



Advanced Flight Planner Features

CSC DUATS has a popular online flight planner which is loaded with features to help you plan your flight. Once you have set up your aircraft profile by entering in climb, cruise and descent characteristics of your plane, you can use the flight planner to have it propose a route of flight which has been optimized for your airplane, using real time wind aloft forecasts. The output of the flight planner is a flight log, which is available in several output formats, and can be printed out or added to your CSC PDF Trip Kit to take to the cockpit with you.

In this issue, we will look at some advanced options for the flight planner available from the drop-down box below the "Route of flight:" on the Flight Planner form.

Low-Altitude Airway Auto-Routing selects the shortest path from your origin to the destination using low-altitude (Victor) airways.

Jet Route Auto-Routing selects the shortest path from your origin to the destination using high-altitude airways (Jet Routes). Since the climb profiles of different aircraft may be quite different, it is necessary for the user to specify a route from the origin to the first fix (such as a SID transition) in the jet route system and from the final fix (such as a STAR transition) in the jet route system to the destination airport.

User Selected Routing allows the most control over flight routing. A user-selected route is specified as a series of fixes (VORs, airports, and/or waypoints) entered in the user selected route box as indicated entered in the user selected route box as indicated below:

- If *nothing* is specified, a great-circle route (direct) is generated.
- An *airway* may be specified, such as V192 or J8. The fixes/navaids on either side of the airway specification must be navigation aids on the specified airway. Note that in some cases, it will be necessary to specifically name an appropriate navigation aid. The route SJC V485 PANOS will not work because the airway V485 does not begin at the San Jose airport, nor does it connect to the San Jose VOR — SJC LICKE V485 PANOS would need to be specified instead.
- Two airways or more may be listed without specifying the fixes at which the transitions are to take place between airways. (For example, VINCO V107 V137 V23 V186 V459 SLI is a valid route.) In this case, the planner will automatically choose the best fixes at which to make the inter-airway transitions.

Using auto routing (*A, *J,*V, *G, *R) in the user selected route box:

These routing options can also be used in combination and are convenient for routing via any waypoint.

- **Automatic routing via the low-altitude "Victor" airway system** may be specified by "*A" -- In the example to the left, the user is flying from KIAD to KCLE. They have defined to first two airways they want to use—V501 and V469. (Note that you must specify the fix where you want to enter the airways and leave the airways. The flight planner will automatically select the best fix to transition from one airway to another). After the JST fix, the user has entered a "*A" to request the flight planner to auto select the shortest route from JST using Victor airways. The resulting flight route from the flight planner is :

MRB V501 THS V469 JST V297 VOLAN V10 YNG V6 STUKL
Note that the flight planner automati-

(Continued on back)

Flight Planning	Database Search	My Account	Help	Log Out
-----------------	-----------------	------------	------	---------

Flight Planner

Departure: Destination:
 Cruise altitude: Use Flight Level Format

Compare Altitudes Enter up to two more altitudes to have a comparison done.
 Second Altitude: Third Altitude:

Alternate Airport (Optional)
 Alternate: Alternate Cruise:

A=Active D=Default
 Aircraft profile for flight plan:

Route of flight:

cally inserted the transition fix **THS** and chose airways **V297, V10** and **V6** for the route continuing from **JST**. In another example using the **same** departure and destination, we submit the route “**AXQ *A**” where **AXQ** is an airport.

Route of flight:
 User Selected Routing (fill in below) ▾
 AXQ *A

If an airport is specified adjacent to “*A”, automatic routing will be performed to an intersection or VOR near the airport. In this case the route that was generated by the flight planner is:

AXQ VOLAN V10 YNG V6 STUKL

Notice that the flight planner route is direct to **AXQ** and then uses airways to continue the route as requested by the “*A”.

From: IAD -- Washington DC (Washington Dulles Intl)
 To: CLE -- Cleveland OH (Cleveland-Hopkins Intl)
 Alt.: 12,000 ft. Profile: C150
 Time: Thu Sep 19 21:21 (UTC)

Routing options selected: Automatic low altitude airway.
 Flight plan route:
 AXQ VOLAN V10 YNG V6 STUKL
 Flight totals: fuel: 18 gallons, time: 3:29, distance 276.9 nm.

Ident	Type/Morse Code	Name or Fix/radial/dist	Latitude	Longitude	Alt.	Route	Winds	Mag	KTS	Fuel	Time
							Temp	Hdg	GS	Dist	
1.	IAD Apt.	Washington DC (Washingt	38:56:50	77:27:35	3	Direct				10.7	0:00
						242/4	+12C	337	80	2:03	2:03
2.	AXQ Apt.	Clarion PA	41:13:29	79:26:31	120	Direct				1.8	1:13
						020/6	+3 C	271	85	0:22	12.5
3.	VOLAN Int.	CIPr275/31 FKLr222	41:08:03	80:08:40	120	V10				1.7	2:25
						260/5	+10C	306	85	0:20	14.2
4.	YNG	d109.0 Youngstown	41:19:51	80:40:28	120	V6				2.8	2:45
						210/7	+10C	277	79	0:36	17.0
5.	STUKL Int.	BSVr348 DJBr096/22	41:21:04	81:39:53	49	Direct				0.6	3:21
						210/9	+13C	297	70	0:08	17.6
6.	CLE Apt.	Cleveland OH (Cleveland	41:24:33	81:51:16	8					9	3:29
										0	0

NOTE: fuel calculations do not include required reserves.
 Flight totals: fuel: 18 gallons, time: 3:29, distance 276.9 nm.
 Average groundspeed 80 knots.
 Great circle distance is 249.8 nm -- this route is 11% longer.
 Flight Planning System Copyright (C) 1991-2004 Enflight.com.
 All rights reserved.

In the above example, direct routing was used to the first element in the route. If the user wanted to use airways to the airport instead of direct then they would enter “*A AXQ *A”

Route of flight:
 User Selected Routing (fill in below) ▾
 *A AXQ *A

and the flight planner would generate the route: **MRB V501 THS V469 JST V297 TALLS AXQ VOLAN V10 YNG V6 STUKL**. Notice that airways have been used to and from the airport **AXQ**.

- **Automatic routing via the jet routes** may be specified by “*J”. Jet airway routing must be requested between

VOR or high-altitude intersection fixes; automatic routing from airports into the jet route system is not performed due to variances in climb capabilities of aircraft and air traffic control system routing requirements.

- **Automatic routing via a combination of direct VOR-to-VOR paths plus low-altitude airways** may be specified by “*V”. Note that most of the route segments in a VOR-Direct plan are likely to be Victor airways, since there are Victor airways between most VORs which are within reception range of one another. Direct paths between two VORs will be chosen only when the VORs are within reception range of each other given standard navaid service volumes and when the direct route would be shorter than an airway routing. Note that terrain and restrictions on usability of VORs is not taken into account. If an airport is specified adjacent to “*V”, automatic routing will be performed to an intersection or VOR near the airport.
- **Automatic routing via a great-circle (direct) course with intermediate fixes** may be specified by “*G” or “*R”. The intermediate fixes are defined in terms of latitude/longitude and in terms of radial/distance coordinates from nearby VORs. “*G” (great-circle) is designed for use with GPS equipment and does not do slant range compensation on the distances; “*R” does slant range compensation for VOR/DME-based RNAV units. If we entered “AXQ *G” for the

Route of flight:
 User Selected Routing (fill in below) ▾
 AXQ *G

KIAD to KCLE example, the route that is generated by the flight planner is: **AXQ YNG CXR180009** where the

			Winds	Crs	TAS	Time
			Temp	Hdg	GS	Dist
1.	IAD Apt.	Washington DC (Washingt				0.0
						0:00
						10.4
						2:00
2.	AXQ Apt.	Clarion PA				10.4
						2:00
						3.4
						109
3.	YNG	d109.0 Youngstown				13.8
						2:41
						1.3
						53
4.	Wpt.	112.7/180.0/009.4				15.1
						2:57
						2.2
						32
						0:28
5.	CLE Apt.	Cleveland OH (Cleveland				17.3
						3:25
						0

generated waypoint **CXR180009** is a fix/radial/distance, which would be 180 degree radial, 9 nm from **CXR**.

DUATS...Still the Fastest way into the Air and Still Free!!

www.duats.com

Data Line: 800-767-9989

Tech Support: 800-345-3828 press number 4

FAX: 703-818-4723

Secure Web: <https://www.duats.com>

Mobile: <http://www.duats.com/mobile>