TOPLIS

TopSky plugin for Portugal vACC

User Manual Version 2.0

October 2022

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Introduction

1.1 Disclaimer

Although - as its name suggests - the plugin is based on TOPLIS and the TopSky ATM system, it is in no way affiliated with or endorsed by Thales Group or NAV Portugal. Similarities between plugin features and the real system are not entirely coincidental, but the plugin can not be used as a real world training aid. [1]

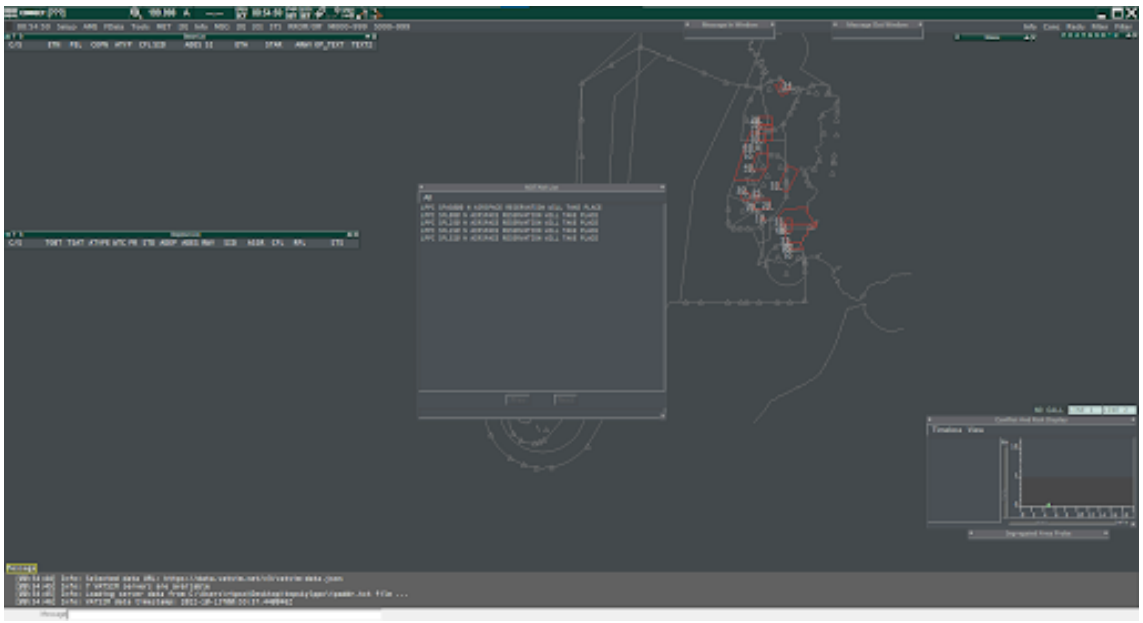
1.2 Foreword

EuroScope, a controller client developed by Gergely Csernák for the VATSIM network, was first released for public use in September 2007. One of the biggest changes in version 3.1 was the possibility for the user community to customize the program to an even higher degree than was possible before by writing their own plugins that can be used to alter the way information is presented and even create completely new functionality into the program. This allowed creating very detailed simulations of all kinds of ATC systems without making the main program overly complex. Version 3.2 expands on these possibilities, making it possible to create even better plugins. The TopSky plugin (a.k.a. The Plugin Formerly Known As “EUROCAT 2000 E”) started out as a very small project to create a couple of customized aircraft tag items, but as more information about the real system and the possibilities with the plugin development became available, it slowly grew to include an almost complete set of tag items, tag menus, graphical elements on the radar display and some additional functionality.

2

System Description

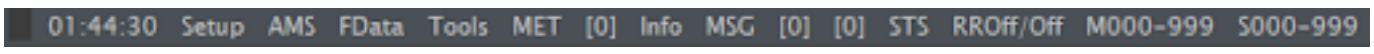
2.1 Main Window



Euroscope should load with some preplaced windows similar to the above configuration

Screen resolutions other than 1920x1080 will yield different results. Larger resolutions will bring preplaced windows towards the left and middle, while smaller resolutions may potentially place windows outside the screen. It is recommended for users experiencing difficulties related to their screen size to experiment and create custom settings in the TopSkySettingsLocal file containing revised window placements adjusted for their own screen. Refer to `TopSky_Developer_Guide_Settings.xlsx` for available settings

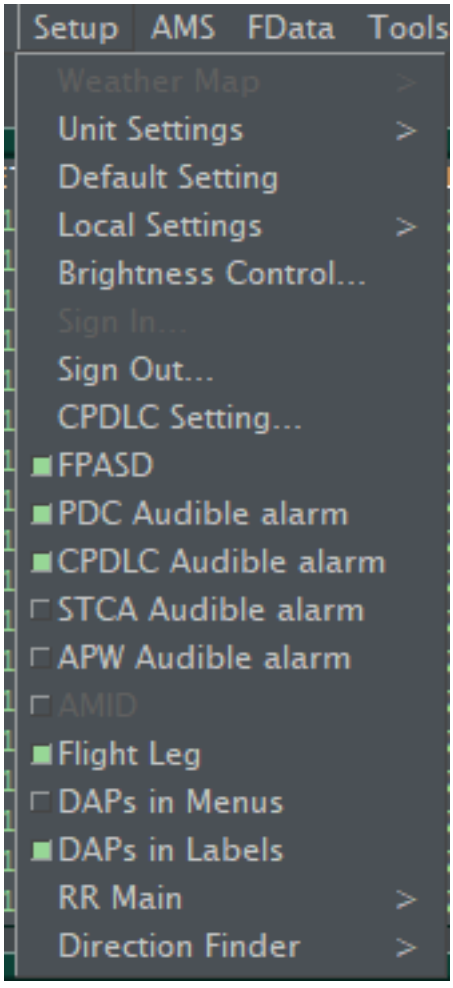
2.2 Global Menu



The Global Menu is located on the top edge of the radar screen. It displays the current

UTC time and contains a number of submenus which are explained below.

2.2.1 Setup Menu



Setup Menu allows for various adjustments. Each position will load its defined settings based on the active Primary Frequency. Most used options are CPDLC Setting for CPDLC operations and Default Setting to reset options.

- Unit Settings >	
- Default Setting	Resets all settings to their default values (keeps login callsign specif
- Local Settings >	
- Brightness Control >	
- Sign In. . .	Loads personal settings. The settings are specified in the `TopSkySet`
- Sign Out. . .	Clears any personal settings and resets all settings to thei
- CPDLC Setting. . .	
- FPASD	
- PDC Audible alarm	Toggle
- CPDLC Audible alarm	Toggles
- STCA Audible alarm	
- APW Audible alarm	
- AMID	
- Flight Leg	Toggles on/off the automatic
- DAPs in Menus	
- DAPs in Labels	To
- RR Main >	
- Direction Finder >	

Unit Settings submenu

This submenu can be used to change the units used in the plugin. Any changes to the settings are session- specific only, so they will be lost when exiting EuroScope.

- Altitude	Selects the units used for altitudes and vertical rates - Nautical (feet, feet per m
- Flight level	Selects the units for flight levels – only applicable with metric altitudes - Nau
- Distance	Selects the units used for distances - Nautical (nautical mile
- Speed	Selects the units used for speeds - Nautical (knots) - Metric

Local Settings submenu

This submenu allows changing some of the plugin's settings. Any changes to the settings are session- specific only, so they will be lost when exiting EuroScope.

- Vertical reference — Selects the pressure
- Used equipment codes — Selects whether to use or disregard the equi
- ASSR codes
- Groundspeed — Selects whether to use pilot client reported ground speed or a plug
- Transfer confirmation — Selects when to displ
- CFL menu default value — Selects the default value for the CFL me
- FPCP inhibit
- STCA alert
- STCA alert sound — Selects which STC
- APW alert
- APW alert sound — Selec
- METAR source
- FPASD filter — Allows filtering of displ

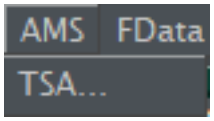
RR Main submenu

- [] Rings On/Off
  - Point — Sets the rings centerpoint. Either click on the radar screen or enter the desire
  - Separation
  - Number
- [] Highlight
  - Step

Direction Finder submenu

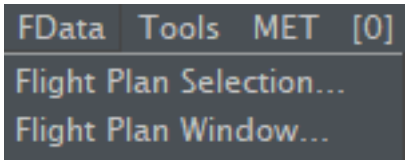
Not operational.

2.2.2 AMS menu



Opens the *Airspace Management Window*.

2.2.3 FData menu



Opens the **??** and **??**.

2.2.4 Tools menu

2.2.5 Tools menu

- Flight Plan Lists >	Opens the Flight Plan Lists submenu
- CARD. . .	Opens the **??**
- SAP. . .	Opens the **??**
- Vertical Aid Window. . .	Opens the **??**
- Message In. . .	Opens the **??**
- Message Out. . .	Opens the **??**
- CPDLC >	Opens the CPDLC submenu
- LAT/LONG. . .	Opens the **??**

Flight Plan Lists submenu

- [] List options bar	Toggles the display of list options on the Global Menu
- Sector List. . .	Opens the Sector List
- [] Informed	Toggles the display of informed aircraft
- [] Concerned	Toggles the display of concerned aircraft
- [] Redundant	Toggles the display of redundant aircraft
- Load Factor List. . .	Opens the **??**
- ETWR List. . .	Opens the **??**
- <adep>	ETWR List departure airports filter
- Uncont. List 1. . .	Opens the **??**
- <filter>	Uncontrolled 1 List state filter
- <units>	Uncontrolled 1 List units filter
- Uncont. List 2. . .	Opens the **??**
- <filter>	Uncontrolled 2 List state filter
- <units>	Uncontrolled 2 List units filter
- Lost List. . .	Opens the **??**
- Resectorisation List. . .	Opens the **??**
- <lfunc>	Resectorisation List LFUNC filter
- Traffic Mgmt. List 1. . .	Opens the **??**
- <state>	Traffic Management List 1 flight plan state filter
- <ades>	Traffic Management List 1 destination airports filter
- <via>	Traffic Management List 1 route points filter
- Traffic Mgmt. List 2. . .	Opens the **??**
- <state>	Traffic Management List 2 flight plan state filter
- <ades>	Traffic Management List 2 destination airports filter
- <via>	Traffic Management List 2 route points filter

When enabled, the list options bar displays “Info Conc Redu Filter Filter” on the right edge of the Global Menu. The first three toggle the respective settings for the Sector List and are colored with the appropriate color when enabled, and the last two

are displayed in “VFR” color when the corresponding Uncontrolled list is somehow filtered. Clicking on them opens the Flight Plan Lists submenu to change the filtering options. Left-clicking <filter> cycles through “ALL” (no filtering), “ON-CONTACT” (only tracks on-contact with anyone), “ON-CONTACT-PPOS” (only tracks on-contact with you) and “FREE” (only tracks in the free state). Left-clicking <units> opens a text entry box to enter a comma-separated list of aerodrome ICAO codes to filter the list. When entered, the list will display a flight only if one of the entered codes is its departure or destination, or the code is found in its scratchpad (OP-TEXT2).

Left-clicking <lfunc>, <adep>, <ades> and <via> open text entry boxes to enter comma-separated lists for controlled ID’s, ICAO codes and point names respectively to filter the affected lists. Left-clicking <state> toggles between “ALL” (no filtering), “SIMUL+TERM” (not started flight plans filtered), “NOTST+SIMUL” (terminated flight plans filtered) and “SIMUL” (not started and terminated flight plans filtered).

CPDLC submenu

- Microphone Check	Opens the **??**
- Current Messages. . .	Opens the **??**
- History Messages. . .	Opens the **??**

2.2.6 MET menu

- Messages. . .	Opens the **??**
- QNH/TL	Opens the **??**

2.2.7 (0)

Not implemented (always shows a zero value).

2.2.8 Info menu

- General Information. . .	Opens the **??**	
- Document Viewer. . .	Opens the **??**	
- NOTAM. . .	Opens the *NOTAM List*	
- Aerodrome. . .	Opens the *Aerodrome Menu*	
- LFUNC Frequency Plan. . .	Opens the **??**	When holding <ALT>,
- [] Airport labels	Toggles airport labels selection	
- [] Fix labels	Toggles fix labels selection	
- [] NDB labels	Toggles NDB labels selection	
- [] VOR labels	Toggles VOR labels selection	

text labels will be displayed for airports, fixes, NDBs and VORs when the mouse cursor is placed over them. When one or more of the categories in the Info menu is selected, only those categories will display the labels. The “Label” buttons open submenus to

select what information is shown on the corresponding labels. All the information is from the active sector file.

2.2.9 MSG menu

- Notepad. . .	Opens the **??**
- Personal Queue. . .	Opens the **??**
- ATC Messages. . .	Opens the **??**
- Prim Freq Messages. . .	Opens the **??**
- NAT Track Messages. . .	Opens the **??**
- Text notes >	Opens the Text notes submenu

It is possible to insert text notes on the radar screen to act as reminders. They will stay fixed at the geographical coordinates they are inserted to, the coordinates defining the center point of the note.

When creating a note, a text entry field opens to enter the note text. When the [Enter] key is pressed, the note will be created at the current mouse cursor position.

The notes can be deleted one by one or all of them at the same time. When deleting one by one, the notes are boxed to display their click areas. Clicking on one will delete the note. Pressing the [Esc] key or selecting the “Delete...” menu item again will abort the operation.

Text notes submenu

- Create. . .	Creates a new text note
- Delete. . .	Deletes a single text note
- Delete all	Deletes all text notes

2.2.10 (x)

Shows the number of high priority messages in the personal message queue. These are critical failures in the plugin code. Open the Personal Queue Window to view the messages. The number is limited to 99, and is shown on “Global Menu Highlight” background when the window is not open.

2.2.11 (x)

Shows the number of low priority messages in the personal message queue. These are warnings about invalid data in the plugin data files. Open the Personal Queue Window to view the messages or see the Plugin Status submenu for more detailed information on the problem(s). The number is limited to 99, and is shown on “Global Menu Highlight” background when the window is not open.

2.2.12 STS menu

- Plugin Status >	Opens the Plugin Status submenu
- Safety Nets Status...	Opens the **??**
- Divergence Detection Status...	Opens the **??**
- MTCD Status...	Opens the **??**
- CPDLC Default Status [ON/OFF]	Toggles the CPDLC Default Status On/Off
- Runway In Use	Opens the *Aerodrome Menu*
- Supervisory >	Opens the Supervisory submenu
- RWY line display...	Opens the *Aerodrome Menu*

Plugin Status submenu

Shows the version of the plugin as well as some information on the loaded data files. Each data file reports its state with one of the following indicators:

- OK	File contains usable information and no faults
- NO DATA	File not found or contains no usable information
- BAD DATA	File contains invalid data (in "Warning" color)

Depending on the file, there are one to three of the following buttons available:

- Reload	Reloads the data file
- View	Displays the data in the file on the radar display
- Save (Areas)	Saves a snapshot of the current area activation data
- Save set (Maps & MapsL)	Saves a list of currently active radar screen specific maps
- Load set (Maps & MapsL)	Loads a saved list of active screen specific maps

Left-clicking the Save button will save the currently set manual activation periods as well as the information if an area with automatic schedules is set to manual mode. The information is saved to the "TopSkyAreasManualAct.txt" file in the same folder as the plugin dll. If the file already exists, the plugin will ask for confirmation as the save operation will overwrite any existing data. Depending on the maps data file setup, the

display state of some or all of the maps may be specific to each radar screen. The Save set and Load set functions can be used to transfer the display state of these maps from one radar screen to another. Right-clicking the Reload button for Settings & SettingsL

has a special purpose. It opens a text entry box to type in a callsign whose settings should be loaded instead of the real login callsign. When entered, the callsign will be displayed next to the "Reload" button, and whenever a VATSIM callsign change is detected, an information popup is displayed to remind that the plugin settings are still forced to the manually entered callsign. This feature can be used for example to use settings for different positions on different EuroScope instances when providing top-down services, or to use settings for a specific position when logged in with an observer/staff/supervisor callsign. Clearing the entered callsign reverts to using the settings based on the actual login callsign.

Supervisory submenu

- Operations Rate... Opens the **??**
- Predicted Traffic... Opens the **??**

2.2.13 RRxxx/Off

Opens the **??**. If the rings are selected on, "xxx" displays the distance between consecutive rings, otherwise "Off".

2.2.14 Mxxx-yyy

Displays the status of the filters. If any filter is enabled and Quick Look is not toggled on, the color of the text is "Global Menu Highlight". Only the altitude filter status is shown. "xxx" displays the Lower filter value and "yyy" the Upper filter value, in hundreds of feet.

2.2.15 S000-999

Not implemented (shows static values).

2.3 Track Presentation

The presentation of tracks consists of the following elements:

- Aircraft position symbol
- History dots
- Prediction line
- Track label, joined to the position symbol with a leader line

2.3.1 Colors

Most of the track presentation coloring depends on the flight sector state.
For controlled flights (any IFR flight or a VFR flight in ASSUMED state), the colors are as follows:

State	Color	Condition
Unconcerned	"Unconcerned"	Track will not enter the active sector
Notified	"Concerned"	Track will enter the active sector (> 15 m
Coordinated	"Coordination"	Track will enter the active sector (< 15 m
Assumed	"Assumed"	Track is assumed
Transfer Initiated	"Assumed"	Track is being transferred to the next cont
Redundant	"Redundant"	Track has been transferred to the next controller but is still

An unconcerned track can be highlighted based on rules (a combination of departure airport, route and arrival airport) defined in plugin data files. In this case it is drawn

with one of the three “Informed” colors.

Coordinated tracks that have not departed yet will be shown as notified instead.

For uncontrolled flights (VFR flights not in ASSUMED state), the colors are as follows:

State	Color	Condition
On Contact	“Assumed”	Track is on-contact (a plugin custom state) with you
Free	“VFR”	Track is not assumed or on-contact with anyone
Otherwise	“Unconcerned”	

2.3.2 Aircraft position symbol

The position symbol is drawn at the latest known position of the aircraft. The color of the symbol is the flight sector color for an unselected track and “Track Highlight” for a selected one. A number of different symbols are available. To begin with, there are basic shapes that tell what kind of track is in question:


Flight plan track (position is not based on surveillance data but calculated by EuroScope)


Coasted track (no position updates in over 30 seconds, position no longer reliable)


Primary radar track


Secondary or combined radar track (uncontrolled)


Secondary or combined radar track (controlled)

ADS-B only track

An indication of an SPI (transponder ident) can be added to the secondary radar and ADS-B symbols. It draws a cross over the symbol and prints the text “SPI” above and to the right of the symbol:

Secondary radar track without DAPs with Special Position Indication

For other than the flight plan and coasted track symbols, a divergence alert will be drawn in case of a RAM or CLAM alert. This is a circle drawn around the symbol (will not be drawn if SPI is active):

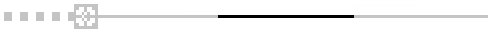

Secondary radar track without DAPs with divergence alert

2.3.3 History dots

The history dots show the previous positions of the track. The number of displayed dots can be changed via the **??**. The color of the dots is the flight sector color for an unselected track and “Track Highlight” for a selected one. History dots are not displayed for flight plan tracks.

2.3.4 Prediction Line

The prediction line draws the predicted ground track of the aircraft, based on its current track and ground speed. It is a two-color line, starting with “Track Default” at the position symbol and then alternating with “Track Highlight” with every segment representing one minute of flying time. The length of the prediction line can be changed for all tracks via the Track Control Window, or for a single track via the Prediction Line menu. The example below shows a selected track with 5 history dots and a 3-minute prediction line. Prediction lines are not displayed for flight plan tracks.



2.3.5 Track label

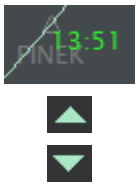
There are four types of track labels that can be displayed: Standard, Reduced, Extended and Uncorrelated. In addition, each label except the extended one has an unselected and a selected state, the selected state being shown when the mouse cursor is over the label. Basically, the Standard label is shown for aircraft that are in or will enter the active sector and the Reduced label for aircraft that will not enter the active sector. The Extended label can be opened from the Standard or Reduced label and stays open as long as the cursor is within the label area. The Uncorrelated label is shown for radar tracks that aren’t correlated with a flight plan. Refer to your setup specific documentation for detailed descriptions of the track labels.

2.4 Flight Leg

The Flight Leg displays the aircraft’s planned track in one-minute steps. Each one-minute-long part of the path is colored according to the results of the MTCD and SAP processing. The following colors are possible:

“Urgency FL”	MTCD and/
“Warning FL”	MTCD and
“Potential FL”	MTCD pote
“Information FL”	MTCD and/or SAP processing ava
“Flight Leg”	No MTCD or SAP processing avai

If the aircraft has an assigned heading or is not following its route, the predictions only go up to 10 minutes and assume the aircraft continues on its present ground track. In this case the predicted track is shown as a dashed line when the flight leg is displayed. The Flight Leg is displayed by clicking on various track label and list items depending on the setup and is either automatically removed from display when the mouse cursor leaves the label area or must be manually toggled off, depending on the function that was used to display it. The label that’s shown on each route point

includes the following predefined fields 

Estimated Time Over the point

Top of Climb

Top of Descent

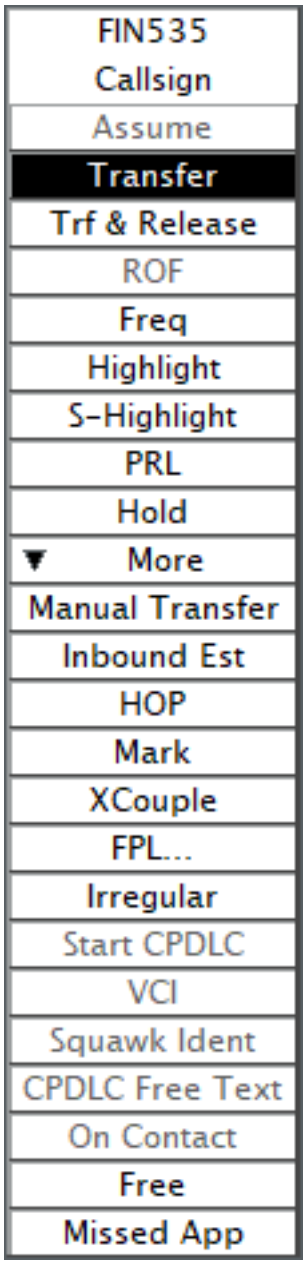
2.5 Track Label Menus

These menus are opened from track label fields or flight lists. Except for the confirmation windows, they are closed automatically when a menu option is chosen or the mouse cursor leaves the menu area. Menu items shown with (X) represent an item that has an activated and a deactivated state. With the item activated, the item name is shown prefixed with the letter “X”. The mouse wheel can be used to scroll the selection lists in the menus.

Many of the menus have a default item or value, displayed with inverse video. The menu usually opens so that the default value is located under the mouse cursor for easy selection. Some menus contain items that open folders within the menu. They show a filled triangle before the item name (upright if the folder is closed, inverted if the folder is open). The “More” folder is opened automatically when the mouse cursor is placed over it or if the default item is in the “More” folder, other folders must be left-clicked to open.

2.5.1 Callsign menu

Controlled Track



Assume	Assumes track
Refuse	Refuses the incoming transfer
Transfer	Initiates a transfer to the next sector
Trf & Release	Opens the **??**
ROF	Sends a **??**
(X)Freq	Toggles the Freq indicator
(X)Highlight	Toggles the Callsign highlight
(X)S-Highlight	Toggles the Callsign+AFL fields highlight
PRL	Opens the **??**
(X)Hold	"Hold" opens the *Hold Menu*, "XHold" cancels a given ho
▼ More	Shows additional less frequently used optio
Manual Transfer	Opens the **??**
(X)Inbound Est	Toggles the "Inbound Est" manual alert
HOP	Initiates a **??**
(X)Mark	Toggles the Mark indicator
(X)Couple	Uncorrelates/correlates the flight plan
FPL. . .	Opens the **??**
(X)Irregular	Toggles the "Irregular" manual alert
Start/End CPDLC	Starts/Ends CPDLC connection with the air
VCI	Opens the *VCI Menu*
Squawk Ident	Sends a "SQUAWK IDENT" CPDLC message to th
CPDLC Free Text	Opens the *CPDLC Free Text Menu*
Free	Releases track
On Contact	Sets track in On-Contact state*
(X)Missed App	Toggles the "Missed App" manual alert

Besides the manual alerts, none of the selectable toggle options in this menu will be transmitted to other controllers, but the “Mark”, “Freq” and highlight selections will be seen in your other EuroScope instances. A holding clearance is transmitted to the next controller when transferring the track. To correlate a flight plan, first click on the “Correlate” item, and then click on the radar position symbol of the desired radar track.

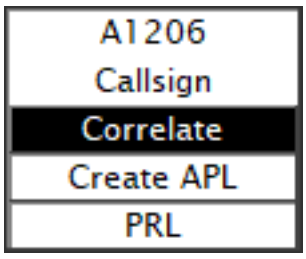
*Clicking “On Contact” for a track with “Y” or “Z” flight rules will also automatically change the flight rules in the VATSIM flight plan to VFR in order to make it uncontrolled. The displayed flight rules are not affected

Uncontrolled Track

On Contact	Sets track in On-Contact state (“Assumed” color, can’t be fil
Free	Releases track
Assume	Assumes track*
(X)Highlight	Toggles the Callsign highlight
(X)S-Highlight	Toggles the Callsign+AFL fields high
(X)Couple	Uncorrelates/correlates the flight p
(X)Hold	“Hold” opens the *Hold Menu*, “XHold” cancels a give
FPL...	Opens the **??**
PRL	Opens the **??**

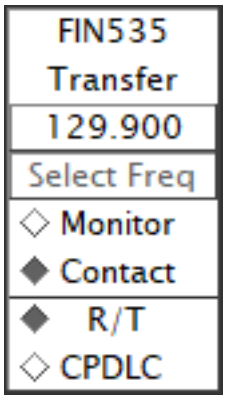
*Clicking “Assume” for a track with “Y” or “Z” flight rules will also automatically change the flight rules in the VATSIM flight plan to IFR in order to make it controlled. The displayed flight rules are not affected.

Uncorrelated Track



Correlate	Correlates the radar track with the next clicked “Callsign” field
Create APL	Opens the **??**
PRL	Opens the **??**

2.5.2 Transfer menu



For CPDLC connected aircraft, the menu contains options related to the transfer. Left- clicking on the frequency button initiates the transfer (and sends the CPDLC message if selected).

"Monitor" / "Contact" select which of the two CPDLC message types will be sent. "R/T" / "CPDLC" select whether the transfer instruction is given via radio or as a CPDLC message.

2.5.3 Transfer Confirmation Window

If an aircraft has a defined XFL value and hasn't been cleared to it (CFL is not equal to XFL), attempting to transfer the aircraft will open a Transfer Confirmation Window in the middle of the radar screen. While the window is open it will block all other attempts to click on items elsewhere on the radar screen. Either click on "Transfer" to transfer the aircraft regardless of the situation, or "Cancel" to cancel the transfer.

2.5.4 Transfer & Release menu

The Transfer & Release menu allows specifying a release condition for a track to be transferred. The transfer is initiated after selecting the desired condition (climb, descent, turn or full). The release will be shown on line 0 of the track label (C for climb, D for descent, T for turn and F for full). The transferring controller

will see the label item until the track becomes unconcerned. The receiving controller will see the item for 3 minutes after the track is assumed.

For CPDLC connected aircraft, the menu contains options related to the transfer:

"Monitor" / "Contact" select which of the two CPDLC message types will be sent.

"R/T" / "CPDLC" select whether the transfer instruction is given via radio or as a CPDLC message.

Warning

The "Trf & Release" option will show the release condition on the downstream side only if the next controller is using this plugin, in other cases the transfer will be shown as a normal transfer.

2.5.5 Request On Frequency message

The ROF message can be used to send a request to the controller currently tracking an aircraft to transfer it to your frequency. For the message to succeed, you must be seen as the next controller for the tracking controller. When sent, the text "ROF" is displayed in the track label on the tracking controller's screen.

Warning

The "ROF" message is a feature specific to this plugin. It is an experimental feature and is not guaranteed to work all the time. When you send the message, check that it's sent properly.

1. A successfully sent message will be displayed in the **??**
2. If there is an error or the message fails to go through, a message will be put into the **??**

2.5.6 Hold Menu

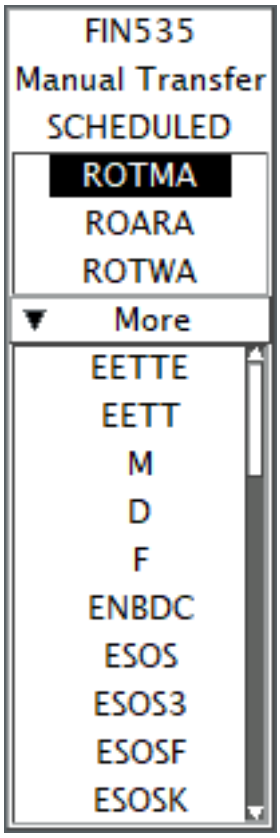
The Hold menu allows you to enter a holding clearance (add the aircraft to the holding list). It displays for selection the points in the aircraft's route that are ahead of its current position.

Left-clicking the empty box below the waypoint list opens a text entry box to enter any holding point name.

Left-clicking "Here" enters the present position coordinates as the holding point.

The holding point is automatically sent to your other EuroScope instances with a small delay and can be sent to other controllers by pushing the flight strip as the information is stored there.

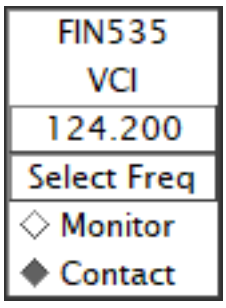
2.5.7 Manual Transfer Menu



The Manual Transfer menu allows transferring the aircraft to any controller. In the SCHEDULED list are the controllers that are in the current sector sequence sorted in the order the aircraft is planned to enter the controllers' sectors, with the next controller being the default item.

When opened, the "More" list displays all the other controllers for selection. Click on a controller ID to start the transfer. For CPDLC connected aircraft, clicking on a controller ID opens the *Transfer menu*

2.5.8 VCI Menu



Available only for CPDLC-connected aircraft and when more than one frequency has been set up by the controller, the VCI menu allows sending a CPDLC "contact" or "monitor" message without initiating a transfer.

The first button displays the primary frequency, left-clicking it will send the message with that frequency.

Left-clicking the “Select Freq” button will open a text entry box to enter any other frequency. If a valid frequency (set up as XMT TXT in EuroScope’s Voice communication setup dialog) is entered, the message will be sent with that frequency.

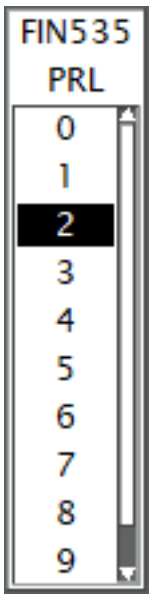
“Monitor” and “Contact” are used to select the type of message to be sent.

2.5.9 CPDLC Free Text Menu

The CPDLC Free Text menu is used to send a free text CPDLC message to the aircraft. The menu contains pre-defined messages from a data file. Left-clicking on a message sends it.

The menu closes when a message is sent or the cursor leaves the menu area.

2.5.10 Prediction Line Menu



The Prediction Line menu allows displaying a PRL with a specific length for each aircraft even if the PRL selection is off in the Radar Menu.

The default value is the set PRL value if available, otherwise the PRL length value from the Track Control Window. Changing the PRL length value in the **??** or changing the PRL setting in the **??** will delete all manually set PRL lengths.

2.5.11 Sequence Number Menu

This menu is used to set an arrival sequence number. Values from 1 to 50 are available.

The sequence number will not be transmitted to other controllers except the next controller (during transfer) unless the flight strip is manually sent.

2.5.12 Waypoint Menu

▲ Routing Opens the “COPN point” or “COPX point” submenu (EuroScope default item)

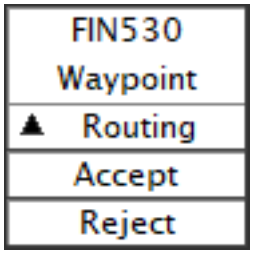
▲ Arrival Opens the “Assign STAR” submenu (EuroScope default item)

▲ Departure Opens the “Assign SID” submenu (EuroScope default item)

▲ TSA Hold Opens the TSA Hold submenu (not available if a holding clearance is active)

▲ Hold Opens the Hold submenu (not available if a TSA holding clearance is active)

This menu gives access to functions related to the route of the aircraft. It is used to assign direct-to clearances, departure and arrival routes, holding clearances, and to coordinate the sector entry/exit point.

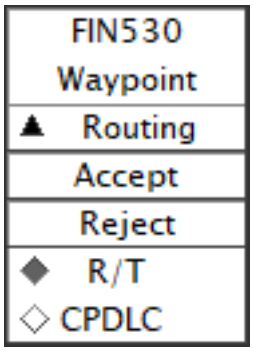


When an entry or exit coordination has been received, the menu

opens looking like this instead. The options are:

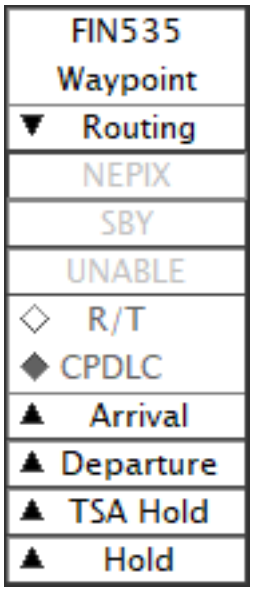
▲ Routing	Opens the “COPN point” or “COPX point” submenu (EuroScope default item)
Accept	Accepts the coordination
Reject	Rejects the coordination

The submenu opened with “Routing” offers the same possibilities to accept or reject the coordination, but also the possibility to counter-propose a different point.



When the aircraft is CPDLC-connected and the coordination is an exit coordination, the menu offers a choice between “R/T” and “CPDLC”. The chosen option decides how an accepted coordination is communicated to the aircraft.

With “CPDLC” selected, when “Accept” is clicked, in addition to the coordination being accepted, a “PROCEED DIRECT TO <point>” CPDLC message is sent to the aircraft.



When a direct-to downlink request has been received, the menu can be used to answer it.

Point name	Sends a “PROCEED DIRECT TO <point>” CPDLC message
SBY	Sends a “STANDBY” CPDLC message
UNABLE	Sends an “UNABLE” CPDLC message

The “R/T” / “CPDLC” selection is fixed to “CPDLC”.

Warning Clicking the point name will set the direct-to clearance without coordination

When there is no request in process and the aircraft has a direct-to point set, the menu can be used to send the clearance via CPDLC. In this case the menu opens like this except without the “SBY” and “UNABLE” buttons. Clicking the point name will send the “PROCEED DIRECT TO <point>” CPDLC message.

TSA Hold Submenu

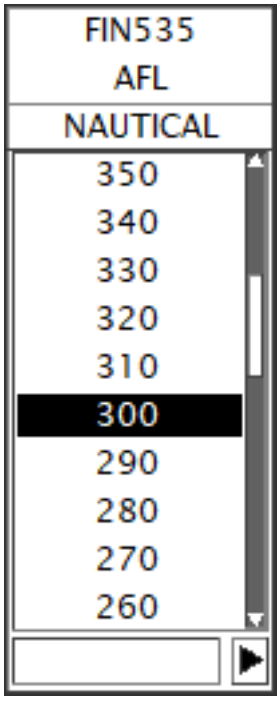
The TSA Hold submenu allows you to enter a clearance to enter an active military area. It displays the active and preactive TSA type areas. If a clearance already exists, the menu will only give the option to remove it with the “XHold” item.

The clearance is automatically sent to your other EuroScope instances with a small delay and can be sent to other controllers by pushing the flight strip as the information is stored there. A TSA hold clearance will exclude the aircraft from all APW and SAP processing.

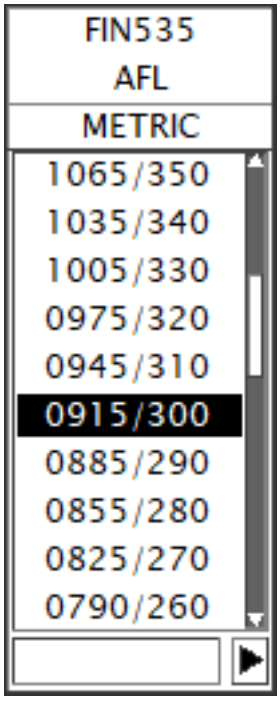
TSA Hold Submenu

If a holding clearance already exists, the menu will only give the option to remove it with the “XHold” item. See *Hold Menu* for other details.

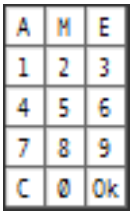
2.5.13 AFL Menu



nautical units



metric units



keyboard

This menu can be used to set the AFL value for aircraft that don’t have an altitude reporting transponder. The default value is the previously set manual AFL value if set, otherwise the CFL value.

By default, the menu (as well as the AFL label item) is always showing nautical units, regardless of the system units or the selected units for the aircraft. If this behavior is selected off, the list units can be toggled with the “NAUTICAL” / “METRIC” item. There are three ways to set the AFL using this menu:

- Clicking a level value in the list
- Clicking the text entry box below the level list and entering the value there
- Clicking the right-pointing triangle to open a keyboard that can be used to type in the value using the mouse. “C” clears the entry and “Ok” sets the value.

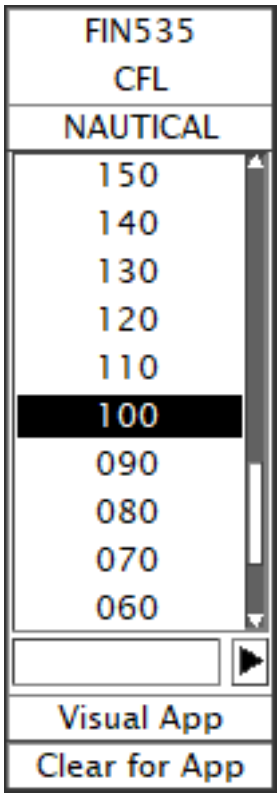
Entering a metric value will also set the aircraft’s units to metric; a nautical value will set nautical units.

The accepted manual level entry formats for the AFL, CFL and RFL menus are as follows (“n” is a number):

“Annn” or “nnn”	Altitude in hundreds of feet
“Mnnnn” or “nnnn”	Altitude in tens of meters
“Mnnnnn” or “nnnnn”	Altitude in meters
“Ennn”	Height in hundreds of feet above aerodrome elevation
“Ennnn”	Height in tens of meters above aerodrome elevation
“Ennnnn”	Height in meters above aerodrome elevation

Regardless of whether the entered value is in meters or feet, and altitude or height, it will be converted to altitude in feet and the result is then rounded to the nearest 100 feet.

2.5.14 CFL Menu



In the track label the CFL menu is combined with the COPN altitude coordination menu and the CFL menu opens only when the aircraft is assumed. The default value is by default the XFL, but it can be changed to the current CFL or the RFL in the Local Settings menu. Altitudes up to the transition altitude are prefixed with “A” in the

nautical units list and with “M” in the metric units list. QFE heights are prefixed with “E” in both lists. Selectable values are from 500ft to FL510 with 500ft intervals up to the transition altitude, then 1000ft intervals up to FL410 and 2000ft intervals above it.

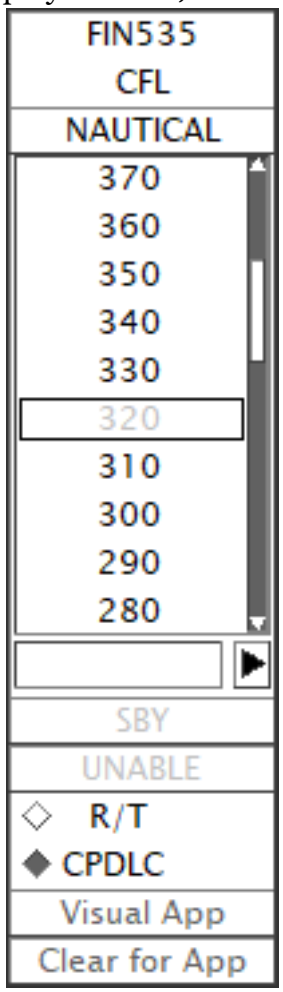
“Visual App” / “VA” and “Clear for App” / “CA” set the corresponding approach clearances.

The list units can be toggled with the “NAUTICAL” / “METRIC” item. There are three ways to set the CFL using this menu:

- Clicking a level value in the list or one of the two approach clearance items
- Clicking the text entry box between the level list and the approach clearance item and entering the value there
- Clicking the right-pointing triangle to open a keyboard that can be used to type in the value using the mouse. “C” clears the entry and “Ok” sets the value.

Entering a metric value will set the aircraft’s units to metric; a nautical value will set nautical units.

The aircraft’s RFL is displayed in the place of the “NAUTICAL”/”METRIC” item with format “R<RFL>”. Left-clicking the button still has the same effect (changes the displayed units).



For CPDLC connected aircraft, the menu contains “R/T” and “CPDLC” options to select whether a level clearance is to be sent via radio or as a CPDLC message. If a level request has been received from the aircraft, there are also “SBY” and “UNABLE” buttons to send those messages as a reply. - When a level request downlink has been received, the “R/T” option is deselected and cannot be selected. The request must be replied to using CPDLC. - When a level clearance uplink has been sent, the “CPDLC” option is deselected and cannot be selected. If a new level clearance must be sent before there is an answer to the uplink, it must be given via radio (doing so also closes the open uplink message).

2.5.15 RFL Menu

he RFL menu allows setting the requested flight level. The operation is similar to the AFL and CFL menus. The function for the “NEXT” button is not implemented.

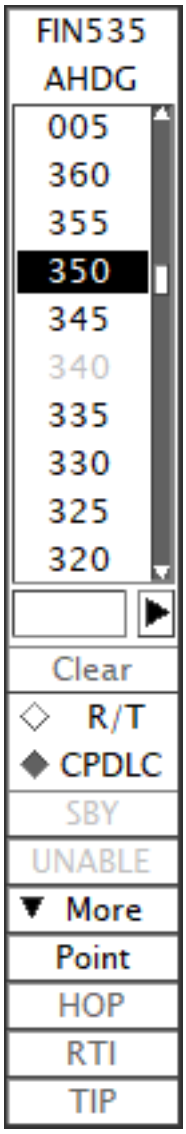
2.5.16 AHDG Menu

This menu includes items to set or clear an assigned heading or a direct route and to send a HOP. The initially highlighted heading value will be the closest one to the assigned heading if the aircraft has one, otherwise the closest one to the aircraft ground track (or the departure runway heading if the menu is opened from the DEP list). Clicking on a heading value will set it as the assigned heading. The assigned heading can also be set by typing it into the entry box, using the pop-up keyboard or by using the AHDG vector.

“Clear” removes an assigned heading or a direct route. For CPDLC connected aircraft, it sends the “RESUME OWN NAVIGATION” CPDLC message if the “CPDLC” option is selected.

“Point” lets you pick a direct-to point from the radar screen. Left-click on any point to set it as the direct-to point (available points are VORs, NDBs and waypoints, in that priority order). Pressing the [Esc] key or clicking on any clickable data field will abort the operation.

“HOP”, “RTI” and “TIP” are coordination functions (see below for more information). To use them, first click on the function’s button and then select the desired value from the list (for HOP also “Point” is available).



For CPDLC connected aircraft, the menu contains additional buttons:

"R/T" and "CPDLC" select whether a heading/direct-to clearance is to be sent via radio or as a CPDLC message.

- When a heading request downlink has been received, the "R/T" option is deselected and cannot be selected. The request must be replied to using CPDLC.
- When a heading/direct-to clearance uplink has been sent, the "CPDLC" option is deselected and cannot be selected. If a new heading/direct-to clearance must be sent before there is an answer to the uplink, it must be given via radio (doing so also closes the open uplink message).

"SBY" and "UNABLE" send the corresponding answers to a downlink heading request message.

Warning

Clicking a point on the radar screen will set the direct-to clearance without coordination

2.5.17 Handover Proposal (HOP)

A Handover Proposal can be used to propose non-standard transfer parameters (AHDG/Direct-to and ASP) to the next sector. For the receiving controller a HOP is identified by coloring the callsign data field with “Proposition” color in the label. For the sending controller the Callsign field remains “Assumed” color and the Sector Indicator field is shown in “Proposition” color. Additionally, if there are proposed parameters they are also colored “Proposition” in both controllers’ labels.

There are three ways to answer a HOP and all of them involve accepting all proposed parameters. If one or more parameters are not acceptable, coordination must be done to find acceptable parameters or to revert to standard ones. The available ways to accept the proposed parameters are:

Callsign menu -> “Assume”	Assumes the track
Callsign menu -> “ROF”	Sends a Request On Frequency message
Combined Transfer menu -> “Accept”	Sends an Accept message

If the parameters are unacceptable to the receiving controller, the sending controller has the possibility to modify or clear them using the appropriate menus, or to cancel the whole HOP by assuming the track.

Warning

A HOP will only be shown correctly for controllers using this plugin. To other controllers it will be shown as a normal transfer without any special coloring of any data fields. This combined with the three possible ways to answer the HOP require the sending controller to pay special attention to the track to see what the result is.

Warning

If a HOP is sent to a manually selected controller, the next controller selection will be reset to the automatically calculated controller when an “ROF” or “Accept” answer is received. The correct controller must then be manually selected again for the transfer.

2.5.18 Request Tactical Instructions (RTI) / Tactical Instructions Proposal (TIP)

Certain tactical data (AHDG, ASP and ARC) can be coordinated using the RTI and TIP functions. Their only difference is that RTI is used for requesting the parameters when the aircraft is inbound to your sector and your sector is the next in the sector sequence, and TIP for propose the parameters to the next sector when the aircraft is assumed. Contrary to the HOP function, these coordinations can be refused using the system, and they do not offer the aircraft for transfer.

When sent, the RTI/TIP is displayed on both controllers’ screens by displaying the requested parameter on line 0 of the track label in “Proposition” color.

To answer the RTI/TIP, left-click on the requested parameter shown above the track label or the corresponding message in the **??**. This will open the *Tactical Transfer Menu*.

Warning

The “RTI” and “TIP” messages are features specific to this plugin. They are experimental features not guaranteed to work all the time. When you send these messages, check that they are sent properly.

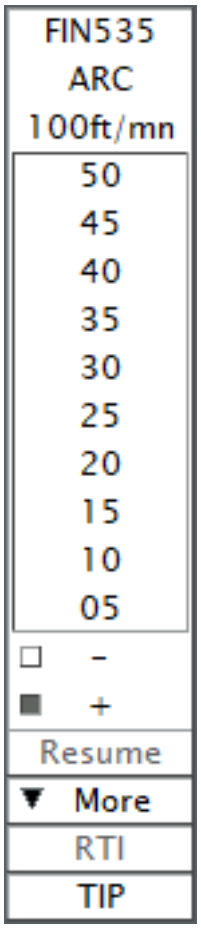
- A successfully sent message will be displayed in the **??** and the requested parameter being shown above the track label
- If there is an error or the message fails to go through, a message will be put into the **??**.

2.5.19 AHDG Vector

The AHDG vector is another way of setting an assigned heading for an aircraft. To use the vector, left-click on the radar position symbol of the aircraft. This will start drawing the vector. When you’re satisfied with the heading value, left-click again to set it. Right-clicking will abort drawing the vector.

When the cursor is over a known point (VOR, NDB or waypoint), the name of that point is displayed instead of the heading value, and left-clicking will set a direct-to clearance to that point. To temporarily disable the known points functionality, keep the <ALT> key pressed while using the vector.

2.5.20 ARC Menu



The ARC menu allows assigning a rate of climb or descent to the flight plan. Selectable rates are 500-5000 ft/min (displayed in 100's of ft/min), or 5-25 m/s. The menu units are always the same as the units used for the aircraft in general.

Left-clicking on a value assigns it. An assigned rate can be cleared by selecting the "Resume" item.

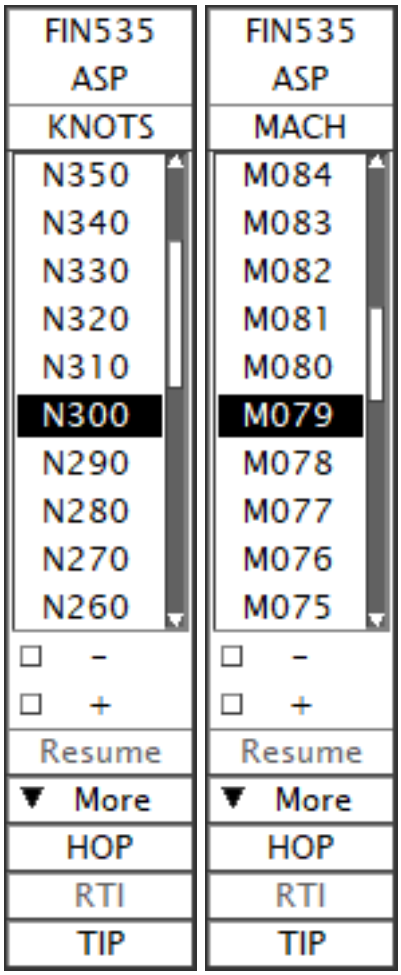
By default, the "+" option is selected, meaning that the clearance is a minimum rate of climb or descent. Deselecting the "+" makes the clearance an exact rate, and selecting the "-" option makes the clearance a maximum rate.

For "RTI" and "TIP" see the *AHDG Menu*.

Warning

The exact and maximum rate clearances are a feature specific to this plugin (the additional information is stored in the flight strip). To controllers not using the plugin, all assigned rate clearances will only show the rate value. Assigned rate clearances given by controllers not using the plugin will bedisplayed as minimum rate clearances.

2.5.21 ASP Menu



The ASP menu allows setting an assigned speed or Mach number. The default value will be the closest value to the assigned one if set, otherwise the plugin will suggest the closest value to the aircraft's present speed based on the ground speed (zero wind will be assumed). The menu will initially open in IAS mode if the aircraft's CFL is below the IAS/Mach altitude value defined in the Local Settings (FL275 by default), and in Mach mode if above it. The selectable values range from 100 to 400 knots and from Ma0.50 to Ma1.00.

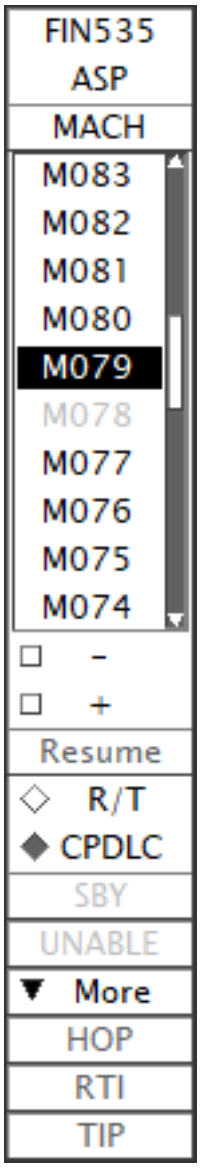
The "+" and "-" options can be used to specify the clearance as a minimum/maximum speed.

The "Resume" item clears an assigned value. For CPDLC connected aircraft, it sends the "RESUME NORMAL SPEED" CPDLC message if the "CPDLC" option is selected.

For "HOP", "RTI" and "TIP" see the *AHDG Menu*.

The "Resume" button below the list is replaced by a "HS" button. Clicking it will set a clearance for "high speed", displayed as "HS" in the ASP label field (see track label definition in the local setup documentation for how to clear a value). In other setups a "high speed" clearance will show a value of 999 knots. For CPDLC connected aircraft, it sends the "NO SPEED RESTRICTION" CPDLC message if the "CPDLC" option is selected. The "Resume" button can be found at the bottom of the "More" list.

Entering a metric value will set the aircraft's units to metric; a nautical value will set nautical units.



For CPDLC connected aircraft, the menu contains additional buttons: R/T" and "CPDLC" select whether a speed clearance is to be sent via radio or as a CPDLC message.

- When a speed request downlink has been received, the "R/T" option is deselected and cannot be selected. The request must be replied to using CPDLC.
- When a speed clearance uplink has been sent, the "CPDLC" option is selected and cannot be deselected. If a new speed clearance must be sent before there is an answer to the uplink, it must be given via radio (doing so also closes the open uplink message).

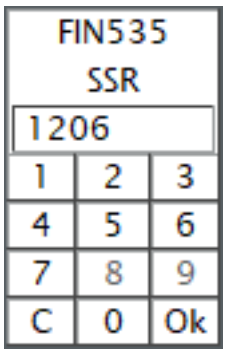
SBY" and "UNABLE" send the corresponding answers to a downlink speed request.

Warning

The minimum and maximum speed clearances are a feature specific to this plugin (the additional information is stored in the flight strip). To controllers not using the plugin, all assigned speed clearances will only show the speed value. Assigned speed

clearances given by controllers not using the plugin will be displayed as exact speed clearances.

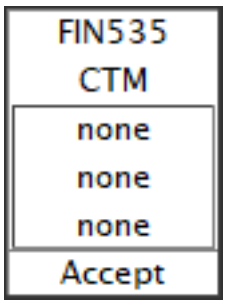
2.5.22 ASSR Menu



The ASSR menu allows assigning an SSR code to the flight plan. To enter a new code, type it by left-clicking the numbers. “C” clears the entered value and “Ok” assigns the code if it’s a valid one. To get an automatically assigned code, clear the value and then left-click on “Ok” with the entry box left empty.

Depending on the configuration, the assigned code may be a mode S conspicuity code. To force a discrete code, make a new assignment – either manual or automatic. If an automatic assignment is requested for a flight with the conspicuity code currently assigned, the new assignment will be a discrete code.

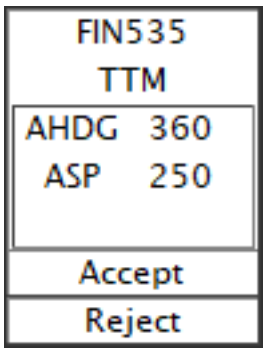
2.5.23 Combined Transfer Menu



The Combined Transfer menu displays the proposed transfer parameters for a HOP. It is opened by clicking on the AHDG, ASP or COPN/COPX items in the track label or flight list, or the list row displaying the HOP message in the **??**.

From top to bottom, the displayed values are the direct-to point, speed/Mach value, and the assigned heading value. If one or more of them are not proposed, the value will be replaced by the string “none” (the image above shows the menu for a HOP without any proposed parameters). Clicking on “Accept” will send a message to the upstream controller that the proposed parameters, if any, are all acceptable.

2.5.24 Tactical Transfer Menu



The Tactical Transfer menu is used to accept, reject or apply tactical data (AHDG, ASP and/or ARC). It is opened by left-clicking on a proposed or accepted parameter in the track label. The menu displays all proposed ("Proposition" color) and accepted (sector state color) values.

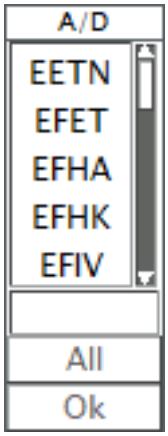
Clicking on "Accept" will accept all proposed values and "Reject" will reject them. The menu is then closed.

Note that the menu displays both sent and received coordinations, but you can naturally only accept/reject the received ones and apply values for aircraft that are assumed.

Once a value is accepted, the respective label field (e.g. AHDG) will be colored "Information" until the value is set to the accepted one.

All tactical data coordinations (also any rejected ones) can be viewed in the **??**, but they cannot be answered or applied there.

2.5.25 Aerodrome Menu

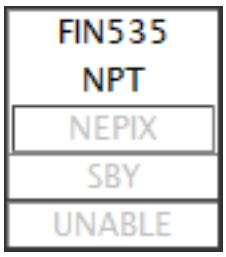


The Aerodrome menu is used to select the aerodrome(s) for aerodrome related windows and functions. The list contains all aerodromes with runways defined in the active sector file. To select an aerodrome, left-click on it or type its identifier into the text entry box below the list.

Selection of more than one aerodrome is possible when the menu was opened from the **??**. In this case the "All" button is available and clicking on it will select all the aerodromes in the list.

Clicking on "Ok" will confirm the selection(s) and close the menu.

2.5.26 NPT Menu



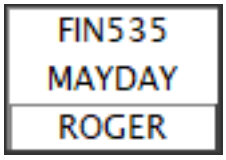
The NPT menu is used to answer a direct-to downlink request using CPDLC. The menu contains three options:

Point name	Sends a “PROCEED DIRECT TO <point>” CPDLC message
SBY	Sends a “STANDBY” CPDLC message
UNABLE	Sends an “UNABLE” CPDLC message

The menu closes when an option is selected or the cursor leaves the menu area. If the aircraft cannot be cleared direct to the requested point but to another one, the request must be answered with “UNABLE” and a separate direct-to clearance must be given.

Clicking the point name will set the direct-to clearance without coordination Warning

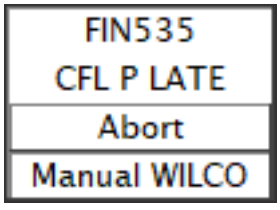
2.5.27 CPDLC Emergency Acknowledgement Menu



When a CPDLC emergency message has been received, this menu is used to respond to it (if applicable), and then acknowledge the situation. When a reply is required, the menu button will read “ROGER”. Left-clicking on it will send the “ROGER” CPDLC message and close the menu. When opening the menu again (or when a reply was not required), the button reads “Ack”. Left-clicking on it will acknowledge the emergency.

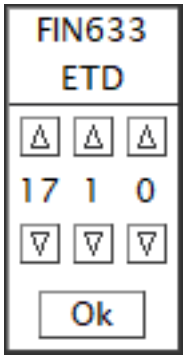
The menu is closed when the “ROGER”/“Ack” button is clicked or the cursor leaves the menu area.

2.5.28 CPDLC Pilot Late Acknowledgement Menu



When there is no answer to a CPDLC uplink clearance, this menu can be used to resolve the situation. “Abort” discards the uplink and “Manual WILCO” simulates reception of a WILCO message.

2.5.29 Time Menu



The Time menu is used to set/change the time value for ATD, EOBT, ETD and SLOT fields. Default values are:

ATD	Current time
EOBT	Current time
ETD	Current field value
SLOT	Current field value if any (ATD if different from ETD), current time otherwise

The up/down arrows are used to change the value, “Ok” sets the time.

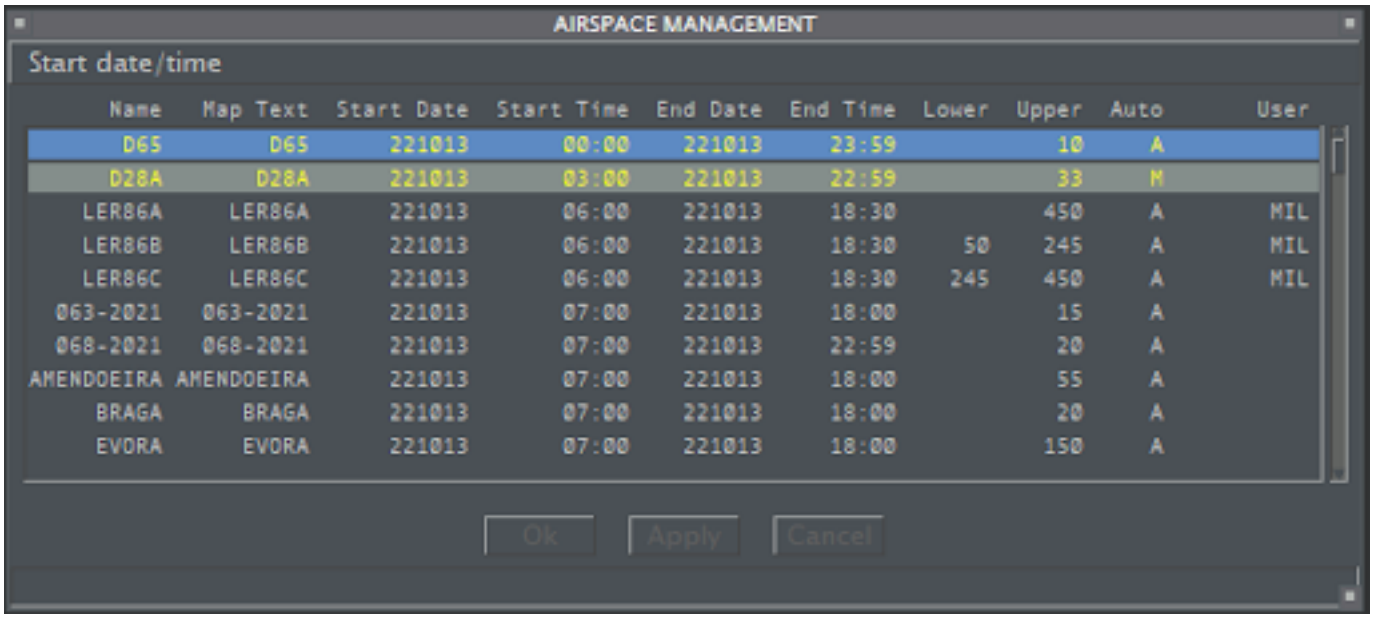
2.5.30 Departure Sequence Menu

The DSQ menu is used to select a specific departure sequence number to a flight. The list includes the possible numbers, and the current number is highlighted. Left-clicking on a number sets it, “Clear” removes the flight from the departure sequence.

Note The departure sequence number is only stored locally, it is not sent to other controllers or even to other EuroScope instances.

2.6 Windows

2.6.1 Airspace Management Window



This window is used for the activation and deactivation of the areas for the APW and SAP functionality. Each area can have a start time and/or an end time defined for its activation, or it can be activated without any time limits, making it active until deactivated manually. Additionally, lower and upper altitude limits are given. An area can have activation schedules defined in the area data file. Such areas will be automatically activated as long as their “Auto” option is selected (“A” in the “Auto” column). The “Auto” option cannot be selected for areas that don’t have an activation schedule defined in the area data file.

Dates will be shown in the format “yymmdd” and times in “hh:mm” and they must be entered in the same format. Entering an empty string for a date will clear it and the related time value and vice versa. When entering a time or date value to an empty field, the other value is automatically set to the current time/date value. Entering an empty string to the Map Text, Lower or Upper fields will reset the value to the default one from the data file.

Altitudes are shown in hundreds of feet if at or below the transition altitude, otherwise in flight levels. They must be entered in the same format.

An area’s activation status can be inactive, pre-active or active. A pre-active area is an area that will become active within 30 minutes and is shown in yellow text on a gray background. An active area is shown with yellow text on a blue background. The APW system will not alert for a pre-active area, but for the SAP system a pre-active area is considered as being active.

The mouse click areas of the Airspace Management Window:

- Sorting option text (e.g. “Start date/time”) Opens a pop-up menu to select a sorting option for the list

- Right-click to open an area pop-up menu
- Other fields Left-click to edit field (when edit function active)
- “Ok” button Applies the changes, closes the window
- “Apply” button Applies the changes
- “Cancel” button Cancels the changes

The sorting pop-up menu contains the following items:

- Start Date Sorts based on the Start Date/Time, earliest first
- Name Sorts alphabetically based on the Name field
- Map Text Sorts alphabetically based on the Map Text field

With the area pop-up menu opened, the area text row background changes to black. The menu contains the following items:

- ACTIVATE Clears any activation times and activates the area
- DEACTIVATE Clears any activation times and deactivates the area
- AUTO If an activation schedule is found in the area data file, sets the
- area to be activated automatically
- VALIDATE Not implemented
- EDIT Allows to change the area parameters
- COPY Not implemented
- DELETE Clears any activation times, returns label and altitude limits to their default values and deactivates the area

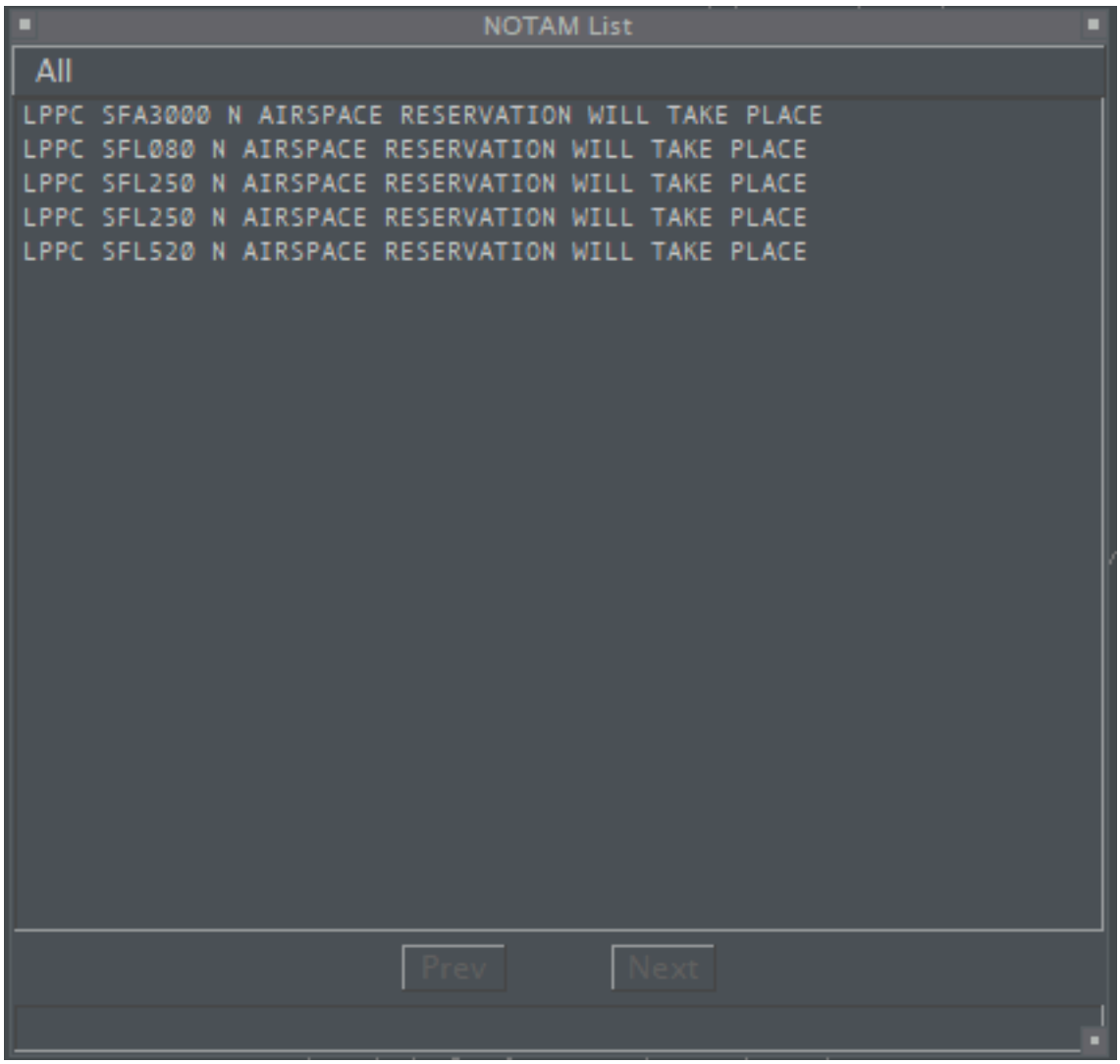
After any selection from the pop-up menu, “Ok”, “Apply” or “Cancel” must be selected to apply or cancel the selection.

Preactive and active areas are displayed on the radar screen. The area border is drawn using a predefined color and it may be filled as well. A predefined text label may also be displayed, showing information about the area. A very small “+” symbol will be drawn at that location. By holding the left mouse button down on that symbol, a full area label will be displayed, showing:

Name
Map text
Upper level limit
Start time ——— End time
Lower level limit
time in minutes until the area becomes active

2.7 Lists

2.7.1 NOTAM List



The NOTAM List is automatically displayed at startup in order to fetch the current FUA. It may be closed after loading.

2.8 Safety Nets

2.9 Monitoring Aids

2.10 Flight Plan Conflict Probe

A

Label field descriptions

B

Color Values

C

Keyboard Shortcuts

Bibliography

[1] TopSky plugin for Portugal vACC. https://github.com/pinatacolada/topskylppc#disclamer.