



Network Manager
nominated by
the European Commission



Presentation of NM 22.0

FB924: Rerouting Improvements - CHMI

- Why this FB is being developed?
 - To support users of NM rerouting services
- What is the main business objective?
 - Improve the **rerouting services** provided by NM
- What was the problem it intends to solve?
 - Improve the **information** associated to the alternatives
 - Enhance the **options** available on the rerouting tools
 - Improve the operational **usability** and user experience on:
 - CHMI AOWIR
 - CHMI IFPUV

CHMI AOWIR shall present IFPS valid alternatives

Problem Statement

- When using **CHMI AOWIR**, the system provides alternatives that may or may not be IFPS compliant
- User has to “try” each alternative individually to visualize the possible errors
- The change will make AOWIR to present only IFPS valid alternatives

Added value of the change

- Improving **information** presented on the route alternatives
- Improving usability to external users by displaying only **routes which can be utilized**
- Reduce unnecessary **workload**

Review of existing features

CHMI AOWIR shall present IFPS valid alternatives

- Select the desired flight from the flight list

TV EBBRARR Flight List at 07-09:40 / ATFCM

Wed 07 Mar 2018 WEF 09:00 UNT 13:00

TFC Type: Traffic Load Where: Traffic Volume Is: EBBRARR

Flow: AO(s): FMP:

Show Forecast Show VFR/OAT at Aerodrome

READY Flights Only FLS 56 flights

ENTRY	STA	ARCID	ATYP	ADEP	ADES	D	RM	T	ARF	IOBT	LV	U	E/...	X	F	S	CL	AT	TOBT	TSAT	TT	A/...	Delay	E/...	R	Opp	MSG	REGUL+	O	TI	EFL	TM	XFL	TO		
11:20E	DLH3VV	A320	EDDF	EBBR	DAIUP	I	220	10:25	+14:25	10:42E	N	I	C	10:25	17	10:42t	11:20E	N	A	220																
11:28E	BEL74H	A319	EDDH	EBBR	OOSV	I	280	10:25	+14:25	10:34E	N	I	C	10:25	9	10:34t	11:28E	N	A	280																
11:32E	BEL714	A320	LSGG	EBBR	OOSNH	I	300	10:25	+14:25	10:35E	N	I	C																							
11:41E	BMR203B	E145	EGGD	EBBR	GCKAF	I	270	10:40	+14:40	10:50E	N	I	S																							
11:47E	BEL64N	SU95	LFRS	EBBR	EIFWC	I	320	10:45	+14:45	10:55E	N	I	S																							
11:50E	BEL63K	E145	EDDV	EBBR	GCKAG	I	240	10:55	+14:55	11:00E	N	I	S																							
11:50E	BEL85A	A319	LKPR	EBBR	OOSSO	I	360	10:40	+14:40	10:49E	N	I	C	10:40																						
11:54E	BEL69C	A319	EGBB	EBBR	OOSSL	I	290	10:50	+14:50	11:05E	N	I	S																							
11:57E	BAW396	A319	EGLL	EBBR	GEUOC	I	190	11:00	+15:00	11:20E	N	I	C	11:00																						
11:58E	BEL2094	A320	EGLL	EBBR	OOTCQ	I	230	11:05	+15:05	11:20E	N	I	C	11:05																						
12:08E	BEL88L	A319	LFLI	EBBR	OOSSM	I	280	10:50	+14:50	11:00E	N	I	C																							
12:13E	BEL23Z	A319	EKCH	EBBR	OOSSC	I	380	10:50	+14:50	11:02E	N	I	C																							
12:16E	SAS1591	A320	EKCH	EBBR	OYKAN	I	380	10:50	+14:50	11:02E	N	I	C																							

IOBD: 07/03/2018 - Last EOBT: 10:25 07/03/2018
 Flight Type: IFPL /RFI
 CTOT Limit:
 Reroute Try and Apply possible

Field15 query finished with success

Context Menu:

- Flight Data Ctrl+Alt+F
- Point Profile Ctrl+Alt+P
- Airspace Profile Ctrl+Alt+S
- Flight History Ctrl+Alt+H
- Operational Log Ctrl+Alt+O
- Departure Aerodrome Delays Ctrl+Alt+D
- Rerouting Function Ctrl+Alt+J**
- Display Extra Info
- Plot Selected
- SIP Wanted Message Ctrl+Alt+W
- Flight Confirmation Message Ctrl+Alt+C

Review of existing features

CHMI AOWIR *Create New*



- 'Create New' option will show the Reroute preparation display
 - Filled in with the route of the alternative selected
 - Empty and ready for manual edition if no alternative is selected
- To unselect an alternative *Ctrl + left click* of the mouse

AC RYR88QD Alternate Routes at 02-11:21 / ATFCM

IOBD **Wed 02 May 2018** IOBT **11:40**

ARCID **RYR88QD** ADEP **EDSB** ADES **EGSS**

Take Off Time - Estimated **11:45**
 - Calculated
 Shift+Delay ***0* minute**
 Estimated Elapsed Time **71 minutes**
 Most Penalising Regulation

Aircraft Type **B738**
 Initial Requested Level **180**
 Initial Requested Speed **N0338**
 Route Length **433 NM**

Generate & Evaluate freeze TP Horizontal Alternatives Via AS Avoid AS
 Via PT Avoid PT

Create New MAX Shift + Delay 0 Standard Generated Manual IFPS-compliant only

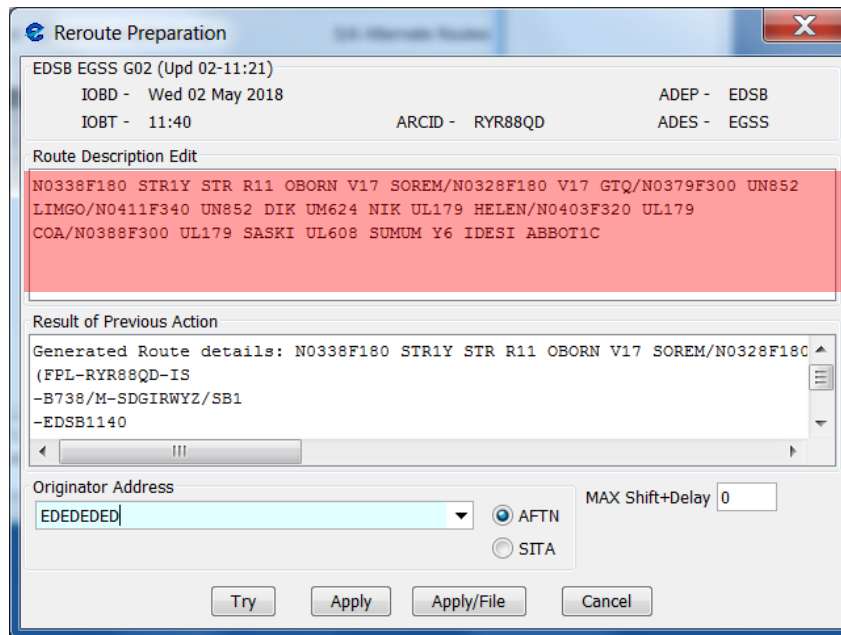
S	Route	CDR	Error	TOT	S+Delay	Diff	EET	Diff	NM	Diff	FCI
	EDSB EGSS 2		Ok				76	5	435	2	3008
	EDSB EGSS 5001	2	Ok				76	5	433	0	3008
	EDSB EGSS G03		Ok				77	6	447	14	3055
	EDSB EGSS G04		Ok				78	7	447	14	3063
	EDSB EGSS G05		Ok				79	8	455	22	3117



Review of existing features

CHMI AOWIR *Create New*

- If one alternative is selected then
 - The 'Reroute Preparation' description editor is filled in with the alternative selected



Reroute Preparation

EDSB EGSS G02 (Upd 02-11:21)
IOBD - Wed 02 May 2018
IOBT - 11:40
ARCID - RYR88QD
ADEP - EDSB
ADES - EGSS

Route Description Edit

N0338F180 STR1Y STR R11 OBORN V17 SOREM/N0328F180 V17 GTQ/N0379F300 UN852
LIMGO/N0411F340 UN852 DIK UM624 NIK UL179 HELEN/N0403F320 UL179
COA/N0388F300 UL179 SASKI UL608 SUMUM Y6 IDESI ABBOT1C

Result of Previous Action

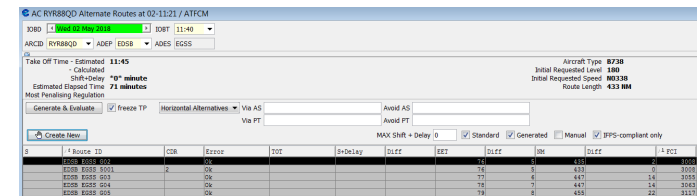
Generated Route details: N0338F180 STR1Y STR R11 OBORN V17 SOREM/N0328F180
(FPL-RYR88QD-IS
-B738/M-SDGIRWYZ/SB1
-EDSB1140

Originator Address
EDEDDED

MAX Shift+Delay 0

AFTN
 SITA

Try Apply Apply/File Cancel



AC RYR88QD Alternate Routes at 02-11:21 / ATRCM

JOB# 12 Wed 02 May 2018 IOBT 11:40
ARCID RYR88QD ADEP EDSB ADES EGSS

Take Off Time - Estimated 11:45
- Calculated
DOW-Delay *0* minutes
Estimated Elapsed Time 71 minutes
Fuel Penetration Requirement

Generate & Evaluate Freeze TP Horizontal Alternatives Via AS AVOID AS
Via FT AVOID FT

MAX SHR + Delay 0 Standard Generated Manual IOPS-compliant only

#	Route ID	CSB	Equip	TOC	InDelay	DCCF	BEP	DCCF	NM	DCCF	PCC
1	EDSB EGSS G02	2	OK								
2	EDSB EGSS S01		OK								
3	EDSB EGSS S03		OK								
4	EDSB EGSS S04		OK								
5	EDSB EGSS S05		OK								

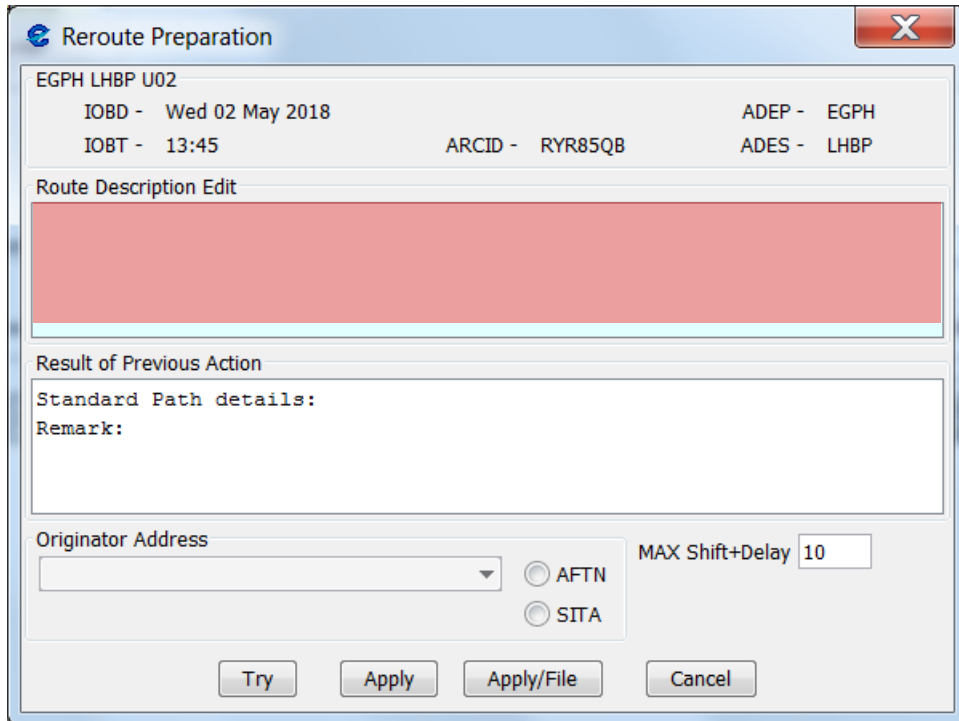


Alternative selected

Review of existing features

CHMI AOWIR Create New

- If none of the alternatives is selected then:
 - The 'Reroute Preparation' description editor is empty for manual input



Reroute Preparation

EGPH LHBP U02

IOBD - Wed 02 May 2018 ADEP - EGPH

IOBT - 13:45 ARCID - RYR85QB ADES - LHBP

Route Description Edit

Result of Previous Action

Standard Path details:

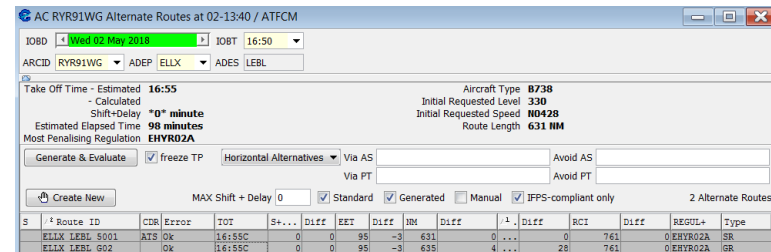
Remark:

Originator Address

AFTN SITA

MAX Shift+Delay 10

Try Apply Apply/File Cancel



AC RYR91WG Alternate Routes at 02:13:40 / ATFCM

IOBD Wed 02 May 2018 IOBT 16:50

ARCID RYR91WG ADEP ELLX ADES LEBL

Take Off Time - Estimated 16:55 Aircraft Type **B738**

Shift+Delay *0* minute Initial Requested Level **330**

Estimated Elapsed Time **98 minutes** Initial Requested Speed **N0428**

Most Penalising Regulation **EHYR02A** Route Length **631 NM**

Generate & Evaluate freeze TP Horizontal Alternatives Via AS Avoid AS

Via PT Avoid PT

Create New

MAX Shift + Delay 0 Standard Generated Manual IFPS-compliant only 2 Alternate Routes

S	Route ID	CDR	Error	TOT	S+...	Diff	EET	Diff	NM	Diff	1. Diff	RCI	Diff	REGUL+	Type
	ELLX LEBL 5001	ATS	OK	16:55C	0	0	95	-3	631	0	...	0	761	0.EHYR02A	SR
	ELLX LEBL 602		OK	16:55C	0	0	95	-3	635	4	...	28	761	0.EHYR02A	CR

No alternative selected

Review of existing features

CHMI AOWIR

'Apply (book)' and 'Apply (file)'

Accessible from the alternatives list

- Apply (book): cancels the original flight plan, books a slot for 30 minutes waiting for a manual refile.
- Apply (file): books a slot and refiles with the alternative route.

AC RYR91WG Alternate Routes at 02-13:40 / ATFCM

IOBD Wed 02 May 2018 IOBT 16:50

ARCID RYR91WG ADEP ELLX ADES LEBL

Take Off Time - Estimated **16:55**
 - Calculated
 Shift+Delay ***0* minute**
 Estimated Elapsed Time **98 minutes**
 Most Penalising Regulation **EHYR02A**

Aircraft Type **B738**
 Initial Requested Level **330**
 Initial Requested Speed **N0428**
 Route Length **631 NM**

freeze TP Horizontal Alternatives Via AS Avoid AS
 Via PT Avoid PT

MAX Shift + Delay Standard Generated Manual IFPS-compliant only

S	Route ID	CDR	Error	TOI	S+Delay	Diff	EET	Diff	NM	Diff	FCI
	ELLX LEBL 5001	ATS	Ok	16:55C	0	0	95		60		3845
	ELLX LEBL G02		Ok	16:55C	0	0	95		4		3873

Create New Ctrl+Alt+C

Apply (book) Ctrl+Alt+A

Apply (file) Ctrl+Alt+L

Plot Route

Plot All Routes

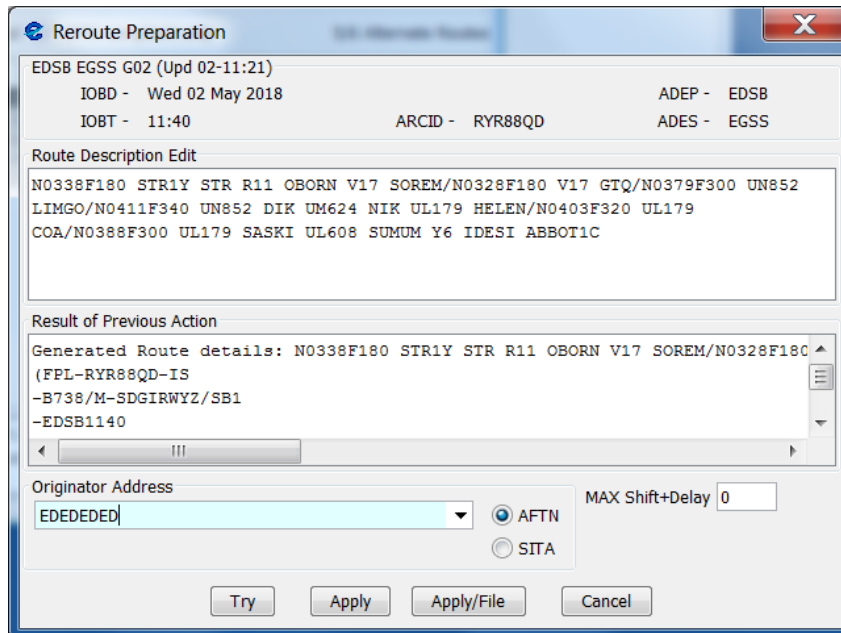
Review of existing features

CHMI AOWIR

'Apply (book)' and 'Apply (file)'

Accessible from the Reroute Preparation display

- Apply : cancels the original flight plan, books a slot for 30 minutes waiting for a manual refile.
- Apply/File: books a slot and refiles with the alternative route.



The screenshot shows the 'Reroute Preparation' window with the following details:

- EDSB EGSS G02 (Upd 02-11:21)
- IOBD - Wed 02 May 2018
- IOBT - 11:40
- ARCID - RYR88QD
- ADEP - EDSB
- ADES - EGSS

Route Description Edit:

```
N0338F180 STR1Y STR R11 OBORN V17 SOREM/N0328F180 V17 GTQ/N0379F300 UN852  
LIMGO/N0411F340 UN852 DIK UM624 NIK UL179 HELEN/N0403F320 UL179  
COA/N0388F300 UL179 SASKI UL608 SUMUM Y6 IDESI ABBOT1C
```

Result of Previous Action:

```
Generated Route details: N0338F180 STR1Y STR R11 OBORN V17 SOREM/N0328F180  
(FPL-RYR88QD-IS  
-B738/M-SDGIRWYZ/SB1  
-EDSB1140
```

Originator Address: EDEDEDED

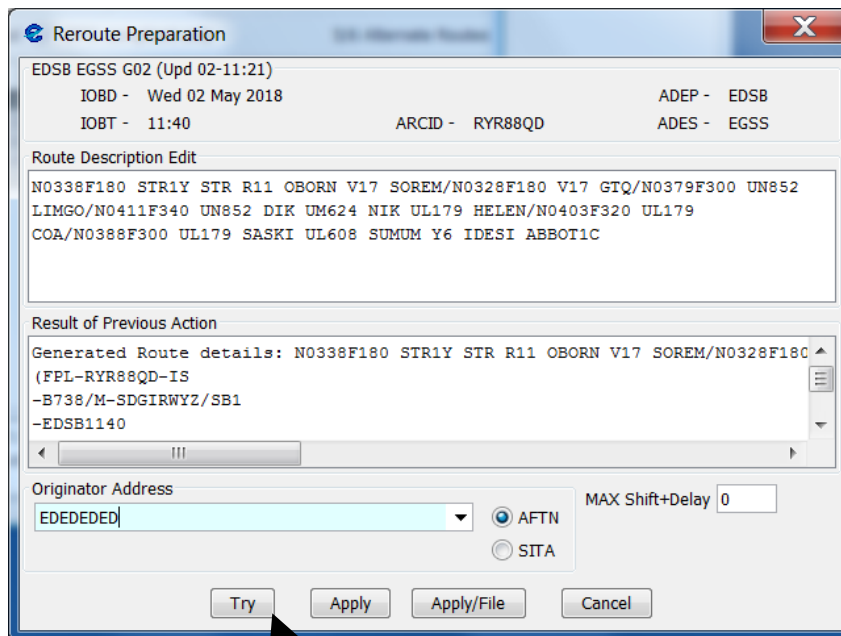
MAX Shift+Delay: 0

Buttons: Try, Apply, Apply/File, Cancel

Review of existing features

CHMI AOWIR 'Try' 'Apply (book)' and 'Apply (file)'

- 'Try': accessible after selecting 'Create New' option.
It will return the feedback of the alternative present in the reroute preparation
It will add it to the alternatives list.

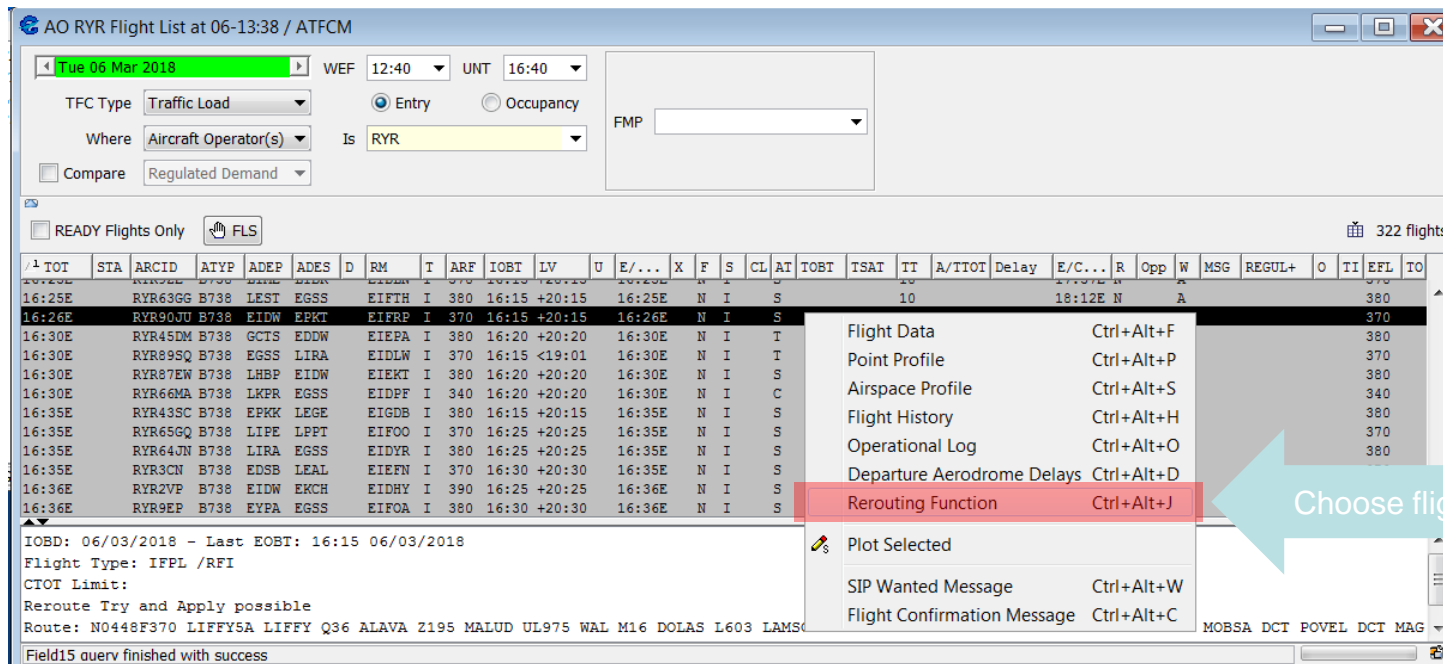


Review of existing features

CHMI AOWIR shall present IFPS valid alternatives

AOWIR previous procedure in 21.5

- Right click on desired flight
- Select option “Rerouting function”



The screenshot shows the 'AO RYR Flight List at 06-13:38 / ATFCM' window. The flight list table is as follows:

TO	STA	ARCID	ATYP	ADEP	ADES	D	RM	T	ARF	IOBT	LV	U	E/...	X	F	S	CL	AT	TOBT	TSAT	TI	A/TTOT	Delay	E/C...	R	Opp	W	MSG	REGUL+	O	TI	EFL	TO
16:25E	RYR63GG	B738	LEST	EGSS	EIFTH	I	380	16:15	+20:15	16:25E	N	I	S							10			18:12E	N	A						380		
16:26E	RYR90JU	B738	EIDW	EPKT	EIFRP	I	370	16:15	+20:15	16:26E	N	I	S																			370	
16:30E	RYR45DM	B738	GCTS	EDDW	EIEPA	I	380	16:20	+20:20	16:30E	N	I	T																			380	
16:30E	RYR89SQ	B738	EGSS	LIRA	EIDLW	I	370	16:15	<19:01	16:30E	N	I	T																			370	
16:30E	RYR87EW	B738	LHBP	EIDW	EIEKT	I	380	16:20	+20:20	16:30E	N	I	S																			380	
16:30E	RYR66MA	B738	LKPR	EGSS	EIDPF	I	340	16:20	+20:20	16:30E	N	I	C																			340	
16:35E	RYR43SC	B738	EPKK	LEGE	EIGDB	I	380	16:15	+20:15	16:35E	N	I	S																			380	
16:35E	RYR65GQ	B738	LIPE	LPPT	EIFOO	I	370	16:25	+20:25	16:35E	N	I	S																			370	
16:35E	RYR64JN	B738	LIRA	EGSS	EIDYR	I	380	16:25	+20:25	16:35E	N	I	S																			380	
16:35E	RYR3CN	B738	EDSB	LEAL	EIEFN	I	370	16:30	+20:30	16:35E	N	I	S																			380	
16:36E	RYR2VP	B738	EIDW	EKCH	EIDHY	I	390	16:25	+20:25	16:36E	N	I	S																			380	
16:36E	RYR9EP	B738	EYPA	EGSS	EIFOA	I	380	16:30	+20:30	16:36E	N	I	S																			380	

The context menu is open over the flight 16:26E, and the 'Rerouting Function' option is highlighted in red. A blue arrow points to this option with the text 'Choose flight to reroute'. Other menu items include Flight Data, Point Profile, Airspace Profile, Flight History, Operational Log, Departure Aerodrome Delays, Plot Selected, SIP Wanted Message, and Flight Confirmation Message.

Review of existing features

CHMI AOWIR shall present IFPS valid alternatives

AOWIR previous procedure in 21.5

- Right click on desired route
- Select option “Reroute Try”

AC RYR8592 Alternate Routes at 06-12:40 / ATFCM

IOBD **Tue 06 Mar 2018** IOBT 12:47

ARCID RYR8592 ADEP EGSS ADES LFBE

Take Off Time - Estimated **13:02**
 - Calculated
 Shift+Delay ***0* minute**
 Estimated Elapsed Time **86 minutes**
 Most Penalising Regulation

Aircraft Type **B738**
 Initial Requested Level **220**
 Initial Requested Speed **N0359**
 Route Length **504 NM**

Generate Via AS Avoid AS
 Via PT Avoid PT

MAX Shift + Delay Standard Generated Manual

S	Route ID	CDR	IOI	S+Delay	Diff	EET	DiF
T	EGSS LFBE G01						88
T	EGSS LFBE G02						89
	EGSS LFBE G03						
	EGSS LFBE G04						
	EGSS LFBE G05						
E	EGSS LFBE 5002	1					

Select desired reroute option

Review of existing features

CHMI AOWIR shall present IFPS valid alternatives

AOWIR previous procedure in 21.5

- Potential outcome/system response:

Request 'Try' Failed: 07-14:02 - Not IFPS Compliant

Standard Route details: N0460F370 NORBO1H NORBO Y96 NATEB N...
IFPS Message: RS: TRAFFIC VIA TOPPA GMH:F265..F660 IS ON FORBIDDEN ROUTE REF:[YX5368A] TOPPA DCT GMH FRA MAASTRICHT
Remark:

Reroute Try query finished with success

CHMI AOWIR shall present IFPS valid alternatives

AOWIR – Improved procedure in 22.0

- Standard routes and Pathfinder alternatives are automatically generated and presented
- New checkbox “IFPS-compliant only” selected by default
- “Generate & Evaluate” to be selected in order to present alternatives after changing the default options

AC RYR71CL Alternate Routes at 02-08:55 / ATFCM

IOBD **Wed 02 May 2018** IOBT **13:45**

ARCID **RYR71CL** ADEP **EGSS** ADES **LIRP**

Take Off Time - Estimated **14:00** Aircraft Type **B738**
 - Calculated Initial Requested Level **230**
 Shift+Delay ***0* minute** Initial Requested Speed **N0374**
 Estimated Elapsed Time **114 minutes** Route Length **758 NM**
 Most Penalising Regulation

Generate & Evaluate freeze TP Horizontal Alternatives Via AS Avoid AS
 Via PT Avoid PT

Create New MAX Shift + Delay **0** Standard Generated Manual **IFPS-compliant only** 8 Alternate Routes

S	Route ID	CDR	Error	TOI	S+...	Diff	EET	Diff	NM	Diff	1	Diff	RCI	Diff	REGUL+	Type
	EGSS LIRP 5001	2	Not IF...													SR
	EGSS LIRP 5002	2	Not IF...													SR
	EGSS LIRP 5004	2	Not IF...													SR
	EGSS LIRP 5005	ATS	Not IF...													SR
	EGSS LIRP 5007	2	Not IF...													SR
	EGSS LIRP G02		Ok	14:00C	0	0	114	0	755	-3	...	-14	1121	0	YBOLN02A	GR
	EGSS LIRP G03		Overload				120	6	793	35	...	186	1187	66		GR
	EGSS LIRP G04		Overload				121	7	804	46	...	245	1187	66		GR

CHMI AOWIR shall present IFPS valid alternatives

AOWIR – Improved procedure in 22.0

- The filtered and the total results are summarized in a counter showing the number of IFPS compliant / total number of alternatives.

AC RYR71CL Alternate Routes at 02-08:55 / ATFCM

IOBD: Wed 02 May 2018 IOBT: 13:45

ARCID: RYR71CL ADEP: EGSS ADES: LIRP

Take Off Time - Estimated: 14:00
 - Calculated Shift+Delay: *0* minute
 Estimated Elapsed Time: 114 minutes
 Most Penalising Regulation

Aircraft Type: B738
 Initial Requested Level: 230
 Initial Requested Speed: N0374
 Route Length: 758 NM

Generate & Evaluate freeze TP Horizontal Alternatives Via AS Avoid AS
 Via PT Avoid PT

Create New MAX Shift + Delay 0 Standard Generated Manual IFPS-compliant only 8 Alternate Routes

S	/ ² Route ID	CDR	Error	TOI	S+...	Diff	EET	Diff	NM	Diff	/ ¹ . Diff	RCI	Diff	REGUL+	Type
	EGSS LIRP 5001	2	Not IF...												SR
	EGSS LIRP 5002	2	Not IF...												SR
	EGSS LIRP 5004	2	Not IF...												SR
	EGSS LIRP 5005	ATS	Not IF...												SR
	EGSS LIRP 5007	2	Not IF...												SR
	EGSS LIRP G02		Ok	14:00C	0	0	114	0	755	-3	...	-14	1121	0 YBOLN02A	GR
	EGSS LIRP G03		Overload				120	6	793	35	...	186	1187	66	GR
	EGSS LIRP G04		Overload				121	7	804	46	...	245	1187	66	GR

Create New MAX Shift + Delay 0 Standard Generated Manual IFPS-compliant only 3/8 Alternate Routes

S	/ ² Route ID	CDR	Error	TOI	S+...	Diff	EET	Diff	NM	Diff	/ ¹ . Diff	RCI	Diff	REGUL+	Type
	EGSS LIRP G02		Ok	14:00C	0	0	114	0	755	-3	...	-14	1121	0 YBOLN02A	GR
	EGSS LIRP G03		Overload				120	6	793	35	...	186	1187	66	GR
	EGSS LIRP G04		Overload				121	7	804	46	...	245	1187	66	GR

CHMI AOWIR shall present overload valid alternatives and withdraw false overload positives

Problem Statement

- Currently, AOWIR does not deliver any alternatives where the capacities have been reached (overload), while IFPS proposals do not check possible overloads.
- The change aims at allowing CHMI AOWIR to present re-routings alternatives without overload information where existing overloads are not deteriorated.

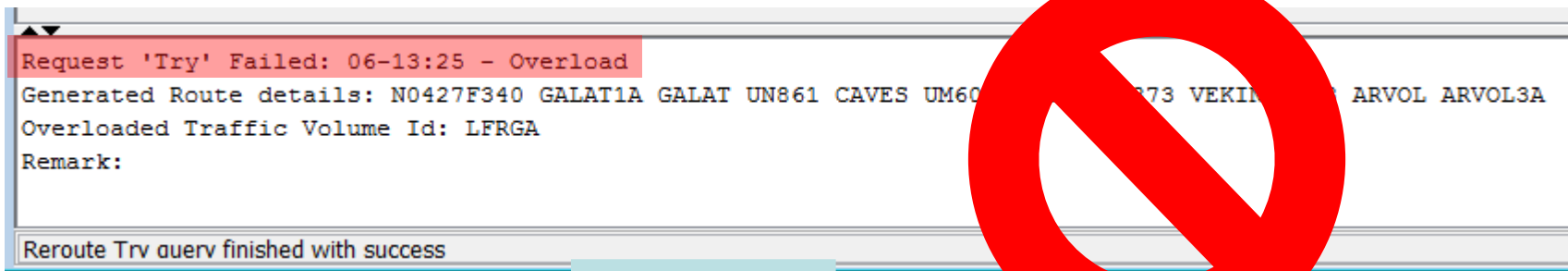
CHMI AOWIR shall present overload valid alternatives and withdraw false overload positives



➔ In NM 21.5 the Proposed trajectory is presented with an overload deterioration

New features

CHMI AOWIR shall present overload valid alternatives and withdraw false overload positives



AC BEL41E Alternate Routes at 07-09:47 / ATFCM

IOBD: Wed 07 Mar 2018 IOBT: 11:05

ARCID: BEL41E ADEP: LHBP ADES: EBBR

Take Off Time - Estimated: 11:15
 - Calculated Shift+Delay: *0* minute
 Estimated Elapsed Time: 97 minutes
 Most Penalising Regulation

Aircraft Type: A319
 Initial Requested Level: 380
 Initial Requested Speed: N0450
 Route Length: 639 NM

Generate & Evaluate freeze TP Horizontal Alternatives Via AS Avoid AS
 Via PT Avoid PT

MAX Shift + Delay: 0 Standard Generated Manual IFPS-compliant only 2 Alternate Routes

Route ID	CDR	Error	TOT	S+Delay	Diff	EET	Diff	NM	Diff	FCI	Diff	RCI	Diff	RE...	Type
LHBP EBBR G02	Ok					94	-3	638	-1	3539	-7	715	0		GR
LHBP EBBR G03	Ok					95	-2	640	1	3552	6	716	1		GR

Problem Statement

- When using CHMI AOWIR, the user is not provided with **relevant data** on the alternatives that are generated.
- The user is not provided with important **rerouting options** to search for alternatives.

Added value of the change

- Improving **information** presented on the route **alternatives**
- Improving **usability** to external users by displaying only routes which can be utilized

Additional AOWIR options and data to improve usability

- Freeze TP (Terminal Procedure): Keeps the STAR/SID frozen in the computation of alternatives.
- Horizontal Alternative / Vertical Alternative: Permits to explicitly search for horizontal or vertical alternatives.
 - The default is set to 'Horizontal Alternatives'.
 - The 'Vertical Alternative' option has to be selected in combination with the 'Avoid AS' option. The airspace set in the avoid condition will not be flown.

AC BEL41E Alternate Routes at 07-09:47 / ATFCM

IOBD Wed 07 Mar 2018 IOBT 11:05

ARCID BEL41E ADEP LHBP ADES EBBR

Take Off Time - Estimated **11:15**
 - Calculated
 Shift+Delay ***0* minute**
 Estimated Elapsed Time **97 minutes**
 Most Penalising Regulation

Aircraft Type **A319**
 Initial Requested Level **380**
 Initial Requested Speed **N0450**
 Route Length **639 NM**

freeze TP Horizontal Alternatives Via AS Avoid AS
 Via PT Avoid PT

MAX Shift + Delay Standard Generated Manual IFPS-compliant only 2 Alternate Routes

Route ID	CDR	Error	TOT	S+Delay	Diff	EET	Diff	NM	Diff	FCI	Diff	RCI	Diff	RE...	Type
LHBP EBBR G02		Ok				94	-3	638	-1	3539	-7	715	0		GR
LHBP EBBR G03		Ok				95	-2	640	1	3552	6	716	1		GR

Additional AOWIR options and data to improve usability

- FCI/RCI: Provides the **fuel consumption (KG)** indicator and **route charge (EUR)** indicator for the alternatives presented.
- The 'Diff' column presents the difference between original and the alternative.

AC BEL41E Alternate Routes at 07-09:47 / ATFCM

IOBD: Wed 07 Mar 2018 IOBT: 11:05

ARCID: BEL41E ADEP: LHBP ADES: EBBR

Take Off Time - Estimated: **11:15**
 - Calculated
 Shift+Delay: ***0* minute**
 Estimated Elapsed Time: **97 minutes**
 Most Penalising Regulation

Aircraft Type: **A319**
 Initial Requested Level: **380**
 Initial Requested Speed: **N0450**
 Route Length: **639 NM**

Generate & Evaluate freeze TP Horizontal Alternatives Via AS Avoid AS
 Via PT Avoid PT

Add MAX Shift + Delay: 0 Standard Generated Manual IFPS-compliant only 2 Alternate Routes

Route ID	CDR	Error	TOT	S+Delay	Diff	EET	Diff	NM	Diff	FCI	Diff	RCI	Diff	RE...	Type
LHBP EBBR G02		Ok				94	-3	638	-1	3539	-7	715	0		GR
LHBP EBBR G03		Ok				95	-2	640	1	3552	6	716	1		GR

Additional AOWIR options and data to improve usability

- **Error**: presents a summary of the (IFPS/Overload/MAX Shift Delay) reply on the alternative.
 - **OK** when there is no problem with this route
 - **Wrong input** with the justification message in the details area.
 - **Suspended** if the flight is suspended.
 - **Route not for flight** if the requested alternate route is not valid for the flight.
 - **Not authorized** if you are not authorized to perform the requested action.
 - **Overload** with the overloaded Traffic Volume in the details area

AC BEL41E Alternate Routes at 07-09:47 / ATFCM

IOBD: Wed 07 Mar 2018 IOBT: 11:05

ARCID: BEL41E ADEP: LHBP ADES: EBBR

Take Off Time - Estimated: 11:15
 - Calculated Shift+Delay: *0* minute
 Estimated Elapsed Time: 97 minutes
 Most Penalising Regulation

Aircraft Type: A319
 Initial Requested Level: 380
 Initial Requested Speed: N0450
 Route Length: 639 NM

Generate & Evaluate freeze TP Horizontal Alternatives Via AS: Avoid AS: Via PT: Avoid PT:

MAX Shift + Delay: 0 Standard Generated Manual IFPS-compliant only 2 Alternate Routes

Route ID	CDR	Error	TOT	S+Delay	Diff	EET	Diff	NM	Diff	FCI	Diff	RCI	Diff	RE...	Type
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Additional AOWIR options and data to improve usability

- **Error**: presents a summary of the (IFPS/Overload/MAX Shift Delay) reply on the alternative.
 - **Not IFPS compliant** and the corresponding IFPS messages for rejection in the details area
 - **Bad Shift/Delay** for an excessive new Shift+Delay value.
 - **Not available** if rerouting function has been deactivated by the TACT system.
 - **Already a proposal** when there is still a rerouting proposal outstanding for the selected flight.
 - **Flight Activated** when the flight is already TACT or ATC ACTIVATED
 - **Constraint violated** if the route is violating the avoid/via constraints or if a manual route is violating certain constraints. The exact reason is described in the details area
 - **OBT_Validity reached** : if the alternative route gets a new CTOT such that the flight becomes IFPS invalid

Vertical rerouting improvements (Requested Flight Level sequence shaper improvement)

Problem Statement

- Today flight planning tools users (CHMI IFPUV and CHMI/IFPS) cannot explicitly propose vertical alternatives to correct an invalid flight plan.
- The change aims at improving the alternative proposed by first providing a vertical alternative if available.
- To achieve that, whenever the system is proposing a route, it **should first try a vertical alternative** to correct errors and if none can be found, AO should try the horizontal alternatives.

**No direct operational impact for externals BUT
Applicable on training if features are used**

3- Impact of the FB



Complete Videos to explain the features will be produced and shared

