ICAO FPL 2012 Implementation Workshop

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The Changes

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Purpose

"The nature and scope of the amendment is to update the ICAO model flight plan form in order to meet the needs of aircraft with advanced capabilities and the evolving requirements of automated air traffic management (ATM) systems, while taking into account compatibility with existing systems, human factors, training, cost and transition aspects."

- ICAO State Letter (AN 13/2.1-08/50) - 25 June 2008

Content

- The Changes
- IFPS Translation
- Impact

The Changes

- Significant number of new NAV/COM/SUR capabilities
- Significant changes to the content of Fields 10 & 18 of the FPL
- Addition of Field 18 to CHG, DEP, DLA, CNL messages as compulsory syntax change
- Ability to file more than 24 hrs in advance
  - Use of CHG to delay a flight over midnight
- New error indications within REJ message

Example showing New / Modified elements

Digits in Field 10a & b

Up to 20 chars in Field 10b !

(FPL-EIN105-IS
-B763/H-E3J4M2SRYWX/HB2U2V2G1
-ZZZZ1200
-N0400F100 DENUT UL610 LAM UL10 BPK UN601 LESTA UP6 MIMKU/M082F320 NATB YAY/N0464F320 N188B YRI/N0462F340 DCT NOTAP DCT TVC PMM5
-KORD0700 KATL
-STS/ATFMX MARSA FLTCK PBN/A1C3L1 NAV/GBAS SBAS DAT/NO SPECIFIC DESIGNATORS SUR/ADDITIONAL INFO DEP/MALAHIDE 5327N00609W DOF/080622 TYP/2F15 3F5 DLE/NTM0130 ORGN/EBBDZMFP PER/A TALT/EIDW RMK/PRESSURISATION PROB UNABLE ABOVE F120)

New Field or Element

New or Modified content

Field 10a – NAV/COM Equipment and Capability

Syntax:

- Description: The descriptor "N" or one or more of the listed descriptors without repetition, therefore a theoretical limit of 64 characters
- No longer accepted: E, P, M, J, Q.
- New: Letter & Digit combinations

Semantics:
If ‘R’ present ➔ PBN/ expected in F18

If ‘Z’ present ➔ at least one of COM/, DAT/, NAV expected in F18

Field 10b – SUR Equipment and Capability

Syntax:

- Description:

  The descriptor 'N'

  or, either one or more of the descriptors ‘I’, ‘P’, ‘X’, ‘A’, ‘C’ with ‘I’, ‘P’, ‘X’ being mutually exclusive i.e. only one may be present

  or, one or more of the descriptors ‘A’, ‘C’, ‘E’, ‘H’, ‘L’, ‘S’

  Plus optionally, one or more of the descriptors ‘B1’, ‘B2’, ‘D1’, ‘G1’, ‘U1’, ‘U2’, ‘V1’, ‘V2’ without repetition.

  A total limit of 20 characters shall be applied

- No longer accepted: D

- New: Letter&Digit combinations

Semantics:
None

Operational Procedure

It is highly recommended that a single indication is used to provide the appropriate SSR capability

Field 18 – Duplicate Indicators

- If duplicates of the following are found they will be concatenated into a single entity with a space inserted between data streams:

  STS/, NAV/, COM/, DAT/, SUR/, EET/, TYP/, DLE/, ALTN/, RALT/, TALT/, RMK/

  Eg. STS/HEAD STS/ATFMX ➔ STS/HEAD ATFMX

- If duplicates of the following are found an error shall be raised:

  DEP/, DEST/, DOF/, OPR/, RVR/, SEL/, REG/, PBN/, CODE/, ORGN/, PER/, RFP/

Syntax of Field 18 Indicators

- STS - one or more of the listed descriptors only
- RMK - no limit
- RVR - 1 to 3 digits
- DAT - up to 50 chars
- SUR - up to 50 chars
- NAV - up to 50 chars
- COM - up to 50 chars
- TYP - up to 60 chars
- ORGN - up to 30 chars
- REG - up to 50 chars
- DEP - aerodrome name – up to 50 chars
  - optionally lat & long or reference point
- DEST - as for Dep.
- RALT - up to 100 chars
- TALT - up to 100 chars
- ALTN - up to 100 chars
- DLE - up to 11 chars followed by 4 digits
- PER - one of the listed chars (A, B, C, D, E, H)
- RFP - 'Q' followed by a single digit from 1 to 9

PBN/ - Syntax & Semantics

- One to eight of the listed descriptors, a total of 16 chars
  - If present the descriptor "R" shall be present in Field 10a
  - If any of the indicators B1, B2, C1, C2, D1, D2, O1 or O2 are filed, then a “G” must be present in Field 10a.
  - If any of the indicators B1, B3, C1, C3, D1, D3, O1 or O3 are filed, then a “D” must be present in Field 10a.
  - If either of the indicators B1 or B4 is filed, then either an “O” or “S” must be present and a “D” must also be present in Field 10a.
  - If any of the indicators B1, B5, C1, C4, D1, D4, O1 or O4 are filed, then an “I” must be present in Field 10a.
  - If any of the indicators C1, C4, D1, D4, O1 or O4 are filed, then a “D” must be present in Field 10a

Field 13b (EOBT) in Associated Messages

- Field 13b (EOBT) required in CNL, CHG, ARR, RQS, RQP
  e.g. (CNL-ABC123-EBBR1410-EDDF)
- IFPS will not raise an error if not present (others may!)
- IFPS will ensure EOBT is always included in CNL, CHG, ARR messages sent to ATC Units.
  E.g.
  (ARR-ABC123-EBBR1410-EDDF1500)

Field 18 in Associated Messages

- Field 18 required in CNL, DLA, CHG, DEP, RQS, RQP
- IFPS will raise an error if not present.
- IFPS will ensure Field 18 containing only DOF/ is always included in CNL, DLA, CHG, DEP messages sent to ATC Units.

Example Associated Messages

The following are all examples of valid message compositions:

1. (CHG-EIN105-EIDW1200-KORD-DOF/121125-9/E346/H)
2. (CNL-EIN105-EIDW1200-KORD-DOF/121125)
3. (CNL-EIN105-EIDW1200-KORD-0)
4. (CNL-EIN105-EIDW1200-KORD-STS/ATFMX MARSA FLTCK PBN/A1C3L1 NAV/GBAS SBAS DAT/NO SPECIFIC DESIGNATORS SUR/ADDITIONAL INFO DEP/MALAHIDE 5327N00609W DOF/121125)

ICAO Clarification: *"It is agreed that in the messages concerned there is no useful reason to put all Item 18 information if there is no change in the referred Item. Field Type 18 in a CHG message shall not contain the changes. They go in Field Type 22. Field Type 18 with DOF specified in such messages is meant to uniquely identify the flight when the FPL is presented more than 24 hours in advance and there is no need to include all the other Item 18 information in those messages."* http://www2.icao.int/en/FITS/Pages/home.aspx

Example use of DOF/

FPL contains: F18 = STS/HOSP DOF/130104 PBN/B3
F13b = 2230

We need to indicate a delay until 0200 i.e. a delay over midnight:

(DLA-ABC123-EBBR0200-EDDF-DOF/130104) - *change of DOF is implicit*

or

(CHG-ABC123-EBBR2230-EDDF-DOF/130104-13/EBBR0200
18/STS/HOSP PBN/B3 DOF/130105) - *change of DOF is explicit*

Note 1: The DOF (or Off Block Date) as provided in Field 18 shall always refer to the last Off Block Date & Time (EOBD/EOBT) i.e. prior to the processing of the current message.

Note 2: A modification to F18, via Field 22, must contain the complete F18 information, otherwise the missing data will be removed from the FPL.

Note 3: It is highly recommended that a change of EOBT over midnight is notified via CHG message.

Example use of DOF/ cont.

As previously:

FPL contains: F18 = STS/HOSP DOF/100304 PBN/B3
F13b = 2230
Flight is delayed until 0200 i.e. a delay over midnight.

(DLA-ABC123-EBBR0200-EDDF-DOF/100304)

OR

(CHG-ABC123-EBBR2230-EDDF-DOF/100304-13/EBBR0200 18/STS/HOSP DOF/100305 PBN/B3)

↳ A further delay until 0400 is required:

(DLA-ABC123-EBBR0400-EDDF-DOF/100305)

DOF and delays over midnight

- ICAO has indicated that a delay over midnight should be notified via a CHG message
- A DLA message that delays a flight over midnight is accepted by IFPS and results in an update of both EOBT and DOF

‘European Compromise’

- Use of RVR/ and RFP/ in Field 18
  - Currently defined in Doc.7030
  - Not included in Amendment 1
  - Will be retained in Doc 7030, used in Field 18 and output by IFPS in the following order:

    STS/, PBN/, NAV/, COM/, DAT/, SUR/, DEP/, DEST/, DOF/, REG/, EET/, SEL/, TYP/, CODE/, RVR/, DLE/, OPR/, ORGN/, PER/, ALTN/, RALT/, TALT/, SRC/, RIF/, RMK/, RFP/

- Use EUR/ for indication of security sensitive (PROTECTED) flights
  - Currently implemented via the use of STS/
  - Not permitted under Amendment 1
  - Will be implemented via EUR/PROTECTED and only permitted for FPLs submitted directly to IFPS
    - Will not be received by ATC units

‘European Compromise’ cont.

- Indication of exemptions to RNAV, CPDLC and 8.33kHz requirements
  - Currently defined in Doc. 7030 via the use of STS/
  - Not included in Amendment 1
  - Will be implemented via Fields 10 & 18 as follows:
    - Field 10 to include ‘Z’
    - Field 18 to include, as appropriate:

      COM/EXM833

      NAV/RNAVX, NAV/RNAVINOP

      DAT/CPDLCX
  - Not permitted within Doc. 7030
  - Will be published via IFPS User Manual and/or via AIP for non-CFMU States, as necessary

Unresolved Issues

- Some outstanding issues:
  - Use of RMK/, an unstructured field containing ‘Other Information’, to provide significant operational data is unacceptable for automated processing systems
  - How to extract a unspecified reason for special handling from within a free text RMK field i.e. to identify some significant unspecified text from within other text!
  - How to implement new data requirements without requiring a coordinated worldwide modification of FDPSs for every new requirement
  - How to indicate the regional applicability of exemption indications
  - How to address regional requirements in a manner that will not unduly impact other regions

IFPS Translation

IFPS Translation Function

- IFPS will offer a Translation Function from New FPL to Present FPL
  - To enable AOs to migrate early
  - To provide flexibility and mitigation for ANSPs in case of difficulties
  - Translation is only New to Present (not Present to New)
  - For Safety and Legal reasons, the proposed translation tables ensure that no information is lost, it is moved to where it can syntactically fit and logically belong

Field 18 [1]

'NEW' Field 18 Indication	To be output as below when 'OLD' is required
STS/ ALTRV	STS/ ALTRV
ATFMX	STS/ ATFMEXEMPTAPPROVED
FFR	STS/ FFR
FLTCK	STS/ FLTCK
HAZMAT	STS/ HAZMAT
HEAD	STS/ HEAD
HOSP	STS/ HOSP
HUM	STS/ HUM
MARSA	STS/ MARSA
MEDEVAC	STS/ MEDEVAC
NONRVSM	STS/ NONRVSM
SAR	STS/ SAR
STATE	STS/ STATE
EUR/ PROTECTED	STS/ PROTECTED
SUR/ nnnn	RMK/ SUR nnnn

Field 18 [2]

DEP/, DEST/, ALTN/, RALT/	DEP/, DEST/, ALTN/, RALT/ (Content as received but truncated when necessary)
DOF/	DOF/ for FPL only, Field 18 not to be provided in CHG, CNL, DLA & DEP messages
REG/	REG/
EET/	EET/
SEL/	SEL/
TYP/	TYP/ (truncated if necessary)
CODE/	CODE/
DLE/	Not output.
OPR/	OPR/
ORGN/	Not output.
PER/	PER/
TALT/nnnn	RMK/ TALT nnnn
RIF/	RIF/
NAV/, DAT/, COM/	See; **ANNEX 1** COM/NAV/SUR TRANSLATION TABLE

Field 10a [1]

	'NEW' Data Content		Converts to the following 'OLD' Data Content	
	Field 10a	**Field 18**	**Field 10a**	**Field 18**
NAV / COM	N		N	
	S		VOL	
	SF		S	
	A		**Z**	NAV/ GBAS
	B		**Z**	NAV/ LPV
	C		C	
	D		D	
	E1		**Z**	COM/ E1 RMK/FMC WPR ACARS
	E2		**Z**	COM/ E2 RMK/DFIS ACARS
	E3		**Z**	COM/ E3 RMK/PDC ACARS
	F		F	
	G	(NAV/nnnn)	G	(NAV/nnnn)
	H		H	
	I		I	
	J1		J[2]	DAT/ V COM/ J1
	J2		J	DAT/ H COM/ J2
	J3		J	DAT/ V COM/ J3
	J4		J	DAT/ V COM/ J4
	J5		J	DAT/ S COM/ J5
	J6		J	DAT/ S COM/ J6
	J7		J	DAT/ S COM/ J7
	K		K	
	L		L	

Field 10a [2]

	'NEW' Data Content		Converts to the following 'OLD' Data Content	
	Field 10a	**Field 18**	**Field 10a**	**Field 18**
	M1		Z	COM/ M1 RMK/INMARSAT
	M2		Z	COM/ M2 RMK/MTSAT
	M3		Z	COM/ M3 RMK/IRIDIUM
	O		O	
	P1-P9	Reserved	Not output	
	R	PBN/ A1	RZ	NAV/ A1 RMK/RNAV10 RNP10
		PBN/ B1	R	NAV/ B1 RMK/RNAV5
		PBN/ B2	R	NAV/ B2 RMK/RNAV5
		PBN/ B3	R	NAV/ B3 RMK/RNAV5
		PBN/ B4	R	NAV/ B4 RMK/RNAV5
		PBN/ B5	R	NAV/ B5 RMK/RNAV5
		PBN/ B6	R	NAV/ B6 RMK/RNAV5
		PBN/ C1	RZ	NAV/ C1 RMK/RNAV2
		PBN/ C2	RZ	NAV/ C2 RMK/RNAV2
		PBN/ C3	RZ	NAV/ C3 RMK/RNAV2
		PBN/ C4	RZ	NAV/ C4 RMK/RNAV2
		PBN/ D1	PR	NAV/ D1 RMK/RNAV1
		PBN/ D2	PR	NAV/ D2 RMK/RNAV1
		PBN/ D3	PR	NAV/ D3 RMK/RNAV1
		PBN/ D4	PR	NAV/ D4 RMK/RNAV1
		PBN/ L1	RZ	NAV/ L1 RMK/RNP4
		PBN/ O1	PRZ	NAV/ O1 RMK/RNP1
		PBN/ O2	PRZ	NAV/ O2 RMK/RNP1
		PBN/ O3	PRZ	NAV/ O3 RMK/RNP1
		PBN/ O4	PRZ	NAV/ O4 RMK/RNP1
		PBN/ S1	GZ	NAV/ S1 RMK/RNP APRCH
		PBN/ S2	GZ	NAV/ S2 RMK/RNP APRCH BARO VNAV
		PBN/ T1	GZ	NAV/ T1 RMK/RNP AR APRCH RF
		PBN/ T2	GZ	NAV/ T2 RMK/RNP AR APRCH

Field 10a [3]

	'NEW' Data Content		Converts to the following 'OLD' Data Content	
	Field 10a	Field 18	Field 10a	Field 18
	T		T	
	U		U	
	V		V	
	W		W	
	X		X	
	Y		Y	
	Z	COM/ EXM833	*See Footnote* [3]	STS/ EXM833
	Z	COM/ nnnn	Z	COM/ nnnn
	Z	NAV/ RNAVX	*See Footnote* [3]	STS/ NONRNAV
	Z	NAV/RNAVINOP	*See Footnote* [3]	STS/ RNAVINOP
	Z	NAV/ nnnn	Z	NAV/ nnnn
	Z	DAT/ CPDLCX	*See Footnote* [3]	STS/ CPDLCX
	Z	DAT/ S, H, V, M or DAT/ nnnn	JZ Z	DAT/ S, H, V, M [4] COM/ nnnn [4]

[3] The translation shall result in the removal of the 'Z' if no other data is present within either of the COM/ or NAV/ indicators

[4] The NEW definition of DAT/ allows free text, the OLD definition does not. If the NEW DAT/ is compliant with the OLD definition it shall be retained within DAT/ and a 'J' added in Field 10a, if the NEW DAT/ contains free text it shall be translated into COM/.

Field 10b

	'NEW' Data Content		Converts to the following 'OLD' Data Content	
	Field 10b	Field 18	Field 10b	Field 18
SUR/	N		N	
	A		A	
	C		C	
	E		SD	COM/ E
	H		S	COM/ H
	I		I	
	L		SD	COM/ L
	P		P	
	S		S	
	X		X	
	B1		D	COM/ B1
	B2		D	COM/ B2
	U1		D	COM/ U1
	U2		D	COM/ U2
	V1		D	COM/ V1
	V2		D	COM/ V2
	D1		D	COM/ D1
	G1		D	COM/ G1

Impact

NAV, COM & SUR Changes

“Navigation and Approach Aid Equipment and Capabilities”

- Todays Capabilities (EUR/NAT)

Via Field 10 :

R	B-RNAV	P	P-RNAV
X	MNPS		

NAV, COM & SUR Changes cont.

- NAV Capabilities from Nov 2012

Via Field 10 :

A	GBAS landing system	B	LPV (APV with SBAS)
X	~~MNPS Approved~~	R	~~PBN Approved~~

Via Field 18 PBN/ :

A1	RNAV 10 (RNP 10)
B1	RNAV 5 all permitted sensors
B2	RNAV 5 GNSS
B3	RNAV 5 DME/DME
B4	RNAV 5 VOR/DME
B5	RNAV 5 INS or IRS
B6	RNAV 5 LORAN C
C1	RNAV 2 all permitted sensors
C2	RNAV 2 GNSS
C3	RNAV 2 DME/DME
C4	RNAV 2 DME/DME/IRU
D1	RNAV 1 all permitted sensors
D2	RNAV 1 GNSS
D3	RNAV 1 DME/DME
D4	RNAV 1 DME/DME/IRU
L1	RNP 4
O1	Basic RNP 1 all permitted sensors
O2	Basic RNP 1 GNSS
O3	Basic RNP 1 DME/DME
O4	Basic RNP 1 DME/DME/IRU
S1	RNP APCH
S2	RNP APCH with BARO-VNAV
T1	RNP AR APCH with RF (special authorization required)
T2	RNP AR APCH without RF (special authorization required)

NAV, COM & SUR Changes cont.

- SUR Capabilities from Nov 2012

A	Mode A (4 digits — 4 096 codes)
C	Mode A (4 digits — 4 096 codes) and Mode C
E	Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability
H	Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability
I	Mode S, including aircraft identification, but no pressure-altitude capability
L	Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS-B) and enhanced surveillance capability
P	Mode S, including pressure-altitude, but no aircraft identification capability
S	Mode S, including both pressure altitude and aircraft identification capability
X	Mode S with neither aircraft identification nor pressure-altitude capability
B1	ADS-B with dedicated 1090 MHz ADS-B “out” capability
B2	ADS-B with dedicated 1090 MHz ADS-B “out” and “in” capability
U1	ADS-B “out” capability using UAT
U2	ADS-B “out” and “in” capability using UAT
V1	ADS-B “out” capability using VDL Mode 4
V2	ADS-B “out” and “in” capability using VDL Mode 4
D1	ADS-C with FANS 1/A capabilities
G1	ADS-C with ATN capabilities

NAV, COM & SUR Changes cont.

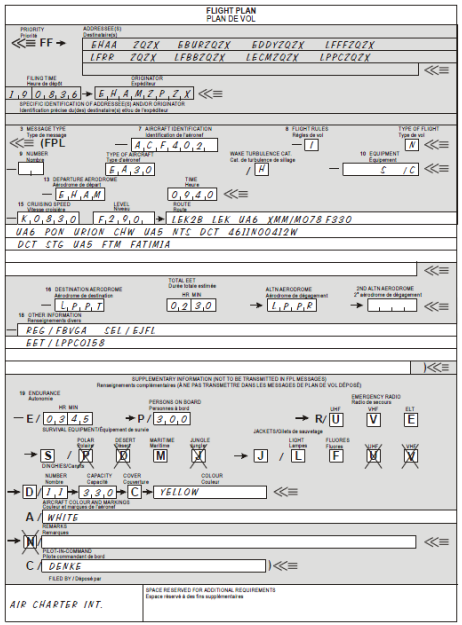
- COM Capabilities from Nov 2012

E1	FMC WPR ACARS
E2	D-FIS ACARS
E3	PDC ACARS
H	HF RTF
J1	CPDLC ATN VDL Mode 2
J2	CPDLC FANS 1/A HFDL
J3	CPDLC FANS 1/A VDL Mode 4
J4	CPDLC FANS 1/A VDL Mode 2
J5	CPDLC FANS 1/A SATCOM (INMARSAT)
J6	CPDLC FANS 1/A SATCOM (MTSAT)
J7	CPDLC FANS 1/A SATCOM (Iridium)
M1	ATC RTF SATCOM (INMARSAT)
M2	ATC RTF (MTSAT)
M3	ATC RTF (Iridium)
U	UHF RTF
V	VHF RTF
Y	VHF with 8.33 kHz channel spacing capability

Impact – Data Granularity

<u>AOCC / ARO / Flight Briefing</u>

Aircraft & Crew Capabilities/Approvals



<u>ATC / Airspace & Airport Planning</u>

Airspace Requirements

Arrival/Departure procedures per aerodrome/per runway

Impact - General

Aircraft Operator

- Flight Planning systems
- Aircraft Operations Centre staff awareness & procedures
- Pilot awareness & Terminology
- Aircraft & Pilot capabilities/qualifications
- (Electronic) Flight Bag ?
- FMS ?

Air Traffic Management

- FDPS / RDPS & MMIs
- Staff awareness & procedures
- AROs & related flight planning systems
- Military
- APP & Tower systems
- Airports

Others processing FPL Data

- Strategic Planning & Load Monitoring
- CRCO, Route Charges systems
- Archive systems, Statistics
- Simulators
- Research, Studies,
- Etc.

CFMU 16 Impact – March 2012

- IFPS will differentiate between Old and New formats therefore an FPL in Old format but containing a New data item may fail

- Update to a field(s) via CHG message must provide complete information for the field concerned

  e.g. to modify a single element within Field 18 the complete Field 18 must be provided, not just the modified element

Safety Register

- A high level assessment of the main safety considerations, possible resolutions and affected stakeholder(s)
- Performed with the EUR 2012 Task Force on 6 Dec 2010
  - Representatives from ANSPs, Regulators, AOs, CFSPs & CFMU
- 'ICAO 2012 Safety Register' first published end 2010 as first version of a living document. (also available as a spreadsheet)
- Available via EUROCONTROL CFMU and ICAO Paris web sites

Further Information

- All 2012 related information is available via the web site:
  - ‘EUR Implementation Plan’
  - ‘EUR Test Plan’ inc. Registration Forms
  - ‘CFMU Interface Manual for ICAO 2012’
  - ‘ICAO 2012 Safety Register’

http://www.cfmu.eurocontrol.int/cfmu/public/subsite_homepage/homepage.html

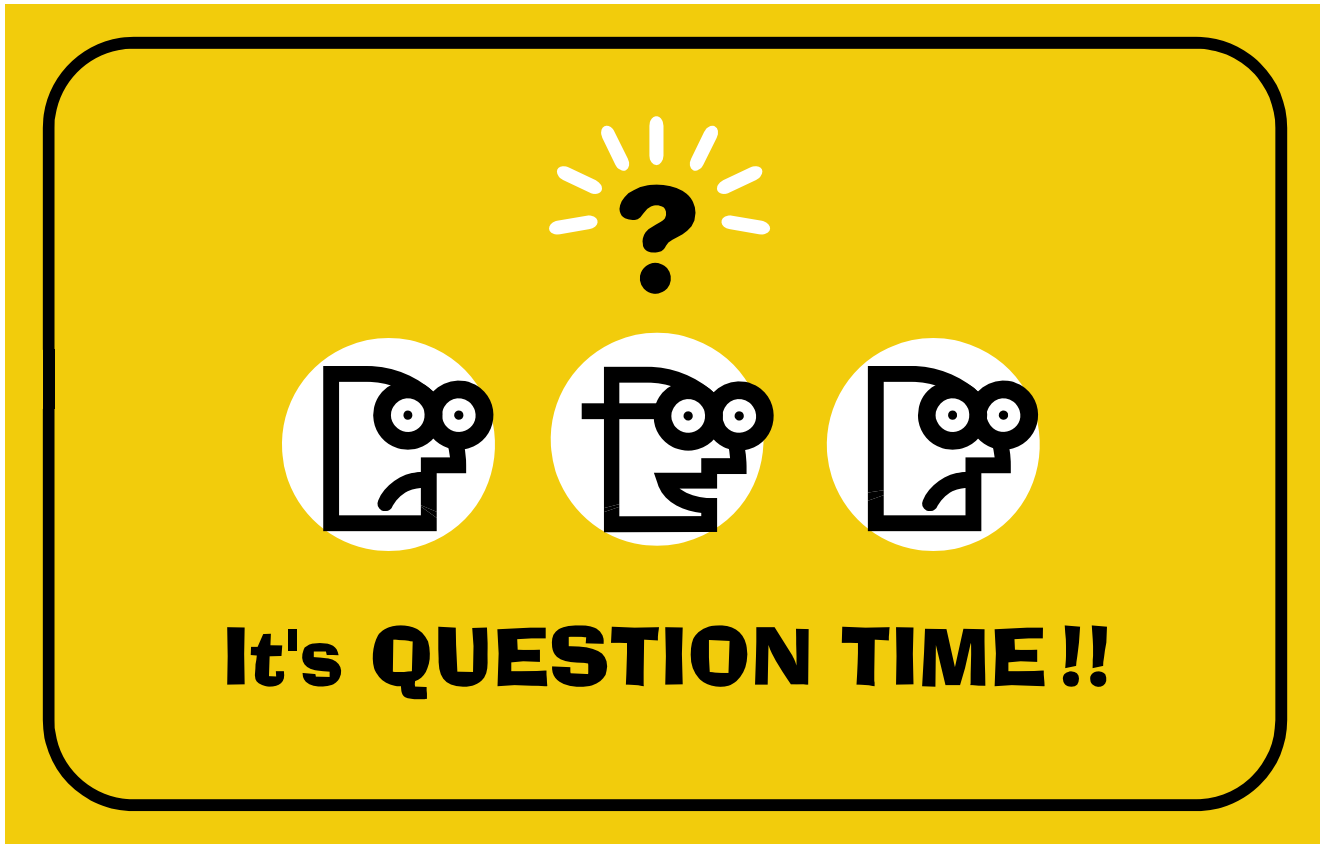
Contact: dnm.fpl2012@eurocontrol.int

Summary

Approx 80% of flight planning messages, as filed today, will be invalid from 15 Nov this year.

Any system creating/processing flight plan messages today will probably be unable to continue after 15 Nov without modifications.

Operational personnel need to understand and procedures adapted accordingly.


It's QUESTION TIME!!

Testing

- Three types of Testing activity:
  - IFPUV
  - Static – exchange of test data files
  - OPT – on-line dedicated test sessions
    - OPT1: 30 January – 3 February 2012
    - OPT2: 20 – 24 February 2012
    - OPT3: 07 – 11 May 2012
    - OPT4: 04 – 08 June 2012
    - OPT5: 03 – 07 September 2012
    - OPT6: 24 – 28 September 2012
- Participation open to all, EUR and non-EUR

Training

- Computer Based Training (CBT) to be made available via Network Operations web pages
- Aimed primarily at flight plan originators
- Provides guidance concerning 2012 flight planning changes and how they impact EUR and IFPS operations
- To be available March 2012