



A NEWSLETTER FOR EMPLOYEES OF TRADEWIND CARIBBEAN AIRLINES

BREEZES

Island

TCA





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Comments from the Editor

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First of all, my sincerest thanks to all of our readers for your great comments and suggestions. This is your TCA magazine, and your comments and suggestions are heard, considered, and implemented.

Secondly, a word of thanks to the TCA staff for your words of encouragement, helpful comments, and willingness to share your expertise to make this possible

Thirdly, to the Island Breezes staff who work so diligently to create and assemble this E-Zine. You are truly appreciated.

And a huge thank you to the many volunteers who submit articles, photos, and other items to make the E-zine what it is becoming, a truly special E-zine in the Sim community.

As you may recall, the November issue was devoted to the Bahamas, specifically Nassau and its environs. In this issue our feature St. Thomas, in the U.S. Virgin Islands.

The staff decided to provide our readers with a bit of something special in this issue. And so, with a lot of expert help, we are providing you with Seaborne Airlines aircraft, schedules, call signs, and AFCADs. All of that in your **ISLAND BREEZES** for **FEBRUARY** (please see the appendix)

Coming in the May issue, Island Breezes, the Cayman Islands!

*The official newsletter of
Tradewind Caribbean Airlines*
<http://www.tradewind.org>



Welcome to St. Thomas!

The island was originally settled around 1500 BC by the Ciboney people. They were later replaced by the Arawaks and then the Caribs. Christopher Columbus sighted the island in 1493 on his second voyage to the "New World". The Caribs seem not to have survived the first decades of contact with Europeans, either due to disease or deportation and extermination. Pirates likely made use of the island as an occasional base in the next 150 years (probably in a similar way to what TCA does now!)

As you fly in to St. Thomas, and the airport located in Charlotte Amalie, you will notice Magens Bay beach located on the North side of the island. Magens Bay is a well-protected white sand beach stretching for more than a mile. It is one of the most popular tourist destinations on the island. With its clear water, soft sand, and palm trees, Magens Bay is commonly considered to be one of the most beautiful beaches in the world



Magens Bay, St. Thomas

Charlotte Amalie is a beautiful city of approximately 51,000 people, about 50% of the entire island's population. For the pilot on a stopover there is much to see and do here. The people are friendly, the food is great, and everywhere you look the view is spectacular. The view from the top of the mountain which overlooks the harbor where the cruise ships moor is one not to be missed.

The approach to the Airport, Cyril E. King Airport, especially on ILS Runway 10 (7193ft) is a gorgeous one and affords the left and right seaters a photo opportunity view.

In addition, Seaborne Airways operates their DHC6-300 Twin Otter amphibians from the harbor near the cruise ships, so there is much to see, and be alert for!

This is a beautiful island and it is one of the paradises of our Caribbean. So enjoy your flights here, and try to get the TCA office to let you stay over just a little longer!

The Island Breezes Staff



Cyril E. King Airport



Introducing ...

... the Flight Technical Department!

Imagine a library of considerable size dealing with all aspects of flying , many privately collected documents, side notes, private logs - add to it about 20 years of practical experience on the job - from load control to the finer aspects of airplane dispatch as well as a profound love for flying.

Among the myriads of releases of aircraft for FS (not necessarily 9) there are a few design groups who aim at higher quality. Still, so far work is concentrated on producing an airplane which - at least externally - looks good and flies well. Knowing the practical side of aviation, however, one misses the somewhat finer intricacies of flying.

No aircraft is like the other, the reason for various aircraft manufacturing corporations in the real world - and quite a few aircraft do have design or operating characteristics distinguishing them from the competitor's designs.

Taking all this into account (and comparing the FS product to the real world counterpart) one meets sometimes frustration - often very soon. So, for example, when taking a closer look to aircraft performance, one can often detect completely false performance data entered, scaled-down take-off weights, incorrect thrust data and the like. The reason for these discrepancies remains - so far - a mystery.

Aircraft fly, however, they do not always fly in the same way. It does make a considerable difference whether a plane is empty, or fully laden, and the pilot in charge can very well tell this difference. Since many aircraft designers tend to "forget" these facts or perhaps just sacrifice them for a "good-looking" aircraft, this is - for the Tradewind Corporation - where the Flight Technical Department steps in.

From the first review of the aircraft, performance is monitored and compared to the real-world counterparts, specific details, like cabin layouts are attempted to be acquired (if they don't already exist in the mentioned "library"), sometimes even the P.R. departments of real-world aircraft manufacturers are contacted with a request for some specific aircraft data.

Having it all obtained, the reconfiguration of the all-important aircraft.cfg is commenced. Once this has proved satisfactory results, the flight testing begins, more often than not under normal operating conditions (real-world weather, passenger and/or cargo load, etc.)





Introducing ... the Flight Technical Department! (continued)

The next step is a discussion with the Fleet Manager about what cockpit panel to use. Again the "library" is scoured for material. With some aircraft types, where no realistic cockpit panel exists, once again the Fleet Manager and the Flight Technical Dept. confer and attempt to produce a cockpit panel which does not lack realism and integrates well with flight dynamics.

Considering all of the above it will not be surprising that release of a new TCA aircraft can be measured in days, sometimes weeks, and many man-hours until the final product hits the "hangar".

While the flight testing is going on, the "paint shop" (in person of our esteemed Fleet Manager) gets busy, painting the aircraft in the well-known TCA (or subsidiary's) livery.

Overall, all this behind-the-scenes activity can be easily compared to the real world "Post Delivery Modification" process:

Rarely a (real-world) aircraft is just acquired, paid for, the transfer documents signed and flown. From delivery to the airline to operational service time is spent to inspect the aircraft, sometimes adapting it to comply with aviation legislation of the country of registry, seat configurations altered, specific galley equipment installed and so on.

With introduction of the TCA Flight Technical Department - it can be said - TCA takes another step towards making flying experience as close to reality as possible - for the enjoyment of all of us.

Article courtesy of the
Flight Technical Department



TCAs St. Thomas Routes

0050 Santo Domingo MDSD - St.Thomas TIST - Guadeloupe TFFR

4901-02 St. Thomas TIST - Tortola TUPJ - Virgin Gorda TUPW - Anegada XX01 - St. Croix TISX - St. Thomas TIST

4970-73 Roosevelt Roads TJNR - Isla de Culebra CPX - St. Thomas TIST - Tortola TUPJ - Roosevelt Roads TJNR

GT-1/2 Limetree Cove - St. Croix TISX - San Juan TJSJ - St. Thomas TIST - Limetree Cove



Tradewind Executive



Many of you will remember the TCA Santhana – Business Jets (Hangar 3) business air transport department set up by Thomas Than in, I think the late nineties.

Indeed if you have a forage around in the ‘Old Hangars’ you’ll still find some of the colourful aircraft inspired by Thomas.

Unfortunately as with many of our ‘volunteers’ real world commitments overtook Thomas and although the hangar remains available today some virtual cobwebs have appeared on and in the aircraft. I’d like to take this opportunity to thank Thomas for his contribution to our pleasure in virtual paradise, with his enthusiasm and drive.

Just to digress for a moment, the state of this area is particularly annoying as we do employ a bloke to sweep the hangarswhen you can find him that is.

Cobwebs and other forms of detritus are definitely in his CV, I know because I’ve read it and remember thinking just that. Strange that the only clean areas are around the on board barshmm anyone seen JGM?

Back to the article, as part of the Next generation (NG) process Santhana has metamorphossised, mettamurphed, mattamurffsedbecome

Tradewind Executive - BizJetz

Hopefully, with your help, this will be an opportunity to add to the fun of flying for Tradewind. Like all the other departments little is fixed or defined, you can choose to fly TEBJ/TBJ or not.

The nature of the operation is primarily ad-hoc business charters with some long term leasing and the occasional non corporate work.

~ from the virtual advertising

TBJ offers personalized, exclusive services and management for private jet travel from corporate jets seating 6-15 passengers to large VIP-configured business jets accommodating 15 to 150+ passengers.



A BBJ 8P-BBJ by FFXem



Lear Jet 35 8P-LJA by FFG



Falcon 50 8P-JET by Lavigne, Banting & Young



EMB Legacy 600

Tradewind Executive (continued)

TBJ invites you to enjoy our better-than-first-class private air service wrapped in the finest 21st century lifestyle. Enjoy five-star private jet travel in a safe and secure flight environment, while our dedicated flight team manages the nuances of your trip.

We oversee all the details of your private air travel - from the on-board amenities to the distribution of up-to-the minute itinerary information. Our private aviation and hospitality teams work hard to earn your business every time you fly.

At TBJ our world revolves around you.

We'll even let you pick your own colour aircraft



BAC 1-11 475HK

Sounds good doesn't it.

(That's not a question Martin it's a statement – look I know this is not real, OK?)

The aircraft will emerge from the Paintshop over a period of time resplendent in well there won't be a single corporate livery as we believe that the type of customer TBJ hopes to attract would prefer the discrete look such as would give the impression that they owned the aircraft.

There can be nothing finer for a high flying executive to be met by a customer or friends who believe them to be so successful that they can afford their own aircraft.



BAC 1-11 475HK

To this end and by way of a compromise, liveries will be mostly white, Tradewind blue and silver with small logos and other embellishments.

The aircraft will be named after pirates and buccaneers to reflect our management styleerr I meant to say connections with the rich and colourful history of the Caribbean and probably the 'entrepreneurial' nature of our customers although that last bit won't be in the adverts. ;-)

Example liveries will include the simple but tasteful and the more blingful, is that a word?

Ad-hoc charter aircraft range in size, age and livery (see aircraft at left).



Tradewind Executive (continued)

as do longer term lease aircraft (see the top two aircraft, at right).

and aircraft assigned to luxury travel contracts (see the last aircraft, at right).

although until the paint is dry, nothing is certain.

There will be some small, medium sized and some very big aircraft appearing soon at a hangar near you.

Da management hope that you continue to have fun flying the friendly skies.

The contributing writer is an anonymous member of the hangar staff –

No animals were harmed in the production of this article. Except for one or two horses that did have hair torn from their manes to make the brushes to paint the aircraft for you to fly, but if you don't mind why should we?



Incidentally you should appreciate the risk that hangar staff place themselves at to get the hair. It is no simple matter, you have to sneak up on the buggers and yank really hard. Of course the tail presents a slightly easier target but you do risk coming away with more than just hair, if you know what I mean?



Airbus ACJ (A319-100X/CJ)



Airbus ACJ (A319-100X/CJ)



Airbus A319-100LR



Location, Location, Location

A cargo flight from St. Maarten to St. Thomas

This flight plan, TCA C520, actually begins at TFFF, but since this edition of **ISLAND BREEZES** is the St. Thomas edition, we'll fly the leg from St. Maarten to St. Thomas. The flight begins at the checkout in St. Maarten, parking gate 1, while awaiting the cargo crew to unload and load the aircraft, a DHC6-300 Twin Otter in the new TCA blue livery.

The frequencies for our next leg to TIST are checked, 110.10 ILS rwy 10, DME 108.60, and are dialed in. We get our IFR clearance to 8000 feet, set the climb to 1200 fpm, close the doors, clear the right and left side of the aircraft and start the engines. Once the engines are running properly we call in for taxi clearance and receive it from the tower: "Taxi to Runway 9 and hold short." We dial in heading 090 in preparation for our takeoff and proceed to our hold-short point.

We stop at the hold-short point, check the engines and gauges, and request take-off clearance. It is granted, we turn right onto the runway to the turn-around, point the Twin Otter to 090, set the RPM and IDLE, turn on the landing lights, set one notch of flaps, advance the throttle slowly, and listen for the Co-pilot's callouts. V1, Rotate, and we pull back on the wheel, V2. We climb out past 500ft, turn off landing lights, the tower calls out, gives us a new frequency, and we bid them a farewell as we are off on another beautiful day of flying across the Caribbean.

We are given a new heading, come right to 280, and proceed to 8000ft, our filed altitude. The airport that we just departed comes into view out of the co-pilot's window.

Along the way the windshear warning sounds a couple of times as the wind changes direction and speed (not unusual, I note, for this part of the Caribbean in this time of year). My TCAS also does its job along the way, alerting us to aircraft ahead and to the side.

As we continue our short flight the islands of Beef Island and Virgin Gorda appear to the right. The next one will be St. Thomas! TCA flights #904 and #702 pass by us at different altitudes and headings, as does Seaborne Air from St. Thomas on its way to San Juan, Puerto Rico. The Island of Vieques is just ahead. We're given a heading to the right and cleared to descend to 2100 feet. A couple of cruise ships can be seen through the windshield, but they're too distant to make out the cruise line.

One more turn to the right, we're given the frequency for St. Thomas and cleared for an ILS approach on RWY 10. Our localizer engages at 16.5 miles out. The landing lights are turned on and the flaps are set. As we are on approach, the co-pilot informs me of the wind, 106 at 16mph. Great! Right down the runway.

The landing is uneventful, we taxi and turn off on taxi A, are cleared to the stand, Golf 1, where we park for the night. Lights are turned off, generators, avionics, and battery are turned off, and the doors are opened.

Ah, yes, the smell of the beautiful Island of St. Thomas, and the promise of Jerk Chicken after a day of flying!



Our beginning at St. Maarten



Coming into St. Thomas



Covert Ops

MI6 –and-a-half: AKA “Nigel’s Playground”

Not a lot of TCA members know Nigel, and those blessed few that do tend to find business elsewhere in a hurry when his name comes up in conversation.

You see, Nigel is a “Spook”, a valued member of the United Kingdom’s SIS, otherwise known as MI6 (SIS = Secret Intelligence Service) who’s primary theater of operations is Central America, South America and the Caribbean.

This of course includes a certain hostelry beloved of TDM/TDS pilots known by the familiar name of “Da Roost” where these pirates of the airways gather when they have time on their hands and a few spare Caribbean dollars to lay out on their favourite beverage – the Marguerita cocktail.

A brief history of MI6 and a half

From this modest building the SIS operatives go out around the World to gather information using highly covert methodology to ensure the people of the United Kingdom’s safety and well-being by whatever method they think best.

Each operative (or Spook) has secured for him (or her)self a safe haven in the region designated to them by “C” – the head of the service – Nigel has taken a liking for Da Roost, where he can find a steady flow of newbie pilots from the two TCA services mentioned above – Old hands, probably having suffered at least one of Nigel’s infamous “Sight-Seeing Tours” to Panama and/or Columbia (he has a special interest in these countries) will head for cover preferably in another part of the Caribbean when Nigel appears silently at the Bar of the roost. Of course, this leaves any Newbie exposed at his table, and he (or she) will find themselves being gently urged in a quiet well-modulated tone of voice and a vice-like grip to join him on his latest visit to gather information, or to supply “Friendly Forces” with loud and deadly armaments, using the Newbie’s aircraft, of course. – (Incidentally, it will be of no use the newbie involved attempting to claim the resulting flights as “Charter Flights” - TCA’s Bossman “RL” saw through these efforts years ago, and all these claims receive is a hollow laugh when the unfortunate pilot files for his flight time and salary.

Nigel’s appearance in Da Roost is silent and always unobserved, but watch the two one-eyed Doberman dogs (one left eye, one right eye) and especially the little green man in the darkest corner for signs of his arrival – all three leave for pastures new at high speed, not returning until they hear the new pilot’s aircraft making Startup noises. He (and his latest ~~victim~~; sorry, **assistant**) are usually the last to leave; always through the front doors (experienced pilots have long since left for a place of safety.



This is its Headquarters in UK’s Capital City, London.



MI6 –and-a-half: AKA “Nigel’s Playground” (continued)

Of course, being a Secret Service, the organisation has its own (secret) address in London, which is:

The Secret Intelligence Service
PO Box 1300
Vauxhall Cross
London
SE1 1BD

In conclusion, some trivia: the SIS was originally part of the Secret Service Bureau, which split into MI5 and MI6 in 1909, finally being acknowledged as an organisation in 1994. MI61/2 came into being some years later after a gentleman named “James Bond” (obviously a case of false identity) exposed the existence of “00” operatives such as he and Nigel.

Watch out for the next ramblings concerning Nigel’s whereabouts and activities in the next issue of “Island Breezes” (if I manage to avoid a long flight in his company).

(Signed: “S”)



This is the front door of his “Office” back in UK

Seaborne Airlines

If you have ever been fortunate enough to fly or sail into Charlotte Amalie Harbor, the beauty of the scenery is absolutely breathtaking. And if you are a flight Simmer, several features probably have stuck in your minds as well. One of them is most likely the seaplanes which frequent Charlotte Amalie Harbor. They are owned and flown by Seaborne Airlines and fly routes to San Juan PR and St. Croix. We at Island Breezes decided that no feature on St. Thomas would be complete without offering our readers the DHC6-300 Twin otter flown by Seaborne Airlines as well as the seaplane docks and flight plans. There are a lot of thanks to go around on this project: Norman Meznarich for the excellent and careful work on the seaplane docks, and to Bob May and the crew at Premaircraft for the brand new DHC6-300 twin otter seaplane, in Seaborne Air livery.

Simply click on the link to Premaircraft listed below, add the aircraft to your aircraft section of FS 9; the aircraft line below to your aircraft list, the airports to your airport list; and cut and paste the Flight plans to your flight plans. Run TT tools and you should be all set. Also included is a Seaborne Airlines vcpmo (to add to your airline call signs use EditVoicepack).



AC#7500, 160, DHC6-300 Long Nose Twin Sea Otter, in the N38535 livery

Here are the links to the aircraft and the vcpmo files:

http://www.premaircraft.com/seaborne/dh6_n385.zip

<http://216.73.113.34/TCA/files/NG/Seaborne Airlines.vcpmod>



How to Create AFCADs Capable of Supporting AI Floatplane Traffic

Author: Norman Meznarich

Welcome! This article is designed to help you learn the steps required in order to create an AFCAD that can handle AI floatplane traffic. When combined with AI floatplanes designed to operate with these AFCADs and a set of flightplans, complete packages can be created in order to add floatplane airlines into our FS world. The process isn't that difficult and hopefully soon you will be able to create from scratch an AFCAD that can support both you as a human floatplane pilot and AI aircraft flying on scheduled flightplans.

Section 1: Background and Information

Introduction:

Before we begin, I would like to set up some basic terminology, so that when I use terms in this article, we can all be on the same page as far as what I am talking about. This article is going to be written for Microsoft Flight Simulator 2004 (a.k.a. FS9) only, and does not take into consideration any changes or updates to AFCAD or seaplane AI handling in FSX. The other two terms I will use where the possibility of confusion arises is between AFCAD and AFCAD2. "AFCAD" refers to the actual bgl file that you will eventually install into your flightsim setup (such as the Addon Scenery\Scenery folder) whereas "AFCAD2" refers to the program written by Lee Swordy, which is used to create actual AFCAD files.

The scope of this article is to cover the basics of setting up an operable seaplane AFCAD which can be used both by a human pilot as well as AI aircraft directed by FS9's AI engine. I will assume that you have some basic competence working with your FS9 installation, and at least some experience creating land AFCADs using AFCAD2. You do not need to be a pro with AFCAD, but I will not be explaining the basics like how to insert runways or make taxi routes. This article will only cover the creation of seaplane-capable AFCADs; writing flightplans and repainting/assigning AI aircraft to fly the routes are not covered.

In the next section, I will start the article by outlining the basic tools required to create a seaplane AFCAD, followed by a section on the logic behind what makes seaplane AFCADs work, and how they are different from traditional land AFCADs. After that, I will illustrate creating some of the basic elements for the seaplane AFCAD using one of the AFCADs I created for Island Breezes as an example. In the tutorial example I will include some general tips and also an explanation of the "plumbing method" for routing taxiways so that your planes can pull forward away from the docks instead of unrealistically pushing back before departure.

"The scope of this article is to cover the basics of setting up an operable seaplane AFCAD"



How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

Before You Begin:

To create seaplane-compatible AFCADs, you do not need to use any more tools than would otherwise be needed to create standard land AFCAD files. AFCAD2 by Lee Swordy is the primary program you use to actually create the bgl file. While AFCAD2 is the only really critical program, there are a few other utilities that I have found to be of help, especially with the troubleshooting process.

First you might want to grab the Microsoft Traffic Toolbox SDK, which is freely available from the Microsoft Flight Simulator 2004 website (see the end of the article for this link and others). The Traffic Toolbox SDK has tools that allow you to easily view AI traffic, and also determine what they are doing at any given moment. In addition to the Traffic SDK, a basic traffic flightplan bgl is also helpful, as you can then visually verify that AI planes can both take off and land at your seaplane base. Unfortunately, creating such a flightplan bgl from scratch is beyond the scope of this article, and I will not really go into the details of creating a test traffic file.

Lastly, if you are recreating a real-world seaplane base for FS9, you will need to obtain enough information on the real base in order to accurately reproduce it for FS9. If the base you are reproducing is pretty large and common, searching Google for the necessary data might be sufficient. If your base is pretty obscure, however, more thorough searches may be required. For example, there is a seaplane base supplement to the standard Canadian Airfields and Facility Database book that you can buy from the CAA. While this investment may be beyond the scope for some developers, others who intend on creating many AFCADs may find these supplements to be valuable and time-saving resources. Alternatively, since both shoreline and facility data is often inaccurate for obscure or remote seaplane bases, often times one must simply “invent” a logical seaplane base layout for the shorelines present in FS9. Typically, the real-world data you will need to find for all seaplane AFCADs you create are the official name of the base, its ICAO (if there is one), number and orientation of runways, location of the docking facility, and perhaps any frequencies that are used in the operation of the base.

“AFCAD2 by Lee Swordy is the primary program you use to actually create the .bgl file.”

Principles of FS9 and Seaplane AI Traffic:

FS9 does not natively support seaplane traffic; i.e. the sim does not differentiate between AI aircraft as being a seaplane or a landplane. In fact, the boats that move around in scenery packages such as Misty Fjords are also standard FS9 AI traffic; only they are following extremely long taxi routes around on the water or are “cruising” between docks at an altitude of zero feet. To FS9’s AI traffic engine, all virtual traffic is treated the same. This is why it is impossible in FS9 to properly set up an airport such as CYVR (Vancouver, BC), which in real life has both land runways for airline traffic and a water runway for seaplane traffic. With the case of CYVR, the most elegant (and ideal) way to set up CYVR using AFCAD2 should be to create



How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

all the runways (both land and water) of CYVR in the same AFCAD. However, if you were to try to set it up this way in FS9, both seaplanes and landplanes would land on the land runways because FS9 cannot assign the seaplanes to land only on the water runways. The solution devised by some of our very intelligent and creative colleagues was to separate traditional land traffic and sea traffic, and to create separate AFCADs for each. AFCADs made for land traffic can be made in the regular manner, while the seaplane AFCADs have to be slightly modified for proper usage on the water.

In AFCAD2, you can define both land and water runways, but the FS9 AI engine will only utilize land runways (asphalt, concrete, gravel, etc). Therefore, if you create a water runway using AFCAD2, FS9 will be unable to direct virtual traffic to that runway (note, however, that as a human pilot you can still announce/request your arrival onto that runway, and ATC will accept those requests). Considering this limitation, seaplane-compatible AFCADs work on the principle that all of the basic elements (taxiways, runways, parking spots, etc) are the same as land AFCADs. The most important (and least intuitive) feature is that water runways will be made out of concrete! The key difference between land and water AFCADs, however, is that all of the elements in a seaplane AFCAD are constructed in AFCAD2 so that they will be invisible when you look at it in the sim. That way, AFCADs on the water will not show any evidence of their presence, much as how in real life floatplane bases do not contain markings on the water (except for the dock structure or maybe some beacons, which I will address later).

In addition to specially created seaplane AFCADs, AI aircraft used as seaplanes must also meet special criteria in order to work properly with seaplane AFCADs. As mentioned above, seaplane AFCADs use concrete runways, therefore AI aircraft, even seaplanes, MUST have wheels. The [contact points] section in the aircraft.cfg file defines the points of the plane that interact with the FS9 world. The shape of the polygons in the aircraft model have no bearing on how the plane acts in FS9, it is all defined in the aircraft.cfg file. Therefore, while a seaplane AI-aircraft may not have wheels depicted in the model, the aircraft.cfg's [contact points] section must have wheels defined in it, as the airplane will be rolling around on concrete surfaces. This is why, unfortunately, user-flyable seaplane models cannot be used as AI craft unless they are modified. User-flyable AI craft use floats in their contact points section, whereas AI craft need to have wheels.



How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

Special effects associated with seaplanes (such as the trailing wake or water spray) are also of concern. I do not possess much knowledge on how to create effects, but it is my understanding that certain effects can be made to activate only when the aircraft is rolling on a particular surface. For example, wake effects might be programmed to display only when an aircraft is moving across water. Spraying dust, however, might be programmed to only show up when aircraft are taxiing over dirt or gravel surfaces. Since seaplane AFCADs are in essence invisible concrete structures over water, you must be sure to program your seaplane effects to only activate when an aircraft is over the water, otherwise they will not necessarily show up. There is more complexity to this issue relating to multiple instances of the same effect being drawn at once, but these lay beyond the scope of this article.

Section 2: Creating Seaplane AFCADs

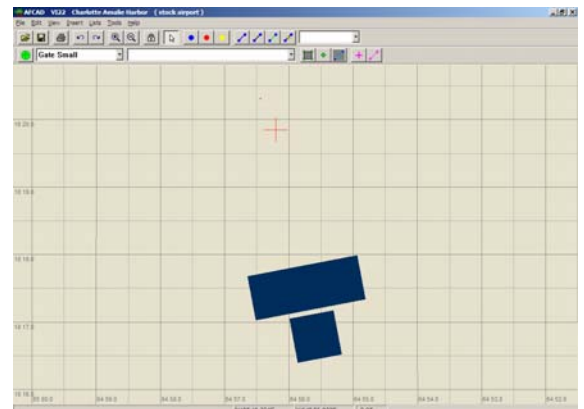
In this section I will go through the creation of a seaplane capable AFCAD using St. Thomas' Charlotte Amalie Harbor SPB (VI22) as an example. The format of the article will change here to a step-by-step with some illustrations, so please bear with me. Briefly, here are the tasks that need to be carried out:

1. Create (or open, if modifying a default FS9 airport) the AFCAD in AFCAD2.
2. Mark boundaries such as shorelines and bridges with nodes.
3. Determine location of and create dock.
4. Add runways for AI use.
5. Connect runways to docks with apron routes.
6. Apply finishing touches.

Example: VI22 St. Thomas

1. Create or Open the AFCAD in AFCAD2:

FS9 has included in it an AFCAD entry for VI22 Charlotte Amalie Harbor by default. However, this stock airport is not fit to handle seaplane AI. As you can see, it only contains two (very wide) water runways and nothing else. You can fly to this airport as a human pilot, and ATC will clear you to land there, but where's the fun in going alone?



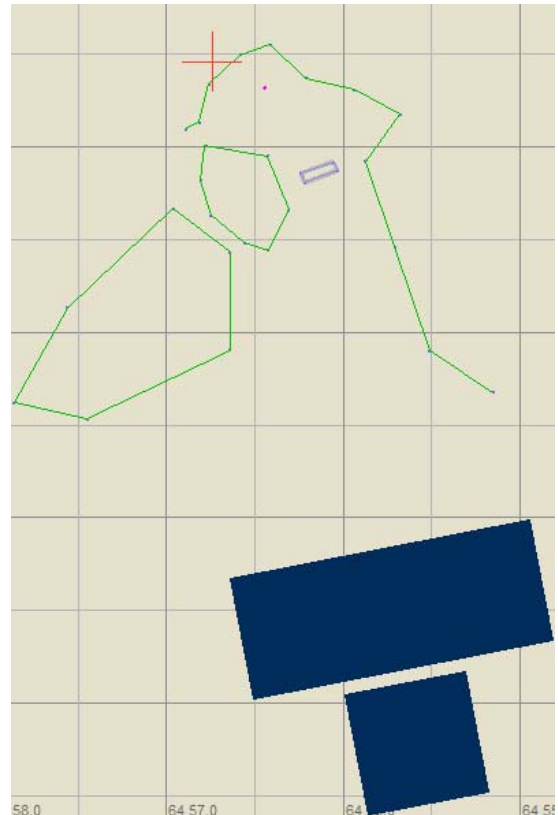


How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

2. Mark Boundaries and Landforms:

The first thing I like to do is to mark out the boundaries of the shorelines with nodes. You can do this by launching FS9 while AFCAD2 is open. If you do this, the two programs will be connected and there will be a red crosshair depicting the location of your aircraft in FS on the AFCAD2 screen. Also, when in the FS9 window, you can press "." At any time and a node will be placed in AFCAD2 at the current position of your aircraft. This makes it easy to mark shorelines as you can simply slew to the points in FS and press "." to lay down a node. Here is a picture (lower left) of Charlotte Amalie Harbor viewed in FS. Notice that we will have to draw routes going around that static tanker!

After slewing around in FS9 I have marked off the major land shapes with nodes and have connected them with lines so it is easier for me to visualize their shapes in AFCAD2. Note that I did not trace every contour, as it is not important in this instance to know every detail. Just the major shapes are all, so that I can create paths that will not end up on land. The grey loop in the center is the zone around the tanker (lower right).





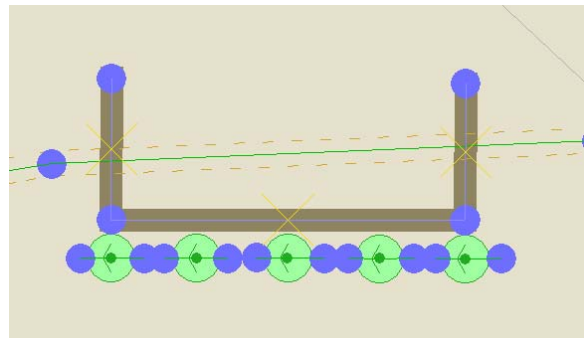
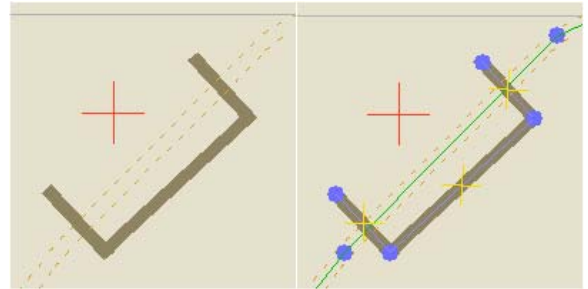
How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

3. Create the Docking Facility

A quick check of Google Earth and some research revealed that the dock facility for VI22 is most likely located where the red crosshair is in the image above. There is a default-style building right there in FS9 too, which would make it a logical place to draw in a dock. Here you can see that I have drawn in using the "closed taxiway" tool a u-shaped dock structure that starts on the shore, extends out into the water, and returns to the shore. I have changed the width of the taxiway from the standard 100ft down to 30ft, and changed the material to planks. If your particular seabase has docks of a different material, obviously you can choose whichever material suits it best. I achieved the squared corners look by creating the dock out of three separate straight segments, and laying them over each other so that the ends meet. If you connected the three segments at the corners on the same node, then the edges would become rounded. This looks like a good docking facility for this seabase!

Now it is time to add in the docking gates. Before we continue with our specific St. Thomas example, I will talk about the "plumbing method" which will create parking spots that AI planes pull directly out of and into. Yep, no pushbacks, which would not look very realistic on water! The trick to the plumbing method is to arrange the apron routes in such a way that the only way for the airplane to taxi to the runway end (to take off) has to be to pull forward and follow the "pull-out" route, and make all routes leading off the runway (the routes that landing aircraft will use to taxi off the runway) lead to the "pull-in" side of the parking spot. This sounds a little confusing, but hopefully the images in our example will illustrate the concept quite clearly.

This seabase will be mainly be served by Twin Otter seaplanes, so I will use a gate radius of 10m, which is the parking radius of the popular Henry Tomkiewicz Twin Otter on wheels. The actual value of the radius is slightly academic, however, so long as the gate radius matches the radius of the AI model you want to park in it! I have selected the parking type to be "Dock GA" to indicate its water status. Again it does not really matter what you set this as, so long as it matches the characteristics of the AI aircraft you will match it with. You can see in this first image that I have added little "stubs" off both ends of each docking spot- those will be the pull-in and pull-out routes, respectively. Let's leave them like this for now, and concentrate on making the AI runways. After that we can then connect the runways to the dock using the plumbing method.





How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

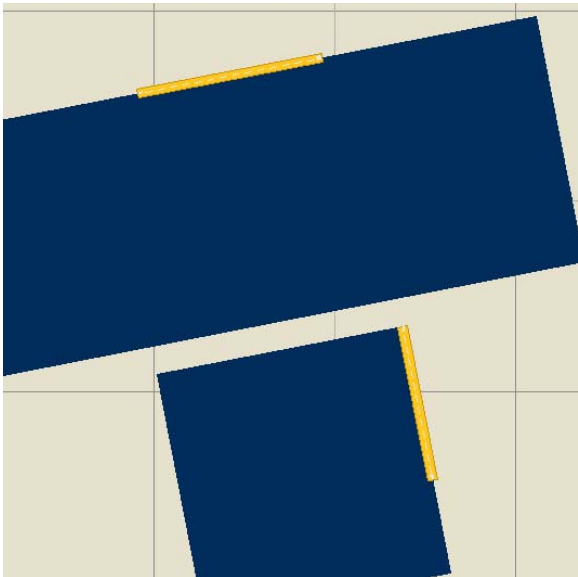
4. Add Runways for AI Use:

In our example, we were fortunate to have an FS9 default AFCAD from which to work. You will notice that the FS9 AFCAD had in it two water runways, placed in their real life location. Their dimensions are quite large, as water landing areas are usually defined very broadly. We will leave these two runways where they are even though in this case they are located quite far out from the docks. This will make for a long taxi but as far as I could tell, this is where the real water takeoff/landing areas lie. Thus, for realism's sake I will keep them there. If I were making my own seabase, or if I did not have prior placed runways to go off of, I might want to put them in a location closer to shore, or at least in an orientation that did not provide for such a long taxi.

As I mentioned in the first part of the article, AI runways must be made out of concrete (or some other terrestrial material) in order to be used properly. I will create two additional runways that will be used by the AI, placing them right alongside their water counterparts. Their length and width will be much less, as AI seaplanes will not need 10,000ft of runway to land on. Having too long a runway does not hurt, but it can significantly increase taxi times if the aircraft have to taxi down to the end of a long runway in order to take off into the wind. I will add runways that are 2500ft and 3000ft in length; plenty for any seaplane, especially one with such fantastic STOL performance as the Twin Otter! You can see on the right the runways' locations in relation to the water runways, highlighted in yellow for better visibility. The East/West runway is 3000ft, and the North/South runway is 2500ft. At this time, make both runways something like 100-150ft wide. The reason for this is that these runways need to be dragged around for positioning and it is very difficult to select and drag a runway that is only 1ft wide.

Notice how I placed the new runways on the edges of the old water landing areas, paralleling their direction. This was done so that AI craft coming in the pattern with you will be flying in the same general direction as you, and also will land in the same area. Although it is not critical to do so, I prefer to set it up this way as it makes for a cleaner looking AFCAD. Also notice that I have chosen to put the new runways on the northern sides of each runway. I did this for two reasons. First, AI aircraft will not be taxiing across your landing path as they taxi for departure or arrival, and secondly, this will help shorten the taxi time a little. It is always wise to consider these types of things when constructing your AFCADs.

I prefer to use the following naming convention when making seaplane AFCADs: Water runways that will be used by us human pilots will have cardinal direction labeling (like N/S, SW/NE) and the suffix "W" (all selectable in the runway properties dialog). This way when you are flying into a seabase you can select the proper "North Water" or "Southeast

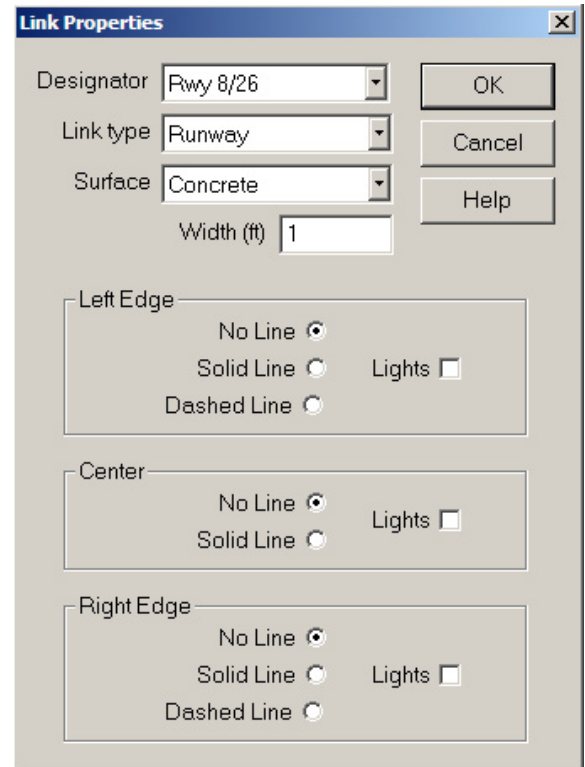
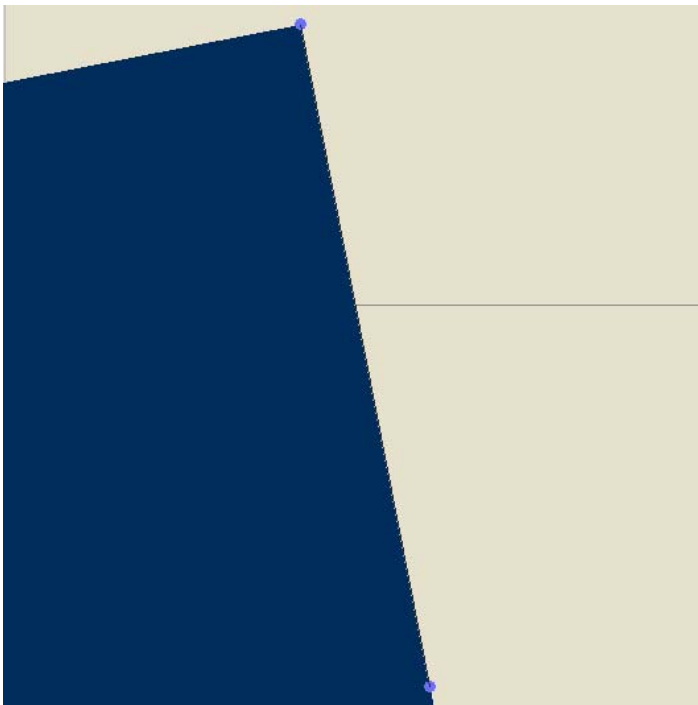




How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

Water” runways from the ATC dialog. Runways designated for AI, however, will receive two-digit compass heading labels and no “W” suffix. You will hear AI aircraft calling “On approach to runway 34” instead of “On approach to North Water runway” on the radio, but this should not be a big issue.

Now that we have placed new concrete runways we need to put runway link nodes over the top of them. Make sure that after you have laid down the runway link nodes that you associate it with the correct (AI) runway by double clicking on the node and making sure the designator is correct. Also, make sure you select the correct runway surface (concrete) and the correct width (1ft). It is also good to uncheck all of the line markers in the bottom half of the dialog (bottom right).

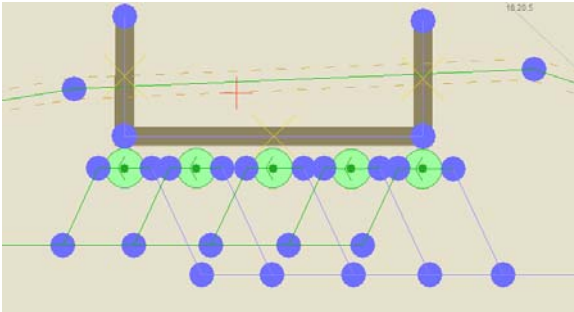


Repeat for the second runway, and after you have placed the runway link, you can now double click on the grey runways themselves and modify their length to 1ft. This will “hide” the runway under the black runway link (above left).



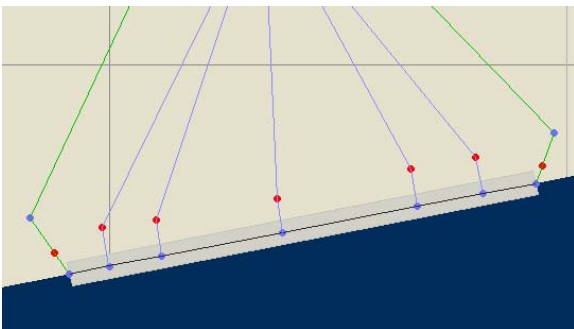
How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

5. Connect the Runways to the Docks with Apron Routes:

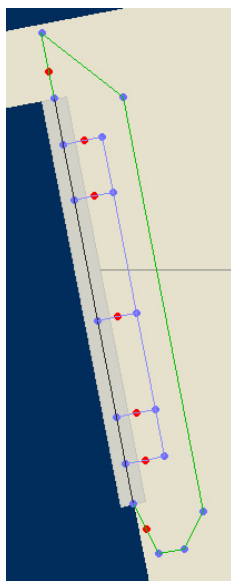


Now that we have completed the runways and the docks, it's time to connect them with apron routes so aircraft can travel between the facilities and the runways. Again, we will be using the plumbing method to connect the two together so that the aircraft will always pull forward from the docks on departure, and always pull in to the docks on arrival. Remember what I said earlier regarding the trick to the plumbing method? Connect the outgoing leg of the docking gates only to the runway ends, and connect the incoming leg of the docking gates only to the runway turnoffs. In the example below, I will delineate between outgoing and incoming by using the green apron routes for outgoing and the blue taxiway routes for incoming. In reality there is no difference and you could "plumb" the whole thing by just using either taxiway routes or apron routes, but it helps visualize what routes are what.

Let's begin by working on the detail at the docks. In the diagram below you can see that I have connected all the outgoing stubs with green apron routes and had them angle away from the dock. The incoming stubs are all connected with blue taxi routes and are angling in to the docks. There are legs on the end which will be extended to/from the runways.



Before we go further, I just want to mention that it is also important to set the properties for these taxiways and apron routes properly as well. You can select the material to be either water or concrete. Recall in the first section of this article that I mentioned that many AI wake effects are triggered by concrete? Well on the flip side of the coin is that concrete apron routes will make a small bump when you taxi over them. If you select water as the surface it seems to help with this effect, and I choose to have a smoother taxi rather than being able to see my AI planes have wake effects. Remember, you can also have your cake and eat it too if you simply set up your AI aircraft to have wake effects that trigger on water!



Since we have already completed the detail area around the docking facility, let's work on the routes that will be coming off of the runways. Remember, to use the plumbing method, you must use blue (inbound) nodes in the middle of the runways where planes turn off, and green (outbound) nodes on the runway ends. You can see here how I have set up the runway access legs, with blue in the middle and green on the ends. I have re-widened the concrete runways for these pictures in order to help you visualize what it looks like, since the black runway links are difficult to see right next to the dark blue water runways. Every "leg" that comes off the runway must have a hold short node on it, and that hold short point must be "in range" of the runway. To make sure all the hold short nodes are in range, press "H" on the keyboard and red circles will surround each hold short node. The red circle has to be touching some part of the runway.



How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

Every situation is different, and so there are no real hard and fast rules for designing the layout of the taxi routes for your airplanes. Take into consideration the layout of the runway(s), shorelines, obstacles, etc. Remember that since this is on water and will be invisible, you don't need to make perfect right-angle taxi routes like you see at airports. Pick something that would be more likely on water such as angled segments and routes that follow shorelines, etc. Avoid unnecessary turns or long circuitous routes as typically floatplanes will taxi fairly directly from their landing point to the docks.

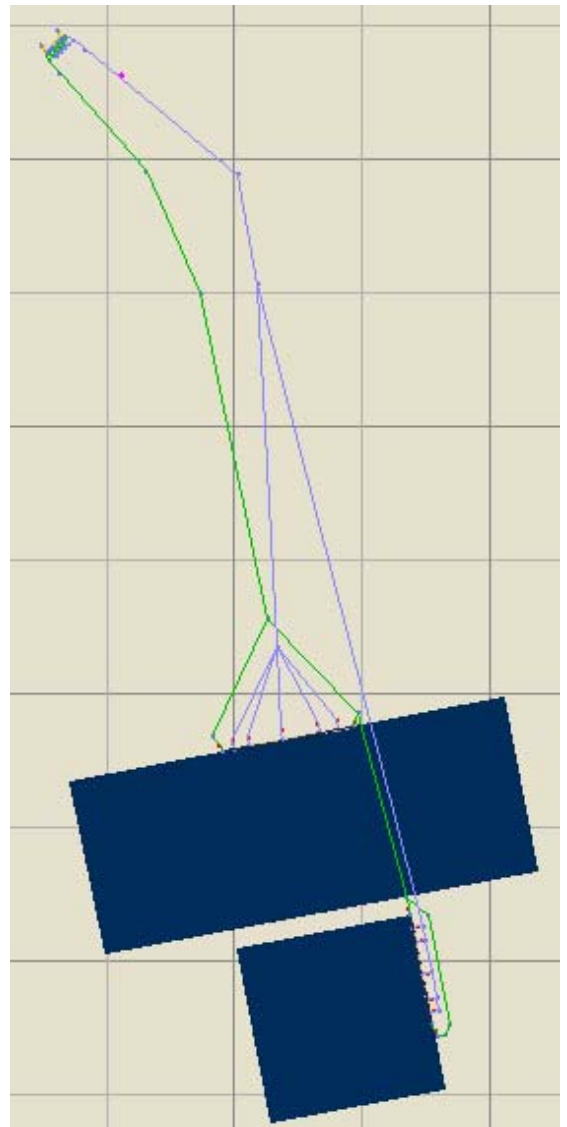
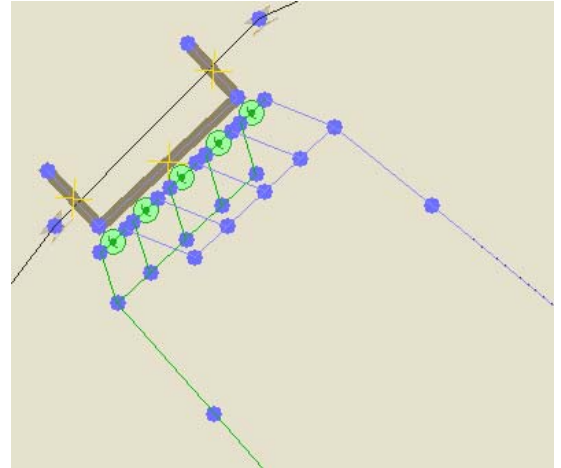
After we have created the links coming off of the runways, all that is left to do is to simply connect the docks to the runway! You can see the final layout I came up with in the following images.

6. Apply Finishing Touches:

All that is left now is to apply some finishing touches to finalize the seaplane base. Here are some things to remember:

- Don't forget to delete the temporary boundary markers you have drawn!
- Make sure all runway/taxiway/apron route nodes are 0ft (1ft in the case of runways) wide and are of the correct material.
- Add any parking codes into your gates, if applicable.
- Make sure the hold short nodes are within range of a runway (this is especially important of the hold short nodes on the runway ends!
- Run the Fault Finder on the AFCAD to check for any errors. You should not receive any although it will throw a few errors that you can safely ignore:
 - Bad Start Location errors should appear for each end of each AI runway you have. These are okay because start locations only define spots where you can place your aircraft via the FS Airport menu. Since you will not be placing user aircraft on AI runways, this is not a problem.
 - Isolated segment errors might appear for your dock structure. It is okay to ignore these.
- Lastly, don't forget to save your AFCAD when you're all done! I am assuming you will have saved the AFCAD numerous times throughout the creation process as well.

After you have finished up your AFCAD, make sure to install it into FS and examine the results of your efforts!





How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

Section 3: Credits/Acknowledgements

I would first like to thank James Martin for presenting me with the opportunity to write this article. James emailed me in the fall/winter of 2006 and asked if I could create a few seaplane AFCADs for use in a Seaborne Airlines AI traffic package, which would be used to enhance the realism of the area that Tradewind Caribbean Airlines flies in. I had a lot of fun writing this article and hope that you may find it useful in creating even more seaplane AI traffic for FS9!

Next I would like to credit the real brains behind the development of seaplane traffic. I did not invent these methods, merely learned them well enough to hammer out a few AFCADs to use in my own local flying zone, the Pacific Northwest USA. Kenmore Air Seaplanes (based out of Kenmore, WA) operates one of the largest seaplane outfits in North America and I wanted to have those fabulous deHavilland Beavers flying around in my sim just like they do in real life.

Holger Sandmann and Jon Patch were the two people who helped me the most with my first foray into seaplane-AFCAD. I consider Holger the "pioneer" of seaplane AI, as I believe he was the first one to get floatplane AI working pretty well. While Holger and Jon did not alone invent many of the methods used in seaplane AFCADs, they were the ones who passed that knowledge onto me. Credit should also go to the members of the AFCAD experts at the ProjectAI forums, who I believe worked out many of the issues surrounding seaplane AFCADs. Also not to forget the many past discussions that I read in the flightsimmer.com forums (now fsgateway.com) that unfortunately I cannot find anymore because they have updated their website and forum software. I extend my thanks to the many forum members who participated in those discussions and contributed solutions to overcome the challenges of getting seaplane AI to work within the confines of the FS9 AI engine.

Also thanks is in order for Lee Swordy, who created the programs AFCAD2 and TTools, both of which have become no doubt a staple of scenery and AI designers all over. Without such an easy-to-use tools I am sure that AI traffic would not be anywhere near the level that it is today.

If I have made any glaring omissions in acknowledging the true inventors of floatplane AI I do sincerely apologize for the error. Unfortunately (or perhaps fortunately, as it is wonderful to see that many new developments in the world of FS are the result of simmers all over coming together and engaging in collaboration and discussion) the development process for many of these new concepts in FS often takes place in forum discussions that have many participants and are spread out all across the FS internet community. Therefore it becomes difficult to make sure everyone gets their due credit for their contributions.

".... it is wonderful to see that many new developments in the world of FS are the result of simmers all over coming together and engaging in collaboration and discussion"



How to Create AFCADs Capable of Supporting AI Floatplane Traffic (continued)

Section 4: Additional Resources:

If you are interested in exploring further the concepts behind seaplane AI and AFCAD, you might find the following helpful:

http://www.microsoft.com/games/flightsimulator/fs2004_downloads_sdk.asp#traffic

-Link to the FS9 Traffic Toolbox SDK. Has some very useful utilities and documentation.

http://forums.avsim.net/dcboard.php?az=show_topic&forum=123&topic_id=28566

-Link to a posting of mine in the avsim MSFS Scenery Design forum. Might be a good source of info when getting into some of the "nitty gritty" issues as you construct your own seaplane AFCADs.

ai_float.zip (by Holger Sandmann, found on avsim)

-A package including some flightplans, AI floatplane models, AFCADs, and some documentation explaining floatplane AI. A great source for AI floatplanes, example AFCADs, and more.

pnw_seaplane_afcads.zip (by Norman Meznarich, found on avsim)

-My original release of seaplane AFCADs depicting many seabases in the Pacific Northwest. You might find these useful as examples to look at and study in order to help you with your creations.

vicenh06.zip (by Jon Patch and Holger Sandmann, found on avsim)

-Another great Holger and Jon release enhancing Victoria. Includes some more seaplane AFCAD files that can be studied as examples.

Thus we come to the conclusion of this how-to article. I hope you have enjoyed reading it, and that you have been able to take something away from it! Happy simming and happy developing!

-Norman Meznarich
(a.k.a "Ruahrc" on many flightsim forums)
nam486 "at" hotmail "dotcom"

Editor's Note:

Norman's AFCADs used in this article can be found on the TCA Website at:

<http://216.73.113.34/TCA/files/NG/IslandBreezesAFCADs.zip>



Interesting Links

Tradewind.Org

Tradewind Caribbean Airlines, our own home port-of-call!

FlightAware.Com

FlightAware is a free flight tracker that will change what you think about live flight tracking and aviation data.

FlightSim.Com

Here's the latest flight simulator news. But there's a lot more to FlightSim.Com.

Flight Simulator Software

This site has been created to provide customers with a direct link into the world around Microsoft Flight Simulator.

<http://www.projectai.com>

Complete AI additions.

<http://www.fs-freeflow.com>

Excellent sceneries with animated ships, helicopters, and more.

<http://www.editvoicepack.com>

Additional call signs for Microsoft FS ATC.

<http://portal.fsgenesis.net>

Featuring the most comprehensive and complete collection of terrain mesh products for Flight Simulator.

<http://www.fs-shipyards.org>

Sail, steam, even sink, in sailboats, ships, & submarines.

<http://www.vatsim.net>

Live ATC traffic control.

<http://www.ultimatega.com>

Flight plans, general aviation and corporate aircraft.

<http://www.surclaro.com>

Flight Simulator addons.

<http://walhalla.mine.nu/fs2004.php>

Freeware scenery.

<http://www.dusteagle.tk>

Great flight plans.

<http://www.flightsimnetwork.com/premaircraft/home.htm>

Unique award winning freeware aircraft.

<http://www.simviation.com>

Great source for FS Aircraft)

<http://www.msfgateway.com>

Compilation of many FS resources arranged by topic

<http://www.flightsimnetwork.com/premaircraft/home.htm>

Premier Aircraft Design

<http://www.avsim.com>

Home page for AVSIM Online





Appendix – Aircraft and Flight Plans, Seaborne Airlines

The Aircraft

AC#7500, 160, "DH6_seaLN_AS"

The Airports

pr34,N18*27.4811,W66*07.2697,0.0

VI22,N18*17.5681,W64*55.796,0.0

VI32,N17*45.8217,W64*41.7251,0.0

The Flight Plans

St Thomas to St. Croix

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St. Croix to St. Thomas

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Appendix – Aircraft, Airports and Flight Plans, Seaborne Airlines (continued)

St. Thomas to San Juan, PR

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San Juan, PR to St. Thomas

AC#7500,N38535,20%,24Hr,IFR,12:30:00,13:10:22,50,F,220,VI22,12:30:00,13:10:22,50,F,220,PR34
AC#7500,N38535,20%,24Hr,IFR,17:15:00,17:55:22,50,F,258,VI22,17:15:00,17:55:22,50,F,258,PR34
AC#7500,N38535,20%,24Hr,IFR,20:00:00,20:40:22,50,F,280,VI22,20:00:00,20:40:22,50,F,280,PR34

Here are the links to the aircraft and the vcplib files:

http://www.premaircraft.com/seaborne/dh6_n385.zip

<http://216.73.113.34/TCA/files/NG/Seaborne Airlines.vcplib>