PLOTNG®

NEXT GENERATION OCEANIC PLOTTING

Pilot's Guide

QRH

plotNG_RTFM_V2.40.2502.001

Welcome

Congratulations on becoming part of our plotNG community! plotNG is the world's first fully compliant, zero manual entry, Next Generation plotting solution for aviation. plotNG leverages existing platforms that you know and trust; enhances safety and situational awareness; significantly reduces your workload during critical pre-flight preparation; provides unmatched accuracy; virtually eliminates plotting and calculation errors; and, provides the flight crew with required internationally-compliant tools and documentation.

plotNG seamlessly integrates with ForeFlight and features a rich toolset. plotNG's secret sauce is its ability to read your PDF flight plans as received from your provider. Upon receipt of your provider's flight plan, simply forward the PDF to plotNG. plotNG processes your flight plan and sends back an email containing a TripKit that you can immediately load into ForeFlight. No cutting and pasting. No manual data entry. Best of all, it typically takes less than a minute from the time you send your flight plan to plotNG, to the time you're up and running with ForeFlight!

plotNG is made to do one thing, and one thing well… electronic plotting. Of course, we recognize that not every pilot has the same needs, or works in the same operating environment. plotNG Version 2 gives you what you need and allows you to manage your workflow using the tools and applications you already know and love.

plotNG is built by pilots, for pilots.

plotNG. It Just Works!

Quick Start

Create a TripKit
Forward your flight plan PDF to tripkit@plotng.com

Load your Flight Plan PDF
Tap on your flight plan PDF → tap Share (⎙) → tap ForeFlight → tap Documents

Remove Old Custom Content Packs
Tap More → tap Custom Content → remove old plotNG Custom Content Packs

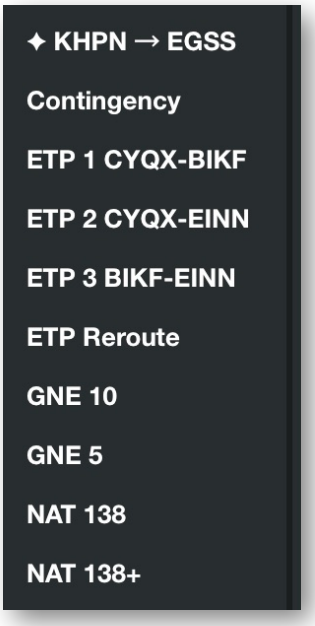
Load Route into ForeFlight
Go back to your email, wait for receipt of plotNG TripKit
Tap the Load Route attachment → tap Load Route into ForeFlight

Load Custom Content Pack into ForeFlight
Go back to your email
Tap the Content Pack attachment → tap Share (⎙) → tap ForeFlight → tap OK

Create a New Flight
In the flight plan editor, tap Share (⎙) → tap Flights

View Plotting Chart Data
Go to Maps
Tap the Maps layer menu and scroll the right column down to the bottom

Tap to display the great-circle route
Tap to display ICAO 4444 Oceanic Contingency Procedures
Tap to display the first group of ETPs
Tap to display the second group of ETPs
Tap to display the third group of ETPs
Tap to display the graphical re-route solution
Tap to display suggested 10 minute GNE waypoints
Tap to display suggested 5 minute GNE waypoints
Tap to display the current NAT tracks
Tap to display the future NAT tracks



Getting Started

How It Works

plotNG's secret sauce is its ability to read your flight plan, perform independent navigation calculations based on the WGS-84 ellipsoid and WMM2020 world magnetic model, and generate compliant plotting chart overlays that can be imported directly into ForeFlight. plotNG is able to read flight plans generated by most trip planning service providers without any changes or modifications to your existing report formats.

plotNG requires every flight plan to minimally consist of a master document, an ICAO flight plan, and ETPs. plotNG will detect up to four flight plans (legs) within each flight plan PDF and processes them individually.

It is important that you and your provider do not "re-generate" or cut-and-paste your flight plan PDF after receiving it from their flight planning system. The original PDFs are formatted as text. Re-generating a PDF may result in its text being converted into an image, and plotNG will not read an image.

Your provider may send you your flight plan PDF four to five hours prior to departure. Sending your flight plan PDF to plotNG for processing one hour prior to engine start ensures you will receive the latest oceanic track messages. Always carry a spare paper chart. This simple step makes plotNG non-mission critical.

When you are ready, forward your flight plan PDF to tripkit@plotng.com. Your plotNG electronic plotting solution (TripKit) will typically be generated and returned to you in less than one minute. The TripKit contains a summary of the flight, an independent course and distance report for the oceanic portion of your route, an email attachment that will load your route and any crossing limitations into ForeFlight, and an email attachment containing a custom content pack that loads directly into ForeFlight. The custom content pack contains oceanic contingency procedures, ETPs, GNEs, and oceanic tracks.

Please note that loading your route into ForeFlight will overwrite any existing route. However, loading your content pack into ForeFlight will add it to the existing list of content packs. While loading multiple content packs can provide you with an excellent tool to compare alternative routings during your pre-flight planning, best

practice is to depart with only one content pack loaded. This helps mitigate your risk of accidentally viewing the wrong data overlay on your map screen.

User Options

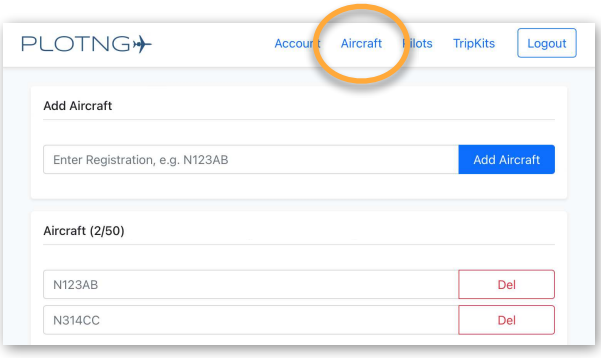
There are none! Every plotNG Version 2.0 TripKit includes… everything. Using plotNG could not be any easier.

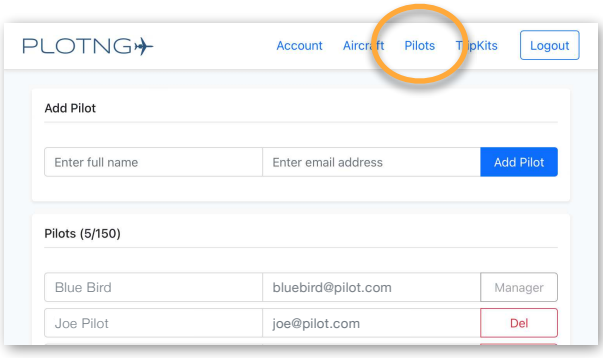
Account Administration

To create your plotNG account, visit https://fly.plotng.com, click Sign Up, enter your name, email address and a password you would like to use, accept our Terms of Use, and click Register. You will receive an email asking you to confirm your email address. After clicking the link, you will have full access to your plotNG account. Please go to the Account page and enter the required information, click Update, then add your payment credentials and click Add Card.

plotNG uses two different methods to identify and validate users. Users are recognized by their email address. Aircraft registration numbers found in your flight plans are cross-checked against the authorized aircraft added to your account. Only when the user identification and the aircraft registration number are both successfully validated will plotNG process your TripKit request. The list of authorized Pilots always displays the account manager as the first entry, and this user cannot be deleted on this page.

Click on Aircraft and add all of the unique aircraft registration numbers you wish to authorize. Then, click on Pilots and add all of the pilots you wish to authorize. We recommend that you add company email addresses, personal email addresses, and device email addresses. Any email address that can be used to submit a flight plan should be authorized in your account.



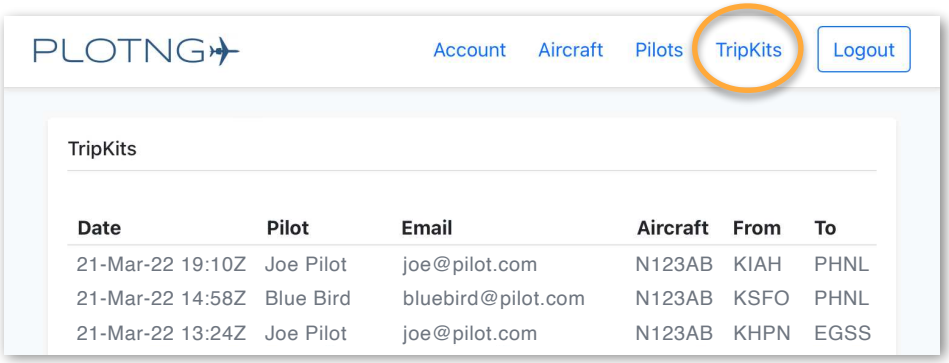


plotNG uses your email address to uniquely identify you, which means that you cannot associate an individual email address with more than one plotNG account.

Once you create your account, add aircraft registration numbers, and authorized users. plotNG is now ready for use. There are no settings to configure.

Should you forget your account password, or wish to change your password, visit https://fly.plotng.com, click Login, then click Forgot Your Password?, and follow the prompts. plotNG will send you an email link to reset your password. If you ignore this email, plotNG will leave your password unchanged.

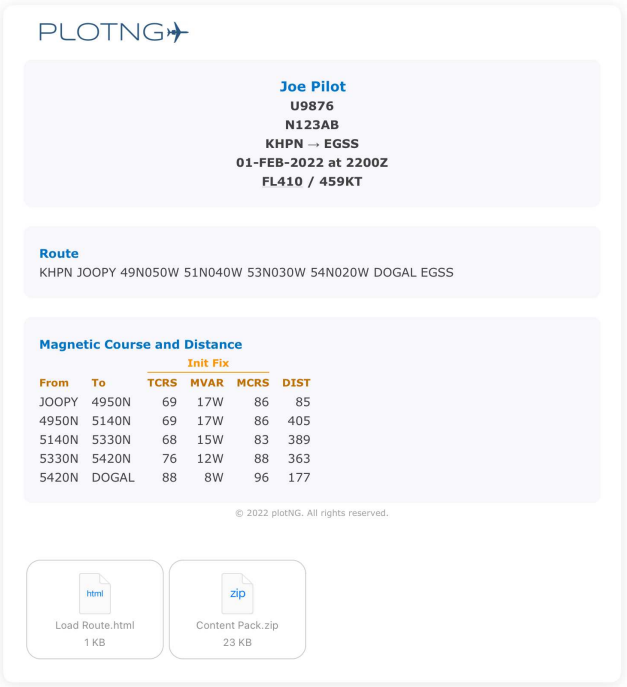
plotNG maintains a history log on the TripKit page. This is a chronological listing of all TripKits processed by each of your users. If a flight plan PDF contains more than one leg (flight plan), each leg will be listed as a separate TripKit. The Date column reflects the date and time the flight plan was received and processed by plotNG, not the date and time of the flight.



plotNG will automatically process up to four legs per flight plan PDF. If more than four legs are present, only the first four legs will be processed. The rest will be ignored. Of course, you may submit more than one flight plan PDF in a single email, and each of those PDFs may contain multiple legs. When multiple legs appear in a single PDF, only the aircraft registration number found in the first flight plan will be considered for the remaining legs. Subsequent legs within the same flight plan PDF specifying a different aircraft registration number will be ignored.

TripKits

A plotNG TripKit consists of a trip summary, the filed Route, a Magnetic Course and Distance report, a Load Route attachment, and a Content Pack attachment. A separate TripKit will be generated for each leg in your flight plan PDF.


PLOTNG

Joe Pilot
U9876
N123AB
KHPN → EGSS
01-FEB-2022 at 2200Z
FL410 / 459KT

Route
KHPN JOOPY 49N050W 51N040W 53N030W 54N020W DOGAL EGSS

Magnetic Course and Distance

		Init Fix			
From	To	TCRS	MVAR	MCRS	DIST
JOOPY	4950N	69	17W	86	85
4950N	5140N	69	17W	86	405
5140N	5330N	68	15W	83	389
5330N	5420N	76	12W	88	363
5420N	DOGAL	88	8W	96	177

html
Load Route.html
1 KB

zip
Content Pack.zip
23 KB

The trip summary allows you to confirm you have selected the correct flight plan.

The Route is your filed ICAO route without any crossing limitations, and includes the departure and arrival airports. Should you encounter any difficulty importing your route from your iOS email application into ForeFlight, you can copy and paste the entire route string into the ForeFlight search box on the Maps screen.

The Magnetic Course and Distance report is independently generated by plotNG, and is calculated using the WGS84 reference ellipsoid and the WMM2020 world magnetic model epoch. Only the oceanic legs in your filed route are presented. Note that the true course, magnetic variation, and magnetic courses are calculated at the initial fix of a leg, not its mid-point. Because plotNG uses the World Magnetic Model to calculate the magnetic variation, these courses may be very near to what you observe on your PFD, but may differ from those values presented by your FMS by several degrees. This is to be expected.

The Load Route attachment is used to load your filed route and any crossing limitations into ForeFlight. The Content Pack attachment is used to load your electronic plotting solution into ForeFlight. These processes are explained in more detail in the next section, Using plotNG.

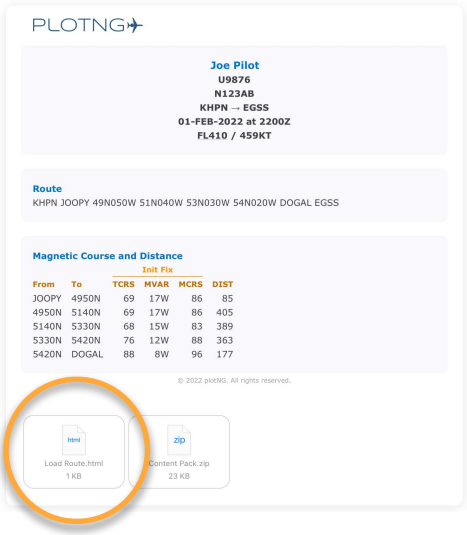
Upon receiving your TripKit, you should share it with your crew members by either forwarding the email, or by loading the data into ForeFlight and then AirDropping the individual components to each pilot.

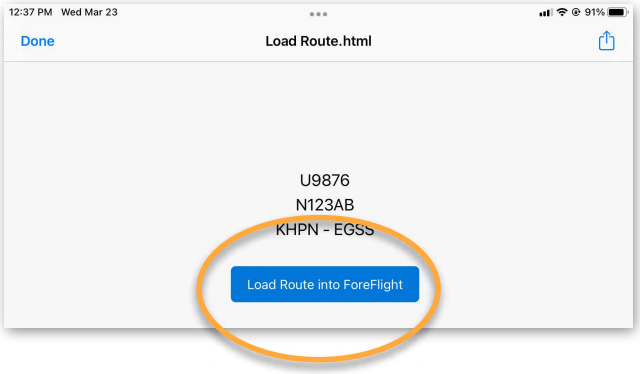
Using plotNG

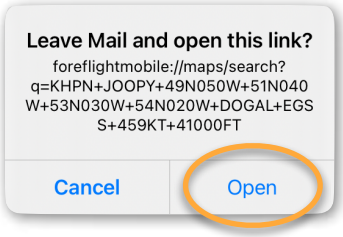
Loading the Route

Loading your TripKit into ForeFlight requires loading your route and then your custom content pack. The first step is to load your route into ForeFlight.

To load the route, tap on the Load Route attachment icon. Your email application will display a new browser pop-up window. Tap on the blue Load Route into ForeFlight button. Your email application may display a pop-up message asking you Leave Mail and open this link? Click Open. ForeFlight will open and your route will populate into the route editor. If your flight plan includes a departure procedure, ForeFlight may ask you to specify a departure runway.



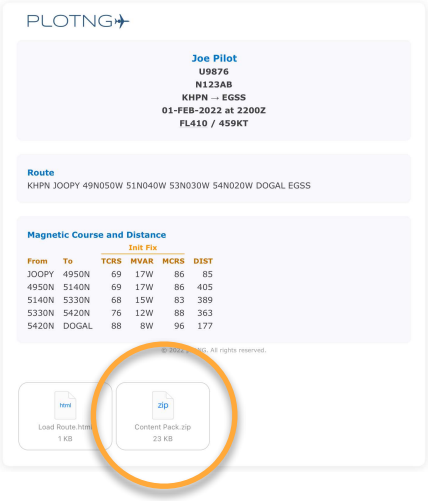




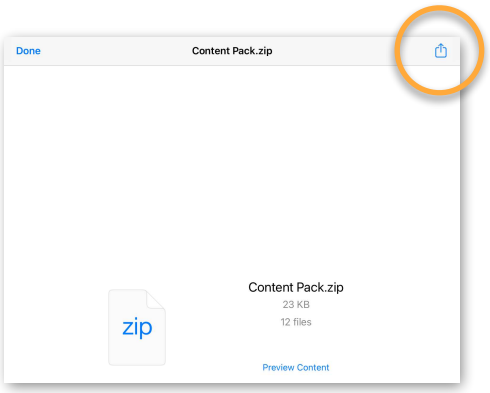
Loading the Content Pack

Your plotNG Custom Content Pack contains contingency procedures, ETPs, a graphical re-route solution, 5 minute and 10 minute suggested GNE check points, and NAT oceanic tracks.

After loading the route into ForeFlight, go back to your email app, and tap on the Content Pack attachment icon. Your email application will display a new browser pop-up window.



Tap Share ( ) → tap ForeFlight → when prompted, tap OK.

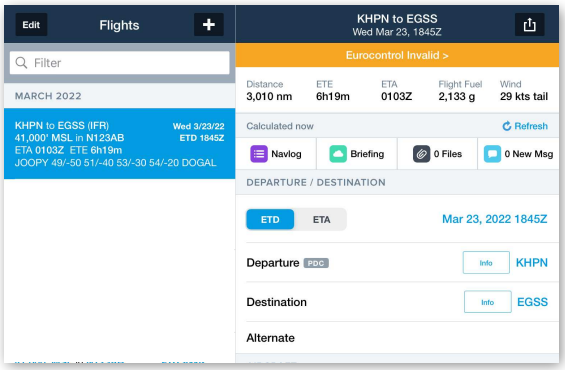


Pro Tip: If you are using the Apple email app, you can save yourself a step if you tap-and-hold on the Content Pack attachment icon. When the pop-up menu appears, tap Share, then ForeFlight.

Send to Flights

At this point, your plotNG Custom Content Pack is installed and ready for use. The next step is to prepare ForeFlight to save your GNE checks. While ForeFlight offers several methods to annotate your oceanic plot, plotNG recommends using marked positions to track your gross navigation error checks.

To configure ForeFlight to retain your marked position GNE checks, tap Share ( ) at the bottom of the route editor, then select Flights. ForeFlight will create a new flight from your imported route and provide you with an associated Files folder in which to save documents, photos, and any marked positions you create during your flight.

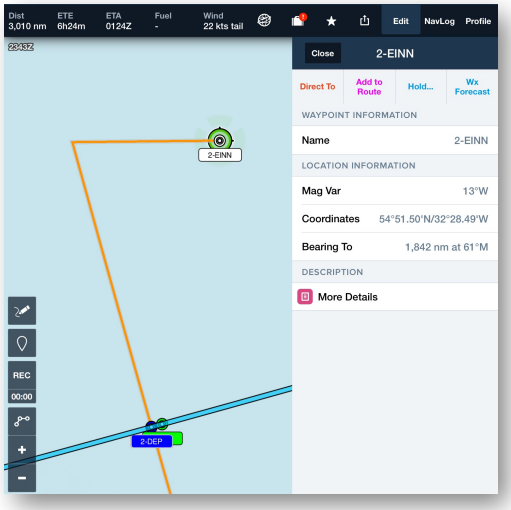


Bullseyes

plotNG generates a custom electronic plotting solution unique to each flight plan. TripKit data is partitioned into several user selectable layers allowing you to display or declutter the screen with a remarkable degree of granularity. Many layers contain additional flight plan data available through interactive pop-ups. To view this data, tap on any bullseye. The titlebar of the pop-up includes the name of the bullseye selected and its latitude and longitude are displayed below. This is particularly relevant for ETPs. If a More Details magenta icon is displayed in the Description section, tap it to display the additional information.

plotNG layers with bullseyes and additional information:

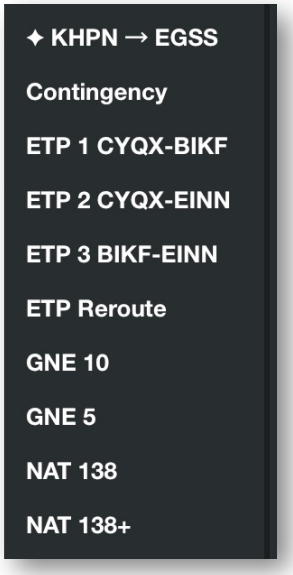
Contingency
ICAO 4444 In-flight contingencies in oceanic airspace
ETP
latitude and longitude, planned altitude and airspeed used to divert to the airport
GNE 10
latitude and longitude
GNE 5
latitude and longitude
NAT
Track message, route, flight levels, PBCS levels, remarks



Departure and Arrival Airports

The ◆ *departure* → *arrival* airport layer serves two purposes. Primarily, it provides an identification label for the layers appearing immediately beneath it. If you load multiple content packs, each group of layers will be preceded by their own airport-pair header allowing you to correctly identify and select the desired data to display. To mitigate the risk of displaying unintentional data, plotNG recommends loading only one custom content pack during flight.

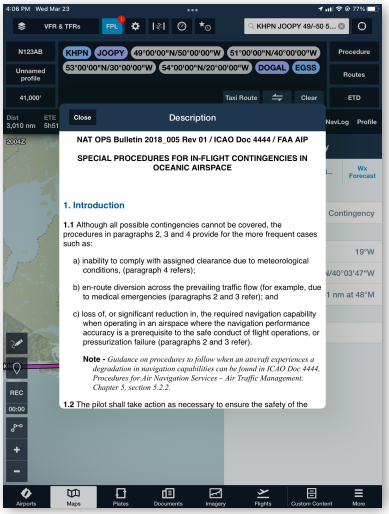
Secondarily, when selected, the flight plan recall number is displayed as a label associated with the departure airport (if provided in the flight plan), along with a great circle flight path between the departure and arrival airports.



Pro Tip: You can get a very good idea of how optimal your route is by comparing the proximity of the legs to the great circle flight path.

Contingencies

The contingency layer displays a (relatively large) red bullseye conveniently located near the oceanic portion of your route. Tapping this bullseye displays the ICAO 4444 In-flight contingency procedures on the Maps screen.



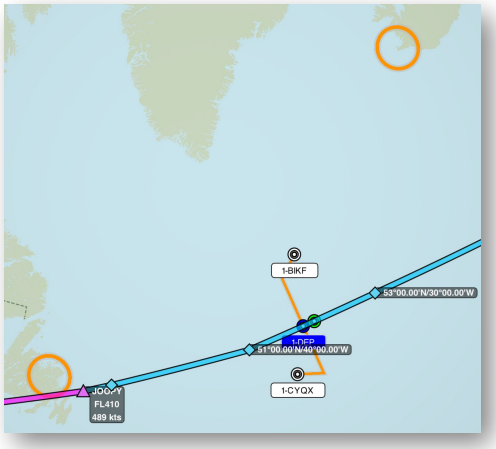
ETPs

plotNG analyzes the ETPs in your flight plan and generates a custom layer for each pair of diversion airports. The sequence in which ETP layers appear in the layer menu is determined by the order in which the ETPs are used along your route.

Pro Tip: ETP groups can be individually displayed, turning them on and off as you progress along your route. This technique can significantly enhance your situational awareness while decluttering your screen.

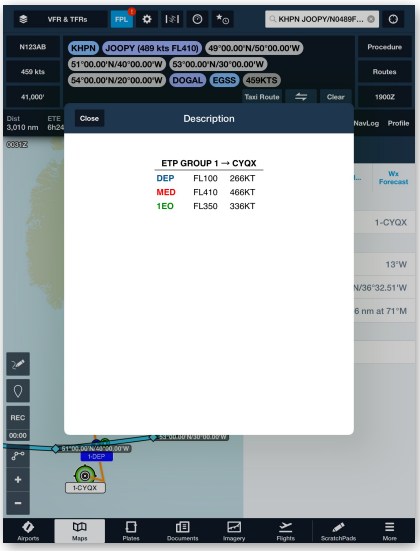
In concert with ETP locations and vectors, plotNG highlights the diversion airports with an orange ring that surrounds those airports. This is a situational awareness

enhancement, and is designed to avoid interfering with your ability to tap the Maps screen to obtain additional airport information from ForeFlight.



Depressurization ETPs are represented with a blue bullseye, one / two engine inoperative ETPs are represented with a green bullseye, medical ETPs are represented with a red bullseye, and PNR / PSR ETPs are represented with a black bullseye. Tapping the bullseye will pop-up the latitude / longitude of the ETP. Multiple ETPs that occur at the same exact location may be difficult to distinguish. To view individual ETP data, tap More → tap Custom Content → tap on your plotNG content pack → tap on ETP.

ETP vectors are drawn through the most fuel critical ETP, which more often than not, is the depressurization ETP. Depending on which ETPs are provided, the priority is to plot vectors through the depressurization ETP, followed by the one / two engine inoperative ETP, and finally, the medical ETP.



Located adjacent to each ETP vector arrow head is a white bullseye labelled with the ETP group and diversion airport. Tapping on the bullseye displays the planned flight level and airspeed to fly from the contingency location to the diversion airport. ETPs are sorted top to bottom in the order they occur along the route of flight.

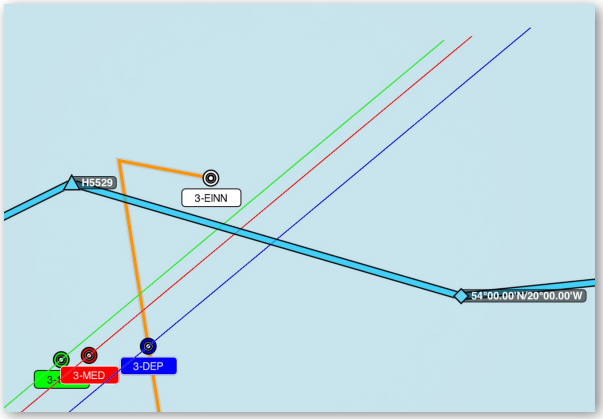
Re-routes

Re-routes are often viewed as “partial” if only a handful of fixes change, or “complete” if a substantive number of fixes (or, all of them) change. How you handle a re-route in ForeFlight is mainly dependent on whether your iPad is capable of sending and receiving email while enroute.

If you can send / receive emails, the flight crew first needs to assess whether to contact the provider to re-calculate and email a new flight plan. If so, then generating

a new plotNG TripKit will provide the crew with a fresh electronic oceanic plot. Business as usual.

If you cannot send / receive emails, display the ETP Reroute layer, manually edit the amended route waypoints in ForeFlight's route editor, or drag-and-drop (or, delete) the existing fixes to their new locations on the Maps screen.



Re-route extension lines are color coded to the ETPs they represent and extend in both directions. ETPs are relocated where the re-route extension lines intersect your amended route.

GNE Checks

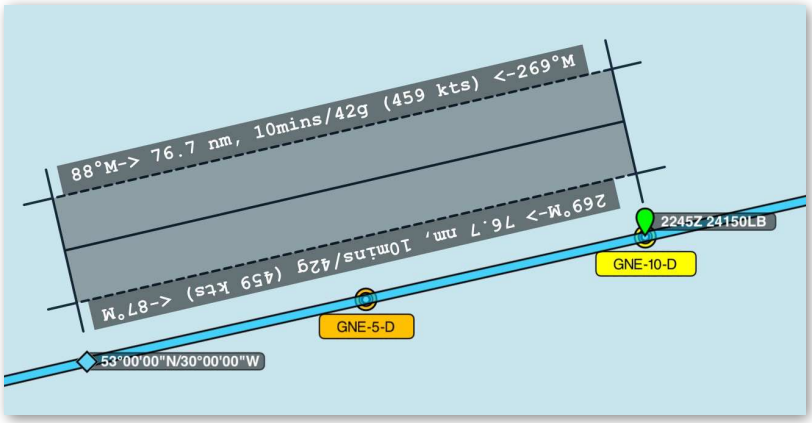
plotNG calculates and plots suggested GNE checkpoints both 5 minutes and 10 minutes past each oceanic waypoint, based on your filed cruise airspeed. Select either the GNE 5 or the GNE 10 layer commensurate with your SOPs. If a leg length is less than 5 minutes or 10 minutes, respectively, plotNG will not add a GNE checkpoint. plotNG interprets all route waypoints above 65°N latitude and below 65°S latitude as oceanic, regardless if the route is over land or within the service volume of a ground based navaid. Magnetic variations in these regions combined with a possible operational need to change to true course navigation create a work environment ripe for gross navigation errors.

plotNG's suggested GNE checkpoints are just that, suggestions. The pilot-in-command is always responsible for determining where and when a gross navigation error check should be performed and how to best document it.

Because plotNG GNE checkpoints are computed no-wind, the actual location of ownship may precede or follow the actual GNE checkpoint. GNE 5 and GNE 10 checkpoints are a powerful visual situational awareness tool and should always be used in concert with standard timing procedures.

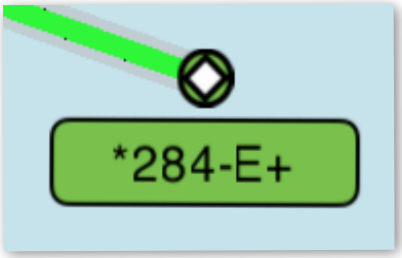
GNE checks are best performed using ForeFlight marked positions. When using marked positions, be sure you are familiar with the navigation source used to provide

ForeFlight with its position, altitude, and airspeed. If you are using a certified source, you can simply drop the pin and tap Save. Of course, there are several ways to enhance the data associated with your marked position on your plotting chart and we refer you to ForeFlight's documentation to learn more about this capability. If you are using a portable GPS, or a non-certified source, be sure to compare the aircraft's present position, as depicted on the non-steering FMS, against the latitude / longitude reported in ForeFlight's marked position pop-up for any discrepancies, and correct as required.

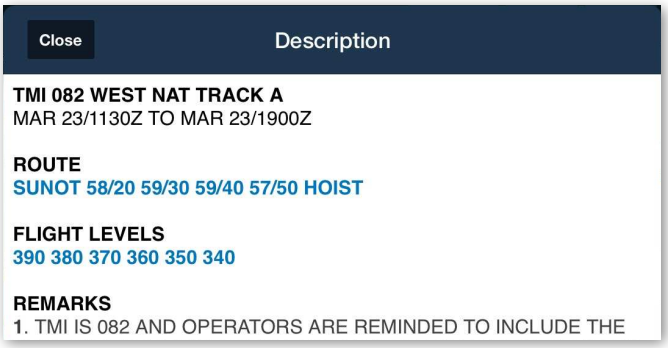


Oceanic Tracks

plotNG includes NAT OTS track messages and plots with every TripKit. Customized track messages are available as a pop-up on the map screen simply by tapping the track bullseye. All track labels include the TMI number for enhanced situational awareness, a prefix asterisk if the track has PBCS levels, and a postfix plus if the track is valid in the future.



The full track message and remarks are included with each track, and is customized to that track. plotNG provides an easy to read route string with all track fixes, and an easy to read flight level string that lists the track specific altitudes. plotNG adds an asterisk (*) suffix to indicate PBCS flight levels.



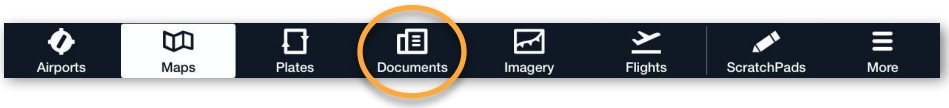
Operationally, the fundamental difference between ForeFlight tracks and plotNG tracks is that ForeFlight tracks change when a new track message become available. plotNG tracks are static, meaning you can reload a plotNG content pack several

months after your flight to recall the oceanic tracks exactly as they appeared on the date of your flight. This goes beyond simple screen captures and addresses both SAFA checks and pilot deviation inquiries.

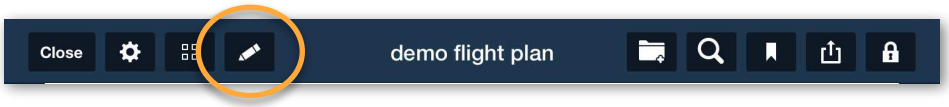
Use ForeFlight's Aeronautical layer to display PAC OTS and AUS OTS tracks.

Master Document

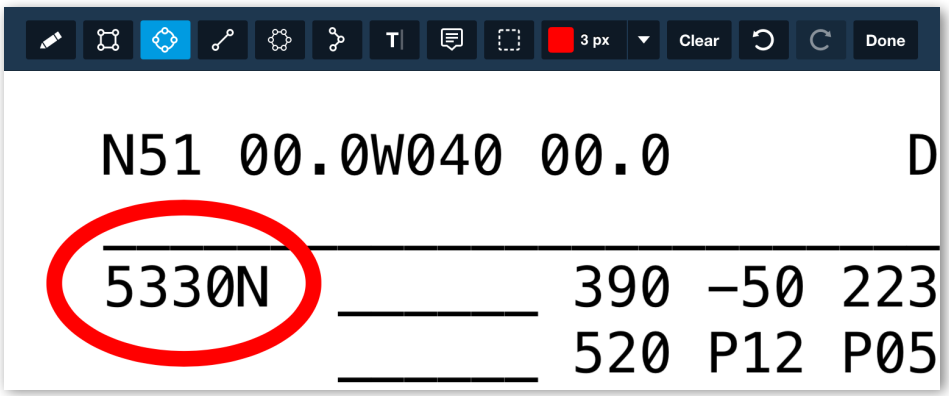
To edit / update your Master Document, tap on Documents.



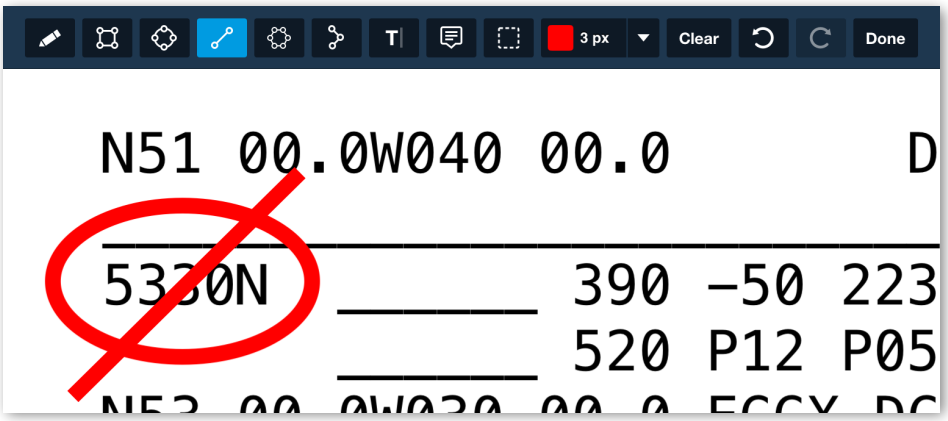
Tap on the pencil icon to enter edit mode.



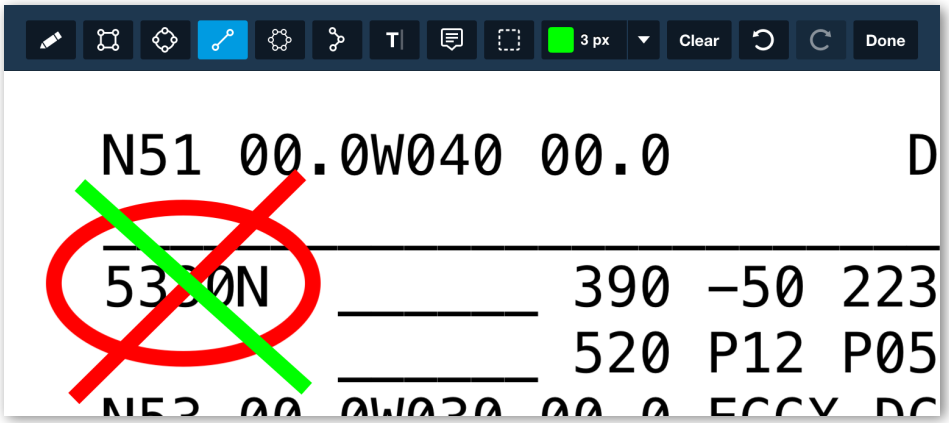
Pinch-zoom to enlarge your master document PDF, tap on the ellipse icon and draw an oval using your finger. An Apple pencil is not required.



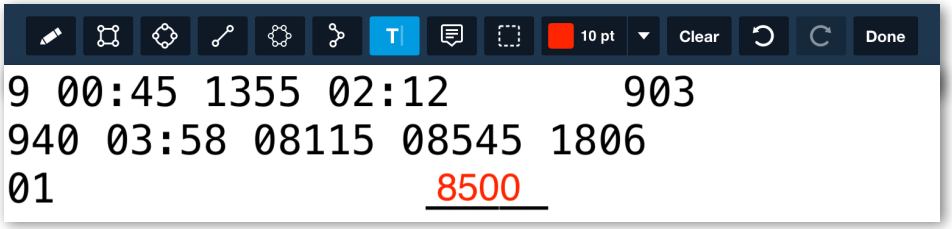
Tap on the line icon and draw a slash using your finger.



Assign different colors to each crew member that edits the master document.

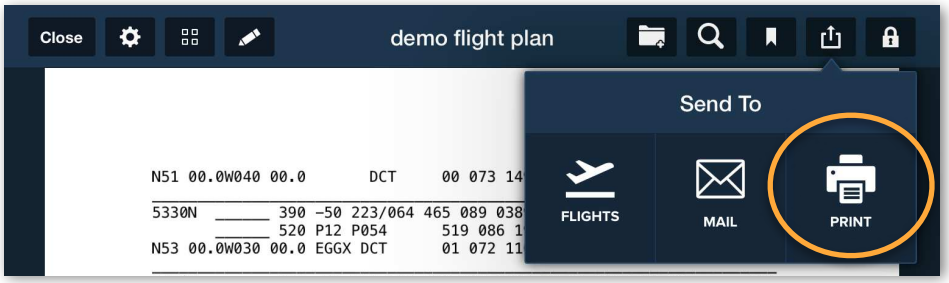


Enter textual data using the text tool.

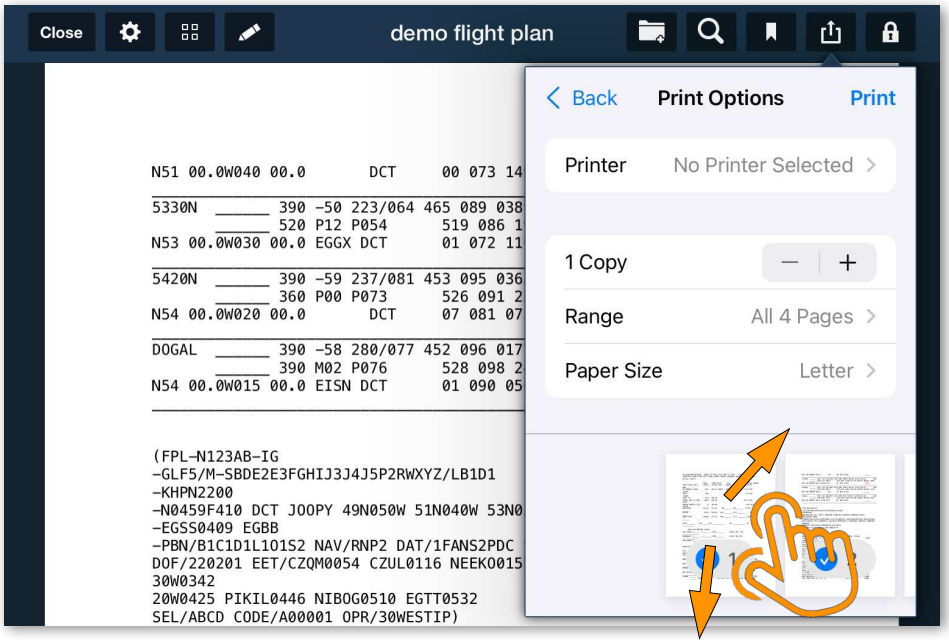


Sharing Master Documents

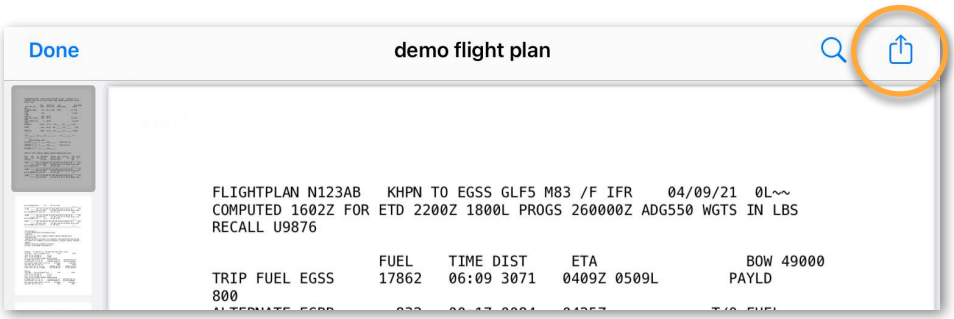
Ideally, only one master document should be edited during a flight. To hand-off a master document from one pilot (iPad) to another pilot (iPad), tap Share (⬆) → tap Print. This technique applies even if a printer is not available.



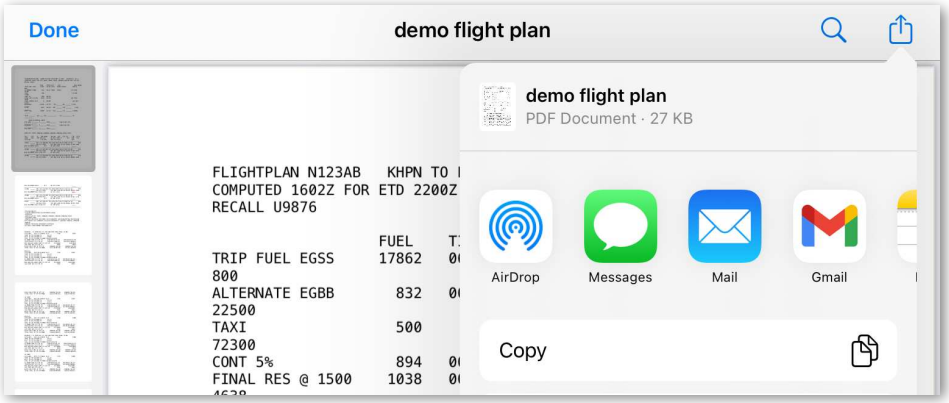
Then, pinch-zoom on one of the mini-rendered images.



Tap Share ( ),



Then, select AirDrop to send the PDF to another pilot (iPad). This technique works whether your iPad is configured with an individual or managed ForeFlight account.

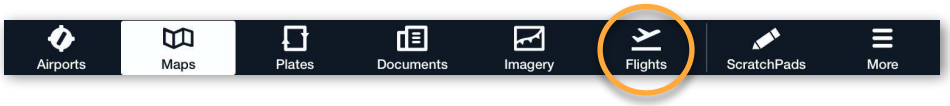


Quick Finish

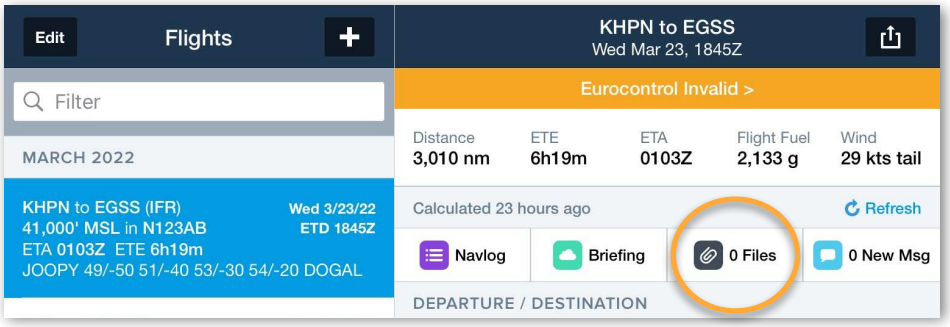
Your journey log data should be stored for a minimum of six months. As a minimum, the data saved should include your:

- plotNG Custom Content pack
- GNE checks
- master document (provider flight plan PDF)
- screen captures and FMS photos

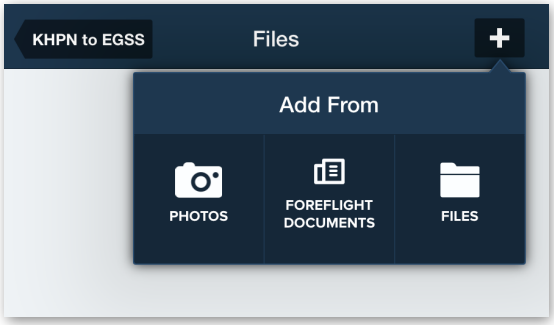
In Quick Start, after you sent your route to Flights, a new Files folder was created in which to store related trip information. Files are automatically synced with your ForeFlight account, including Marked Position GNE checks. To add files to your Flights Files folder, tap Flights,



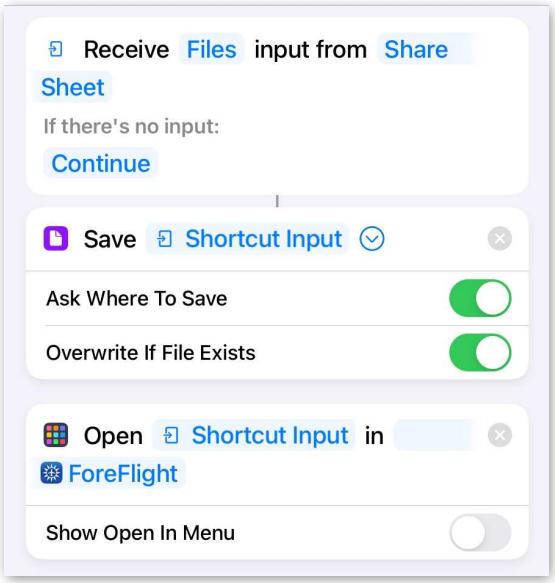
tap Files,



tap +, add new data from your photos (screen captures, FMS photos), your ForeFlight Documents (master document), and your files (plotNG Content Pack).



You can automate the tasks of saving your plotNG Content Pack in Files and sending the content pack to ForeFlight by using the following custom iOS Shortcut:



There are many other ways to save your journey log data directly from within ForeFlight, including but not limited to, Dropbox, Google Drive, etc. (or any cloud storage service that directly integrates with iOS), or email. You can access any of these services by tapping the Share ( ) icon.

FAQs

What's new in Version 2.0?

Loading your route and custom content pack works identically with any email application; all TripKits are sent as email attachments and are no longer time limited; user settings have been eliminated; authorized-user accounts have been eliminated; account management is simplified; plotNG's ForeFlight layers have been redesigned and are easier to read and navigate; ETP graphics are enhanced; ETP ancillary data is simplified; ETPs can now be decluttered by group; contingency procedures are accessible directly on the Maps screen; PAC OTS and AUS OTS tracks have been eliminated; NAT OTS track messages have been enhanced; 5 minute and 10 minute suggested GNE check points are included in every TripKit; the route and course validation is simplified to just the oceanic legs; and… more.

About your trip support provider

The list of pre-approved providers is expanding all the time and currently includes: ARINCDirect, Colt, FlightPro International, ForeFlight, Honeywell GDC, ITPS, Jeppesen, Jetex, Signum, Universal Weather and Aviation, and WorldFuel Services. If you use a different provider, don't panic! Send us an email with a sample flight plan and we'll look into training plotNG to read your flight plan PDFs. Of course, while plotNG is quite adept at reading the vast majority of flight plan formats, there will always be some that are simply too atypical to process.

What does my flight plan need to include?

At a minimum, your flight plan PDF should have a master document that includes latitudes and longitudes for each waypoint, an ICAO flight plan, and ETPs. Flight plan PDFs containing multiple legs require a unique identifier that allows plotNG to reliably determine where one flight plan ends and the next one begins.

What types of ETPs are recognized?

plotNG recognizes depressurization (DEP), one engine inoperative depressurization (1DP), medical (MED), PNR / PSR (PNR), one engine inoperative (1EO), two engine inoperative (2EO), fan blade (FAN), and ETOPS / EDTO (EDT) ETPs. DEP, 1DPs are blue, MEDs are red, PNRs are black, and 1EO, 2EO, FAN, EDTs are green. During any contingency, the pilot-in-command should always refer to the ETP data provided in their flight plan PDF, and to be mindful of any step-down limitations.

Why is my departure / destination airport shown as ZZZZ?

ZZZZ is used in flight plans when an airport does not have an ICAO allocated airport identifier. When plotNG cannot reliably determine the airport identifier, ZZZZ will be sent to ForeFlight. After loading your route, manually edit (replace) ZZZZ with the correct airport identifier.

Why is my account disabled?

As a safe guard, plotNG validates your TripKits against your account settings. If you send more than three sequential invalid requests, plotNG will disable your account. The email address you use to send your TripKit to plotNG must match your plotNG username, and the aircraft registration number in your flight plan must match one of the aircraft you specified in your plotNG account.

Are there different subscription types for individual users and flight departments?

Nope. We're keeping it simple. plotNG is designed to support individual users as well as flight departments. An account manager can register as few as one pilot (themselves) and one aircraft to as many as an unlimited number of pilots and aircraft. Whether you're a single pilot or a member of a flight department, you'll have access to all of plotNG's features.

Is this a legal way to plot?

Yes. plotNG was designed with compliance in mind from day one.

What about record keeping requirements?

plotNG is here to help, not get in your way. The TripKit that plotNG generates contains all of your oceanic plotting data, including your route with crossing limitations, NAT Oceanic Track Systems, ETPs, diversion airports, contingency procedures, and independent course and distance validation. If you view your TripKit at a later date, you'll see all of the flight data exactly as it appeared on the day of your trip, including the oceanic tracks.

After you complete your flight, you'll need to save your screen captures and photos, flight plan, Master Document, and GNE checks. You can save your data via text, email, AirDrop, cloud storage, locally in an iOS folder, on a USB drive, or automatically sync with your ForeFlight account. Your options are limited only by your imagination. You can easily archive all of your crossing documents securely and privately, and for as long as you like!

Can I use ForeFlight Track Logs to manage my GNE Marked Positions?

You absolutely can! In fact, you should use Track Logs and Flights at the same time. Using Flights, it's easy to save your journey log data to your ForeFlight account. Regardless of the method you use to retain your GNE Marked Positions, we strongly suggest that you read ForeFlight's documentation on these features and use them appropriately.

What about privacy and security?

We are mindful of who our users are and the nature of the data they share with us. For this reason, we decided from the outset that plotNG will not store your data or plotNG's calculated results for later retrieval. This is the simple version of the answer. For a more complete explanation, please read our privacy statement, available on our website, https://fly.plotng.com.

We are happy to answer any questions you may have about plotNG. However, as a matter of privacy and security, we will only provide trip specific support to the requesting pilot.

How does plotNG generate a TripKit?

plotNG is a fully automated, electronic processing, service. Our servers receive your requests via email, read your flight plan PDFs, perform a series of computations to validate your flight plan, generate your electronic plotting chart layers, package everything up for direct loading into ForeFlight, and email a TripKit back to you. All in under one minute. Oh, and no humans are harmed during the creation of your TripKit!

I'm a contract pilot and need to be added as a pilot to multiple accounts

plotNG uses your email address to uniquely identify you, which means that you cannot associate an individual email address with more than one plotNG account. An easy work around is to create an alias for your existing email address and use both the original address and the alias. All correspondence will take place in a single Inbox. Or, you can create a free on-line email account using Gmail, Outlook, etc. and use multiple inboxes.

Anything else you want to know?

If we didn't cover something you would like to know about, please ask! Send your questions to support@plotng.com.

Best Practices

ForeFlight Settings

To facilitate your user experience while using plotNG, we suggest you enable the following ForeFlight settings:

- Enable Marked Positions (Map Settings)
- Enable Multiple Selections (Map Settings)
- Enable Zulu time (Preferences Units → Time)
- Enable Coordinate Units that match your FMS (Preferences Units → Coordinates)
- Enable AirDrop (iOS Settings → General → AirDrop)

Screen Captures

Screen captures are not required by regulation, but they are useful augmentations to your six-month documentation requirements, and for SAFA checks. We recommend screen captures be taken at each GNE check, zooming out to capture one or two fixes on either side of the waypoint in question to provide location context. If your position source is non-certified (e.g. a portable glare-shield mounted GPS), a photo of your non-steering FMS present position should ideally accompany the screen capture. At the end of your flight, zoom in on the entire oceanic segment of your route, display all ETPs, ETP Reroute (if you performed a manual re-route), GNE 5 or GNE 10, the OTS tracks, and capture the screen.

Position Sources

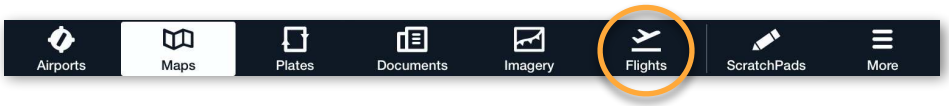
The FAA intends, as described in AC91-70C, that operators perform gross navigation error checks (5 minute or 10 minute checks) using a certified navigation source, preferably the non-steering FMS. As is often the case, aircraft equipped with on-board Wi-Fi can send ARINC 429 data bus navigation information to connected iPad devices. ForeFlight will use this information, and this provides for an ideal user experience.

When using a portable, non-certified, GPS source such as a BadElf, Dual, Stratus, etc., remember to compare the Marked Position's latitude / longitude against the non-

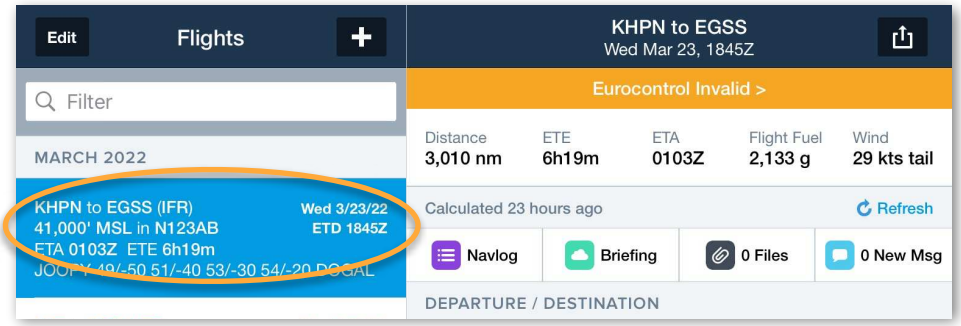
steering FMS present position and update ForeFlight's position as necessary. Then tap Save.

About Marked Positions

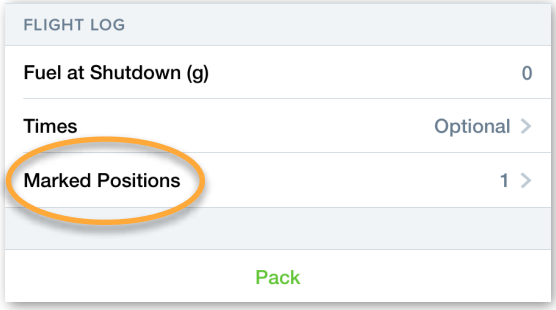
If you created a new Flight after loading your route, any new Marked Positions will be saved with the Flight and automatically synced with your ForeFlight account. These Marked Positions can be manually exported and saved. Tap Flights,



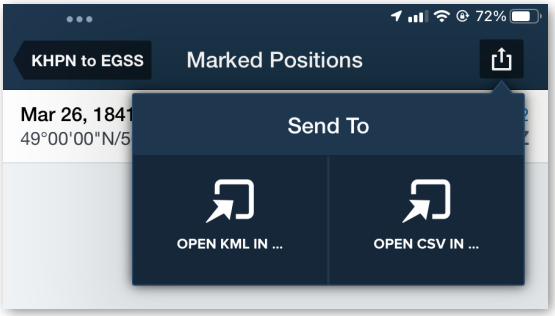
tap the flight in the left column,



scroll the right column to the bottom, tap Marked Positions,



Tap Share (⬆) → Open KML In…



Certified Operations

Use of interactive plotting applications for oceanic and remote continental navigation in certified operations requires prior authorization. Primary guidance to obtain authorization originates with AC 91-70C, AC 120-76, AC 20-173, AC 91-78, 8900.1 / ICAO 4444, and various OpSpecs.

plotNG reads a "standard" flight plan PDF and generates one or more data files that are directly imported into ForeFlight. ForeFlight is the EFB application. plotNG provides supplemental overlay data supporting interactive plotting.

From AC 91-70C:

6.3.1.12.2 Your chart should include, at a minimum:

1. The route of your filed flight plan or currently effective route clearance.
2. Clearly depicted waypoints using standardized symbology.
3. Graphic depictions of all ETPs.
4. Alternate airports.
5. Proximity of other adjacent tracks.

Note: For certificated operators, if OpSpec / MSpec A061 has been issued authorizing use of an Electronic Flight Bag (EFB) and the principal inspector (PI) has authorized "interactive plotting for oceanic and remote continental navigation," the EFB application may be used in place of a paper plotting / orientation chart. The current edition of AC 120-76, Guidelines for the Certification, Airworthiness, and Operational Approval of Electronic Flight Bags, provides guidance for operators to develop associated EFB procedures. For part 91 operators, an EFB may be used, provided the criteria and considerations of the current edition of AC 91-78, Use of Class 1 or Class 2 Electronic Flight Bag (EFB), are observed.

plotNG integration with ForeFlight exceeds the requirements of AC 91-70C 6.3.1.12.3.

If OpSpec / MSpec A061 has been issued authorizing use of an Electronic Flight Bag (EFB) and the principal inspector (PI) has authorized "*interactive plotting for oceanic and remote continental navigation,*" the EFB application may be used in place of a paper plotting / orientation chart.

You should obtain authorization to use ForeFlight and plotNG for "**interactive plotting for oceanic and remote continental navigation**". If you have obtained

authorization for ForeFlight alone, please review the following EFB recommendations for possible inclusion in your SOPs:

Carry two spare blank paper charts

Data exchange with plotNG is accomplished via email. If internet access is not available, the flight crew may revert back to manual plotting procedures to assure proper documentation and compliance. In this regard, plotNG is not mission critical.

Keep only one plotNG TripKit content pack loaded in ForeFlight at a time

plotNG creates custom layers that are user selectable in the drop down menu on ForeFlight's map screen. While loading several plotNG TripKits can be useful during pre-flight planning to evaluate different scenarios, pilots may inadvertently select incorrect data while en-route.

Process your flight plan through plotNG within one hour of departure

To ensure the flight crew is presented with the latest oceanic track data, we recommend that flight plans be processed within one hour prior to departure. plotNG's track information is static, in that it never changes once downloaded. This feature allows the flight crew to archive the track data for any flight and recreate that information at a later time. However, if the flight crew has an appropriate ForeFlight subscription and WiFi (or LTE) access, current track data may be obtained directly from ForeFlight.

Use the non-steering FMS for GNE checks

plotNG includes a powerful feature to remind the pilot when to perform GNE checks in oceanic airspace. If the pilot's iPad derives its current position data from a portable electronic GPS receiver, the non-steering FMS should be used to provide present position latitude / longitude information and then manually entered into ForeFlight. Depending on the ForeFlight subscription, pilots may use either marked positions, or create a custom user waypoint.

If the pilot's iPad derives its current position data from the aircraft's ARINC 429 data bus, (subject to authorization) that latitude / longitude may be used as it originates from a certified source. In this case, marked positions are the preferred solution because they do not require any manual data entry. If the pilot's ForeFlight subscription does not provide marked position functionality, current position data must be retrieved from the non-steering FMS and manually entered into ForeFlight using a custom user waypoint.

The pilot always needs to document the current Zulu time along with the latitude / longitude position.

Per AC 91-70C section D.2.9.2, provided that a) the pilot's iPad derives its current position data from a certified data source; b) the aircraft is equipped with an operable FMS; and, c) the operation has obtained OpSpec authorization, you may seek to obtain authorization for the "navigation method" by displaying the aircraft's current coordinates and cross track error on the instrument bar at the bottom of ForeFlight's map screen, zooming into the "smallest" scale, and taking a screen shot to document GNE waypoint passage.

Simply "drawing an 'X'" on the map screen does not provide the required accuracy required for a GNE check.

Take screen captures of the entire route and every GNE check point

SAFA / SACA Inspections document INST.RI.01/003 enumerate various checks that may be impacted by the use of EFBs. We recommend a more conservative approach to creating an archivable documentation set for each flight.

- Take a screen capture of the entire route, with ETPs and oceanic tracks zoomed to fit the screen.
- Take a screen capture of each GNE check point, making sure to use either a marked position, customer user waypoint, or displaying the instrument bar.
- If using custom user waypoints, export and save them prior to deletion.
- If using marked positions, export and save them prior to deletion.
- Archive the plotNG custom content pack, flight plan PDF, screen captures, photos, master document, and GNE marked positions.

Some ICAO member states may require the pilot to present a printed copy of their documentation. In the alternative, a PDF is usually considered acceptable. By taking these simple steps, the pilot will be able to create a PDF (from within iOS) at any time of any of these required elements.

Share plotNG TripKits

Upon receipt of a plotNG TripKit email, the requesting pilot should forward a copy to the other flight crew members. Although only one crew member should be updating the Master Document, having plotNG loaded on multiple devices provides enhanced situational awareness for all crew members, and provides a required redundant backup in the event an iPad should fail.

Sample Checklists

Before Engine Start

Confirm paper chart backup on-board

ForeFlight

- Delete unused content packs
- Delete unused custom user waypoints
- Load plotNG route into ForeFlight
- Load plotNG content pack into ForeFlight
- Send route to Flights
- Load Master Document (flight plan) into ForeFlight
- Select layers on map screen
- Screen capture entire route, ETPs, oceanic tracks

GNE Check

With Marked Positions

- Mark position

If Portable GPS Position Source (non-ARINC 429 Data)

- Select present position on non-steering FMS
- Cross-check marked position lat / lon to FMS
- Cross-check marked position time to FMS

- (optional) Annotate with actual fuel and delta fuel
- Tap Save
- Screen capture

With Custom User Waypoints

- Select present position on non-steering FMS
- In ForeFlight Maps screen search box, enter present position
- Tap Save
- Enter time in Zulu
- Tap Save
- Screen capture

Post Flight

- Archive plotNG Content Pack
- Archive Master Document
- Archive GNE checks (marked positions / user waypoints)
- Archive screen captures

PLOTNG®

NEXT GENERATION OCEANIC PLOTTING

Contact Us

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tripkit@plotng.com

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https://www.plotng.com