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1 Introduction & Management Summary

- (1) The implementation of FF-ICE flight planning and its adoption within Europe involves an extensive transition period, during which mixed modes of operation have to be supported. This includes changes to the current flight planning methods, some of which have been identified by ICAO as mandatory for implementation globally. These are also addressed in the European perspective by regulatory measures which are intended to expedite this transition. Commission Implementing Regulation (EU) 2021/116 (CP1) requires IFR GAT airspace users operating in the EATMN airspace, to adopt FF-ICE and start filing FF-ICE flight plans (including military GAT flights but excluding OAT flights) after the 31st of December 2025. CP1 also applies to ANSPs (that provide air traffic services at all area control centres within the EATMN and approach and aerodrome units for specific airports) and to NM (as provider of FF-ICE services).
- (2) This impacts on all parties involved in the initial flight planning activities. Airspace users will transition to enablement for the creation and provision of the FF-ICE flight plans. NM services will evolve with enablement to validate the airspace users FF-ICE submissions, and to disseminate them to relevant units. European ANSPs will transition with enablement to process and act on the disseminated FF-ICE flight plans within their airspace.
- (3) The implementation of FF-ICE involves the introduction of functionality which is fundamentally different to that currently deployed. This has impact at all levels with procedural aspects involving very different submission and dissemination methods. The challenge for NM is therefore to continue its existing support for the airspace users and ANSPs, operating within the IFPZ that are not yet FF-ICE enabled, concurrent with those that have successfully completed the transition to FF-ICE, either completely or to some intermediate extent. (Note that CP1 does not apply to all FIRs/UIRs within the IFPZ).
- (4) This includes the possibility of temporary transitional measures which will reduce the impact on airspace users and ANSPs. Translation of submitted FF-ICE flight plan data, for distribution to ANSPs that are not yet FF-ICE enabled, is a requirement that has been foreseen by ICAO and for Europe is being implemented by the NM. The reverse process of 'converting' a submitted FPL 2012 flight plan into its FIXM equivalent would allow ANSPs that are FF-ICE enabled to run down their support for FPL 2012 flight plan reception via the AFTN.
- (5) An FPL 2012 flight plan that is converted into FIXM format cannot be considered to be an FF-ICE flight plan because it lacks essential data that is not present in the FPL 2012 data structure, but it would at least facilitate FIXM processing by an ANSP for all flight plans received. Conversion is however, a more difficult process as it involves a change from lightly structured text scripts into strongly structured fields with tight syntax. A data analysis is needed, and is included in this document, to highlight any difficulties that could arise.
- (6) A major objective for FF-ICE implementation is to increase the potential for fully automatic processing. This is especially important during the transition period in order to minimise work-load overheads.
- (7) The objective for this document is therefore to present the main factors which have to be taken into account, as part of a transition plan to support mixed

modes of initial flight planning, with translation and conversion measures, and to evaluate and mitigate any obstacles or difficulties that may arise.

2 Terminology & Abbreviations

Term/Abbreviation	Meaning
ASP	<p>Air traffic management Service Provider</p> <p>An entity that provides Air Traffic Management services as introduced in the ICAO Doc 9854 Global ATM Operational Concept.</p> <p>The term ASP (including aASP, eASP as described below) is used in this document for those units which operate outside of the IFPZ.</p>
eASP	<p>An ASP that is capable of providing the mandatory FF-ICE services.</p> <p>NM provides FF-ICE services to AUs, ANSPs inside the IFPZ and other flight data subscribers and requesters and is therefore the eASP for the IFPZ.</p>
aASP	<p>An ASP that is not capable of providing the mandatory FF-ICE services.</p> <p><i>Note: In this document the ATM service providers operating outside the IFPZ are referred to in the more general ICAO context as eASPs or aASPs. Those operating inside the IFPZ are referred to more specifically as eANSPs or aANSPs.</i></p> <p>Prefix "e" = FF-ICE enabled, "a" = not FF-ICE enabled.</p>
NM	Network Manager.
AU (Airspace User)	<p>Any instance of the Flight Operator, or its agent that is authorised to submit flight plans to NM.</p> <p>From the framework regulation 549/2004: "airspace users' means all aircraft operated as general air traffic".</p>
eAU	AUs, that are enabled to make use of the FF-ICE services provided by NM.
aAU	AUs that are not yet enabled to make use of the FF-ICE services provided by NM.
ARO	<p>Air Traffic Services Reporting Office: Defined by PANS-ATM as "A unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure".</p> <p>An ARO can have the responsibility for the addressing of flight plans on to other units, as required by the state concerned.</p> <p>Within the scope of this document the flight planning related responsibilities of the ARO are synonymous with those described for the Departure ANSP. The ARO is therefore not described further.</p>
ANSP	<p>Air Navigation Service Provider:</p> <p>An ANSP is an organisation that is providing Air Navigation Services to air traffic during all phases of operations and may or may not be enabled to make use of the FF-ICE services provided by NM.</p>
eANSP	ANSPs within the IFPZ, that are enabled to make use of the FF-ICE services provided by NM.

Term/Abbreviation	Meaning
aANSP	ANSPs within the IFPZ that are not yet enabled to make use of the FF-ICE services provided by NM. Note: They require translated instances of any FF-ICE distributions provided by NM.
Departure ANSP/ASP	The unit serving or designated to serve the departure aerodrome for the distribution of flight plans and associated data.
Relevant recipients/ASPs/ANSPs	The ASPs and/or ANSPs designated by the appropriate ATS authority to which flight plans need to be provided.
Derived ANSPs	Relevant ANSPs (eANSPs and aANSPs), inside the IFPZ that are derived from the route of flight through the IFPZ.
FPD	Flight Plan Dataset.
FPD Held on Record	Refers to the internal flight plan dataset which is stored within NM.
Published FPD	The Flight Plan Dataset that is currently 'Held on Record' and published via NM B2B services.
FF-ICE Submissions	eFPL, Flight Plan Update (FPU), Flight Cancellation (FC)
FF-ICE Notifications	Flight Departure, Flight Arrival.
FPL 2012 messages	FPL, CHG, DLA, CNL, DEP, ARR, AFP, FNM, MFS.
FPL 2012 flight planning messages translated from FF-ICE equivalents	FPL(T), CHG(T), CNL(T), DEP(T), ARR(T)
FIXM Data Sets for converted messages	FPL (FIXM)
Global Unique Flight Identifier (GUFID)	An unchangeable data element associated with a flight that allows all eligible members of the ATM community to unambiguously refer to information pertaining to the flight.
Operator Flight Plan Version (OFPV)	The AU is required to provide a unique incrementing version number for each FF-ICE Flight Plan and all Updates submitted to NM.
FDN	FF-ICE Flight Departure Notification
FAN	FF-ICE Flight Arrival Notification
T&D	Translation & Delivery (As described in the IFPS Users Manual).
FPL 2012 Distribution	Provision of FPL 2012 messages by NM, as received or as translated from FF-ICE submissions, to ANSPs in the IFPZ.
NA	Not Applicable.
SWIM	System Wide Information Management: provides a single point of access for aeronautical, flight, weather, and surveillance information. It delivers the infrastructure, standards, and services needed to optimize the secure exchange of relevant data across the aviation community.
FIXM	Flight Information Exchange Model: is a global exchange standard capturing flight and flow information. FIXM provides a set of XML schemas that fully support the data exchange requirements for the FF-ICE concept.

Term/Abbreviation	Meaning
FPL(FIXM)	A flight plan that has been converted from an FPL 2012 flight plan into FIXM data format and structure.
AFTN	Aeronautical Fixed Telecommunication Network: A worldwide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations. In the context of this document, it is one of the networks currently used for the exchange of flight plan related messages between AUs and ASPs/ANSPs.
IATA	International Air Transport Association: The trade association for many of the world's airlines.
Translation	A process for changing submitted FF-ICE flight plan data into the equivalent FPL 2012 data format and structure.
Conversion	A process for changing submitted FPL 2012 flight plan into the equivalent FIXM data format and structure.
SR	Submission Response

Table 1 - Abbreviations table

3 Transitional Measures

- (1) This section introduces the transitional measures needed to support the mixed modes.

3.1 Mixed Mode Support

- (1) FF-ICE and FPL 2012 procedures are different with respect to submission methods, data processing, feedback and data dissemination. The technologies used are also different. For example, FF-ICE is implemented using SWIM/B2B with FIXM data structures. FPL2012 is implemented using the AFTN/IATA Type-B networks and ICAO 2012 messages.
- (2) FF-ICE data processing is different, compared to that needed for FPL 2012 messages. For example, FF-ICE association uses the GUF1, compared to the FPL 2012 use of key fields. There are also differences in data structures and syntax. NM will need to support both.
- (3) Feedback of errors and associated information to an AU is different in FF-ICE to that implemented for FPL 2012 messages. A submission Response and a Filing Status are provided for FF-ICE submissions, whereas Operational Reply Messages (ACK, MAN, REJ) are provided for FPL 2012 messages. Operational Reply Messages will also be provided for eFPL related message submissions and revalidations, in parallel with the Submission Response and Filing Status, unless the eAU has elected not to receive them.
- (4) The FPL 2012 distribution is a point-to-point messaging service, from NM to derived recipients (ANSPs). In contrast FF-ICE data distribution utilises the B2B publication by subscription service. In addition, FF-ICE data is translated to FPL 2012 messages and provided for relevant recipients.
- (5) Transition measures are needed to ensure that the FPL 2012 data distributed and published are consistent. This calls for consistency requirements related to the translation and the conversion processes. These processes are introduced below.

3.2 Translation

- (1) Translation is needed by NM whenever an accepted FF-ICE submission has to be provided to ANSPs that are not yet FF-ICE enabled. This involves translating eFPL data items into their equivalent items within the FPL 2012 message structure. The message distribution is then conducted using the existing methods (e.g., AFTN).
- (2) Translation to ADEXP formats is also required for ANSP recipients that have chosen to receive that form of message.
- (3) In addition to flight plan translation and distributions within the IFPZ, NM will also, on request by the AU, provide translation and delivery of flight plans to recipients outside of the IFPZ. The request is made by a Requested Recipients field within the FF-ICE submission to NM.
- (4) Translation, by NM, is therefore a transitory capability which will be needed for as long as there are ANSPs that are not yet FF-ICE enabled.
- (5) Translation is implemented in support of the following FF-ICE services and processes:

Filing Service

- a) Filing of an eFPL, with translation to an FPL message
- b) Flight Plan Update (to a Filed eFPL), with translation to a CHG message
- c) Flight Cancellation, with translation to a CNL message

Translation & Delivery

On request by an eAU, within an FF-ICE submission, for translation and delivery to aASPs outside of the IFPZ.

Notification Service

- a) Flight Departure Notification, with translation to a DEP message
- b) Flight Arrival Notification, with translation to an ARR message

Translation is described in more detail in the ICAO Doc 9965 Volume II and in the FPFDE NFPM FF-ICE Implementation Guidelines.

3.3 Conversion

- (1) FPL 2012 messages, submitted to NM have to be distributed to relevant ANSPs, along the route of flight within the IFPZ. In the case of an eANSP this means that it will have to continue its FPL related processing capabilities for the full duration of the transitional period. Conversion of FPL 2012 messages into FIXM data structures and formats by NM, would allow eANSPs to move towards increased B2B usage, reducing their overheads associated with reception and processing of FPL 2012 distributions via legacy AFTN based networks.
- (2) FPL 2012 messages do not include some of the FF-ICE data items, such as the GUF1, and the converted flight plans cannot therefore be referred to as eFPLs. In this document they are referred to as FPL(FIXM).
- (3) The viability of the conversion process may be subject to some difficulties associated with mapping loosely structured data, into the highly structured FIXM data sets. This is exacerbated in some observed cases which are lacking in conformity with applicable FPL 2012 formatting and syntax rules.
- (4) Conversion will create FIXM 4.3 datasets within the NM Publication service, in support of the flight plan distributions needed to eANSPs. Section 6 of this document summarises a data equivalences analysis that has been conducted. The conclusions are presented in section 7.
- (5) Conversion is provided in support of the following FF-ICE services:

Filing Service

- a) Filing of an FPL message, with conversion to create an FPL(FIXM) dataset. Including AFIL.
- b) Filing of a CHG or DLA message, with conversion to update the published FPL(FIXM) dataset.
- c) Filing of a CNL message, with conversion to cancel the published Flight Data-Set.
- d) Filing of an ATC flight planning message (AFP, FNM, MFS) during the flight execution phase, with conversion to update the published FPL(FIXM) dataset.

Notification Service

- a) Submission of a DEP message, with conversion to update the published FPL(FIXM) dataset with the departure event and the actual time of departure.
- b) Submission of an ARR message, with conversion to update the published FPL(FIXM) dataset with the arrival event, the actual time of arrival and the actual arrival aerodrome if it is different to the originally filed destination aerodrome.

3.4 Route/Trajectory Processing and the AO4DT

- (1) When trajectory data is included in an eFPL submission and accepted, NM will use it to calculate the Agreed Trajectory for that flight plan. In this case the AO4DT indication will be included in the Field 18 Remarks indicator (RMK/) of the translated FPL distributed by NM and also in the NM response to an RQP message which associates with an eFPL Held on Record.
- (2) If the submitted trajectory data fails validation/evaluation checks, NM will discard it and calculate the flight's profile using only the route elements and the AO4DT indication is not included in Field 18.
- (3) Note that if the airspace user has used a different airspace data (e.g., flight level constraints such as SID/STARs or PTRs) to that used by NM, then the Agreed Trajectory calculated by NM and the trajectory submitted by the AU may be different in some detail.
- (4) Note that the F15 Route (in text format) is included as part of the Agreed Route/Trajectory group in the FF-ICE feedback provided to the eAU and in the eFPL and the converted FPL 2012 publications provided to eANSPs.

3.5 Flight Plan Processing and Distribution by NM

3.5.1 Overview

- (1) The current implementation supports the eFPL and FPL submissions to NM shown in the following diagram, along with the transitional processing conducted by NM (Translation or Conversion) and the selective (FF-ICE or existing ATS message) distribution/publishing to aANSPs and eANSPs.

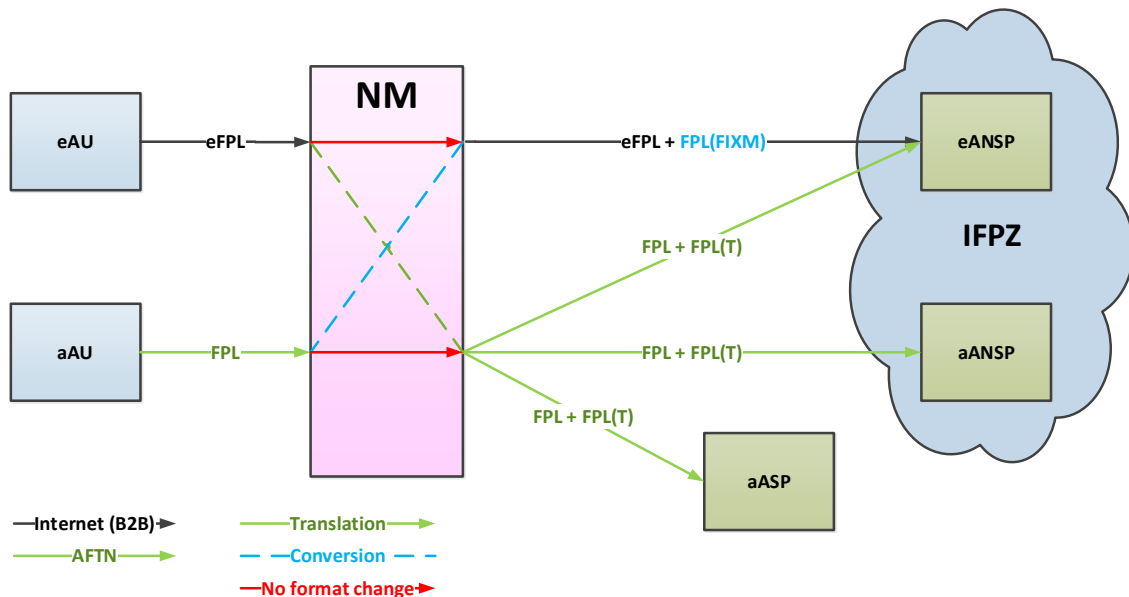


Figure 3-1: FPL and eFPL submissions to NM overview

- (2) The diagram only shows the submission of a flight plan (FPL or eFPL) to NM. Similar data exchanges and processing are needed for all of the other existing ATS messages and the FF-ICE B2B submissions. These are all described in the sub-sections which follow.
- (3) Note that the descriptions in this document treat the FPL 2012 and FF-ICE processing separately. However, an eANSP can choose to receive both forms of distribution.

3.5.2 Notations

- (1) The following notations are used in the message exchange diagrams provided in this section:

- Indicates processes or data flows that are needed only for Mixed Mode Operations.
- Indicates existing processes that are updated.
- Indicates existing processes or data flows that are unchanged for Mixed Mode Operations

3.5.3 FPL Related Submissions

- (1) The diagram below illustrates the processing chain for FPL related submissions to NM in the situation where a decision has been taken to implement the Conversion processing:

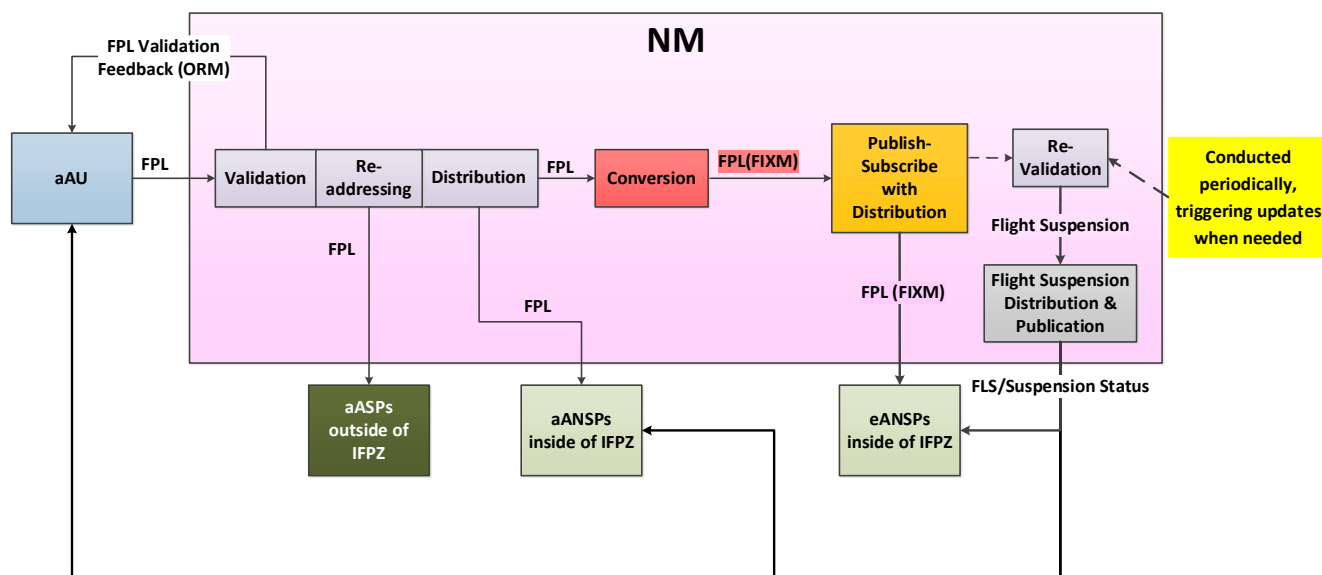


Figure 3-2: Processing chain for FPL submissions

- (2) Similar distributions are needed for the subsequent de-suspension (DES message and NM B2B suspension status update - after a CHG message from the aAU).
- (3) The conversion processing would be conducted after the existing validation, re-addressing, distribution have been completed. The FIXM data-set resulting from the conversion would then be published for the benefit of FF-ICE enabled ANSPs and other subscribers.
- (4) Re-validation events may result in a flight suspension (FLS) or de-suspension (DES) that will continue to be transmitted via AFTN and published via NM B2B Flight services as suspension status updates, as per the current implementation.

3.5.4 FF-ICE Submissions

(1) The diagram below illustrates the processing chain for eFPL related submissions to NM:

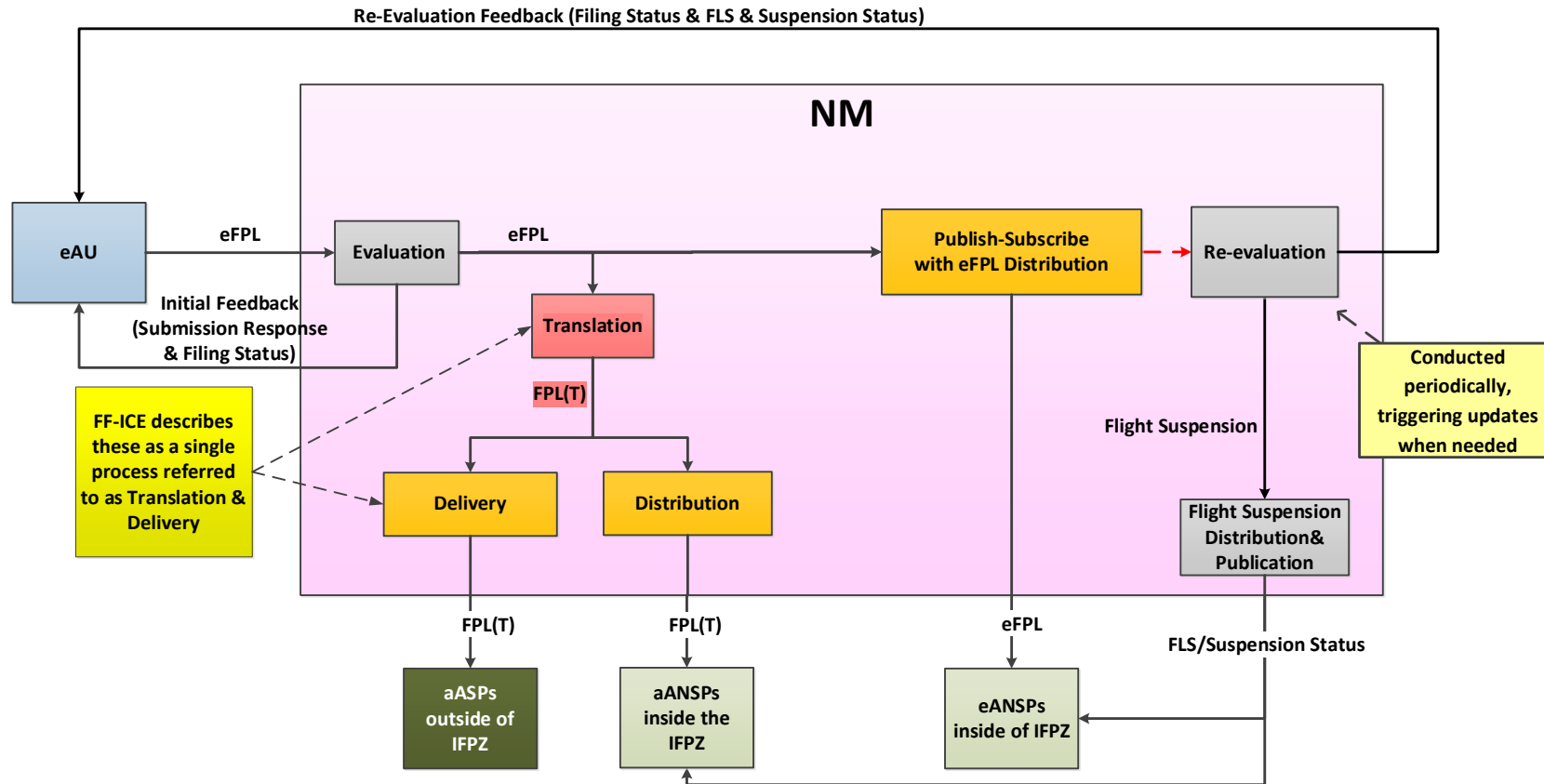


Figure 3-3: Processing chain for eFPL submissions

- (2) Similar distributions are needed for the subsequent de-suspension (DES message and NM B2B suspension status update - after a Flight Plan Update submission from the eAU).
- (3) Translation is needed after an eFPL related submission has been successfully validated and evaluated. The translated message is then distributed to relevant ANSPs in the IFPZ that are not yet FF-ICE enabled.
- (4) Translation and Delivery to requested recipients outside of the IFPZ is conducted if that has been requested by the AU in the submission. The accepted submission is published as a full eFPL data-set, for all relevant FF-ICE enabled ANSPs on the route of flight within the IFPZ, and for the benefit of other subscribers.
- (5) Re-evaluation events may result in a flight suspension (FLS) or de-suspension (DES) that will continue to be transmitted via AFTN and published via NM B2B Flight services as suspension status updates, as per the current implementation.

3.6 Publication Service

- (1) The Publication service will be enhanced to provide flight plans in FIXM format. It supports the FF-ICE distribution process, ensuring that eANSPs along the route of flight within the IFPZ are made aware of new filed flight plans and any updates or a cancellation.
- (2) During the transition period the published FIXM Flight Plan Data sets may need to support both cases of FPL converted FIXM data (a transitional measure) and the full eFPL FIXM data (a permanent measure). This document does not specify the actual Flight Plan Data (FPD) sets that will be published, but the following logical sets/subscription topics are needed:
 - a) The accepted flight plan (reflecting any subsequent updates) in FIXM format.
 - b) The event that has created/updated the accepted flight plan.
 - a) The list of Units as composed by NM for distribution purposes.

4 Analysis of Flight Plan Submission Scenarios

- (1) ICAO Doc 9965 Volume II section 3.3. provides a summary of the submission scenarios that can occur globally.
- (2) This section describes those scenarios in the context of their applicability within the IFPZ.

4.1 Scenario 1: Direct Submission by an eAU

4.1.1 Scenario 1a FF-ICE Submission

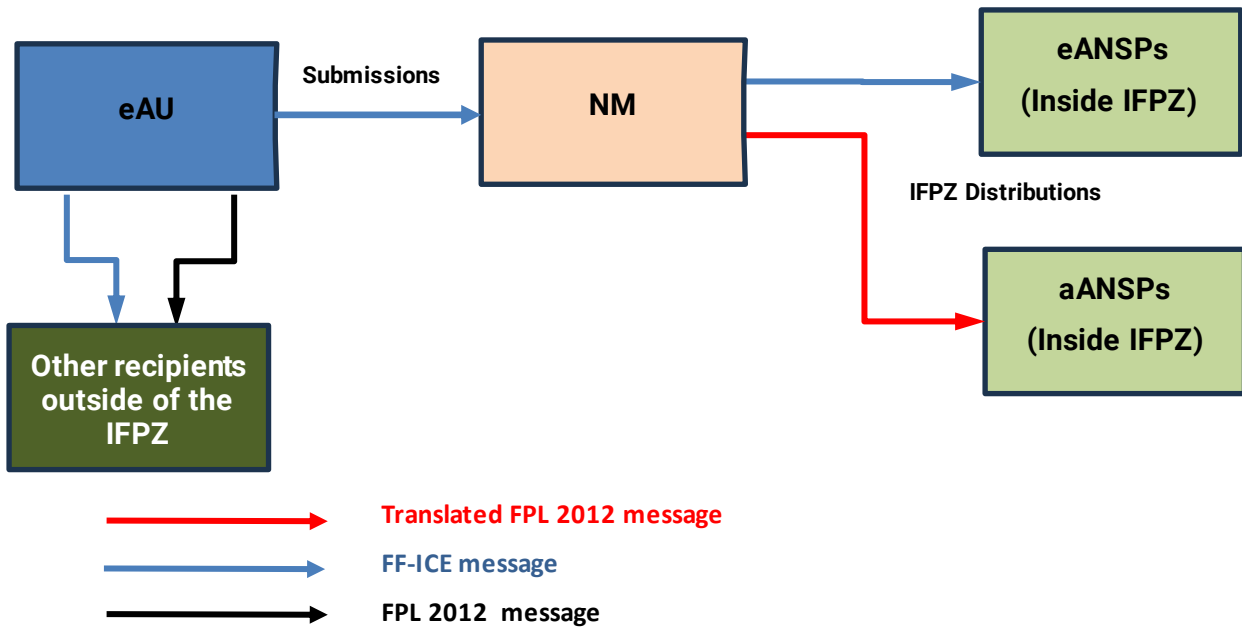


Figure 4-1: Direct Submission by an eAU

Departure location	Inside or outside IFPZ		
IFPZ Applicability	Internal, Leaving, Entering, Overflight.		
Delegation of FPL 2012 message delivery:	To eAU		
Submissions to NM:	eFPL, FPU, FC	Provided by:	eAU
Notes	<p>For flights within the IFPZ this is the normal expected scenario, with direct submission to NM.</p> <p>Under normal circumstances NM should only receive FF-ICE submissions.</p> <p>Note that direct submission means that the responsibility for addressing flight plans has been delegated to the eAU. In this scenario NM receives flight plans directly from the eAU.</p>		

4.1.2 Scenario 1b: Alternating Filing Capability

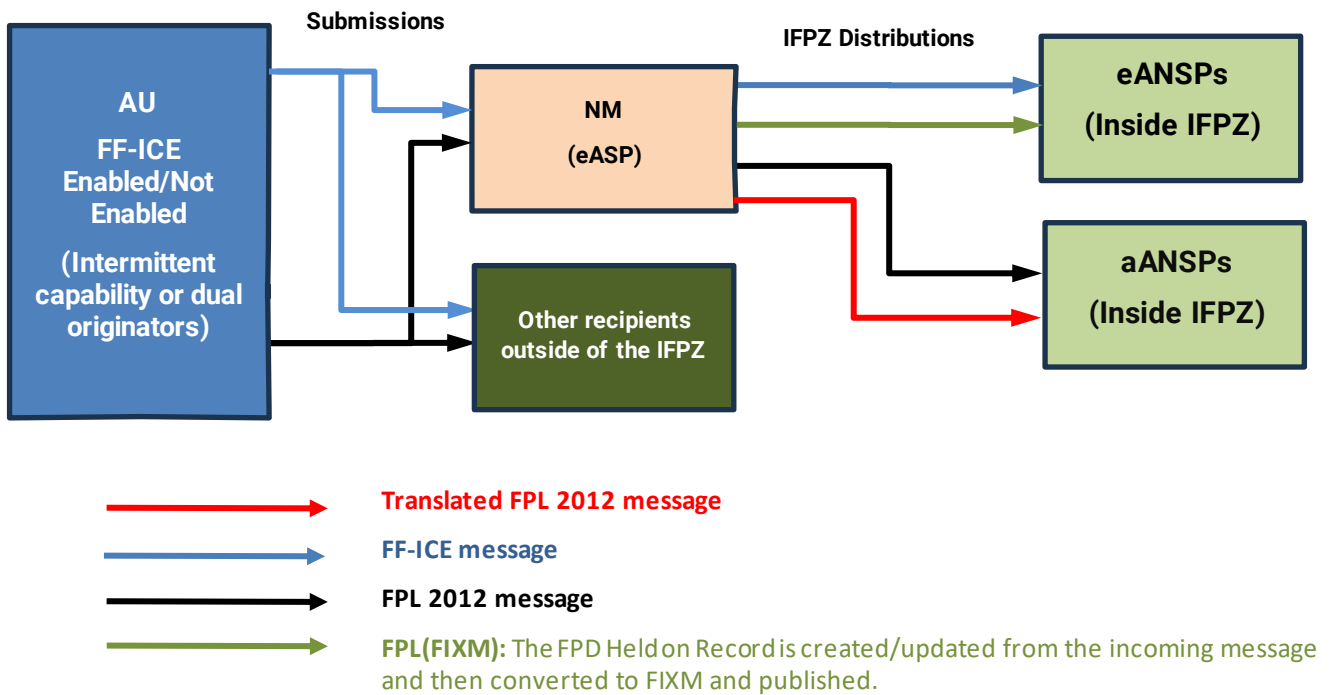


Figure 4-2: Alternating Filing Capability

Departure location	Inside or outside IFPZ		
IFPZ Applicability	Internal, Leaving, Entering, Overflight		
Delegation of FPL 2012 message delivery:	To eAU		
Submissions to NM:	eFPL, FPU, FC, FPL, CHG, DLA, CNL	Provided by:	eAU
Notes	<p>There is a possibility that the AU could alternate between FF-ICE filing messages and FPL 2012 related messages for the same flight. This scenario is more likely to occur, during the transition period.</p> <p>Should the eAU wish to submit an FPL when an eFPL is already Held on Record, it should first cancel the previously submitted eFPL. This is covered in section 5.2.</p> <p>Degraded modes of operation and system failures are one possible cause, which are also more likely during transition. Dual originators are another possibility (e.g., off-site flight planning versus filing via the fully equipped flight operations/business centre).</p> <p><i>Note that, even if the eAU is consistently using FF-ICE, the Departure ASP may not be enabled and will provide a DEP message, rather than the FF-ICE Flight Departure Notification. Departure submissions are covered separately in section 5.4. The same applies for AFP, FNM, MFS messages.</i></p> <p>This is also possible in the subsequent scenarios (2 to 5) but is not shown in diagram form. These are all cases where NM may receive an FPL 2012 message when only FF-ICE submissions are normally expected.</p>		

4.2 Scenario 2: Translation & Delivery

4.2.1 Scenario 2a: Translation & Delivery by Departure eASP outside of the IFPZ

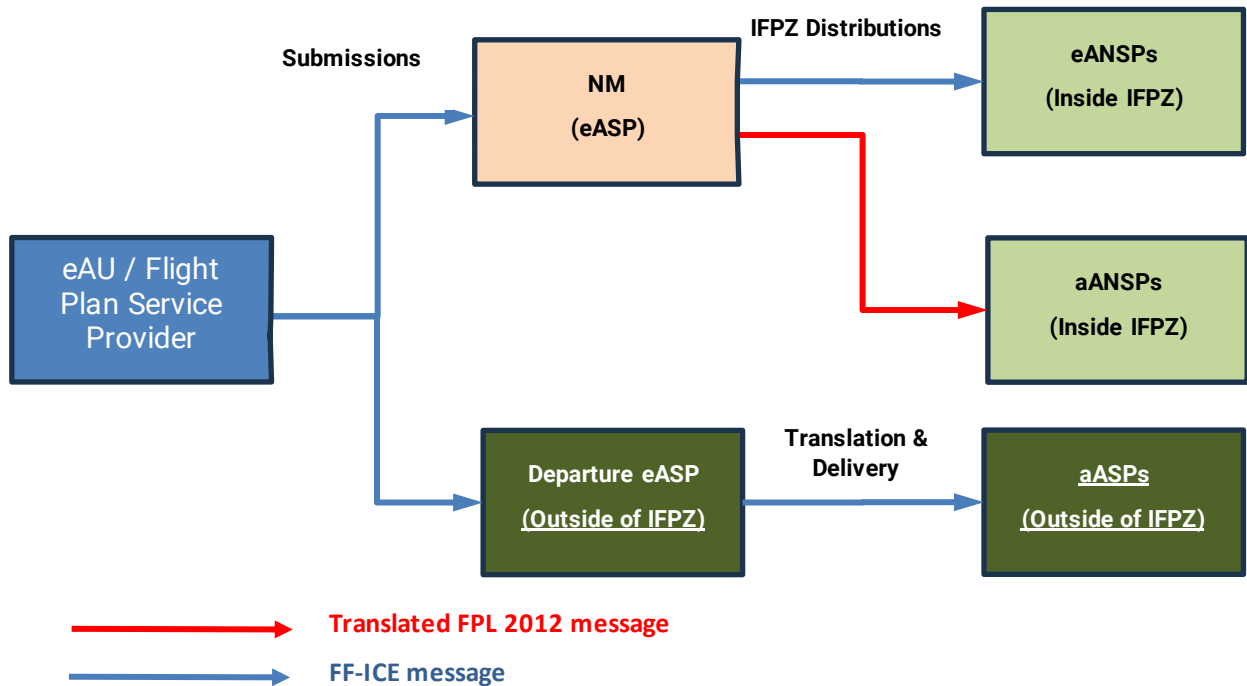


Figure 4-3: Translation & delivery

Departure location	Outside IFPZ		
IFPZ Applicability	Leaving, Entering, Overflight		
Delegation of FPL 2012 message delivery:	To eAU		
Submissions to NM:	eFPL, FPU, FC	Provided by:	eAU
Notes	<p>The Translation & Delivery conducted by the Departure eASP does not affect NM and, for the purpose of this analysis, this scenario is basically the same as scenario 1.</p> <p>The alternating filing capability is also possible in this scenario; in which case it has the same impact on NM as scenario 1b.</p>		

4.2.2 Scenario 2b: Translation & Delivery by NM

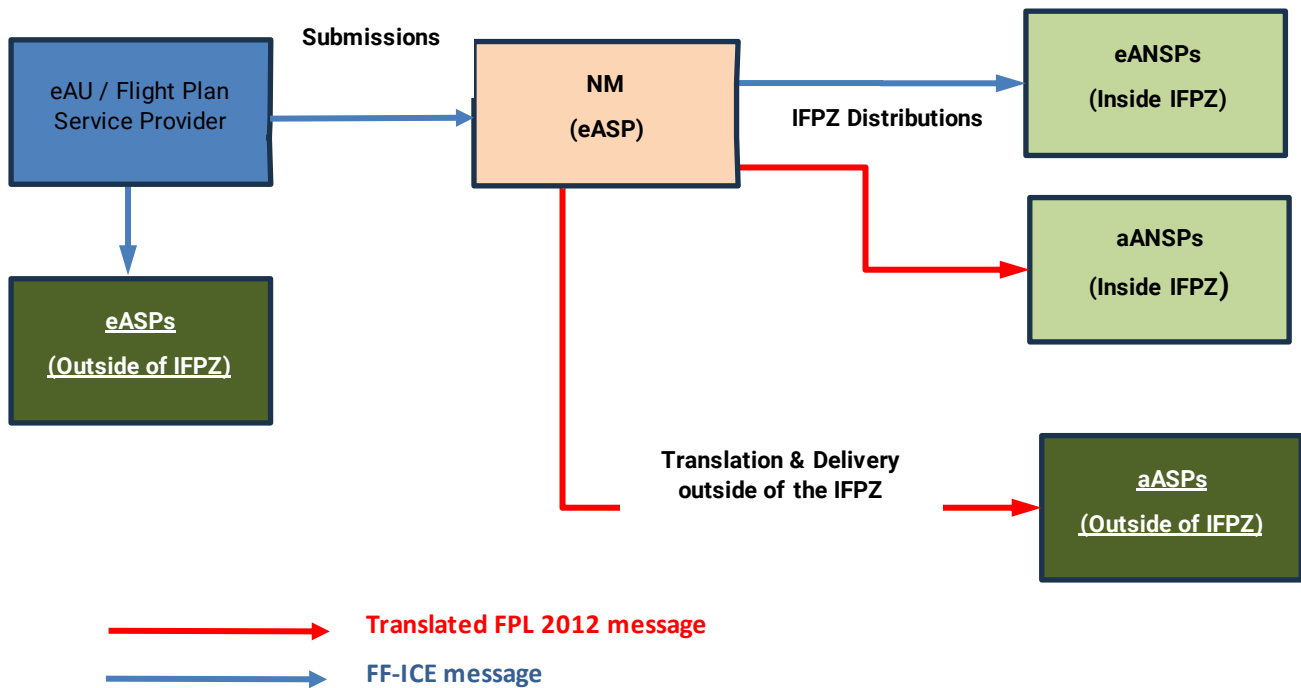


Figure 4-4: Translation & Delivery by NM

Departure location	Inside or Outside of the IFPZ		
IFPZ Applicability	Leaving, Entering, Overflight		
Delegation of FPL 2012 message delivery:	To eAU, that has requested Translation & Delivery in the eFPL for Requested Recipients.		
Submissions to NM:	eFPL, FPU, FC	Provided by:	eAU
Notes	<p>This adds the Translation & Delivery request but otherwise, for IFPZ operations, it is basically the same as scenario 1.</p> <p>The alternating filing capability is also possible in this scenario; in which case it has the same impact on NM as scenario 1b. However, this also means that the eAU’s T&D request would degrade to a re-addressing request which does not require further description because it is existing practice. NM will retain the previous list of requested recipients. If it then receives a CHG the AU will be expected to provide any new recipients resulting from a route change.</p>		

4.3 Scenario 3: Forwarding by an eASP

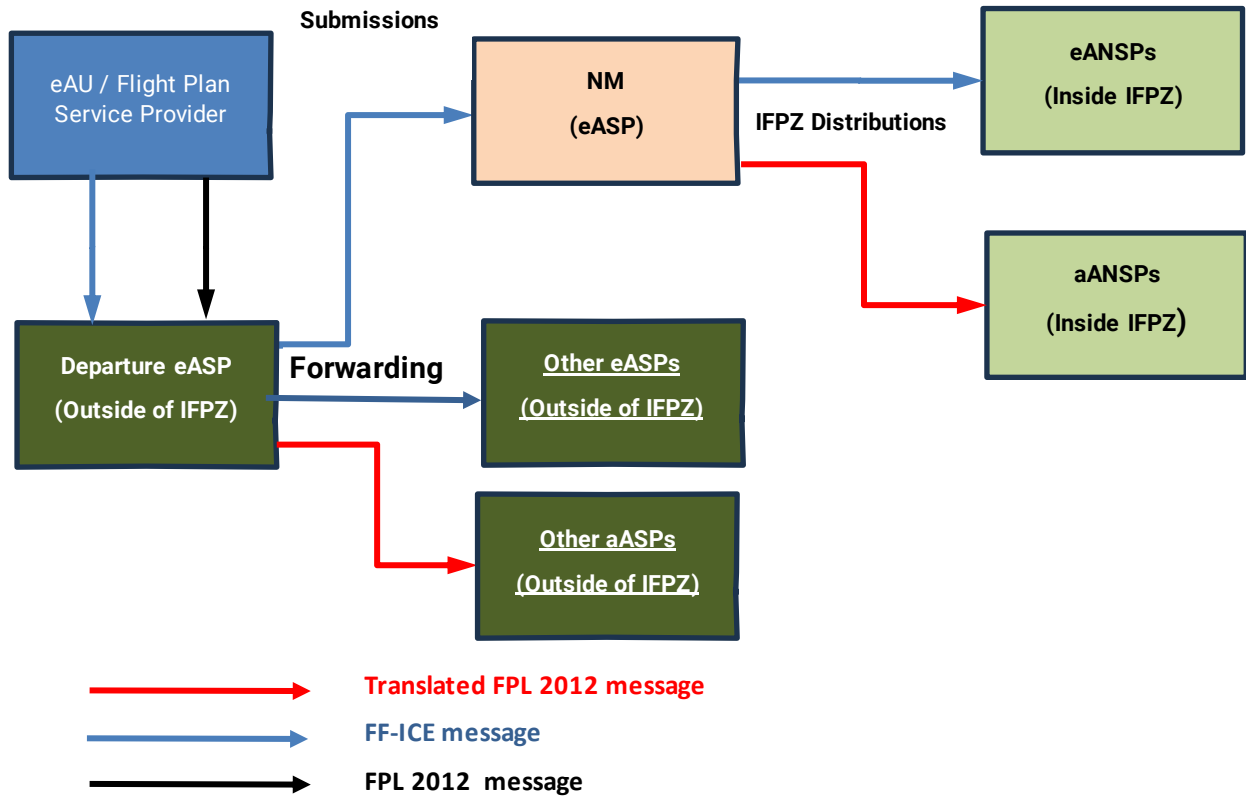


Figure 4-5: Forwarding by an eASP

Departure location	Outside of the IFPZ		
IFPZ Applicability	Entering, Overflight		
Delegation of FPL 2012 message delivery:	Delegated to eAU, but eAU has requested forwarding.		
Submissions to NM:	eFPL, FPU, FC	Provided by:	Dep eASP
Notes	<p>For IFPZ operations this scenario is basically the same as scenario 1. NM only receives FF-ICE submissions; the difference being that they are received from a Departure eASP, in which case the FF-ICE feedback has to be provided back to that eASP.</p> <p>NM will not provide a forwarding service and a sub-scenario for that case is therefore not needed.</p> <p>The alternating filing capability is also possible in this scenario. In this case it could be the eAU or the Departure eASP that is alternating between FF-ICE and FPL 2012 submissions. However, in this case the Forwarding function will not be available (the Forwarding function is only available for FF-ICE submissions). If the AU has started with an eFPL submission including a request for Forwarding, and then reverts to FPL 2012 messages, they will have the responsibility to ensure that the full set of recipients, including NM are provided with the FPL 2012 messages.</p>		

4.4 Scenario 4: No Delegation of FPL Distribution

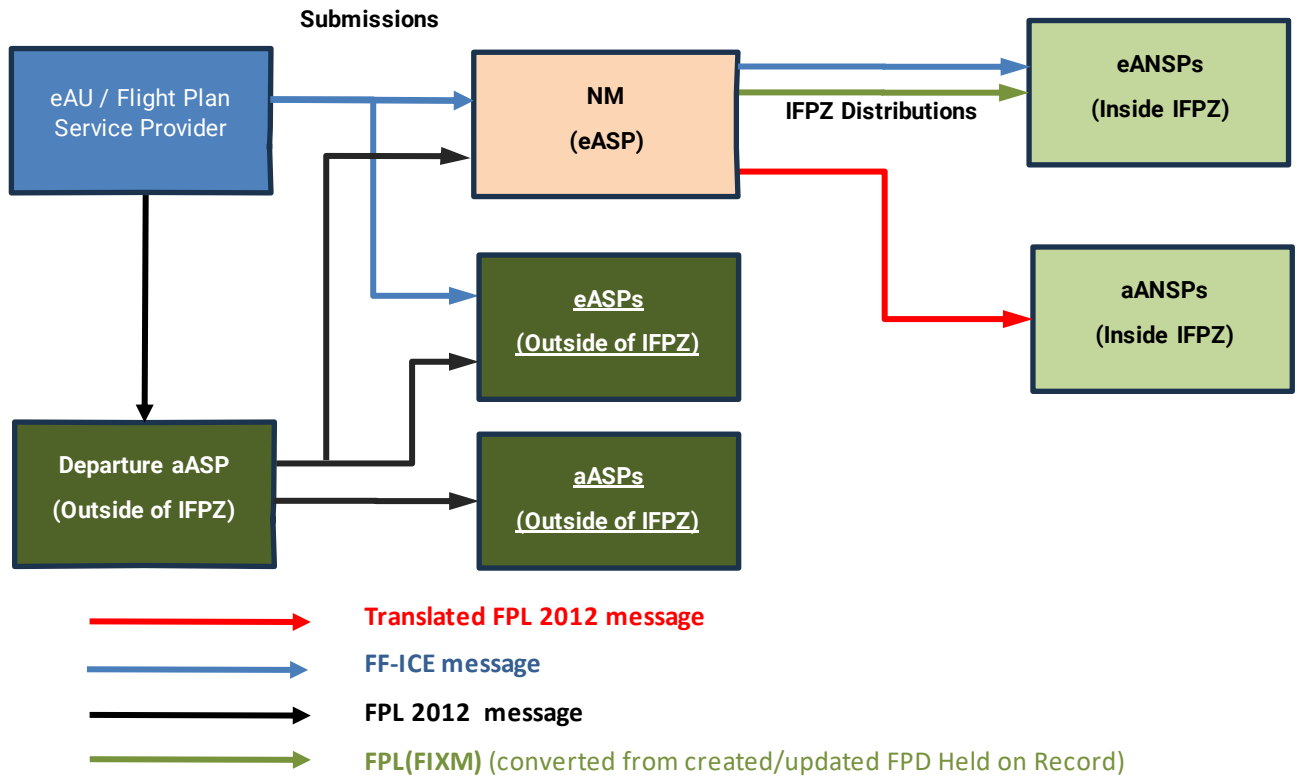


Figure 4-6: No Delegation of FPL Distribution

Departure location	Outside of the IFPZ		
IFPZ Applicability	Entering, Overflight		
Delegation of FPL 2012 message delivery:	Not delegated.		
Submissions to NM:	eFPL, FPU, FC	Provided by:	eAU
	FPL, CHG, DLA, CNL		Dep eASP
Notes	<p>NM receives an FF-ICE submission and the corresponding FPL 2012 message. If an FPL 2012 message is received after the FF-ICE submission, NM rejects it. If the FF-ICE submission is received after the FPL 2012 message, NM processes both.</p> <p>The alternating filing capability is also possible in this scenario. In this case it could be the eAU that is alternating between FF-ICE and FPL 2012 submissions. Should the eAU wish to submit an FPL message, it should first cancel the previously submitted eFPL.</p>		

4.5 Scenario 5: Departure aASP has Delegated Distribution Responsibility to eAU

- (1) ICAO Doc 9965 Volume II includes a 5th scenario which is the same as scenario 1, with delegation, except that the departure ASP is an aASP. This does not have any impact on NM services and is completely covered by scenario 1. For this reason, it is not considered further.

4.6 Scenario 6: FPL 2012

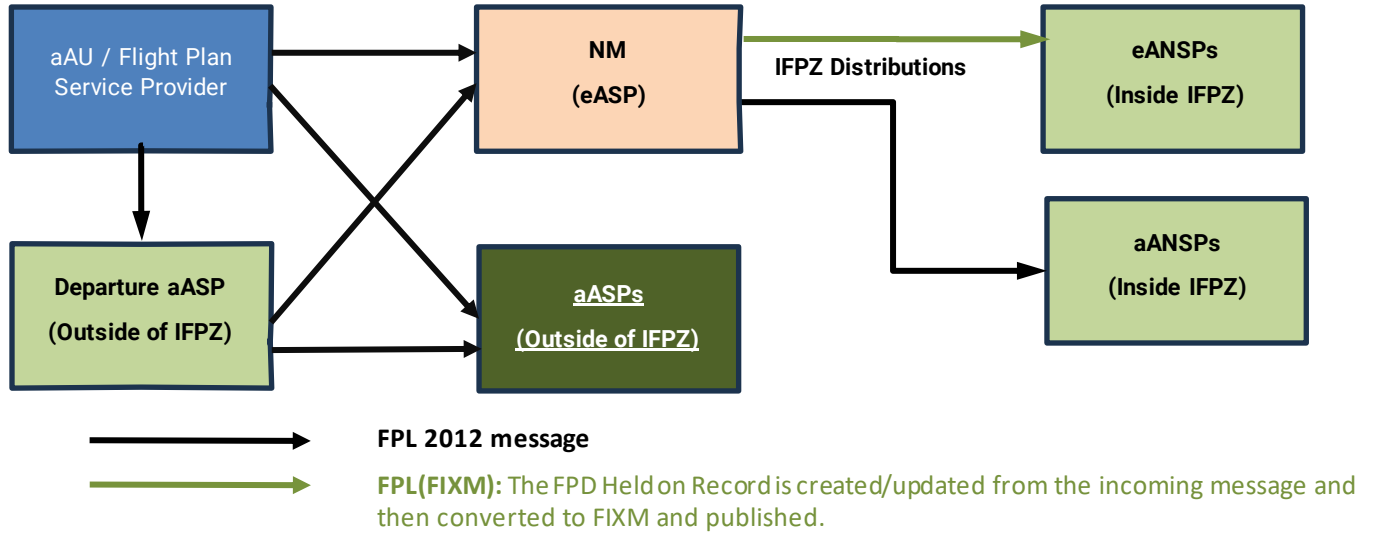


Figure 4-7: FPL 2012

Departure location	Departure aASP delivers: Outside IFPZ.		
IFPZ Applicability	Departure aASP delivers: Entering, Overflight. aAU delivers: Internal, entering, leaving, departing.		
Delegation of FPL 2012 message delivery:	Delegated or Not Delegated. The scenario covers both cases.		
Submissions to NM:	FPL, CHG, DLA, CNL	Provided by:	aAU or Departure aASP
Notes	NM receives only FPL 2012 messages. There is the possibility to convert these to FIXM format for distribution to eANSPs inside the IFPZ.		

4.7 Sub-Scenario 7: Departure & Arrival Messages

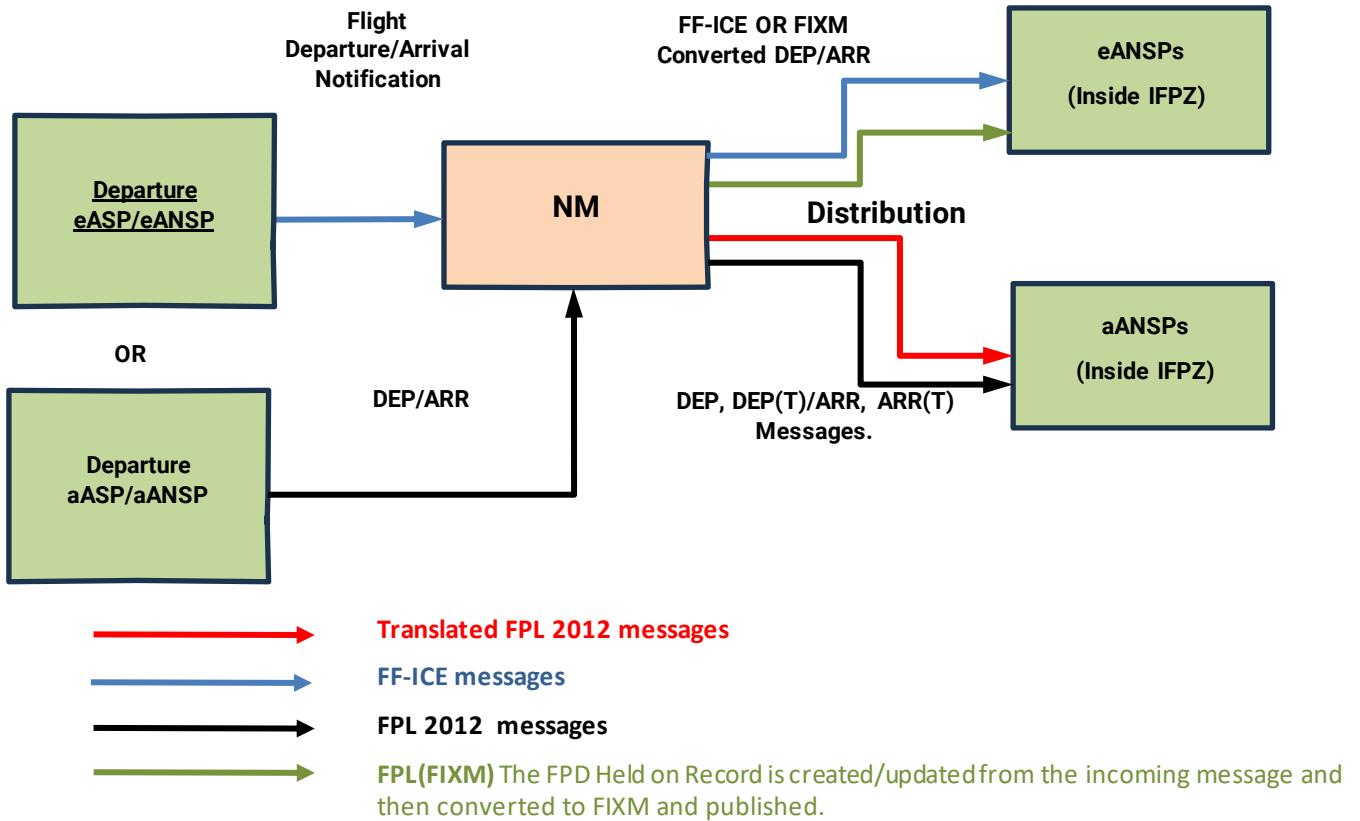


Figure 4-8: Departure & Arrival Messages

Departure location	Inside or outside IFPZ.		
IFPZ Applicability	Internal, Entering, Leaving, Overflight.		
Submissions to NM:	FDN, FAN	Provided by:	Departure eASP/eANSP
	DEP, ARR		Departure aASP/aANSP
Notes	<p>There is the possibility to convert DEP/ARR messages to FIXM format for distribution to eANSPs inside the IFPZ.</p> <p>This is a sub-scenario that can exist within any of the flight planning scenarios 1 to 6.</p>		

4.8 Sub-Scenario 8: AFP/FNM/MFS Messages

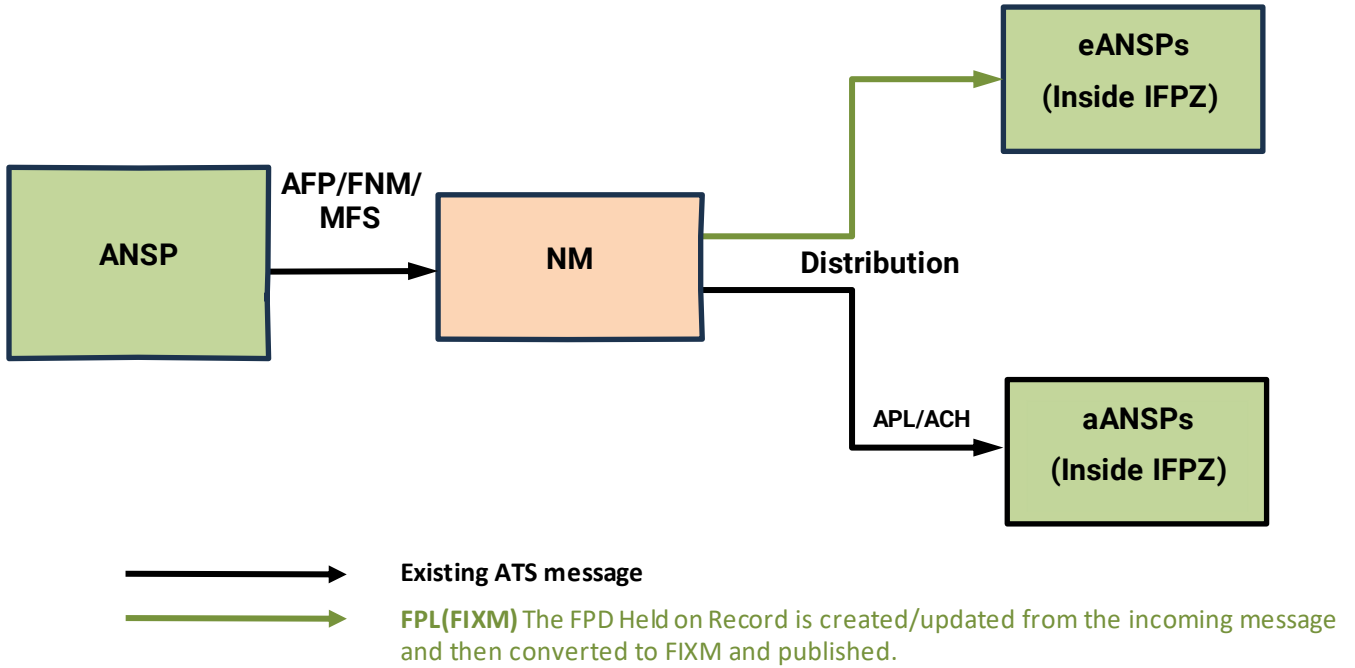


Figure 4-9: AFP/FNM/MFS Messages

IFPZ Applicability	Internal, Entering, Leaving, Overflight.		
Submissions to NM:	AFP, FNM, MFS	Provided by:	ANSP
Notes	These messages do not have FF-ICE equivalents. APL/ACH messages are distributed to aANSPs and there is the possibility to use them, with conversion to FIXM format, in order to create or update the flight plan Held on Record which makes the data available to eANSPs.		

5 Flight Plan Submissions Versus Flight Plans Held On Record

- (1) The required actions by NM for each type of flight plan related submission depend on the type of Flight Plan Data (FPD) that is already Held on Record by NM (None, FPL or eFPL). This section provides an analysis of the transitional implications for all of the FPL 2012 and FF-ICE submissions to NM. This identifies the situations where translation and conversion processing will be needed, with details of what will be distributed to ANSPs within the IFPZ and Held on Record for the flight concerned.

5.1 Actions referred to in Submission Tables

- (1) After a submission has been validated and accepted (as described in the IFPS Users Manual) it will be processed by NM (as applicable) in the following order:

Term	Applicability	Actions performed by NM
Create	FPL, eFPL, AFP, MFS, FNM.	The FPD (eFPL or FPL(FIXM)) will be created and Held on Record.
Update (including cancellation)	FPL, CHG, DLA, CNL, DEP, ARR, AFP, MFS, FNM eFPL, FPU, FC, FDN, FAN.	The FPD Held on Record will be updated.
Translate	eFPL, FPU, FC, FDN, FAN.	The FF-ICE submission will be translated.
Distribute	FPL, CHG,DLA, CNL, APL, ACH	Provision of the FPL 2012 message received, or the translated FF-ICE submission to relevant recipients.
Translation & Delivery	eFPL, FPU, FC, FDN, FAN	If FF-ICE Translation and Delivery (as described in ICAO Doc 9965 Volume II) has been requested, then it will be performed.
Convert	FPL, CHG, DLA, CNL, DEP, ARR AFP, MFS, FNM	The data received in an FPL 2012 message is used with conversion to FIXM to create/update/cancel a published FPL(FIXM).
Publish	FPD held on Record, Submission Response, Filing Status	The FPD (FF-ICE or FIXM FPL 2012) created or updated will be published making it available, via NM B2B services, to relevant recipients, derived from the route of flight.
Reject	FPL, CHG, DLA, CNL, DEP, ARR, AFP, MFS, FNM eFPL, FPU, FC, FDN, FAN.	The message received is rejected.

5.2 Filing Related Submissions

(1) Note that this is a look-up table, not a sequence of submissions.

Submission /Event	Type of FPD Held on Record	NM Transition Actions	Resulting type of FPD Held on Record	FPL 2012 Distribution	Published FPD
FPL	None	Create Distribute Convert Publish	FPL	FPL	FPL(FIXM)
	FPL	Update Distribute Convert Publish	FPL	CHG	Updated FPL(FIXM)
	eFPL	Reject	eFPL	None	No Change
eFPL	None	Create Translate Distribute T&D (if requested) Publish	eFPL	FPL(T)	eFPL
	FPL	Update (FPL to eFPL) Translate Distribute Publish	eFPL	CHG(T)	eFPL
	eFPL	Update Translate Distribute T&D (if requested) Publish	eFPL	CHG(T)	Updated eFPL
CHG/ DLA	None	NA (will have been rejected)	NA	None	No Change
	FPL	Update Distribute Convert Publish	FPL	CHG/DLA	Updated FPL(FIXM)
	eFPL	Update Distribute Convert Publish	eFPL	CHG/DLA	Updated eFPL The FF-ICE Operator Flight Plan Version number will not be incremented in this case.
Flight Plan Update (FPU)	None	NA	NA	None	No Change
	FPL	Update (FPL to eFPL) Translate Distribute T&D (if requested) Publish	eFPL	CHG(T)	eFPL

Submission /Event	Type of FPD Held on Record	NM Transition Actions	Resulting type of FPD Held on Record	FPL 2012 Distribution	Published FPD
	eFPL	Update Translate Distribute T&D (if requested) Publish	eFPL	CHG(T)	Updated eFPL
CNL	None	NA	NA	None	No Change
	FPL	Update Distribute Convert Publish	FPL (cancelled)	CNL	Cancelled FPL(FIXM)
	eFPL	Update, Distribute Convert Publish	eFPL (cancelled)	CNL	Cancelled eFPL
Flight Cancellation (FC)	None	NA	NA	None	No Change
	FPL	Update Translate Distribute T&D (if requested) Publish	FPL (cancelled)	CNL(T)	Cancelled FPL(FIXM)
	eFPL	Update, Translate Distribute T&D (if requested) Publish	eFPL (cancelled)	CNL(T)	Cancelled eFPL

5.3 Re-validation/Re-evaluation Events

Submission/Event	Type of FPD already Held on Record	NM Transition Actions	FPL 2012 Distribution	Published FPD
Re-validation/ Re-evaluation Events The flight is no longer compliant and is suspended.	FPL	None	FLS	No publication.
	eFPL			
CHG or Flight Plan Update: <i>The flight is now compliant and is de-suspended.</i>	FPL	As described in section 8.2.	CHG or CHG(T) and DES	Updated FPL (FIXM) from CHG.
	eFPL			Or eFPL created from FPU.
Re-validation/ Re-evaluation Events <i>The flight is now compliant and is de-suspended.</i>	FPL	None	DES	No publication.
	eFPL			

- (1) Note that flight suspension status information equivalent to the FLS/DES messages is published via NM B2B Flight services.

5.4 Departure/Arrival Notifications

Submission/Event	Type of FPD Held on Record	NM Transition Actions	FPL 2012 Distribution	Published FPD
DEP/ARR	FPL	Update Distribute Convert Publish	DEP/ARR	Updated FPL(FIXM) (Departure/Arrival Data).
	eFPL	Update Distribute Convert Publish	DEP/ARR	Updated eFPL (Departure/Arrival Data).
Flight Departure/Arrival Notification	FPL	None	None	No change.
		<i>Note: This submission requires the GUF1 and it should not be possible to construct/submit the notification without one. A DEP/ARR message should be submitted instead. Equivalent NM B2B Flight services may be used as well to communicate departure/arrival information in this case.</i>		
	eFPL	Update Translate Distribute Publish	DEP(T)/ARR(T)	Updated eFPL (Departure/Arrival Data).

5.5 Flight Data Requests

Submission/Event	Type of FPD Held On record	NM Transition Actions	Response
RQP/RQS	FPL	NA	FPL (as for current practice)
	eFPL	Translate	FPL(T) The AO4DT abbreviation may also be included in the Field 18 RMK/ indicator of the FPL(T) that is returned, as described in section 3.4.
Flight Data Request	FPL (s)	None.	<p>If a GUFi is not included, this will result in a REJECT Submission Response with an explanation providing a list of all matching flights and indicating that an RQP/RQS should be submitted.</p> <p><i>The GUFi is mandatory in the reply and NM cannot provide an FF-ICE Flight data Response without a GUFi.</i></p> <p>If the request has a GUFi the response will be a REJECT Submission Response with an explanation that the requested flight (GUFi) is not known to NM.</p>
	eFPL (s)	NA	<p>If a GUFi is not included, and only one eFPL is held on record for the requested flight then it will be provided, otherwise this will result in a REJECT Submission Response with an explanation providing a list of all matching flights (including GUFi).</p> <p>The list provided can then be used to submit a Flight Data Request with a GUFi.</p> <p>If a GUFi is included, a Flight Data Response will be provided with the eFPL held on record.</p>

5.6 AFP, FNM, MFS

Submission/ Event	Type of FPD Held On record	NM Transition Actions	Resulting type of FPD Held on Record	Distribution	Published FPD
AFP, FNM, MFS	None	<i>Create Distribute Convert Publish</i>	FPL	APL	FPL(FIXM)
	FPL	Update Distribute Convert Publish	FPL	APL, ACH	Updated FPL(FIXM)
	eFPL	Update Distribute Convert Publish	eFPL	APL, ACH	Updated eFPL

6 Analysis of Data Equivalences

- (1) Appendix 1 provides an analysis of the FPL 2012 related data items, and their FF-ICE equivalents, with respect to the possibility of conversion difficulties. This section provides a summary of the outcome of that analysis.
- (2) In the majority of cases the source and target structures and specifications are the same, or at least similar and compatible, and should not present major difficulties or blocking issues. However, the following general forms of translation/conversion difficulties have been identified:
 - a) Data items that are common between the two formats but have a different syntax.
 - b) Data items that are included in the FPL 2012 format but are not (yet) supported in FIXM. These are typical candidates for a FIXM NM extension.
 - c) The main problem arises in FPL 2012 Field 18 where it contains multiple data items or alternatives. There are cases where attempts to parse this can lead to a confused or incorrect output.
- (3) Parsing is especially difficult where a submitted data field provides several data items consisting of defined identifiers followed by, or preceded by, free text fields. Even if an identifier can be parsed and extracted, there is a possibility of it being confused with part of a text string. The possible approaches are:
 - a) Parse and map the FPL related data into a FIXM format output. This may not be feasible for some data items and would be prone to errors, which in some cases may not be apparent.
 - b) Impose a stricter adherence to data insertion rules for FPL 2012 messages. This would require changes to current practices and/or systems by airspace users. This is a wider global concern.
 - c) Create additional FIXM elements (FIXM NM extension) to allow FPL related data items that cannot be paired with equivalent FIXM structured items to at least be converted. This is the recommended approach. Parsing will be attempted first, if that is not possible then, for less frequent cases, extension fields will be used.

7 Summary

7.1 Transition Measures

- (1) Section 3 provides an overview of the transition measures needed and their place within the NM processing chain. Translation has the advantage of going from highly structured data to loosely structured data and the outstanding problems are correspondingly low. Conversion attempts the converse of going from loosely structured to highly structured data and will need a technical analysis to confirm the viability of its implementation.

7.2 Analysis of Submission Scenarios

- (1) Section 4 provides an overview of the possible transition scenarios for submission of flight plans to NM. Within this the majority of cases are clear cut, they either involve full FF-ICE or existing FPL 2012 procedures. However, there are some cases where NM, AU and ANSP procedures can be adversely impacted through having to service mixed modes.
- (2) The main situation where mixed message receptions can occur is where there is no delegation of flight plan distribution (see Scenario 4, section 4.4). Unfortunately, this is a normal transitional phase that will be applicable to many airspace users and departure ASPs.
- (3) Under normal circumstances the other scenarios (1, 2, 3, 5 and 6) represent a full FF-ICE working environment, as far as submissions to NM are concerned, although it may still have to provide translated messages to some aANSPs in the IFPZ.
- (4) Alternating between FF-ICE and FPL 2012 submissions is to be avoided since it can produce predictable, but complex procedures, with multiple message submissions to NM. This should not be considered as a frequent or normal transition practice. Degraded submission capability is an exception that cannot be avoided.

7.3 Analysis of submissions versus FPD already Held on Record

- (1) Section 5 looked at all possible submission cases with respect to the data already Held on Record by NM and the distributions needed. The majority of cases are not problematic, but a small number may cause rejections.

7.4 Data Analysis

- (1) In section 6 (and in more detail in Appendix 1) the data structures and formats associated with FF-ICE and FPL 2012 submissions are compared, identifying the equivalences. Although the majority of FPL 2012 submissions are likely to result in acceptable conversions, some problems were found which would result in data being copied into FIXM NM extension fields. These are mainly associated with Field 18 elements in situations where the AU has not strictly followed the published ICAO Doc 4444 requirements.
- (2) In samples of recorded submissions there are a significant number of Field 18 cases where parsing of particular data items would be unreliable and could result in an incorrect output. This form of problem can be insidious and drives the conclusion that in some cases automatic extraction into dedicated FIXM fields should not be attempted, even if the majority of submissions are not problematic. The use of a FIXM NM extension is the main solution proposed.

8 Conclusion

8.1 For Airspace Users

- (1) The above analyses have shown that there is a need for translation/conversion. There are some transitional situations where an AU needs to be aware of increased complexity of flight planning procedures. This is mainly caused by lack of strict adherence to the FPL 2012 data requirements and guidelines, as provided in the ICAO Doc 4444. Additionally, any alternation of submission procedures (To and from FF-ICE) can also create complications and is therefore not recommended. In situations where the eAU has reverted to FPL 2012 procedures, they should not attempt to resume FF-ICE procedures for that flight. In some cases, they may receive rejections as a result of mixed mode submissions.

8.2 For eANSPs within the IFPZ

- (1) Section 6 and Appendix 1 have revealed some cases where FPL 2012 data items cannot be reliably converted into FIXM structures. In these cases, the eANSP recipients would need to be able to process FIXM NM extension fields.
- (2) NM will continue to support FPL 2012 and AFTN services for any eANSPs that require this capability, e.g. to support their choice of contingency measures, in the event of degraded FF-ICE services, etc.

Appendices

A.1. Appendix 1 Analysis of Data Conversion

- (1) The following tables summarise the result of an analysis to determine whether the mapping of FPL 2012 message items onto the FIXM data structure and formats would present difficulties for the conversion process. The Translation analysis has already been completed as part of the main FF-ICE/R1 implementation and is detailed in ICAO Doc 9965 Volume II.
- (2) The left-hand column summarises the FPL 2012 message item requirements, as expressed in ICAO Doc 4444.
- (3) The righthand column indicates the target FIXM 4.3 data items for the conversion process.
- (4) In all of these cases the option of referral to manual treatment or rejection back to the message originator is a possibility and, in some cases, this is the current actual course of action.
- (5) Note that the tables which follow are the result of a data analysis conducted to ensure that the conversion process is at least feasible from a data viewpoint. The FIXM User Manual also contains a mapping of ATS fields (ICAO Doc 4444 fields) to FIXM data, but does not indicate the data composition and syntax, which are needed to ensure that conversion is feasible.

A.1.1 Field 7a Aircraft Identification

FPL 2012 message field		FIXM data item equivalent
7a	<p>Aircraft Identification: Maximum 7 alpha-numeric characters: composed of any of the following:</p> <ul style="list-style-type: none"> • ICAO Doc 8585 designator for the operator agency (callsign) followed by the flight id e.g. KLM511 • Nationality or common mark & registration mark of the aircraft (ICAO Annex 7 section 3) e.g. EIAKO, 4XBCD, N2567GA 	<p>flightIdentification: aircraftIdentification: AircraftIdentification([A-Z0-9]{2,7})</p>
Conversion: Copy 7a into FIXM aircraftidentification.		
Conversion problems & proposed solutions? None.		

A.1.2 Field 7b & c SSR Mode & Code

FPL 2012 message field		FIXM data item equivalent
7b	SSR Mode:	A separate data item is not used in FIXM for the SSR Mode it is in the data name (currentModeACode).
7c	"/A"	
	SSR Code: 4 numeric characters	enRoute: currentModeACode: ModeACode([0-7]{4})
Conversion:		
<ul style="list-style-type: none"> • Copy 7c into FIXM currentModeACode • Ignore field 7b 		
Conversion problems & proposed solutions? None		

A.1.3 Field 8a Flight Rules

FPL 2012 message field		FIXM data item equivalent
8a	Flight Rules: 1 letter: choice of: I = IFR V = VFR Y = IFR changing to VFR Z = VFR changing to IFR	flightRulesCategory: FlightRulesCategory: (Enumerated: {I,V,Y,Z})
Conversion: Copy 8a into flightRulesCategory		
Conversion problems & proposed solutions? None		

A.1.4 Field 8b Type of Flight

FPL 2012 message field		FIXM data item equivalent
8b	Type of Flight: 1 letter: choice of: S = Scheduled Air-Transport N = Non-scheduled air transport G = General Aviation M = Military X = all other types of flight	flightType: TypeOfFlight: (Enumerated: (S, N, G, M, X))
Conversion: Copy 8b into flightType		
Conversion problems & proposed solutions? None		

A.1.5 Field 9a & b Number & Type of Aircraft

FPL 2012 message field		FIXM data item equivalent
9a	<p>Number of Aircraft: 1 or 2 Numerics</p> <p>Only for formation flights and it is the total number of aircraft in the flight.</p>	<p>aircraft: aircraftType:</p> <ul style="list-style-type: none"> aircraftCount: CountPositive icaoAircraftTypeDesignator: AircraftTypeDesignator ([A-Z0-9]{2,4})
9b	<p>Type of Aircraft:</p> <ul style="list-style-type: none"> 2 to 4 Characters for ICAO Doc 8643 designator or, ZZZZ: if no designator has been assigned or there is more than one type of aircraft in the flight. See Item 18: TYP/ 	
<p>Conversion:</p> <p>If included for a formation flight 9a has no equivalent in FIXM.</p> <p>If an ICAO Doc 8643 designator is found in 9b copy it into icaoAircraftTypeDesignator</p> <p><u>In addition</u>, if 9a is higher than 1 copy it into aircraftCount</p> <p>In case 9b is ZZZZ (no Doc 8643 designator or more than 1 aircraft type) see section A.1.18.6.</p>		
<p>Conversion problems & proposed solutions? None.</p>		

A.1.6 Field 9c Wake Turbulence Category

FPL 2012 message field		FIXM data item equivalent
9c	<p>Wake Turbulence Category</p> <p>One of the following: J/H/M/L</p>	<p>aircraft:</p> <p>wakeTurbulence: WakeTurbulenceCategory:(Enumerated J/H/M/L)</p>
<p>Conversion: Copy 9c it into wakeTurbulence</p>		
<p>Conversion problems & proposed solutions? None.</p>		

A.1.7 Field 10 Communication /Navigation/Approach Aid Equipment & Capabilities

FPL 2012 message field		FIXM data item equivalent
10	Equipment & Capabilities	
10a	<p>Radiocommunication, navigation and approach aid equipment and capabilities</p> <p>Enumerated List of capability codes</p> <p>OR 1 letter:</p> <p>N: none</p> <p>S: standard</p> <p>Z: If capability is specified in Item 18 using COM/, NAV/and/or DAT</p> <p>R: If capability is specified in Item 18 using PBN/</p> <p>G: If GNSS types are specified in Item 18 using NAV/</p>	<p>aircraft: capabilities:</p> <ul style="list-style-type: none"> • standardCapabilities: (Enumerated:"STANDARD") • communication:communicationCapabilityCode: CommunicationCapabilityCode: (Enumerated) • otherCommunicationCapabilities: (CharacterString) • navigation:navigationCapabilityCode: NavigationCapabilityCode: (Enumerated) • otherNavigationCapabilities: (CharacterString) • communication:datalinkCommunicationCapabilityCode: DataLinkCommunicationCapabilityCode: (Enumerated) • otherDatalinkCapabilities: (CharacterString)
	<p>Conversion:</p> <ul style="list-style-type: none"> • If Z is present see Sections A.1.18.9, A.1.18.10 & A.1.18.11. • If N is present set the respective other—Capabilities field to NO_OR_UNSERVICEABLE_EQUIPMENT This is a temporary work-around and a N (None) FIXM field is being considered. • If entry S is present set standardCapabilities to STANDARD. • Copy any other submitted capability indicators across into the respective FIXM capability items listed above. • If R or G is present, see sections A.1.18.8 and A.1.18.9 respectively). 	
	Conversion problems & proposed solutions? None	

	FPL 2012 message field	FIXM data item equivalent
10b	<p>Surveillance Equipment and Capabilities</p> <p>“N” indicates no surveillance equipment or the equipment is unserviceable</p> <p>OR</p> <p>1 or more descriptors for serviceable equipment or capabilities, up to a maximum of 20 characters.</p> <p>RSP specification and/or additional surveillance equipment is specified in Item 18 using SUR/</p>	<ul style="list-style-type: none"> aircraft: capabilities: surveillance:surveillanceCapabilityCode: (Enumerated) or otherSurveillanceCapabilities: (CharacterString)
	<p>Conversion:</p> <ul style="list-style-type: none"> If N is present set otherSurveillanceCapabilities to NO_OR_UNSERVICEABLE_EQUIPMENT <p>This is a temporary work-around and a N (None) FIXM field is being considered .</p> <ul style="list-style-type: none"> Copy other submitted capability indicators into surveillanceCapabilityCode 	
	<p>Conversion problems & proposed solutions? None.</p>	

A.1.8 Field 13a Departure Aerodrome

FPL 2012 message field		FIXM data item equivalent
13a	<p>13a Departure Aerodrome:</p> <ul style="list-style-type: none"> • ICAO 4 letter Indicator (Doc7910). • ZZZZ if no indicator has been allocated or aerodrome is not known. In which case Item 18 DEP/name & geographical location is to be provided. • AFIL if air-filed, in which case the ATS unit for supplementary data is to be included in Field 18. 	<p>departure:</p> <ul style="list-style-type: none"> • departureAerodrome: locationIndicator ([A-Z]{4}) • airfileIndicator: (enumerated: AIRFILE)
<p>Conversion:</p> <ul style="list-style-type: none"> • If an ICAO 4 letter Indicator is found it copy it into departureAerodrome • If AFIL is specified set airfileIndicator to AIRFILE • If ZZZZ is specified the information used for conversion is extracted from Item DEP/ name & geographical location 		
<p>Conversion problems & proposed solutions? <u>None</u></p>		

A.1.9 Field 13b Time

FPL 2012 message field		FIXM data item equivalent
13b & 18 DOF/	Time (4 Numerics) <ul style="list-style-type: none"> Estimated Off-Block Time (FPL,CHG,CNL,DLA, RQS, RQP) Or Actual Time of Departure (DEP) Or, Estimated Time Over for 1st point on the route (FPL with AFIL) 	departure: <ul style="list-style-type: none"> estimatedOffBlockTime (DateTimeUtc) actualTimeOfDeparture (DateTimeUtc) estimatedRouteStartTime (DateTimeUtc)
	Date of Flight Departure: Item 18: DOF/ (YYMMDD)	The FIXM Times are composite DateTimeUtc items. (i.e. YYMMDDHHMM)
	Conversion: Case = Estimated Off Block Time: Copy Estimated Off-Block Time and DOF into estimatedOffBlockTime Case = Actual Time of Departure: Copy Actual Time of Departure and the DOF into actualTimeOfDeparture Case = AFIL: Copy Estimated Time Over and the DOF into estimatedRouteStartTime	
	Conversion problems & proposed solutions? None	

A.1.10 Field 14 Estimate Data

FPL 2012 message field		FIXM data item equivalent
14a,b, c, d, e	a Boundary Point b Time at Boundary Point c Cleared Level d Supplementary Crossing Data: A LEVEL, expressed as in (c), at or above which or at or below which (see (e)) the aircraft will cross the boundary point. e Crossing Condition: A: Aircraft will cross the boundary point at or above the level in (d). B: Aircraft will cross the boundary point at or below the level in (d).	enRoute: boundaryCrossingCoordination: <ul style="list-style-type: none"> • crossingPoint (SignificantPointChoice) • crossingTime (DateTimeUtc) • clearedLevel (FlightLevelOrAltitudeChoice) • altitudeInTransition: level (FlightLevelOrAltitudeChoice) • altitudeInTransition: crossingCondition (enumerated: AT_OR_ABOVE, AT_OR_BELOW)
	Conversion: Copy 14a into respective boundaryCrossingCoordination fields.	
	Issues & solutions: None	

A.1.11 Field 15a Requested Cruising Speed or Mach Number

FPL 2012 message field		FIXM data item equivalent
15a	Cruising Speed or Mach Number Knnnn OR Nnnnn OR Mnnn	routeTrajectoryGroup: agreed: routeInformation: cruisingSpeed: TrueAirspeed (allowing km/h, knots, Mach Number)
	Conversion: Copy 15a into cruisingSpeed.	
	Issues & solutions: None	

A.1.12 Field 15b Requested Cruising Level

FPL 2012 message field		FIXM data item equivalent
15b	Requested Cruising Level Fnnn or Snnnn or Annn OR VFR	routeTrajectoryGroup: agreed: routeInformation: cruisingLevel: FlightlevelOrAltitudeOrVfrChoice
	Conversion: Copy 15b into cruisingLevel	
	Issues & solutions: None	

A.1.13 Field 15c Route

FPL 2012 message field		FIXM data item equivalent
15c	(c1) Standard Departure Route SID designator	routeTrajectoryGroup: agreed: element: routeDesignatorToNextElement: standardInstrumentDeparture: designator (1 to 7 characters)
	(c2) ATS Route designator	routeTrajectoryGroup: agreed: element: routeDesignatorToNextElement: routeDesignator (RouteDesignator)
	(c3) Significant Point See ICAO Doc 4444 Appendix 3: 1.6.3: b) 2 to 5 char en-route point designator c) lat/long (degrees, minutes) NSWE d) lat/long (degrees only) NSWE e) bearing & distance to a significant point designator	routeTrajectoryGroup: agreed: element: elementStartPoint: <ul style="list-style-type: none"> • designatedPoint • navaid • position • relativePoint
	(c4) Significant Point/Cruising Speed and Cruising Level Point & Requested Speed/Cruising Level change	(for Significant Point see (c3) above) routeTrajectoryGroup: agreed: element: routeChange: <ul style="list-style-type: none"> • speed: speed: TrueAirspeed • level: level: FlightLevelOrAltitudeChoice
	c5 Indicator: VFR, IFR, DCT, T (truncated at the preceding point)	routeTrajectoryGroup: agreed: element: <ul style="list-style-type: none"> • flightRulesChange: (Enumerated: VFR or IFR)

FPL 2012 message field	FIXM data item equivalent
	<ul style="list-style-type: none"> • routeDesignatorToNextElement: otherRouteDesignator: (Enumerated: DIRECT) • routeTruncationIndicator: (Enumerated: ROUTE_TRUNCATION)
<p>c6 Cruise Climb: Start Point/speed and</p> <ul style="list-style-type: none"> • start-level and • end-level or level above which cruise climb is planned followed by PLUS 	<p>(for Significant Point see (c3) above)</p> <p>routeTrajectoryGroup: agreed: element: routeChange: cruiseClimbStart:</p> <ul style="list-style-type: none"> ▪ speed: TrueAirSpeed and ▪ lowerLevel: FlightLevelOrAltitudeChoice and ▪ upperLevel: <ul style="list-style-type: none"> ▪ altitude ▪ flightLevel ▪ atOrAbove (Enumerated: AT_OR_ABOVE_LOWER_LEVEL)
<p>c7 Standard Arrival Route: STAR designator</p>	<p>routeTrajectoryGroup: agreed: element: routeDesignatorToNextElement: standardInstrumentArrival: designator (1 to 7 characters)</p>
<p>OAT/GAT indicators</p>	<p>FIXM NM extension: militaryFlightRulesChange</p>
<p>STAYn/ Indicator</p>	<p>routeTrajectoryGroup: agreed: element: plannedDelay: delayValue (Duration)</p>
<p>Field 15c Includes the entire field content.</p>	<p>routeTrajectoryGroup: agreed: routeInformation: routeText (CharacterString)</p>
<p>Conversion: Copy Field 15 items across into the corresponding FIXM data items.</p>	
<p>Issues & solutions: Conversion of blocking levels (see IFPS Users Manual) is not yet supported.</p>	

A.1.14 Field 16a Destination Aerodrome

FPL 2012 message field		FIXM data item equivalent
16a	Destination Aerodrome: <ul style="list-style-type: none"> ICAO 4 letter Indicator (Doc7910). ZZZZ if no indicator has been allocated or aerodrome is not known. In which case Item 18 DEST/name & location is to be provided. 	Arrival: destinationAerodrome: locationIndicator ([A-Z]{4})
	Conversion: <ul style="list-style-type: none"> If an aerodrome location indicator is specified, copy 16a into destinationAerodrome. Ignore ZZZZ entries. 	
	Conversion problems & proposed solutions? <u>None</u>	

A.1.15 Field 16b Total Estimated Elapsed Time

FPL 2012 message field		FIXM data item equivalent
16b	Total Estimated Elapsed Time 4 Numerics	routeTrajectoryGroup: agreed: routeInformation: totalEstimatedElapsedTime (Duration)
	Conversion: Copy 16b into totalEstimatedElapsedTime	
	Conversion problems & proposed solutions? <u>None</u>	

A.1.16 Field 16c Destination Alternate Aerodrome(s)

FPL 2012 message field		FIXM data item equivalent
16c	Not more than two destination alternate aerodromes each composed of 4 LETTERS: <ul style="list-style-type: none"> The ICAO four-letter location indicator allocated to an alternate aerodrome, as specified in Doc 7910, Location Indicators, or ZZZZ if no ICAO location indicator has been allocated. 	Arrival: destinationAerodromeAlternate: locationIndicator ([A-Z]{4})
	Conversion: <ul style="list-style-type: none"> Ignore ZZZZ entries Check for valid ICAO 4 letter indicator(s) & if found copy it (them) across to FIXM destinationAerodromeAlternate(s). 	
	Conversion problems & proposed solutions? None.	

A.1.17 Field 17 Arrival Data

FPL 2012 message field		FIXM data item equivalent
17	17a Arrival Aerodrome (ARR message) <ul style="list-style-type: none"> ICAO 4 letter location indicator as per ICAO Doc 7910, OR, ZZZZ if no indicator has been allocated. 	Arrival: arrivalAerodrome: locationIndicator ([A-Z]{4})
	17b Time of Arrival (ARR) Time: nnnn	arrival: actualTimeOfArrival: time (DateTimeUtc)
	17c Name of Arrival Aerodrome if 17a = ZZZZ.	Arrival: arrivalAerodrome: name (TextName)
	Conversion: <ul style="list-style-type: none"> If ICAO 4 letter location indicator found in 17a copy it to locationIndicator Copy 17b to actualTimeOfArrival If ZZZZ is found in 17a then copy 17c into arrivalAerodrome: name 	
<ul style="list-style-type: none"> Conversion problems & proposed solutions? <u>None</u> 		

A.1.18 Field 18

A.1.18.1 OPR/ Operator

FPL 2012 message field		FIXM data item equivalent
OPR/	<ul style="list-style-type: none"> • ICAO designator or • Name of the aircraft operating agency, if different from the aircraft identification in item 7. (section A.1.1) 	operator: <ul style="list-style-type: none"> • designatorICAO (CharacterString) • operatingOrganisation: name (TextName – max 60 characters)
	Conversion: <ul style="list-style-type: none"> • If ICAO doc 8585 designator found copy it into designatorICAO • Copy any other text into operatingOrganisation:name. 	
	Conversion problems & proposed solutions? None	

A.1.18.2 ORGN/ Flight Plan Originator

FPL 2012 message field		FIXM data item equivalent
18 ORGN/	<ul style="list-style-type: none"> • The originator's eight-letter AFTN address or • Other appropriate contact details, 	flightPlanOriginator: contact: onlineContact: <ul style="list-style-type: none"> • linkage (CharacterString) and • network: type: (Enumerated AFTN or INTERNET)
	Conversion: <ul style="list-style-type: none"> • If ORGN/ is exactly 8 alphabetic characters then copy this across into onlineContact: linkage and set network:type to AFTN. • Otherwise: copy all ORGN/ content to a FIXM NM extension. 	
	Issues & solutions: Sample flight plans have been observed with more than 8 characters (the length of an AFTN address), such as phone numbers and other free text that cannot be easily/correctly parsed, in which case this data has to be put into a FIXM NM extension field.	

A.1.18.3 DLE/

FPL 2012 message field		FIXM data item equivalent
18 DLE/	DLE/ en-route delay or holding Significant points on the route followed by Length of Delay (HHMM)	routeTrajectoryGroup: agreed: element: <ul style="list-style-type: none"> • elementStartPoint: SignificantPointChoice • plannedDelay: delayValue (Duration)
	Conversion: For each DLE significant point, locate the corresponding element in the routeTrajectoryGroup and copy the Length of Delay to the plannedDelay: delayValue.	
	Issues & solutions: None	

A.1.18.4 STAYINFO/

FPL 2012 message field		FIXM data item equivalent
18 STAYINFO/ (IFPS local function on Item 15)	STAYINFO/ Free text describing the activity/ the reason for this particular STAY id (n= 1-9)	NmFlightExtension: stayInformation: StayInfo (CharacterString)
	Conversion: Copy the STAYINFO content into the stayInformation.	
	Issues & solutions: None	

A.1.18.5 REG/ Aircraft Registration

FPL 2012 message field		FIXM data item equivalent
18 REG/	Nationality or common mark & registration mark of the aircraft, if different to Item 7.	aircraft: registration: AircraftRegistrationList: AircraftRegistration ([A-Z0-9]{1,7})
<p>Conversion:</p> <p>If REG is composed of one or more words of 7 characters or less, copy them as individual registrations to the AircraftRegistrationList entries. Otherwise, copy the entire REG content into a FIXM NM extension field.</p>		
<p>Issues & solutions:</p> <p>REG submission samples have been recorded containing words longer than 7 characters, which may result in incorrect conversion, even if there are correctly expressed registrations included. In these cases the policy is therefore to copy the entire REG content into a FIXM NM extension field.</p>		

A.1.18.6 TYP/ Number & Type of Aircraft

FPL 2012 message field		FIXM data item equivalent
18 TYP/	Type(s) of aircraft preceded if necessary without a space by number(s) of aircraft and separated by one space	aircraft: aircraftType: <ul style="list-style-type: none"> • aircraftCount (CountPositive) • icaoAircraftTypeDesignator (AircraftTypeDesignator) • otherAircraftType (CharacterString)
<p>Conversion:</p> <p>Parse the TYP/ text for ICAO type designators and counts, and if successful, copy each type to a corresponding icaoAircraftTypeDesignator and aircraftCount. Otherwise, copy the entire TYP/ content into a FIXM NM extension field.</p>		
<p>Issues & solutions:</p> <p>Given that aircraft types may be provided as free text that can contain numbers inside and have several words, it may not be obvious that the parsing has failed.</p> <p>For this reason, it may be necessary to copy the entire TYP/ contents into a FIXM NM extension.</p>		

A.1.18.7 STS/ Special Handling

FPL 2012 message field		FIXM data item equivalent
18 STS/	List of applicable special handling codes	specialHandling (SpecialHandlingCodeList)
Conversion: Copy STS/ handling codes to specialHandling		
Issues & solutions: None.		

A.1.18.8 PBN/ Capabilities

FPL 2012 message field		FIXM data item equivalent
18 PBN/	PBN Equipment & Capability <i>Enumerated list of PBN codes</i>	aircraft: capabilities: navigation: performanceBaseCode (PerformanceBasedNavigationCapabilityCodeList)
Conversion: Copy the PBN/ code entries to performanceBaseCode		
Issues & solutions: None		

A.1.18.9 NAV/ Other Navigation Equipment

FPL 2012 message field		FIXM data item equivalent
18 NAV/	Other Navigation Equipment Significant data (not codes) related to navigation equipment, other than specified in PBN/, as required by the appropriate ATS authority If G is included in Item 10a then GNSS capability is specified in Item 18 using NAV/GBAS SBAS etc. Nav equipment is specified here if Z is included in 10a	aircraft: capabilities: navigation: otherNavigationCapabilities (CharacterString)
Conversion: Copy NAV/ content to otherNavigationcapabilities.		
Issues & solutions: None		

A.1.18.10 COM/ Other Communications Equipment & Capabilities

FPL 2012 message field		FIXM data item equivalent
18 COM/	Other Communications Equipment & Capabilities Comms equipment is specified here if Z is included in 10a	aircraft: capabilities: communication: otherCommunicationCapabilities (CharacterString)
		Conversion: Copy COM/ content to otherCommunicationCapabilities
		Issues & solutions: None

A.1.18.11 DAT/ Other Data Communication Equipment & Capabilities

FPL 2012 message field		FIXM data item equivalent
18 DAT/	Other Data Communication Equipment & Capabilities Data Comms equipment is specified here if Z is included in 10a.	aircraft: capabilities: communication: otherDataLinkCapabilities (CharacterString)
		Conversion: Copy DAT/ content to otherDataLinkCapabilities
		Issues & solutions: None

A.1.18.12 SUR/ Other Surveillance Equipment & Capabilities

FPL 2012 message field		FIXM data item equivalent
18 SUR/	Other Surveillance Equipment & Capability Indicates surveillance equipment and capabilities not specified in Item 10 b - RSP and/or additional surveillance equipment.	aircraft: capabilities: surveillance: otherSurveillanceCapabilities (CharacterString)
		Conversion: Copy SUR/ content to otherSurveillanceCapabilities
		Issues & solutions: None

A.1.18.13 SEL/ Selective Calling Code (SELCAL)

FPL 2012 message field		FIXM data item equivalent
18 SEL/	SELCAL Code	aircraft: capabilities: communication: selectiveCallingCode ([A-HJ-MP-Z1-9]{4})
		Conversion: Copy the SEL/ content to selectiveCallingCode
		Issues & solutions: None

A.1.18.14 Alternate Aerodromes

FPL 2012 message field		FIXM data item equivalent
18 ALTs	<p>ALTN/ Destination Alternate Aerodrome Name of destination alternate aerodrome(s) and location LAT/LONG or bearing/distance</p> <p>RALT/ Enroute Alternate Aerodrome 4 letter indicators or name plus location LAT/LONG or bearing/distance</p> <p>TALT/ Take-Off Alternate Aerodrome 4 letter indicators or name plus location LAT/LONG or bearing/distance</p>	<p>Arrival: arrival: destinationAerodromeAlternate: AerodromeReference (max 2)</p> <p>Enroute: enRoute: alternateAerodrome: AerodromeReference (max 20)</p> <p>Departure: departure: takeOffAerodromeAlternate: AerodromeReference (max 2)</p> <p>AerodromeReference:</p> <ul style="list-style-type: none"> locationIndicator ([A-Z]{4}) name (TextName – max 60 characters) referencePoint(Lat/Long) referenceRelativePoint (Bearing/Distance)
		<p>Conversion:</p> <ul style="list-style-type: none"> For TALT & RALT check for valid ICAO aerodrome location indicators & if found copy across to LocationIndicator(s) (TALT- max 2 & RALT - max 20 aerodromes), otherwise copy entire text into a FIXM NM extension. For ALTN/ copy entire text into a FIXM NM extension.
		<p>Issues & solutions: These indicators may contain other free text in addition to/instead of aerodrome names. It is not possible to reliably distinguish aerodrome names from other free text information potentially leading to an incorrect parsing of aerodrome names. In addition, aerodrome location may not be included.</p> <p>For that reason, the policy is to include free text and, when provided, location information into a FIXM NM extension. Whenever ICAO 4 letter indicator(s) can be identified then it (they) will be copied into FIXM location indicator(s).</p>

A.1.18.15 RIF/ Re-clearance in Flight

FPL 2012 message field		FIXM data item equivalent
18 RIF/	<p>Re-clearance in Flight</p> <p>The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome.</p>	<p>arrival: reclearanceInFlight:</p> <ul style="list-style-type: none"> filedRevisedDestinationAerodrome: locationIndicator ([A-Z]{4}) routeToRevisedDestination (CharacterString)
	<p>Conversion:</p> <p>If the RIF ends with a valid aerodrome location indicator then copy it to filedRevisedDestinationAerodrome and copy the preceding text into routeToRevisedDestination.</p> <p>If the RIF does not end with a valid aerodrome location indicator then output entire text into a FIXM NM extension.</p>	
	<p>Issues & solutions: Occasionally other information is included in this field (free text, a significant point) or the information ends with a total elapsed time. Then the RIF/ content cannot be parsed as required by FIXM. In such cases a FIXM NM extension will be needed.</p>	

A.1.18.16 DOF/ Date of Flight

FPL 2012 message field		FIXM data item equivalent
18 DOF/	<p>The date of departure (format YYYYMMDD)</p>	<p>departure:</p> <ul style="list-style-type: none"> estimatedOffBlockTime (DateTimeUtc) estimatedRouteStartTime (DateTimeUtc)
	<p>Conversion: Merge DOF with estimatedOffBlockTime or estimatedRouteStartTime (for AFIL)</p>	
	<p>Issues & solutions: None</p>	

A.1.18.17 DEP/ Departure Aerodrome

FPL 2012 message field		FIXM data item equivalent
DEP/	If Field 13a has “ZZZZ” then provide name & location of departure aerodrome as LAT/LONG or bearing&distance OR first point on the route (name or LAT/LONG), or the marker radio beacon if the aircraft has not taken off from an aerodrome	departure: <ul style="list-style-type: none"> • departureAerodrome: <ul style="list-style-type: none"> ▪ name (TextName – max 60 characters) ▪ referencePoint: pos: LatLongPos ▪ referenceRelativePoint (Bearing&Distance) • departurePoint <ul style="list-style-type: none"> ▪ designatedPoint: designator ([A-Z0-9]{1,5}) ▪ navaid: designator ([A-Z0-9]{1,4}) ▪ position: pos: LatLongPos ▪ relativePoint (Bearing&Distance)
	If Field 13a has “AFIL” then the ATS unit from which supplementary flight plan data can be obtained is to be provided	supplementaryInformation:supplementaryInformationSource: unit: <ul style="list-style-type: none"> • locationIndicator ([A-Z]{4}) • atcUnitNameOrAlternate (TextName – max 60 characters)
Conversion: Copy DEP/ content into a FIXM NM extension.		
<p>Issues & solutions:</p> <p>This indicator may contain other free text in addition to/instead of aerodrome names. It is not possible to reliably distinguish aerodrome names from other free text information potentially leading to an incorrect parsing of aerodrome names.</p> <p>In addition, if the aircraft has not taken off from an aerodrome, a point/radio beacon is provided, not an aerodrome name/location.</p> <p>Moreover, in case of AFIL, potentially free text information regarding an ATS unit may be provided.</p> <p>For all the reasons above, a FIXM NM extension will be used to output DEP/ content.</p>		

A.1.18.18 DEST/ Destination Aerodrome

FPL 2012 message field		FIXM data item equivalent
DEST/	Name & location of departure aerodrome as LAT/LONG or bearing&distance	arrival: destinationAerodrome: <ul style="list-style-type: none"> ▪ name (TextName – max 60 characters) ▪ referencePoint: pos: LatLongPos ▪ referenceRelativePoint (Bearing&Distance)
Conversion: Copy DEST/ content into a FIXM NM extension.		
Issues & solutions: This indicator may contain other free text in addition to/instead of aerodrome name. It is not possible to reliably distinguish aerodrome names from other free text information potentially leading to an incorrect parsing of aerodrome names. For that reason, a FIXM NM extension will be used to output DEST/ content.		

A.1.18.19 CODE/

FPL 2012 message field		FIXM data item equivalent
CODE/	Aircraft address (expressed in the form of an alphanumerical code of six hexadecimal characters). Example: "F00001"	aircraft: aircraftAddress ([0-9A-F]{6})
Conversion: Copy CODE/ to aircraftAddress		
Conversion problems & proposed solutions? None.		

A.1.18.20 PER/

FPL 2012 message field		FIXM data item equivalent
PER/	Aircraft performance data, indicated by a single letter as specified in the <i>Procedures for Air Navigation Services — Aircraft Operations (PANS-OPS, Doc 8168), Volume I — Flight Procedures</i> .	aircraft: aircraftApproachCategory (Enumerated: 1 letter)
Conversion: Copy PER/ entry to aircraftApproachCategory		
Conversion problems & proposed solutions? None		

A.1.18.21 RMK/

FPL 2012 message field		FIXM data item equivalent
RMK/	Plain-language Remarks .	remarks (CharacterString)
Conversion: Copy RMK/ entry to remarks		
Conversion problems & proposed solutions? None		

A.1.19 Field 19

A.1.19.1 E/ Endurance

FPL 2012 message field		FIXM data item equivalent
E/	4 NUMERICS giving the Fuel Endurance in hours and minutes	supplementaryInformation: fuelEndurance (Duration)
	Conversion: Copy E/ value into fuelEndurance	
	Issues & solutions: None.	

A.1.19.2 P/ Total Number of Persons on Board

FPL 2012 message field		FIXM data item equivalent
P/	Total Number of Persons on Board	supplementaryInformation: personsOnBoard (Count)
	Conversion: Copy P/ contents to personsOnBoard	
	Issues & solutions: None	

A.1.19.3 R/ Emergency Radio Capabilities

FPL 2012 message field		FIXM data item equivalent
R/	one or more of the following, Emergency Radio Capability indicators, without spaces: U, V, E	aircraft: capabilities: survival: emergencyRadioCapabilityType (Enumerated)
	Conversion: Copy R/ entry(s) to emergencyRadioCapabilityType, using the corresponding FIXM enumerated value	
	Issues & solutions: None	

A.1.19.4 S/ Survival Equipment

FPL 2012 message field		FIXM data item equivalent
S/	one or more of the following, Survival Equipment Indicators , without spaces: P, D, M, J	aircraft: capabilities: survival: survivalEquipmentType (Enumerated)
	Conversion: Copy S/ entry(s) to survivalEquipmentType, using the corresponding FIXM enumerated value	
	Issues & solutions: None	

A.1.19.5 J/ Life Jackets

FPL 2012 message field		FIXM data item equivalent
J/	One or more of the following, Life Jacket Indicators , without spaces: L, F, U, V	aircraft: capabilities: survival: lifeJacketType (Enumerated)
	Conversion: Copy J/ entry lifeJacketType, using the corresponding FIXM enumerated value	
	Issues & solutions: None	

A.1.19.6 D/ Number, Colour & Capacity of Dinghies

FPL 2012 message field		FIXM data item equivalent
D/	(Colour) (Number) (Capacity of all dinghies) "C" Indication of whether dinghies are covered.	aircraft: capabilities: survival: dinghyInformation: <ul style="list-style-type: none"> • colour (CharacterString) • number (Count) • totalCapacity (CountPositive) • covered (Enumerated)
	Conversion: Copy D/ contents to corresponding data items in dinghyInformation.	
	Issues & solutions: None	

A.1.19.7 A/ Aircraft Colour & Markings

FPL 2012 message field		FIXM data item equivalent
A/	Colour of the aircraft & Significant markings	aircraft: coloursAndMarkings (CharacterString)
Conversion: Copy P/ contents to coloursAndMarkings		
Issues & solutions: None		

A.1.19.8 N/ Other Survival Equipment

FPL 2012 message field		FIXM data item equivalent
N/	Plain language indicating any Other Survival Equipment carried and any other useful remarks	aircraft: capabilities: survival: survivalEquipmentRemarks (CharacterString)
Conversion: Copy N/ text into survivalEquipmentRemarks		
Issues & solutions: None		

A.1.19.9 C/ Pilot in Command

FPL 2012 message field		FIXM data item equivalent
C/	The name of the Pilot-in-command	supplementaryInformation: pilotInCommand: name
Conversion: Copy C/ entry into name		
Issues & solutions: None		

A.1.20 Additional European Field 18 indicators

A.1.20.1 EUR/ European Indicator

FPL 2012 message field		FIXM data item equivalent
EUR/	An indication that the flight plan must only be provided to ATS units concerned with the flight (PROTECTED) It is not distributed by IFPS with the flight plan.	Not included in NM output messages
	An indication that this is an iOAT flight plan (OAT).	NmFlightExtension: eurSpecialHandling: EurIndicator (Enumerated)
	Conversion: Copy the iOAT indication into eurSpecialHandling	
	Issues & solutions: None.	

A.1.20.2 RVR/ Runway Visual Range

FPL 2012 message field		FIXM data item equivalent
RVR/	Runway Visual Range (3 digits)	aircraft: capabilities: navigation: requiredRunwayVisualRange (Distance)
	Conversion: Copy RVR/ entry into requiredRunwayVisualRange	
	Issues & solutions: None	

A.1.20.3 IFP/ IFPS Indicator

FPL 2012 message field		FIXM data item equivalent
IFP/	IFP/	NmFlightExtension: ifpsFlightIndicator: IfpIndicator (Enumerated)
	Conversion: Copy IFP/ content to ifpsFlightIndicator	
	Issues & solutions: None	

A.1.20.4 SRC/ Source Indicator

FPL 2012 message field		FIXM data item equivalent
SRC/	Type of message received by the IFPS from which the output message was constructed. The sources are: FPL, AFIL, AFP, FNM, MFS, RQP	None The list of events provided by the NM Publication service is the nearest equivalent but does not use the SRC/ field information.
Conversion: <i>None</i>		
Issues & solutions: None.		

A.1.20.5 RFP/ Replacement Flight Plan Indicator

FPL 2012 message field		FIXM data item equivalent
RFP/	Replacement Flight Plan Indicator	NmFlightExtension: replacementFlightPlanIndicator (Count)
Conversion: Copy RFP/ entry to replacementFlightPlanIndicator		
Issues & solutions: None		

A.1.20.6 AWR/ AO What-If Re-Route Indicator

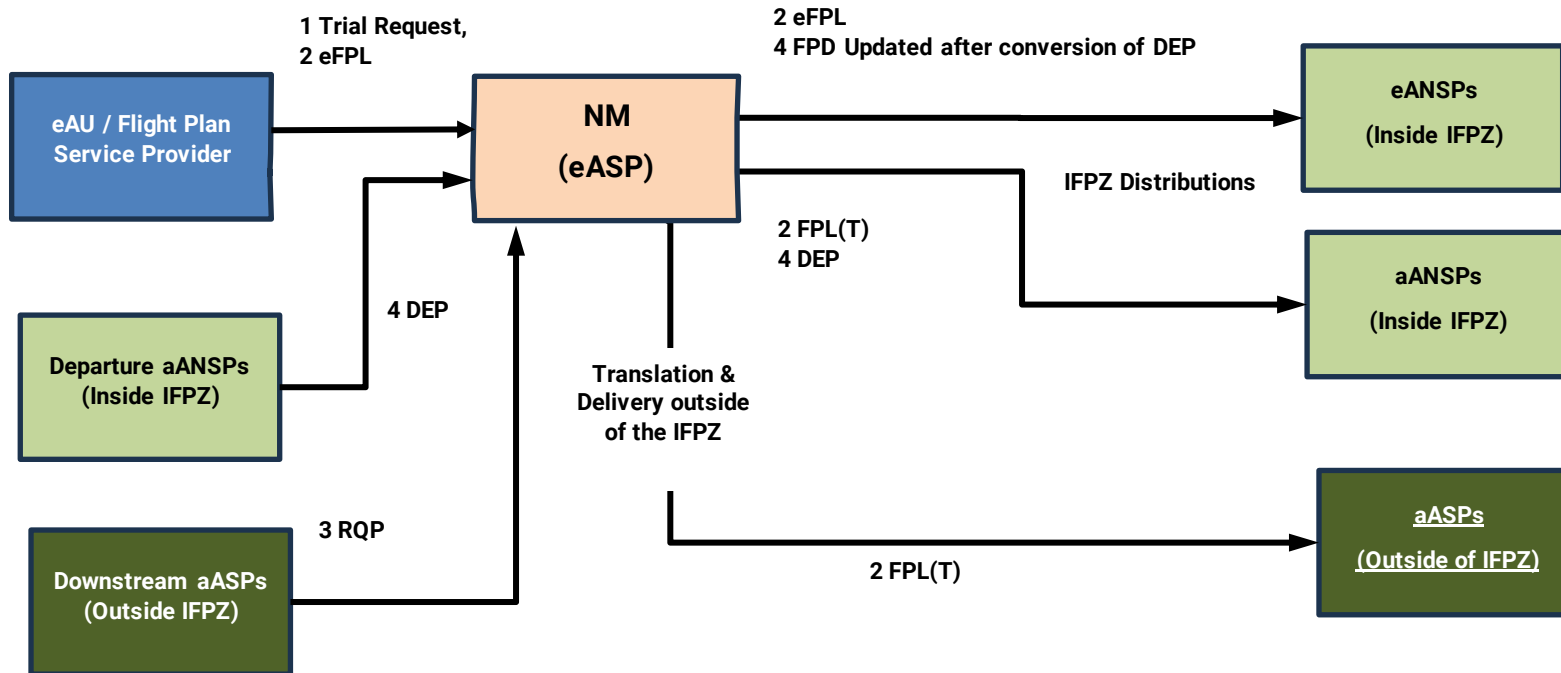
FPL 2012 message field		FIXM data item equivalent
AWR/	AO What-If Re-Route	NmFlightExtension : aoWhatIfReRouteIndicator (Count)
Conversion: Copy AWR/ entry to aoWhatIfReRouteIndicator		
Issues & solutions: None		

A.2. Appendix 2 Flight Planning Scenarios

- (1) Some of the scenarios which follow are deliberately contrived to illustrate situations where airspace users and Departure ANSPs will receive rejections from NM. They do not reflect expected practice, e.g., alternating between FF-ICE and FPL 2012 procedures is not recommended. In the case of an FF-ICE degradation the usual approach would be to retain FPL 2012 procedures for the remainder of the flight planning duration.
- (2) Note that the numbers provided on the diagrams in this section relate to the numbered rows in the sequence tables.

A.2.1 Nominal Case

(1) Applicable conditions: Scenario 2b: Translation & Delivery by NM:



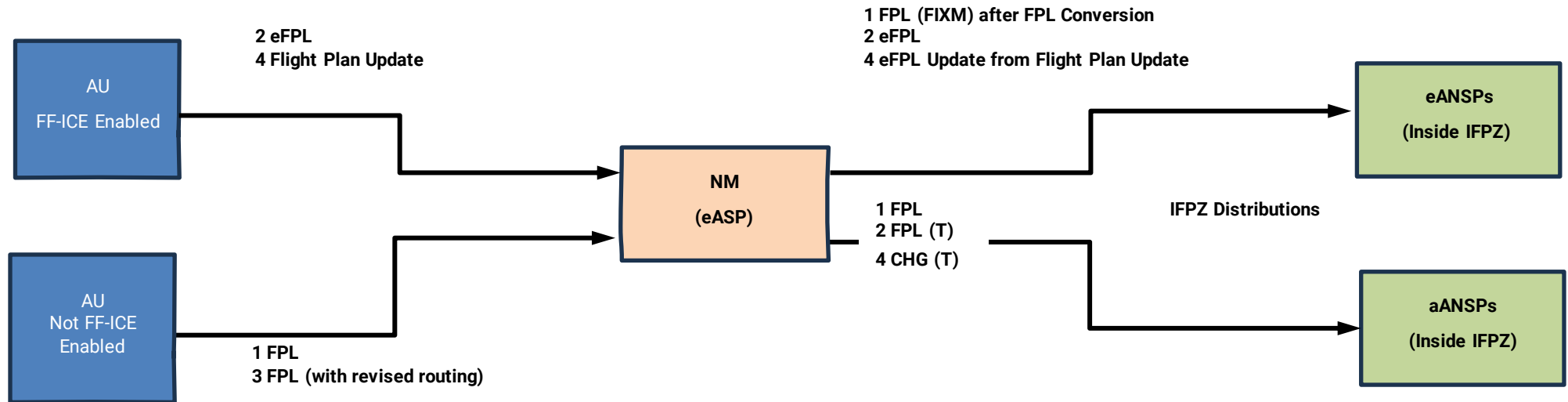
(2) The flight will depart and exit from the IFPZ. The AU is FF-ICE enabled, the Departure ANSP is not.

#	Event	eAU	Departure aANSP Inside IFPZ	Downstream aASP (outside of IFPZ)	NM	Derived IFPZ aANSPs	Derived IFPZ eANSPs	Requested Recipients (aANSPs downstream of IFPZ)
1	Trial Request (To NM only)	Makes a Trial Request to NM only. Receives an ACK SR & a CONCUR Trial Response.			Evaluates the request and returns a CONCUR Trial Response.			
2	The Flight Plan is filed	submits an eFPL with a Request to NM for Translation and Delivery. Receives an ACK SR & an ACCEPTABLE Filing Status (with the Agreed Trajectory).			The eFPL is received, processed and accepted. NM calculates the Agreed Trajectory using the Desired Trajectory. The eFPL with the Agreed Trajectory becomes the FPD Held on Record and is published. It is translated and distributed within the IFPZ, with the AO4DT in the Remarks field of the translated FPL. It is translated and delivered to the T&D Requested Recipients downstream of the IFPZ.	Receive the FPL(T)	Get the eFPL	Receive the FPL(T)
3	An aASP wants the flight plan.			Submits an RQP. Receives the FPL(T).	NM returns the FPL(T).			

#	Event	eAU	Departure aANSP Inside IFPZ	Downstream aASP (outside of IFPZ)	NM	Derived IFPZ aANSPs	Derived IFPZ eANSPs	Requested Recipients (aANSPs downstream of IFPZ)
4	The flight departs.		Submits a DEP message to NM. <hr/> Receives an ACK ORM.		The DEP message is received, processed and accepted. It is distributed to relevant aANSPs within the IFPZ. Provides the DEP message to the previous (T&D) Requested Recipients. The Departure data for the flight is updated with the Actual Time of Departure. Conversion is applied and the updated FPD is published.	Receive the DEP message.	Get the updated FPD.	Receive the DEP message.

A.2.2 Upgrade from FPL to eFPL & Alternating Filing Capability

- (1) Scenario 1: Direct Submission by an eAU (2 instances in this case).



- (2) The flight is wholly within the IFPZ. The AU has 2 instances: The airport instance of the AU is not FF-ICE enabled and routinely files its own flight plans. The AU Business Operations Centre is FF-ICE enabled, but only gets involved when there is a problem that needs to be resolved.
- (3) The Departure ANSP and a downstream ANSP are not FF-ICE enabled. The Arrival ANSP is FF-ICE enabled.

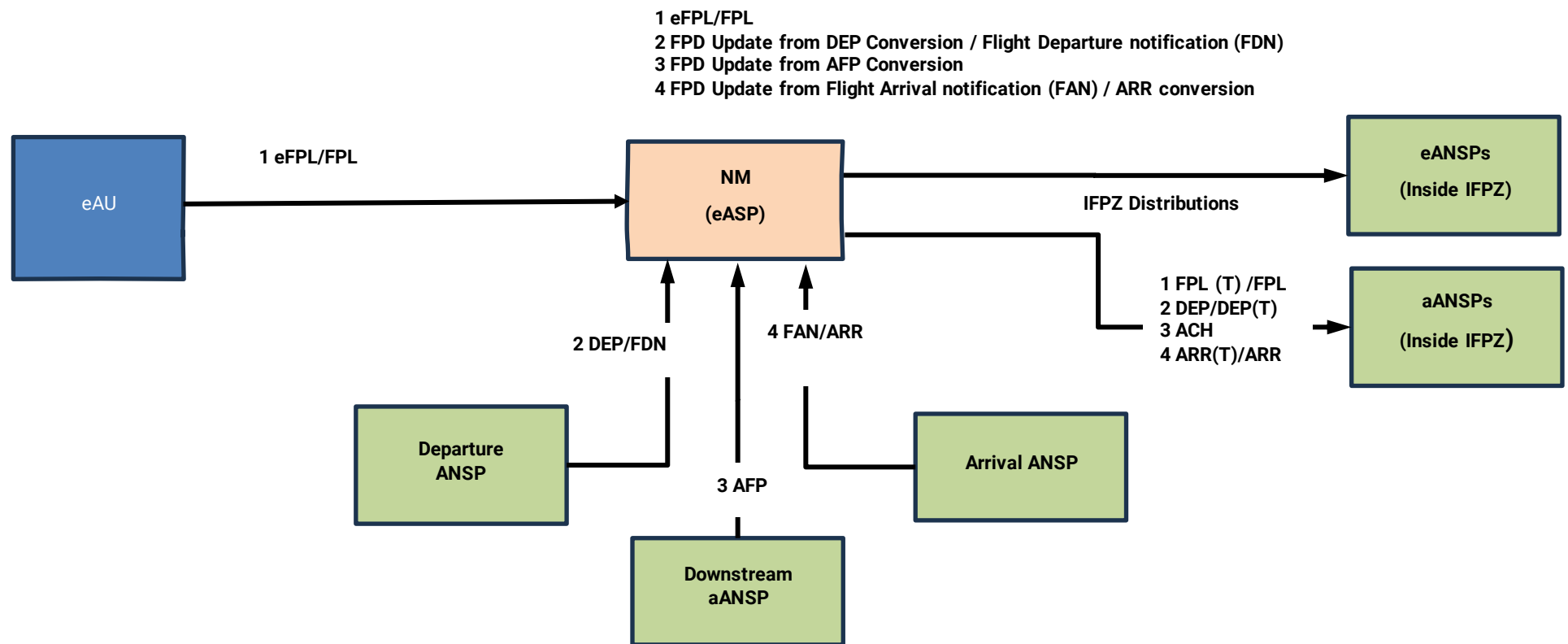
#	Event	aAU <i>(AU instance at the Aerodrome)</i>	eAU <i>(Business Operations Control Centre)</i>	NM	Derived aANSPs	Derived eANSPs
1	Flight Plan Filed	Submits an FPL to NM. Receives an ACK ORM.	-	The FPL is accepted, distributed and becomes the FPD Held on Record. The FPL Held on Record is converted and is published.	Receive the FPL	Get the FPL(FIXM)
2	Change in equipment capability which affects the routing in IFPZ.	-	<i>The eAU Business Operations centre is informed of the equipment shortfall. It manages the situation and takes over the filing role.</i> Allocates a GUFU & OFPV number. The eFPL is submitted to NM with a revised routing appropriate for the revised equipage. Receives an ACK SR and ACCEPTABLE Filing Status.	Receives processes and accepts the eFPL. It becomes the FPD Held on Record. It is translated and distributed. It is published.	Receive the FPL(T)	Get the eFPL.
3	Route change needed by airport instance of AU.	Erroneously submits an FPL with a revised routing. Receives a REJ ORM.		Rejects the FPL with an explanation indicating that this is not supported.		
4	Corrects with a CHG.	Submits CHG Receives ACK ORM		NM receives the CHG and distributes it. Conversion is used to publish the FPD Held on Record.	Receive the CHG	Get the updated eFPL

- (4) The FPL rejection is a consequence of not following the correct procedure, which would have been to submit a CHG message or a n FF-ICE Flight Plan Update, either off which could have been accepted.

- (5) This also illustrates the rejections that can arise from switching between FF-ICE and FPL 2012 procedures. Having submitted an FPL all subsequent submissions for that flight should have been made using FPL 2012 procedures, regardless of which AU entity is making the submissions.

A.2.3 Departure and Arrival Scenarios

(1) Applicable conditions: Scenario 1: Direct Submission by an eAU.

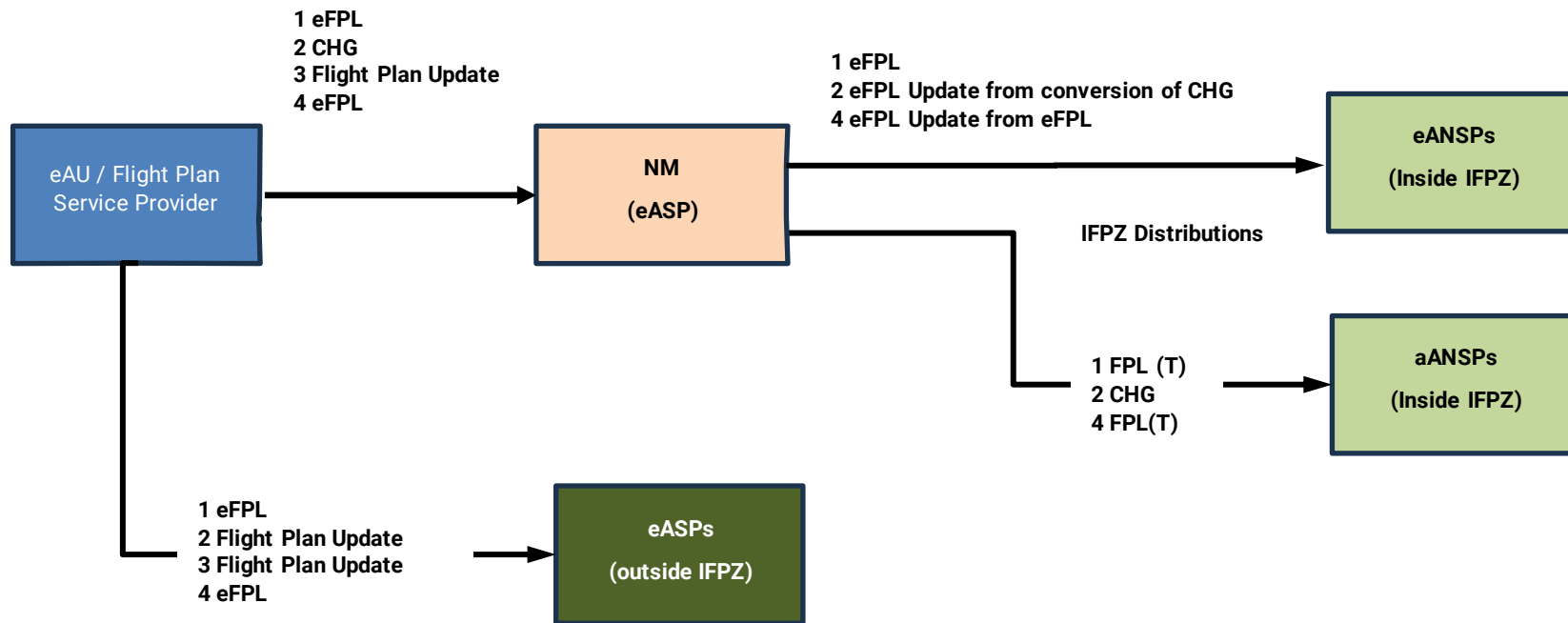


(2) The flight is wholly within the IFPZ.

eFPL submitted. The Departure ANSP and a downstream ANSP are not FF-ICE enabled. The Arrival ANSP is FF-ICE enabled.						
#	Event	eAU	ANSPs	NM	Derived aANSPs	Derived eANSPs
1	Flight Plan Filing	Submits an eFPL to NM. Receives an ACK SR and ACCEPTABLE Filing Status.		Accepts the eFPL. It becomes the FPD Held on Record. It is translated and distributed as an FPL(T) and is published.	Receive the FPL(T)	Get the eFPL.
2	The flight Departs	-	Departure aANSP submits a DEP message to NM. Receives an ACK ORM	Processes the DEP message and distributes it. Updates the FPD Held on Record. Conversion is used to publish it.	Receive the DEP	Get the updated FPD.
3	Re-routing is indicated by an aANSP.		Downstream aANSP submits an AFP message to NM. Receives an ACK ORM.	Processes the AFP message and distributes an ACH, updates the FPD Held on Record. Conversion is used to publish the updated FPD.	Receive the ACH.	Get the updated FPD.
4	The flight arrives.		Arrival eANSP submits a Flight Arrival notification. Receives an ACK SR.	Processes the notification, translates and distributes it. Uses the notification to update the arrival time for the FPD Held on Record.	the Departure Aerodrome receives the ARR(T) message.	Get the updated FPD.
eFPL submitted. The Departure ANSP is FF-ICE enabled. A downstream ANSP and the Arrival ANSP are not FF-ICE enabled.						
#	Event	eAU	ANSPs	NM	Derived aANSPs	Derived eANSPs
1	Flight Plan Filing	Submits an eFPL to NM. Receives an ACK SR and ACCEPTABLE Filing Status.		Accepts the eFPL. It becomes the FPD Held on Record. It is translated and distributed as an FPL(T) and is published.	Receive the FPL(T).	Get the FPD.
2	The flight Departs	-	Departure eANSP submits a Flight Departure notification to NM. Receives an ACK SR.	Processes the notification, translates and distributes it. Uses the notification to update the departure time for the FPD Held on Record.	Receive the DEP(T)	Get the updated FPD.
3	The flight arrives.		Arrival aANSP submits a ARR message to NM. Receives an ACK SR.	The ARR message is distributed. NM uses the ARR message to update the FPD Held on Record and publishes it.	the Departure Aerodrome receives the ARR message.	Get the updated FPD.

A.2.4 Operator Flight Plan Version (OFPV) goes out of sync

(1) Scenario 1b: Alternating Filing Capability

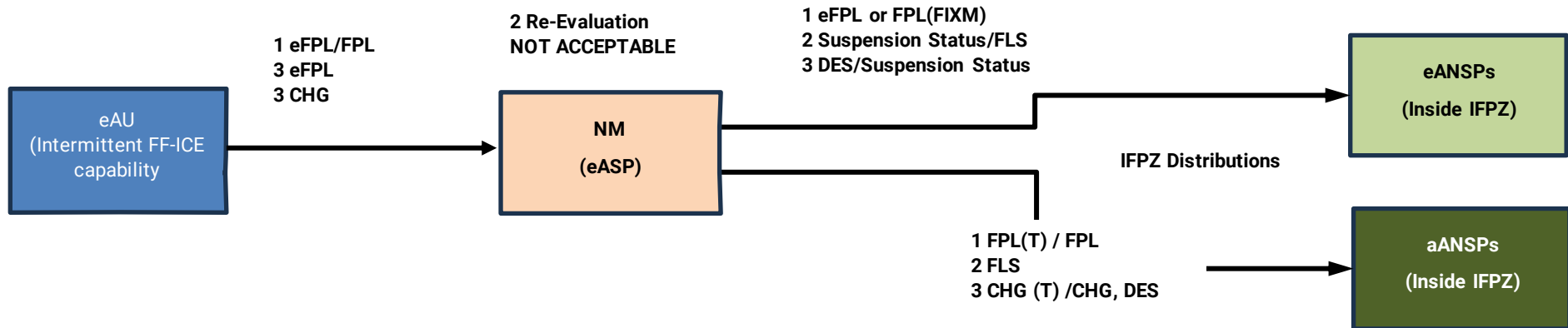


(2) The flight will depart outside of the IFPZ and will arrive in the IFPZ. The AU is FF-ICE enabled.

#	Event	eAU	NM	Relevant aANSPs	IFPZ	Relevant IFPZ eANSPs
1	Flight Plan Filing	Submits an eFPL to NM <i>(and to other eASPs outside of the IFPZ that accept it)</i>	Accepts the eFPL, it becomes the FPD Held on Record and is published. It is translated and distributed as an FPL(T).	Receive FPL(T).	the	Get the eFPL.
2	The AU's FF-ICE connection to NM goes out of service. A re-routing is needed.	Submits a CHG to NM with a re-routing. <i>An FF-ICE Flight Plan Update is sent to other eASPs outside of the IFPZ and accepted. Within this the OFPV number is incremented, but NM does not get that.</i> Receives an ACK ORM.	Accepts, distributes the CHG and updates the FPD Held on Record. Conversion is used to publish it. <i>NM's OFPV number is now out of synch.</i>	Receive CHG.	the	Get the updated eFPL.
3	The AU's FF-ICE connection to NM is restored. The flight will be delayed.	Submits a Flight Plan Update to NM for the delay.	Rejects the FPU with an explanation. <i>This is because the OFPV is not a single increment higher than the previous submission received.</i>			
4	Re-submission Re-synch	Submits the latest eFPL to NM. <i>(and to other eASPs outside of the IFPZ that accept it)</i> Gets an ACK SR and ACCEPTABLE Filing Status.	Accepts the eFPL, then translates & distributes it as an FPL(T). The eFPL becomes the new FPD Held on Record and is published. <i>NM's OFPV number is now back in synch.</i>	Receive FPL(T)	the	Get the updated eFPL.

- (3) The Flight Plan Update rejection is a consequence of not following recommended procedure, which would have been to continue without FF-ICE for this flight, even if the connection is restored after the rejection. I.e., in step 3 the AU should submit a CHG, which would have avoided the need for a re-submission.

A.2.5 Loss/Recovery of FF-ICE capability during flight suspension



(1) The flight departs from and leaves the IFPZ. The AU is FF-ICE enabled.

Loss of FF-ICE capability during flight suspension					
#	Event	eAU	NM	Relevant IFPZ aANSPs	Relevant IFPZ eANSPs
1	Flight Plan Filing	Submits an eFPL to NM. Receives an ACK SR and ACCEPTABLE Filing Status.	Accepts the eFPL. It is translated and distributed as an FPL(T). It becomes the FPD Held on Record and is published.	Receive the FPL(T)	Get the eFPL.
2	Periodic re-evaluation detects a new constraint.	Receives NOT ACCEPTABLE Filing Status. Receives the FLS.	Re-evaluates for the new constraint and provides a NOT ACCEPTABLE Filing Status to the AU with a proposed re-routing. NM suspends the flight and an FLS message is distributed.	FLS	Get NM B2B suspension status indicating that the flight is suspended.
3	The AU FF-ICE connection to NM is lost. A routing update is needed to satisfy the new constraint.	Submits a CHG with re-routing. Receives an ACK ORM. Receives the DES.	Accepts, distributes the CHG and updates the FPD Held on Record. Conversion is used to publish it. NM distributes a DES.	Receive the CHG. Receive the DES.	Get the updated eFPL. Get NM B2B suspension status indicating that the flight is de-suspended.

(2) FLS and DES messages are distributed as described in the current User Manual timing description.

Recovery of FF-ICE capability during flight suspension					
#	Event	eAU	NM	Relevant aANSPs	Relevant IFPZ eANSPs
1	Flight Plan Filing The FF-ICE connection to NM is lost.	Submits an FPL to NM	Accepts the FPL, it is distributed as an FPL(T). After conversion it becomes the FPD Held on Record and is published.	Receive the FPL	Get the FPL(FIXM).
2	Periodic re-validation detects a new constraint.	Receives the FLS	Re-validates for the new constraint. NM suspends the flight and an FLS message is distributed	Receive an FLS.	Get NM B2B suspension status indicating that the flight is suspended.
3	The AU FF-ICE connection to NM is restored. A routing update is needed to satisfy the new constraint.	Submits a Flight Plan Update with a re-routing. Receives an ACK SR & ACCEPTABLE Filing Status. Receives the DES.	Accepts, distributes the FPU and updates the FPD Held on Record to an eFPL. It is translated to a CHG(T), distributed and published. NM distributes a DES.	Receive the CHG (T). Receive the DES.	Get the eFPL. Get NM B2B suspension status indicating that the flight is de-suspended.

(3) FLS and DES messages are distributed as described in the timing description provided in the current User Manual.

References

- [1] EUROCONTROL PPFDE NFPM Implementation Guidelines
- [2] EUROCONTROL Integrated Initial Flight Plan Processing System (IFPS) Users Manual.
- [3] ICAO Doc 9965: FF-ICE Manual: Volume I FF-ICE Concept
- [4] ICAO Doc 9965: FF-ICE Manual: Volume II Implementation Guidance
- [5] ICAO Doc 8585: Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services
- [6] ICAO Doc 8643: Aircraft Type Designators
- [7] ICAO Doc 7910: Location Indicators
- [8] ICAO Doc 9854 Global ATM Operational Concept
- [9] ICAO Procedures For Air Navigation Services (PANS) Air Traffic Management (ATM) Doc 4444
- [10] ICAO Annex 7 - Aircraft Nationality & Registration Marks
- [11] EUROPEAN COMMISSION Implementing Regulation (EU) 2021/116 (CP1)
- [12] EUROPEAN COMMISSION Framework Regulation (framework for the creation of the single European sky) 549/2004
- [13] Flight information Exchange Model (FIXM) and User Manual



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