time (like in an FSA message), or to provide up-to-date information about the aircraft type and terminal procedure used.

- (2) Attributes:

- a) **[TerminalProcedure](#) departureProcedure** (Optional)

The actual departure procedure used for the flight.

- b) **[DateTimeMinute](#) takeOffTime** (Mandatory)

The take-off time. It can be either estimated or actual (see takeOffTimeQualifier).

- c) **[EstimateQualifier](#) takeOffTimeQualifier** (Mandatory)

Whether the provided takeOffTime is an estimate or an actual value.

Constraint: See [TAKE\\_OFF\\_TIME\\_QUALIFIER\\_MUST\\_BE\\_ACTUAL](#)

- d) **List<[ICAOPoint](#)> furtherRoute** (Optional)

The list of points that will be flown after the provided position. The provided position must be the first point at which the route changes.

Constraint: Size must be comprised between 1 and ∞.

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(3) Constraint:

a)	Name	TAKE_OFF_TIME_QUALIFIER_MUST_BE_ACTUAL
	Attribute	<a href="#">takeOffTimeQualifier</a>
	Description	takeOffTimeQualifier must be ACTUAL.

(4) Used by: [FlightUpdateChoice](#).

## 4.51. <<abstract>> DeparturePlanningInformationRequest

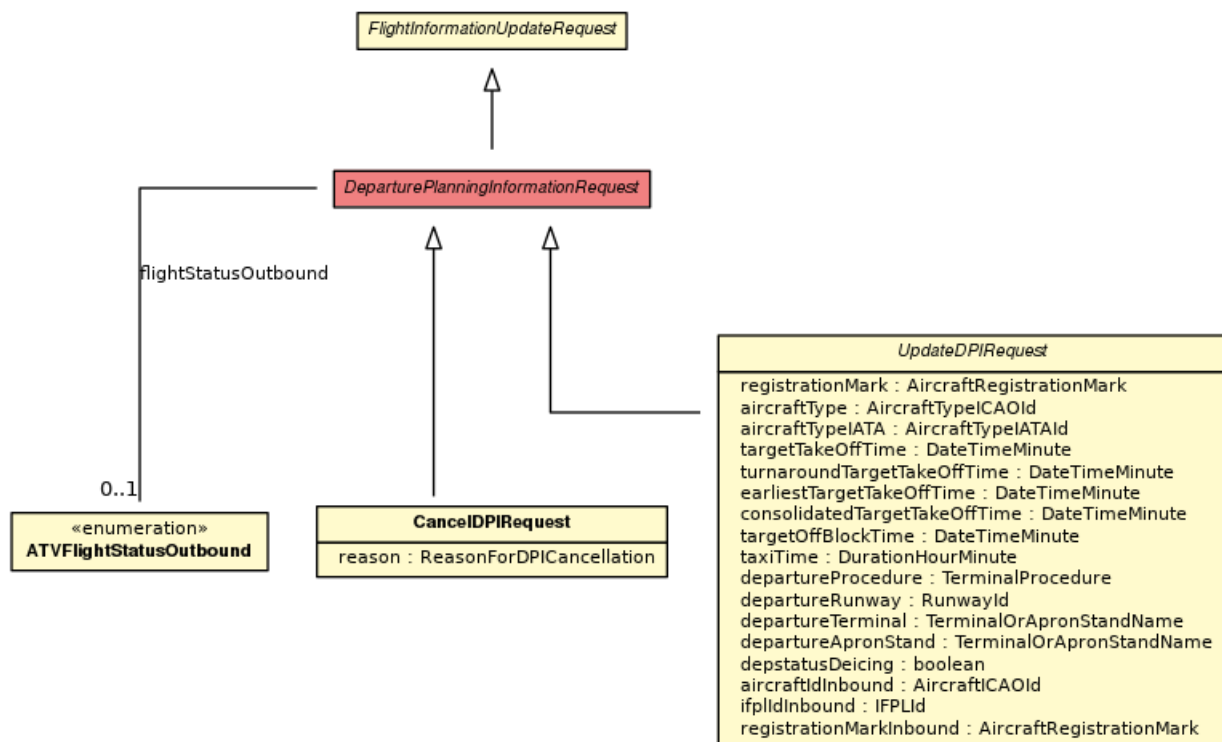


Figure 4.2. <<abstract>> *DeparturePlanningInformationRequest* Class Diagram

(1) Base class of all Departure Planning Information requests.

(2) Inherits from: [FlightInformationUpdateRequest](#).

(3) Attributes:

a) [ATVFlightStatusOutbound](#) **flightStatusOutbound** (Contextual)

Flight status as known by the airport, for an outbound flight.

CNX status is used for cancelling a schedule.

Other values are currently used for information sharing only.

Presence:

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- i) Mandatory in [PredictedDPIRequest](#)
- ii) Optional otherwise.

(4) Extended by: [CancelDPIRequest](#), [UpdateDPIRequest](#).

## 4.52. <<enumeration>> DepartureStatus

(1) Enumerates the possible departure status values.

(2) Values:

- a) **DEICING**
- b) **OK**

(3) Used by: [CDMInfo](#).

## 4.53. DepartureTolerance

(1) Indicates the departure tolerance of a flight.

(2) Attributes:

- a) [TimeHourMinutePeriod](#) **toleranceWindow** (*Mandatory*)  
The departure tolerance window.
- b) **boolean extended** (*Mandatory*)  
True if this tolerance window differs from the default departure tolerance window.

(3) Used by: [Flight](#).

## 4.54. Dinghies

(1) Information on the dinghies carried by an aircraft.

(2) Attributes:

- a) [NumberOfDinghies\\_DataType](#) **numberOfDinghies** (*Optional*)  
The number of dinghies carried by the aircraft.  
If specified, must be in [ 0, 99 ].
- b) [TotalCapacity\\_DataType](#) **totalCapacity** (*Optional*)  
The total capacity, in persons, of all dinghies carried by the aircraft. If specified, must be in [ 0, 999 ].
- c) **boolean areCovered** (*Optional*)  
Specifies if the dinghies carried by the aircraft are covered.
- d) [Colour\\_DataType](#) **colour** (*Optional*)

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Colour of the dinghies carried by the aircraft.

- (3) Used by: [SupplementaryInformation](#).

## 4.55. EnrouteDelay

- (1) Specifies the point on the route where a delay is planned to occur together with the duration of such delay.
- (2) Attributes:
- a) **[DurationHourMinute](#) delay** *(Optional)*  
The delay.
  - b) **[ICAOPoint](#) point** *(Optional)*  
The point where the delay is planned to occur.
- (3) Used by: [EnRouteInformation](#), [FlightPlan](#).

## 4.56. EnRouteInformation

- (1) This type is used to provide NM with up-to-date en-route information. For example it can be used by an ATC center to provide an estimated (or actual) 4D position of where and when the flight enters the FDPA, inform NM about significant changes to the route or provide NM with information about a holding.
- (2) It allows providing the same en-route information as in an FSA (First System Activation) message.
- (3) Attributes:
- a) **[FourDFlightPoint](#) position** *(Mandatory)*  
The estimated or actual 4D position (lat, long, time and flight level).
  - b) **[EstimateQualifier](#) positionQualifier** *(Mandatory)*  
Whether the position is estimated or actual.
  - c) **[List<ICAOPoint>](#) furtherRoute** *(Optional)*  
The list of points that will be flown after the provided position. The provided position must be the first point at which the route changes.  
Constraint: Size must be comprised between 1 and  $\infty$ .
  - d) **[List<EnrouteDelay>](#) hold** *(Optional)*  
Used to inform NM that the flight is holding and give information about the holding.  
Constraint: Size must be comprised between 1 and  $\infty$ .
  - e) **[TerminalProcedure](#) arrivalProcedure** *(Optional)*  
The actual arrival procedure used for the flight.
- (4) Used by: [FlightUpdateChoice](#).

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## 4.57. <<enumeration>> EntryExit

(1) Indication on whether a flight is entering or exiting a volume.

(2) Values:

a) **ENTRY**

The flight is entering a volume (e.g. an airspace protected by a restriction).

b) **EXIT**

The flight is exiting a volume.

(3) Used by: [FlightRestriction](#).

## 4.58. EquipmentCapabilityAndStatus

(1) Indicates the radio communication, navigation and approach aid equipment and capabilities of an aircraft.

(2) See also ICAO 4444 document field 10a.

(3) Attributes:

a) [EquipmentStatus](#) **gbas** *(Optional)*

GBAS Landing System.  
ICAO code is "A".

b) [EquipmentStatus](#) **lpv** *(Optional)*

LPV.  
ICAO code is "B".

c) [EquipmentStatus](#) **loranC** *(Optional)*

LORAN-C provides coverage for maritime navigation in U.S. coastal areas. It provides navigation, location, and timing services for both civil and military air, land and marine users. LORAN-C is approved as an en-route supplemental air navigation system for both Instrument Flight Rule (IFR) and Visual Flight Rule (VFR) operations.  
ICAO code is "C".

d) [EquipmentStatus](#) **dme** *(Optional)*

Distance Measuring Equipment.  
ICAO code is "D".

e) [EquipmentStatus](#) **fmcWprAcars** *(Optional)*

FMC WPR ACARS.  
ICAO code is "E1".

f) [EquipmentStatus](#) **dFisAcars** *(Optional)*

D-FIS ACARS.  
ICAO code is "E2".



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- g) **[EquipmentStatus](#) pdcAcars** *(Optional)*  
PDC ACARS. ICAO code is "E3".
- h) **[EquipmentStatus](#) adf** *(Optional)*  
Automatic Direction Finder.  
ICAO code is "F".
- i) **[EquipmentStatus](#) gnss** *(Optional)*  
Global Navigation Satellite Systems: a satellite assisted positioning system.  
ICAO code is "G".
- j) **[EquipmentStatus](#) hfRtf** *(Optional)*  
High Frequency Radio Transmission Frequency.  
ICAO code is "H".
- k) **[EquipmentStatus](#) inertialNavigation** *(Optional)*  
An inertial navigation system measures the position and altitude of a vehicle by measuring the accelerations and rotations applied to the system's inertial frame.  
ICAO code is "I".
- l) **[EquipmentStatus](#) cpdlcAtnVdlMode2** *(Optional)*  
CPDLC ATN VHF Data Link Mode 2.  
ICAO code is "J1".
- m) **[EquipmentStatus](#) cpdlcFans1AHFDL** *(Optional)*  
CPDLC FANS 1/A HF Data Link.  
ICAO code is "J2".
- n) **[EquipmentStatus](#) cpdlcFans1AVdlModeA** *(Optional)*  
CPDLC FANS 1/A VHF Data Link Mode A.  
ICAO code is "J3".
- o) **[EquipmentStatus](#) cpdlcFans1AVdlMode2** *(Optional)*  
CPDLC FANS 1/A VHF Data Link Mode 2.  
ICAO code is "J4".
- p) **[EquipmentStatus](#) cpdlcFans1ASatcomInmarsat** *(Optional)*  
CPDLC FANS 1/A Satellite Communication INMARSAT.  
ICAO code is "J5".
- q) **[EquipmentStatus](#) cpdlcFans1ASatcomMtsat** *(Optional)*  
CPDLC FANS 1/A Satellite Communication MTSAT.  
ICAO code is "J6".
- r) **[EquipmentStatus](#) cpdlcFans1ASatcomIridium** *(Optional)*  
CPDLC FANS 1/A Satellite Communication Iridium.  
ICAO code is "J7".
- s) **[EquipmentStatus](#) mls** *(Optional)*

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Microwave Landing System.  
ICAO code is "K".

- t) **EquipmentStatus ils** *(Optional)*  
Instrument Landing System.  
ICAO code is "L".
- u) **EquipmentStatus atcRtfSatcomInmarsat** *(Optional)*  
ATC Radio Telephony by Satellite Communication INMARSAT.  
ICAO code is "M1".
- v) **EquipmentStatus atcRtfSatcomMtsat** *(Optional)*  
ATC Radio Telephony by Satellite Communication MTSAT.  
ICAO code is "M2".
- w) **EquipmentStatus atcRtfSatcomIridium** *(Optional)*  
ATC Radio Telephony by Satellite Communication Iridium.  
ICAO code is "M3".
- x) **EquipmentStatus vor** *(Optional)*  
VHF omni-directional radio range.  
ICAO code is "O".
- y) **EquipmentStatus rcp1** *(Optional)*  
Reserved for RCP.  
ICAO code is "P1".
- z) **EquipmentStatus rcp2** *(Optional)*  
Reserved for RCP.  
ICAO code is "P2".
- aa) **EquipmentStatus rcp3** *(Optional)*  
Reserved for RCP.  
ICAO code is "P3".
- ab) **EquipmentStatus rcp4** *(Optional)*  
Reserved for RCP.  
ICAO code is "P4".
- ac) **EquipmentStatus rcp5** *(Optional)*  
Reserved for RCP.  
ICAO code is "P5".
- ad) **EquipmentStatus rcp6** *(Optional)*  
Reserved for RCP.  
ICAO code is "P6".
- ae) **EquipmentStatus rcp7** *(Optional)*  
Reserved for RCP.  
ICAO code is "P7".

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- af) [EquipmentStatus](#) **rcp8** *(Optional)*  
Reserved for RCP.  
ICAO code is "P8".
- ag) [EquipmentStatus](#) **rcp9** *(Optional)*  
Reserved for RCP.  
ICAO code is "P9".
- ah) [EquipmentStatus](#) **pbnApproved** *(Optional)*  
Indicates that the aircraft meets the Performance-based Navigation type.  
ICAO code is "R".
- ai) [EquipmentStatus](#) **standard** *(Optional)*  
Standard equipment.  
ICAO code is "S".
- aj) [EquipmentStatus](#) **tacan** *(Optional)*  
TACTical Air Navigation.  
ICAO code is "T".
- ak) [EquipmentStatus](#) **uhfRtf** *(Optional)*  
Ultra High Frequency Radio Transmission Frequency.  
ICAO code is "U".
- al) [EquipmentStatus](#) **vhfRtf** *(Optional)*  
VHF Radio Telephony.  
ICAO code is "V".
- am) [EquipmentStatus](#) **rvsm** *(Optional)*  
Aircraft equipped to navigate in airspace where the "Reduced Vertical Separation Minima" is applicable.  
ICAO code is "W".
- an) [EquipmentStatus](#) **mnps** *(Optional)*  
"Minimum Navigation Performance Specifications" approved aircraft.  
"ICAO code is "X".
- ao) [EquipmentStatus](#) **khz833** *(Optional)*  
Equipped with VHF with a 8.33KHz channel spacing radio equipment.  
ICAO code is "Y".
- ap) [EquipmentStatus](#) **other** *(Optional)*  
Other equipment as specified in [OtherInformation](#) (communicationEquipment, navigationEquipment, datalinkCapabilities).  
ICAO code is "Z".

(4) Used by: [Flight](#), [FlightPlanUpdate](#), [FlightPlan](#).

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## 4.59. <<enumeration>> EquipmentStatus

- (1) Describes the status of any kind of navigation equipment.
- (2) Values:
  - a) **EQUIPPED**  
The aircraft is equipped with the specified equipment.
  - b) **NOT\_EQUIPPED**  
The aircraft is not equipped with the specified equipment.
- (3) Used by: [EquipmentCapabilityAndStatus](#), [ModeSCapabilities](#), [SurveillanceEquipment](#).

## 4.60. EstimatedElapsedTimeAtLocation

- (1) Association of a location and an elapsed time.
- (2) Attributes:
  - a) **DurationHourMinute** **elapsedTime** (*Mandatory*)  
The elapsed time.
  - b) **FIRICA0Id** **fir** (*Optional*)  
A FIR.  
Constraints:
    - i) See [AT\\_LEAST\\_ONE\\_LOCATION\\_SHOULD\\_BE\\_DEFINED](#)
    - ii) See [LOCATIONS\\_ARE\\_MUTUALLY\\_EXCLUSIVE](#)
  - c) **ICA0Point** **point** (*Optional*)  
A point.  
Constraints:
    - i) See [AT\\_LEAST\\_ONE\\_LOCATION\\_SHOULD\\_BE\\_DEFINED](#)
    - ii) See [LOCATIONS\\_ARE\\_MUTUALLY\\_EXCLUSIVE](#)
  - d) **Latitude** **latitude** (*Optional*)  
A latitude.  
Constraints:
    - i) See [AT\\_LEAST\\_ONE\\_LOCATION\\_SHOULD\\_BE\\_DEFINED](#)
    - ii) See [LOCATIONS\\_ARE\\_MUTUALLY\\_EXCLUSIVE](#)
  - e) **Longitude** **longitude** (*Optional*)  
A longitude.  
Constraints:

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- i) See [AT\\_LEAST\\_ONE\\_LOCATION\\_SHOULD\\_BE\\_DEFINED](#)
- ii) See [LOCATIONS\\_ARE\\_MUTUALLY\\_EXCLUSIVE](#)

(3) Constraints:

- a)
- |             |   |
|-------------|---|
| Name        | AT_LEAST_ONE_LOCATION_SHOULD_BE_DEFINED   |
| Attributes  | <a href="#">fir</a> , <a href="#">point</a> , <a href="#">latitude</a> , <a href="#">longitude</a>  |
| Description | Exactly one location (fir, point, latitude and/or longitude) must be not null.<br>i.e. either FIR or POINT or LATITUDE or LONGITUDE or LATITUDE/LONGITUDE |
- b)
- |             |  |
|-------------|--|
| Name        | LOCATIONS_ARE_MUTUALLY_EXCLUSIVE   |
| Attributes  | <a href="#">fir</a> , <a href="#">point</a> , <a href="#">latitude</a> , <a href="#">longitude</a>   |
| Description | The locations (fir, point, latitude and/or longitude) are mutually exclusive.<br>i.e. either FIR or POINT or LATITUDE or LONGITUDE or LATITUDE/LONGITUDE |

(4) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

## 4.61. <<enumeration>> EURSTSIndicator

(1) Enumerates the non-ICAO STS indicators in use in the EUR region.

(2) Values:

Value	Description
<b>CPDLCX</b>	Flights conducted wholly or partly in EUR CPDLC airspace, and not equipped with CPDLC capabilities but which have been granted an exemption.
<b>EXM833</b>	Exempted from the carriage of the 8.33kHz radios.
<b>PROTECTED</b>	Sensitive flights.
<b>RNAVINOP</b>	Failure or degradation results in aircraft being unable to meet B-RNAV functionality and accuracy requirements.
<b>RNAVX</b>	Aircraft not equipped with RNAV.

Table 4.5. <<enumeration>> EURSTSIndicator

(3) Used by: [SpecialHandlingIndicators](#).

## 4.62. ExclusionFromRegulations

(1) Provides data regarding the possible exclusion of a flights from regulations.

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(2) Attributes:

- a) **boolean onTrafficVolume** (*Optional*)  
Used only in flights that have been queried by traffic volume.  
True if the flight is excluded from one or more regulations defined on the traffic volume.
- b) **int count** (*Optional*)  
The total count of regulations from which the flight is excluded.  
Must be null if `all` is true; cannot be null otherwise.  
Constraint: Range: `[0, ∞[`.
- c) **boolean all** (*Optional*)  
True if the flight is excluded from all regulations.  
Must be null if `count` is not null; cannot be null otherwise.
- d) **boolean hasBeenExcluded** (*Mandatory*)  
True if the flight has been excluded from one or more regulations in the past but is no longer.

(3) Used by: [Flight](#).

#### 4.63. **typedef<string> ExtendedAircraftICA0Id**

- (1) ICAO aircraft identification as defined in ICAO doc 4444 extended with characters '\$' and '#'.  
These special characters are used by NM in the context of prediction and simulation exercises.
- (2) Pattern: `(ALPHA|DIGIT|$|#){2,7}`
- (3) Used by: [FlightKeys](#).

#### 4.64. **<<enumeration>> FAMStatus**

- (1) Describes a flight FAM (Flight Activation Message) status.
- (2) Values:
  - a) **AIRBORNE\_WHEN\_SHIFTED\_BY\_FAM**  
was shifted by FAM, airborne data received when shifted.
  - b) **AIRBORNE\_WHEN\_SUSPENDED\_BY\_FAM**  
was suspended by FAM, airborne data received when suspended.
  - c) **NOT\_UNDER\_FAM**  
not under FAM yet or never under FAM.
  - d) **SHIFTED\_BY\_FAM**  
currently shifted by FAM.
  - e) **SUBJECT\_TO\_FAM**  
currently subject to FAM, if no data received, flight will be shifted soon.

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- f) **SUSPENDED\_BY\_FAM**  
currently suspended by FAM.
- g) **WAS\_SHIFTED\_BY\_FAM**  
was shifted by FAM, FPL data received when shifted.
- h) **WAS\_SUBJECT\_TO\_FAM**  
was subject to FAM but airborne data received before first shift.
- i) **WAS\_SUSPENDED\_BY\_FAM**  
was suspended by FAM, FPL data received when suspended.

(3) Used by: [Flight](#).

#### 4.65. typedef<string> FilingId

- (1) Examples: AA00953172BB00956485
- (2) Pattern: (UALPHA{2}DIGIT{8}){1,2}
- (3) Used by: [FlightFilingResultMessage](#), [FilingResultQueued](#), [FilingStatusRequest](#).

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## 4.66. <<abstract>> FilingReplyData

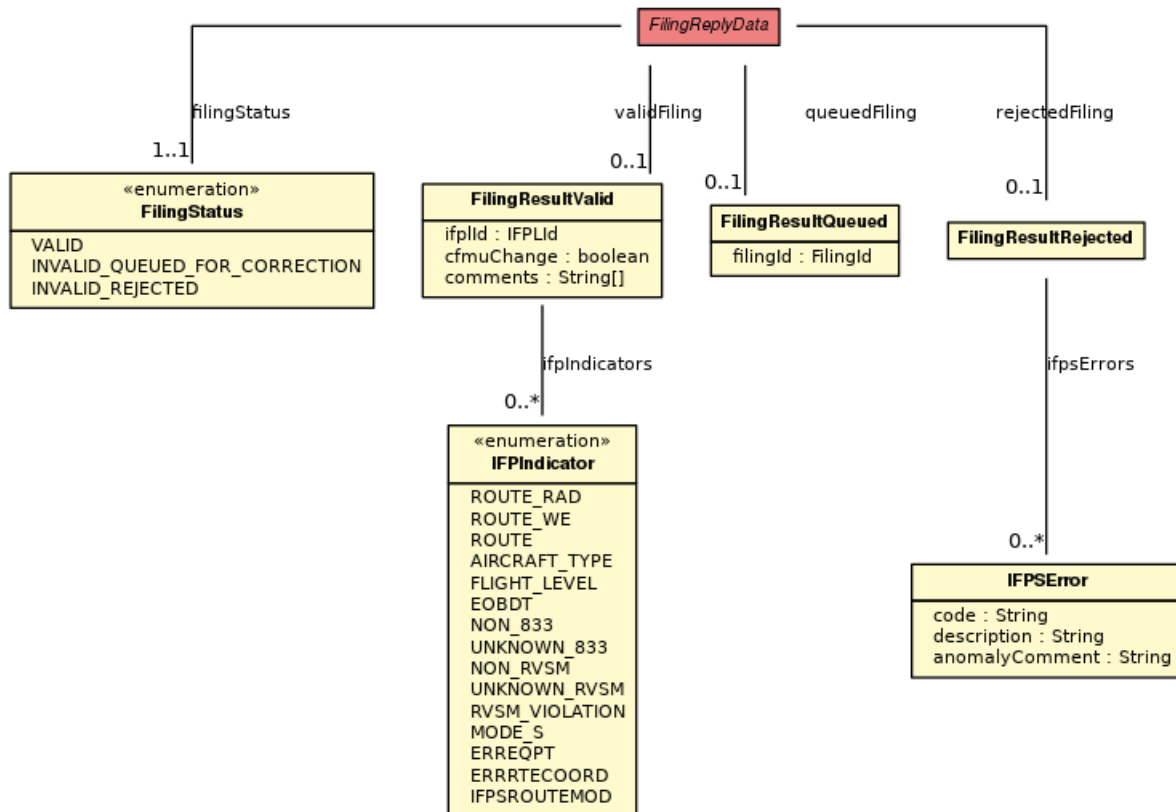


Figure 4.3. <<abstract>> FilingReplyData Class Diagram

- (1) Abstract reply returned in response to an abstract [FilingRequest](#).
- (2) The content of the FilingReplyData structure depends on whether the filing request was evaluated by NM as:
  - a) VALID
  - b) INVALID\_QUEUED\_FOR\_CORRECTION
  - c) INVALID\_REJECTED
- (3) This is expressed via a [FilingStatus](#) enumeration value that discriminates three attributes in the choice described below.
- (4) Attributes:
  - a) [FilingStatus](#) **filingStatus** (Mandatory)  
Indicates whether the filing request was evaluated by NM as valid, or was rejected, or queued for manual correction by an NM operator.



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- b) **FilingResultValid** **validFiling** (Optional)  
Contains information regarding the processing of the filing request when it was valid.  
Cannot be null if filingStatus is VALID; must be null otherwise.
- c) **FilingResultQueued** **queuedFiling** (Optional)  
Contains information regarding the processing of the filing request when it was queued for manual correction by an NM operator.  
Cannot be null if filingStatus is INVALID\_QUEUED\_FOR\_CORRECTION; must be null otherwise.
- d) **FilingResultRejected** **rejectedFiling** (Optional)  
Contains information regarding the processing of the filing request when it was rejected.  
Cannot be null if filingStatus is INVALID\_REJECTED; must be null otherwise.
- (5) Extended by: [FlightDelayReplyData](#), [AirborneFilingReplyData](#), [FlightDepartureReplyData](#), [FlightPlanUpdateReplyData](#), [FilingStatusReplyData](#), [FlightPlanCreationReplyData](#), [FlightArrivalReplyData](#), [FlightPlanCancellationReplyData](#).

## 4.67. <<abstract>> FilingRequest

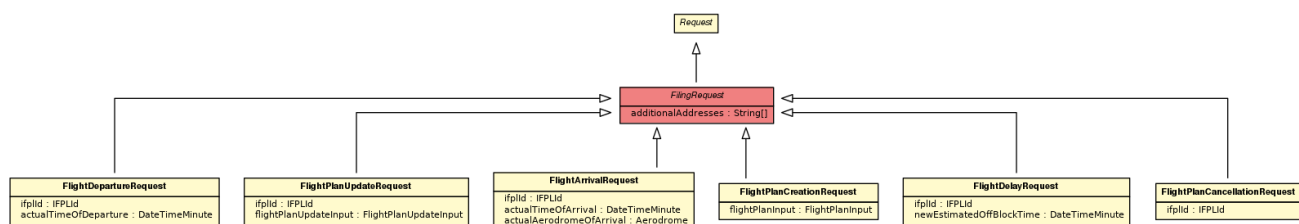


Figure 4.4. <<abstract>> FilingRequest Class Diagram

- (1) Abstract ancestor request for all concrete requests that file flight plan related data to NM.
- (2) The corresponding replies to **FilingRequest** requests all inherit from the abstract [FilingReplyData](#).
- (3) Inherits from: [Request](#).
- (4) Attributes:
- a) **string[] additionalAddresses** (Optional)  
AFTN addresses to which NM shall distribute the message after being accepted.  
Constraint: Size must be comprised between 0 and ∞.
- (5) Extended by: [FlightPlanCreationRequest](#), [FlightPlanUpdateRequest](#), [FlightArrivalRequest](#), [FlightPlanCancellationRequest](#), [FlightDepartureRequest](#), [FlightDelayRequest](#).

## 4.68. FilingResultQueued

- (1) Returned when the filing request is queued for manual correction by an NM operator.

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(2) Attributes:

- a) **FilingId** **filingId** (*Mandatory*)  
Id of the received filing request when it results in queuing for manual correction by an NM operator. This id is to be used when subsequently retrieving the status of this filing.

(3) Used by: [FilingReplyData](#).

## 4.69. FilingResultRejected

(1) Returned when the filed flight plan is rejected.

(2) Attributes:

- a) **IFPSError[]** **ifpsErrors** (*Mandatory*)  
The list of errors that caused the rejection.  
Constraint: Size must be comprised between 0 and  $\infty$ .

(3) Used by: [FilingReplyData](#), [ManualProcessingResult](#).

## 4.70. FilingResultValid

(1) Returned when the filed flight plan is valid.

(2) Attributes:

- a) **IFPLId** **ifplId** (*Optional*)  
Cannot be null.
- b) **boolean** **cfmuChange** (*Mandatory*)  
True if NM has modified the filed data (routes); false otherwise.
- c) **IFPIndicator[]** **ifpIndicators** (*Optional*)  
Indications of errors that have been found in a flight plan and either ignored or automatically or manually corrected during the processing of the filing request.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- d) **string[]** **comments** (*Optional*)  
Comment produced by NM during the processing of the filing request.  
Constraint: Size must be comprised between 0 and  $\infty$ .

(3) Used by: [FilingReplyData](#), [ManualProcessingResult](#).

## 4.71. <<enumeration>> FilingRule

(1) Describes the filing rule applying to a flight.

(2) Values:

- a) **FILING\_ALLOWED\_BY\_A0\_CFMU**

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b) **NOT\_AUTHORIZED**

c) **OPERATOR\_MUST\_REFILE**

(3) Used by: [Flight](#).

## 4.72. <<enumeration>> **FilingStatus**

(1) Describes the status of a filing reply, resulting from the processing of a filing request.

(2) Values:

a) **INVALID\_QUEUED\_FOR\_CORRECTION**

NM has evaluated that the filed flight plan is invalid but candidate for manual correction by an NM operator.

b) **INVALID\_REJECTED**

NM has evaluated that the filed flight plan is invalid and is not candidate for manual correction by an NM operator.

c) **VALID**

NM has evaluated that the filed flight plan is valid.

(3) Used by: [FilingReplyData](#).

## 4.73. **typedef<aero.fixm.v4\_1\_0.flight.FlightType> FIXMF-light\_v4\_1**

(1) FIXM flight.

(2) Used by: [FlightPlanValidationReply](#), [FlightPlanData](#), [FlightPlanOutput](#), [FlightPlanUpdateInput](#), [FlightPlanInput](#).

## 4.74. **Flight**

(1) Description of a flight as it exists in the NM systems.

(2) Apart from the flight keys (that are always returned), all attributes are optional. They are set when requested by the caller and available in the NM systems.

(3) Flight attributes are divided into "Light" and "Heavy" (see [FlightField](#) to see the weight of each Flight field):

(4) Attributes:

a) [FlightIdentificationOutput](#) **flightId** (*Mandatory*)

IFPL id and flight keys associated to the flight. This attribute is always returned.

b) [AerodromeICA0Id](#) **divertedAerodromeOfDestination** (*Optional*)

Diverted aerodrome of destination, if the flight was diverted. Null if the flight was not diverted.

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- c) **[AircraftTypeICA0Id](#) aircraftType** *(Optional)*  
ICAO id of the aircraft type.
- d) **[DateTimeMinute](#) readyEstimatedOffBlockTime** *(Optional)*  
Last flight plan related estimated off-block time, but amended by NM OPS room or READY message (filing time).  
Present if different from the latest flight plan related estimated off-block time in flightId.keys; null otherwise.  
Note that readyEstimatedOffBlockTime can be different than the FTFM flight profile off-block time (in case cdmEstimatedOffBlockTime is also set).
- e) **[DateTimeMinute](#) cdmEstimatedOffBlockTime** *(Optional)*  
The last ready estimated off-block time amended by E-DPI or T-DPI\_t message (target take-off time).  
Present if different from the latest flight plan related estimated off-block time in flight - Id . keys; null otherwise.  
The cdmEstimatedOffBlockTime corresponds to the off-block time in the FTFM flight profile. So in case DPIs have been received (not cancelled by a C-DPI), then the cdmEstimatedOffBlockTime = DPI TTOT - DPI taxi-time, except if it concerns a DPI that creates a CTFM flight profile (ATC-DPI or T-DPI-s that is conform with the slot window), then the TTOT is stored in the actualTakeOffTime.
- f) **[RevisionTimes](#) revisionTimes** *(Optional)*  
Revision times, i.e. times to insert an aircraft in sequence and remove an aircraft from sequence at the aerodrome of departure.
- g) **[DateTimeMinute](#) estimatedTakeOffTime** *(Optional)*  
Estimated take-off time: the take-off time corresponding to the FTFM flight profile.  
The corresponding estimated off-block time of the FTFM flight profile is the flight . estimatedTakeOffTime - flight . taxiTime (Note that this can be different than the latest flight plan related estimated off-block time in flightId.keys).
- h) **[DateTimeMinute](#) calculatedTakeOffTime** *(Optional)*  
Calculated take-off time: the take-off time corresponding to the RTFM flight profile.  
The corresponding calculated off-block time is the flight . calculatedTakeOffTime - flight . taxiTime (except in some cases in FORECAST dataset).
- i) **[DateTimeMinute](#) actualTakeOffTime** *(Optional)*  
Estimated Actual take-off time: the take-off time corresponding to the CTFM flight profile.  
The corresponding estimated actual off-block time is the flight . actualTakeOffTime - flight . currentlyUsedTaxiTime.
- j) **[ShiftHourMinute](#) ctotShiftAlreadyAppliedByTower** *(Optional)*  
Shift of calculated take-off time already applied by tower.
- k) **[FlightLevel](#) requestedFlightLevel** *(Optional)*  
This field is only returned in concrete [FlightListByLocationReplyData](#) types. It is ignored (and therefore not returned) if requested in other flight request types.

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In [FlightListByAerodromeReply](#), [FlightListByAerodromeSetReply](#) and [FlightListByAircraft-OperatorReply](#), the field is the highest requested flight level.  
In other concrete [FlightListByLocationReplyData](#) types, it represents the requested flight level applicable on the portion of the flight route that penetrates the location.

- l) **[DurationHourMinute](#) taxiTime** *(Optional)*  
Taxi time for the FTFM profile.
- m) **[DurationHourMinuteSecond](#) currentlyUsedTaxiTime** *(Optional)*  
Taxi time corresponding to the highest available TFM flight profile (CTFM if CTFM exists, otherwise RTFM, otherwise FTFM).  
So basically if T-DPI-s/ATC-DPI have been received, currentlyUsedTaxiTime will contain the taxi time changes from that DPI and Flight.taxiTime will not contain that latest update (it can contain the previous taxi time from last Early-DPI or T-DPI-t update).
- n) **[DateTimeMinute](#) estimatedTimeOfArrival** *(Optional)*  
Estimated time of arrival: time of arrival according to the FTFM flight profile.
- o) **[DateTimeMinute](#) calculatedTimeOfArrival** *(Optional)*  
Calculated time of arrival: time of arrival according to the RTFM flight profile.
- p) **[DateTimeMinute](#) actualTimeOfArrival** *(Optional)*  
Estimated Actual time of arrival: time of arrival according to the CTFM flight profile.
- q) **boolean lateFiler** *(Optional)*  
True if the status of the flight is "Late Filer".
- r) **boolean lateUpdater** *(Optional)*  
True if the status of the flight is "Late Updater".
- s) **[SuspensionStatus](#) suspensionStatus** *(Optional)*  
Suspension status.
- t) **[DateTimeMinute](#) suspensionResponseBy** *(Optional)*  
The time limit for the confirmation message (FCM) after the issuance of a flight suspension, if present for the flight.
- u) **[FAMStatus](#) famStatus** *(Optional)*  
FAM (Flight Activation Monitoring) status.
- v) **[ReadyStatus](#) readyStatus** *(Optional)*  
Ready status.
- w) **[Aircraft0OperatorICA0Id](#) aircraft0operator** *(Optional)*  
Aircraft operator.
- x) **[Aircraft0OperatorICA0Id](#) operatingAircraft0operator** *(Optional)*  
Operating aircraft operator.
- y) **[ReroutingIndicator](#) reroutingIndicator** *(Optional)*

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Indicates if the flight was rerouted, why, and the resulting rerouting state.

- z) **[DurationHourMinute](#) newRouteMinShiftDelayImprovement** *(Optional)*  
Minimum improvement needed (by reducing either the shift or the delay of the flight) to allow an Aircraft Operator What-If-Reroute. In the current implementation, this value is a system parameter: the returned value is always the same for all flights.
- aa) **[ReroutableStatus](#) reroutable** *(Optional)*  
Indicates if the flight is reroutable and under what conditions.
- ab) **boolean reroutingOpportunitiesExist** *(Optional)*  
Indicates if there exist rerouting opportunities for this flight.
- ac) **[CDM](#) cdm** *(Optional)*  
CDM (Collaborative Design Making) information.
- ad) **boolean slotIssued** *(Optional)*  
Indicates that the flight is in state slot-issued or was in that state prior to activation/termination.
- ae) **[SlotImprovementProposal](#) slotImprovementProposal** *(Optional)*  
Proposal for slot improvement.
- af) **[TimeAndModel](#) timeAtReferenceLocationEntry** *(Optional)*  
Indicates the entry time at the reference location.
- ag) **[TimeAndModel](#) timeAtReferenceLocationExit** *(Optional)*  
Indicates the exit time at the reference location.
- ah) **[FlightLevel](#) flightLevelAtReferenceLocationEntry** *(Optional)*  
Indicates the flight level when entering the reference location.
- ai) **[FlightLevel](#) flightLevelAtReferenceLocationExit** *(Optional)*  
Indicates the flight level when exiting the reference location.
- aj) **[FlightTrend](#) trendAtReferenceLocationEntry** *(Optional)*  
This field is only returned in [FlightListByAirspaceReply](#) and [FlightListByTrafficVolumeReply](#). It is ignored (and therefore not returned) if requested in other flight request types. Flight trend at the entry point of the location, i.e. cruising, climbing or descending.
- ak) **[FlightTrend](#) trendAtReferenceLocationExit** *(Optional)*  
This field is only returned in [FlightListByAirspaceReply](#) and [FlightListByTrafficVolumeReply](#). It is ignored (and therefore not returned) if requested in other flight request types. Flight trend at the exit point of the location, i.e. cruising, climbing or descending.
- al) **[FlightTrend](#) trendAtReferenceLocationMiddle** *(Optional)*  
Flight trend at the middle point of the location, i.e. cruising, climbing or descending.
- am) **boolean exemptedFromRegulations** *(Optional)*  
True if the flight is exempted from regulations.

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- an) **DurationHourMinute delay** *(Optional)*  
The ATFM delay. This is computed as the calculated take-off time (excluding slot extensions requested by the AO) minus the take-off time requested by the AO (therefore excluding the effect of t-DPI-s, REA messages and OBT changes by flow controllers). Hence it does not always correspond to `calculatedTakeOffTime - estimatedTakeOffTime`.
- ao) **DelayCharacteristics delayCharacteristics** *(Optional)*  
Identifies the characteristics of the delay value associated to the flight.
- ap) **RegulationId mostPenalisingRegulation** *(Optional)*  
Most penalising regulation impacting this flight.
- aq) **boolean hasOtherRegulations** *(Optional)*  
Indicates if this flight is impacted by other regulations than the most penalising one.
- ar) **FlightRegulationLocation[] regulationLocations** *(Optional)*  
Locations of the regulations impacting this flight.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- as) **Set<FlightAtfcmMeasureLocation> atfcmMeasureLocations** *(Optional)*  
Locations of the ATFCM measures impacting this flight.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- at) **ATFMMessageType lastATFMMessageType** *(Optional)*  
Indicates the type of the last exchanged ATFM message.
- au) **ReceivedOrSent lastATFMMessageReceivedOrSent** *(Optional)*  
Indicates whether the last ATFM message was received or sent by NM.
- av) **DistanceM runwayVisualRange** *(Optional)*  
Minimum visible range in meters for a flight to land.  
Must be in [ 0, 999 ].
- aw) **DistanceNM confirmedCTFM** *(Optional)*  
Describes the distance on the CTFM (Current Tactical Flight Model) route that has been confirmed by CPR's.
- ax) **ExclusionFromRegulations exclusionFromRegulations** *(Optional)*  
Quantitative information regarding the regulations from which this flight is possibly excluded.
- ay) **FlightLevel requestedInitialFlightLevel** *(Optional)*  
The first flight level requested for this flight after departure.
- az) **AirSpeed requestedInitialSpeed** *(Optional)*  
The first true airspeed requested for this flight after departure.
- ba) **DurationHourMinute estimatedElapsedTime** *(Optional)*  
Estimated elapsed time.
- bb) **FilingRule filingRule** *(Optional)*



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Filing rule.

- bc) **[MessageOriginator](#) initialFPLMessageOriginator** *(Optional)*  
Originator of the very first FPL message.
- bd) **[MessageOriginator](#) lastFPLMessageOriginator** *(Optional)*  
Originator of the last flight plan related message.
- be) **string icaoRoute** *(Optional)*  
Complete ICAO field 15 information comprising of initial requested speed and flight level and route.  
Contains corrected flight plan route information sent from NM to addressees outside NM. Note that the route is not always available, e.g. for flights that are full VFR.
- bf) **[DistanceNM](#) routeLength** *(Optional)*  
Length of the route.
- bg) **[ReroutingReference](#) reroutingReference** *(Optional)*  
Rerouting reference (if any).
- bh) **[FlightLevel](#) defaultReroutingRequestedFlightLevel** *(Optional)*  
When rerouting, suggested flight level to be used for generating an alternate route.
- bi) **[AirSpeed](#) defaultReroutingRequestedSpeed** *(Optional)*  
When rerouting, suggested air speed to be used for generating an alternate route.
- bj) **[DepartureTolerance](#) departureTolerance** *(Optional)*  
Departure tolerance.
- bk) **[RegulationCause](#) mostPenalisingRegulationCause** *(Optional)*  
Cause of the most penalising regulation impacting this flight.
- bl) **[MessageOriginator](#) lastATFMMessageOriginator** *(Optional)*  
If the last ATFM message exchanged was received by NM, indicates its originator.
- bm) **[FlightPoint](#)[] ftfmPointProfile** *(Optional)*  
FTFM (Filed Tactical Flight Model) point profile.  
The FTFM flight profile corresponds to the `trafficType` DEMAND. So in the operational dataset, it reflects the latest AO flightplan: i.e. the latest filed flightplan but updated (shifted) with the latest CDM related info and READY messages or amended by NM OPS room.  
Note that the FTFM off-block time does not necessarily corresponds to the [FlightKeys.estimatedOffBlockTime](#).  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bn) **[FlightPoint](#)[] rtfmPointProfile** *(Optional)*  
RTFM (Regulated Tactical Flight Model) point profile. If a flight has an RTFM, then it is the RTFM flight profile that is used for `trafficType` REGULATED\_DEMAND.  
Constraint: Size must be comprised between 0 and  $\infty$ .



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- bo) **[FlightPoint\[\]](#) ctfmPointProfile** *(Optional)*  
CTFM (Current Tactical Flight Model) point profile.  
If a flight has an CTFM, then it is the CTFM flight profile that is used for trafficType LOAD. Typically a flight has a CTFM point profile once it is off-block. However if the flight is involved in airport CDM, then the flight can have a CTFM point profile even if its CTFM off-block time is still relatively far in the future (e.g. 40 minutes) due to T-DPI-s.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bp) **[FlightAirspace\[\]](#) ftfmAirspaceProfile** *(Optional)*  
FTFM airspace profile.  
Note that when part of a P/S FlightDataMessage the airspace profile contains only Elementary Sectors.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bq) **[FlightAirspace\[\]](#) rtfmAirspaceProfile** *(Optional)*  
RTFM airspace profile.  
Note that when part of a P/S FlightDataMessage the airspace profile contains only Elementary Sectors.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- br) **[FlightAirspace\[\]](#) ctfmAirspaceProfile** *(Optional)*  
CTFM airspace profile.  
Note that when part of a P/S FlightDataMessage the airspace profile contains only Elementary Sectors.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bs) **[RequestedFlightLevel\[\]](#) ftfmRequestedFlightLevels** *(Optional)*  
FTFM requested flight levels.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bt) **[RequestedFlightLevel\[\]](#) rtfmRequestedFlightLevels** *(Optional)*  
RTFM requested flight levels.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bu) **[RequestedFlightLevel\[\]](#) ctfmRequestedFlightLevels** *(Optional)*  
CTFM requested flight levels.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bv) **[FlightEvent\[\]](#) flightHistory** *(Optional)*  
Ordered (time) list of events that make up the flight history.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bw) **[FlightOperationalLogEntry\[\]](#) operationalLog** *(Optional)*  
This attribute can only be retrieved in a retrieval context, not in a list context (i.e. it can only be retrieved for a single flight via [FlightRetrievalRequest](#)). Ordered (time) list of entries that make up the flight operational log.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bx) **[EquipmentCapabilityAndStatus](#) equipmentCapabilityAndStatus** *(Optional)*

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Indicates the radio communication, navigation and approach aid equipment and capabilities of an aircraft.

- by) **[FlightRestriction](#)[] ftfmRestrictionProfile** *(Optional)*  
FTFM restriction profile.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- bz) **[FlightRestriction](#)[] rtfmRestrictionProfile** *(Optional)*  
RTFM restriction profile.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- ca) **[FlightRestriction](#)[] ctfmRestrictionProfile** *(Optional)*  
CTFM restriction profile.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- cb) **[CfmuFlightType](#) cfmuFlightType** *(Optional)*  
Indicates state and/or origin of the flight in the NM system.
- cc) **[SSRCode](#) ccamsSSRCode** *(Optional)*  
SSR code as assigned by CCAMS.
- cd) **[AircraftRegistrationMark](#) filedRegistrationMark** *(Optional)*  
Aircraft registration mark as it was filed via flight plan messages.  
Note that the registration mark can be provided or updated later, via DPI messages - see `Flight.cdm` attribute.
- ce) **boolean isProposalFlight** *(Optional)*  
Indicates if this flight is a proposal flight or not.  
(See [Proposal Flights](#)).
- cf) **boolean proposalExists** *(Optional)*  
Indicates if a proposal flight exists or not.
- cg) **boolean hasBeenForced** *(Optional)*  
Indicates if for this flights, the delay is or has been forced.
- ch) **int caughtInHotspots** *(Optional)*  
Indicates this flight in how many problem hotspots has been caught.  
Note that the problem hotspot related fields are trial related (STAM) fields : they are only accessible (authorized) during specific trials or on test platforms.  
Constraint: Range:  $[0, \infty[$ .
- ci) **Set<[FlightHotspotLocation](#)> hotspots** *(Optional)*  
Locations of all problem hotspots that are impacting this flight.  
Note that the problem hotspot related fields are trial related (STAM) fields : they are only accessible (authorized) during specific trials or on test platforms.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- cj) **[FlightMCDMInfo](#) mcdmInfo** *(Optional)*

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Measure Collaborative Decision Making Info associated with to this flight: the most relevant M-CDM measure and its M-CDM state and indications if other M-CDM measures are impacting the flight.

Note that M-CDM related fields/services are trial related fields (a.o. STAM trials): they are only accessible (authorized) during specific trials or on test platforms.

- ck) **[LoadStateAtReferenceLocation](#) worstLoadStateAtReferenceLocation** (*Optional*)  
Indicates what is the worst monitored (entry or OTMV) load state in which this flight is involved.  
Note that the worstLoadStateAtReferenceLocation flight field is only authorized for a user if he is also authorized to use the TrafficCounts.  
See [FlightListRequest.worstLoadStateAtReferenceLocationType](#)
- cl) **[DeltaEntry](#) compareWithOtherTrafficType** (*Optional*)  
Comparison between this flight in [FlightListRequest.trafficType](#) and the same flight in [FlightListRequest.compareWithOtherTrafficType](#). Remark: This attribute is subject to the validation rules `FlightListRequest.REQUESTED_FIELD_NOT_ALLOWED_FOR_OPERATION` and `FlightRetrievalRequest.REQUESTED_FIELD_NOT_ALLOWED_FOR_OPERATION`.
- cm) **[CTOTLimitReason](#) ctotLimitReason** (*Optional*)  
Possible exceptional reasons that may affect the CTOT allocation of a flight. See CTOT-LimitReason class documentation for more details.
- cn) **[ProfileValidity](#) profileValidity** (*Optional*)  
Contains data relating to the validity of the RTFM, or else the FTFM with respect to Flight Plan violation errors.
- co) **[TargetTime](#) targetTimeOverFix** (*Optional*)  
The target time over the relevant flight profile point for the most penalizing regulation of the flight and the actual time over (according to the CTFM point profile)  
Note that the TargetTime related fields are trial related (SESAR) fields: they are only accessible (authorized) during specific trials or on test platforms.
- cp) **[FlightState](#) flightState** (*Optional*)  
Flight state.
- cq) **[FourDPosition](#) lastKnownPosition** (*Optional*)  
Last known position of the aircraft expressed as geo-location, flight level and time over. It corresponds to either the last Correlated Position Report (CPR) or last Aircraft Position Report (APR) received by the ETFMS system.  
IMPORTANT: this field is updated ONLY in the following circumstances:
- When any airborne report deviates significantly from the computed Current Tactical Flight Model (CTFM) profile and therefore the CTFM is recomputed (in this case the lastKnownPosition corresponds to the latest CPR or APR received);

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- When a CPR does not deviate significantly from the computed CTFM profile but the CTFM was not updated during the 10 minutes prior to the reception of the CPR.  
Hence submitting many frequent B2B R/R requests to obtain an updated value of this field would typically return the same value. The user is therefore strongly discouraged from requesting this field with unnecessarily high frequency. Using the Flight Data Publish/Subscribe is definitely the recommended way to consume this field in order for the caller to avoid the R/R thresholds (see Essentials).

- cr) **[SlotSwapCounter](#) slotSwapCounter** *(Optional)*  
Slot Swap counter.
- cs) **List<[SlotSwapCandidate](#)> slotSwapCandidateList** *(Optional)*  
Slot Swap candidate list.  
NOTE: Only available in a Flight List by Aircraft Operator.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- ct) **[ICA0AircraftAddress](#) aircraftAddress** *(Optional)*  
The 24 bit aircraft address
- cu) **[ArrivalInformation](#) arrivalInformation** *(Optional)*  
Arrival information from API messages and exchange of times over the coordination fix point.
- cv) **[SlotZone](#) slotZone** *(Optional)*  
Slot zone around the CTO of the first en-route regulation.
- cw) **[FlightDataVersionNumber](#) flightDataVersionNr** *(Optional)*  
The version number of the flight data: the version number increases as the flight data changes over time.  
NOTE: Over P/S the values of this attribute may not be contiguous (i.e. there may be "holes"). This is because not every flight event is translated into a P/S message (e.g. for events related to CCAMS).
- cx) **List<[TrafficVolumeScenarios](#)> applicableScenarios** *(Optional)*  
The applicable Scenarios (from the scenario repository) for this flight.  
Note that the heavy applicableScenario related field is subject to specific authorization.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- cy) **[APISubmissionRules](#) apiSubmissionRules** *(Optional)*  
Identifies the API (Arrival Planning Information) service(s) that can be used to submit TTA (Target Time of Arrival) requests for this flight.
- cz) **Set<[RegulationId](#)> avoidedRegulations** *(Optional)*  
All the regulations that have been avoided by the different flight plan changes for this flight (either flightplan update or via cancel-refile).  
Note that this fields allows to identify why a flight might have a "special" route and it allows to identify, if a regulation is cancelled, which flights might be interested in going back to their original route (e.g. for flights that had to reroute due to a 0-rate suspending regulations).  
Note that this field is subject to special authorization (trial related)

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Constraint: Size must be comprised between 1 and  $\infty$ .

da) **int routeChargeIndicator** *(Optional)*

An estimate of the total route charges based on airspace traversal in the FTFM. This shall not be taken as an accurate value for the actual charges but as a cost indicator to be able to compare different routes.

Constraint: Range:  $[0, \infty[$ .

db) **int fuelConsumptionIndicator** *(Optional)*

This is an estimate of the total fuel consumption calculated on the FTFM. This shall not be taken as an accurate value but simply as an indicator to be used for comparing different routes.

Constraint: Range:  $[0, \infty[$ .

dc) **Set<[RegulationId](#)> excludedRegulations** *(Optional)*

All the regulations that have been excluded for the flight.

Constraint: Size must be comprised between 1 and  $\infty$ .

(5) Used by: [FlightDataMessage](#), [FlightOrFlightPlan](#), [FlightRetrievalReply](#).

## 4.75. FlightAirspace

(1) Describes an airspace in a flight airspace profile.

(2) Attributes:

a) **[AirspaceId](#) airspaceId** *(Mandatory)*

Airspace id.

b) **[AirspaceType](#) airspaceType** *(Mandatory)*

Airspace type.

c) **[DateTimeSecond](#) firstEntryTime** *(Mandatory)*

Time of first entry of the flight in the airspace.

d) **[FlightLevel](#) firstEntryFlightLevel** *(Mandatory)*

The flight level at the first entry in the airspace.

e) **[FlightLevel](#) lastExitFlightLevel** *(Mandatory)*

The flight level at the last exit from the airspace.

f) **[FlightTrend](#) firstEntryTrend** *(Mandatory)*

The flight trend at the first entry in the airspace.

g) **[FlightTrend](#) middleTrend** *(Mandatory)*

The flight trend at the middle of the airspace.

h) **[DistanceNM](#) firstEntryDistance** *(Mandatory)*

Distance flown at the first entry of the flight in the airspace.

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- i) **[DateTimeSecond](#) lastExitTime** (Mandatory)  
Time of last exit of the flight from the airspace.
- j) **[FlightTrend](#) lastExitTrend** (Mandatory)  
The flight trend at the last exit from the airspace.
- k) **[DistanceNM](#) lastExitDistance** (Mandatory)  
Distance flown at the last exit of the flight from the airspace.
- l) **[DurationHourMinuteSecond](#) occupancyDuration** (Mandatory)  
Elapsed time flown in the airspace.
- m) **[DistanceNM](#) occupancyDistance** (Mandatory)  
Distance flown in the airspace.
- n) **boolean activated** (Mandatory)  
True if the airspace is a sector and the sector is activated at the moment of the flight.

(3) Used by: [Flight](#).

## 4.76. <<enumeration>> FlightDataset

- (1) Describes the flight-related datasets that one can request when retrieving detailed flight data.
- (2) Values:

Value	Description
<b>flight</b>	the reply will return the Flight.
<b>flightPlan</b>	the reply will return the FlightPlan.
<b>flightPlanHistory</b>	the reply will return the FlightPlanHistory.

Table 4.6. <<enumeration>> FlightDataset

(3) Used by: [FlightRetrievalRequest](#).

## 4.77. typedef<int> FlightDataVersionNumber

- (1) Flight data version number.
- (2) The Flight data Version Number provides a way to easily and unambiguously identify the latest (most up-to-date) version of the flight data for each flight. This is especially useful in the presence of flight data received both via R/R and via P/S messages. Please note that this number can only increase (and not decrease) over time.
- (3) Range: [ 0 , 10000 [.
- (4) Used by: [Flight](#).

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## 4.78. FlightEvent

- (1) Describes an event acting on a flight and corresponding to an input message or an output message. All other events are filtered out.
- (2) Attributes:
  - a) **DateTimeSecond timestamp** (*Mandatory*)  
Event occurrence timestamp.
  - b) **FlightEventType type** (*Mandatory*)  
Type of the flight event.
  - c) **FlightState resultingState** (*Mandatory*)  
Flight state resulting from the event.
  - d) **DateTimeMinute resultingOffBlockTime** (*Mandatory*)  
Off-block time resulting from the event.
  - e) **boolean efdSent** (*Mandatory*)  
Indicates if an EFD was sent.
  - f) **boolean fumSent** (*Mandatory*)  
Indicates if a FUM was sent.
- (3) Used by: [Flight](#).

## 4.79. <<enumeration>> FlightEventType

- (1) Describes the type of an event in a flight history.
- (2) Values:

Value	Description
<b>ACH</b>	ATC flight plan CHange. The ATC flight plan change (ACH) is that change message type distributed by the IFPS upon receipt and successful processing of an FNM, MFS, and AFP for which a valid associated flight plan exists in the IFPS.
<b>ADI</b>	Anticipated DPI message
<b>AFI</b>	AIR-FILED flight plans. Air Filed Flight plans (AFIL) represent flight plans submitted by an ATS unit to the IFPS for processing on behalf of an aircraft already in flight.
<b>APL</b>	ATC flight PLaN. The ATC flight plan (APL) is that flight plan message type distributed by the IFPS upon receipt and successful processing of an FNM, MFS, and AFP for which no valid associated flight plan exists in the IFPS.
<b>APR</b>	AO Position Reports message. For some flights departing from outside the ECAC area, AOs provide information on their estimated time of arrival.

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<b>Value</b>	<b>Description</b>
<b>ATT</b>	Take-off from.
<b>AXT</b>	Taxi from.
<b>CAL</b>	Operator Runway Update.
<b>CDC</b>	CASA Delay Confirmation suspension with booking.
<b>CDI</b>	Cancel DPI message.
<b>CEO</b>	EOBT Change for simulation or predict reason.
<b>CMC</b>	CCAMS Monitoring: Predicted Conflict.
<b>CMN</b>	CCAMS Monitoring: No Conflict Predicted.
<b>CNC</b>	CASA slot allocation/update.
<b>CPR</b>	Correlated Position Report message. CPRs are extracted from surveillance data (radar derived positions).
<b>CPT</b>	Placed on time over by CASA.
<b>CRL</b>	CCAMS Code Release Message.
<b>CRQ</b>	CCAMS Code Request Message
<b>CSC</b>	CASA Slot Cancellation.
<b>CSU</b>	CCAMS Ssr Info assignment/update.
<b>DAU</b>	Operator Dynamic Airspace Update.
<b>EDI</b>	Early DPI message.
<b>EMR</b>	Error Message.
<b>FCM</b>	Flight Confirmation Message when: <ul style="list-style-type: none"> <li>a) An AO indicates to ETFMS the RVR capability of a flight with an EOBT in the future.Flight Confirmation Message.</li> <li>b) An AO indicates to ETFMS that a flight with an EOBT in the future is now confirmed for the regulation(s) provided in this FCM.</li> <li>c) An AO indicates to ETFMS that a flight with an EOBT in the future is now confirmed for the regulation(s) provided in this FCM.</li> </ul>
<b>FDI</b>	FAA ASDI Departure Information message.
<b>FLS</b>	FLight Suspension message. Flight suspension until further notice. In case of: <ul style="list-style-type: none"> <li>a) Aerodrome closure.</li> <li>b) Runway Visual Range (RVR) unknown.</li> <li>c) Reception of an SMM message.</li> <li>d) Not reported as airborne.</li> </ul>



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<b>Value</b>	<b>Description</b>
	e) Suspended by departure airport (cancel DPI message).
<b>FSA</b>	First System Activation message. FSA is a message designed to enable ATC systems to automatically inform NM of significant events affecting a flight. The FSA message can only be sent by ATC and is normally generated automatically by an ATC system.
<b>FUM</b>	Flight Update Message. The flight status information sent to the IFPS by the ETFMS.
<b>GAI</b>	General API.
<b>IAR</b>	IFPS ARrival message. Indicates the arrival of a flight plan.
<b>ICA</b>	IFPS CAnceL message. Indicates the cancel a flight plan by IFPS.
<b>ICH</b>	IFPS CHange message. Updates certain items of a flight plan by IFPS.
<b>IDE</b>	IFPS DEparture message. Indicates the departure of a flight plan by IFPS.
<b>IDL</b>	IFPS DeLay message. Indicates a delay for the departure of a flight plan by IFPS.
<b>IFP</b>	IFPS Flight Plan message. Indicates the creation of a flight plan by IFPS.
<b>MET</b>	Meteo update.
<b>MSG</b>	Output of ATFM message(s).
<b>NEV</b>	No event.
<b>OAI</b>	Target Time-Over API.
<b>OAR</b>	ATFM Rerouting.
<b>OCA</b>	Operator Cancellation.
<b>OCM</b>	Operator Change Manual suspension.
<b>ODA</b>	Operator De-Activation.
<b>OEX</b>	Exempt / de-exempt from regulation.
<b>OIC</b>	Operator Confirmation.
<b>ORX</b>	Exclude from / re-include in regulation
<b>PDI</b>	Predicted DPI.
<b>PTX</b>	EFD Message Periodic Transmission.
<b>REA</b>	Update Readiness message.
<b>RFR</b>	Re-route after reroute cancellation.
<b>RJT</b>	Rerouteing reJecTion (RJT) message. An RJT is a negative response to a Rerouteing Proposal (RRP) message.
<b>RLR</b>	Remove Loaded RPL.
<b>RPL</b>	RPL message.
<b>RRM</b>	Rerouting Proposal Creation.
<b>RSI</b>	CASA Revoke slot proposal.

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<b>Value</b>	<b>Description</b>
<b>RSU</b>	Restriction Update.
<b>SCA</b>	Strat Cancel.
<b>SCM</b>	CCAMS Sync CCM.
<b>SIP</b>	CASA booking (SIP).
<b>SIT</b>	CASA SIT time out.
<b>SMM</b>	Slot Missed Message. An SMM is sent when the last received CTOT issued cannot be met and a new EOBT is NOT known.
<b>SPA</b>	Slot improvement Proposal Acceptance (SPA) message. An SPA is a positive response to a SIP which is received from NM. The AO will send an SPA if the proposed NEWCTOT in the SIP is acceptable.
<b>SRJ</b>	Slot improvement proposal ReJection (SRJ) message. An SRJ is a negative response to a SIP received from NM. The AO will send an SRJ if they are unable to accept the proposed improvement.
<b>SSC</b>	CCAMS Sync SLC.
<b>SSM</b>	CCAMS Sync SAM.
<b>SSP</b>	CASA Stam Proposal
<b>SSR</b>	CCAMS Sync SRM.
<b>SUS</b>	CASA RVR suspension without booking.
<b>TAC</b>	Assign Ssr Code time out.
<b>TAI</b>	Target Take-Off API.
<b>TAM</b>	Activation monitoring time out.
<b>TDE</b>	Departure time out.
<b>TDI</b>	Target DPI message.
<b>TPF</b>	PFD cancellation time out.
<b>TRC</b>	Release Ssr Code time out.
<b>TRM</b>	Resend Last Message time out.
<b>TSA</b>	Sequenced DPI message.
<b>TSC</b>	Simulate SSR Code time out.
<b>TTE</b>	Termination time out.
<b>UCD</b>	Update MCDM Data
<b>UFA</b>	Undo Flight Activation Monitoring.
<b>UXC</b>	Undo XCD Effect (suspension/shift).
<b>XCR</b>	Created for simulation or predict reason.

Table 4.7. <<enumeration>> FlightEventType

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- (3) Used by: [FlightEvent](#), [FlightDataMessage](#).

## 4.80. <<enumeration>> FlightExchangeModel

- (1) The flight exchange model

- (2) Values:

- a) **FIXM**  
The FIXM exchange model.
- b) **NM\_B2B**  
The NM B2B model for flight and flight plan.

- (3) Used by: [FlightPlanPayloadConfiguration](#), [FlightRetrievalRequest](#).

## 4.81. <<enumeration>> FlightField

- (1) Enumerates the fields that the caller may request to be returned in [Flight](#) objects.
- (2) The NM system associates a weight to flight fields: a flight field is either "light" or "heavy", in the sense that heavy flight fields are significantly more demanding to return than light ones. NM kindly requests its customers to apply the following strategy:
  - a) As a rule, client applications should never request flight fields that they do not need, regardless to their weight.
  - b) Client applications typically implement a query/retrieve pattern:
    - i) Query the small number of most relevant flight fields to display to the end user.
    - ii) Retrieve more details for a given flight (using the [FlightRetrievalRequest](#)) when the end user has selected a flight from the list.
  - c) In particular, the client application should avoid requesting heavy fields in a flight list if not strictly necessary.
  - d) However, in case one or more heavy fields are strictly necessary in the flight list, the customer is invited to request indeed the heavy fields in the flight list rather than querying first a "light" flight list and then iterating on the flight list and retrieving each individual flight to get the heavy ones.

- (4) Values:

Value	Weight	Authorisation Level
<b>actualTakeOffTime</b>	Light	Service
<b>actualTimeOfArrival</b>	Light	Service
<b>aircraftAddress</b>	Light	Field

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Value	Weight	Authorisation Level
<b>aircraftOperator</b>	Light	Service
<b>aircraftType</b>	Light	Service
<b>apiSubmissionRules</b>	Light	Service
<b>applicableScenarios</b>	Heavy	Field
<b>arrivalInformation</b>	Light	Field
<b>atfcMeasureLocations</b>	Heavy	Field
<b>avoidedRegulations</b>	Light	Field
<b>calculatedTakeOffTime</b>	Light	Service
<b>calculatedTimeOfArrival</b>	Light	Service
<b>caughtInHotspots</b>	Light	Field
<b>ccamsSSRCode</b>	Light	Service
<b>cdm</b>	Light	Service
<b>cdmEstimatedOffBlockTime</b>	Light	Service
<b>cfmuFlightType</b>	Light	Service
<b>compareWithOtherTrafficType</b>	Light	Field
<b>confirmedCTFM</b>	Heavy	Service
<b>ctfmAirspaceProfile</b>	Heavy	Service
<b>ctfmPointProfile</b>	Heavy	Service
<b>ctfmRequestedFlightLevels</b>	Heavy	Service
<b>ctfmRestrictionProfile</b>	Heavy	Field
<b>ctotLimitReason</b>	Light	Field
<b>ctotShiftAlreadyAppliedByTower</b>	Light	Service
<b>currentlyUsedTaxiTime</b>	Light	Service
<b>defaultReroutingRequestedFlightLevel</b>	Heavy	Service
<b>defaultReroutingRequestedSpeed</b>	Heavy	Service
<b>delay</b>	Light	Service
<b>delayCharacteristics</b>	Light	Service
<b>departureTolerance</b>	Heavy	Field
<b>divertedAerodromeOfDestination</b>	Light	Service
<b>equipmentCapabilityAndStatus</b>	Heavy	Service
<b>estimatedElapsedTime</b>	Heavy	Service
<b>estimatedTakeOffTime</b>	Light	Service
<b>estimatedTimeOfArrival</b>	Light	Service

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Value	Weight	Authorisation Level
<b>excludedRegulations</b>	Heavy	Field
<b>exclusionFromRegulations</b>	Light	Service
<b>exemptedFromRegulations</b>	Light	Service
<b>famStatus</b>	Light	Service
<b>filedRegistrationMark</b>	Light	Service
<b>filingRule</b>	Heavy	Service
<b>flightDataVersionNr</b>	Light	Field
<b>flightHistory</b>	Heavy	Service
<b>flightLevelAtReferenceLocationEntry</b>	Light	Field
<b>flightLevelAtReferenceLocationExit</b>	Light	Field
<b>flightState</b>	Light	Field
<b>ftfmAirspaceProfile</b>	Heavy	Service
<b>ftfmPointProfile</b>	Heavy	Service
<b>ftfmRequestedFlightLevels</b>	Heavy	Field
<b>ftfmRestrictionProfile</b>	Heavy	Field
<b>fuelConsumptionIndicator</b>	Heavy	Field
<b>hasBeenForced</b>	Light	Field
<b>hasOtherRegulations</b>	Light	Service
<b>highestModelAirspaceProfile</b>	Heavy	Service
<b>highestModelPointProfile</b>	Heavy	Service
<b>highestModelRestrictionProfile</b>	Heavy	Field
<b>hotspots</b>	Heavy	Field
<b>icaoRoute</b>	Heavy	Service
<b>initialFPLMessageOriginator</b>	Heavy	Service
<b>isProposalFlight</b>	Light	Field
<b>lastATFMMMessageOriginator</b>	Heavy	Service
<b>lastATFMMMessageReceivedOrSent</b>	Light	Service
<b>lastATFMMMessageType</b>	Light	Service
<b>lastFPLMessageOriginator</b>	Heavy	Service
<b>lastKnownPosition</b>	Light	Field
<b>lateFiler</b>	Light	Service
<b>lateUpdater</b>	Light	Service
<b>mcdmInfo</b>	Light	Field

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Value	Weight	Authorisation Level
<b>mostPenalisingRegulation</b>	Light	Service
<b>mostPenalisingRegulationCause</b>	Heavy	Service
<b>newRouteMinShiftDelayImprovement</b>	Light	Service
<b>operatingAircraftOperator</b>	Light	Service
<b>operationalLog</b>	Heavy	Service
<b>profileValidity</b>	Light	Field
<b>proposalExists</b>	Light	Field
<b>readyEstimatedOffBlockTime</b>	Light	Service
<b>readyStatus</b>	Light	Service
<b>regulationLocations</b>	Light	Service
<b>requestedFlightLevel</b>	Light	Service
<b>requestedInitialFlightLevel</b>	Heavy	Service
<b>requestedInitialSpeed</b>	Heavy	Service
<b>reroutable</b>	Light	Service
<b>reroutingIndicator</b>	Light	Service
<b>reroutingOpportunitiesExist</b>	Light	Service
<b>reroutingReference</b>	Heavy	Service
<b>revisionTimes</b>	Light	Service
<b>routeChargeIndicator</b>	Heavy	Field
<b>routeLength</b>	Heavy	Service
<b>rtfmAirspaceProfile</b>	Heavy	Service
<b>rtfmPointProfile</b>	Heavy	Service
<b>rtfmRequestedFlightLevels</b>	Heavy	Service
<b>rtfmRestrictionProfile</b>	Heavy	Field
<b>runwayVisualRange</b>	Heavy	Service
<b>slotImprovementProposal</b>	Light	Service
<b>slotIssued</b>	Light	Service
<b>slotSwapCandidateList</b>	Light	Field
<b>slotSwapCounter</b>	Light	Field
<b>slotZone</b>	Light	Service
<b>suspensionResponseBy</b>	Light	Service
<b>suspensionStatus</b>	Light	Service
<b>targetTimeOverFix</b>	Heavy	Field

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Value	Weight	Authorisation Level
<b>taxiTime</b>	Light	Service
<b>timeAtReferenceLocationEntry</b>	Light	Field
<b>timeAtReferenceLocationExit</b>	Light	Field
<b>trendAtReferenceLocationEntry</b>	Light	Service
<b>trendAtReferenceLocationExit</b>	Light	Service
<b>trendAtReferenceLocationMiddle</b>	Light	Field
<b>worstLoadStateAtReferenceLocation</b>	Light	Field

Table 4.8. <<enumeration>> FlightField

- (5) Used by: [FlightRetrievalRequest](#), [FlightListRequest](#).

## 4.82. FlightIdentificationInput

- (1) Identification of a flight, assumed to be unique.

- (2) Choices:

- a) **IFPLId id**  
Unique IFPL id.
- b) **FlightKeys keys**  
Flight keys.

- (3) Used by: [FlightRetrievalRequest](#).

## 4.83. FlightIdentificationOutput

- (1) Identification of a flight, assumed to be unique.

- (2) Attributes:

- a) **IFPLId id** (Optional)  
Unique IFPL id.
- b) **FlightKeys keys** (Optional)  
Flight keys.

- (3) Used by: [Flight](#), [FlightPlanSummary](#).

## 4.84. <<abstract>> FlightInformationUpdateReplyData

- (1) Reply returned in response to requests inherited from [FlightInformationUpdateRequest](#).

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(2) Attributes:

a) **ATFMComment[] atfmComments** (Optional)

List of ATFM information related to flight information update requests.

Constraint: Size must be comprised between 0 and ∞.

b) **string additionalInfo** (Optional)

Details about the processing of flight information update requests.

(3) Extended by: [TargetTakeOffAPIReplyData](#), [TargetTimeOverAPIReplyData](#), [TargetDPITargetReplyData](#), [EarlyDPIReplyData](#), [FlightUpdateReplyData](#), [PredictedDPIReplyData](#), [CancelDPIReplyData](#), [TargetDPISequencedReplyData](#), [GeneralAPIReplyData](#), [ATCDPIReplyData](#).

## 4.85. <<abstract>> FlightInformationUpdateRequest

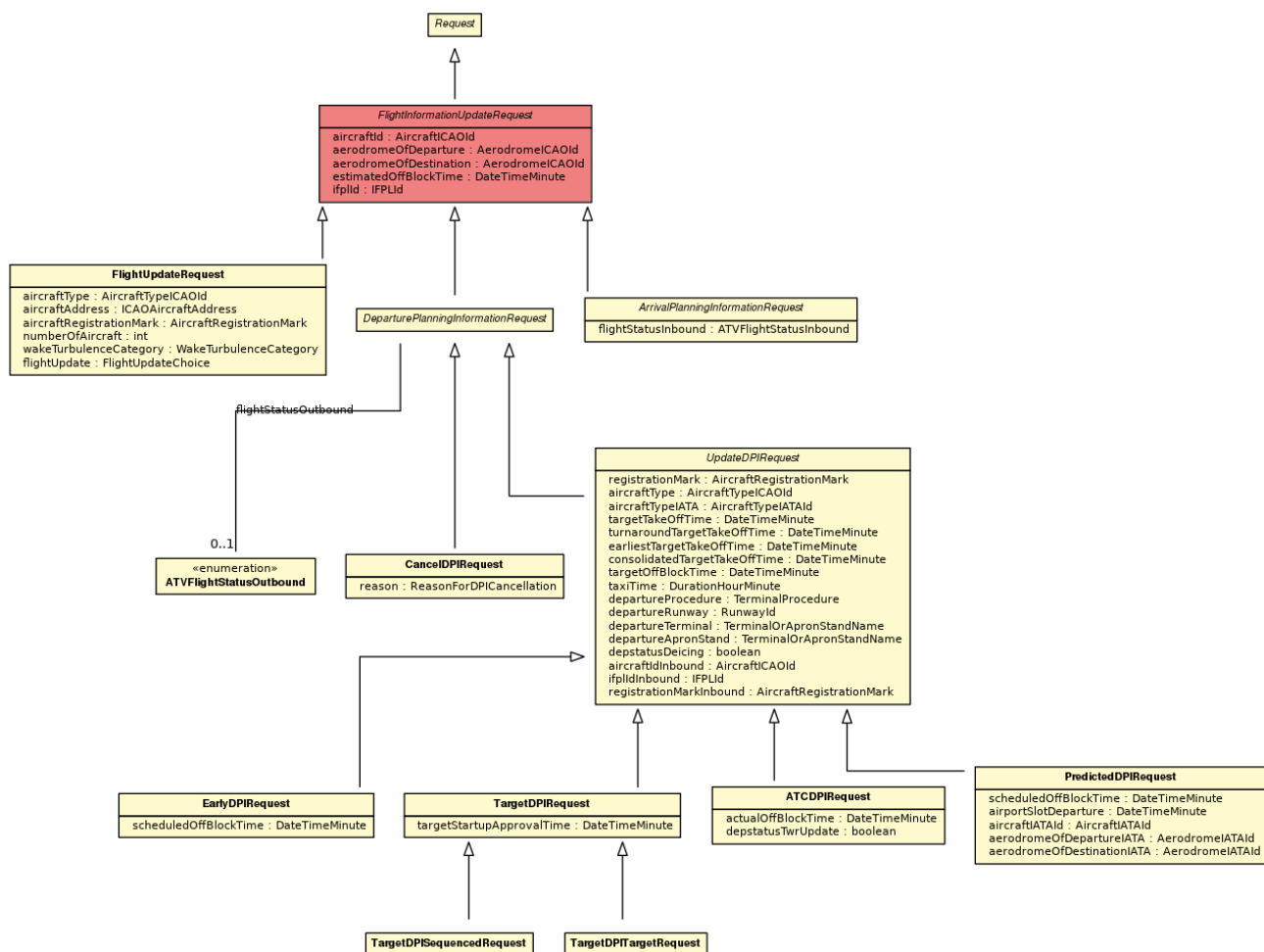


Figure 4.5. <<abstract>> FlightInformationUpdateRequest Class Diagram

(1) Base class of all Airport Planning Information requests.



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(2) Inherits from: [Request](#).

(3) Attributes:

- a) **[AircraftICA0Id](#) aircraftId** (Optional)  
Aircraft ICAO id.  
ADEXP: -ARCID  
Constraint: See [MISSING\\_FLIGHT\\_IDENTIFICATION\\_FIELDS](#)
- b) **[AerodromeICA0Id](#) aerodromeOfDeparture** (Optional)  
ICAO id of the aerodrome of departure.  
ADEXP: -ADEP  
Constraint: See [MISSING\\_FLIGHT\\_IDENTIFICATION\\_FIELDS](#)
- c) **[AerodromeICA0Id](#) aerodromeOfDestination** (Optional)  
ICAO id of the aerodrome of destination.  
ADEXP: -ADES  
Constraint: See [MISSING\\_FLIGHT\\_IDENTIFICATION\\_FIELDS](#)
- d) **[DateTimeMinute](#) estimatedOffBlockTime** (Optional)  
Estimated off-block date/time.  
ADEXP: -EOBD + -EOBT  
Constraint: See [MISSING\\_FLIGHT\\_IDENTIFICATION\\_FIELDS](#)
- e) **[IFPLId](#) ifplId** (Optional)  
Unique IFPL identifier as assigned by IFPS. Example: AA12345678.  
ADEXP: -IFPLID  
Constraint: See [MISSING\\_FLIGHT\\_IDENTIFICATION\\_FIELDS](#)

(4) Constraint:

- a)

Name	MISSING_FLIGHT_IDENTIFICATION_FIELDS
Attributes	<a href="#">aircraftId</a> , <a href="#">aerodromeOfDeparture</a> , <a href="#">aerodromeOfDestination</a> , <a href="#">estimatedOffBlockTime</a> , <a href="#">ifplId</a>
Description	<p><a href="#">aircraftId</a>, <a href="#">aerodromeOfDeparture</a>, <a href="#">aerodromeOfDestination</a> and <a href="#">estimatedOffBlockTime</a> can only be null in a PredictedDPIRequest without presence of attribute <a href="#">ifplId</a>. In all other cases, these fields must not be null. <b>REMARK:</b> In the current release, a PredictedDPIRequest without <a href="#">aircraftId</a>, <a href="#">aerodromeOfDeparture</a>, <a href="#">aerodromeOfDestination</a> and <a href="#">estimatedOffBlockTime</a> will be rejected. The constraint MISSING_FLIGHT_IDENTIFICATION_FIELDS will be implemented in NM 22.5 release.</p>

(5) Extended by: [ArrivalPlanningInformationRequest](#), [DeparturePlanningInformationRequest](#), [FlightUpdateRequest](#).

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## 4.86. FlightKeys

- (1) Represents the keys that uniquely identify a flight in the absence of an IFPL id.
- (2) Attributes:
- a) **ExtendedAircraftICA0Id aircraftId** (*Mandatory*)  
Aircraft id, can be an ICAO aircraft id or a special aircraft id containing '\$' or '#' characters used by NM in the context of prediction and simulation exercises.
  - b) **AerodromeICA0Id aerodromeOfDeparture** (*Optional*)  
ICAO id of the aerodrome of departure.  
Constraints:
    - i) See [ADEP\\_NONICA0ADEP\\_AND\\_AIRFILED\\_ARE\\_MUTUALLY\\_EXCLUSIVE](#)
    - ii) See [ONE\\_OF\\_ADEP\\_NONICA0ADEP\\_OR\\_AIRFILED\\_IS\\_MANDATORY](#)
  - c) **boolean nonICA0AerodromeOfDeparture** (*Optional*)  
True if the aerodrome of departure is not an ICAO one.  
Constraints:
    - i) See [ADEP\\_NONICA0ADEP\\_AND\\_AIRFILED\\_ARE\\_MUTUALLY\\_EXCLUSIVE](#)
    - ii) See [ONE\\_OF\\_ADEP\\_NONICA0ADEP\\_OR\\_AIRFILED\\_IS\\_MANDATORY](#)
  - d) **boolean airFiled** (*Mandatory*)  
True if the flight plan was filed airborne.  
Constraints:
    - i) See [ADEP\\_NONICA0ADEP\\_AND\\_AIRFILED\\_ARE\\_MUTUALLY\\_EXCLUSIVE](#)
    - ii) See [ONE\\_OF\\_ADEP\\_NONICA0ADEP\\_OR\\_AIRFILED\\_IS\\_MANDATORY](#)
  - e) **AerodromeICA0Id aerodromeOfDestination** (*Optional*)  
ICAO id of the aerodrome of destination.  
Constraints:
    - i) See [ADES\\_CANNOT\\_BE\\_NULL\\_IF\\_NOT\\_NONICA0ADES](#)
    - ii) See [ADES\\_MUST\\_BE\\_NULL\\_IF\\_NONICA0ADES](#)
  - f) **boolean nonICA0AerodromeOfDestination** (*Optional*)  
True if the aerodrome of destination is not an ICAO one.  
Constraints:
    - i) See [ADES\\_CANNOT\\_BE\\_NULL\\_IF\\_NOT\\_NONICA0ADES](#)
    - ii) See [ADES\\_MUST\\_BE\\_NULL\\_IF\\_NONICA0ADES](#)

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g) **[DateTimeMinute](#) estimatedOffBlockTime** (Mandatory)

Estimated off-block date/time according to the latest processed flightplan message (by IFPS). So after each flight plan, the `flightkeys.estimatedOffBlockTime` can change. Note that this off-block date/time does not necessarily corresponds to the off-block date/time of the FTFM flight profile (See : [Flight.ftfmPointProfile](#)).

(3) Constraints:

- a)
- |             |  |
|-------------|--|
| Name        | ONE_OF_ADEP_NONICA0ADEP_OR_AIRFILED_IS_MANDATORY   |
| Attributes  | <a href="#">aerodromeOfDeparture</a> , <a href="#">nonICA0AerodromeOfDeparture</a> , <a href="#">airFiled</a>                                  |
| Description | One of the attributes <code>aerodromeOfDeparture</code> , <code>nonICA0AerodromeOfDeparture</code> or <code>airFiled</code> must be specified. |
- b)
- |             |   |
|-------------|---|
| Name        | ADEP_NONICA0ADEP_AND_AIRFILED_ARE_MUTUALLY_EXCLUSIVE  |
| Attributes  | <a href="#">aerodromeOfDeparture</a> , <a href="#">nonICA0AerodromeOfDeparture</a> , <a href="#">airFiled</a>   |
| Description | Attributes <code>aerodromeOfDeparture</code> , <code>nonICA0AerodromeOfDeparture</code> and <code>airFiled</code> are mutually exclusive.<br>When <code>aerodromeOfDeparture</code> is specified, <code>nonICA0AerodromeOfDeparture</code> and <code>airFiled</code> must be set to false.<br>When <code>aerodromeOfDeparture</code> is not specified, one and only one of <code>nonICA0AerodromeOfDeparture</code> and <code>airFiled</code> must be set to true |
- c)
- |             |   |
|-------------|---|
| Name        | ADES_MUST_BE_NULL_IF_NONICA0ADES  |
| Attributes  | <a href="#">aerodromeOfDestination</a> , <a href="#">nonICA0AerodromeOfDestination</a>                            |
| Description | Attribute <code>aerodromeOfDestination</code> must be null if <code>nonICA0AerodromeOfDestination</code> is true. |
- d)
- |             |  |
|-------------|--|
| Name        | ADES_CANNOT_BE_NULL_IF_NOT_NONICA0ADES   |
| Attributes  | <a href="#">aerodromeOfDestination</a> , <a href="#">nonICA0AerodromeOfDestination</a>                               |
| Description | Attribute <code>aerodromeOfDestination</code> cannot be null if <code>nonICA0AerodromeOfDestination</code> is false. |

(4) Used by: [FlightIdentificationInput](#), [UpdateFlightsInMeasureReply](#), [FlightIdentificationOutput](#), [MCDMFlightTopic](#), [UpdateFlightInMeasure](#), [InvalidFiling](#).

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## 4.87. <<abstract>> FlightListByLocationReplyData

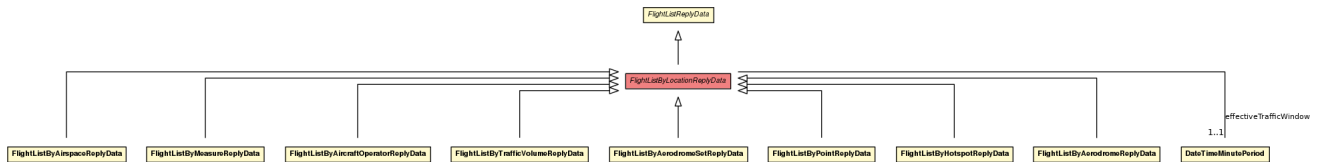


Figure 4.6. <<abstract>> FlightListByLocationReplyData Class Diagram

- (1) Abstract reply returned in response to an abstract [FlightListByLocationRequest](#).
- (2) Inherits from: [FlightListReplyData](#).
- (3) Attributes:
  - a) **[DateTimeMinutePeriod](#) effectiveTrafficWindow** (Mandatory)  
The effective period of time for which counts/flights were requested: flights from within this periods have been used in the flightlist/counts. This is the rounded and/or extended request trafficWindow (based on the countsInterval attribute). See also [FlightListRequest.trafficWindow](#).
- (4) Extended by: [FlightListByHotspotReplyData](#), [FlightListByAircraftOperatorReplyData](#), [FlightListByAerodromeSetReplyData](#), [FlightListByAerodromeReplyData](#), [FlightListByMeasureReplyData](#), [FlightListByTrafficVolumeReplyData](#), [FlightListByPointReplyData](#), [FlightListByAirspaceReplyData](#).

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#### 4.88. <<abstract>> FlightListByLocationRequest

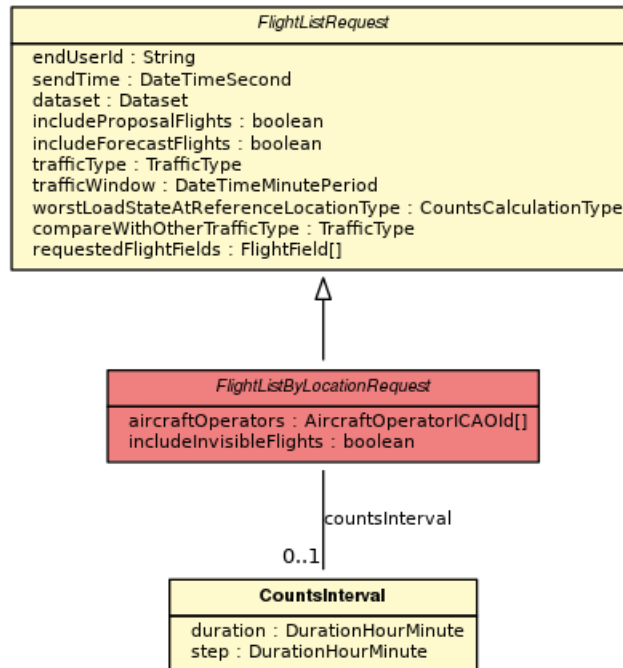


Figure 4.7. <<abstract>> FlightListByLocationRequest Class Diagram

- (1) Abstract request to query a flight list by location.
- (2) The logical AND operator applies between all the query fields described below and the query fields of its ancestor request.
- (3) Inherits from: [FlightListRequest](#).
- (4) Attributes:
  - a) **[CountsInterval](#) countsInterval** (Optional)  
Determines how the effectiveTrafficWindow needs to be derived from the [FlightListRequest.trafficWindow](#).  
By default, the countsInterval.duration is 1 minute and the countsInterval.step is 1 minute.  
Constraint: See [COUNTS\\_INTERVAL\\_MUST\\_BE\\_NULL](#)
  - b) **[AircraftOperatorICAOId\[\]](#) aircraftOperators** (Optional)  
Array of aircraft operator ICAO Id(s) for which flights are requested. Mandatory: the array is empty if there is no such aircraft operator ICAO id.  
Constraint: Size must be comprised between 0 and 64.
  - c) **boolean includeInvisibleFlights** (Optional)  
Indicates whether invisible flights (VFR, OAT, STAY, IFPSTOP) shall be included in the flight list.

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This attribute is only used in the following queries:

- i) [FlightListByAerodromeRequest](#)
- ii) [FlightListByAerodromeSetRequest](#)
- iii) [FlightListByTrafficVolumeRequest](#) (and only if the reference location of the traffic volume is an aerodrome or a set of aerodromes).

This attribute is ignored (i.e. it has no effect) in all other flight list requests.

Defaults to `false`, i.e. by default invisible flights are not returned.

(5) Constraint:

a)

Name	COUNTS_INTERVAL_MUST_BE_NULL
Attribute	<a href="#">countsInterval</a>
Description	The attribute <code>countsInterval</code> must be null when this request is a <a href="#">FlightListByHotspotRequest</a> .

- (6) Extended by: [FlightListByPointRequest](#), [FlightListByAerodromeSetRequest](#), [FlightListByAircraftOperatorRequest](#), [FlightListByMeasureRequest](#), [FlightListByHotspotRequest](#), [FlightListByAirspaceRequest](#), [FlightListByTrafficVolumeRequest](#), [FlightListByAerodromeRequest](#).

## 4.89. <<enumeration>> **FlightListByMeasureMode**

- (1) Flight List By Measure Mode.
- (2) For a regulation the concerned flights are those flights that use a regulation slot. However not all of them have an actual delay/have received a slot allocation message (typically exempted flights do not get regulated in a normal regulation (non-exceptional-conditions regulation). For a regulation, the flights that the measure has impacted (measure activated), are a subset of those flights: only those flights that did get a delay (can be 0 minutes) and have/will receive a SAM (Slot Allocation Message).
- (3) For a rerouting/MCDM-only measure, the concerned flights are those flights that cross the location/traffic volume during the period on the optional flow, while the flights that the measure has impacted (measure activated: `activated_by_measure`), are a subset of those flights: only those flights that have been cherry picked for the rerouting/MCDM-only measure. Note that even if a flight has been cherry picked for a rerouting, it does not mean that the rerouting could find an alternate route/improvement (the result can be found inside the flight field: [FlightAtfcmMeasureLocation](#)).
- (4) Values:
- a) **ACTIVATED\_BY\_MEASURE**
  - b) **CONCERNED\_BY\_MEASURE**
- (5) Used by: [FlightListByMeasureRequest](#).

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#### 4.90. <<abstract>> FlightListReplyData

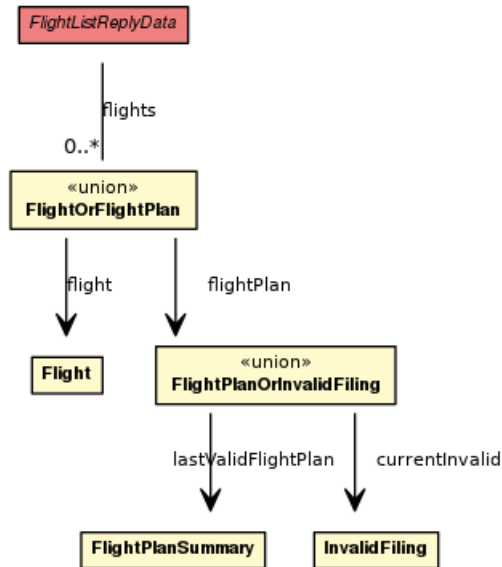


Figure 4.8. <<abstract>> FlightListReplyData Class Diagram

- (1) Abstract reply returned in response to an abstract [FlightListRequest](#).
- (2) Attributes:
  - a) **[FlightOrFlightPlan\[\] flights](#)** (Mandatory)  
 The requested flights (together with their invalid filing summary if requested - this feature is only accessible via [FlightListByKeysRequest](#)).  
 Mandatory: if no match was found, the returned array is empty.  
 The array does not contain null or duplicate items.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- (3) Extended by: [FlightListByKeysReplyData](#), [FlightListByLocationReplyData](#), [FlightListByAircraftRegistrationMarkReplyData](#).

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## 4.91. <<abstract>> FlightListRequest

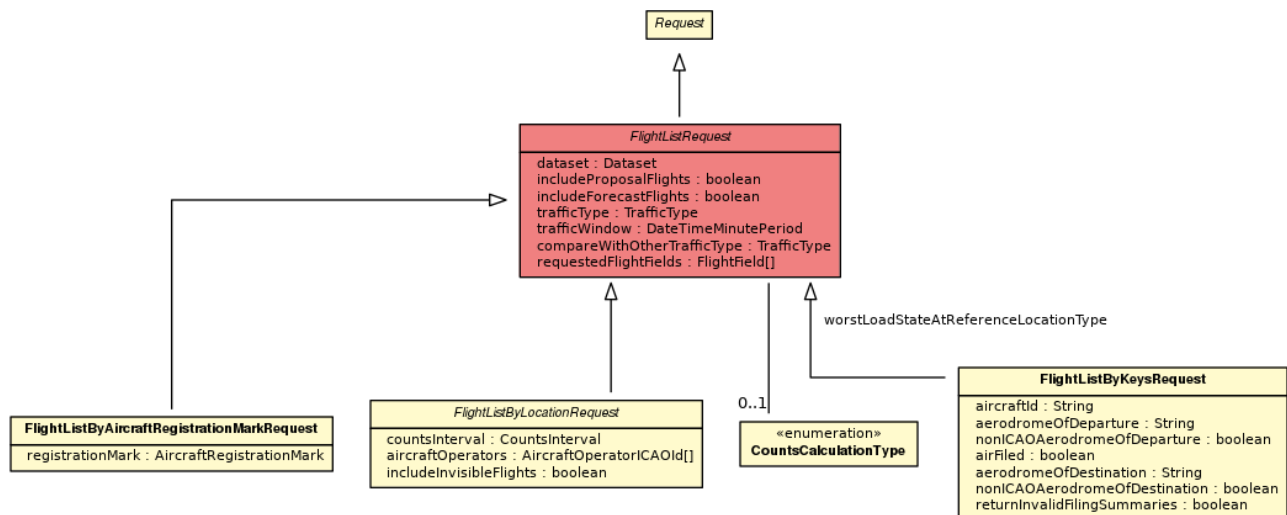


Figure 4.9. <<abstract>> FlightListRequest Class Diagram

- (1) Abstract request to query an NM flight list, possibly together with the invalid filing messages.
- (2) The logical AND operator applies between all the query fields described below.
- (3) It is important to note that NM associates a weight to flight fields (see [FlightField](#) definition): a flight field is either "light" or "heavy", in the sense that heavy flight fields are significantly more demanding to return than light ones. NM kindly requests its customers to apply the following strategy:
  - (4) a) As a rule, client applications should never request flight fields that they do not need, regardless of their weight
  - b) Client applications typically implement a query/retrieve pattern:
    - i) Query the small number of most relevant flight fields to display to the end user.
    - ii) Retrieve more details for a given flight (using the [FlightRetrievalRequest](#)) when the end user has selected a flight from the list

The client application should not request flight fields in the flight list if these fields are not necessary for the end user to make his selection.
  - c) In particular, the client application should avoid requesting heavy fields in a flight list if not strictly necessary.
  - d) However, in case one or more heavy fields are strictly necessary in the flight list, the customer is invited to request indeed the heavy fields in the flight list rather than querying first a "light" flight list and then iterating on the flight list and retrieving each individual flight to get the heavy ones.



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(5) Inherits from: [Request](#).

(6) Attributes:

a) **[Dataset](#) dataset** (*Mandatory*)

Dataset from which the flight list is requested.

See [Forecast and Operational Datasets](#) and [Simulation Datasets](#).

Constraint: See [INVALID\\_QUERY\\_PERIOD\\_RANGE](#)

b) **boolean includeProposalFlights** (*Mandatory*)

Determines if the selected traffic must include the proposal flights, or only the \"real\" flights. If the proposal flights are included, they replace their corresponding \"real\" flights.

See [Proposal Flights](#).

c) **boolean includeForecastFlights** (*Mandatory*)

Determines if the selected traffic must include the \"forecast\" flights.

In the OPERATIONAL dataset (or in a simulation on OPERATIONAL), a \"forecast\" flight is a predicted flight (cfmuFlightType = PREDICTED\_FLIGHT).

In the FORECAST dataset (or in a simulation on FORECAST), a \"forecast\" flight is a predicted flight with no intention data.

d) **[TrafficType](#) trafficType** (*Mandatory*)

Traffic type for which flights are requested.

Returned flights are according to the \"highest\" available Tactical Flight Model:

i) If the requested traffic type is `TrafficType.LOAD`, returned flights are according to the \"CTFM\" (Current Tactical Flight Model) model if available; otherwise, according to the \"RTFM\" (Regulated Tactical Flight Model) model if available; otherwise, according to the \"FTFM\" (Filed Tactical Flight Model) model. Note however that suspended flights are never returned in the flight list obtained with `TrafficType.LOAD`.

ii) If the requested traffic type is `TrafficType.REGULATED_DEMAND`, returned flights are according to the \"RTFM\" (Regulated Tactical Flight Model) model if available; otherwise, according to the \"FTFM\" (Filed Tactical Flight Model) model. Note however that suspended flights are never returned in the flight list obtained with `TrafficType.REGULATED_DEMAND`.

iii) If the requested traffic type is `TrafficType.DEMAND`, returned flights are according to the \"FTFM\" (Filed Tactical Flight Model) model.

Constraint: See [COMPARE\\_WITH\\_OTHER\\_TRAFFIC\\_TYPE\\_INVALID\\_VALUE](#)

e) **[DateTimeMinutePeriod](#) trafficWindow** (*Contextual*)

The period of time for which flights are requested.

The meaning of the traffic window depends on the actual request type:

i) If the actual request is a [FlightListByLocationRequest](#), and depending on the concrete request type, the traffic window specifies that only those flights taking off and/or landing, or being over a point, or entering a sector in the time window are returned.

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Alternatively if an OCCUPANCY calculationType is requested (applicability depending on the concrete request type), the traffic window specifies that only those flights occupying a sector or being airborne in the time window are returned (depending on the concrete request type).

Note that for a [FlightListByLocationRequest](#), the trafficWindow is first (optionally) rounded and/or extended based on the countsInterval attribute.

The result is the effectiveTrafficWindow in the [FlightListByLocationReplyData](#). If a countsInterval is used with step 1 minute and duration 1 minute, then no rounding/extending takes place, and the effectiveTrafficWindow is the request trafficWindow.

The idea behind: if a user does a TrafficCountRequest with a trafficWindow from [10:00, 10:01[ with a countsInterval with step 1 and duration 10 minutes, the single count period returned has a duration of 10 minutes ([10:00, 10:10[).

If the users want to list corresponding flights, then he can do a flightlist with trafficWindow [10:00, 10:01[ and a countsInterval with step 1 and duration 10 minutes. (i.e. the parameters that were used in the TrafficCounts request) to get exactly those flights corresponding to the counts.

So more general: the countsInterval attribute allows to round/extend the request trafficWindow to get the flights corresponding to the TrafficCounts (corresponding to the one or more count periods of the [TrafficCountsReplyData](#)).

- ii) If the actual request is a [FlightListByKeysRequest](#), the traffic window specifies that only those flights having an estimated off-block time in the period are returned.

Presence:

- i) Must be null in [FlightListByHotspotRequest](#)

- ii) Mandatory otherwise.

Constraints:

- i) See [INVALID\\_QUERY\\_PERIOD\\_RANGE](#)

- ii) See [PERIOD\\_EXTENSION\\_CANNOT\\_BE\\_GREATER\\_THAN\\_24\\_HOURS](#)

- f) **CountsCalculationType** **worstLoadStateAtReferenceLocationType** (Optional)

When requestedFlightFields.worstLoadStateAtReferenceLocation is requested, then this CountsCalculationType indicates how the field needs to be computed: based on entry counts (with capacity values) or based on occupancy counts (with OTMV).

So basically, the worstLoadStateAtReferenceLocation field indicates if a flight contributes to an overload counts period (for an entry CountsCalculationType) or if the flight contributes to a peak/sustained flight overload (w.r.t. OTMV) occupancy count period (for an occupancy CountsCalculationType).

This info is useful when selecting flights to STAM.

Note that the worstLoadStateAtReferenceLocation flight field is only authorized for a user if he is also authorized to use the TrafficCounts.

Constraint: See [WORST\\_LOAD\\_STATE\\_AT\\_REFERENCE\\_LOCATION\\_TYPE\\_PRESENCE](#)

- g) **TrafficType** **compareWithOtherTrafficType** (Optional)

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When `requestedFlightFields.compareWithOtherTrafficType` is requested, then this `TrafficType` indicates how the field needs to be computed. Basically, the `compareWithOtherTrafficType` field allows comparing two flight-lists: one with `trafficType` and the other with `compareWithOtherTrafficType`.

The results are shown in this `compareWithOtherTrafficType` field: it shows for a flight in `trafficType` where is the flight in `compareWithOtherTrafficType` w.r.t. timeOver, lateral deviation and vertical deviation and if it is an intruder or not for the queried location.

Constraints:

- i) See [COMPARE\\_WITH\\_OTHER\\_TRAFFIC\\_TYPE\\_INVALID\\_VALUE](#)
- ii) See [COMPARE\\_WITH\\_OTHER\\_TRAFFIC\\_TYPE\\_PRESENCE](#)
- h) **`FlightField[] requestedFlightFields`** (*Optional*)  
The reply returns only the requested flight fields in this array, and only if the values of these requested fields are available at NM. Note that the flight keys are always returned. Optional: default is the empty array (used if only flight plan filing summary is requested). Cannot be null or empty if the concrete request does not add any other data request.  
Constraints:
  - i) Size must be comprised between 0 and  $\infty$ .
  - ii) See [CANNOT\\_REQUEST\\_OPERATIONAL\\_LOG](#)
  - iii) See [COMPARE\\_WITH\\_OTHER\\_TRAFFIC\\_TYPE\\_PRESENCE](#)
  - iv) See [REQUESTED\\_FIELD\\_NOT\\_ALLOWED\\_FOR\\_OPERATION](#)
  - v) See [REQUESTED\\_FIELDS\\_CANNOT\\_CONTAIN\\_DUPLICATE](#)
  - vi) See [WORST\\_LOAD\\_STATE\\_AT\\_REFERENCE\\_LOCATION\\_TYPE\\_PRESENCE](#)

(7) Constraints:

- a)

Name	PERIOD_EXTENSION_CANNOT_BE_GREATER_THAN_24_HOURS
Attribute	<a href="#">trafficWindow</a>
Description	The period extension must be smaller or equal to 24 hours.
- b)

Name	REQUESTED_FIELDS_CANNOT_CONTAIN_DUPLICATE
Attribute	<a href="#">requestedFlightFields</a>
Description	If specified, the array cannot contain duplicates.
- c)

Name	CANNOT_REQUEST_OPERATIONAL_LOG
Attribute	<a href="#">requestedFlightFields</a>
Description	The field <code>operationalLog</code> is not valid in the <a href="#">FlightListRequest</a> .

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d)

Name	WORST_LOAD_STATE_AT_REFERENCE_LOCATION_TYPE_PRESENCE
Attributes	<a href="#">worstLoadStateAtReferenceLocationType</a> , <a href="#">requestedFlightFields</a>
Description	The field <code>worstLoadStateAtReferenceLocationType</code> must be set if and only if the <code>requestedFields.worstLoadStateAtReferenceLocation</code> is requested.

e)

Name	COMPARE_WITH_OTHER_TRAFFIC_TYPE_PRESENCE
Attributes	<a href="#">compareWithOtherTrafficType</a> , <a href="#">requestedFlightFields</a>
Description	The field <code>compareWithOtherTrafficType</code> must be set if and only if the <code>requestedFields.compareWithOtherTrafficType</code> is requested.

f)

Name	COMPARE_WITH_OTHER_TRAFFIC_TYPE_INVALID_VALUE
Attributes	<a href="#">trafficType</a> , <a href="#">compareWithOtherTrafficType</a>
Description	The two attributes <code>trafficType</code> and <code>compareWithOtherTrafficType</code> cannot have the same value.

g)

Name	REQUESTED_FIELD_NOT_ALLOWED_FOR_OPERATION
Attribute	<a href="#">requestedFlightFields</a>
Description	<p>The fields <code>worstLoadStateAtReferenceLocation</code>, <code>compareWithOtherTrafficType</code> are not valid in the <a href="#">FlightListByAircraftOperatorRequest</a> and in the <a href="#">FlightListByKeysRequest</a>.</p> <p>The fields <code>timeAtReferenceLocation</code>, <code>timeAtReferenceLocationEntry</code>, <code>timeAtReferenceLocationExit</code>, <code>flightLevelAtReferenceLocation</code>, <code>flightLevelAtReferenceLocationEntry</code>, <code>flightLevelAtReferenceLocationExit</code>, <code>trendAtReferenceLocationEntry</code>, <code>trendAtReferenceLocationExit</code>, <code>trendAtReferenceLocationMiddle</code>, <code>worstLoadStateAtReferenceLocation</code>, <code>compareWithOtherTrafficType</code> are not valid in the <a href="#">FlightListByMeasureRequest</a> when <code>FlightListByMeasureRequest.mode</code> equals <a href="#">FlightListByMeasureMode.ACTIVATED_BY_MEASURE</a>.</p>

h)

Name	INVALID_QUERY_PERIOD_RANGE
Attributes	<a href="#">trafficWindow</a> , <a href="#">dataset</a>
Description	<p>The <a href="#">dataset.type</a> from which the measures are requested and the <code>trafficWindow</code> must be set according to the following rules:</p> <p>i) if the <code>DatasetType</code> is equals to <code>FORECAST</code> the <code>trafficWindow</code> shall be defined within the range [ today .. today+5d ]</p>

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	ii) if the DatasetType is equals to OPERATIONAL the trafficWindow shall be defined within the range [ yesterday 21:00 UTC .. tomorrow ]
--	---

- (8) Extended by: [FlightListByAircraftRegistrationMarkRequest](#), [FlightListByKeysRequest](#), [FlightList-ByLocationRequest](#).

## 4.92. FlightOperationalLogEntry

- (1) Describes an entry in a flight operational log.
- (2) Attributes:
- a) **[DateTimeSecond](#) timestamp** (*Optional*)  
The date/time when the entry was recorded.
  - b) **[FlightOperationalLogEntryType](#) type** (*Optional*)  
The type of the operational log entry.
  - c) **int etfmsId** (*Optional*)  
The ETFMS unique id of the flight.  
Constraint: Range: ] -  $\infty$ ,  $\infty$  [.
  - d) **[IFPLId](#) ifplId** (*Optional*)  
The IFPL id of the flight, if any in ETFMS.
  - e) **string issuer** (*Optional*)  
The identification of the issuer of the message, if any.
  - f) **string message** (*Optional*)  
The detailed text of the message (if the entry is a detailed entry).
  - g) **string[] summaryFields** (*Optional*)  
The summary fields (if the entry is a summary entry).  
Constraint: Size must be comprised between 0 and  $\infty$ .
- (3) Used by: [Flight](#), [MeasureOpLogRetrievalReply](#).

## 4.93. <<enumeration>> FlightOperationalLogEntryType

- (1) Describes a flight operational log entry type.
- (2) Values:
- a) **ENVIRONMENT\_MESSAGE**
  - b) **ERRONEOUS\_INCOMING\_MESSAGE**
  - c) **ERROR\_MESSAGE**

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- d) **HISTORY**
- e) **INCOMING\_MESSAGE**
- f) **OUTGOING\_MESSAGE**
- g) **PROCESS\_ERROR**
- h) **TEXT\_MESSAGE**
- i) **UNDEFINED**
- j) **USER\_COMMAND**
- k) **VIOLATION**
- l) **WARNING**

(3) Used by: [FlightOperationalLogEntry](#).

#### 4.94. Flight0rFlightPlan

- (1) For a given IFPLId, represents the flight or flight plan.
- (2) In the latter case, the flight plan may contains a valid flight plan or invalid filings messages.
- (3) Depending on what has been received by NM, the flight follows the new ICAO2012 standard (**flight**).
- (4) Choices:
  - a) **[Flight](#) flight**  
The flight.
  - b) **[FlightPlanOrInvalidFiling](#) flightPlan**  
The valid flight plan or invalid filings messages.
- (5) Used by: [FlightListReplyData](#).

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## 4.95. FlightPlan

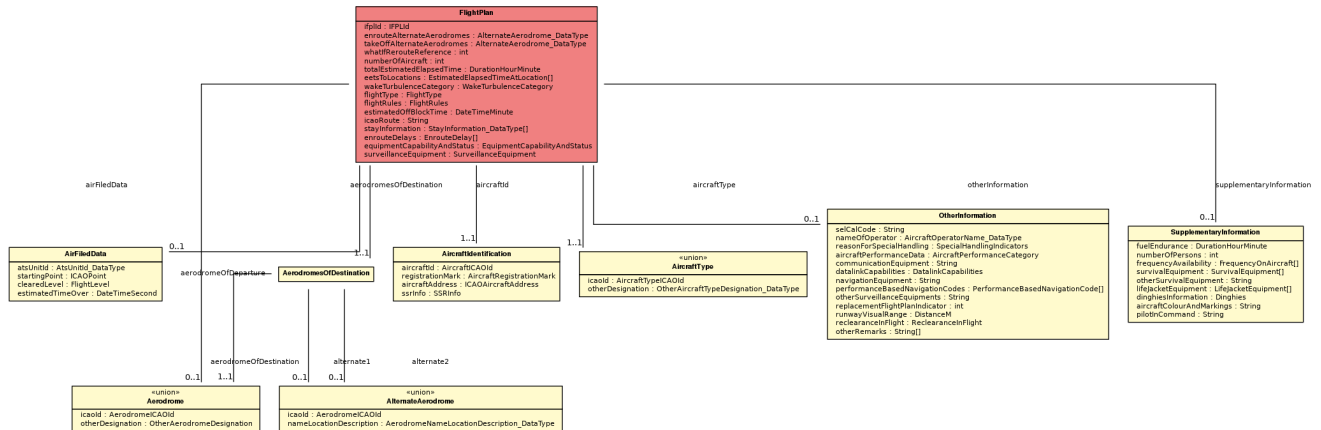


Figure 4.10. FlightPlan Class Diagram

- (1) This set contains classes related to flight plan information.
- (2) Note that the involved data types are highly inspired by the Flight Plan model proposed by the FO ICD for ICOG (see [Flight Object ICD](#)), where the CamelCase notation has replaced the original "\_" notation.
- (3) Attributes:
  - a) **IFPLId ifplId** (*Optional*)  
Unique, opaque identifier assigned by the NM system to a submitted flight plan.  
The attribute FlightPlan.ifplId is ignored in all request messages sent to NM.  
When such ifplId information needs to be provided in a request message to NM, it will be done through a specific structure different from FlightPlan structure such as [Flight-IdentificationInput](#).  
The attribute FlightPlan.ifplId is never null when NM returns a submitted FlightPlan object.
  - b) **AirFiledData airFiledData** (*Contextual*)  
Estimate data provided when the flight plan was filed airborne.  
Presence:
    - i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)
    - ii) Optional otherwise.  
Constraint: See [ADEP\\_AIRFILEDDATA\\_MUTUALLY\\_EXCLUSIVE](#)
  - c) **Aerodrome aerodromeOfDeparture** (*Optional*)  
Aerodrome of departure.  
Constraint: See [ADEP\\_AIRFILEDDATA\\_MUTUALLY\\_EXCLUSIVE](#)
  - d) **AerodromesOfDestination aerodromesOfDestination** (*Mandatory*)

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Aerodromes of destination, including the alternates.

- e) **[AlternateAerodrome\\_DataType](#) enrouteAlternateAerodromes** *(Optional)*  
Aerodromes where the aircraft may land in case of emergency along the route.
- f) **[AlternateAerodrome\\_DataType](#) takeOffAlternateAerodromes** *(Optional)*  
Aerodromes where the aircraft may land in case of emergency at take-off.
- g) **[AircraftIdentification](#) aircraftId** *(Contextual)*  
Information regarding the aircraft in this flight plan, i.e. the aircraft id but also other information like registration mark or SSR info.  
Presence:
  - i) Optional in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)
  - ii) Mandatory otherwise.
- h) **int whatIfRerouteReference** *(Contextual)*  
Indication of AO What-If rerouting reference in a flight plan.  
Presence:
  - i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)
  - ii) Optional otherwise.  
Constraint: Range: [ 1, 9 ].
- i) **int numberOfAircraft** *(Contextual)*  
Number of aircraft in a formation flight.  
Optional: default is 1.  
Presence:
  - i) Ignored in [RoutingAssistanceRequest](#)
  - ii) Optional otherwise.  
Constraint: Range: [ 1, 99 ].
- j) **[AircraftType](#) aircraftType** *(Mandatory)*  
Aircraft type.
- k) **[DurationHourMinute](#) totalEstimatedElapsedTime** *(Contextual)*  
Total estimated elapsed time.  
Presence:
  - i) Optional in [RoutingAssistanceRequest](#)
  - ii) Mandatory otherwise.
- l) **[EstimatedElapsedTimeAtLocation\[\]](#) eetsToLocations** *(Contextual)*  
Array of locations and the corresponding accumulated elapsed time to these locations.



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In case of [FlightPlanUpdateRequest](#), the list of locations should be complete. Omitting a location will delete the location.

Presence:

i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Optional otherwise.

Constraint: Size must be comprised between 0 and  $\infty$ .

m) [WakeTurbulenceCategory](#) **wakeTurbulenceCategory** (*Contextual*)

Wake turbulence category.

Presence:

i) Optional in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Mandatory otherwise.

n) [FlightType](#) **flightType** (*Contextual*)

Type of the flight, e.g. scheduled, not scheduled, etc.

Presence:

i) Optional in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Mandatory otherwise.

o) [FlightRules](#) **flightRules** (*Contextual*)

Indicates if the rules applicable to the flight are visual (`FlightRules.VFR`), instrumented (`FlightRules.IFR`) or visual and then instrumented (`FlightRules.VFR_THEN_IFR`) or vice versa (`FlightRules.IFR_THEN_VFR`).

Presence:

i) Optional in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Mandatory otherwise.

Constraint: See [VFR\\_FLIGHT\\_RULES\\_NOT\\_SUPPORTED](#)

p) [DateTimeMinute](#) **estimatedOffBlockTime** (*Mandatory*)

Estimated off-block date/time.

q) **string icaoRoute** (*Mandatory*)

Represents the Flight Plan ICAO Route (Field15).

r) [StayInformation\\_DataType\[\]](#) **stayInformation** (*Contextual*)

Information concerning the type of activity (training, photographic mission, etc) to be performed during the stay periods mentioned in the route of the flight.

Item N in the array corresponds to the "STAY<N>" reference in the stay periods of the route, where N is in [ 1, 9 ].

The value of each item corresponds to the remark string in the ADEXP STAYINFO element. In case of `FlightPlanUpdateRequest`, the list of activities should be complete. Omitting an activity will delete the activity.

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Presence:

- i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)
- ii) Optional otherwise.  
Constraint: Size must be comprised between 0 and 9.
- s) **[EnrouteDelay\[\] enroutDelays](#) (Optional)**  
Gives the list of delays or holdings planned at given points. Corresponds to the ICAO DLE/field.  
Note that in the EUR region the usage of the STAY within the route description is preferred to the DLE.  
Constraint: Size must be comprised between 0 and ∞.
- t) **[EquipmentCapabilityAndStatus equipmentCapabilityAndStatus](#) (Contextual)**  
Represents the capability and status of the equipment of the aircraft of the flight.  
For [FlightPlanValidationRequest](#) and [RoutingAssistanceRequest](#), the default value corresponds to "-ADEXP SWY": this value is used if the attribute is null or if it does not contain any attribute (equipment type) marked as EquipmentStatus.EQUIPPED. All [Equipment-Status](#) values that are not EquipmentStatus.EQUIPPED are ignored.  
Presence:
  - i) Optional in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)
  - ii) Mandatory otherwise.
- u) **[SurveillanceEquipment surveillanceEquipment](#) (Contextual)**  
Surveillance equipment of the aircraft of the flight.  
For [FlightPlanValidationRequest](#) and [RoutingAssistanceRequest](#), the default value of the surveillance equipment is "S".  
Presence:
  - i) Optional in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)
  - ii) Mandatory otherwise.
- v) **[OtherInformation otherInformation](#) (Contextual)**  
Any other flight data Items specified in the bilateral agreement.  
Refer to ICAO 4444 field type 18 (Other information).  
Presence:
  - i) Ignored in [RoutingAssistanceRequest](#)
  - ii) Optional otherwise.
- w) **[SupplementaryInformation supplementaryInformation](#) (Contextual)**  
Supplementary flight data. Refer to ICAO 4444 field type 19 (Supplementary information).  
Presence:
  - i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

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ii) Optional otherwise.

(4) Constraints:

a)

Name	ADEP_AIRFILEDDATA_MUTUALLY_EXCLUSIVE
Attributes	<a href="#">airFiledData</a> , <a href="#">aerodromeOfDeparture</a>
Description	airFiledData cannot be null if aerodromeOfDeparture is null; must be null otherwise. aerodromeOfDeparture is mandatory, except if airFiledData is not null, in which case it is optional. aerodromeOfDeparture is also optional in <a href="#">FlightPlanValidationRequest</a> and <a href="#">RoutingAssistanceRequest</a> .

b)

Name	VFR_FLIGHT_RULES_NOT_SUPPORTED
Attribute	<a href="#">flightRules</a>
Context	<a href="#">FlightPlanCreationRequest</a> , <a href="#">RoutingAssistanceRequest</a> , <a href="#">FlightPlanValidationRequest</a>
Description	The FlightRules.VFR is not supported.

(5) Used by: [FlightDelayReply](#), [FlightPlanUnion](#), [StructuredFlightPlan](#), [StructuredFlightPlanData](#).

## 4.96. FlightPlanHistory

(1) History of a flight plan.

(2) Attributes:

- a) [FlightPlanHistoryInfo\[\] infos](#) (Optional)  
Description of the history  
Constraint: Size must be comprised between 0 and ∞.

(3) Used by: [FlightRetrievalReply](#).

## 4.97. FlightPlanHistoryInfo

(1) Information associated to the flight plan history.

(2) Attributes:

- a) [DateTimeSecond timeStamp](#) (Optional)  
Date and time of the checkpoint logging.
- b) **string checkPoint** (Optional)

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Checkpoint	Abbreviation	Possible mode	Description of the corresponding action
FUM Update	FU	A	NM Internal message.
Reprocess Suspended	RS	A, O	A flight plan is suspended by the automatic revalidation or by an operator.
Reprocess Advisory	RA	A	A flight plan is revalidated and has been invalidated in status REVAL_ADVISORY
Reprocess Compliant	RC	A	A flight plan becomes compliant as a result of automatic revalidation.
Force Compliant	FC	O	A flight plan is forced to the NORMAL (compliant) state by an operator action.
Create	CR	A,M,S	A message is successfully processed, and a flight plan is created.
Update	UP	A,M,S	A message is successfully processed, and the associated flight plan is updated.
Backup	BU	A,M,S	A message is received at the back-up IFPU.
Duplicate	DU	A	Exactly the same message was already received.
Invalid	IN	A,M	A message is processed and is invalid. It is passed to manual processing.
Reject	RE	A,M,S,O	A message is rejected.
Close FPD	CL	A,M,S,O	The flight plan is closed.
Multiple	MU	M	An invalid message contains more than one flight plan.
Delete Message	DE	O	An operator has deleted an invalid message.
Refer	RF	O	NM Internal event.
Escape	ES	O	NM Internal event.
Manual Transmit	MT	O	An operator has manually requested the transmission of a message.
Transmit	TO	A	Successful transmission of a message.
Transmit Fail	TF	A	Failed transmission of a message.
Edit	ED	O	Flight plan editor opened by an operator on an invalid message.
Associate	AS	O	Manual association done by an operator
Discard	DI	A	The processing of the message failed

*Table 4.9. FlightPlanHistoryInfoDetailed.checkPoints description*

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c) **string mode** (*Optional*)

Mode	Abbreviation	Description
Auto	A	The checkpoint logged in <i>Auto</i> mode corresponds to an automatic action.
Man	M	The checkpoint logged in <i>Man</i> mode corresponds to an action performed by an NM operator when correcting an invalid flight plan.
Semi_Auto	S	The checkpoint logged in <i>Semi_Auto</i> mode corresponds to an action performed by an NM operator in the context of semi-automatic processing of invalid messages in the invalid group window after the correction of an initial message.

Table 4.10. *FlightPlanHistoryInfoDetailed.mode* description

d) **string msgIn** (*Optional*)

The type (FPL, CHG, ... of the received or processed message.

e) **string msgOut** (*Optional*)

The type of the transmitted message.

f) **string[] addresses** (*Optional*)

The address of the originator if msgIn; Addresses to which the msgOut is transmitted.

Constraint: Size must be comprised between 0 and  $\infty$ .

g) **string detail** (*Optional*)

The text of the message concerned by the action.

(3) Used by: [FlightPlanHistory](#).

## 4.98. FlightPlanInput

(1) Input flight plan expressed in one of the following formats: structured according to the NM B2B model, FIXM or textual.

(2) Choices:

a) **[StructuredFlightPlan](#) structured**

Used when the flight plan data is input in a structured manner according to the NM B2B model.

b) **[FIXMFlight\\_v4\\_1](#) fixm\_v4\_1**

Used when the flight plan data is input in FIXM.

c) **string textual**

FPL message text used when the flight plan data is input via a string.

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Two message formats are accepted: ICAO and ADEXP.

- (3) Used by: [FlightPlanValidationRequest](#), [FlightPlanCreationRequest](#), [RoutingAssistanceRequest](#).

#### 4.99. <<enumeration>> FlightPlanMessageStatus

- (1) Enumerates possible flight plan message status.

- (2) Values:

Value	Description
<b>DELETED</b>	the message has been deleted.
<b>DISCARD</b>	the processing of the message has failed (internal error).
<b>INVALID</b>	the message was queued for correction.
<b>MULTIPLE</b>	refers to an invalid message that contains more than one flight plan message (coming from AFTN/SITA).
<b>REFERRED</b>	the message was queued for correction (by supervisor).
<b>REJECTED</b>	the message was invalid and has been rejected.

Table 4.11. <<enumeration>> FlightPlanMessageStatus

- (3) Used by: [InvalidFiling](#).

#### 4.100. <<enumeration>> FlightPlanMessageType

- (1) Enumerates flight plan message types.

- (2) Values:

Value	Description
<b>ACH</b>	Atc flight plan CHange
<b>AFP</b>	Airborne Flight Plan message
<b>APL</b>	Atc flight PLan
<b>ARR</b>	ARRival
<b>CHG</b>	CHanGe Message
<b>CNL</b>	CaNceLled flight plan
<b>DEP</b>	DEParture
<b>DLA</b>	DeLAyed flight plan
<b>FNM</b>	Flight Notification Message
<b>FPL</b>	Filed Flight PLan
<b>MFS</b>	Message From Shanwick

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Value	Description
<b>RQP</b>	ReQuest flight Plan
<b>RQS</b>	ReQuest Supplementary flight plan

Table 4.12. <<enumeration>> FlightPlanMessageType

- (3) Used by: [InvalidFiling](#).

#### 4.101. FlightPlanOrInvalidFiling

- (1) For a given flight plan, container for the last valid flight keys or the current invalid filing summaries, not both.
- (2) Choices:
- a) [FlightPlanSummary](#) lastValidFlightPlan  
The last valid flight plan summary.
  - b) [InvalidFiling](#) currentInvalid  
The current invalid filing summaries.
- (3) Used by: [FlightPlanListReply](#), [FlightOrFlightPlan](#).

#### 4.102. FlightPlanOutput

- (1) Flight plan output information expressed in either a structured or FIXM.
- (2) Choices:
- a) [StructuredFlightPlan](#) structured  
Used to represent a flight plan in a structured manner according to the NM B2B model.
  - b) [FIXMFlight\\_v4\\_1](#) fixm\_v4\_1  
Used to represent a flight plan in FIXM format.
- (3) Used by: [FlightPlanCreationReply](#), [FlightPlanUpdateReply](#), [FlightRetrievalReply](#).

#### 4.103. <<enumeration>> FlightPlanStatus

- (1) Flight plan status.
- (2) Values:
- a) **AIRBORNE**
  - b) **BACKUP**
  - c) **CLOSED**

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- d) **FILED**
- e) **OFFBLOCKS**
- f) **SUSPENDED**
- g) **TACT\_DELETED**
- h) **TERMINATED**

(3) Used by: [FlightPlanSummary](#).

#### 4.104. FlightPlanSummary

- (1) Flight plan summary, containing flight identification and flight plan status.
- (2) Attributes:
  - a) [FlightIdentificationOutput](#) **id** (*Mandatory*)  
Flight identification.
  - b) [FlightPlanStatus](#) **status** (*Mandatory*)  
Flight plan status.
- (3) Used by: [FlightPlanOrInvalidFiling](#).

#### 4.105. FlightPlanUnion

- (1) Flight plan information expressed in either a structural or a textual format.
- (2) Choices:
  - a) [FlightPlan](#) **structuralFPL**  
Object used when the flight plan data is input in a structured manner.
  - b) **string textual**  
FPL message text used when the flight plan data is input via a string.  
Two message formats are accepted: ICAO and ADEXP.

#### 4.106. FlightPlanUpdate

- (1) This class is used to express updates on an existing flight plan.
- (2) All attributes in this class are optional.
- (3) The flight plan resulting from the application of the update to the existing flight plan must comply with the constraints expressed in [FlightPlan](#).
- (4) It is not possible to update separately one attribute of the `otherInformation` and `supplementaryInformation` attributes. This is a consequence of the new ICAO rules for the update of the



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field18 and field19. These new rules impose to provide the complete field in a change message where part of a field needs to be changed.

(5) Attributes:

- a) [Aerodrome](#) **aerodromeOfDeparture** *(Optional)*  
Aerodrome of departure.
- b) [AerodromesOfDestination](#) **aerodromesOfDestination** *(Optional)*  
Aerodromes of destination, including the alternates.
- c) [AlternateAerodrome\\_DataType](#) **enrouteAlternateAerodromes** *(Optional)*
- d) [AlternateAerodrome\\_DataType](#) **takeoffAlternateAerodromes** *(Optional)*
- e) [AircraftIdentificationUpdate](#) **aircraftId** *(Optional)*
- f) **int numberOfAircraft** *(Optional)*  
Constraint: Range: [1,99].
- g) [AircraftType](#) **aircraftType** *(Optional)*
- h) [DurationHourMinute](#) **totalEstimatedElapsedTime** *(Optional)*
- i) [EstimatedElapsedTimeAtLocation\[\]](#) **eetsToLocations** *(Optional)*  
Constraint: Size must be comprised between 0 and ∞.
- j) [WakeTurbulenceCategory](#) **wakeTurbulenceCategory** *(Optional)*
- k) [FlightType](#) **flightType** *(Optional)*
- l) [FlightRules](#) **flightRules** *(Optional)*
- m) [DateTimeMinute](#) **estimatedOffBlockTime** *(Optional)*
- n) **string icaoRoute** *(Optional)*
- o) [StayInformation\\_DataType\[\]](#) **stayInformation** *(Optional)*  
Constraint: Size must be comprised between 0 and 9.
- p) [EquipmentCapabilityAndStatus](#) **equipmentCapabilityAndStatus** *(Optional)*
- q) [SurveillanceEquipment](#) **surveillanceEquipment** *(Optional)*
- r) [OtherInformation](#) **otherInformation** *(Optional)*
- s) [SupplementaryInformation](#) **supplementaryInformation** *(Optional)*

(6) Used by: [StructuredFlightPlanUpdate](#).

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## 4.107. FlightPlanUpdateInput

- (1) Flight plan update information expressed in either a structured or a FIXM format.
- (2) Choices:
  - a) **[StructuredFlightPlanUpdate](#) structured**  
Used when the flight plan data is input in a structured manner according to the NM B2B model.
  - b) **[FIXMFlight\\_v4\\_1](#) fixm\_v4\_1**  
Used when the flight plan data is input in FIXM.
- (3) Used by: [FlightPlanUpdateRequest](#).

## 4.108. FlightPoint

- (1) Describes a point in a flight point profile.
- (2) Attributes:
  - a) **[DateTimeSecond](#) timeOver** (*Mandatory*)  
Estimated time over the point.  
If the point is a first point: take-off time.  
If the point is a last point: landing time.
  - b) **[FlightLevel](#) flightLevel** (*Mandatory*)  
Flight level over the point.
  - c) **[FlightTrend](#) entryTrend** (*Mandatory*)  
Trend before overflying the point.
  - d) **[FlightTrend](#) exitTrend** (*Mandatory*)  
Trend after overflying the point.
  - e) **[RouteOrTerminalProcedure](#) associatedRouteOrTerminalProcedure** (*Optional*)  
Route followed after overflying the point, unless the point is the last one in which case the route followed before the point (e.g. Standard Arrival Procedure).  
It might be DCT.
  - f) **[DistanceNM](#) coveredDistance** (*Mandatory*)  
Distance from the first point in the profile measured on the 2D track of the point profile.
  - g) **[boolean](#) isVisible** (*Mandatory*)  
True if the route segment following the point is "visible", i.e. GAT/IFR.
  - h) **[AerodromeICAOId](#) aerodrome** (*Optional*)  
ICAO id of an aerodrome:
    - i) The aerodrome of departure if the point is the first in the profile

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ii) The aerodrome of arrival if the point is the last in the profile  
Optional, unless the point is first or last. Must be null if aerodrome is not null.

i) **ICAOPoint point** *(Optional)*

Point in the en-route point profile.

Note that for vector points (e.g. bottom of climb, top of descent), the coveredDistance is to be used to determine where the point is while point itself is set to null..

Must be null if aerodrome is not null. If null and aerodrome is also null, then it concerns a vector point.

j) **boolean flightPlanPoint** *(Optional)*

If point is not null, this attribute is set to true unless the point is not a flight plan point but was added by NM in order to provide a better approximation on a long DCT segment.

Cannot be null if point is not null; must be null otherwise.

(3) Used by: [Flight](#).

## 4.109. FlightRestriction

(1) Describes a Restriction event (entry or exit) over a geographical position.

(2) Attributes:

a) **DateTimeSecond timeOver** *(Mandatory)*

Estimated time over the point.

b) **DistanceNM coveredDistance** *(Mandatory)*

Distance from the first point in the profile measured on the 2D track of the point profile.

c) **FlightPlanProcessing flightPlanProcessing** *(Mandatory)*

Indicates the kind of restriction with regards to flight plan processing.

d) **RestrictionId restrictionId** *(Mandatory)*

Identification of the Restriction.

e) **EntryExit event** *(Mandatory)*

Indicates if the restriction is entered or exited at this position.

f) **Position position** *(Mandatory)*

Indicates the geographical position where the event occurs.

g) **FlightLevel flightLevel** *(Mandatory)*

Indicates the flight level where the event occurs.

(3) Used by: [Flight](#).

## 4.110. <<enumeration>> FlightRules

(1) Applicable flight rules.

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(2) Values:

Value	Description	ICAO value
<b>IFR</b>	Instrumental Flight Rules	I
<b>IFR_THEN_VFR</b>	First IFR, then VFR	Y
<b>VFR</b>	Visual Flight Rules	V
<b>VFR_THEN_IFR</b>	First VFR, then IFR	Z

Table 4.13. <<enumeration>> FlightRules

(3) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

#### 4.111. <<enumeration>> FlightState

(1) Describes the state of a flight resulting from an event in the flight history.

(2) Values:

- a) **ATC\_ACTIVATED**
- b) **CANCELLED**
- c) **FILED**
- d) **FILED\_SLOT\_ALLOCATED**
- e) **FILED\_SLOT\_ISSUED**
- f) **PLANNED**
- g) **PLANNED\_REROUTED**
- h) **PLANNED\_SLOT\_ALLOCATED**
- i) **PLANNED\_SLOT\_ALLOCATED\_REROUTED**
- j) **TACT\_ACTIVATED**
- k) **TERMINATED**

(3) Used by: [FlightEvent](#), [Flight](#).

#### 4.112. <<enumeration>> FlightTrend

(1) Describes a flight trend at some point, i.e. the flight vector that includes the point (as an end point in "trend in" and as start point in "trend out") is either a cruise vector, a climb vector or a descent vector.

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(2) The NONE value means not applicable in the situation.

(3) Values:

- a) **CLIMB**
- b) **CRUISE**
- c) **DESCENT**
- d) **NONE**

(4) Used by: [FlightPoint](#), [Flight](#), [FlightAirspace](#).

### 4.113. <<enumeration>> **FlightType**

(1) Type of the flight.

(2) Values:

Value	Description	ICAO value
<b>GENERAL</b>	general flight	G
<b>MILITARY</b>	military flight	M
<b>NOT_SCHEDULED</b>	not scheduled flight	N
<b>OTHER</b>	any flight type that is not of a type described above	X
<b>SCHEDULED</b>	scheduled flight	S

Table 4.14. <<enumeration>> *FlightType*

(3) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

### 4.114. **FlightUpdateChoice**

(1) Represents either departure information or en-route information.

(2) Choices:

- a) [DepartureInformation](#) **departureInformation**  
Departure information.
- b) [LandingInformation](#) **landingInformation**  
Landing information.
- c) [OceanicInformation](#) **oceanicInformation**  
Oceanic information.
- d) [AircraftPositionReport](#) **aircraftPositionReport**

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Aircraft position report.

- e) [EnRouteInformation](#) **enRouteInformation**  
En-route information.

- (3) Used by: [FlightUpdateRequest](#).

#### 4.115. FourDFlightPoint

(1)

- (2) Attributes:

- a) [ICAOPoint](#) **point** (Mandatory)  
b) [FlightLevel](#) **flightLevel** (Mandatory)  
c) [DateTimeMinute](#) **timeOver** (Mandatory)

- (3) Used by: [OceanicInformation](#), [EnRouteInformation](#), [AircraftPositionReport](#).

#### 4.116. FourDPosition

- (1) Four dimensional position.

- (2) Attributes:

- a) [DateTimeSecond](#) **timeOver** (Mandatory)  
Time over the position  
b) [Position](#) **position** (Mandatory)  
Coordinates (latitude/longitude)  
c) [FlightLevel](#) **level** (Mandatory)  
Flight level

- (3) Used by: [Flight](#).

#### 4.117. typedef<string> FreezePoint

- (1) If associated to ADEP, the route generation will start from this point. The part of the route from the ADEP to this point is "frozen"
- (2) If associated to ADES, the route generation will end with this point. The part of the route from that point to the ADES is "frozen"
- (3) Pattern: ANY{0, 15}
- (4) Used by: [RoutingAssistanceRequest](#).

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#### 4.118. <<enumeration>> FrequencyOnAircraft

- (1) Enumerates frequencies that can be available on an aircraft. (ICAO R/).
- (2) Values:

Value	Description
<b>ELT</b>	Emergency Locator Transmitter.
<b>UHF</b>	Ultra-High Frequency: 243.0 MHz.
<b>VHF</b>	Very High Frequency: 121.5 MHz.

Table 4.15. <<enumeration>> FrequencyOnAircraft

- (3) Used by: [SupplementaryInformation](#).

#### 4.119. typedef<string> ICA0AircraftAddress

- (1) 24-bytes ICAO aircraft address, made of 6 hexadecimal digits expressed as ALPHANUM values constrained in [ "0",..., "9", "A",..., "F" ].
- (2) Pattern: HEXA{6}
- (3) Used by: [FlightUpdateRequest](#), [AircraftIdentificationUpdate](#), [Flight](#), [AircraftIdentification](#).

#### 4.120. <<enumeration>> ICA0STSIndicator

- (1) Enumerates the ICAO STS indicators.
- (2) Values:

Value	Description
<b>ALTRV</b>	Flight operated in accordance with an altitude reservation.
<b>ATFMX</b>	flight approved for exemption from ATFM measures by the appropriate ATS authority.
<b>FFR</b>	Fire-Fighting.
<b>FLTCK</b>	Flight check for calibration of navaids.
<b>HAZMAT</b>	Flight carrying hazardous material.
<b>HEAD</b>	flight with Head of State status.
<b>HOSP</b>	medical flight declared by medical authorities.
<b>HUM</b>	flight operating on a humanitarian mission.
<b>MARSA</b>	Flight for which a military entity assumes responsibility for separation of military aircraft.
<b>MEDEVAC</b>	Life critical medical emergency evacuation.

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Value	Description
<b>NONRVSM</b>	non-RVSM capable flight intending to operate in RVSM airspace.
<b>SAR</b>	flight engaged in a search and rescue mission.
<b>STATE</b>	flight engaged in military, customs or police services.

Table 4.16. <<enumeration>> ICAOSTSIndicator

- (3) Used by: [SpecialHandlingIndicators](#).

#### 4.121. <<enumeration>> IFPIndicator

- (1) Indication of known errors within a flight plan. This is an indication that some automatic or manual actions have been taken by NM to correct or ignore an error.
- (2) Values:

Value	Description
<b>AIRCRAFT_TYPE</b>	An error that cannot be corrected has been found in the aircraft type.
<b>EOBDT</b>	An earlier estimated off-block time exists.
<b>ERREQPT</b>	Flight compliance with equipment.
<b>ERRRTECOORD</b>	Flight compliance with route coordinates.
<b>FLIGHT_LEVEL</b>	An error that cannot be corrected has been found in the requested flight level.
<b>IFPSROUTEMOD</b>	Route updated by IFPS.
<b>MODE_S</b>	Flight compliance with mode S surveillance.
<b>NON_833</b>	Flight does not comply with 8.33 KHz requirements.
<b>NON_RVSM</b>	State flight is non-RVSM approved.
<b>ROUTE</b>	An error that cannot be corrected has been found in the route.
<b>ROUTE_RAD</b>	The route does not conform with the RAD rules.
<b>ROUTE_WE</b>	The route does not conform with the weekend routings.
<b>RVSM_VIOLATION</b>	Flight violates RVSM rules, flight plan originator cannot be contacted.
<b>UNKNOWN_833</b>	Flight compliance with 8.33 KHz requirements is unknown.
<b>UNKNOWN_RVSM</b>	RVSM approval status of the flight is unknown.

Table 4.17. <<enumeration>> IFPIndicator

- (3) Used by: [FilingResultValid](#), [StructuredFlightPlanData](#).



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#### 4.122. **typedef<string> IFPLId**

- (1) Examples: AA00953172, BB00956485,...
- (2) Pattern: UALPHA{2}DIGIT{8}
- (3) Used by: [FlightDepartureRequest](#), [FlightArrivalRequest](#), [FlightPlanCancellationRequest](#), [FlightInformationUpdateRequest](#), [FlightOperationalLogEntry](#), [FilingResultValid](#), [FlightIdentificationInput](#), [FlightDelayRequest](#), [FlightPlanUpdateRequest](#), [CDMInfo](#), [FlightIdentificationOutput](#), [FlightPlan](#), [SlotSwapCandidate](#), [UpdateDPIRequest](#).

#### 4.123. **IFPSError**

- (1) Represents an NM/IFPS error.
- (2) An IFPS error is made of the IFPS error class (e.g.: "EFPM, PROF, ...) concatenated with the error identification number (e.g.: 052), e.g. "EFPM052". This is the error type id passed in the [Error](#) instances via the code attribute. The error description is the same as the one passed in the REJ message that NM sends to the FPL originator in case on invalid flight plan.
- (3) Attributes:
  - a) **string code** (*Mandatory*)  
An IFPS error code is made of the IFPS error class (e.g.: "EFPM", "PROF", ...) concatenated with the error identification number (e.g.: "052"), e.g. "EFPM052".
  - b) **string description** (*Optional*)  
The error description is the same as the one passed in the REJ message that NM sends to the FPL originator in case on invalid flight plan.
  - c) **string anomalyComment** (*Optional*)
- (4) Used by: [FlightPlanValidationReply](#), [FilingResultRejected](#), [RouteInfo](#), [RoutingAssistanceReply](#).

#### 4.124. **<<enumeration>> ImpactSeverityIndicator**

- (1) Impact assessment of non-punctual arrival upon the airport planning and AUs business needs
- (2) Values:
  - a) **E**  
Early arrival with no impact.
  - b) **EI**  
Early arrival with expected lack of airport resources.
  - c) **L**  
Late arrival without knock-on effect.
  - d) **LI**

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Late arrival with knock-on effect.

- e) **LIP**  
Late arrival with knock-on effect on priority flight.
- f) **OT**  
On time arrival - No knock-on effect.

- (3) Used by: [GeneralAPIRequest](#), [ArrivalInformation](#).

#### 4.125. <<enumeration>> IntervalPosition

- (1) Indicates if a time or distance or ... is inside or outside(before or after) an Interval
- (2) Values:
  - a) **AFTER**
  - b) **BEFORE**
  - c) **INSIDE**

- (3) Used by: [ActualTimeAtTarget](#).

#### 4.126. <<enumeration>> IntruderKind

- (1) A flight is an intruder in a flight list if the other profile (according to the requested [FlightListRequest.compareWithOtherTrafficType](#)) is not crossing the reference location.
- (2) Intrusion is computed between the requested flight list (FlightListRequest.trafficType) and the flight list that is compared with ([FlightListRequest.compareWithOtherTrafficType](#)).
- (3) Values:
  - a) **HORIZONTAL\_INTRUDER**  
Delta entry is calculated and flight is identified as an intruder due to horizontal deviation between compared traffic types.
  - b) **MIXED\_INTRUDER**  
Delta entry is calculated and flight is identified as an intruder due to horizontal and vertical deviation between compared traffic types.
  - c) **NON\_INTRUDER**  
Delta entry is calculated and flight is not identified as an intruder.
  - d) **VERTICAL\_INTRUDER**  
Delta entry is calculated and flight is identified as an intruder due to vertical deviation between compared traffic types.
- (4) Used by: [DeltaEntry](#).

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## 4.127. InvalidFiling

- (1) Summary of an invalid flight plan message.
- (2) Attributes:
  - a) **[DateTimeSecond](#) filingTime** (*Mandatory*)
  - b) **[FlightPlanMessageType](#) invalidMessageType** (*Mandatory*)
  - c) **[FlightPlanMessageStatus](#) invalidMessageStatus** (*Mandatory*)
  - d) **[FlightKeys](#) keys** (*Optional*)
- (3) Used by: [FlightPlanOrInvalidFiling](#).

## 4.128. LandingInformation

- (1) This type is used to provide information about a landing flight.
- (2) Attributes:
  - a) **[DateTimeMinute](#) landingTime** (*Mandatory*)  
The landing time. It can be either estimated or actual (see takeOffTimeQualifier).
  - b) **[EstimateQualifier](#) landingTimeQualifier** (*Mandatory*)  
Whether the provided landingTime is an estimate or an actual value.
- (3) Used by: [FlightUpdateChoice](#).

## 4.129. typedef<double> Latitude

- (1) Represents latitude as an angle in degrees having the range [-90 .. 90].
- (2) Positive values represent Northern latitudes where negative values represent Southern latitudes taking the place of the traditional "N" and "S" designators.
- (3) Accuracy of the latitude coordinates: 0.1 seconds (~3 meters).
- (4) Examples:50.786399400000001
- (5) Range: ] - ∞, ∞[.
- (6) Used by: [Position](#).

## 4.130. <<enumeration>> LifeJacketEquipment

- (1) Enumerates the possible equipment items that life jackets carried by an aircraft can have.
- (2) ICAO J/ field.

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(3) Values:

Value	Description
<b>FLUORESCIEIN</b>	The life jackets are equipped with fluorescein.
<b>LIGHTS</b>	The life jackets are equipped with lights.
<b>UHF</b>	All life jackets are equipped with UHF on frequency 243.0 MHz.
<b>VHF</b>	All life jackets are equipped with VHF on frequency 121.5 MHz.

Table 4.18. <<enumeration>> LifeJacketEquipment

(4) Used by: [SupplementaryInformation](#).

### 4.131. LoadStateAtReferenceLocation

(1) The ENTRY or OCCUPANCY load state at reference location.

(2) Choices:

a) [LoadState](#) ENTRY

Indicates the monitored entry load state in which the flight is involved.

b) [OtmvStatus](#) OCCUPANCY

Indicates the monitored occupancy OTMV load state in which the flight is involved.

(3) Used by: [Flight](#).

### 4.132. typedef<double> Longitude

(1) Represents a longitude as an angle in degrees having the range [-180 .. 180].

(2) Positive values represent Eastern longitudes where negative values represent Western longitudes taking the place of the traditional "E" and "W" designators.

(3) Accuracy of the longitude coordinates: 0.1 seconds (~3 meters).

(4) Examples:4.247596199999975

(5) Range: ] -  $\infty$ ,  $\infty$  [.

(6) Used by: [Position](#).

### 4.133. MessageOriginator

(1) Originator of a flight message.

(2) Choices:

a) [AirNavigationUnitId](#) airNavigationUnitId

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Id of the originating air navigation unit.

- b) **NetworkAddress address**  
Network address of the originating air navigation unit.

(3) Used by: [Flight](#).

## 4.134. ModeSCapabilities

(1) Used in the surveillance equipment to describe the Mode S capabilities of the aircraft if equipped with Mode S transponder.

(2) Attributes:

- a) **EquipmentStatus aircraftIdentification** *(Optional)*  
Indicates if the Mode S transponder is transmitting the aircraft identification.
- b) **EquipmentStatus pressureAltitude** *(Optional)*  
Indicates if the Mode S transponder is transmitting the pressure and altitude.
- c) **EquipmentStatus extendedSquitterADSB** *(Optional)*  
Indicates if the Mode S transponder is equipped with an extended squitter (ADS-B).
- d) **EquipmentStatus enhancedSurveillance** *(Optional)*  
Indicates if the Mode S transponder is equipped with extended surveillance.  
The accepted combinations and the correspondence with the ICAO Mode S equipment code I, P, X, E, H, L, S is defined by the following table:

ICAO code	aircraft Identification	pressure Altitude	extended SquitterADSB	enhanced Surveillance
I	equipped	not equipped	not equipped	not equipped
P	not equipped	equipped	not equipped	not equipped
X	not equipped	not equipped	not equipped	not equipped
E	equipped	equipped	equipped	not equipped
H	equipped	equipped	not equipped	equipped
L	equipped	equipped	equipped	equipped
S	equipped	equipped	not equipped	not equipped

*Table 4.19. ModeSCapabilities.enhancedSurveillance description*

Note: The ICAO description excludes the combination of I, P, X codes. It also excludes the combination of one or more of E, H, L, S with one of the I, P, X. But it does not exclude the combination of E, H, L, S codes, this means that when converting the ICAO field 10b into the 4 ModeSCapabilities, the "not equipped" status induced by one of E, H, L, S code shall be overwritten by the "equipped" status induced by an other E, H, L, S code.

(3) Used by: [SurveillanceEquipment](#).

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#### 4.135. `typedef<int> NumberOfDinghies_DataType`

- (1) The number of dinghies carried by the aircraft.
- (2) Range: [0,99].
- (3) Used by: [Dinghies](#).

#### 4.136. `OceanicInformation`

- (1) This type is used to provide oceanic information.
- (2) It groups two message types (FNM and MFS).
- (3) Attributes:
  - a) [\*\*OceanicAreaControlCentre\*\*](#) **source** *(Mandatory)*  
The source.  
Constraint: See [INVALID\\_OCEANIC\\_INFORMATION](#)
  - b) **string icaoRoute** *(Optional)*  
Represents the Flight Plan ICAO Route (Field15).  
Constraint: See [INVALID\\_OCEANIC\\_INFORMATION](#)
  - c) [\*\*FourDFlightPoint\*\*](#) **position** *(Mandatory)*  
The position.
  - d) [\*\*ICAOPoint\*\*](#) **landfallPoint** *(Optional)*  
The landfall point.  
Constraint: See [INVALID\\_OCEANIC\\_INFORMATION](#)
- (4) Constraint:

a)	Name	INVALID_OCEANIC_INFORMATION
	Attributes	<a href="#">source</a> , <a href="#">icaoRoute</a> , <a href="#">landfallPoint</a>
	Description	If source equals GANDER then icaoRoute shall be present. If source equals SHANWICK or SANTA_MARIA then landfallPoint must be present.

- (5) Used by: [FlightUpdateChoice](#).

#### 4.137. `OtherAerodromeDesignation`

- (1) Used to specify either an aerodrome (name and/or location) for which no ICAO identification exists or the first or last point of the route when departing from or arriving to a place that is not an aerodrome.

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(2) Attributes:

- a) **AerodromeName\_DataType aerodromeName** *(Optional)*  
The name of the aerodrome.  
Cannot be null if firstLastRoutePoint is null. Must be null if otherwise.  
Constraint: See [AERODROME\\_AND\\_ROUTE\\_POINT\\_MUTUALLY\\_EXCLUSIVE](#)
- b) **NonPublishedPoint aerodromeLocation** *(Optional)*  
The location of the aerodrome expressed as a reference point or a geographical position.  
Must be null if firstLastRoutePoint is not null.  
Constraint: See [AERODROME\\_AND\\_ROUTE\\_POINT\\_MUTUALLY\\_EXCLUSIVE](#)
- c) **ICAOPoint firstLastRoutePoint** *(Optional)*  
The first or last point of the route: given only when the aircraft departs from or lands to a place that is not an aerodrome.  
Cannot be null if aerodromeName and aerodromeLocation are null. Must be null otherwise.  
Constraint: See [AERODROME\\_AND\\_ROUTE\\_POINT\\_MUTUALLY\\_EXCLUSIVE](#)

(3) Constraint:

a)

Name	AERODROME_AND_ROUTE_POINT_MUTUALLY_EXCLUSIVE
Attributes	<a href="#">aerodromeName</a> , <a href="#">aerodromeLocation</a> , <a href="#">firstLastRoutePoint</a>
Description	Attribute firstLastRoutePoint is mutually exclusive with attributes aerodromeName and aerodromeLocation. Please specify either firstLastRoutePoint or aerodromeName and/or aerodromeLocation.

(4) Used by: [Aerodrome](#).

## 4.138. typedef<string> OtherAircraftTypeDesignation\_Data-Type

- (1) Name of the aircraft type if no ICAO id exists for this aircraft type (ICAO TYP/ field).
- (2) Pattern: ANY{1,60}
- (3) Used by: [AircraftType](#).

## 4.139. OtherInformation

- (1) Any other flight data items specified in the bilateral agreement.
- (2) See also ICAO 4444 document field 18 (other information).
- (3) All attributes in this class are optional for all services using the FlightPlan structure.

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(4) Attributes:

- a) **string selCalCode** *(Optional)*  
Selcal (Selective Calling) code made up of a four letter code. Included if so prescribed by the appropriate ATS authority.  
ICAO field 18 SEL/. ADEXP -SEL.  
Constraint: Pattern: ALPHA{4,5}
- b) **[AircraftOperatorName\\_DataType](#) nameOfOperator** *(Optional)*  
Name of the operator, if not obvious from the aircraft identification.  
ICAO field 18 OPR/. ADEXP -OPR.
- c) **[SpecialHandlingIndicators](#) reasonForSpecialHandling** *(Optional)*  
Reasons for special handling by ATS.
- d) **[AircraftPerformanceCategory](#) aircraftPerformanceData** *(Optional)*  
Aircraft performance data, indicated by a single letter as specified in the ICAO Doc 8168, if so prescribed by the appropriate ATS authority.  
ICAO field 18 PER/. ADEXP -PER.
- e) **string communicationEquipment** *(Optional)*  
Significant data related to communication equipment as required by the appropriate ATS authority, e.g. COM/UHF only.  
ICAO field 18 COM/. ADEXP -COM.  
Constraint: Pattern: ANY{1,50}
- f) **[DatalinkCapabilities](#) datalinkCapabilities** *(Optional)*  
Up to four different datalink capabilities.  
ICAO field 18 DAT/. ADEXP -DAT.
- g) **string navigationEquipment** *(Optional)*  
Significant navigation equipment.  
ICAO field 18 NAV/. ADEXP -NAV.  
Constraint: Pattern: ANY{1,50}
- h) **[PerformanceBasedNavigationCode\[\]](#) performanceBasedNavigationCodes** *(Optional)*  
Indication of RNAV and/or RNP capabilities.  
No duplicates are accepted.  
ICAO field 18 PBN/. ADEXP -PBN.  
Constraint: Size must be comprised between 0 and 8.
- i) **string otherSurveillanceEquipments** *(Optional)*  
Includes surveillance applications or capabilities not specified in the surveillanceEquipment of the flight plan (ICAO 10b).  
ICAO field 18 SUR/. ADEXP -SUR.  
Constraint: Pattern: ANY{1,50}
- j) **int replacementFlightPlanIndicator** *(Contextual)*



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External flight plan version possibly provided by the submitter when a flight plan is cancelled and re-submitted. This is opaque for NM.

ICAO field 18 RFP/. ADEXP -RFP

Presence:

i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Optional otherwise.

Constraint: Range: [ 1 , 9 ].

k) **DistanceM runwayVisualRange** (*Contextual*)

Runway Visual Range (RVR). Operating minima when special meteorological conditions exist.

If specified, must be within [ 0, 999 ].

ICAO field 18 RVR/. ADEXP -RVR

Presence:

i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Optional otherwise.

l) **ReclearanceInFlight reclearanceInFlight** (*Contextual*)

Revised route subject to clearance in flight and terminating with the ICAO designator of the revised aerodrome of destination.

ICAO field 18 RIF/. ADEXP -RIF

Presence:

i) Ignored in [FlightPlanValidationRequest](#), [RoutingAssistanceRequest](#)

ii) Optional otherwise.

m) **string[] otherRemarks** (*Optional*)

Any other plain language remarks when required by the appropriate ATS authority or deemed necessary by the pilot-in-command for the provision of air traffic services.

ICAO field 18 RMK/. ADEXP -RMK.

Constraint: Size must be comprised between 0 and ∞.

(5) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

## 4.140. <<enumeration>> PerformanceBasedNavigationCode

(1) PBN code indicating the RNAV or RNP capability of the aircraft.

(2) Values:

Value	ICAO PBN Code
<b>BASIC_RNP_1_ALL</b>	O1
<b>BASIC_RNP_1_DME_DME</b>	O3

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Value	ICAO PBN Code
BASIC_RNP_1_DME_DME_IRU	O4
BASIC_RNP_1_GNSS	O2
RNAV_10	A1
RNAV_1_ALL	D1
RNAV_1_DME_DME	D3
RNAV_1_DME_DME_IRU	D4
RNAV_1_GNSS	D2
RNAV_2_ALL	C1
RNAV_2_DME_DME	C3
RNAV_2_DME_DME_IRU	C4
RNAV_2_GNSS	C2
RNAV_5_ALL	B1
RNAV_5_DME_DME	B3
RNAV_5_GNSS	B2
RNAV_5_INS_OR_IRS	B5
RNAV_5_LORAN_C	B6
RNAV_5_VOR_DME	B4
RNP_4	L1
RNP_APCH	S1
RNP_APCH_BARO_VNAV	S2
RNP_AR_APCH_NO_RF	T2
RNP_AR_APCH_RF	T1

Table 4.20. <<enumeration>> PerformanceBasedNavigationCode

- (3) Used by: [OtherInformation](#).

#### 4.141. PointDAL

- (1) Attributes:
- a) [ICAOPoint](#) point (Mandatory)
  - b) [DistanceM](#) cumulativeDistance (Mandatory)

#### 4.142. Position

- (1) Represents a position, i.e. a latitude and a longitude.

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(2) Attributes:

- a) **Latitude** `latitude` (Mandatory)
- b) **Longitude** `longitude` (Mandatory)

(3) Used by: [FourDPosition](#).

#### 4.143. ProfileTuningRestriction

(1) Profile tuning restriction impacting the flight plan.

(2) Attributes:

- a) **string identifier** (Mandatory)  
Identifier of the profile restriction.
- b) **DateTimeSecond** `entryTime` (Mandatory)  
Entry time.
- c) **DateTimeSecond** `exitTime` (Mandatory)  
Exit time.

#### 4.144. ProfileValidity

(1) Contains data relating to the validity of the FTFM with respect to Flight Plan violations.

(2) Attributes:

- a) **ProfileValidityKind** `profileValidityKind` (Mandatory)  
Specifies if the FTFM profile validity:
  - i) has been evaluated and Flight Plan violations have been encountered before the maximum time limit has been reached.
  - ii) has been evaluated to the maximum time limit and no Flight Plan violations have been encountered.
  - iii) has not been evaluated.
- b) **DateTimeMinute** `lastValidEOBT` (Optional)  
The last valid EOBT represents the maximum EOBT to which the profile can be shifted into the future before any violation error(s) are encountered.

(3) Used by: [Flight](#).

#### 4.145. <<enumeration>> ProfileValidityKind

(1) According to the profile validity type value, the interpretation of the lastValidEOBT is different:

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- a) The FTFM profile validity has been evaluated and Flight Plan violations have been encountered before the maximum time limit has been reached. The optional field `lastValidEOBT` will be present and will represent the maximum EOBT to which the profile can be shifted into the future before Flight Plan violations have been encountered.
- b) The FTFM profile validity has been evaluated to the maximum time limit and no Flight Plan violations have been encountered. The optional field `lastValidEOBT` will be present and will be set to the EOBT shifted by the maximum limit.
- c) The FTFM profile validity has not been evaluated. The optional field `lastValidEOBT` will not be present.

(2) Values:

- a) **NO\_VIOLATIONS**  
The FTFM profile validity has been evaluated to the maximum time limit and no Flight Plan violations have been encountered.
- b) **UNKNOWN**  
The FTFM profile validity has not been evaluated.
- c) **VIOLATIONS**  
The FTFM profile validity has been evaluated and Flight Plan violations have been encountered before the maximum time limit has been reached.

(3) Used by: [ProfileValidity](#).

## 4.146. ReadyStatus

(1) Describes a flight readiness status.

(2) Attributes:

- a) **boolean readyForImprovement** (*Optional*)  
True if the flight is in Request For direct Improvement mode (RFI) state. False if it is not, i.e. when the SIP Wanted Message mode is on (SWM).  
Null if `readyToDepart` is true; cannot be null otherwise.
- b) **boolean readyToDepart** (*Mandatory*)  
The flight is ready to depart (REA message received).
- c) **[DurationHourMinute](#) revisedTaxiTime** (*Optional*)  
Revised taxi time, if any: i.e. the minline-up of the last READY message.  
Note that this might be different than the taxi time of the FTFM and RTFM and CTFM flight profiles.

(3) Used by: [Flight](#).

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#### 4.147. <<enumeration>> ReasonForDPICancellation

- (1) Improves the understanding of all operational users of the A-CDM events at the airports and helps the AOs and Handling Agents to take the best action for the flight concerned.
- (2) Values:
  - a) **FLIGHT\_CANCEL\_IN\_AODB**  
Flight cancel in AODB.  
Cancellation of the airport slot or Schedule before the ICAO FPL has been cancelled (CNL).
  - b) **FLIGHT\_PLAN\_INVALID**  
Flight plan invalid.  
The discrepancy between TOBT and EOBt is larger than 15min (and needs to be resolved before startup will be issued).
  - c) **NO\_AIRPORT\_SLOT**  
No Airport slot.  
The airport does not have an airport slot for the departure.
  - d) **OTHER**  
Other.  
Special value to be used when other C-DPI reason applies than the ones listed above. To be used until this other C-DPI reason is made official in NM systems.
  - e) **RETURN\_TO\_STAND**  
Return to stand.  
After having started taxiing, the flight returned back to stand/ramp.
  - f) **TOBT\_UNKNOWN\_OR\_EXPIRED**  
TOBT unknown or expired.  
The TOBT was deleted, the pilot did not request startup or report ready in accordance with the procedures at the Airport.
  - g) **TSAT\_EXPIRED**  
TSAT expired.  
The pilot did not request startup in accordance with the CDM procedures at the airport.
  - h) **UNDEFINED**  
Undefined.  
Absent C-DPI reason stored as UNDEFINED to avoid rejecting C-DPI messages during the transition period (as the reason field is optional in AFTN/ADEXP). This value is authorised only as output from NM systems (in CDMInfo), but will lead to rejection if used as input in a CancelDPIRequest.
  - i) **UNDO\_ADPI**  
Undo A-DPI.

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Special value to be used to request NMOC to undo the effect of A-DPI information (TTOT, SID, taxi-time...) previously received, and to reset the CDM status to its value prior to A-DPI processing.

This value is only used as input to NM systems, and will not be redistributed in output (in CDM flight field).

- (3) Used by: [CancelDPIRequest](#), [CDMInfo](#).

#### 4.148. ReclearanceInFlight

- (1) Describes a re-clearance in flight, i.e. the new route and destination aerodrome.

- (2) Attributes:

- a) **string icaoRoute** (*Mandatory*)  
New route.
- b) **[AerodromeICAOId](#) aerodrome** (*Mandatory*)  
New aerodrome.

- (3) Used by: [OtherInformation](#).

#### 4.149. RequestedFlightLevel

- (1) Request flight level in a flight vertical profile.

- (2) Attributes:

- a) **[FlightLevel](#) flightLevel** (*Mandatory*)  
Flight level.
- b) **int segmentSequenceNumber** (*Mandatory*)  
Identifies each segment of the profile.  
Constraint: Range: [0, 9999].
- c) **int relativeDistance** (*Mandatory*)  
Relative distance (percentage) on the segment. If the requested flight level is on a segment point, the relative distance is zero.  
Constraint: Range: [0, 100].

- (3) Used by: [Flight](#).

#### 4.150. <<enumeration>> ReroutableStatus

- (1) Describes whether a flight can be rerouted and under what conditions.

- (2) Values:

- a) **CANNOT\_BE\_REROUTED**

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b) **TRY\_ALLOWED**

c) **TRY\_AND\_APPLY\_ALLOWED**

(3) Used by: [Flight](#).

## 4.151. ReroutingIndicator

(1) This class describes both a rerouting reason and optionally a rerouting state.

(2) Attributes:

a) **boolean rerouted** (*Mandatory*)

True if the flight was rerouted.

b) **[ReroutingReason](#) reason** (*Optional*)

If the flight was rerouted, indicates why.

Cannot be null if rerouted is true; must be null otherwise.

c) **[ReroutingState](#) state** (*Optional*)

If the flight was rerouted, indicates its resulting rerouted state.

Cannot be null if rerouted is true; must be null otherwise.

(3) Used by: [Flight](#).

## 4.152. <<enumeration>> ReroutingReason

(1) Describes whether a flight was rerouted, and if that is the case, why.

(2) Values:

Value	Description
<b>A0</b>	Aircraft Operator rerouting (AOWIR).
<b>ATFM</b>	ATFM rerouting.
<b>AUTO</b>	AUTOMATIC rerouting (AWIR).
<b>CEU</b>	Central Executive Unit rerouting (CWIR).

Table 4.21. <<enumeration>> ReroutingReason

(3) Used by: [ReroutingIndicator](#).

## 4.153. ReroutingReference

(1) Rerouting reference information.

(2) Attributes:

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- a) **string name** (*Optional*)  
Name of the rerouting reference.  
Constraint: Pattern: ANY{1,14}
- b) **DateTimeMinute validTo** (*Optional*)  
Time at which the RRP message was sent plus the maximum response time allowed.

(3) Used by: [Flight](#).

#### 4.154. <<enumeration>> ReroutingState

- (1) If a flight was rerouted, describes the current rerouting state.
- (2) Values:

Value	Description
<b>EXECUTED</b>	Rerouting has been executed.
<b>NO_MATCH</b>	Message received did not match the proposal; rerouting has been invalidated.
<b>PRODUCED</b>	There is a valid rerouting going on, waiting to be realised by either an FPL or a CHG.
<b>REJECTED</b>	Rerouting proposal has been rejected.
<b>REVOKED</b>	A booking was created for the proposal, but a manual operation that changed the regulation (typically deep rectify) has deleted the booking before the attempt to accept the proposal.
<b>TIMED_OUT</b>	No FPL/CHG received on time.

Table 4.22. <<enumeration>> ReroutingState

(3) Used by: [ReroutingIndicator](#).

#### 4.155. RevisionTimes

- (1) Times to insert aircraft in sequence and remove aircraft from sequence.
- (2) Attributes:
  - a) **DurationHourMinute timeToInsertInSequence** (*Optional*)  
Time to insert in sequence.
  - b) **DurationHourMinute timeToRemoveFromSequence** (*Optional*)  
Time to remove from sequence.
- (3) Used by: [Flight](#).



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## 4.156. RouteInfo

- (1) Description of an alternate route for a given flight plan.
- (2) Attributes:
  - a) **DurationHourMinute duration** (*Mandatory*)  
Duration of the alternate route.
  - b) **DistanceNM length** (*Mandatory*)  
Length of the alternate route from ADEP to ADES.
  - c) **string icaoRoute** (*Mandatory*)  
The complete field15 that can be used as an alternate to the route of the given flight plan.
  - d) **IFPSError[] routeErrors** (*Optional*)  
Errors associated to a proposed alternate route. They can be of the following IFPS error classes: EFPM, PROF, ROUTE.  
In some circumstances a route may be proposed with errors. If radOff is true, the proposed routes may contain errors.  
The array is null if the proposed route has no error.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- (3) Used by: [RoutingAssistanceReplyDataResult](#).

## 4.157. RoutingAssistanceReplyDataResult

- (1) Attributes:
  - a) **RouteInfo[] proposedRoutes** (*Mandatory*)  
Contains the generated alternate routes.  
If there is no NM/IFPS error but no alternate route was found, the array is not null but empty.  
The array cannot contain null or duplicate items.  
Constraint: Size must be comprised between 0 and  $\infty$ .
  - b) **DurationHourMinute originalRouteDuration** (*Mandatory*)  
Cumulated duration of each route segments defining the two dimensional projections of the flight plan route from departure up to destination including flight portions being outside the IFPZ or being "invisible".
  - c) **DistanceNM originalRouteLength** (*Mandatory*)  
Cumulated distance of each route segments defining the two dimensional projections of the flight plan route from departure up to destination including flight portions being outside the IFPZ or being "invisible".
- (2) Used by: [RoutingAssistanceReply](#).

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#### 4.158. <<enumeration>> SegmentType

- (1) Route segment type. Can one on the following:
- (2) Values:

Value	Description
<b>airRoute</b>	The segment belongs to a Air Route.
<b>arrivalProcedure</b>	The segment belongs to a STAR (Standard Terminal Arrival Route).
<b>departureProcedure</b>	The segment belongs to a SID (Standard Instrument Departure).
<b>direct</b>	The segment belongs to a DIRECT Route.
<b>otsTrack</b>	The segment belongs to an OTS (Oceanic Track System) NAT (North Atlantic Region) Route.

Table 4.23. <<enumeration>> SegmentType

- (3) Used by: [TrajectorySegment](#).

#### 4.159. SlotImprovementProposal

- (1) Proposal for slot improvement, together with its associated response time.
- (2) Attributes:
- a) **[DateTimeMinute](#) proposedCalculatedTakeOffTime** (*Optional*)  
Proposed take-off time.
  - b) **[DateTimeMinute](#) responseBy** (*Optional*)  
Maximum time at which NM expects a response for this proposed slot improvement.

- (3) Used by: [Flight](#).

#### 4.160. SlotSwapCandidate

- (1) The list of candidates that can be swapped with the subject flight, with relevant information for each candidate.
- (2) Attributes:
- a) **[IFPLId](#) ifplId** (*Mandatory*)  
Identification of the candidate flight that can be slot-swapped with the subject flight (the subject flight being the flight from the flight list from which this information is retrieved). The candidate flight is always part of the same flight list as the subject flight, so additional flight data can be retrieved from the same flight list (so with a single query/reply), provided that the ifplId has been requested in order to make the association.

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- b) **int subjectDeltaDelayMinutes** (*Mandatory*)  
The signed difference in minutes between the CTOT that the subject flight currently has and the CTOT that the subject flight will get if swapped with the candidate flight.  
A positive duration means an increase of the delay, a negative duration means a reduction of the delay.  
By CTOT we mean the RTFM CTOT, not necessarily equal to the CTOT from the last SAM/SRM message.  
Constraint: Range: ] -  $\infty$ ,  $\infty$ [.
- c) **int candidateDeltaDelayMinutes** (*Mandatory*)  
Same as subjectDeltaDelayMinutes but for the candidate flight.  
Constraint: Range: ] -  $\infty$ ,  $\infty$ [.
- d) **DateTimeMinute swapDecideByTime** (*Mandatory*)  
The deadline for submission of the slot swap request to NMOC.

(3) Used by: [Flight](#).

## 4.161. SlotSwapCounter

- (1) The number of times the flight has already been swapped with another flight, and the associated limit.
- (2) Attributes:
- a) **int currentCounter** (*Mandatory*)  
The number of times the flight has been successfully swapped with another flight.  
Constraint: Range: [ 0,  $\infty$ [.
- b) **int maxLimit** (*Mandatory*)  
When currentCounter has reached maxLimit, any further slot swap request involving this flight will be rejected by NMOC.  
However, it should not be assumed that currentCounter is always lower than or equal to maxLimit, because under exceptional circumstances, the flight might still be swapped even when the limit has been already reached.  
Constraint: Range: [ 0,  $\infty$ [.
- (3) Used by: [Flight](#).

## 4.162. SlotZone

- (1) The slot zone around the CTO of the first en-route regulation. NM ensures that any new ETO (resulting from a DLA, CHG, DPI, API messages...) falling inside this time window will not result in a CTOT recalculation (except in some circumstances, e.g. when the route changed and the flight is subject to more than one regulation).
- (2) For API messages, any new TTO falling inside the slot zone around the CTO over the coordination fix, will force the CTO to be exactly equal to the TTO.

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(3) Attributes:

- a) **DurationMinute beforeCTO** (Mandatory)  
The duration to be subtracted from the CTO to get the lower bound of the slot zone.
- b) **DurationMinute afterCTO** (Mandatory)  
The duration to be added to the CTO to get the upper bound of the slot zone.

(4) Used by: [Flight](#).

## 4.163. SpecialHandlingIndicators

- (1) STS indicators, ICAO and exemptions (NM or other), used to indicate a reason for special handling of a flight.

(2) Attributes:

- a) **ICAOSTSIndicator[] icaoSTSIndicators** (Optional)  
List of ICAO STS indicators.  
Optional. Cannot contain duplicates.  
Constraint: Size must be comprised between 0 and  $\infty$ .
- b) **EURSTSIndicator[] eurSTSIndicators** (Optional)  
List of reasons for special handling used in the EUR region.  
Optional. Cannot contain duplicates.  
Constraint: Size must be comprised between 0 and  $\infty$ .

(3) Used by: [OtherInformation](#).

## 4.164. typedef<string> SSRCode

- (1) Examples: 4567, 7683, 1352,...

- (2) Pattern: DIGIT{4}

- (3) Used by: [SSRInfo](#), [Flight](#).

## 4.165. SSRInfo

- (1) SSR code assigned to an aircraft by the ATS and its transmission mode.

(2) Attributes:

- a) **SSRCode code** (Mandatory)  
SSR code transmitted via the mode described in mode.
- b) **SSRMode mode** (Mandatory)  
Transmission mode of the SSR code.

- (3) Used by: [AircraftIdentificationUpdate](#), [AircraftIdentification](#).

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#### 4.166. <<enumeration>> SSRMode

- (1) Transmission mode of the SSR code. Only SSRMode.A is supported.
- (2) Values:
  - a) **A**
- (3) Used by: [SSRInfo](#).

#### 4.167. typedef<string> StayInformation\_DataType

- (1) Examples: AIRWORK 10NM OF WUR BLOCK FL120 TO FL140, 0020 AIR REFUELING IN SPEEDY FL220B250 F16,...
- (2) Pattern: ANY{0,50}
- (3) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

#### 4.168. StructuredFlightPlan

- (1) Datatype grouping the FlightPlan, BasicTrajectoryData and DepartureData types.
- (2) Attributes:
  - a) [FlightPlan](#) **flightPlan** *(Optional)*  
The flight plan.
  - b) [BasicTrajectoryData](#) **basicTrajectoryData** *(Optional)*  
The basic trajectory data.
  - c) [DepartureData](#) **departureData** *(Optional)*  
The departure data.
- (3) Used by: [FlightPlanOutput](#), [FlightPlanInput](#).

#### 4.169. StructuredFlightPlanUpdate

- (1) Datatype grouping the FlightPlanUpdate, BasicTrajectoryData and DepartureData types.
- (2) Attributes:
  - a) [FlightPlanUpdate](#) **flightPlanUpdate** *(Optional)*  
The flight plan.
  - b) [BasicTrajectoryData](#) **basicTrajectoryDataUpdate** *(Optional)*  
The basic trajectory data.
  - c) [DepartureData](#) **departureDataUpdate** *(Optional)*

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The departure data.

- (3) Used by: [FlightPlanUpdateInput](#).

## 4.170. SupplementaryInformation

- (1) See also ICAO 4444 document field 19 (Supplementary information).
- (2) All attributes in this class are optional for all services using the FlightPlan structure.
- (3) Attributes:
- a) **[DurationHourMinute](#) fuelEndurance** (*Optional*)  
Fuel endurance.
  - b) **int numberOfPersons** (*Optional*)  
The total number of persons on board, when so prescribed by the appropriate ATS authority.  
Constraint: Range: [0, ∞[.
  - c) **[FrequencyOnAircraft](#)[] frequencyAvailability** (*Optional*)  
Frequencies available on the aircraft.  
The array does not accept null values or duplicates.  
Constraint: Size must be comprised between 0 and ∞.
  - d) **[SurvivalEquipment](#)[] survivalEquipment** (*Optional*)  
Survival equipment carried by the aircraft.  
The array does not accept null values or duplicates.  
Constraint: Size must be comprised between 0 and ∞.
  - e) **string otherSurvivalEquipment** (*Optional*)  
Indicates any other survival equipment carried by the aircraft.  
Constraint: Pattern: ANY{1, 50}
  - f) **[LifeJacketEquipment](#)[] lifeJacketEquipment** (*Optional*)  
Equipment of the life jackets carried by the aircraft.  
The array does not accept null values or duplicates.  
Constraint: Size must be comprised between 0 and ∞.
  - g) **[Dinghies](#) dinghiesInformation** (*Optional*)  
Information on the dinghies carried by the aircraft.
  - h) **string aircraftColourAndMarkings** (*Optional*)  
The colour and markings of the aircraft.  
Constraint: Pattern: ANY{1, 50}
  - i) **string pilotInCommand** (*Optional*)  
The name of the pilot in command.  
Constraint: Pattern: ANY{1, 50}
- (4) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

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## 4.171. SurveillanceEquipment

- (1) Describes the serviceable surveillance equipment and capabilities of the aircraft.
- (2) See also ICAO 4444 document field 10b.
- (3) Attributes:
  - a) **EquipmentStatus modeA** *(Optional)*  
Transponder Mode A (4 digits - 4096 codes).  
ICAO code is "A".
  - b) **EquipmentStatus modeAAndC** *(Optional)*  
Transponder Mode A (4 digits - 4096 codes) and Mode C.  
ICAO code is "C".
  - c) **EquipmentStatus modeS** *(Optional)*  
Indicates the presence of a Mode S transponder.  
Constraints:
    - i) See [MODE\\_S\\_CAPABILITIES\\_MISSING\\_WHEN\\_MODE\\_S\\_EQUIPPED](#)
    - ii) See [MODE\\_S\\_CAPABILITIES\\_PRESENT\\_WHEN\\_MODE\\_S\\_NOT\\_EQUIPPED](#)
  - d) **ModeSCapabilities modeSCapabilities** *(Optional)*  
Indicates the capabilities of the Mode S transponder.  
Constraints:
    - i) See [MODE\\_S\\_CAPABILITIES\\_MISSING\\_WHEN\\_MODE\\_S\\_EQUIPPED](#)
    - ii) See [MODE\\_S\\_CAPABILITIES\\_PRESENT\\_WHEN\\_MODE\\_S\\_NOT\\_EQUIPPED](#)
  - e) **EquipmentStatus adsb19000out** *(Optional)*  
ADS-B with dedicated 1090 MHz ADS-B "out" capability.  
ICAO code is "B1".
  - f) **EquipmentStatus adsb19000outIn** *(Optional)*  
ADS-B with dedicated 1090 MHz ADS-B "out" and "in" capability.  
ICAO code is "B2".
  - g) **EquipmentStatus adsb0outUAT** *(Optional)*  
ADS-B with "out" capability using Universal Access Transceiver (UAT).  
CAO code is "U1".
  - h) **EquipmentStatus adsb0outInUAT** *(Optional)*  
ADS-B with "out" capability using UAT.  
ICAO code is "U2".
  - i) **EquipmentStatus adsb0outVDL4** *(Optional)*  
ADS-B with "out" capability using VDL Mode 4.

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ICAO code is "V1".

- j) **EquipmentStatus adsb0utInVDL4** *(Optional)*  
ADS-B with "out" and "in" capability using VDL Mode 4.  
ICAO code is "V2".
- k) **EquipmentStatus adscFans** *(Optional)*  
ADS-C with FANS 1/A capability.  
ICAO code is "D1".
- l) **EquipmentStatus adscAtn** *(Optional)*  
ADS-C with ATN capability.  
ICAO code is "G1".

(4) Constraints:

- a)

Name	MODE_S_CAPABILITIES_MISSING_WHEN_MODE_S_EQUIPPED
Attributes	<a href="#">modeS</a> , <a href="#">modeSCapabilities</a>
Description	When modeS is in status equipped the modeSCapabilities shall not be null
- b)

Name	MODE_S_CAPABILITIES_PRESENT_WHEN_MODE_S_NOT_EQUIPPED
Attributes	<a href="#">modeS</a> , <a href="#">modeSCapabilities</a>
Description	modeSCapabilities shall be null when modeS is in status not_equipped. Must not be null otherwise

- (5) Used by: [FlightPlanUpdate](#), [FlightPlan](#).

## 4.172. <<enumeration>> SurvivalEquipment

- (1) Enumerates survival equipment items that an aircraft can carry.
- (2) Values:
  - a) **DESERT**
  - b) **JUNGLE**
  - c) **MARITIME**
  - d) **POLAR**
- (3) Used by: [SupplementaryInformation](#).



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#### 4.173. <<enumeration>> SuspensionStatus

- (1) Describes a flight suspension status.
- (2) Values:
  - a) **AIRPORT\_SUSPENSION**
  - b) **DELAY\_CONFIRMATION**
  - c) **FLIGHT\_PLAN\_REVALIDATION**
  - d) **MANUAL\_SUSPENSION**
  - e) **NOT\_REPORTED\_AS\_AIRBORNE**
  - f) **NOT\_SUSPENDED**
  - g) **REGULATION\_CONFIRMATION**
  - h) **SIT\_TIME\_OUT**
  - i) **SLOT\_MISSED**
  - j) **TRAFFIC\_VOLUMES\_CONDITION**
  - k) **V\_MANUAL\_SUSPENSION**

- (3) Used by: [Flight](#).

#### 4.174. typedef<int> TactIdentifier

- (1) Examples:52671556,...
- (2) Range: [ 0 , 10000000000[.

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#### 4.175. <<abstract>> TargetAPIRequest

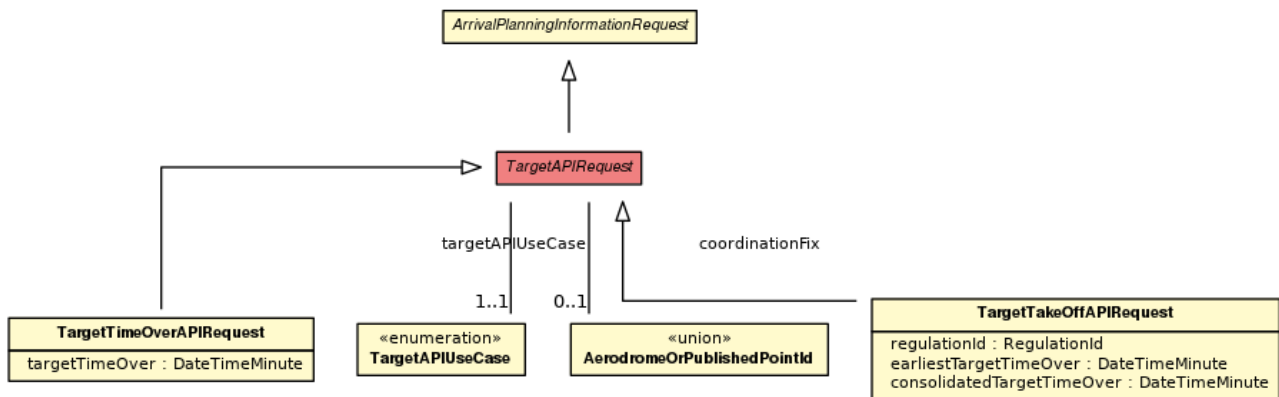


Figure 4.11. <<abstract>> TargetAPIRequest Class Diagram

- (1) Base class of all types of target API requests, either providing target time over an AOP-NOP co-ordination fix (when targetAPIUseCase = Update), or removing previous target time-related information (when targetAPIUseCase = Remove).
- (2) Inherits from: [ArrivalPlanningInformationRequest](#).
- (3) Attributes:
  - a) **TargetAPIUseCase targetAPIUseCase (Mandatory)**  
This value is used as a discriminant. When targetAPIUseCase = Update, the Target API is used to provide new target time information. When targetAPIUseCase = Remove, the Target API is used to remove previous target time information.  
Constraints:
    - i) See [ATTRIBUTE\\_MISSING\\_FOR\\_TARGET\\_API\\_UPDATE](#)
    - ii) See [ATTRIBUTE\\_PRESENT\\_FOR\\_TARGET\\_API\\_REMOVE](#)
  - b) **AerodromeOrPublishedPointId coordinationFix (Optional)**  
The coordination fix for AOP-NOP exchange of target and calculated times over. It must be the most downstream point of the flight's trajectory where the AOP retrieves the estimated time over from NM. If AOP has its own flight's trajectory calculation, then the co-ordination fix is the starting point of the calculation. The coordination fix must be the ADES if and only if AOP doesn't have its own trajectory calculation (yet).  
The coordination fix cannot be the ADEP.  
Constraints:
    - i) See [ATTRIBUTE\\_MISSING\\_FOR\\_TARGET\\_API\\_UPDATE](#)
    - ii) See [ATTRIBUTE\\_PRESENT\\_FOR\\_TARGET\\_API\\_REMOVE](#)
- (4) Constraints:

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a)

Name	ATTRIBUTE_MISSING_FOR_TARGET_API_UPDATE
Attributes	<a href="#">targetAPIUseCase</a> , <a href="#">coordinationFix</a>
Description	When targetAPIUseCase = Update, coordinationFix must not be null.

b)

Name	ATTRIBUTE_PRESENT_FOR_TARGET_API_REMOVE
Attributes	<a href="#">targetAPIUseCase</a> , <a href="#">coordinationFix</a>
Description	When targetAPIUseCase = Remove, coordinationFix must be null.

- (5) Extended by: [TargetTimeOverAPIRequest](#), [TargetTakeOffAPIRequest](#).

#### 4.176. <<enumeration>> TargetAPIUseCase

- (1) TODO VHW

- (2) Values:

- a) **Remove**  
The Target API request is used to remove previous target time information.
- b) **Update**  
The Target API request is used to provide new target time information.

- (3) Used by: [TargetAPIRequest](#).

#### 4.177. TargetDPIRequest

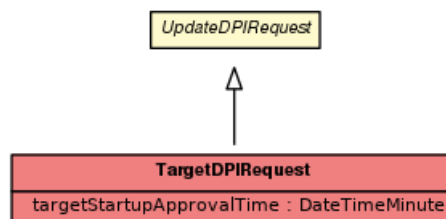


Figure 4.12. TargetDPIRequest Class Diagram

- (1) There are two subtypes of Target DPI message:
- (2) a) T-DPI - t -- The T-DPI-t message must contain the Target Take-Off Time (TTOT) that takes into account all constraints from an AO and Handling Agent perspective.
- b) T-DPI - s -- The T-DPI-s contains the Take-Off-Time as calculated by the Pre-Departure Sequence. This Take-Off-Time (target take-off-time) is included in the TTOT-field.

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- (3) Detailed information regarding Target DPI target and Target DPI sequenced messages can be found in the document [DPI Implementation Guide](#) section "T-DPI-t" and "T-DPI-s".
- (4) Inherits from: [UpdateDPIRequest](#).
- (5) Attributes:
- a) **[DateTimeMinute](#) targetStartupApprovalTime** (*Optional*)  
Target Start-up Approval Time.  
The TSAT is the time at which the pilot can expect start-up approval from ATC.  
Acronym: TSAT.
- (6) Extended by: [TargetDPISequencedRequest](#), [TargetDPITargetRequest](#).

## 4.178. TargetTime

- (1) Attributes:
- a) **[RegulationId](#) regulationId** (*Mandatory*)  
The target Time over the relevant flight profile point for the most penalizing regulation of the flight (Calculated Time Over (CTO) on the "closest" point) and the actual time over (according to CTFM profile).
- b) **[DateTimeSecond](#) targetTime** (*Mandatory*)  
the Calculated Time Over on point
- c) **[FlightLevel](#) targetLevel** (*Mandatory*)  
The target Flight level (from the RTFM point profile) on point
- d) **[AerodromeICAOId](#) aerodromeICAOId** (*Optional*)  
ICAO id of an aerodrome:  
The aerodrome of departure if the point is the first in the profile  
Optional, unless the point is first. Must be null if point is null, cannot be null otherwise
- e) **[ICAOPoint](#) point** (*Optional*)  
The en-route point on which the target time is defined (for arrival regulations it will typically be the first point of the terminal procedure. For en-route regulations it is typically the first flight plan point after the entry into the regulated traffic volume).  
Must be null if aerodrome ICAOId is not null and cannot be null otherwise
- f) **[boolean](#) flightPlanPoint** (*Optional*)  
If point is not null, this attribute is set to true unless the point is not a flight plan point but was added by NM in order to provide a better approximation on a long DCT segment
- g) **[DistanceNM](#) coveredDistance** (*Mandatory*)  
Distance from the first point in the profile measured on the 2D track of the point profile.
- h) **[ActualTimeAtTarget](#) actualTimeAtTarget** (*Optional*)

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The actual time over on point (according to CTFM flight profile). If the CTFM does not cross point, then actualTimeAtTarget will not be present.

- (2) Used by: [Flight](#).

## 4.179. TC0Authorisation

- (1) Representation of a TCO authorisation.

- (2) Attributes:

- a) [TC0AuthorisationId](#) **id** (Mandatory)  
The TCO authorisation identifier.
- b) [AircraftRegistrationMark](#) **aircraftRegistration** (Mandatory)  
The aircraft registration mark associated to the authorisation identifier.  
Constraint: See [AIRCRAFT\\_REGISTRATION\\_INVALID\\_VALUE](#)

- (3) Constraint:

- a)
- |             |   |
|-------------|---|
| Name        | AIRCRAFT_REGISTRATION_INVALID_VALUE                     |
| Attribute   | <a href="#">aircraftRegistration</a>                    |
| Description | aircraftRegistration should be maximum of 7 characters. |

- (4) Used by: [TC0AuthorisationUpdate](#), [TC0AuthorisationListReplacementRequest](#).

## 4.180. typedef<string> TC0AuthorisationId

- (1) Uniquely identifies a TCO authorisation.

- (2) Pattern: (ALPHA|DIGIT|/|\_|\*|-){0,50}

- (3) Used by: [TC0Authorisation](#).

## 4.181. TC0AuthorisationUpdate

- (1) Representation of a TCO authorisation update.

- (2) Attributes:

- a) [TC0Authorisation](#) **authorisation** (Mandatory)  
The TCO authorisation.
- b) [TC0AuthorisationUpdateType](#) **updateType** (Mandatory)  
The type of update

- (3) Used by: [TC0AuthorisationListUpdateRequest](#).

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#### 4.182. <<enumeration>> TC0AuthorisationUpdateType

- (1) TODO FB867.
- (2) Values:
  - a) **CREATE**
  - b) **DELETE**
- (3) Used by: [TC0AuthorisationUpdate](#).

#### 4.183. typedef<string> TerminalOrApronStandName

- (1) Name of the terminal or apron stand where the gate is located.
- (2) The terminal is a building at an airport where passengers transfer between ground transportation and the facilities that allow them to board and disembark from aircraft.
- (3) The airport apron is the area of an airport where aircraft are parked, unloaded or loaded, refuelled, or boarded.
- (4) Examples: T1, 2G, T4S, ...
- (5) Pattern: (UALPHA|DIGIT){1,6}
- (6) Used by: [GeneralAPIRequest](#), [ArrivalInformation](#), [CDMInfo](#), [UpdateDPIRequest](#).

#### 4.184. TimeAndModel

- (1) Time at reference location for a given flight model.
- (2) Attributes:
  - a) [TrafficType](#) **model** (*Mandatory*)
  - b) [DateTimeMinute](#) **time** (*Mandatory*)
- (3) Used by: [Flight](#).

#### 4.185. typedef<int> TotalCapacity\_DataType

- (1) The total capacity, in persons, of all dinghies carried by the aircraft.
- (2) Range: [0,999].
- (3) Used by: [Dinghies](#).

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#### 4.186. <<enumeration>> TrafficType

- (1) Specifies a traffic type, i.e. if flights are involved in:
- (2) Values:

Value	Description
<b>DEMAND</b>	Traffic demand ("FTFM": Filed Tactical Flight Model).
<b>LOAD</b>	Traffic load ("CTFM": Current Tactical Flight Model).
<b>REGULATED_DEMAND</b>	Regulated traffic demand ("RTFM": Regulated Tactical Flight Model).

Table 4.24. <<enumeration>> TrafficType

- (3) Used by: [TrafficCountsRequest](#), [FlightListRequest](#), [TrafficCountsReplyData](#), [TimeAndModel](#).

#### 4.187. TrajectoryPointRole

- (1) Constraints: From the class TrajectoryPointRole we will only use the concepts:
- a) topOfClimb
  - b) topOfDescent
  - c) bottomOfClimb
  - d) bottomOfDescent
- (2) If any other TrajectoryPointRole value is provided in the B2B request, the TrajectoryPointRole value will be ignored.
- (3) Attributes:
- a) **boolean bottomOfClimb** (Optional)  
Bottom of Climb (BOC) points for every transition from a cruise phase to a climb phase.
  - b) **boolean bottomOfDescent** (Optional)  
Bottom of Descent (BOD) points for every a transition from a descent phase to a cruise phase
  - c) **boolean boundaryPoint** (Optional)  
Points where the 4D Trajectory intersects the boundary of FIR/UIRs in whose airspace the flight is planned to fly.
  - d) **boolean fromGATtoOAT** (Optional)  
Points where the flight pass from GAT to OAT rules. Indicates the start of a military portion of the route.

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- e) **boolean fromIFRToVFR** (*Optional*)  
Points where the flight pass from IFR to VFR rules. Indicates the start of VFR portion of the route.
- f) **boolean fromOATToGat** (*Optional*)  
Points where the flight pass from OAT to GAT rules. Indicates the end of a military portion of the route.
- g) **boolean topOfClimb** (*Optional*)  
Top of Climb (TOC) points for every transition from a climb phase to a cruise phase.
- h) **boolean topOfDescent** (*Optional*)  
Top of Descent (TOD) points for every transition from a cruise phase to a descent phase.
- i) **boolean fromVFRToIFR** (*Optional*)  
Points where the flight pass from VFR to IFR rules. Indicates the end of VFR portion of the route.

#### 4.188. <<enumeration>> TrajectoryPointType

- (1) Constraints: From the class TrajectoryPointType we will use:
  - a) **adep**
  - b) **ades**
  - c) **publishedPoint**
  - d) **geoPoint**
- (2) If any other TrajectoryPointType value is provided in the B2B request, the B2B request will be rejected.. Typically for TrajectoryPointType:
  - a) **refPoint**
  - b) **otherPoint**
- (3) Values:
  - a) **adep**  
Aerodrome of departure.
  - b) **ades**  
Aerodrome of destination.
  - c) **geoPoint**  
An ICAO geographical point as it would appear in F15.  
It separate 2 route segments.
  - d) **otherPoint**



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A point being on a segment between two of points of the other types. Typically a point where performance changes (e.g. where climb rate changes), or where an FIR/UIR boundary is crossed.

- e) **publishedPoint**  
An ICAO point identifier.
- f) **refPoint**  
ICAO point defined in reference to a published point (a Navigation Aid) from which a bearing and a distance id given

## 4.189. TrajectorySegment

(1) Attributes:

- a) **SegmentType** **segmentType** (*Mandatory*)  
Constraint: See [INCONSISTENT\\_TRAJECTORY\\_SEGMENT](#)
- b) **RouteId** **segmentIdentifier** (*Optional*)  
Constraint: See [INCONSISTENT\\_TRAJECTORY\\_SEGMENT](#)

(2) Constraint:

a)	Name	INCONSISTENT_TRAJECTORY_SEGMENT
	Attributes	<a href="#">segmentType</a> , <a href="#">segmentIdentifier</a>
	Description	The segmentIdentifier cannot be null/empty if segmentType is different from direct. The segmentIdentifier must be null if segmentType is direct

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## 4.190. <<abstract>> UpdatedDPIRequest

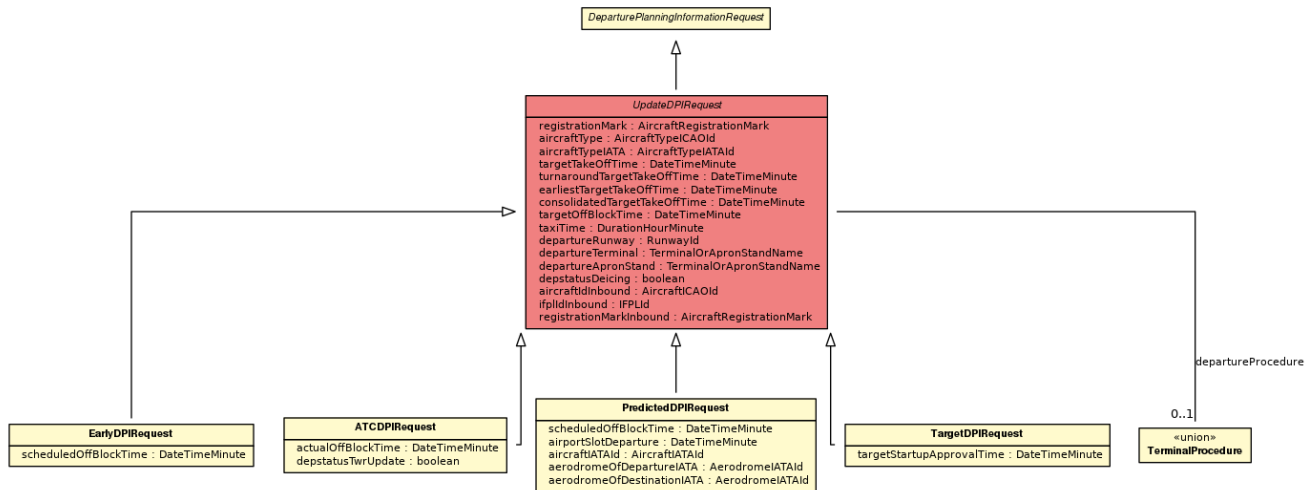


Figure 4.13. <<abstract>> UpdatedDPIRequest Class Diagram

- (1) Base class of all types of DPI update requests.
- (2) Inherits from: [DeparturePlanningInformationRequest](#).
- (3) Attributes:
  - a) [AircraftRegistrationMark](#) **registrationMark** (Optional)  
Aircraft registration mark. It is the unique alphanumeric string that identifies a civil aircraft. The registrationMark received in a DPI is persisted and used to possibly emit a discrepancy message when this registration mark is different from the last one received from a flight plan message.  
If provided by the Airport, the registrationMark will be helpful for the correlation between the inbound and outbound legs of a flight.  
ADEXP: -REG
  - b) [AircraftTypeICAOId](#) **aircraftType** (Optional)  
ICAO Aircraft type.  
The aircraft type received in a DPI is persisted but is not used to recalculate the profile. It is only used to possibly emit a discrepancy message when this aircraft type is different from the last one received from a flight plan message.  
ADEXP: -ARCTYP
  - c) [AircraftTypeIATAId](#) **aircraftTypeIATA** (Optional)  
IATA Aircraft type.
  - d) [DateTimeMinute](#) **targetTakeOffTime** (Contextual)  
Target Take-Off Time.  
The TTOT is the most accurate available take-off-time at airport at that moment in time.

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Time taking into account the TOBT (T-DPI-t message) or the TSAT (T-DPI-s message) plus the Estimated Taxi-Out Time (EXOT)

Acronym: TTOT.

Airports having implemented Extended DPIs should not fill this field (except in ATCDPIRequest) during AOP-NOP validation exercises but should use turnaroundTargetTakeOffTime, earliestTargetTakeOffTime and/or consolidatedTargetTakeOffTime instead.

Presence:

- i) Mandatory in [ATCDPIRequest](#)
- ii) Must be null in [PredictedDPIRequest](#)
- iii) Optional otherwise.

Constraints:

- i) See [INCORRECT\\_MIXTURE\\_OF\\_TTOT\\_FIELDS](#)
- ii) See [MISSING\\_TTOT\\_FIELDS\\_IN\\_TARGET\\_DPI](#)

e) **DateTimeMinute turnaroundTargetTakeOffTime** (*Contextual*)

Contains all the constraints stemming from TOBT or late ELDT if existing, else it contains the schedule time. It is not based upon any local departure capacity constraints. Use best information on anticipated taxi time to compose.

Only to be filled by airports having implemented Extended DPIs and only during AOP-NOP validation exercises.

Presence:

- i) Mandatory in [PredictedDPIRequest](#)
- ii) Must be null in [ATCDPIRequest](#)
- iii) Optional otherwise.

Constraints:

- i) See [INCORRECT\\_MIXTURE\\_OF\\_TTOT\\_FIELDS](#)
- ii) See [MISSING\\_TTOT\\_FIELDS\\_IN\\_TARGET\\_DPI](#)

f) **DateTimeMinute earliestTargetTakeOffTime** (*Contextual*)

Contains the airport departure capacity constraint. If provided for a regulated flight, it becomes a constraint for slot assignment. If it is not the most penalizing constraint, it is retained for potential slot improvement. Use best information on anticipated taxi time to compose.

Only to be filled by airports having implemented Extended DPIs and only during AOP-NOP validation exercises, and only if a departure constraint exists.

Presence:

- i) Must be null in [ATCDPIRequest](#)
- ii) Optional otherwise.

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Constraint: See [INCORRECT\\_MIXTURE\\_OF\\_TTOT\\_FIELDS](#)

- g) **[DateTimeMinute](#) consolidatedTargetTakeOffTime** *(Contextual)*  
Contains all constraints for individual flight and/or constraint based on departure capacity and including the imposed downstream constraint (CTOT). Sent to acknowledge imposed departure constraints and place the flight inside the STW.  
Only to be filled by airports having implemented Extended DPIs and only during AOP-NOP validation exercises, and only when a CTOT has been imposed on the flight.  
Presence:
  - i) Must be null in [ATCDPIRequest](#)
  - ii) Optional otherwise.
- Constraint: See [INCORRECT\\_MIXTURE\\_OF\\_TTOT\\_FIELDS](#)
- h) **[DateTimeMinute](#) targetOffBlockTime** *(Contextual)*  
Target Off Block Time.  
The time that the aircraft operator or ground handler estimates that the aircraft is ready to push back.  
Acronym: TOBT.  
Presence:
  - i) Must be null in [ATCDPIRequest](#)
  - ii) Optional otherwise.
- i) **[DurationHourMinute](#) taxiTime** *(Mandatory)*  
Estimated Taxi out time.  
See [DPI Implementation Guide](#) section "[Use of DPIs during Special Circumstances at the airport](#)" for detail information.
- j) **[TerminalProcedure](#) departureProcedure** *(Contextual)*  
Standard Instrument Departure route identifier or DCT to a navaid/waypoint.  
Acronym: SID.  
Presence:
  - i) Mandatory in [ATCDPIRequest](#)
  - ii) Optional otherwise.
- k) **[RunwayId](#) departureRunway** *(Optional)*  
Identifier of the assigned departure runway.
- l) **[TerminalOrApronStandName](#) departureTerminal** *(Optional)*  
Identifier of the departure terminal.
- m) **[TerminalOrApronStandName](#) departureApronStand** *(Optional)*  
Identifier of the departure apron stand.
- n) **boolean depstatusDeicing** *(Optional)*

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If true, indicates that de-icing of the flight is planned, in progress or completed. The flight will then benefit from an extended DTW/STW. False by default, meaning that the flight doesn't need de-icing.

- o) **[AircraftICA0Id](#) aircraftIdInbound** (Optional)  
Aircraft ICAO id of preceding leg.
- p) **[IFPLId](#) ifplIdInbound** (Optional)  
Unique IFPL identifier of preceding leg.
- q) **[AircraftRegistrationMark](#) registrationMarkInbound** (Optional)  
Aircraft registration mark of preceding leg.

(4) Constraints:

- a)

Name	MISSING_TT0T_FIELDS_IN_TARGET_DPI
Attributes	<a href="#">targetTakeOffTime</a> , <a href="#">turnaroundTargetTakeOffTime</a>
Description	In TargetDPITargetRequest and TargetDPISequencedRequest, either targetTakeOffTime or turnaroundTargetTakeOffTime must not be null.
- b)

Name	INCORRECT_MIXTURE_OF_TT0T_FIELDS
Attributes	<a href="#">targetTakeOffTime</a> , <a href="#">turnaroundTargetTakeOffTime</a> , <a href="#">earliestTargetTakeOffTime</a> , <a href="#">consolidatedTargetTakeOffTime</a>
Description	targetTakeOffTime must be null when any of turnaroundTakeOffTime, earliestTakeOffTime or consolidatedTakeOffTime is not null.

- (5) Extended by: [EarlyDPIRequest](#), [ATCDPIRequest](#), [TargetDPIRequest](#), [PredictedDPIRequest](#).

## 4.191. <<enumeration>> WakeTurbulenceCategory

- (1) Wake turbulence category.

- (2) Values:

Value	Description	ICAO value
<b>HEAVY</b>	Aircraft type with a maximum certificated take-off mass of 136.000 kg or more	H
<b>LIGHT</b>	Aircraft type with a maximum certificated take-off mass of 7.000 kg or less	L
<b>MEDIUM</b>	Aircraft type with a maximum certificated take-off mass of less than 136.000 kg but more than 7.000 kg	M

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Value	Description	ICAO value
<b>SUPER</b>	Super heavy aircraft type in the order of 560.000 kg	J

Table 4.25. <<enumeration>> WakeTurbulenceCategory

(3) Used by: [FlightUpdateRequest](#), [FlightPlanUpdate](#), [FlightPlan](#).

## 4.192. WindVector

(1)

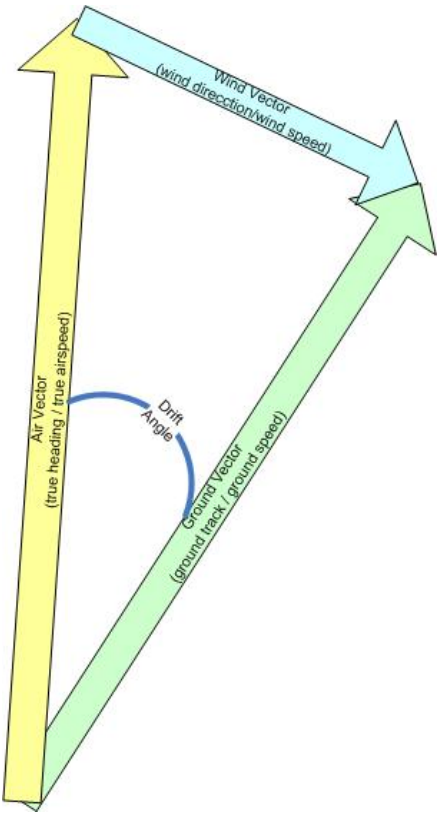


Figure 4.14. Wind Vector

(2) True direction and speed of the wind.

(3) Attributes:

- a) **Bearing** windDirection (Mandatory)  
Direction to which the wind is blowing.
- b) **AirSpeed** windSpeed (Mandatory)  
Wind velocity.

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## Chapter 5. PRE-OPS Testing

- (1) The airspace data in the PRE\_OPS platform is currently synchronised from the OPS data. The flight data used by the FlightManagementService in the PRE-OPS platform is composed of:
  - a) Flight data that the different B2B client applications input via NOP/B2B
  - b) Live feed of the operational flight data received by NM
- (2) Flight data is cleaned up daily for terminated flights.
- (3) The PRE-OPS platform is not fed with Meteo data, so the flight profiles may be different from the ones obtained from the OPS platform.
- (4) The regulation data used by the FlightManagementService in the PRE-OPS platform is fed daily from the live systems.
- (5) Regulation data is cleaned up daily.

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To properly report any fault, or to propose a modification concerning the present document, please refer to:

- for faults, the Systems Incident Management Procedure, ref. STD-CM/PRO/SIMP
- for changes, the IT Change Management Process, ref. STD/ITSM/CHG