



## A PILOT'S COMPLETE GUIDE TO NORTH ATLANTIC CROSSINGS

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## INTRODUCTION AND OBJECTIVES

With both the Gander and Shanwick FIRs growing and prospering, our systems have received major upgrades. We have adapted various implementations of real-life amendments to the North Atlantic airspace for more realistic operations. We have also integrated a datalink system for position reports as well as clearance management, working not only for NATs but also for random routings. It seems therefore time to be advertising the procedures again to the broader IVAO Community especially re-visiting the basics and highlighting two big new elements to enhance the experience whilst flying across.

After reading this guide you should be able to:

- Select an appropriate NAT or random track for crossing.
- File a correct Atlantic routing in the IvAp flight plan.
- Obtain an oceanic clearance.
- Enter the Atlantic correctly.
- Make a correct position report.
- Exit the Atlantic correctly.

### What is this all about?

The North Atlantic, one of the less hospitable places in the aviation environment and simultaneously one of the busiest airspaces in the world. Based on a 2016 article, every day around 2,500 aircraft cross the North Atlantic in a 24-hour period. Now, here is the catch - present day air traffic control still relies heavily on radar. Erm... **cue miserable orchestra jingle ....**

I hate it when it does that... Radar simply does not cut the job, en-route radar only works with several radar dishes in a reasonably close distance to one another. At the narrowest spot in the North Atlantic the distance between Europe and North America is 1,700 nautical miles. Besides these, there is Iceland and Greenland. Iceland has only limited airport facilities at the far southwestern edge with the two airports at Reykjavik (Reykjavik and Keflavik). Greenland, despite its name, has far more ice than green on it and only sports a few small-ish fields, Narsarsuaq, Sondrestromfjord and Thule.

As you can see, radar simply is not an option.  
But how on earth do we keep the flights apart?

It is actually fairly simple, in absence of radar, we rely on the old-school-principle of time.  
If Airplane A at Height X and Speed Y reaches a point at time Z, the following airplane, assuming same height and speed can only be at the same point at Z+10 minutes.

To further facilitate flow a general agreement was reached on flows, dividing the Transatlantic traffic in the two directions, Westbound and Eastbound and into the two phases of a day.



During daytime based on Z time (one time for everyone, which corresponds to Greenwich Mean Time and ignores Summertime) the predominant flow of traffic shall be from Europe to the North and Central Americas, at night the flow is from the Central Americas to Europe. There are exceptions to this rule, mainly cargo aircraft and quite a few passenger flights mostly from the Western Seaboard of the USA.

So, this sorts out some of the problem, but not all of it. With no radar coverage it is prudent to get the traffic into a manageable pattern. 1965 saw the introduction of the major flow management system we still use today: The Organised Track System.

## THE ORGANISED TRACK SYSTEM:

The Organised Track System comprises of tracks. North Atlantic Tracks that allow aircraft to transit from one side of the North Atlantic to the other.

Now, what are the North Atlantic Tracks? In essence, they are one-way airways. The tracks are defined and governed by two factors:

- a. The Jetstream
- b. User Input

The latter largely is affected by the former.

The jetstream is a strong upper-level wind which is poised at the edge of the troposphere. It can reach speeds of 150 knots easily. It blows generally from west to east, hence it is aimed to keep the **Westbound** Tracks **out** of it as much as possible. By contrast the **Eastbound** Tracks are aligned to be **in** the tracks, thus maximising ground speed.

The tracks are calculated and published twice daily by the control centres at Gander ( in Newfoundland) and Shanwick (in the UK and Ireland).

### **Shanwick, Shanwick, Who the (bleep) is Shanwick?**

In 1966 it was determined that the eastern portion of the Atlantic be controlled jointly by control centres at Shannon (Ireland) and Prestwick (Scotland), the joint effort joined the names to make Shanwick.

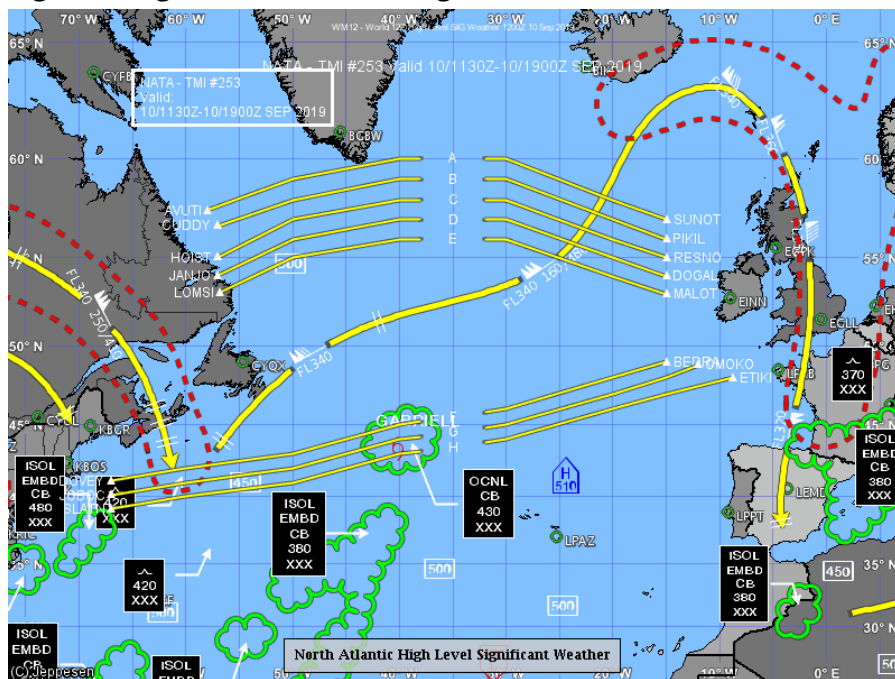
### **You said user input?**

Yep, the airlines flying the Atlantic regularly send Preferred Route Messages to Shanwick and Gander indicating their requests. By a rule Shanwick issues the westbound tracks, Gander does the eastbound tracks.

### **Are there other control centres involved?**

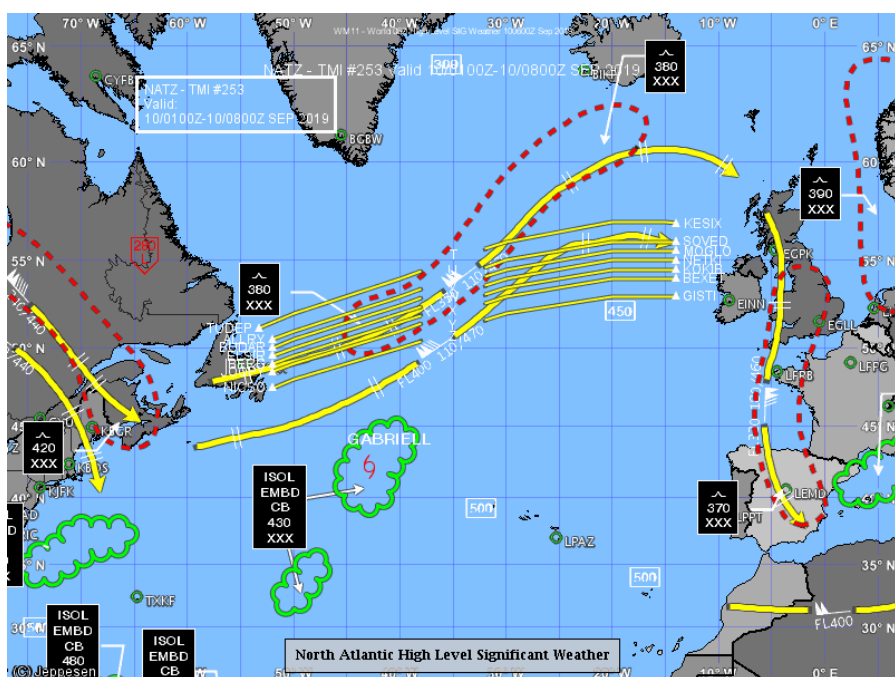
Yes, there are, the other key players are Santa Maria, New York, Reykyavik and Bodo, Norway.

Right, enough bla bla on the founding fathers, let's take a look at the tracks using two pictures:



The tracks are labelled A-M (No I), A is **ALWAYS** the northernmost track NB: Not all track letters are used every day, the exact number of NATs depends on the day of the week and the season as the exact number of flights vary.

Notice how the Tracks are arranged to keep away from the brunt of the Jetstream



Eastbound tracks are labelled P-Z, this is the maximum scope of tracks, Tracks P, Q, R and S are not always used, this depends on the day of the week, the season and expected traffic volume.

The SOUTHERN most track is always Z.

Notice the tracks are laid into the jetstream to maximise tailwind use.

Having seen the general picture, let's have a look at how the tracks are composed. To find out what the tracks are there are several ways and means:

1. You could use PFPX/SimBrief or one of those handy tools.
2. You can use [www.blackswan.ch/northatlantictracks](http://www.blackswan.ch/northatlantictracks).
3. Or you could do it the simple way, by logging on to our website, [occ.ivao.aero](http://occ.ivao.aero) and bring up the Oceanic Information System, which has all kind of handy info, the maps which I have shown above, and also it sports weather charts and the Track Message in plain-text format.

The track separation usually is one degree of latitude parallel to one another, however following a newly introduced trial, we are now working to a reduced separation which can be seen in the example flight that



we are doing. Better surveillance now permits our tracks to be as close spaced as half a degree of latitude, which equates to approximately 30nm. More on that a little later, as it affects simming.

## How do I read the tracks then?

Now, let us look at the track message. By looking at our [website](#), you can see a copy of the NAT message. Every named track in the message is composed of exactly the same elements, here are today's A and R tracks (Day 249):

```
A SUNOT 58/20 60/30 61/40 62/50 MAXAR
WEST LVLS 310 320 330 350 360 370 380 390
EUR RTS WEST NIL
NAR NIL

R RIKAL 53/50 55/40 56/30 57/20 SUNOT KESIX
EAST LVLS 320 330 340 350 360 370 380 390 400
WEST LVLS NIL

EUR RTS EAST NIL

NAR N505A N503A-
```

Let's break this down into the component parts. A track always consists of an RNAV entry FIX, five or six co-ordinate waypoints and an RNAV exit FIX. Above, we can see that our RNAV entry FIX is **SUNOT**, our co-ordinate waypoints are: **58/20 60/30 61/40 62/50** and our RNAV exit FIX is **MAXAR**.

"WEST LEVELS" are the available flight levels, in this case you can use FL310-FL330 and FL350-FL390. Why not FL340? In some cases, it is necessary to block off a certain flight level to permit traffic to cross the NATs. This is not generally a route you should take, but if needed, it is possible.

"EUR RTS/NAR", what is that?

The "EUR RTS" usually contain a waypoint or two if it is determined to be necessary to force traffic coming on/off the NATs via a certain waypoint. With the free route airspace in Ireland, this is very much a relic of the past, normally you can route fairly liberally to/from wherever needed.

The "NAR" stands for North American routes. These are feeder roads to and from the NATs. At times it is necessary to mandate the use of certain routes to certain NATs to harmonise the traffic getting on and off. Although this has become seldom, the NAR is still a great tool to get yourself to/from the NAT to or from any of the US eastern seaboard. You can acquire the latest document from the FAA website.



## When can I use the North Atlantic Tracks?

As you may have seen on the websites and in the message, there is a time constraint given. And the time constraint is the deadline to cross 30° West longitude.

Thus:

The Westbound NATs are available for traffic crossing 30° West between 1130z and 1900Z.

The Eastbound NATs are available for traffic crossing 30° West between 0100z and 0800z.

Outside these times in either direction traffic shall file and expect a random routing.

## Can I use the North Atlantic Tracks for every destination?

No. The NATs are generally good to use for flights in between North and Central Europe and a corridor along the eastern US and Canada with the cut-off point at a line approximately just west of Chicago and a southern border around Washington DC. To get to another destination you need a random routing, which will be explained later in this guide.

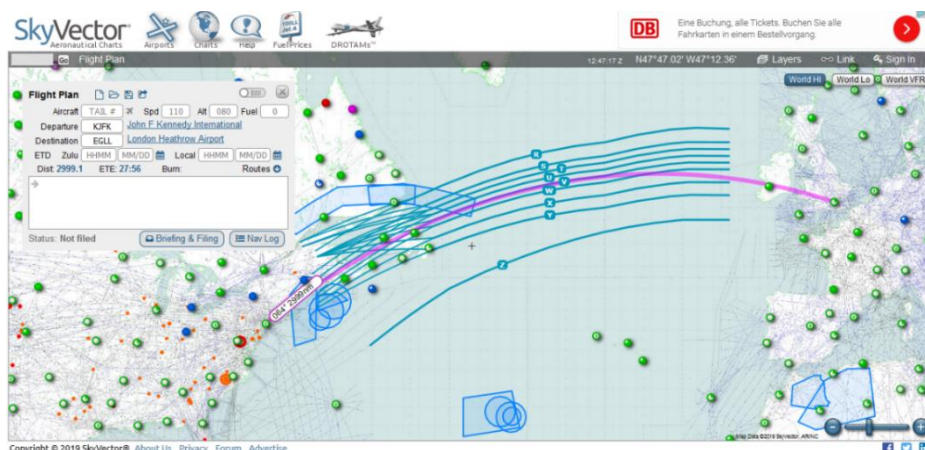
## EXAMPLE FLIGHT (USING A NAT)

Today, we will be flying from New York John F Kennedy to London Heathrow, our callsign will be Speedbird 172 and we are a Boeing 747-400.

### Selecting the Correct NAT:

The flight JFK to LHR is a classic example of a typical NAT flight. Such a flight will usually utilise a random routing, but at this time of year with the jetstream just about to begin the winter cycle, the NATs are split down the middle going Westbound. There are many tools to select the correct NAT (PFPX or SimBrief, for example) but we are going to use [Sky Vector](#).

By selecting the layer of NATs, and making use of the flight plan function, you can determine the great circle from your departure to your destination and ultimately, use the shortest way from A to B. You can then display your great circle to select the most appropriate NAT, bearing in mind that it is not permissible to jump between two tracks, you need to pick one and stick with it.



As you can see, the great circle track is flirting excessively with tonight's Track V, which will be the track of choice.





Let's bring up Track V and see what it tells us (this flight was based in TMI 250):

V BUDAR 5030/50 5230/40 5330/30 5430/20 VENER KOKIB  
EAST LVLS 350 360 370 380 390  
WEST LVLS NIL  
EUR RTS EAST NIL  
NAR N359B N351B-

Track V is a new variety found on most days on the North Atlantic. As part of a trial it is operated at a reduced lateral separation, meaning the other traffic on Tracks U and W are only 30nm either side of us, this requires us to pay a little more attention in terms of conducting the flight. Note also that only FL350-FL390 are available, this is also due to the reduced separation.

As we can see, we are obliged to use either "N359B" or "N351B" for our NAR. The NAR routings are found [here](#).

We procure the latest edition of the NE Coast and bring the section "North American Routes":

- Digital Chart Supplement Application Data

Current Edition Date	Next Edition Date
DCS App Aug 15 2019 (Zip)	DCS App Oct 10 2019

Chart Supplements Cover-to-Cover PDFs

Current Edition Date	Next Edition Date
CS AK Aug 15 2019 (PDF)	CS AK Oct 10 2019
CS EC Aug 15 2019 (PDF)	CS EC Oct 10 2019
CS NC Aug 15 2019 (PDF)	CS NC Oct 10 2019
<b>CS NE Aug 15 2019 (PDF)</b>	CS NE Oct 10 2019
CS NW Aug 15 2019 (PDF)	CS NW Oct 10 2019
CS PAC Aug 15 2019 (PDF)	CS PAC Oct 10 2019
CS SC Aug 15 2019 (PDF)	CS SC Oct 10 2019
CS SE Aug 15 2019 (PDF)	CS SE Oct 10 2019
CS SW Aug 15 2019 (PDF)	CS SW Oct 10 2019
CS ALL Aug 15 2019 (Zip)	CS ALL Oct 10 2019
- Supplemental Communication Reference  
Preferred IFR Routes  
Q-Routes  
Tower Enroute Control Routes  
**North American Routes**  
SECTION 5: AIRPORT DIAGRAM  
Airport Diagrams  
Legend  
Airport Hot Spots

604 NORTH AMERICAN ROUTES

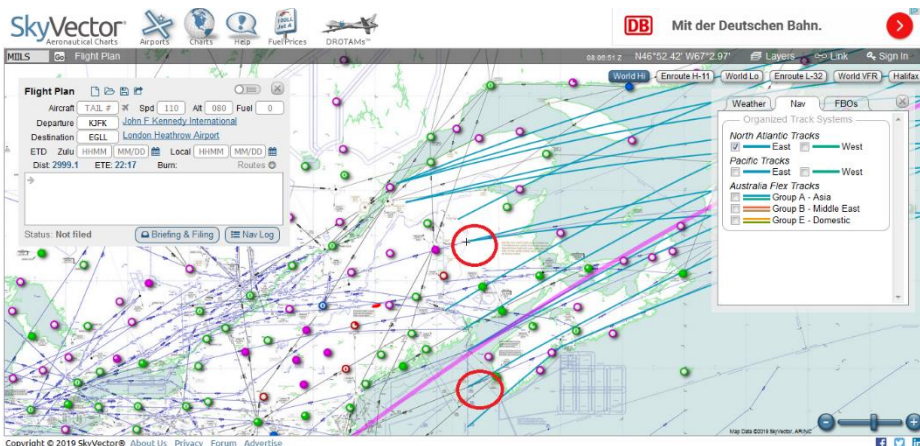
NAR Designator	Inland Navigation Facility/Fix	Route Description	Coastal Fix
N351B	TUSKY	Direct	BUDAR
N353B	ALLEX	Direct	BUDAR
N355B	EBONY	Direct	BUDAR
N357B	TOPPS	Direct	BUDAR
<b>N359B</b>	MILLS	Direct	BUDAR
N361B	MILLS	LOPRO	BUDAR
N363A	CEFOU	MGLI	BUDAR
N365A	CEFOU	Direct	BUDAR
N367A	BAREE	Direct	BUDAR

In the table, we look up "N351B" and "N359B" which both lead to BUDAR. N351B has an inland fix of TUSKY and N359B has an inland fix of MILLS.

SimBrief Users: Simbrief does not accurately provide the correct NAT for the appropriate time of day. It is the pilot's responsibility to CHECK THE FLIGHTPLAN CAREFULLY!



## IVAO XA & XU OCEANIC PARTNERSHIP



The screenshot depicts the location of the inland fixes, the upper circle is MILLS, the bottom one is TUSKY. Hence, we prefer TUSKY as it is closer to our route.

Please also note that I shall not focus on domestic flight planning on either side. To attempt to explain as to how to obtain valid routings in this guide would seriously bust this guide's scope. You are therefore responsible on getting yourself valid routes from your point of departure to the NARs Stateside or NATs on the European side.

**WARNING: ALL ROUTES ARE EXAMPLES ONLY. PLEASE MAKE SURE YOU ONLY USE CURRENT TRACKS**

## ENTERING CO-ORDINATES INTO THE FMC

Either a tool, such as PFPX or SimBrief can enter the waypoints for you when you upload the route file, or you can enter them manually.

### Boeing FMC:

Are you following the tutorial flight? If so, skip to Method 3!

You are able to either input these into the RTE page, or the LEGS page, as you prefer.

Method 1:

"NddWddd": N = North, W = West, d = Degrees.



Our waypoint "48N020W" becomes "N48W020"







# IVAO XA & XU

## OCEANIC PARTNERSHIP

### Method 2:

The short format. It can only be used for NATs or random routings with full latitudes (no half degrees such as 5330N020W). This method is recommended for advanced users only.



Our waypoint "48N020W" becomes "4820N"



### Method 3:

The long format. This is the only way of entry that allows for half degrees of latitude.

"Nddmm.sWdddmm.s": N = North, W = West, d = Degrees, m = Minutes, s = Seconds.



Our waypoint "48N020W" becomes "N4800.0W02000.0"



Our waypoint "5430N040W" becomes  
"N5430.0W04000.0"

Do not be alarmed if the waypoint shoes incorrectly.  
Provided you entered it in the format above, it will be  
recognised.



## Airbus FMGC (Including MD11):

Are you following the tutorial flight? If so, skip to the long format!

You are able to either input these into the F-PLN page, or as a NEXT WAYPOINT command in the LAT REV of the previous waypoint, as you prefer.

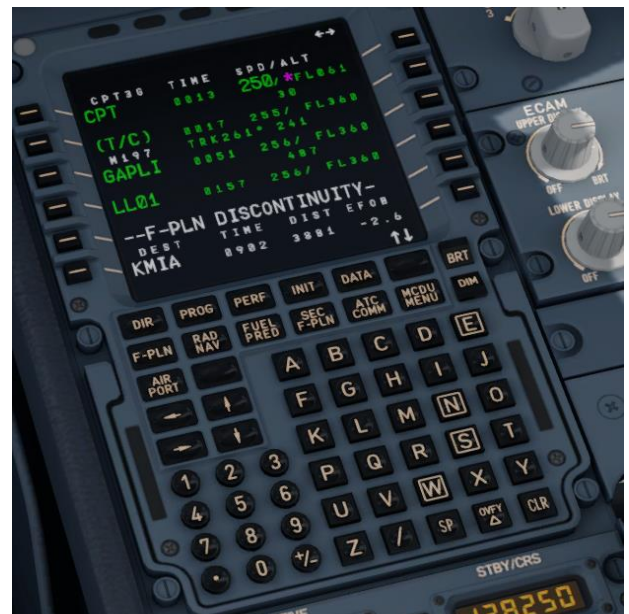
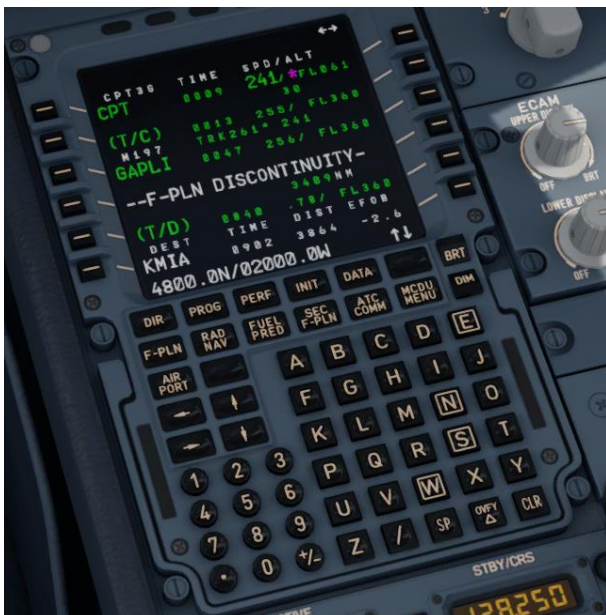
Short Method:

It can only be used for NATs or random routings with full latitudes (no half degrees such as 5330N020W). This method is recommended for advanced users only.



Long Method:

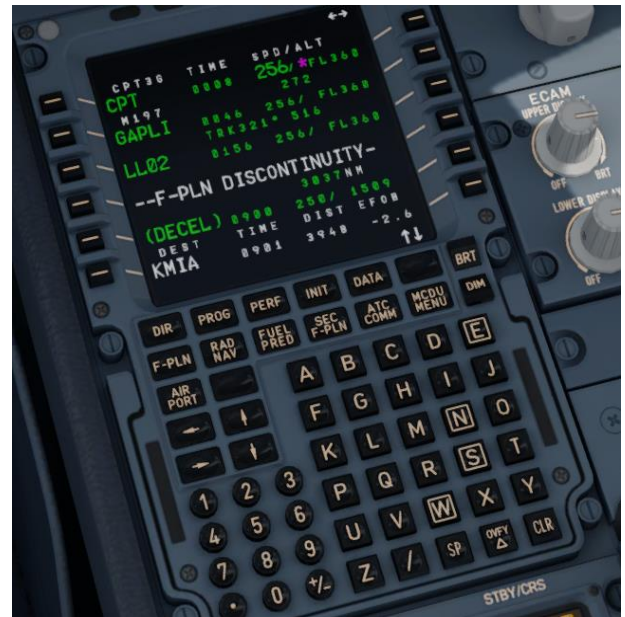
Can be used to enter any latitude and longitude.







Or, for half degree waypoints:



Most of you will have noticed that the waypoint gets inserted as "LL01" or "LL02". This is correct as the FMGC recognises it as a user waypoint. Therefore, you will need to check that it has been correct inserted by going to the LAT REV page (LSK the waypoint). On the below pictures, you will notice the latitude and longitude at the top of the page in green, you need to confirm this waypoint is correct with your flight plan.



### Any other navigational device:

Please refer to the user guide. INS users should be familiar with waypoints in any case. They are entered in the same fashion.



## FILING THE FLIGHTPLAN

This is where I get the most amusement from, there seem to be a million different views on the correct way to file an oceanic flight in IVAP.

Here goes the correct one:

### FL and Speed:

In your initial FL and Speed field you enter your cruising speed in Knots TAS, any subsequent changes in flight levels or speed are denoted with a / followed by the speed followed by the flight level. A typical initial cruise speed and FL for the 747 is 490 knots TAS at FL310 or FL330, so the format is N0490F310 or N0490F330 respectively.

Once we enter oceanic airspace, we need to file our speed in Mach (.85 for example), this is achieved by filing /M085F330.

In our flight, we need to fly FL350, so, at our entry point or just before it we indicate our step climb and ideally our change to Mach by writing /M085F350 BEFORE the point where you need to be on it.

### How is the NAT filed?

The entry point is usually reached by a DCT, or in our case the NAR, in this case the N351B. So, our route should look something like this:

(route US)... TUSKY/N0495F350 N351B BUDAR/M085F350 NATU KOKIB ...(route EU).

Filing the following three items in the FP remarks will significantly assist the controllers:

- SEL/GRAB (please adapt for your own aircraft, see the SELCAL section for further information).
- RMK/2ND NAT X (replace X with NAT of choice, this is the NAT you could fly if your preferred NAT is full).
- RMK/MAX FLXXX (indicate your maximum available FL, just in case your preferred FL is full).

Right, this completes the section on the prep work, let's go flying, YAAY!



## OCEANIC CLEARANCE

Assuming everything goes well, Flight BA 172 has taken off from Kennedy and has picked up its heading towards BUDAR.

With 45 Minutes to go to BUDAR, it's time to obtain the clearance. While 30 minutes is the minimum time, it is recommended to obtain the clearance with a little reserve for possible rerouting. 90 minutes is the maximum time.

To obtain clearance we can go two ways, voice or datalink. Whichever way we choose we stick to it.

### Voice:

Assuming we are on UNICOM prior to entry, we can simply switch to Shanwick or Gander Radio. If we are under control by any controller, we need to request to leave to get our clearance. Always check with the controller, on event days he will also be able to tell you who you need to call for clearance. The controller will send you to oceanic as soon as practical, after the clearance you need to return to him.

On normal days this will be Shanwick Radio on 12790kHz, on event days frequencies vary greatly, so please pay close attention which frequency you are supposed to call. We operate on HF frequencies, this is not simulated by IVAP, nevertheless the frequencies are referred to as kHz but tuned as MHz frequencies (XXX.XXX).

Now, when you tune in to Shanwick, take a few moments to collect all the information you need:

- The controller will require the following details: your track (or routing), your FL, your Mach speed and your entry point with ETA (and the TMI if flying a NAT).
- You can retrieve these details from the F-PLAN page in an Airbus or the LEGS page (by selecting RTE Data) in a Boeing.
- Please only call Shanwick once you have all data readily available. "Uhms" and "Ers" on frequency make you sound unprofessional.
- On the first call, STATE YOUR CALLSIGN ONLY AND DO NOT PASS ANY OTHER DATA. There is a good chance you will have to start again if you do as the controller needs to be ready to take your details.
- If the controller says "stand by" he means it. Please keep your finger off the button, don't acknowledge a "stand by" instruction, he has got you on his list, he will call you back, promise ;)
- The most frequent pitfall is failing to read back a clearance. The oceanic clearance must be read back like any other clearance. ONLY on the position reports the readback is reversed.

If you cannot find Shanwick/Gander in your IVAP, here is the reason: FSD allows pilots only to contact stations to which you are in range, this range is a circle of 1000nm around a centerpoint. 1000nm does not allow for complete Coverage of the airspace and a buffer to get the clearance. If you cannot tune Shanwick, please send the controller a chat message, he will move the centrepoint for you to be able to tune. You can also manually join the TeamSpeak server if you feel comfortable doing so or, you can request clearance via datalink.





If your flight time to your entry point is less than 30 minutes, and you are on the ground, you must request clearance on the ground using your estimated time for your entry waypoint. Once airborne, check this estimate and revise with the controller, as necessary.

*Voice Phraseology:*

**Pilot:** "Gander, good evening/morning, Speedbird 172 heavy."

**ATC:** "Speedbird 172, Gander. Hello, pass your message."

**Pilot:** "Speedbird 172 request clearance to London Heathrow via Track Uniform, FL350, Mach decimal 85, estimating BUDAR at 00:25 Zulu. TMI 253."

**ATC:** "Speedbird 172, roger, standby."

*Now just wait quietly and patiently, checking the track can take between 2 minutes on a quiet day up to 15 minutes on a busy event day. If the controller needs anything from you, he will call you. But all goes well tonight...*

**ATC:** "Speedbird 172, I have your clearance, ready to copy?"

**Pilot:** "Go ahead, Speedbird 172."

**ATC:** "Gander clears Speedbird 172 to Heathrow via BUDAR, Track Uniform, FL350, Mach decimal 85, cross BUDAR not before 00:25 Zulu."

*Okay, what has just happened?*

*Due to traffic, we need to just drag our heels a little bit before getting to BUDAR to fit into the separation slot. If a controller gives such a time, it is known as a Required time of arrival and must be adhered to. The easiest way is to slow down a bit, in the worst case the pilot needs to obtain instructions from domestic ATC to remain clear of Oceanic Airspace until the clearance time is there.*

**Pilot:** "Speedbird 172 cleared to Heathrow via BUDAR, Track Uniform, FL350, Mach decimal 85, cross BUDAR not before 00:25z."

**ATC:** "Speedbird 172, readback is correct, return previous frequency, good day."

**Pilot:** "Previous frequency, Speedbird 172."

*Now that we have our clearance, we return either to UNICOM or the previous controller.*

Important: if the estimate for our entry point or indeed any point during the crossing changes by more than 3 minutes, we must inform the controller immediately, as a new clearance may become necessary.



## Datalink:

The second option to obtain a clearance is to use the datalink. Please note that the pictures were taken on a different flight, so data shown will vary from our tutorial flight. This flight uses BAW145, a fictional flight via NAT Sierra.

To use datalink, log on to our website: [occ.iviao.aero](http://occ.iviao.aero). You can then click on "OCC Interfaces" and then click on "[Pilot Datalink](#)".



You will then be greeted with a window to fill out (if you're flying a 777, you'll recognise this screen!!).

OCC CLX	POS REPORT	MANUAL	REVIEW	NEW MESSAGES
OCEANIC CLEARANCE REQUEST				
CALLSIGN:	BAW145	ROUTE TYPE:	NAT 5	
ENTRY POINT:	JANJO	FLIGHT LEVEL:	310	
ETA:	0200 z	MACH:	085	
ROUTE	JANJO 56/50 56/40 55/30 55/20 RESNO NETKI			
RMK /				
SEND				

Assuming you have filed your flight plan correctly, you should see your preferred North Atlantic Track, the corresponding waypoints, your entry point, FL and Mach speed.

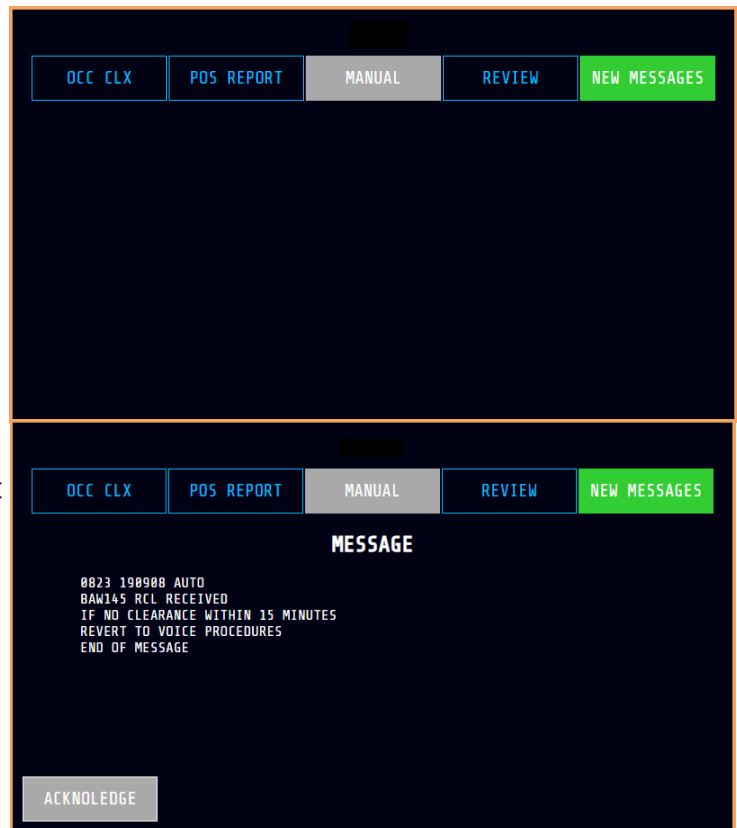
You will need to fill out your ETA, as shown above and RMKs can be filled out by yourself - it is recommended you indicate a maximum FL and a 2<sup>nd</sup> NAT. The default position is that you should file your optimum FL as your request and your maximum as maximum FL, that way you will be offered a higher flight level in case your optimum level is not available. It is more efficient to fly higher than optimum as you will burn fuel and weight rather than be stuck below optimum.

Check all details are correct, adapt them as need be, before you click send.



Having sent your clearance, the screen will indicate that a new message has arrived. It is green, indicating a message is unread.

After clicking on it, the message will confirm that the clearance has been sent and received. You will need to make a note of the time as if you have not received clearance after 15 minutes of this time, it is YOUR responsibility to chase up the clearance with the controller.



After a period of time, a new message should arrive. Clicking on it will display a message, if all has gone well, it should be your clearance!

Read it carefully, check that you can fly the clearance and if able, accept it. If not, click reject and then contact the controller on voice to renegotiate.

You need to decide at the beginning of your crossing whether you wish to use voice or datalink. If you are using datalink, you need to send the position reports by datalink too. Only switch to voice when specifically instructed to do so by the controller.



### Re-cap on clearance:

- Get your clearance in good time (latest 30 minutes to entry, maximum 90 minutes or on the ground if your departure is within 30 minutes of your estimated Oceanic entry point).
- Have your request details ready.
- State your callsign only on first contact.
- If asked to standby, wait patiently.
- If your ETA changes by more than 3 Minutes +/-, report this immediately to the controller
- Datalink means you stay on datalink, voice means you stay on voice, no changeover except when specifically instructed to by the controller.
- After entry squawk 2000 within 30 minutes.

## ENROUTE IN THE TRACK

The flight is progressing nicely and Speedbird 172 has reached BUDAR on the specified time. ATC gives the following instruction:

**ATC:** "Speedbird 172, report BUDAR to Gander Radio on 12237 kHz , good day."

**Pilot:** "Report BUDAR to Gander Radio on 12237 kHz, Speedbird 172 heavy, good day."

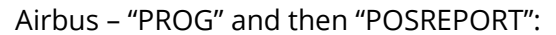
Now then time to tune the appropriate station. Please note both Gander and Shanwick operates on HF frequencies, this is not yet simulated by IVAP, but the frequency is still referred to as kHz frequency, though tuned as "XXX.XXX".

When tuning in, remember to take some time to listen for other radio traffic. Any traffic on the frequency consists of a position report, a readback by the controller, and the confirmation by the pilot that the readback is correct. There is NO POINT blabbing in, you will need to wait in line to be processed and stepping on a readback will only prolong your wait and have a hit on the efficiency.

Write down your details on a piece of paper, or use [this document](#), to help you put down all the Information necessary and make sure you have all your data.



Boeing – “PROG” and then via LSK 6L “POS REPORT”:



## Position Report:

Our tutorial flight position report therefore looks like this:

*Speedbird 172 (callsign) has passed BUDAR (Position) at Time 00:26 Zulu (Time), flight level 350, Mach decimal 85, Estimating 5-0-3-0 North 0-5-0 West at time 00:50 Zulu (Name+ETA next waypoint), 5-2-3-0 North 0-4-0 West is next (NAME ONLY of Waypoint thereafter).*

*Voice Phraseology:*

**Pilot:** "Gander, hello, Speedbird 172 heavy, position report."

**ATC:** "Speedbird 172 heavy, Gander, roger, standby."

*Just wait patiently for the controller to be ready to take your details, he will call you.*

**ATC:** "Speedbird172, pass your message."

**Pilot:** "Speedbird 172 has passed BUDAR at 0026z, FL 350, Mach decimal 85, estimating 5-0-3-0 North, 0-5-0 West at 00:50Z, 5-2-3-0 North 0-4-0 is next."





*Please don't try and break speed records while transmitting nor is this the time to re-fine an accent. We are neither at the Amphitheatre in Oxford, nor at a Texan truck stop. It is imperative that the controller gets you ideally the first time.*

**ATC:** "Speedbird 172 has passed BUDAR at 0026z, FL 350 , Mach decimal 85, estimating 5-0-3-0 North, 0-5-0 West at 00:50Z, 5-2-3-0 North 040 is next."

*If all is correct you can confirm the readback is correct. If something is incorrect, correct the controller.*

**Pilot:** "Speedbird 172 heavy, correct."

The same principle applies at every waypoint you pass, or latest 45 minutes after the last position report. Especially on random routings the fixes may be further apart than 45 minutes.

#### By Datalink:

Inside the Datalink page, click on "POS REPORT".

This page will appear with some boxes empty. You need to check the boxes that are filled in to make sure that they are correct and then fill in the remaining boxes.

Press "Send".

The screenshot shows a dark-themed interface with a top navigation bar containing buttons: OCC CLX, POS REPORT, MANUAL, REVIEW, and NEW MESSAGES. The main area is titled "POSITION REPORT" and contains two columns of input fields. The left column has fields for POS: (JANJO), FLIGHT LEVEL: (310), ESTIMATE: (56/50), and NEXT: (56/40). The right column has fields for ATA: (0200), MACH SPEED: (085), and ETA: (0240). A SEND button is located at the bottom right of the form.

After a few minutes, you should receive a new message. Click on it and it should display that your position report has been confirmed.

If it says anything else, contact the controller as you may have submitted something incorrectly.

The screenshot shows a dark-themed interface with a top navigation bar containing buttons: OCC CLX, POS REPORT, MANUAL, REVIEW, and NEW MESSAGES. The main area is titled "MESSAGE" and displays the following text: POS REPORT BAW145, POSITION REPORT CONFIRMED, and END OF MESSAGE. An ACKNOWLEDGE button is located at the bottom left of the form.



## SELCAL:

Earlier on I mentioned the Selcal, which should be indicated as SEL/ABCD in the IVAO Flightplan.

### But what is SELCAL?

SELCAL, or 'Selective Calling', is like a phone number. It allows controllers to reach a pilot even if he is not actively listening on frequency. Over the Atlantic in real life, voice communication is handled over HF radio as VHF does not have enough range to cover the Atlantic. HF radio quality is poor, lots of background noise, which makes monitoring the frequency very tedious on the ears.

SELCAL allows the pilot not to have to continuously monitor the frequency.

### How is SELCAL generated?

Further Information can be found here: <https://en.wikipedia.org/wiki/SELCAL>. If you are flying a real aircraft, you can look up the registration's SELCAL code, if equipped, online: <https://rzjets.net/aircraft/>.

In our tutorial flight, for the BA 747 G-BYGE, our SELCAL is DG-FP.

### How do I use the SELCAL?

Following the first position report, the pilot can request a SELCAL check.

**Pilot:** "Speedbird 172, readback correct. Request SELCAL check: Delta Golf Foxtrot Papa".

**ATC:** "Roger, standby".

*The controller will activate the SELCAL and send it, a two-tone sound indicates a good SELCAL check.*

**Pilot:** "Speedbird 172, SELCAL received."

*If no gong is heard*

**Pilot:** Speedbird 172, negative SELCAL."

*If the SELCAL is OK you may turn down the volume, you have to remain within general earshot, however.*

*If the SELCAL fails, you must remain on voice.*

## Speed and Level Changes in Oceanic Airspace:

It is a common request. You can by all means ask for a step-climb or speed change. However, it is NOT GUARANTEED that you can get one. To get a step climb there needs to be at least a window of 15 minutes on the crossing levels to allow for it. It is therefore wise to climb as high as possible before oceanic entry, it is less fuel-burning to fly above your optimum for a while than below it. That way you can make another step climb at the end of the Atlantic crossing to compensate for it.



There are multiple ways to request a step climb or speed change, you can ask for it direct, or you add it on your position report:

**Pilot:** "Speedbird 172 has passed BUDAR at 0026z, FL350, Mach decimal 85, estimating 5-0-3-0 North, 0-5-0 West at 00:50Z, 5-2-3-0 North 0-4-0 is next. Able FL370 at 0120 Zulu".

You still must explicitly be cleared to climb or descend however and **MUST NOT** do so without ATC clearance.

#### **The bottom line:**

- Don't plan your flight to be dependant on a step-climb when crossing the North Atlantic but you can ask.

You must not however, change anything on your clearance (unless with the permission of the controller), this includes speed (with the exception of OWAFS, as detailed below) and level changes.

### Operations Without An Assigned Fixed Speed (OWAFS):

Recently, a new trial has been running over the Atlantic called "Operations Without An Assigned Fixed Speed", OWAFS for short. Before this trial, you needed to pick a speed within .01 of Mach and stick with it. This new operation allows you to fly the ECON speed in your FMC, which varies over time, usually reducing before increasing again after a step-climb.

To request this:

- First request and obtain a clearance as per normal, this clearance will include a fixed speed as a back-up.
- Then indicate to the controller at the end of the clearance conversation that you request OWAFS.
- After your first position report, if OWAFS is possible, the controller will instruct you to "resume normal speed", then you can fly the ECON Speed.
- If OWAFS is not possible, the controller will say "Operations Without an Assigned Fixed Speed unavailable", which means you need to fly the cleared Mach number.

**IMPORTANT:** IF YOUR OWAFS speed changes by more than 0.02 Mach, it is your DUTY to inform the controller.

### Changing Frequency at 30°W:

Passing 40°W going eastbound or 20°W going westbound, if there is more than one controller, you will be instructed to make the next position report to Shanwick or Gander Radio respectively.

Remember, you need to remain on the current frequency until you are ready to make your next position report at 30°W; then you may change to the next frequency.



## Leaving the track:

When you pass 20°W going eastbound or 50°W going westbound ATC will pass you information on which controller to contact next. When you contact that controller, you will be given a squawk, once you are identified no further position report will be needed and you continue on your merry way.

## RANDOM ROUTING

### Why do we need random routings?

1. As already discussed, the NATs carry the following time constraints:  
Westbound NATs: aircraft need to pass 30°West between 11:30Z and 19:00Z in order to be considered on a valid westbound NAT.  
Eastbound NATs: aircraft need to pass 30°West between 01:00Z and 08:00Z in order to be considered on a valid eastbound NAT.
2. Not all destinations can be reached sensibly by NATs. The NATs predominantly serve traffic Central and Northern Europe to/from: the Eastern seaboard of the USA, the eastern airports from Canada and as far as approximately where a Vertical line running through Chicago from the US-Canadian border and a horizontal line from Atlanta meet.

As the NATs are not always stable there are exceptions and on occasions even flights to/from Los Angeles and San Francisco can be routed over the NATs. Especially at night it can be worthwhile to allow for a longer route to benefit from the jetstream.

Flights to Miami, the Texan coast, the Caribbean (Juliana, TNCM) the Central Americas and Northern South America will most certainly however route via a random routing.

### Now, what is a random routing?

A random routing is a route chosen by the pilot which will usually try and follow the great circle (shortest distance across our planet, remember?) as closely as possible. We therefore can liberally plan a routing on our own.

We must observe but a few rules:

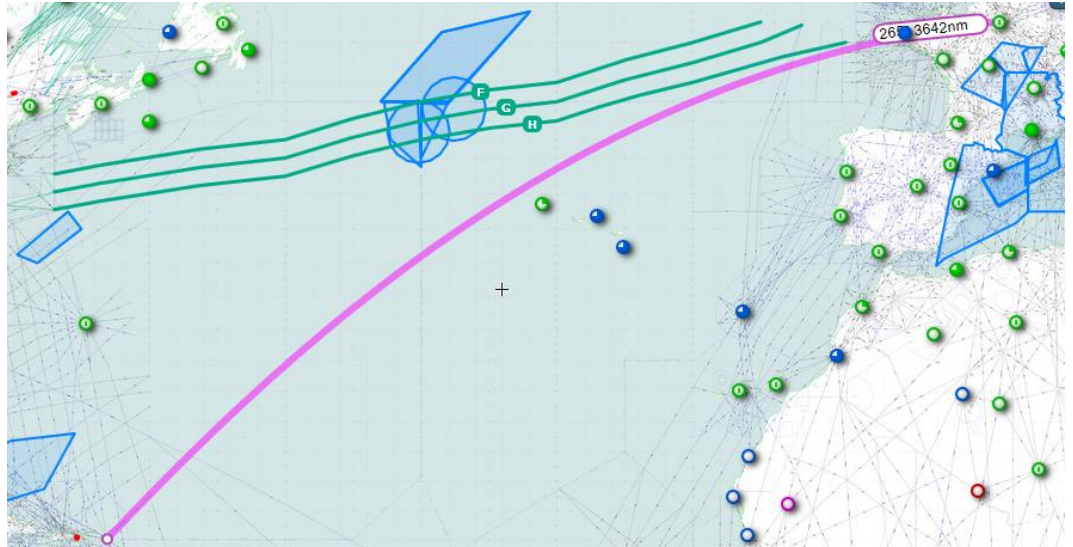
- Stay clear of the NATs by at least 1 degree of latitude.
- Random routings running exact opposite direction to active NATs are a no-no.
- Crossing the NATs usually is only possible on the southern NATs on only one flight level. It is therefore possible, but NOT RECOMMENDED.
- At a minimum of every 10 degrees of longitude, a fix must be inserted into the flight plan.
- If flying into Santa Maria OCA or New York OCA (Caribbean flights) a fix should be made on the FIR boundary at 45°N or 44°N as that is the boundary between Shanwick to Santa Maria and Gander to New York respectively.



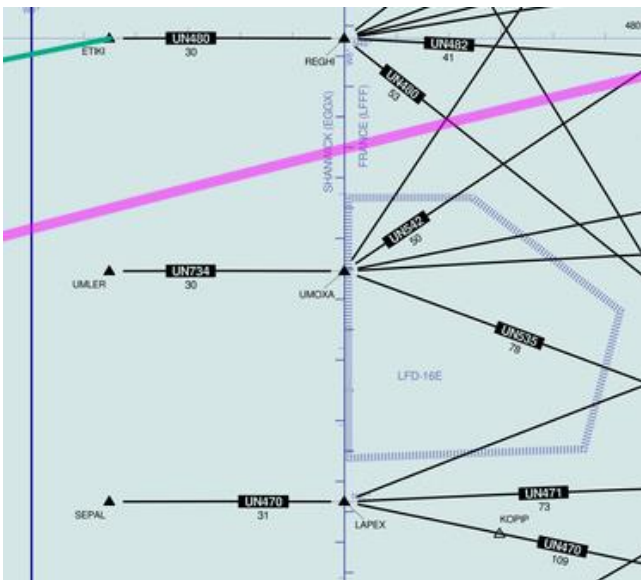
## Planning a random routing:

To demonstrate this, we shall take a flight to the Caribbean.

On the famous route from Paris to Juliana one can see how the great circle moves well away from any of the North Atlantic tracks and does not go sensibly on any of the tracks.



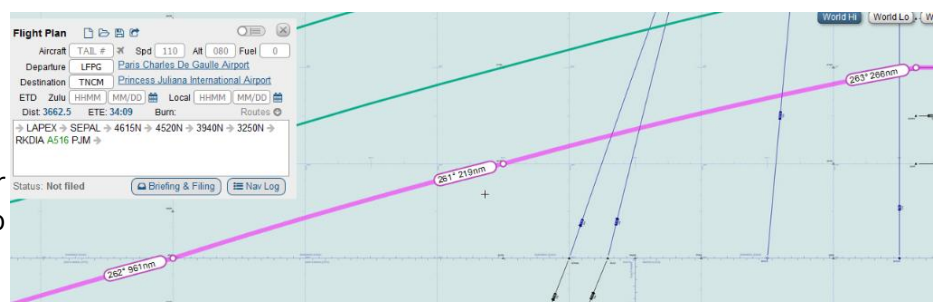
Focus will not be given to getting towards an entry point, domestic flight planning rules apply.



According to the great circle, the optimum entry point would be REGHI and then ETIKI, now today this is a start of a westbound NAT. Not a great idea, I therefore bite the Bullet and use UMLER or SEPAL as entry point.

SEPAL lies at 9° West, so in theory I am not required to put a fix until 19° West. This puts me just shy of the Santa Maria Border where another fix is needed anyway.

I therefore opt to shorten matters here and insert an intermediate fix at 15° West and therefore route via 46 North 15 West before putting another fix at 45 North 020 West for entry into Santa Maria airspace.

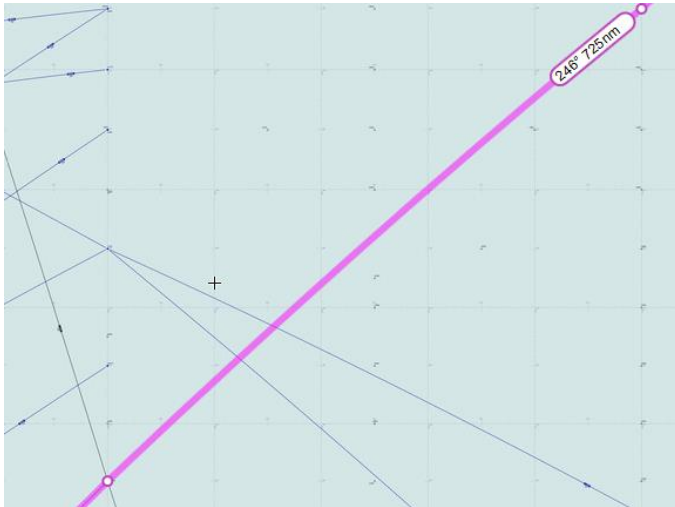




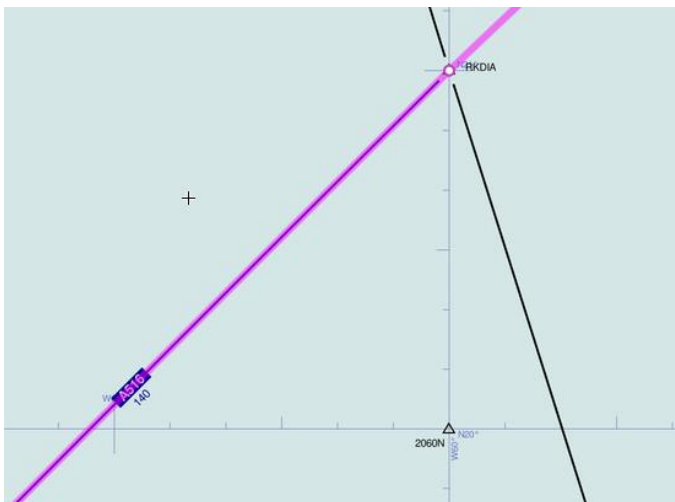


# IVAO XA & XU

## OCEANIC PARTNERSHIP

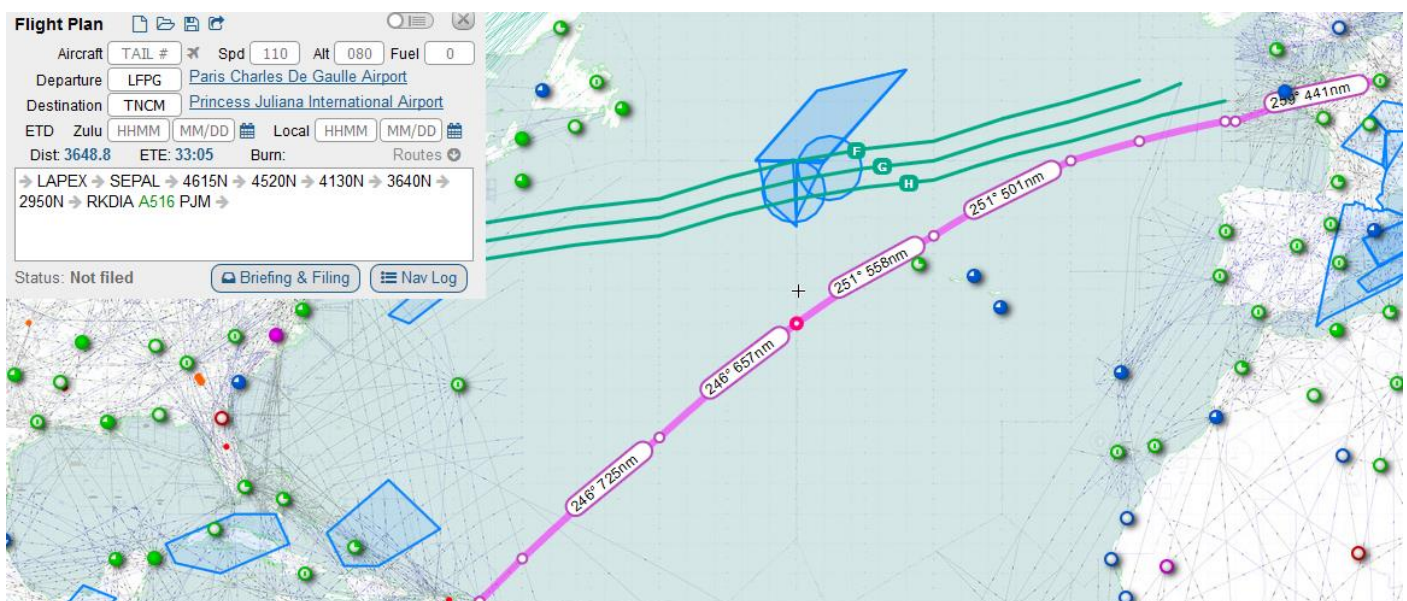


From here on, I follow the great circle, making a fix at 41 North 30 West and 36 North 40 West, which marks the entry to New York oceanic.



The last waypoint in oceanic airspace in 29 North 50 West, following the great circle this brings you neatly onto the RNAV exit fix of RKDIA, which links up to A516 airway which pops you out right at the island.

Which gives us our full route:





## Filing a random routing in IvAp:

The correct format of filing the waypoints in IVAP is:

- Similar as to the NAT, you need to indicate a Mach Number and a flight level.
- Waypoint format in the route is ddNdddW, this means that 46 North 15 West becomes 46N015W.
- Changes of speed or flight level need to be formatted /MxxxFxxx , replacing the Xs with the numbers
- DCT must only be inserted between the **last FIX** of your domestic route (typically the entry point) and the **first** Oceanic waypoint (usually a coordinate) and then only between the **last FIX** of the Oceanic waypoint (coordinate) and the **first RNAV** waypoint on the other side.

DO NOT INSERT "DCT" BETWEEN COORDINATES ALONG THE TRACK.

The correct routing portion for the Oceanic airspace should look like this:

(route FR)... SEPAL **DCT** 46N015W 45N020W/M082F360 41N030W 36N040W/M082F380 29N050W **DCT** RKDIA/N0472F380 ...(route Caribbean).

This route is a mere example, please make sure you plan your own routing on the day you fly.

## Random route clearance by voice:

The procedure for obtaining a random routing clearance is very similar to a NAT. There are however two key differences:

- The pilot must tell ATC all the waypoints between entry and exit point, the whole routing from SEPAL to RKDIA (if we use the route above as an example).
- The clearance readback will also need to contain all the waypoints that ATC **clear** you for.
- 

**Pilot:** "Shanwick, good afternoon, Air France 3510 heavy."

**ATC:** "Air France 3510 heavy, Shanwick, pass your message."

**Pilot:** "Air France 3510 heavy, request Juliana via random routing, LAPEX, 46 North 15 West, 45 North 20 West, 41 North 30 West, 36 North 40 West, 29 North 50 West, RKDIA, FL320, Mach decimal 85, estimating LAPEX at 0955z."

**ATC:** "Air France 3510 heavy, I have your clearance, advise ready to copy."

**Pilot:** "Air France 3510 ready."

**ATC:** "Air France 3510 heavy, cleared to Juliana via random routing LAPEX, 46 North 15 West, 45 North 20 West, 41 North 30 West, 36 North 40 West, 29 North 50 West, RKDIA, FL320, Mach decimal 85."



**Pilot:** "Air France 3510 heavy, cleared to Juliana via random routing LAPEX, 46 North 15 West, 45 North 20 West, 41 North 30 West, 36 North 40 West, 29 North 50 West, RKDIA, FL320, Mach decimal 85."

**ATC:** "Air France 3510 heavy, correct, return previous freq. Report LAPEX."

**Pilot:** "Wilco, Air France 3510 heavy."

### Random route clearance by datalink:

Clearance works just the same way as a NAT Datalink clearance.

Remember:

- File only the waypoints in Datalink, NO DCTs should be filed in the waypoints.
- Datalink means datalink, Voice is only to be used by ATC instruction or in emergencies.

OCC CLX

POS REPORT

MANUAL

REVIEW

NEW MESSAGES

OCEANIC CLEARANCE REQUEST

CALLSIGN: BAW145

ROUTE TYPE: RANDOM

ENTRY POINT: GOMUP

FLIGHT LEVEL: 310

ETA: 0200 z

MACH: 085

ROUTE GOMUP 59/20 60/30 59/40 57/50 HOIST

RMK /

SEND

OCC CLX

POS REPORT

MANUAL

REVIEW

NEW MESSAGES

MESSAGE

0831 190908 AUTO  
BAW145 RCL RECEIVED  
IF NO CLEARANCE WITHIN 15 MINUTES  
REVERT TO VOICE PROCEDURES  
END OF MESSAGE

ACKNOWLEDGE

OCC CLX

POS REPORT

MANUAL

REVIEW

NEW MESSAGES

OCEANIC CLEARANCE

0833 190908 EGGX CLRNCE 924  
BAW145 CLRD TO YSSY VIA GOMUP  
RANDOM ROUTE  
59/20 60/30 59/40 57/50 HOIST  
FL310 M085  
CROSS GOMUP NOT LATER THAN 0210z  
END OF MESSAGE

ACCEPT

REJECT



## Position report by voice:

**Pilot:** "Shanwick, Air France 3510 heavy, position report."

**ATC:** "Air France 3510 heavy, pass your message."

**Pilot:** "Air France 3510 heavy, Passed LAPEX at 0955Z, FL320, Mach decimal 85, estimating 46 North 15 West at 1020Z, 45 North 20 West is next."

**ATC:** "Air France 3510 heavy Passed LAPEX at 0955Z, FL320, Mach decimal 85, estimating 46 North 15 West at 1020Z, 45 North 20 West is next."

**Pilot:** "Readback correct, Air France 3510 heavy."

## Position report by datalink:

Position reports via datalink for random routings work exactly the same for position reports via datalink for NATs.

OCC CLX

POS REPORT

MANUAL

REVIEW

NEW MESSAGES

POSITION REPORT

POS: GOMUP

ATA: 0200

FLIGHT LEVEL: 310

MACH SPEED: 085

ESTIMATE: 59/20

ETA: 0240

NEXT: 60/30

SEND

OCC CLX

POS REPORT

MANUAL

REVIEW

NEW MESSAGES

MESSAGE

POS REPORT BAW145  
POSITION REPORT CONFIRMED  
END OF MESSAGE

ACKNOWLEDGE



## KEY MESSAGES TO TAKE HOME

- Pick a suitable routing.
- Make sure the coordinates of your desired track are in your FMC.
- Know the time-constraints for the NATs and file your flight plan accordingly.
- Do not put any DCTs in the 'Route' field when using Datalink, accept after the first and last FIX.
- Obtain your clearance in good time, follow instructions carefully.
- "STAND BY" means wait, it does not require an acknowledgement.
- Always readback the clearance.
- Do not expect step climbs, especially on the NAT tracks.

Always fly the clearance as directed by the controller. It may differ from what you requested.

## ACKNOWLEDGEMENTS

The OCC Staff Team would like to express their tremendous thanks to Simon Laqueur, for whom without which, this guide would not exist. FMC and FMGC images by Craig Tyler.

--END OF MESSAGE--

## ANY QUESTIONS?

Please direct any questions to a member of your Oceanic Team either via: e-mail (found at the bottom right of the [OCC Website](#)), [Discord](#) or the forum.





## APPENDIX A: FLYING INTO/OUT OF GREENLAND

### INBOUND

- Flights into Greenland still need to file a valid oceanic routing consisting of an entry point, a fix at 50°West and at 40°West.
- Position reports are made as per normal.
- Descents will be cleared at pilot's discretion with a release from frequency passing FL 190.

### OUTBOUND

- Clearance requests should be made ideally 30 minutes before Oceanic entry, ideally on the ground, but if not practical, it should be requested as soon as practical after departure.
- The same routing rules apply flying towards Canada as from Canada.
- Flights will be uncontrolled and receive limited traffic information until passing FL190.



## APPENDIX B: FLYING INTO/OUT OF ICELAND

- Flights to Iceland should aim to plot a fix for easier entry at the boundary (61° North east of 30° West, thereafter, increasing to 63° 30' North).
- Clearance should be sought with 30 minutes to entry.
- If unable to tune Shanwick please send a text message to the controller.