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Introduction

Flight Wizard Online (FWO) is a VFR and IFR (Canada low-level airspace) flight planning web application that has been designed for general aviation pilots wherever they are. The program can be used anywhere and supports databases of different regions. Canadian and U.S. pilots can especially benefit from a complete integration of weather info in the flight plans, provided by *Nav Canada* and *U.S. Aviation Weather Center*.

FWO is based on the Windows version **Flight Wizard 5** (FW5), but much lighter in features. Since it was necessary to adapt the application to the web, the work flow deviates from **FW5** in some ways. However, the reports look the same.

Important:

- Enable *JavaScript* in order to run the program properly.
- Since this application relies on the speed of your Internet connection there might be a delay between your click and the response from the server. Please be patient.
- You must start a new session if the server doesn't hear from you for 20 minutes.

Getting Started

The following is an example of how to create and edit a *VFR* flight plan with **Flight Wizard Online**.

The initial page of **Flight Wizard Online** looks similar to the one on the right.

Select the region of your flight plan and the aircraft profile.

Note: the aircraft profile is a sample profile that may be typical to the aircraft you are flying. However, it is unlikely that its characteristics are true representation of your actual aircraft. If you are a **FW5** registered users you can submit your aircraft profile and we will include it in the pull-down list.

In our example we use *Cessna 172N*.

From the **Aircraft Profile** pull-down list select *C172N*.

After making the selection, read the Terms and Conditions. If agree, click on the acceptance button to start flight planning.

Flight Wizard Online
[User's Guide](#)

Region: Canada Aircraft Profile: C172N

Open reports in a new page (must allow pop-ups).

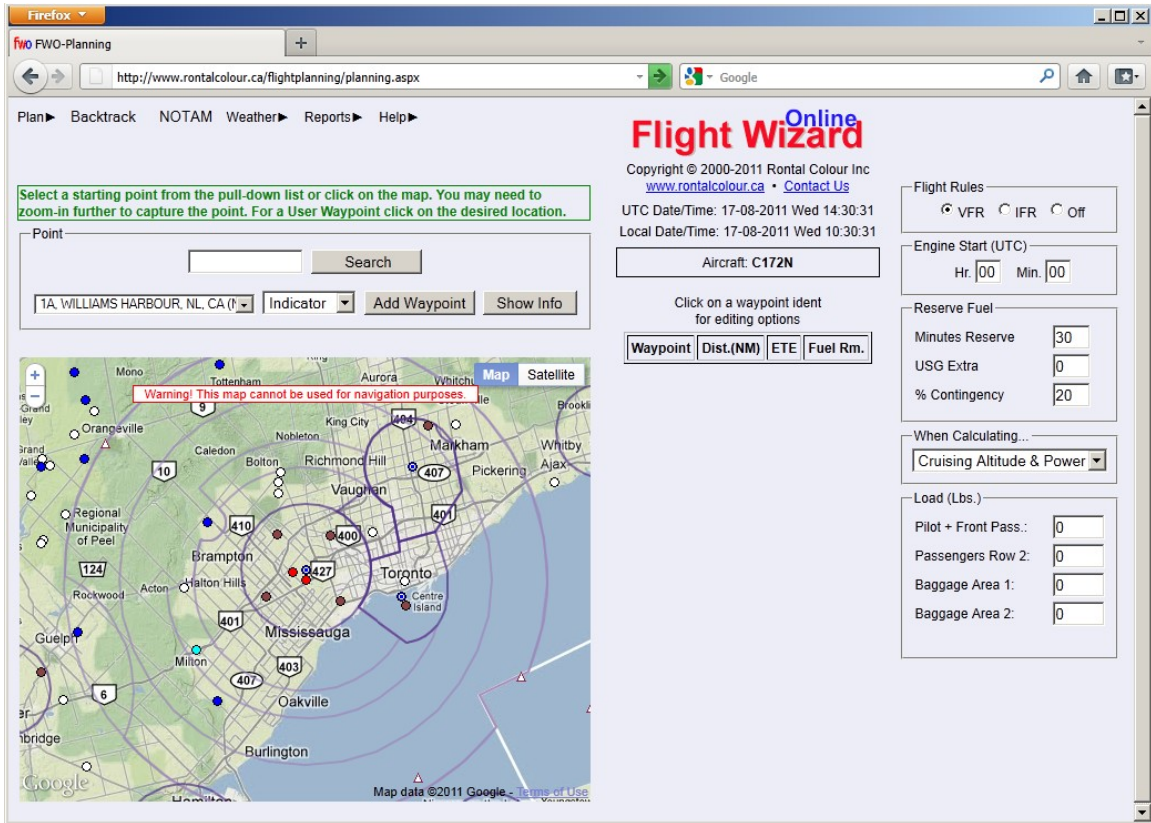
Terms and Conditions
=====

Flight Wizard Online (The Program) is protected by copyright laws. Unauthorized reproduction or disassembling of the program, databases, or any portion of them, and or any other accompanied file is forbidden.

The Program is supplied AS IS,

I understand and agree to the terms and conditions

The **Planning** page looks similar to the following screen. Some features on the default **Planning** page should look familiar to **FW5** users.



The coloured discs on the map indicate the following:

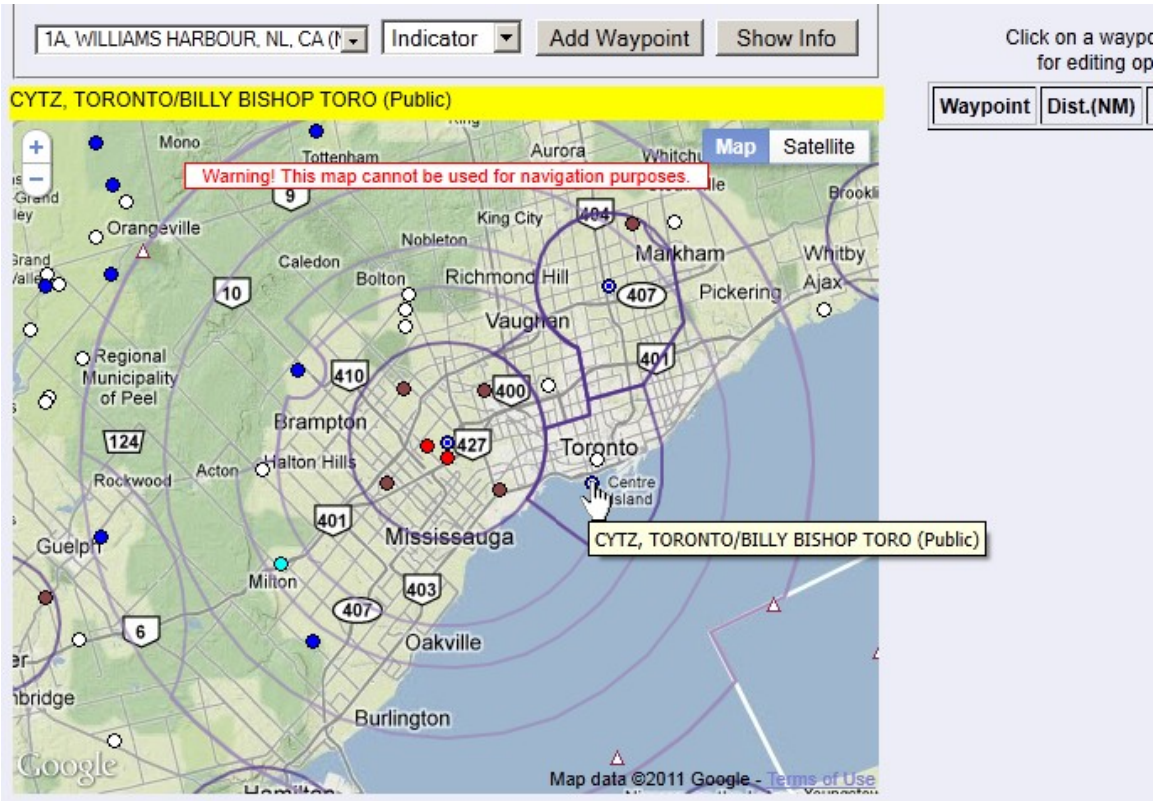
	Aerodrome		Navaid
	Public		VOR/TACAN
	Heliport/Water		NDB
	Restricted		
	METAR is available		

Tip: Navigate the map by holding the left button the mouse pressed and dragging the map in the desired direction.

Tip: Points and special airspace are visible when the zoom level is sufficient.

In this flight plan our starting point is *TORONTO / BILLY BISHOP TORONTO CITY AIRPORT, CYTZ*.

There are a few methods to insert a waypoint to the plan and they are demonstrated in our example. In the first method the point need to be present on the map. Place the pointer on the point and while the point's information label is visible press the left button of the mouse.



When clicking on the **CYTZ** blue disc the **Settings** window appears.

The screenshot shows the Flight Wizard interface. On the left, a map displays the location of CYTZ. A 'Settings for CYTZ' dialog box is open, showing fuel settings. Under 'Usable Fuel (USG)', 'Full Tanks' is selected. The 'Load (Lbs.)' section is also visible, with values for Pilot + Front Pass. (364), Passengers Row 2 (0), Baggage Area 1 (20), and Baggage Area 2 (0). A warning message is present on the map: 'Warning! This map cannot be used for navigation purposes.'

For the starting point the only settings available to us are fuel quantity and load distribution.

Select **Full Tanks** in the **Usable Fuel** frame, specify the load in the **Load** frame and click **OK**.

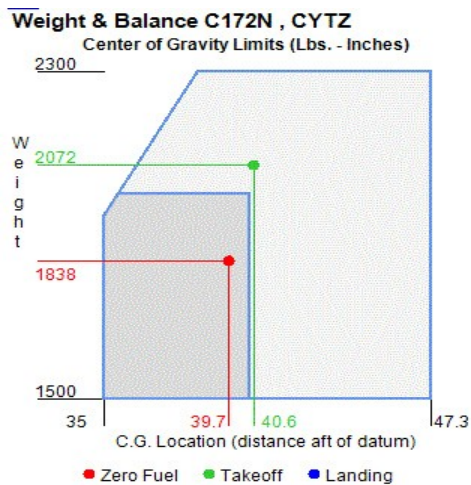
To check the **Weight and Balance** put the pointer on the indicator of the first waypoint, in the **Waypoints List** table, click on it and select **Weight and Balance** ► **CG Limits** from the pop-up menu.

This screenshot shows the 'Waypoints List' table with the following data:

Waypoint	Dist.(NM)	ETE	Fuel Rm.
CYTZ	0.0	00:12	38.9

A context menu is open over the 'CYTZ' row, with the following options:

- Show Waypoint Info
- Insert a Waypoint in the Next Line
- Insert an Action in the Next Line (Stopover, Holding, etc.)
- Edit Settings
- Delete this Line
- Weight & Balance ► **CG Limits** Lateral CG



W&B information must be for your actual aircraft.

It is assumed: the fuel in the auxiliary tank is consumed first; if the quantity of the total fuel is less than the capacity of the main tanks, there is no fuel in the auxiliary tank.

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The W&B image appears in a new page/tab.

Firefox

fwo FWO-Planning

http://www.rontalcolour.ca/flightplanning/planning.aspx

Plan ▶ Backtrack NOTAM Weather ▶ Reports ▶ Help ▶

Flight Wizard Online

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UTC Date/Time: 17-08-2011 Wed 15:43:53
 Local Date/Time: 17-08-2011 Wed 11:43:53

Aircraft: C172N

Click on a waypoint ident for editing options

Waypoint	Dist.(NM)	ETE	Fuel Rm.
CYTZ	0.0	00:12	38.9

Flight Rules: VFR IFR Off

Engine Start (UTC): Hr. 00 Min. 00

Reserve Fuel: Minutes Reserve 30, USG Extra 0, % Contingency 20

When Calculating...: Cruising Altitude & Power

Load (Lbs.): Pilot + Front Pass.: 364, Passengers Row 2: 0, Baggage Area 1: 20, Baggage Area 2: 0

Add the next waypoint as before. When finished specify Engine Start (UTC) and select one of the reports.

Point: Search

1A WILLIAMS HARBOUR, NL, CA (t) Indicator Add Waypoint Show Info

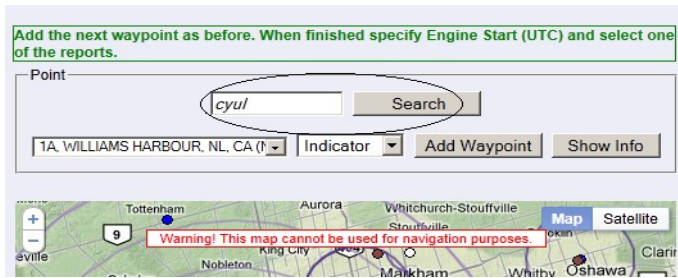
Warning! This map cannot be used for navigation purposes.

Map data © 2011 Google - Terms of Use

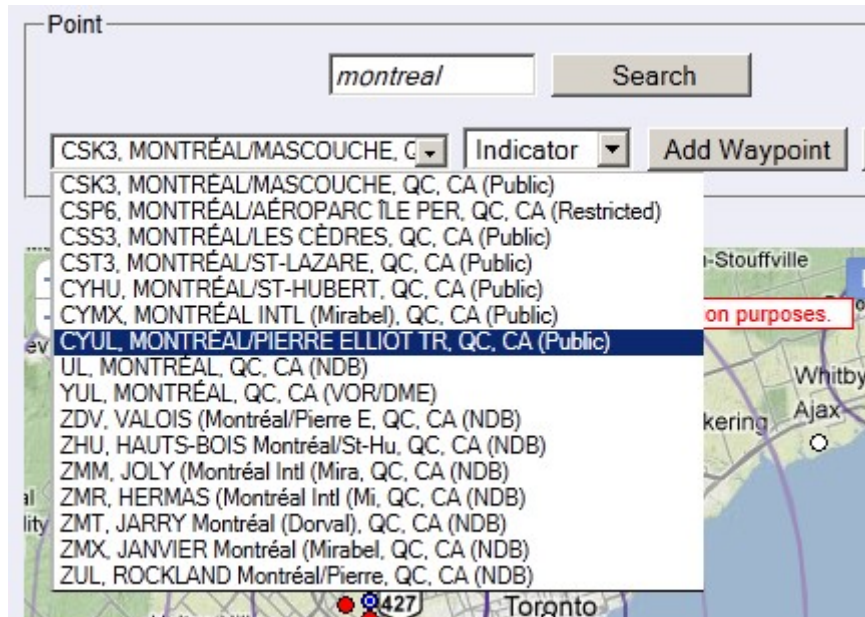
Note: The green ring around CYTZ indicates that this is our starting point.

Our destination is *MONTRÉAL / PIERRE ELLIOT TRUDEAU INTL* airport, *CYUL*.

CYUL is not visible on the map therefore we use a different method to include it in the plan. Type *cyul* in the **Search** box and press the **Search** button. Since there is only one point in the databases with this letter combination click on the **Add Waypoint** button to insert the waypoint.



Alternately, if you are not sure about the point's indicator, you can search the databases for any letter combination in its name or indicator. This search is not case or accent sensitive. In our example type *montreal* in the **Search** box and click on the **Add Waypoint** button. All the points that answer to this combination are listed in the **Point** pull-down list.

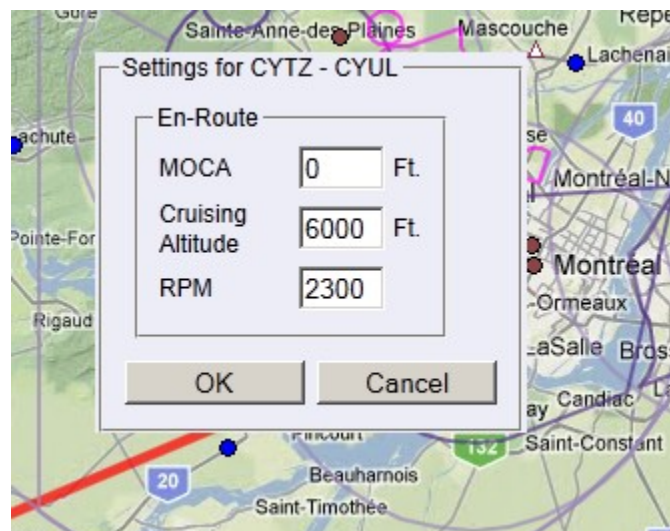


Selecting *CYUL* from the list centres the point on the map. Insert the waypoint to the plan by clicking on the point or by clicking on the **Add Waypoint** button.

Note: Pressing the **Search** button while the **Search** box is empty lists in the **Point** pull-down list all the points in the databases.

The **Settings** window appears again. Now we can specify the **En-Route** settings for leg *CYTZ - CYUL*. In our example let's set the cruising altitude to 6000 feet.

Click **OK** to confirm.



The red line between *CYTZ* and *CYUL* depicts the route on a *Great Circle*.

The program assumes that you land at *CYUL* and therefore makes an allowance for time and fuel needed for landing.

Next, specify the start time for the flight under **Engine Start (UTC)**. In our example we start at 00:00Z.

Engine Start (UTC)

Hr. Min.

We finish our flight plan by including the weather data in the calculations.

In the **When Calculating...** frame, at the right side of the page you have four options:

When Calculating...

1. **Cruising Altitude & Power as Set** – the altitude and the power are as you have set them in the **Settings** window.
2. **Cruising Altitude as Set, Auto Power** – the altitude is as you have set it in the **Settings** window and power is calculated for economy cruise.
3. **Cruising Altitude for Best Time, Power as Set** – the altitude is calculated for best time according to the upper winds and the power as was set in the **Settings** window.
4. **Cruising Altitude for Best Time, Auto Power** – the altitude is calculated for best time according to the upper winds, while the power is calculated for economy cruise.

Let's select option (2), **Cruising Altitude as Set, Auto Power**.

Select **Reports** ► **Flight Planning Form** and the **Flight Planning Form** appears in a new page/tab. This is a good opportunity to review your first flight plan.

Flight Planning Form for Aircraft C172N,
Last weather update (local time): August-17-11 1:37:36 PM

Waypoint	MOCA Ft.	Alt. Set. Hg ²	Temp °C ³	Alt. Ft.	RPM	MP In Hg.	BHP %	TAS Kts	CAS Kts	Trk (T)	Wind (T) / V	Hdg (M)	GS Kts ¹	Dist. NM	ETE ² USG ^{1,2}	Fuel Re. USG ^{1,2}	Climb	
																	Time	Dist.
CYTZ (40.0)				252											00:12	1.1		
CYUL	0	30.09	+9	7500	2300		54	103	91	63	273/12	73	112	266	02:35	17.1	00:12	14

Fuel Consumption (USG)		Summary	
Fuel En Route:	17.1	Time En Route:	02:35
Start, Taxi, Run-up:	1.1	Flight Time:	2.8 02:47
30 Minutes Reserve:	3.2	Duration of Trip:	02:47
Extra Fuel:		Endurance:	06:09
Sub Total:	21.4	Total Distance (NM):	266
20% Contingency:	3.4	Total Cost:	\$0.00
Total:	24.8		

¹ Change speed and fuel units in the Aircraft Profile window. GS and Fuel are averaged and may include a climb component.
² ETE includes 12 min for taxi and run-up in the first leg and in every stopover. ETE and Fuel Req. include 12 min for circuit and taxi to apron before every stop and in the last leg.
³ The Altimeter Setting and Temperature are averaged for each leg. The Temperature is interpolated for the cruising altitude in each leg.
 One circuit = 10 minutes. Time En Route = time up. Duration of Trip includes stopover time on the ground. Flight Time = Hobbs time.

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Alerts: No Alerts

Note that although you specified a cruising altitude of 6000 feet in the **Settings** window, in the report the altitude has been changed to 7500 feet. This change is necessary to conform to *Visual Flight Rules* (VFR). We can override the **Flight Rules** by selecting **Off** in the **Flight Rules** frame. Also note that the power setting has been changed from 2300 RPM to 2384 RPM as a result to our earlier selection of auto power.

Some fields in the report include weather information, resulting from the incorporation of weather data in the calculations.

Reserve fuel values can be changed in the **Reserve Fuel** frame, at the right side of the page.

Reserve Fuel

Minutes Reserve

USG Extra

% Contingency

Select **Flight Log/Nav** in the **Reports** menu for a kneeboard size summary of your plan.

Flight Log/Nav for Aircraft C172N,
Created: August-17-11 1:48:31 PM

Distances are in Nautical Miles. Speeds are in Kts. Fuel units are in USG.

Indicator	Freq.	ATIS	Hdg	Dist.	Dist to Gd	Est. GS	ETE ²	ETA	Fuel Req.	Comments
Name	Circuit Ht ¹		(C) ³	Altitude	Dist Gone	Act. GS	ATE	ATA	Fuel Rem.	
CYTZ (40.0)	118.2	133.6	-	-	266	-	00:12	00:12	1.1	
TORONTO/BILLY BISHOP TORO		1252		252	0				38.9	
CYUL	119.9	133.7	73	266	266	116	02:29	02:41	17.7	
MONTRÉAL/PIERRE ELLIOT TR		1118		7500	0				21.2	

¹ Check CFS and/or FAA publications for the actual circuit height
² ETE includes 12 min for taxi and run-up in the first leg and in every stopover. ETE and Fuel Req. include 12 min for circuit and taxi to apron before every stop and in the last leg.
³ The Compass Heading is accurate for the initial course only. It should be changed frequently in order to maintain a great circle route.

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Alerts: No Alerts

Many pilots prefer to specify the starting and destination points first and then choose the waypoints along the route.

Assume that on the way to *CYUL* we wish to have a stopover at *OTTAWA / MACDONALD-CARTIER INTL* airport, *CYOW*, for 45 minutes and fuel.

Inserting a new point plus an action (a stopover) is a two-step process: adding *CYOW* as a waypoint between *CYTZ* and *CYUL* and then adding it once more as a stopover.

As before, search for *CYOW* to centre it on the map. Put the pointer on the indicator of *CYTZ*, in the **Waypoints List** table, click on it and select **Insert a Waypoint in the Next Line** from the pop-up menu. A message box appears, asking you to confirm. Click on *CYOW*.

The screenshot shows the flight planning software interface. At the top left, there is a search bar with "CYOW, OTTAWA/MACDONALD-CAI" entered. Below it is a map of the Ottawa region with several waypoints marked. A red warning box on the map states "Warning! This map cannot be used for navigation purposes." To the right of the map is a "Waypoints List" table:

Waypoint	Dist.(NM)	ETE	Fuel Rm.
CYTZ	0.0	00:12	38.9
CYUL	265.8	02:50	20.2

Below the table is a "Show Waypoint Info" window with the following options:

- Insert a Waypoint in the Next Line
- Insert an Action in the Next Line (Stopover, Holding, etc.)
- Edit Settings
- Delete this Line
- Weight & Balance ► CG Limits Lateral CG

In the foreground, a dialog box titled "The page at http://localhost says:" is displayed with the message "Click on a point to insert between CYTZ and CYOW" and "OK" and "Cancel" buttons.

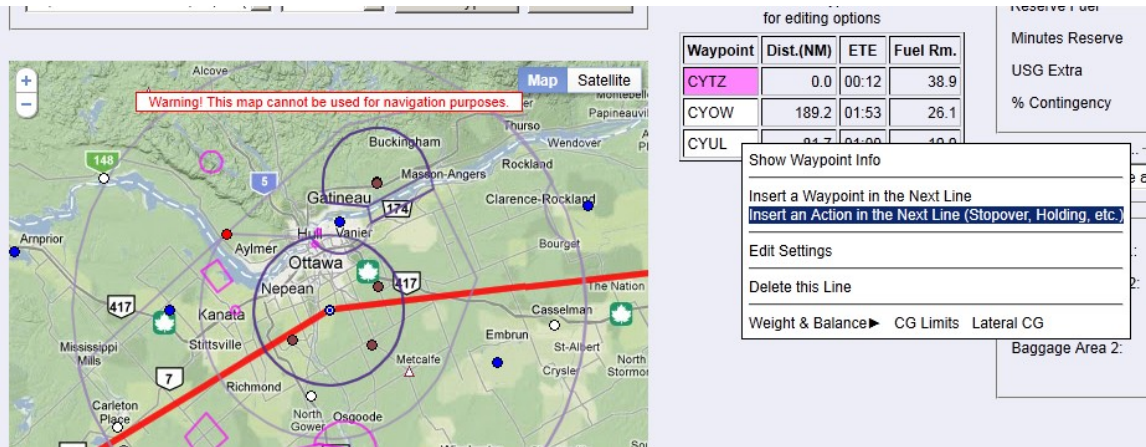
In the **Settings** window keep the default **En-Route** settings for *CYTZ* - *CYOW*.

The screenshot shows the "Settings for CYTZ - CYOW" dialog box. It has an "En-Route" section with the following settings:

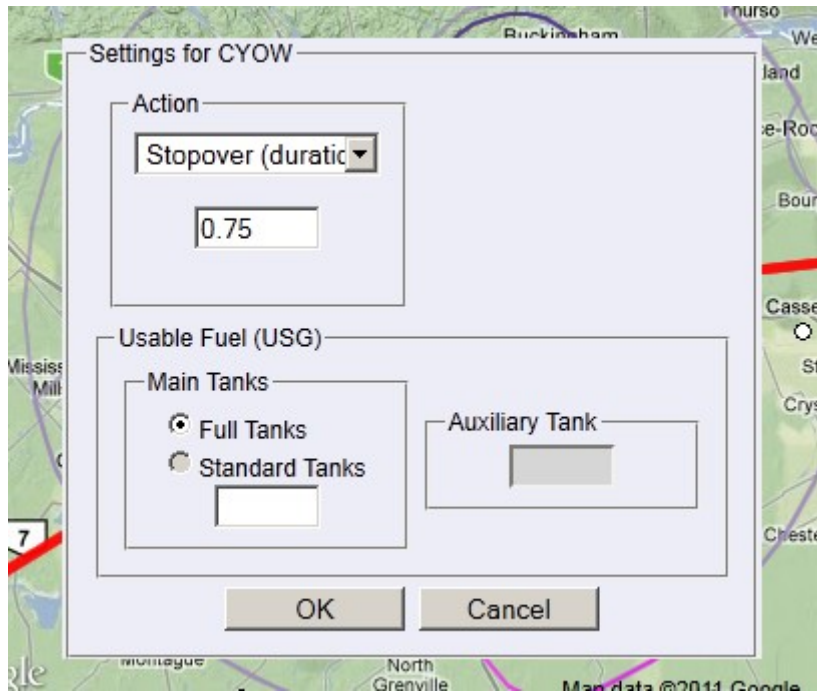
- MOCA: 0 Ft.
- Cruising Altitude: 7500 Ft.
- RPM: 2300

At the bottom of the dialog box are "OK" and "Cancel" buttons.

In the second step we add *CYOW* again, but this time we click on the *CYOW* indicator. We can use the same procedure as above, but the easiest way it to select **Insert an Action in the Next Line**.



In the **Settings** window select **Stopover** from the pull-down list, enter 0.75 (= 45 min.) and select **Full Tanks** in the **Usable Fuel** area.



Select **Reports** ► **Flight Planning Form**.

Flight Planning Form for Aircraft C172N,
Last weather update (local time): August-18-11 10:45:16 AM

Waypoint	MOCA Ft.	Alt. Set. Hg ²	Temp °C ²	Alt. Ft.	RPM	MP In Hg.	BHP %	TAS Kts	CAS Kts	Trk (T)	Wind (T) / V	Hdg (M)	GS Kts ¹	Dist. NM	ETE ² USG ^{1,2}	Fuel Re.		Climb	
																Time	Dist.	Time	Dist.
CYTZ (40.0)				252											00:12	1.1			
CYOW	0	29.95	+8	7500	2386		59	108	95	56	273/17	63	118	189	01:48	13.0	00:12	15	
CYOW (40.0)				374											00:57	1.1			
CYUL	0	29.93	+8	7500	2386		59	108	96	83	263/20	98	121	82	00:52	6.6	00:12	14	

Fuel Consumption (USG)		Summary	
Fuel En Route:	19.7	Time En Route:	02:41
Start, Taxi, Run-up:	2.2	Flight Time:	3.1 03:05
30 Minutes Reserve:	3.4	Duration of Trip:	03:50
Extra Fuel:		Endurance:	05:42
Sub Total:	25.3	Total Distance (NM):	271
20% Contingency:	3.9	Total Cost:	\$0.00
Total:	29.2		

¹ Change speed and fuel units in the Aircraft Profile window. GS and Fuel are averaged and may include a climb component.
² ETE includes 12 min for taxi and run-up in the first leg and in every stopover. ETE and Fuel Req. include 12 min for circuit and taxi to apron before every stop and in the last leg.
³ The Altimeter Setting and Temperature are averaged for each leg. The Temperature is interpolated for the cruising altitude in each leg.
 One circuit = 10 minutes. Time En Route = time up. Duration of Trip includes stopover time on the ground. Flight Time = Hobbs time.

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Alerts: No Alerts

Let's change our mind regarding the stopover at *CYOW*. Instead, we replace the stopover with a circling climb to 9500 feet and continue to *CYUL* without stopping.

To change any of the **En-Route** or **Action** settings for a specific waypoint click the **Waypoints List**, on the indicator of the waypoint that you would like to edit. In our case click the second occurrence of *CYOW*, highlighted in orange, and select **Edit Settings**.

Click on a waypoint ident for editing options

Waypoint	Dist.(NM)	ETE	Fuel Rm.
CYTZ	0.0	00:12	38.9
CYOW	189.2	02:05	24.9
CYOW	0.0	00:57	30.0
CYUL			

Show Waypoint Info

Insert a Waypoint in the Next Line

Insert an Action in the Next Line (Stopover, Holding, etc.)

Edit Settings

Delete this Line

Weight & Balance ► CG Limits Lateral CG

Reserve Fuel

Minutes Reserve

USG Extra

% Contingency

Baggage Area 2:

Edit Settings for CYOW

Action

Circling Climb/Descent

9500

Usable Fuel (USG)

In the **Settings** window, showing a stopover at *CYOW* change the **Action** to **Circling Climb/Descent** and enter 9500 in the altitude field.

Click **OK** to confirm and in the same fashion change the **Cruising Altitude** for *CYUL*.

The following is the **Flight Log/Nav** of our modified plan after a weather update:

Flight Log/Nav for Aircraft C172N,
Created: August-18-11 11:03:05 AM

Distances are in Nautical Miles. Speeds are in Kts. Fuel units are in USG.

Start	Circ. Climb	En Route
Stopover	Circuits	Holding

Indicator	Freq.	ATIS	Hdg ³	Dist.	Dist to Gd	Est. GS	ETE ²	ETA	Fuel Req.
Name	Circuit Ht ¹		(C)	Altitude	Dist Gone	Act. GS	ATE	ATA	Fuel Rem.
CYTZ (40.0)	118.2	133.6	-	-	271	-	00:12	00:12	1.1
TORONTO/BILLY BISHOP TORO		1252		252	0				38.9
CYOW	118.8	121.15	63	189	271	118	01:36	01:48	11.7
OTTAWA/MACDONALD-CARTIER		1374		7500	0				27.2
CYOW	118.8	121.15	-	-	271	-	00:05	01:54	0.7
OTTAWA/MACDONALD-CARTIER		1374		9500	0				26.5
CYUL	119.9	133.7	97	82	271	130	00:50	02:44	5.6
MONTRÉAL/PIERRE ELLIOT TR		1118		9500	0				20.9

Comments

- ¹ Check CFS and/or FAA publications for the actual circuit height
- ² ETE includes 12 min for taxi and run-up in the first leg and in every stopover. ETE and Fuel Req. include 12 min for circuit and taxi to apron before every stop and in the last leg.
- ³ The Compass Heading is accurate for the initial course only. It should be changed frequently in order to maintain a great circle route.

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Alerts: No Alerts

Tip: To turn around and follow your plan to the starting point, read [Backtrack](#).

Tip: To include a User's waypoint in your plan just click on the desired location in the map.

Warning! This map cannot be used for navigation purposes.

Waypoint	Dist.(NM)	ETE	Fuel Rm.
CNC3	0.0	00:12	38.9
UsrPt 1	6.4	00:04	38.4
CTR3	15.7	00:21	35.9

Databases

Warning! Since some of the databases were compiled manually and some are from disagreeable sources, it is only natural that they are prone to mistakes. A great effort was made to ensure the accuracy of the information. However, this cannot be guaranteed and you should consult all the official current aeronautical publications, relevant for your flight plan, before every flight.

- **Canadian Data**

- **Aerodromes and Nav aids**

The primary source for information on Canadian aerodromes and nav aids is the *Canada Flight Supplement* (CFS). The databases include all the Canadian aerodromes (except heliports) and nav aids. Since no digital format of the CFS is available, the relevant information had to be compiled manually from the hard copy. The CFS is published in cycles of 56 days.

- **Designated Airspace**

The source for information on Canadian designated airspace is the *Designated Airspace Handbook* which is published every 56 days.

The designated airspace databases include **Danger, Restricted** and **Advisory Areas, Terminal Control Areas** and **Control Zones**.

- **Low Level Airways**

The low level airways (VHF/UHF, LF/MF, RNAV) and the intersection/fix points can be viewed while in IFR.

Intersection/fix points can be selected as waypoints in the flight plan.

- **U.S. Data**

The U.S. databases contain data for the public-use airports, seaplane bases, heliports, nav aids and designated airspace in the continent and islands. The U.S. databases are compiled from databases supplied by the FAA.

The U.S. airports indicators are as given by the FAA. E.g., the ICAO indicator KJFK appears in the database as JFK.

The information regarding U.S. airports, nav aids and weather reporting stations were taken from different Internet sources.

The source for U.S. weather reporting stations is the [National Weather Service](#). The database contains all the *METAR* and *FD* reporting stations that are related to airports and that are located in the continent.

If you find a mistake, a typo or a missing weather station, please let us know for the benefit of your fellow pilots.

- **World Data**

Data on airports and nav aids (other than Canadian and U.S.) were taken from the *National Geospatial-Intelligence Agency Digital Aeronautical Flight Information File* (DAFIF). It is important to note that this product has not been endorsed or otherwise

approved by the *National Geospatial-Intelligence Agency* or the *United States Department of Defense* (10 U.S.C. 425).

The world data may not be current.

Edit a Flight Plan

- **Add a Waypoint**

There are three ways to insert a waypoint to the plan.

- **Click on the Point** while the label presenting the point's information is visible. This method is the fastest way to create a flight plan. However, the point has to be visible on the map and the zoom level should be sufficient. Also, this method is suitable when inserting waypoints in a consecutive order and cannot be used for inserting a waypoint between two other existing waypoints. Clicking on the same point successively triggers one of the **Actions**, described later in this topic. [Example](#).
- **Add Waypoint Button** - When a point is not visible on the map search the databases for the indicator, name or a letter combination. If a point with the same description exists it will be included in the **Point** pull-down list. Select the requested point from the list and click on the **Add Waypoint** button. [Example](#).
- **The general way** for adding a waypoint is to edit the plan by clicking on the [Waypoints List](#) and selecting **Insert a Waypoint in the Next Line** in the pop-up menu. [Example](#).

- **Settings**

When adding a waypoint to the plan the **Settings** window appears. The look of the **Settings** window can change according to the location of the waypoint in the plan.

- **Starting Point** - After selecting the first waypoint the only option available in the **Settings** window is to refuel.
- **En-Route** - En-route leg is when the distance between two successive waypoints is greater than zero. The following can be set in the **En-Route** frame:

- **Minimum Obstacle Clearance Altitude (MOCA)**

In the **MOCA** field enter the elevation above sea level (ASL) + 1000' of the highest obstacle in the vicinity of the route.

If the MOCA value is greater than the value of the maximum pressure altitude, as specified in the aircraft profile, an alert is issued in the **Flight Planning Form** and in the **Flight Log/Nav**. The default value of the MOCA is zero.

- **Cruising Altitude**

Cruising Altitude is the desired flying altitude while en-route.

The program may change the specified altitude to conform to the [Flight Rules](#) (in VFR the flight rules take effect above 3000' AGL). If the chosen altitude is lower than the elevation of the destination in that leg + 1000', the program changes the specified altitude to 1000' AGL. Any conflict concerning the cruising altitude triggers an **alert** in the **Flight Planning Form** and in the **Flight Log/Nav**.

When selecting **Cruising Alt for Best Time, Auto Power Flight Wizard Online** searches for cruising altitudes with most favorable winds to arrive the destination in the shortest time. For every altitude, from the lowest available wind level to the **Max Useful Altitude**, the program finds the winds aloft, recalculates the power setting by averaging and interpolating the RPM (or MP) values, and calculates the time en-route. This option conforms to the flight rules, as selected in the **Flight Rules** frame (top-right corner of the page). If the **Off** option is selected, the program searches for the best result in increments of 500 feet.

The default value of the **Cruising Altitude** is the elevation of the destination in the leg + 1000 feet. If a higher altitude was set in the previous leg, that altitude is adopted with the change required under the flight rules.

- **RPM**

When the aircraft is equipped with a *fixed-pitch* propeller, the power is a function of the the propeller RPM. The RPM can be set automatically by the program or manually by the pilot, depending on the option selected in the **When Calculating** frame (middle of the right side of the page).

- **Manifold Pressure (MP)**

When the aircraft is equipped with a *variable-pitch constant-speed* propeller the RPM is considered fixed and the power is a function of the MP. The MP can be set automatically by the program or manually by the pilot, depending on the option selected in the **When Calculating** frame.

- **Action** - When inserting to the plan the same point successively, one of the actions below may be selected. In the **reports** every type of action is highlighted with a unique colour for an easy identification.

- **Stopover**

A **Stopover** is any instance of landing at a waypoint with the intention to continue the flight after a break. Changing fuel quantity is possible only at the starting point and during stopovers.

A stopover may last up to 24 hours. After refueling the new fuel quantity is presented in the reports next to the point indicator.

The program adds the time, as specified in the aircraft profile, for circuit and taxi to the apron after landing, and for taxi and run-up before taking-off again.

- **Holding**

Holding allows flying over a waypoint for a set time period, at same altitude as specified in the previous leg.

Unless continuing to another waypoint, landing is assumed after the holding period and the program adds the time, as specified in the aircraft profile, for circuit and taxi to the apron.

- **Circuits**

Circuits allows practicing *Touch and Go* circuits over a waypoint. The circuit altitude is the point elevation + 1000 feet.

Every circuit is calculated as 10 minutes flying, for time and fuel consumption. The number of circuits is presented in the different reports next to the point indicator.

Unless continuing to another waypoint, landing is assumed after the circuits and the program adds the time, as specified in the aircraft profile, for circuit and taxi to the apron.

- **Circling Climb/Descent**

Circling Climb/Descent allows achieving a certain altitude before continuing to the next waypoint.

- **Edit Waypoint Settings**

Clicking the [Waypoints List](#) on any waypoint allows to change any of the settings above.

- **Delete a Waypoint/Action**

Click the [Waypoints List](#) on the waypoint or action you wish to delete and select **Delete this Line**. When deleting an **En-Route** instance of a waypoint that comes before an **Action**, the Action instance becomes an En-route.

- **Change Load Distribution**

Changing the load distribution is possible at any time.

- **Refueling**

To enable refueling click the [Waypoints List](#) on the starting point or on any **Stopover** and select the **Edit Settings** option.

- **Backtrack**

Click on the **Backtrack** option in the main menu to make a U-turn and follow your flight plan inbound.

This feature ignores any action that you have outbound, e.g., a **Stopover**.

Flight Rules

At the top-right corner of the page you can select the flight rules that apply to your flight plan, i.e., **VFR** (Visual Flight Rules) or **IFR** (Instrument Flight Rules). Either one of them may affect your cruising altitude to conform to the Aviation Regulations. In case of **VFR** the Flight rules affect only flight altitudes higher than 3000' AGL (Above Ground Level). The program follows Flight rules in altitudes to below FL 290.



If you wish to override the flight rules restrictions, select the **Off** radio button in the **Flight Rules** frame.

Magnetic Variation

The magnetic variation is calculated according to the *World Magnetic Model*. The algorithm is based on Fortran and C codes, published by the *Defense Mapping Agency* (DMA) and the *National Imagery and Mapping Agency* (NIMA). The data is update by the same sources every five years.

The magnetic variation shown is for **Sea Level**, for July 1 of the current year.

NOTAM

Click on **NOTAM** in the main menu for a *Notice to Airman* (NOTAM) report. If a waypoint is an aerodrome, the program searches for NOTAMs associated with that aerodrome. Otherwise, the program searches for NOTAMs associated with the nearest aerodrome that has a METAR station. The more waypoints along the flight route, the better NOTAM coverage.

- **NOTAMs from Nav Canada**

Canadian NOTAMs include three types of reports:

- Aerodrome - All NOTAMs associated with the Aerodrome NOTAM File (Aerodrome information plus local area NOTAMs).
- CYHQ - National NOTAM file.
- FIR - (Flight Information Region) NOTAM file. NOTAMs for the FIRs of the selected aerodromes in your flight plan.

- **NOTAMs from Federal Aviation Administration (FAA)**

The program sends a query to the FAA web site for U.S. NOTAMs en-route.

Note: The FAA provides NOTAMs for selected airports around the world. Flight plans outside North America are not provided with a complete NOTAM coverage.

Reports

- **Flight Log/Nav**

Select **Flight Log/Nav** in the **Reports** menu. This report is ideal for using in flight and designed to fit most kneeboards. The report can include a list of **navaids** near the flight plan route, with the proximity set by the user. In this report:

- **(C)** = Compass.
- **Freq.:** *Tower Frequency (TWR), Aerodrome Traffic Frequency (ATF) or Mandatory Frequency (MF)*. In case of a navaid it is the navaid frequency.
- **ATIS:** *Automatic Terminal Information Service, Automatic Weather Observation System (AWOS) or Limited Weather Information System (LWIS)*.
- **Circuit Ht** (Height): the point elevation + 1000 feet.
- **Distance, Dist to Go** and **Dist Gone:** in nautical miles (NM).
- **Est. GS:** the Estimated Ground Speed in Knots, MPH or Km/H.
- **ETE:** the Estimated Time En-route.
- **ETA:** the Estimated Time of Arrival. **Engine Start Time** affects the ETA.
- **Fuel Req.** (Required): the fuel quantity needed en-route in U.S. gallons, litres or pounds.
- **Fuel Rem.** (Remaining): indicates the actual usable fuel quantity available at the end of each leg in U.S. gallons, litres or pounds,.

Note: The **ETE** includes the time for taxi and run-up, as specified in the aircraft profile. The **ETE** and **Fuel Req.** include a circuit and taxiing to the apron after landing.

- **Flight Planning Form**

Select **Flight Planning Form** in the **Reports** menu. This report provides detailed information on the plan, an account on the fuel consumption and times. In this report:

- **(T)** = True; **(M)** = Magnetic.
- **Alt. Set.** (Altimeter Setting): in "Hg or Mb.
- **RPM/MP:** based on the cruise performances values, as specified in the aircraft profile.
- **TAS** (True Air Speed): the cruising speed.
- **CAS** (Calibrated Air Speed): the indicated air speed corrected for instrument and installation errors.
- **GS** (Ground Speed): may include a climb component.
- **Dist.:** the distance between two points on a *Great Circle*.
- **ETE:** the Estimated Time En-route.
- **Fuel Req.** (Required): the fuel quantity needed en-route in U.S. gallons, litres or pounds.
- **Endurance:** the total unusable fuel after takeoff from the starting point divided by the average fuel consumption per hour in cruise, in ISA conditions.
- **Start, Taxi, Run-up:** as specified in the aircraft profile.
- **Time En Route:** the total of ETE not including the time spent in stopovers. In other words, it is the "time up".
- **Flight Time:** the **Time En Route** + the total time spent on **Start, Taxi, Run-up** + the total time spent on circuits. It is assumed that, unless it is a **Stopover**, the last waypoint is the final destination in the flight plan. **Flight Time** is used to calculate the **Cost** of the flight.
- **Duration of Trip:** the **Flight Time** + the total time spent on the ground in a **Stopover**.

A report is a result of interpolating (and sometime extrapolating) aircraft, waypoints, en-route settings and weather data inputs, based on the pressure altitude.

At the bottom of the **Flight Planning Form** and the **Flight Log/Nav** you may find a list of **alerts** concerning your flight settings and weather inputs.

Note:

- The **ETE** includes the time for taxi and run-up as specified in the aircraft profile. The **ETE** and **Fuel Req.** include a circuit and taxiing to the apron.
- Pressure altitude calculations assume *ICAO Standard Atmosphere (ISA)* conditions.
- Contingency fuel allowance is based on the total en-route fuel consumption.
- Speed and fuel units can be changed in the aircraft profile.

- **ICAO Flight Plan**

Select **ICAO Flight Plan** in the **Reports** menu. This report compiles the flight plan in a *ICAO* flight plan format.

- **Endurance**: the total unusable fuel after takeoff from the starting point divided by the average fuel consumption per hour in cruise, in ISA conditions.
- **Cruising Speed**: the TAS in cruise, in ISA conditions.

The chosen **Flight Rule** affects how the route is described.

A click on an emergency and survival equipment box cross-out the box.

- **Waypoints List**

A short format of the **Flight Planning Form** located at the centre of the page. Clicking on the list allows to add, edit and delete waypoints.

Aircraft: C172N

Waypoint	Dist.(NM)	ETE	Fuel Rm.
CYTZ	0.0	00:12	38.9
CYTR	86.0	00:52	32.6
CYOW	107.2	01:14	24.5

- **Airport Diagrams**

This feature is accessible from the **Help** menu and provides links to *Nav Canada* and *FAA* web sites where airport diagrams can be viewed and printed. These diagrams are in a **PDF** format and a copy of the free [Acrobat Reader](#) is required to view them.

- **GPX Format**


Flight Wizard Online allows you to export waypoints and routes to applications that support *GPX* format. *GPX* is a *GPS exchange* format that is especially useful when wishing to upload the route into a GPS receiver. The program produces a line that needed to be saved as a *GPX* file by using a text editor such as *Notepad*.

The default route name is a composition of the waypoints identifiers. Make sure that this name is not in conflict with an existing route already installed on your GPS receiver! The route name can be edited manually in the text editor.

Time

- **Engine Start Time**

The **Engine Start Time** matters when the program selects the **Upper Level Wind** data from the FD/FB report.

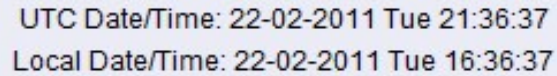


Engine Start (UTC)
Hr. Min.

The **Engine Start Time** value affects the **ETA** and the **Departure Time** in the different **reports** and must be a UTC.

- **UTC and Local Clocks**

This feature depends on the settings of your computer **Date/Time** properties.



UTC Date/Time: 22-02-2011 Tue 21:36:37
Local Date/Time: 22-02-2011 Tue 16:36:37

Weight and Balance

Weight and Balance can be viewed by selecting the proper option in the **Waypoints List**. W&B helps to decide how much fuel you wish to take with you and how to arrange the load distribution in an optimal way.

All the necessary inputs for weight and balance envelopes and arms are predetermined in the aircraft profile.

Changes you have made to the fuel and load values affect the presentation of the total weight and *Centre of Gravity* (CG) position in relation to the permissible envelop for your aircraft.

Changing the fuel quantity is possible only at the starting point or in a stopover.

Standard Fuel is the usable fuel quantity that a flying club may impose for weight and balance reasons.

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