TopSky plugin for EuroScope

- version 2.5 -

General Information

(COOPANS)

EuroScope | power of control

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.

Although - as its name suggests - the plugin is based on the TopSky ATM system, it is in no way affiliated with or endorsed by Thales Group. Similarities between plugin features and the real system are not entirely coincidental, but anyone planning to use the plugin as a real-world training aid really should know better…

This manual is based on the reader having at least a basic understanding of ATC procedures and terminology, and being familiar with the operation of the EuroScope program itself. Refer to the EuroScope documentation for the most current information on the program's features. Because of the complexity of the plugin, some offline practice is recommended before attempting to control online traffic with it.

Have fun!

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1 Acknowledgements

This plugin contains code and/or ideas from the following sources:

- The RDF feature is based on Claus Hemberg Jørgensen's work on his RDF plugin
- File transfers use the libcurl library
- JSON parsing uses the JSON for Modern C++ library
- Weather radar images are parsed using the libpng and zlib libraries

2 Getting started

The plugin is usually included in a package that includes a set of compatible settings files for its operation. They usually contain everything that is needed to use the plugin except complete profile files since they contain information that is system and user specific. Starting to use the plugin is then just a matter of completing the necessary profile files by editing an existing file or starting from the one contained in the package and adding the user specific data in EuroScope.

The most obvious sign of successfully loading the plugin is that the Global Menu is drawn on the top edge of the radar screen.

The plugin has two main setups that differ from each other in so many ways that they have their own General parts of the manual set. **This document describes the features in the COOPANS setup**, activated by entering "COOPANS=1" in the plugin's settings file. The easiest way to determine which one you have set up is to check what the Global Menu looks like. If it's not the same as the image in this document, you're looking at the wrong manual.

This document explains the general features of the plugin. The Developer Guide includes information to people interested in either developing data files for the plugin or changing some of the plugin settings. In addition, there are a number of other documents providing information about specific features (coordination, datalink functionality), documents detailing the local setup may be provided as well.

In case the plugin wasn't part of a package, there are problems with the settings files or you want to create your own setup, refer to the Developer Guide part of the manual set. It details the settings that are required in EuroScope to use the plugin the way it is supposed to.

Some features of the plugin require data files to be prepared to enable their functionality. None of them are mandatory for basic plugin operation but if used they must be in the same folder as the plugin itself. The file names must be exactly as specified. For more information see the Developer Guide.

On startup, the plugin will attempt to check for updates. If the check fails or a new version is available, a message box will be presented. In case a mandatory update exists and the latest date to update has already passed, the plugin features will be blocked until it is updated. When an update is available, the message box will include a link to the current version, but the primary way to update the plugin should always be the original download location, as it is the only way to keep the other files in the package up to date as well.

3 Performance considerations

Due to its complexity, the plugin can at times require a lot of resources. The performance cost depends on graphical items (what's drawn on the screen) and background calculations for various plugin systems. Generally speaking, the background calculations become more of an issue with increase in traffic while the effect of graphical items depends only on the number and complexity of items drawn.

While the actual impact depends on the hardware and the situation, here are some suggestions for actions that can be used to reduce the effect if the performance starts to become an issue. Many plugin settings can have a significant effect on performance, but this chapter only lists actions that can be done during a session without having to edit any settings data files.

3.1 Graphical items

The following may help to increase the refresh rate when panning and zooming the screen:

- Active areas and maps	Display only what's necessary, define large drawings in sector file when possible to let EuroScope draw them
- Weather Map	Set display off
- Brightness Window	Set "ASD background" to 100%

The following may help with performance issues generally:

- Radar screen area	Adjust zoom level to display only the necessary area
- FPASD display	Set off
- Raw Video	Set off
- Track history dots number	Reduce
- Track prediction line length	Reduce
- Plugin windows	Close unnecessary ones

The effect of using track filters depends on the proportion of tracks that would be filtered. If many tracks are filtered out, there is some performance gain for not having to draw their track labels, but in cases where only a small number of tracks are filtered, the active filters may actually decrease the performance due to the filtering code being run.

3.2 Background calculations

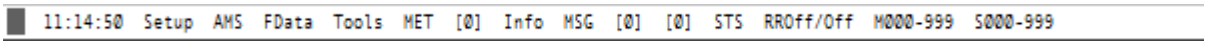
The calculations required for the FPCP functions increase rapidly with increasing traffic, so adjusting some of the following may help (in this order):

- Check "Unco" and "Notif" are deselected in the CARD View menu unless required
- Reduce the FPCP inhibit time in Setup -> Local Settings
- Reduce the prediction time in the CARD (diamond on the time scale)
- Turn the whole system off (MTCD Status Window)

The effect of increasing traffic to the STCA, MSAW and APW functions is not as steep, but still significant. The following may be used to reduce it:

- Adjust STCA alert settings in Setup -> Local Settings (All > Own+Co > Own)
- Turn the whole system(s) off (Safety Nets Status Window)

4 Global Menu



The Global Menu is located on the top edge of the radar screen. It displays the current UTC time (left-clicking opens the Clock Window) and contains a number of submenus which are explained below.

4.1 Setup menu

-	Direction Finder	>	(1)	Opens the Direction Finder submenu
-	Weather Map	>		Opens the Weather Map submenu
-	Unit Settings	>		Opens the Unit Settings submenu
-	Default Setting			Resets all settings to their default values
-	Local Settings	>		Opens the Local Settings submenu
-	Brightness Control…			Opens the Brightness Control Window
-	Sign In…		(2)	Loads personal settings (usually done automatically)
-	Sign Out…			Clears any personal settings and resets all settings to their default values
-	Raw Video Control…		(3)	Opens the Raw Video Control Window
-	[] Raw Video		(3)	Toggles on/off the display of raw video radar plots
-	AMID	>		Not implemented
-	CFL	>		Opens the CFL submenu
-	Flight Leg	>		Opens the Flight Leg submenu
-	[] FPASD			Toggles on/off the display of flight plan tracks
-	CPDLC Setting…			Opens the CPDLC Setting Window
-	RR Main	>		Opens the RR Main submenu

1) Not shown if the DF system has been disabled in the plugin settings
2) Personal plugin settings can be defined in a data file (see the Developer Guide)
3) Not shown unless at least one radar station has been defined. The raw radar video plots are from a specified radar station. The specification is done in a data file (see the Developer Guide) and the radar selection is based on the login callsign.

4.1.1 Direction Finder submenu

-	DF Selection…		Not implemented
-	DF Length	>	Opens a DF length selection submenu to select one of four pre-defined lengths for the DF line (available only when the "bearing line" DF type is set up)

The DF system, when activated (via the Radar Menu), draws either:

- A bearing line from a pre-defined DF antenna location (if specified in the plugin settings)
  or
- A circle on the radar screen identifying the location of the transmitting aircraft. If the location is off-screen, a line will be drawn from the center of the screen towards the actual location.

4.1.2 Weather Map submenu

-	Display	Toggles the weather radar image on/off
-	Brightness	Adjusts the image brightness (1-100%)
-	Gain	Adjusts the image gain level (1-999%)

The weather data is filtered to display two levels of precipitation (its reflectivity factor to be more exact) with the default threshold values aligned with aircraft weather radars. The lighter shade is for >=30dBZ (yellow on aircraft displays) and the darker shade >=40dBZ (red). The image is refreshed every 10 minutes. The data is only available when a position to center the image on has been entered in the settings data file. It is possible to configure a third level using the settings files.

The gain control is very sensitive especially when reducing it. When using the default reflectivity threshold settings, even the strongest possible echo disappears below 40% gain and at gain levels above 700% all possible echoes are displayed with the darkest shade.

4.1.3 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 minute)
  - Metric (meters, meters per second)
- Flight level — Selects the units for flight levels – only applicable with metric altitudes
  - Nautical (hundreds of feet)
  - Metric (meters)
- Distance — Selects the units used for distances
  - Nautical (nautical miles)
  - Metric (kilometers)
- Speed — Selects the units used for speeds
  - Nautical (knots)
  - Metric (kilometers per hour)

4.1.4 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 reference to be used at or below the transition altitude:
  - QNH — Altitude above mean sea level
  - QFE — Height above the aerodrome elevation (set/check it in the adjacent box)
- Used equipment codes — Selects whether to use or disregard the equipment codes found in the flight plans:
  - All — Use all codes
  - ICAO — Use all codes when specified in ICAO format
  - ICAO-alt — As ICAO, but force transponder to report altitude
  - None — Disregard all codes
- ASSR codes — Selects the transponder code source:
  - Plugin — Plugin data file (reverts to ESE if no codes found)
  - ESE — ESE file
  - Range — Fixed code range

- Groundspeed — Selects whether to use pilot client reported ground speed or a plugin calculated value. Normally the reported value should be used as it is more accurate and stable, but some clients report wrong values. If that causes problems, you can try selecting the plugin calculated value instead
- Transfer confirmation — Selects when to display the Transfer Confirmation Window:
  - On — Always when CFL is not equal to XFL
  - NotRFL — When CFL is not equal to XFL unless XFL = RFL
  - Off — Never, any CFL value is OK
- CFL menu default value — Selects the default value for the CFL menu when it is opened:
  - XFL — FSS or CTR: RFL if not yet reached, otherwise as below
    Other: The XFL value, or current CFL value with no XFL
  - CFL — The current CFL value
  - RFL — The RFL value
- FPCP inhibit — FPCP calculations start when tracks are within this time from entering active sector
- STCA alert — Selects which aircraft display the STCA alert:
  - All — All aircraft
  - Own+Co — Only assumed and coordinated aircraft
  - Own — Only assumed aircraft
- STCA alert sound — Selects which STCA alerts trigger the alert sound:
  - All — All alerts
  - Own+Co — Only alerts for assumed or coordinated aircraft
  - Own — Only alerts with assumed aircraft
  - Off — No alert sound
- APW alert — Selects which aircraft display the APW alert:
  - All — All aircraft
  - Own+Co — Only assumed and coordinated aircraft
  - Own — Only assumed aircraft
- APW alert sound — Selects which STCA alerts trigger the alert sound:
  - All — All alerts
  - Own+Co — Only alerts for assumed or coordinated aircraft
  - Own — Only alerts for assumed aircraft
  - Off — No alert sound
- METAR source — Selects the METAR data source for the plugin windows that display METAR data
- FPASD filter — Allows filtering of displayed FPASD tracks based on sector state
  - Coord — Display tracks at least in the coordinated state
  - Conc — Display tracks at least in the concerned state
  - None — Display all tracks

4.1.5 CFL submenu

- Reduced — The reduced length CFL menu is used
- Extended — The extended length CFL menu is used

4.1.6 Flight Leg submenu

- Assumed — Automatically displays Flight Leg when track is assumed
- Potential Predicted — Displays potential predicted conflicts on flight leg
- Potential Risk — Displays potential risks of conflicts on flight leg

4.1.7 RR Main submenu

- [] Rings On/Off — Toggles the range rings on/off
- Point — Sets the rings centerpoint
- Separation — Sets the separation between adjacent rings
- Number — Sets the number of rings drawn
- [] Highlight — Toggles highlight (drawn with solid line) of specified rings
- Step — Sets interval of highlighted rings

The rings centerpoint can be set either by clicking on the radar screen or entering the desired point in the text field. Fixes, VORs, NDBs and airports from the active sector file can be used as well as coordinates in the flight plan format (DD[N/S]DDD[E/W] or DDMM[N/S]DDDMM[E/W], e.g. 60N025E or 0811S00300W). Entering an empty text string resets the rings to be shown at the radar screen centerpoint.

4.2 AMS menu

- TSA… — Opens the Airspace Management Window
- NAT > — Opens the NAT submenu (shown only on oceanic setups)

4.2.1 NAT submenu

- Eastbound Map — Toggles display of eastbound tracks map
- Westbound Map — Toggles display of westbound tracks map
- NAT List… — Opens the NAT List Window

Opening the NAT submenu triggers downloading the NAT Track Message which is then updated hourly. The tracks extracted from the messages can be displayed on the radar screen. Any named waypoints in the tracks that cannot be found in the active sector file are just skipped so the displayed tracks may not be accurate.

4.3 FData menu

- Flight Plan Selection… — Opens the Flight Plan Selection Window
- Flight Plan Window… — Opens the Flight Plan Window

4.4 Tools menu

- Flight Plan Lists > — Opens the Flight Plan Lists submenu
- CARD… — Opens the Conflict And Risk Display
- SAP… — Opens the Segregated Area Probe Window
- Message In… — Opens the Message In Window
- Message Out… — Opens the Message Out Window

- Shortcut…	Opens the Shortcut Window
- CPDLC >	Opens the CPDLC submenu

4.4.1 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 Load Factor List
- Resectorisation List…	Opens the Resectorisation List
- <lfunc>	Resectorisation List LFUNC filter
- ETWR List…	Opens the ETWR List
- <adep>	ETWR List departure airports filter
- Uncont. List 1…	Opens the Uncontrolled List 1
- <filter>	Uncontrolled List 1 state filter
- <units>	Uncontrolled List 1 units filter
- Uncont. List 2…	Opens the Uncontrolled List 2
- <filter>	Uncontrolled List 2 state filter
- <units>	Uncontrolled List 2 units filter
- Lost List…	Opens the Lost List
- Traffic Mgt. List 1…	Opens the Traffic Management List 1
- <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 Mgt. List 2…	Opens the Traffic Management List 2
- <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

Only the Lost List is available in EuroScope versions prior to 3.2.1.29

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 “Redundant” 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).

4.4.2 CPDLC submenu

- Microphone Check — Opens the Microphone Check menu
- Current Messages… — Opens the CPDLC Current Message Window
- History Messages… — Opens the CPDLC History Message Window

4.5 MET menu

- Messages… — Opens the Weather Messages Window
- Upper Winds… — Opens the Upper Winds Window
- Airfield Data… — Opens the Airfield Data Window

4.6 [x] (number in square brackets)

Shows the number of received SIGMET messages. The number is limited to 99, and is shown on “Global Menu Highlight” background when not zero and the Weather Messages Window is not open. Left-clicking the number will open the Weather Messages Window with the SIGMET option selected.

4.7 Info menu

- General Information… — Opens the General Information Window
- Document Viewer… — Opens the Document Viewer Window
- NOTAM… — Opens the NOTAM List Window
- Small QNH/TL… — Opens the Small QNH/TL Window
- LFUNC Frequency… — Opens the LFUNC Frequency Plan Window
- [] Airport labels — Toggles airport labels selection
- [] Fix labels — Toggles fix labels selection
- [] NDB labels — Toggles NDB labels selection
- [] VOR labels — Toggles VOR labels selection

When holding a specified key down (<ALT> by default), 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.

The plugin can also be configured so that the “key-down” method is disabled. In that case the labels will be shown on mouse-over for categories that have been selected on, and as a reminder the “Info” menu item has its background shown in “Global Menu Highlight” color whenever at least one category is selected on.

4.8 MSG menu

- Notepad… — Opens a new Notepad Window for text entry

- Personal Queue… Opens the Personal Queue Window
- ATC Messages… Opens the ATC Messages Window
- Prim Freq Messages… Opens the Primary Frequency Messages Window
- Text notes > Opens the Text notes submenu

4.8.1 Text notes submenu

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

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.

4.9 [x] (number in square brackets)

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 not zero and the window is not open.

Left-clicking the number opens the Personal Queue Window.

4.10 [x] (number in square brackets)

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 not zero and the window is not open.

Left-clicking the number opens the Personal Queue Window.

4.11 STS menu

- Plugin Status > Opens the Plugin Status submenu
- Safety Nets Status… Opens the Safety Nets Status Window
- Divergence Detection Status… Opens the Divergence Detection Status Window
- MTCD Status… Opens the MTCD Status Window
- FPCA Status… Opens the FPCA Status Window
- CPDLC Default Status [ON/OFF] Toggles the CPDLC Default Status On/Off
- Runway In Use Opens the Aerodrome menu (to open the Runway In Use Window)

- RWY Line Display… Opens the Aerodrome menu (to open the Runway Approach Line Window)
- Supervisory > Opens the Supervisory submenu
- Flow Management… Opens the Air Traffic Flow Management Window
- Current Operational Load… Opens the Current Operational Load Window
- Operational Load Forecast… Opens the Operational Load Forecast Window

4.11.1 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.

4.11.2 Supervisory submenu

- Operations Rate… Opens a new Operations Rate Window
- Predicted Traffic… Opens a new Predicted Traffic Window

4.12 RRxxx/Off

Opens the Range Rings menu (see RR Main submenu). If the rings are selected on, “xxx” displays the distance between consecutive rings, otherwise “Off”.

4.13 Mxxx-yyy

Displays the status of the altitude filters for the Main Radar Window. If enabled and Quick Look is not toggled on, the color of the text is “Global Menu Highlight”. “xxx” displays the Lower filter value and “yyy” the Upper filter value, in hundreds of feet.

If metric units are selected for flight levels and/or altitudes, the displayed values will be shown accordingly in meters or tens of meters depending on the setup, rounded to the nearest ten meters.

Left-clicking the item opens the Altitude Filtering Window.

4.14 S000-999

Displays the status of the altitude filters for the Secondary Radar Window (not implemented, shows static values)

5 Air Situation Display

5.1 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

5.1.1 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 min)
-	Coordinated	“Coordination”	Track will enter the active sector (< 15 min)
-	Assumed	“Assumed”	Track is assumed
-	Transfer Initiated	“Assumed”	Track is being transferred to the next controller
-	Redundant	“Redundant”	Track has been transferred to the next controller but is still inside the active sector

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 PPOS	“Assumed”	Track is on-contact (a plugin custom state) with you
-	On Contact	“Unconcerned”	Track is on-contact with someone else
-	Free	“Unconcerned”/“Redundant”	Track is not on-contact with anyone

The ”Redundant” color is used for positions defined as Flight Information Center positions in the plugin setup.

5.1.2 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. For the first four rows, the two symbols are the normal symbol on the left and the divergence alert (RAM or CLAM) symbol on the right.

Surveillance tracks		
●	◉	Primary radar track
⊠	⊠	ADS-B only track
□	⊡	Secondary or combined track without valid DAPs
■	◉	Secondary or combined track with at least one valid DAP
✧		Track with SPI (transponder ident)
Ⓥ		Uncontrolled track
○		Coasted track (no position updates in over 30 seconds, position no longer reliable)
Flight plan tracks (position is not based on surveillance data but calculated by EuroScope)		
+		Controlled track
×		Uncontrolled track

5.1.3 History dots

The history dots show the previous positions of the track. The number of displayed dots can be changed via the Track Control Window. 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.

5.1.4 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.

5.1.5 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.

The *Reduced* label is shown for uncontrolled, unconcerned and notified tracks, the *Standard* label for other tracks. 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.

The *unselected Standard* and *Reduced* labels can be minimized to display only some of their contents (requires specific plugin setup to define which label fields to display). When a label is minimized, the Callsign item is prefixed with a "<" to serve as a reminder.

Refer to your setup specific documentation for detailed descriptions of the track labels.

5.2 Radar picture tools

5.2.1 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 conflict or potential predicted conflict, SAP conflict
- "Warning FL" MTCD risk, SAP risk
- "Potential FL" MTCD potential risk
- "Conflict Ack FL" MTCD acknowledged conflict (optional feature)
- "Information FL" MTCD and/or SAP processing available, no conflicts or risks detected
- "Flight Leg" No MTCD or SAP processing available for this part of the Flight Leg

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 Flight Leg line is one pixel thick, except when it is showing only SAP conflicts (opened from the SAP Window) or showing also conflicting aircraft legs. In that case the FLEG for the referenced flight is three pixels thick and the possible other FLEGs one pixel thick.

The label that's shown on each route point can include the following pre-defined fields.

- ETO Estimated Time Over the point
- NAME Name of the point
- DIST Distance from the current track position to the point
- RFL Requested Flight Level from that point, if there's a change (in "Warning" color)
- SCFL System Computed Flight Level (EuroScope calculated profile level, prefixed with "*")

The Flight Leg displays symbols at the following calculated profile points:

- Top of climb (an upward pointing triangle, colored "System Calculated TOC")
- Top of descent (a downward pointing triangle, colored "System Calculated TOD")

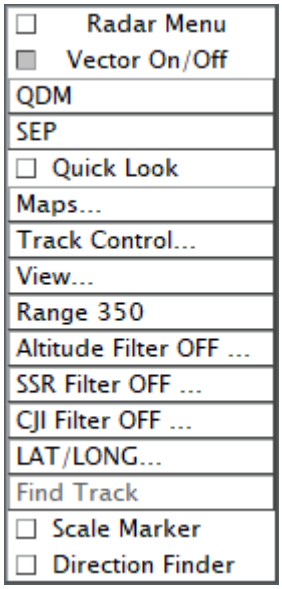
5.2.2 AHDG vector

The AHDG vector is a 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.

5.3 Radar Menu

<ALT> + Right-click anywhere on the radar screen background



- [] Radar Menu	Locks/unlocks the menu display
- [] Vector On/Off	Toggles all prediction lines on/off
- QDM	Starts a new QDM vector
- SEP	Starts a new Minimum separation tool
- [] Quick Look	Toggles function to bypass all filters and show all track labels
- Maps...	Opens the Maps Window
- Track Control...	Opens the Track Control Window
- View...	Opens the View Window
- Range XXX	Opens the Zoom Window (XXX = distance: center -> right edge)
- Altitude Filter X...	Opens the Altitude Filtering Window, displays the filter status
- SSR Filter X...	Opens the SSR Code Filtering Window, displays the filter status
- CJI Filter X...	Opens the CJI Filtering Window, displays the filter status
- LAT/LONG...	Opens the Cursor Lat/Long Window
- Find Track	Opens the SSR Code menu for the Find Track function
- [] Scale Marker	Toggles the Scale Marker on/off
- [] Direction Finder	Toggles the Direction Finder position circles or lines on/off (1)

1) Not shown if the DF system has been disabled in the plugin settings

When unlocked, the Radar Menu closes when a selection is made or the cursor leaves the menu area.

5.3.1 QDM vector

To draw a new QDM vector:

- Left-click on the "QDM" radar menu item
  or
  Left-click on the "QDM" callsign menu item
  or
  Use the keyboard shortcut key combination for a new QDM vector,
  then
- Left-click on the desired start point (radar track or fixed position) (1)
  then
- Left-click on the desired end point (radar track or fixed position)

1) The start point is automatically set to the radar position symbol of the track when starting the vector from the callsign menu

The vector's data label is located at the end of the line. The available click spots for a radar track are the radar track position symbol and all its label items that have a left-click mouse function.

The line end positions will attach to defined points more easily than for a random position (there is a small click area centered on the defined points). The defined points have the following priority order:

- Radar track position symbols

- VORs in the active sector file
- NDBs in the active sector file
- Fixes in the active sector file
- Airports in the active sector file

Right-clicking will abort drawing the vector.

To remove a QDM vector:

- Right-click on either end point of the line (midpoint of the line for lines between two radar tracks)

To adjust a QDM vector:

- Left-click on either end point. The selected end of the line will attach to the mouse cursor.
  then
- Left-click on the new desired end point (radar track or fixed position)

5.3.2 Multi-QDM vector

When the start point of a QDM vector is a fixed point and the end point a track, the system automatically starts another QDM vector from the same start point. If it is attached to another track, the vectors are grouped together as a multi-QDM, and another vector is again automatically started from the same start point. This happens until the right mouse button is clicked to abort drawing a new vector (or the maximum number of QDM vectors is reached).

The advantage of the multi-QDM vectors is that when hovering over a track label of one of the tracks, a relative distance indication is added to the labels of all other vectors belonging to the same multi-QDM group, showing in parentheses the difference in the distance value compared to the selected track.

5.3.3 Minimum separation tool

The minimum separation tool displays the predicted minimum lateral separation between two radar tracks within the next 30 minutes, assuming both of them maintain their present ground tracks and speeds. Lines are drawn from the tracks' present positions to the positions where the tracks are predicted to be at the time of the minimum separation.

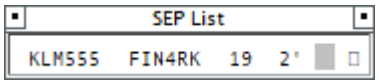
To draw minimum separation lines between two radar tracks:

- Left-click on the "SEP" menu item
  then
- Left-click on the first radar track
  then
- Left-click on the second radar track

Right-clicking will abort drawing the lines. The available click spots for a radar track are the radar track position symbol and all its label items that have a mouse function.

The minimum separation distance is by default displayed near the end of one of those lines. If the tracks are not converging, the lines will be drawn with an offline-defined length, and the label will display "DIV".

7 sets of lines can be simultaneously drawn. When at least one set is drawn, a SEP List Window is opened:



The window lists the tracks, the minimum predicted separation, the time to the minimum separation, the line color and a locked/unlocked indicator for each set of lines.

<u>To remove the minimum separation lines:</u>

- Left-click on the colored box for that set of lines in the SEP List Window
  or
- Right-click on a line's end point
  or
- Close the SEP List Window (this removes all minimum separation lines)

The lines will be automatically removed if one of the tracks is no longer available, or for unlocked lines, if the tracks start to diverge. If the tracks are diverging at the time the lines are created, they will be automatically locked.

<u>To lock/unlock a set of lines:</u>

- Left-click on the box right of the color indicator for that set of lines to toggle the locked/unlocked status. For a locked set of lines, the box will be filled.

<u>To display vertical separation information on the lines:</u>

Right-click on the colored box for a set of lines cycles through

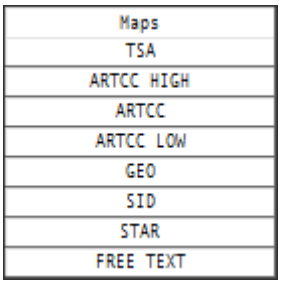
- "V" Vertical separation display enabled
- "v" Vertical separation display enabled without the vertical separation labels
- blank Vertical separation display disabled

When vertical separation display is enabled, on both lines two points are displayed, the first showing the point where the tracks' vertical separation is calculated to become smaller than an offline-defined value, and the second the point after that where it is calculated to become greater. The calculation is done using the tracks' current vertical speeds.

- The vertical separation labels, when displayed, are similar to the minimum separation label but prefixed with "V".
- If one or both points are beyond the minimum separation point, their calculation is extended forward up to an offline-defined time value.
- If a point is already passed or beyond the maximum displayed time, it will not be drawn.
- If the end point is beyond the maximum displayed time, a line will be drawn using "Sep Vert" color from the CPA to the end point or the maximum displayed time whichever is earlier.
- If the tracks are not predicted to be separated by less than the defined value within the prediction time, "V=" is displayed left of the minimum separation label.

5.3.4 Maps Window

Radar Menu -> Maps…



The Maps Window closes when the mouse cursor leaves the window area. If this is not desired, there is a hidden click spot in the top right corner of the menu (where the "close" button would be). Left-clicking in that area will disable the automatic closure of the menu and display the close button, which is then used to close the menu.

The Maps Window enables the display of predefined maps on the radar screen, some of which may be set up with automatic activation rules. The maps are arranged to folders. Clicking on a folder name shows the maps in that folder below the folder list.

The map names are displayed with the following colors (automatic options only available for maps with that capability):

	Text color	Background color	Map state
Name	"Foreground"	"Background"	Not displayed
Name	"Foreground"	"Arm"	Automatic (not displayed)
Name	"Background"	"Arm"	Automatic (displayed)
Name	"Background"	"Foreground"	Displayed

Left-clicking on a map name will change the state of a map one step

not displayed --> automatic (if applicable) --> displayed

right-clicking in the other direction. Left or right double-clicking on any map name will change the states of all maps in that folder.

Besides any maps from the data file, the following automatically generated maps are available:

- Aerodromes
  - AD_Hotspots Aerodrome symbols that are used to open the Runway In Use Window and Runway Approach Line Window
- MISC (1)
  - AIRPORTS (+ L) Airports (with labels) from the active sector file
  - FIXES (+ L) Fixes without numbers (with labels) from the active sector file
  - FIXES ALL (+ L) All fixes (with labels) from the active sector file
  - NDBS (+ L) NDBs (with labels) from the active sector file
  - VORS (+ L) VORs (with labels) from the active sector file
- TSA
  - <area name> TSA areas from the areas data file

1) The color used for the symbols is “Auto Map Symbol” and for the labels “Auto Map Label”. Depending on the sector file setup, there can also be one or more maps named “FIXES x” (where “x” is a group name given in the sector file). These are actually NDBs or VORs in the sector file. To create such a group, put a fake navaid with the name “!x!” in the sector file, where “x” is the desired group name. All following navaids of that type will be put in the “FIXES x” map. The same group name can only be used once in a sector file. The items in these maps will look like the items in the “NDBS” or “VORS” maps, depending on which section the items are placed in the sector file.

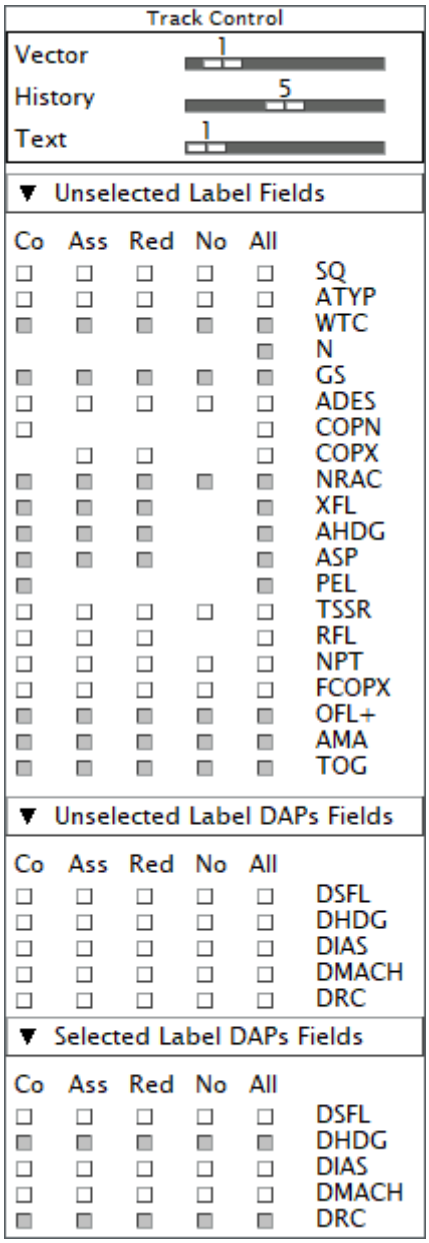
The visibility of some elements from the active sector file can also be toggled using the Maps Window. These are found in the **“ARTCC HIGH”**, **“ARTCC”**, **“ARTCC LOW”**, **“AIRWAYS H”**, **“AIRWAYS L”**, **“SID”**, **“STAR”**, **“GEO”**, **“REGIONS”** and **“FREE TEXT”** folders. The plugin does not know their display state, their names will always be shown with “Arm” text color on “Background” color background.

The **“AIRWAYS L”** and **“AIRWAYS H”** folders present the airways organized into groups. The default group is “PERM”. An airway can be assigned to a custom named group by having the group name in parentheses in the airway name. Airways with “[1]”, “[2]” or “[3]” found in their names will be assigned to groups “CDR 1”, “CDR 2” and “CDR 3” respectively. Custom group names and the CDR numbers can be combined, for example airway segments named “A1(x)[1]” and “A2(x)[1]” in the sector file would be labeled “x CDR 1” in the maps list. Additionally, one map with the group’s name is created that contains all airways in the group regardless of the PERM or CDR status.

5.3.5 Track Control Window

Radar Menu -> Track Control...

The Track Control Window is used to set track and track label related options. Note that the “Vector” selection must be on (see Radar Menu/Shortcut Window) to see the prediction lines. The Track Control Window closes when the mouse cursor leaves the window area. The selections are specific to the radar screen they are made on, but whenever the plugin settings are reloaded either automatically (sign in/out, login callsign change when signed in) or manually the selections on all radar screens will revert to the default values.



- Vector	Sets the length of the prediction line in minutes
- History	Sets the number of history dots
- Text	Changes the track label text size
- X Label Fields	Opens/closes the corresponding Label Fields section

The Label Fields sections allow controlling the visibility of certain track label fields in the unselected label, and for DAP items, also in the selected label. The visibility can be set depending on the state of the flight plan (Coordinated, Assumed, Redundant or Notified/Unconcerned).

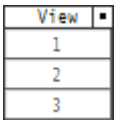
The “All” buttons toggle all the state buttons for that field on/off.

The “OFL+” buttons are only shown in oceanic setups, the “AMA” buttons only if the plugin is set up to display AMAN data.

Regardless of the settings here, the necessary label fields will be displayed in certain cases (for example in case of a COPX coordination request, the COPX field will be displayed). The default label field selections are as displayed in the image.

5.3.6 View Window

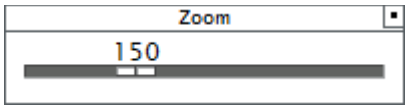
Radar Menu -> View…



The View Window lists the available views. To select a view, left-click on it. The radar screen will be refreshed to show the required area. The first three views, labeled “1”, “2” and “3” are views that can be defined on the fly. To define a view for one of them, set the screen area as desired and then right-click on the number. The number will then change to “Foreground” color to indicate that it has a view defined for it. An already defined view (“1”, “2” or “3”) can be redefined to show a different screen area just by defining it again with a right-click.

5.3.7 Zoom Window

Radar Menu -> Range XXX



The Zoom Window displays and enables to change the radar screen range.

5.3.8 Track filtering

For all the filters, it is only possible to filter out unconcerned tracks. Aircraft with transponder codes 7500, 7600 and 7700, tracks with an active STCA, MSAW, APW or DUPE alert and highlighted tracks are also excluded from filtering. If a filter is active, the filter title in the Radar Menu will be shown in “Selected” color.

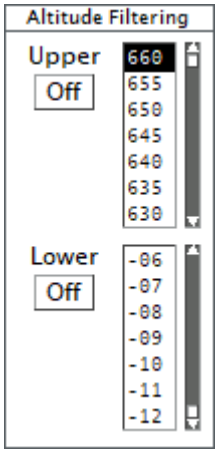
All filters with the exception of the CJI filter remove all components of the tracks, nothing remains visible. The CJI filter leaves the track position symbol and history dots visible.

The filters can be overridden using the Quick Look (all filters), Quick Look Up/Down (altitude filter only) and Individual Quick Look (CJI filter only) functions.

5.3.8.1 Altitude Filtering

Global Menu -> “Mxxx-yyy” item

Radar Menu -> Altitude Filter [ON/OFF]…

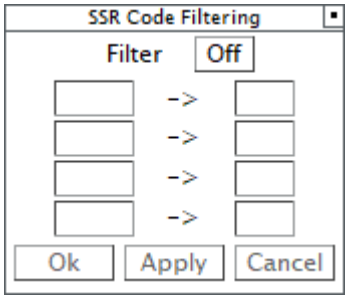


The Altitude Filtering Window is used to filter the displayed track labels based on the aircrafts’ altitudes. It closes when the mouse cursor leaves the window area.

To set the filtering limits, values from -1200ft to FL660 are available with 100ft steps up to 5000ft, then with 500ft steps up to FL660. Select the level and click on the filter on/off button to activate the limit. There are separate on/off buttons for the upper and lower limits, and it is possible to activate either one or both of them. Values at or below the transition altitude are considered to be altitudes (for example with a transition altitude of 5000ft, “050” means 5000ft and “055” means FL55).

5.3.8.2 SSR Code Filtering

Radar Menu -> SSR Filter [ON/OFF]…



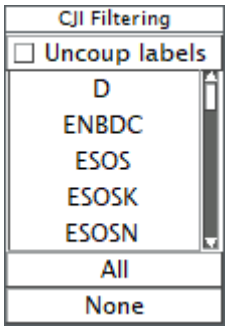
The SSR Code Filtering Window is used to filter the displayed track labels based on the aircrafts' SSR codes. Four different codes or code ranges can be set. The boxes on the left side of the window are the code range start boxes. The input syntax is a valid SSR code to be filtered. If filtering a range of codes is needed, enter the last two digits of the last code in the range to the box on the right. Entering an empty string will clear the box. For example, to filter codes 1400-1427, enter "1400" into one of the four boxes on the left and then "27" into the box next to it. Set the filter on by clicking on the filter on/off button.

All changes to the window must be applied using the buttons in the bottom of the window to take effect.

- Ok — Applies the changes, closes the window
- Apply — Applies the changes
- Cancel — Cancels the changes

5.3.8.3 CJI Filtering

Radar Menu -> CJI Filter [ON/OFF]…



The CJI Filtering Window is used to filter the displayed track labels based on controller ID's. The window shows the currently online controllers. To filter a controller's tracks, click on the controller ID in the list. A filtered ID will be shown in inverse video.

The **"Uncoup labels"** button controls filtering for uncoupled labels (this function is available also in Shortcut Window).

Clicking **"All"** filters all controllers, **"None"** clears all controller ID filters.

The CJI Filtering Window closes when the mouse cursor leaves the window area.

5.3.8.4 Primary Track Filtering

Shortcut Window -> "Prim Tracks" button

When enabled, primary track filtering filters out all primary tracks.

5.3.8.5 Uncontrolled Flight Filtering

Shortcut Window -> "Uncont Flights" button

When enabled, uncontrolled flight filtering filters out all uncontrolled flights not “On-contact” with you.

5.3.8.6 Quick Look

Radar Menu - > “Quick Look” button
Shortcut Window -> “Quick Look” button
Keyboard shortcut

The Quick Look function can be used to override all filters. It is a toggle function and will stay active until toggled off.

5.3.8.7 Quick Look Up/Down

Keyboard shortcut

The Quick Look Up/Down functions can be used to toggle the upper/lower altitude filters on/off without having to open the Altitude Filtering Window. They correspond to clicking the respective filter on/off buttons.

5.3.8.8 Individual Quick Look

Middle-click aircraft position symbol

The Individual Quick Look function can be used to override the CJI filter for a specific track and to display labels for uncoupled primary tracks which are normally automatically hidden. It is a toggle function, middle-clicking again will hide the labels again.

5.3.8.9 Level Band Highlight

“Toggle Level Band Highlight (AFL)” tag function
“Toggle Level Band Highlight (XFL)” tag function

While active, this function highlights the callsigns of the referenced flight and the callsigns of all other flights within the level band of the referenced flight. The prediction line is forced on for these flights.

All other flights will be filtered out to display just their track position symbols and history dots unless they have an active STCA, APW, MSAW or AIW warning or are squawking 7500, 7600 or 7700. Tracks without a valid AFL will be filtered out.

5.3.8.10 Oceanic Level highlight

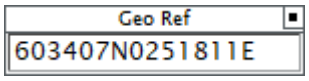
“Toggle Oceanic Level Highlight” tag function
“Acknowledge OCM/Toggle OFL Highlight” tag function (when OCM has been acknowledged)

While active, this function highlights the callsigns of the referenced flight and the callsigns of all other flights having the same OAN and OFL. The prediction line is forced on for these flights.

All other flights will be filtered out to display just their track position symbols and history dots unless they have an active STCA, APW, MSAW or AIW warning or are squawking 7500, 7600 or 7700.

5.3.9 Lat/Long Window

Radar Menu -> LAT/LONG…



Displays the latitude and longitude values of the cursor position.

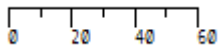
5.3.10 Find Track

Radar Menu -> Find Track
“Find ASSR” tag function
“Find PSSR” tag function

The Find Track function highlights for a specified time all labels matching the specified TSSR, ASSR or PSSR with Temp Track Highlight color.

5.3.11 Scale Marker

Radar Menu -> [] Scale Marker



Displays a range scale in the bottom right corner of the radar screen.

6 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. 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.

6.1 Callsign menu

Items in the callsign menu that are currently not available (for example "Assume" for a track that is not free or being transferred in) are hidden to make the menu as small as possible, so the example images below do not show all the possible items. In the other menus the unavailable items are displayed with "Arm" color.

6.1.1 Controlled track

- Assume	Assumes track
- Refuse	Refuses the incoming transfer
- Transfer	Initiates a transfer to the next sector
- Trf & Release	Opens the Transfer & Release menu
- ROF	Sends a Request On Frequency message
- (X)Freq	Toggles the Freq indicator
- Vector	Opens the Prediction Line menu
- QDM	Starts a QDM line from this track
- (X)Highlight	Toggles the Callsign highlight
- (X)S-Highlight	Toggles the Callsign+AFL fields highlight
- Δ More	Shows additional less frequently used options (see below)
- (X)Hold	"Hold" opens the Hold/Susp menu, "XHold" cancels a given holding clearance
- Man Trf	Opens the Manual Transfer menu
- HOP	Initiates a Handover Proposal
- (X)Mark	Toggles the Mark indicator
- FPL	Opens the Flight Plan Window
- Start/End CPDLC	Starts/Ends CPDLC connection with the aircraft
- VCI	Opens the VCI menu
- Squawk Ident	Sends a "SQUAWK IDENT" CPDLC message to the aircraft
- CPDLC Free Text	Opens the CPDLC Free Text menu
- Free	Releases track
- (X)Inbound Est	Toggles the "Inbound Est" manual alert
- (X)Irregular	Toggles the "Irregular" manual alert
- (X)Missed App	Toggles the "Missed App" manual alert
- (X)Weather	Toggles the "Weather" manual alert
- On Contact	Sets track in On-Contact state (1)
- (X)Couple	Uncorrelates/correlates the flight plan

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 broadcast to all controllers in range when given, and additionally transmitted to the next controller when transferring the track. To correlate a flight plan, first click on the "**Couple**" item, and then click on the radar position symbol of the desired radar track.

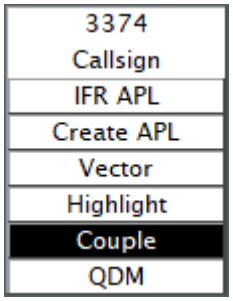
1) Clicking **"On Contact"** for a track with "Y" or "Z" flight rules will also automatically change the flight rules in the VATSIM flight plan to VFR in order to make it uncontrolled. The displayed flight rules are not affected.

6.1.2 Uncontrolled track

- On Contact	Sets track in On-Contact state ("Assumed" color, can't be filtered, but still uncontrolled)
- Assume	Assumes track (which then changes it to a controlled track) (1)
- Vector	Opens the Prediction Line menu
- QDM	Starts a QDM line from this track
- (X)Highlight	Toggles the Callsign highlight
- (X)S-Highlight	Toggles the Callsign+AFL fields highlight
- Δ More	Shows additional less frequently used options (see below)
- (X)Hold	"Hold" opens the Hold menu, "XHold" cancels a given holding clearance
- (X)Mark	Toggles the Mark indicator
- (X)Freq	Toggles the Freq indicator
- Free	Releases track
- FPL	Opens the Flight Plan Window
- (X)Couple	Uncorrelates/correlates the flight plan

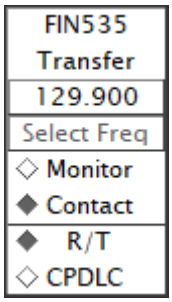
1) Clicking **"Assume"** for a track with "Y" or "Z" flight rules will also automatically change the flight rules in the VATSIM flight plan to IFR in order to make it controlled. The displayed flight rules are not affected.

6.1.3 Uncorrelated track



- IFR APL	Opens the Create APL Window (with FRUL=I and S-Highlight on)
- Create APL	Opens the Create APL Window
- Vector	Opens the Prediction Line menu
- (X)Highlight	Toggles the TSSR/FLTID highlight
- Couple	Correlates the radar track with the next clicked "Callsign" field
- QDM	Starts a QDM line from this track

6.1.4 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.

6.1.5 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.

6.1.6 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.

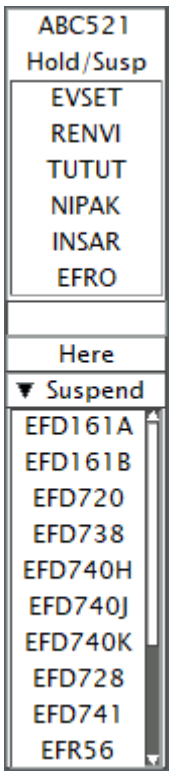
6.1.7 Request On Frequency message

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.

- A successfully sent message will be displayed in the Message Out Window
- If there is an error or the message fails to go through, a message will be put into the Personal Queue Window.

6.1.8 Hold/Susp menu



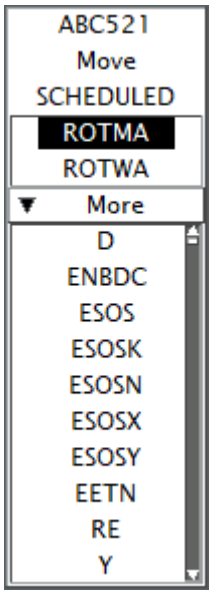
The Hold/Susp menu allows you to enter a holding clearance (add the aircraft to the holding list). It displays for selection the points in the aircraft's route that are ahead of its current position.

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 **"Suspend"** folder contains a list of all currently active TSA areas. Left-clicking on one sets the aircraft to a TSA Hold. A TSA Hold clearance will exclude the aircraft from all APW and SAP processing.

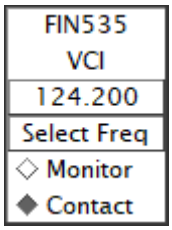
6.1.9 Manual Transfer menu



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.

6.1.10 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.

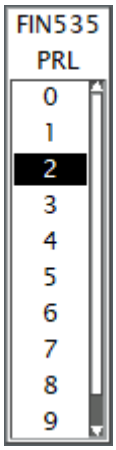
"Monitor" and **"Contact"** are used to select the type of message to be sent.

6.1.11 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.

6.1.12 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.

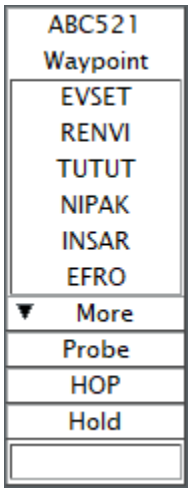
The default value is the set PRL value if available, otherwise the PRL length value from the Track Control Window. Changing the PRL length value in the Track Control Window or changing the PRL setting in the Radar Menu will delete all manually set PRL lengths.

6.2 Sequence number menu

This menu is used to set a manual 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.

6.3 Waypoint menu



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

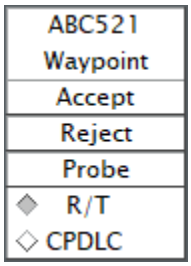
Left-clicking on a point in the list sets a direct-to clearance to that point. Any point name can be manually entered in the box at the bottom of the menu. Note that no coordination is performed. If coordination is necessary, right-click any point name to open the EuroScope "COPN/COPX point" popup list or use the "Probe" button instead.

When the aircraft is CPDLC-connected, the menu offers a choice between **"R/T"** and **"CPDLC"**. The chosen option decides how a clearance is communicated to the aircraft.

"**Probe**" opens the EuroScope "COPN point" or "COPX point" popup list and draws the Flight Leg for the flight. Moving the mouse cursor over the points in the popup can be used to probe the effects of possible route changes. Allow up to 5 seconds after each point change for FPCP to update. The popup is also used to start point coordinations.

For "**HOP**" see AHDG menu.

Left-clicking "**Hold**" opens the Hold menu. If a holding clearance already exists, the button will read "**XHold**" and clicking it will remove the clearance.



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

- **Accept** Accepts the coordination
- **Reject** Rejects the coordination
- **Probe** Opens EuroScope popup to counter-propose another point

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.

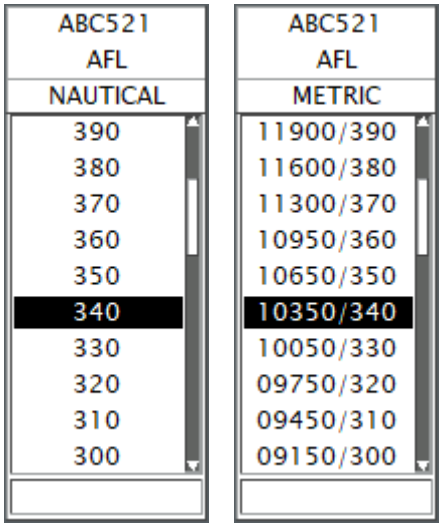
- **Point name** Sends a "PROCEED DIRECT TO <point>" CPDLC message
- **SBY** Sends a "STANDBY" CPDLC message
- **UNABLE** Sends an "UNABLE" CPDLC message

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.

6.4 AFL menu



nautical units metric units

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 and toggling level units via menus has been set up (default=no), the list units can be toggled with the "**NAUTICAL**" / "**METRIC**" item. There are two 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

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

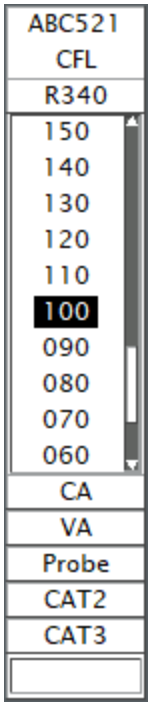
The accepted manual level entry formats for the AFL, CFL and RFL menus are as follows ("n" is a number):

- "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.

Note: The metric level values in the documentation are shown with 5 digits (meters). Depending on the plugin setup, they may also be shown with 4 digits (meters/10).

6.5 CFL menu



The CFL menu is available 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.

The aircraft's RFL is displayed above the level list with format "R<RFL>". Left-clicking it sets the CFL equal to RFL, right-clicking toggles the units between nautical and metric if toggling level units via menus has been enabled.

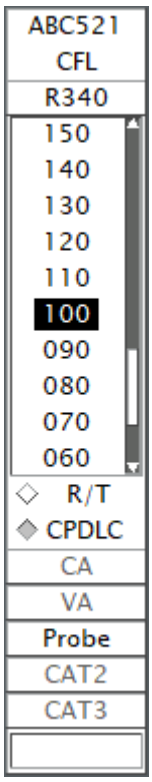
"**VA**", "**CA**", "**CAT2**" and "**CAT3**" set the corresponding approach clearances.

"**Probe**" toggles a CFL probe function and displays the Flight Leg. Moving the mouse cursor over the levels in the list will show the MTCD/SAP effects of setting that value as the CFL (allow a couple of seconds for the FPCP to update the calculations).

There are four ways to set the CFL using this menu:

- Clicking the RFL value
- Clicking a level value in the list
- Clicking one of the approach clearance items
- Clicking the text entry box at the bottom of the menu and entering the value there

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

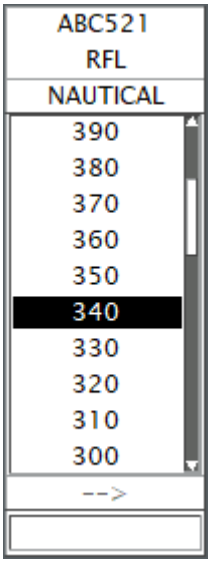


For CPDLC connected aircraft, the menu contains "**R/T**" and **"CPDLC"** options to select whether a level clearance is to be sent via radio or as a CPDLC message.

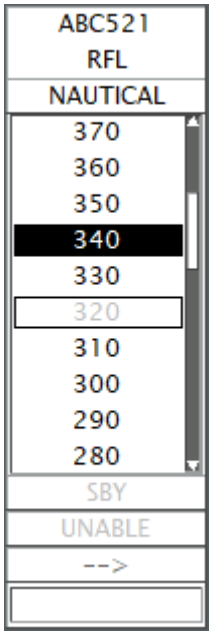
When a level request downlink has been received, the "R/T" option is deselected and cannot be selected. The request must be replied to using CPDLC. A clearance to the requested or some other level is given using this menu. The "STANDBY" and "UNABLE" responses are sent from the RFL menu.

When a level clearance uplink is waiting for reply, 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 using R/T (doing so also closes the open uplink message).

6.6 RFL menu

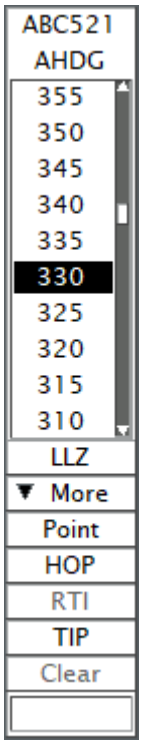


The RFL menu allows setting the requested flight level. The operation is similar to the AFL and CFL menus. The function for the "-->" button is not implemented.



For CPDLC connected aircraft, if a level request has been received from the aircraft, there are also **"SBY"** and **"UNABLE"** buttons to send those messages as a reply. For clearing the aircraft to the requested or some other level, the CFL menu must be used.

6.7 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 or by using the AHDG vector.

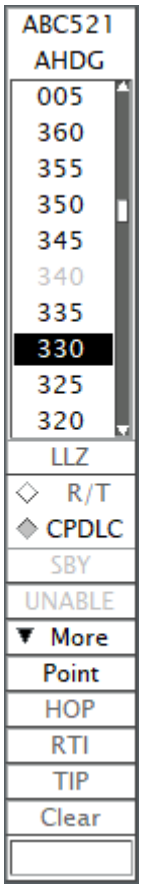
"**LLZ**" enters a localizer clearance.

The "**More**" folder contains the following additional options:

"**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 (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).

"**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.



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 using R/T (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

6.7.1 Handover Proposal (HOP)

A Handover Proposal can be used to propose non-standard transfer parameters (AHDG/Direct-to, ARC 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

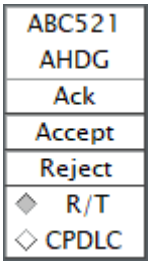
If the parameters are unacceptable to the receiving controller, the sending controller has the possibility to modify or clear them using the appropriate menus, or to cancel the whole HOP by assuming the track.

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.

6.7.2 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 proposing 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.



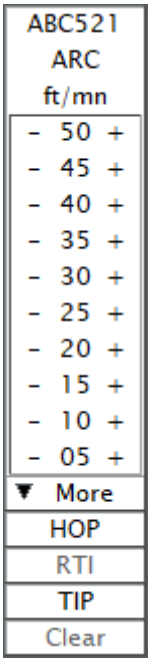
To answer the RTI/TIP, open the AHDG menu. For TIP, the menu contains just two options, “**Ack**” (accept proposal) and “**Reject**” (reject proposal). For RTI, an additional “**Accept**” option is available. Like “Ack”, it accepts the proposal, but it also sets the value. For CPDLC connected flights, the “**R/T**” and “**CPDLC**” options are used to determine whether the clearance is to be sent as a CPDLC message or using RTF.

Warning: It is possible to have received more than one type (AHDG/ASP/ARC) of RTI/TIP. When answering one of them, the same answer will be sent to all the others as well. When selecting the “Accept” option, only that type’s value will be set (for example when AHDG and ASP RTI have been received and selecting “Accept” from the AHDG menu, both RTIs will be accepted but only the AHDG value will be set accordingly, and ASP value will have to be set separately)

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 Message Out Window and the requested parameter being shown in the track label
- If there is an error or the message fails to go through, a message will be put into the Personal Queue Window.

6.8 ARC menu



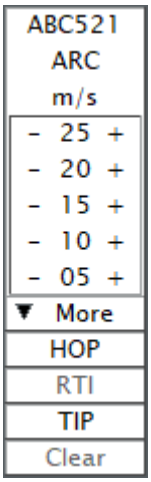
The ARC menu allows assigning a rate of climb or descent to the flight plan. Values are displayed in 100’s of ft/min or 5-25 m/s.

Left-clicking on a value assigns it. Clicking the “-” or “+” next to a value sets the clearance as a maximum or minimum rate respectively. Clicking the value itself will set the clearance as an exact rate.

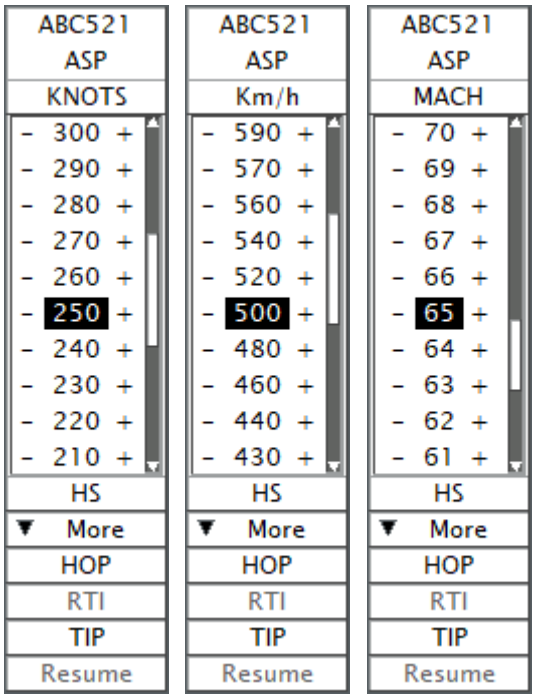
For “**HOP**”, “**RTI**” and “**TIP**” see the AHDG menu.

An assigned rate can be cleared by selecting the “**Clear**” item.

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 be displayed as minimum rate clearances.



6.9 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 a defined value (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.

Left-click the units button to toggle between IAS and Mach, right click when in IAS mode to toggle between KNOTS and Km/h (if speed unit toggling via menus has been set up)

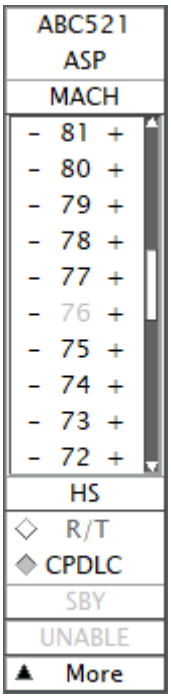
The "**HS**" option will set a clearance for "high speed", displayed as "HS" in the ASP label field.

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

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

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.

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:

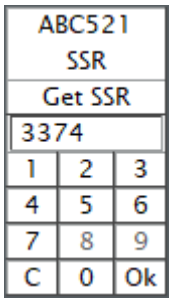
"**R/T**" and "**CPDLC**" select whether a speed clearance is to be sent via radio or as a CPDLC message.

- 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, maximum and high speed clearances are a feature specific to this plugin. To controllers not using the plugin, all assigned speed clearances will only show the speed value (999 for the high speed clearance). Assigned speed clearances given by controllers not using the plugin will be displayed as exact speed clearances.

6.10 SSR Code menu

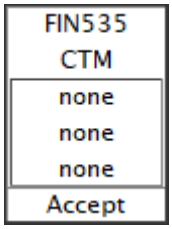


The SSR Code menu allows assigning an SSR code to the flight plan. To enter a new code, type it by left-clicking the numbers. "**C**" clears the entered value and "**Ok**" assigns the code if it's a valid one. To get an automatically assigned code, left-click the "**Get SSR**" button.

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.

When the SSR Code menu is opened to start the Find Track function, the top row of the menu will read "Find" and the "Get SSR" button will not be present. Enter a code and click "**Ok**" to start the function.

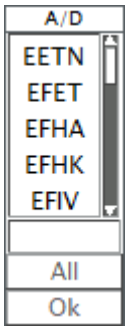
6.11 Combined Transfer menu



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 Message In Window.

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.

6.12 Aerodrome menu

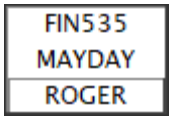


The Aerodrome menu is used to select the aerodrome(s) for aerodrome related windows and functions. The list contains all aerodromes with runways defined in the active sector file. To select an aerodrome, left-click on it or type its identifier into the text entry box below the list.

Selection of more than one aerodrome is possible when the menu was opened from the Weather Messages Window. 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.

6.13 CPDLC Emergency Acknowledgement menu

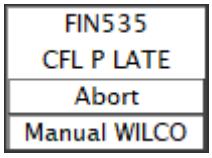


When a CPDLC emergency message has been received, this menu is used to respond to it (if applicable), and then acknowledge the situation. When a reply is required, the menu button will read "**ROGER**". Left-clicking on it will send the "ROGER" CPDLC

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.

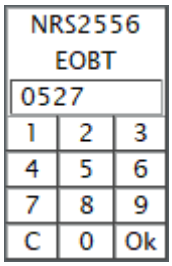
The menu is closed when the "ROGER"/"Ack" button is clicked or the cursor leaves the menu area.

6.14 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.

6.15 Time menu



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

- ATD	current time
- CTOT	current field value if available, current time otherwise
- EOBT	current time
- ETD	current field value
- NBT	current field value if available, current time otherwise
- NLT	current field value if available, current time otherwise

"C" clears the value, **"Ok"** sets the time.

6.16 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.

7 Windows

The plugin includes a number of windows that are discussed in this chapter. All windows have the following common features:

- Dragging the title bar using the left mouse button will move the window
- Dragging the box in the bottom right corner with the left mouse button will resize the window
- Left-clicking the top right corner will close the window
- Left-clicking the title bar will position the window on the top of other windows
- Right-clicking the title bar will position the window below other windows

While resizing the windows always starts from the bottom right corner, it is also possible to resize the window to the direction of the top and/or left edges. To do this, continue dragging the bottom right corner until the cursor goes past the top or left edge. As all windows have a defined minimum size, nothing will seem to happen once you reach the minimum size until the cursor crosses the opposite edge, but then the resize operation will continue normally.

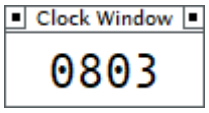
Some windows contain scrollbars to select values or change the items that are displayed:

- Dragging a scroll bar slider using the left mouse button will move the slider
- Left-clicking on the scrollbar background area outside the slider will move the slider by a predefined amount (in list windows, the view will be scrolled by the number of visible items)
- Right-clicking on the scrollbar background area outside the slider will position the slider to the clicked position
- Left-clicking on the arrow at the end of the slider will scroll the list by one line
- The mouse wheel can be used to scroll some scrollbars (most of the ones that have defined steps for scrolling, i.e. those with the arrows at the ends)

Other window-specific mouse function areas are explained below. All functions use the left mouse button unless otherwise specified. For each window, the way(s) to open it are listed below the chapter title.

7.1 Clock Window

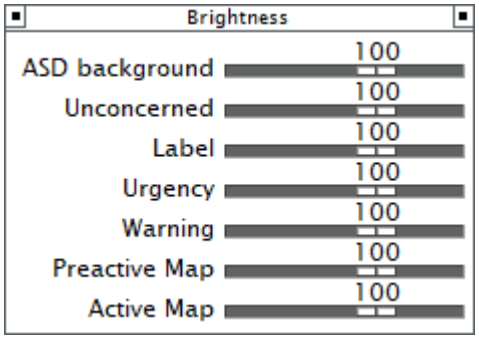
Global Menu -> time item



The Clock Window displays the current UTC time in HHMM format.

7.2 Brightness Control Window

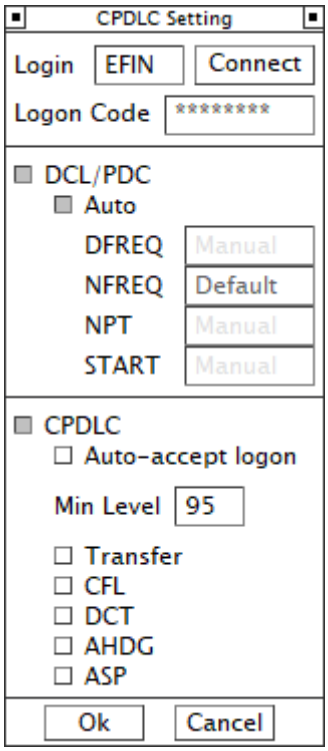
Global Menu -> Setup -> Brightness Control…

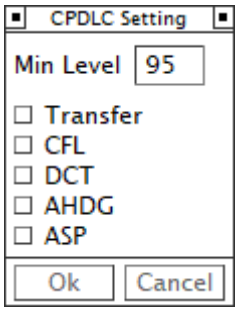


The Brightness Control Window allows setting the brightness for some screen colors. The “Label” slider controls the Concerned, Coordination, Proposition, Assumed and Redundant colors.

7.3 CPDLC Setting Window

Global Menu -> Setup -> CPDLC Setting…





Main instance Proxy instances

The CPDLC Setting Window is used to begin/end the connection to the CPDLC network, and change some CPDLC related settings. It is split into three sections:

Connection setup

- Login — Four-character callsign used for the CPDLC connection
- "Connect"/"Online" — Left-click to Connect/disconnect the plugin to/from the CPDLC network
- Logon Code — Your personal password to the Hoppie network

Once a connection has been established, the "Connect" button background color changes to "Information" and the button text changes to "**Online**".

Note: It is possible to have the Logon Code pre-filled by creating a text file named "TopSkyCPDLChoppieCode.txt" in the same folder as the plugin dll (TopSky.dll). The file should contain only the logon code, nothing else. As the file contains your personal logon code, do not share it.

If the VATSIM callsign is known when the window is opened, the CPDLC login callsign is pre-selected based on it. The CPDLC login comes from a data file, but if not found there and the VATSIM callsign doesn't end with CTR or FSS it will be set to the first part of the VATSIM callsign (which usually is the airport code). If necessary, the pre-selected CPDLC login can be changed.

DCL/PDC setup

(only displayed if at least one datalink clearance format has been set up)

- DCL/PDC — Datalink clearance service on/off
- [] Auto — Automatic sending of datalink clearances on/off
- DFREQ — Selects how clearances containing a "departure frequency" are handled
  - Manual — Clearance must be sent manually
  - <frequency> — This frequency is always sent
- NFREQ — Selects how clearances containing a "next frequency" are handled
  - Default — A default frequency (1) is sent
  - <frequency> — This frequency is always sent
- NPT — Selects how clearances containing a "next point" are handled
  - Manual — Clearance must be sent manually
  - Default — A default point (2) is sent
- START — Selects how clearances containing a start-up approval are handled
  - Manual — Clearance must be sent manually
  - Yes — Start-up is approved
  - No — Start-up is not approved

(1) If the aircraft is assumed by you, your primary frequency. If not, the primary frequency of the controller whose airspace the aircraft is currently in. If not in any active sector, no frequency is available and the clearance must be manually sent.

(2) The plugin selects the first point in the aircraft's route that is not part of a SID. If no such point can be found, the clearance must be manually sent.

When the **"Auto"** option is enabled, a datalink clearance will be automatically sent when a request is received if all the following conditions are met:

- The received clearance request must not contain any remarks text
- A suitable clearance format is available for the aircraft
- The aircraft is not assumed by another controller
- The aircraft has a departure runway assigned
- The aircraft has a cleared altitude <u>manually</u> assigned
- The aircraft has a transponder code assigned
- If the clearance format contains a "departure frequency", "next frequency", "next point" or a start-up clearance item, see the options above for handling.

CPDLC setup

- CPDLC — CPDLC service on/off
- [] Auto-accept logon — Automatically accepts valid logon requests from tracks above “Min Level”

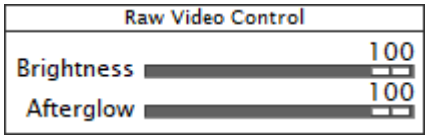
The following items are the only ones visible also in proxy EuroScope instances, and are used to determine whether sending a clearance via CPDLC is the default setting in some of the plugin menus. For this to happen,

- The aircraft must be above the **“Min Level”** (FL) specified here
- The selection button for the menu in question must be on
- The CPDLC Default Status (in Global Menu->STS) must be “ON”

When making changes to any items other than the connection setup part and the “DCL/PDC” and “CPDLC” selections, the “Ok” and “Cancel” buttons become active. Left-click on “**Ok**” to apply the changes or “**Cancel**” to abort.

7.4 Raw Video Control Window

Global Menu -> Setup -> Raw Video Control…

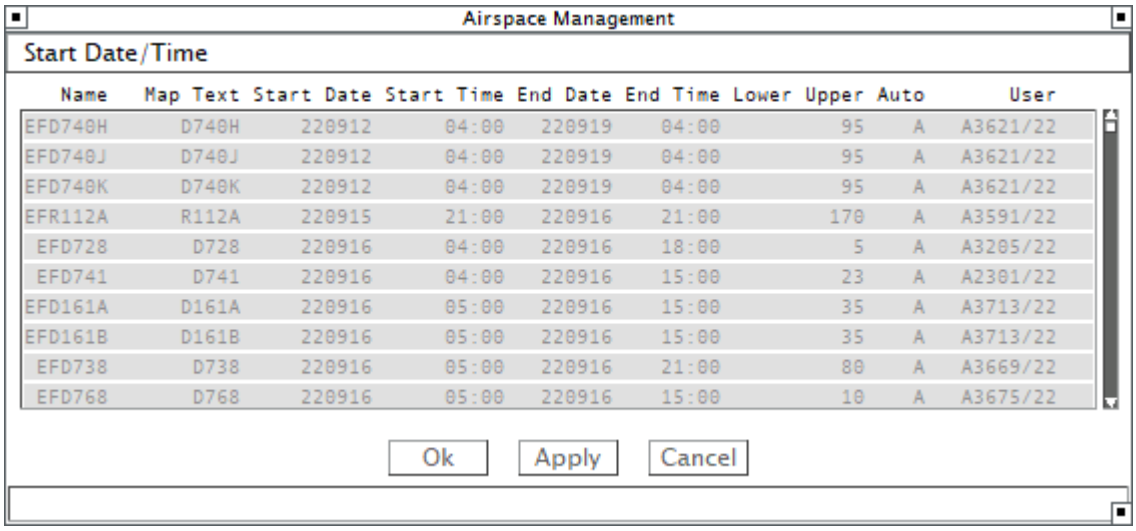


The Raw Video Control Window closes when the mouse cursor leaves the window area.

The Raw Video Control Window controls the brightness (in general) and afterglow (how fast the radar returns fade) of the raw video radar data.

7.5 Airspace Management Window

Global Menu -> AMS -> TSA…



Name	Map Text	Start Date	Start Time	End Date	End Time	Lower	Upper	Auto	User
EFD740H	D740H	220912	04:00	220919	04:00		95	A	A3621/22
EFD740J	D740J	220912	04:00	220919	04:00		95	A	A3621/22
EFD740K	D740K	220912	04:00	220919	04:00		95	A	A3621/22
EFR112A	R112A	220915	21:00	220916	21:00		170	A	A3591/22
EFD728	D728	220916	04:00	220916	18:00		5	A	A3205/22
EFD741	D741	220916	04:00	220916	15:00		23	A	A2301/22
EFD161A	D161A	220916	05:00	220916	15:00		35	A	A3713/22
EFD161B	D161B	220916	05:00	220916	15:00		35	A	A3713/22
EFD738	D738	220916	05:00	220916	21:00		80	A	A3669/22
EFD768	D768	220916	05:00	220916	15:00		10	A	A3675/22

This window is used to control the activation of the areas for the APW and SAP functionality. Each area can have start/end times defined for its activation, or it can be activated without any time limits, making it active until deactivated manually. The areas can also have lower and/or upper altitude limits.

An area can have activation rules defined in the area data file. Such areas will be automatically activated based on schedule data, NOTAM or AUP contents as long as their “Auto” option is selected (“A” in the “Auto” column). The “Auto” option cannot be selected for areas with no activation rules.

An area’s activation status can be inactive, pre-active or active. A pre-active area is an area that will become active within a specified time (10min by default) and is shown with “Selected Period” color text on a “TSA Preactive” color background. An active area is shown with “Selected Period” color text on a “TSA Active” 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.

When the cursor is over the window area, the bottom message area displays three automatic map activation options. Each one is colored “Arm” if selected off, “Warning” if on but no data available, and “Foreground” if on and data available. When the remote option is active, changes to area parameters are not allowed. AUP and NOTAM activation can be selected on/off but the data may be overridden depending on how the remote data source has been set up.

The mouse click areas of the Airspace Management Window:

- Sorting option text (e.g. “Name”)	Opens a pop-up menu to select a sorting option for the list
- Other fields	Left-click to edit field (when edit function active)
	Right-click to open an area pop-up menu
- “Ok” button	Applies the changes, closes the window
- “Apply” button	Applies the changes
- “Cancel” button	Cancels the changes
- “AUP” label	Toggles area activation based on AUP data
- “NOTAM” label	Toggles area activation based on NOTAM data
- “Remote” label	Toggles area activation based on a remote source

The sorting pop-up menu contains the following items:

- Start Date/Time — 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

The area pop-up 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
- Edit — Allows to change the area parameters
- Full Edit — Not implemented
- Copy — Not implemented
- Delete — Clears any activation times, returns label and altitude limits to their default values and deactivates the area

With the area pop-up menu opened, the area text row background changes to “Flight Highlight” color. After any selection from the pop-up menu other than “Edit”, “**Ok**”, “**Apply**” or “**Cancel**” must be selected to apply or cancel the selection.

With the “Edit” function activated, the following mouse click areas are available for the edited area:

- Map Text — Set/change/delete the area label text
- Start Date — Set/change/delete the start date
- Start Time — Set/change/delete the start time
- End Date — Set/change/delete the end date
- End Time — Set/change/delete the end time
- Lower — Set/change/delete the lower altitude limit
- Upper — Set/change/delete the upper altitude limit
- User — Set/change/delete a user defined text

Dates are 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 (or in meters+”m” if metric units chosen) if at or below the transition altitude, otherwise in flight levels (or meters standard+”m”). They must be entered in the same format (“m” character optional with meters).

After making the changes, click on “**Ok**”, “**Apply**” or “**Cancel**”. For areas with NOTAM-based activity periods, the relevant NOTAM identifier is displayed in the “User” field unless a text has been manually entered there. A manually entered text may also be displayed in the area label on the radar screen.

7.5.1 Area display

Pre-active and active areas are displayed on the radar screen, depending on the area definition either as filled or unfilled polygons. The border and fill colors are defined in the areas data file.

7.5.1.1 Area label

An area may display a predefined text label, showing information about the area. If the area definition in the data file includes at least a position for the label, a very small "+" symbol will be drawn at that location. By holding the middle mouse button down on that symbol, a full area label will be displayed, showing:

```
  NAME
MAPTEXT    USERTEXT
  UPPER
  ---------   START_TIME - END_TIME
  LOWER
```

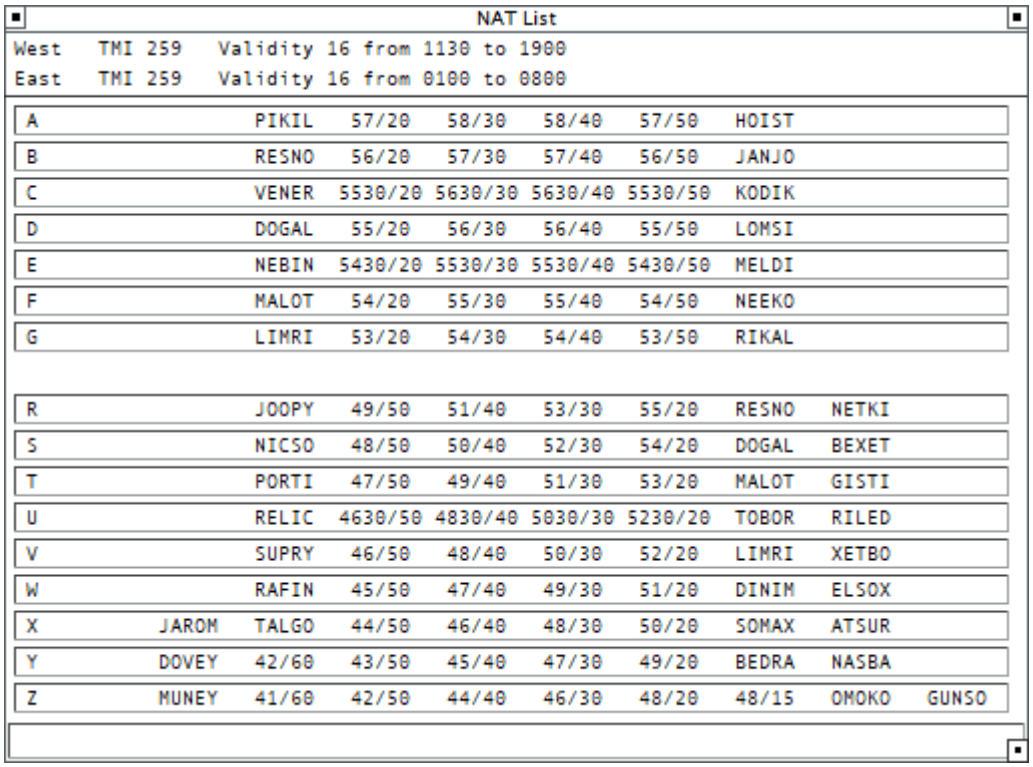
- NAME — Area name
- MAPTEXT — Map text
- USERTEXT — User text string
- UPPER — Upper limit
- LOWER — Lower limit
- START_TIME — Activation start time
- END_TIME — Activation end time

The standard label can be configured to display any combination of these fields. In the standard label, a lower limit of "000" will not be displayed.

If an area has more than one activation period defined, is currently active, and the next activation period is pre-active, the levels, times and user text for the next activation period are shown below the current activation period in the label (optional feature, can be disabled in the plugin settings).

7.6 NAT List Window

Global Menu -> AMS -> NAT -> NAT List…



NAT List

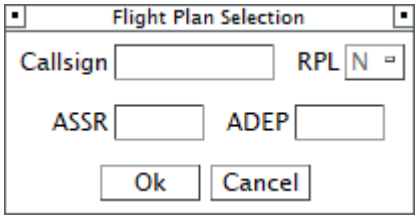
West TMI 259 Validity 16 from 1130 to 1900
East TMI 259 Validity 16 from 0100 to 0800

A		PIKIL	57/20	58/30	58/40	57/50	HOIST		
B		RESNO	56/20	57/30	57/40	56/50	JANJO		
C		VENER	5530/20	5630/30	5630/40	5530/50	KODIK		
D		DOGAL	55/20	56/30	56/40	55/50	LOMSI		
E		NEBIN	5430/20	5530/30	5530/40	5430/50	MELDI		
F		MALOT	54/20	55/30	55/40	54/50	NEEKO		
G		LIMRI	53/20	54/30	54/40	53/50	RIKAL		
R		JOOPY	49/50	51/40	53/30	55/20	RESNO	NETKI	
S		NICSO	48/50	50/40	52/30	54/20	DOGAL	BEXET	
T		PORTI	47/50	49/40	51/30	53/20	MALOT	GISTI	
U		RELIC	4630/50	4830/40	5030/30	5230/20	TOBOR	RILED	
V		SUPRY	46/50	48/40	50/30	52/20	LIMRI	XETBO	
W		RAFIN	45/50	47/40	49/30	51/20	DINIM	ELSOX	
X	JAROM	TALGO	44/50	46/40	48/30	50/20	SOMAX	ATSUR	
Y	DOVEY	42/60	43/50	45/40	47/30	49/20	BEDRA	NASBA	
Z	MUNEY	41/60	42/50	44/40	46/30	48/20	48/15	OMOKO	GUNSO

The NAT List Window displays information from the downloaded NAT track messages.

7.7 Flight Plan Selection Window

Global Menu -> FData -> Flight Plan Selection…

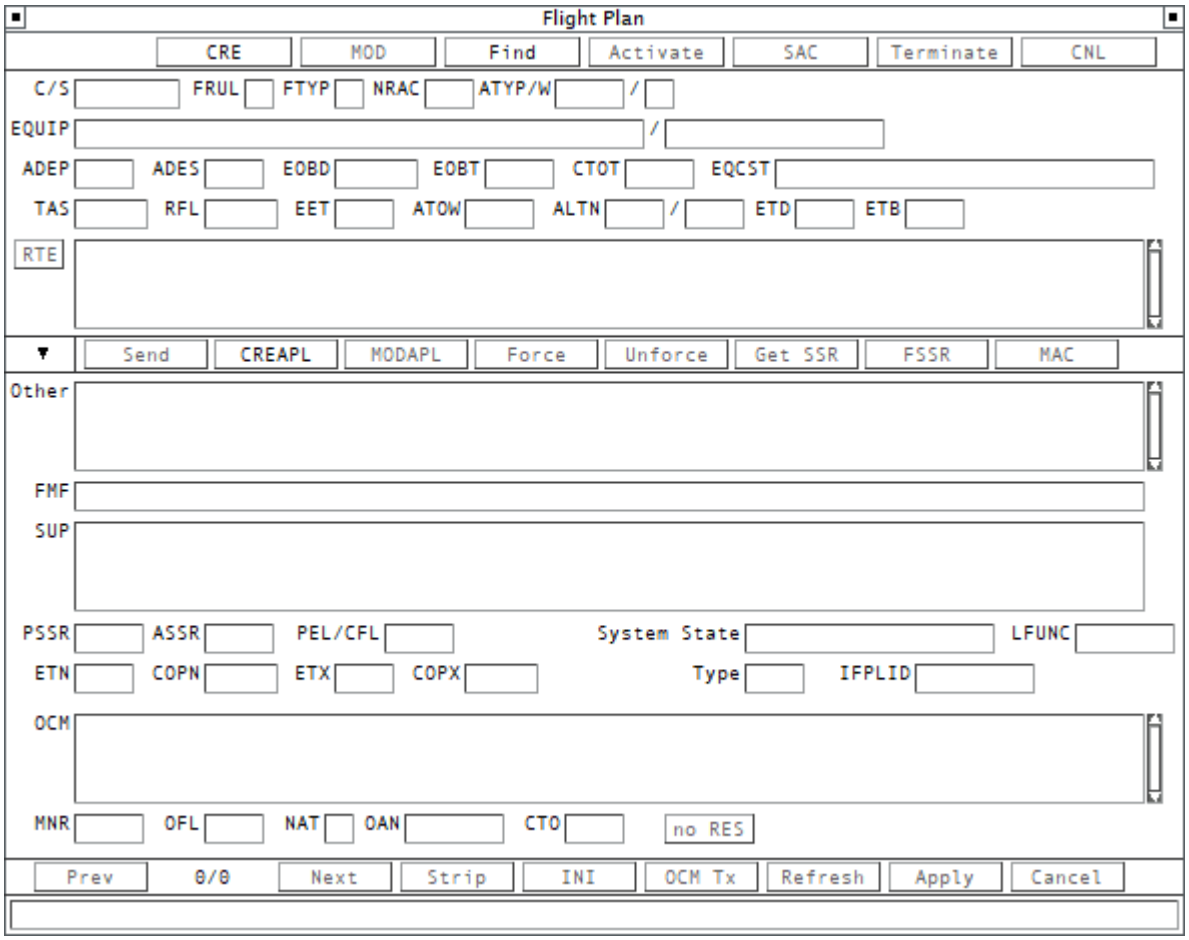


The Flight Plan Selection window is used to search for flight plans based on any combination of callsign, assigned transponder code and departure airport. All flight plans that are a match with all given information will be listed in the Flight Plan Window and can be viewed using its “Prev” and “Next” buttons.

Clicking “**Ok**” will do the search and open the Flight Plan Window if it was closed, “**Cancel**” will clear the fields as well as any previously created flight plan list for the Flight Plan Window.

7.8 Flight Plan Window

Global Menu -> FData -> Flight Plan Window…
Flight Plan Selection Window -> Create a list of one or more flight plans
Callsign menu -> FPL
“Open FPL Window” tag function



The Flight Plan Window displays flight plan data as well as some system data related to the flight plan. It also allows creating new flight plans and modifying existing ones. The data in the window is not refreshed automatically; the time when the data was fetched is displayed in the top left corner.

The data fields show the following information:

- C/S — Callsign of the aircraft
- FRUL — Flight rules (I, V, Y or Z)
- FTYP — Flight type (not available)
- NRAC — Number of aircraft
- ATYP/W — Aircraft type and wake turbulence category
- EQUIP — Equipment list
  - For flight plans with FAA equipment codes, a rough conversion to ICAO is shown in parentheses
- ADEP — Departure aerodrome
- ADES — Destination aerodrome
- EOBD — Estimated Off-Block Date

- EOBT Estimated Off-Block Time
- CTOT Calculated Take-Off Time
- EQCST Displays aircraft equipment status for certain equipment (W, Y, U, R, P and S)
    - “EQ” equipped, “NO” not equipped, “UN” unknown.
- TAS True Air Speed
- RFL Requested Flight Level
- EET Estimated Elapsed Time
- ATOW Actual Take-Off Weight (not available)
- ALTN Alternate aerodrome(s)
- ETD Estimated Time of Departure
- ETB Estimated Time to Boundary (of your sector)
- RTE Route

With the window in extended mode, the following additional information is shown:

- Other Flight plan remarks field
- FMF Flight Message field
- SUP Supplementary information (endurance, PIC name)

The following system information regarding the flight plan is shown unless the initial plan is displayed:

- PSSR Previous SSR code
- ASSR Assigned SSR code
- PEL/CFL Planned Entry Level or Cleared Flight Level, depending on the flight’s state
- System State System state of the flight plan
- LFUNC Controller who is currently tracking the aircraft
- ETN Estimated time to COPN
- COPN Entry coordination point
- ETX Estimated time to COPX
- COPX Exit coordination point
- Type Type of flight plan (APL or FPL)
- IFPLID Eurocontrol unique FPL_ID for the flight plan (not available)
- 0/0 Number of the displayed FPL in the list / total number of flight plans in the list

For oceanic setups, the following information from the latest received OCM is also available:

- OCM Oceanic Clearance Message
- MNR Oceanic cruising speed
- OFL Oceanic cruising Flight Level
- NAT North Atlantic Track name (or “#” for random route)
- OAN Oceanic Control Area entry point
- CTO Clearance time on OAN
- “RES”/”no RES” Time restriction indicator in OCM

The following buttons are available:

- CRE Create a new full flight plan (FPL)
    - Editable fields will be highlighted

- If a flight plan is being displayed, all data fields keep their values so a new flight plan can be created using an existing one as a base. If not, default values will be set to FRUL, NRAC, EQUIP and Other fields
- "**Apply**" creates the FPL, "**Cancel**" aborts the operation

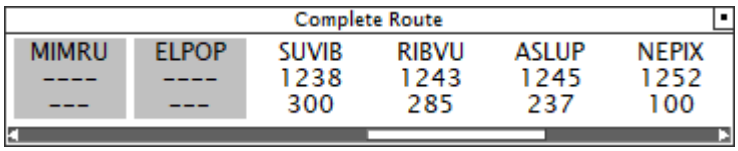
- MOD — Modify the currently displayed FPL
  - Available fields will be highlighted
  - "**Apply**" modifies the FPL, "**Cancel**" aborts the operation
- Find — Find a flight plan
  - Enter Callsign to find the flight plan, "**Cancel**" aborts the operation
- Activate — Not implemented
- SAC — Enter a slot time
  - Enter the time to the ETD field, "**Cancel**" aborts the operation
- Terminate — Not implemented
- CNL — Not implemented
- RTE — Opens the Complete Route Window
- Up/down triangle — Toggle FPL Window extended mode on/off
- Send — Not implemented
- CREAPL — Create a new abbreviated flight plan (APL)
  - Editable fields will be highlighted
- MODAPL — Modify the currently displayed APL
  - Editable fields will be highlighted
  - "**Apply**" modifies the APL, "**Cancel**" aborts the operation
- Force — Force this aircraft to be included in the MTCD and SAP processing regardless of its sector state or any inhibition settings in the MTCD Status Window
  - "**Apply**" creates the APL, "**Cancel**" aborts the operation
- Unforce — Cancel the forced inclusion of this aircraft in the MTCD and SAP processing
- Get SSR — Assigns a new SSR code for the flight
- FSSR — Not implemented
- MAC — Not implemented
- Prev — Selects the previous flight plan in the list (see Flight Plan Selection Window)
- Next — Selects the next flight plan in the list (see Flight Plan Selection Window)
- Strip — Not implemented
- INI — View the initial flight plan
  - Complete Route Window is closed if it was opened
  - Flight plan refresh time and system information will not be shown
  - "**CRE**" starts to create a new flight plan based on the displayed initial flight plan, "**Refresh**" or "**Cancel**" shows the current flight plan again
- OCM Tx — Not implemented
- Refresh — Refreshes the displayed information
- Apply — Apply changes that were made
  - Any errors will be displayed in the bottom row of the window
- Cancel — Cancel any changes and quit the current operation

In the plugin the only difference between an APL and an FPL is that an APL can only contain the Callsign. If it contains any other information (controller-assigned values such as ASSR, CFL, etc. are not taken into account), it will be considered to be an FPL.

For the accepted CFL entry formats, see AFL menu.

7.9 Complete Route Window

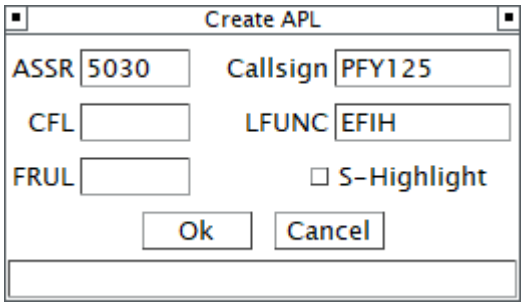
Flight Plan Window -> “RTE” button



Displays the expanded route of the FPL currently shown in the Flight Plan Window. Already passed points are shown with “Overflown” color background. Points still ahead show the estimated time over the point and the calculated flight level (as calculated by EuroScope) below the point name.

7.10 Create APL Window

Callsign menu (uncorrelated track only) -> “Create APL” or “IFR APL” item



The bottom area of the window will show status and error messages.

Enter all the available information (the only required field is the callsign) and click “**Ok**” to create the APL. “**Cancel**” will clear all the fields.

If the ASSR field is left empty, a code will be automatically assigned from a dedicated APL code range. If no codes are available, an error message will be shown and a code must be manually entered.

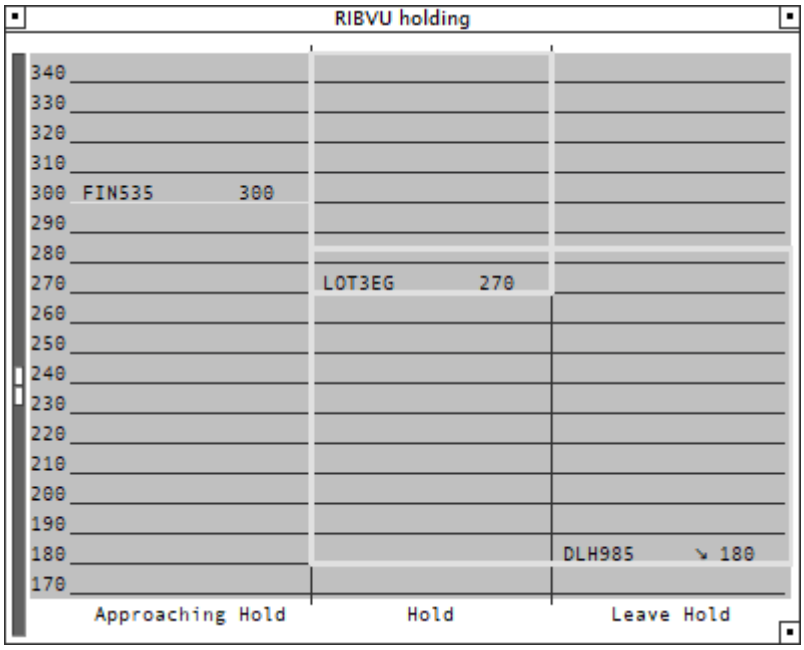
For the accepted CFL entry formats, see AFL menu.

Left-clicking on the FRUL field toggles the flight rules between “I” (IFR) and “V” (VFR).

When the APL is created, it is automatically assumed or set as on-contact depending on the plugin setup.

7.11 Stack Manager Window

Holding List… -> “HPT” item



To help with controlling holding aircraft, Stack Manager Windows can be opened. They give a quick look into the vertical positions of aircraft that have been given a holding clearance to the holding fix associated with the window in question.

The window is split into three columns:

- Approaching Hold: Aircraft approaching the holding area (more than 5 minutes flying time away from the holding fix)
- Hold: Aircraft in the holding area
- Leave Hold: Aircraft cleared to leave the holding

The window displays the aircraft labels at their cleared flight levels. For each aircraft the callsign, the vertical speed arrow if not in level flight (“#” in “Warning” color for aircraft without altitude information), the RVSM capability indicator if applicable, and the CFL is displayed.

If there are more than one aircraft with the same CFL, only one callsign will be shown. A “+” symbol in “SMW Overlap Box” color after the CFL value indicates that there are more flights to be displayed. Clicking on the symbol will display a window with all the callsigns with that CFL.

For each aircraft an altitude box will be drawn that extends from AFL to CFL. Normally the color of the box is “SMW Level Band”, but in the Hold and Leave Hold columns if it is closer than 300ft or overlaps any other aircraft’s box, the color will be “SMW Overlap”. For an aircraft with a CLAM alert, the box will be in “SMW Overshoot” color. A flight level reserved for an overflight is shown in “SMW Overflight” color. The altitude box of aircraft in the Leave Hold column extends into the Hold column as well.

Aircraft will be automatically removed from the Leave Hold column after 10 minutes, but they can also be manually removed by right-clicking the callsign.

Any number of Stack Manager Windows can be opened to monitor multiple holdings at the same time. For CFLs at or below the transition altitude, the aircraft label is placed on the numerical value of the CFL, but the altitude box is always based on flight levels.

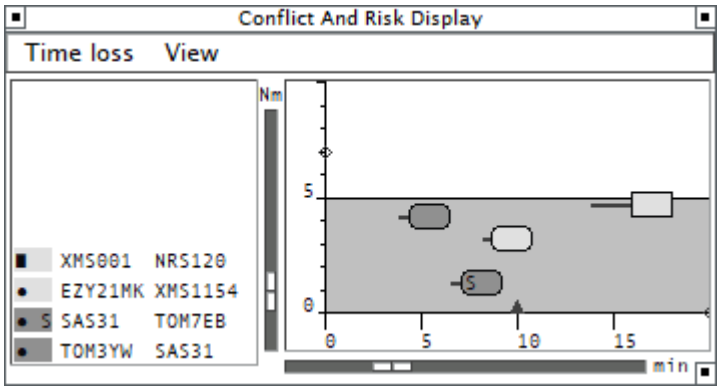
The mouse click areas of the Stack Manager Window:

- Slider or view background area	Drag to adjust the lowest shown FL
- Aircraft callsigns	Open Callsign menu (1)
- CFLs	Open CFL menu (2)
- + symbol	Open window to view all callsigns with that CFL
- FL numbers	Toggle overflight status for that level

1) Right-clicking a callsign in the Leave Hold column immediately removes the aircraft from display
2) When opened from a Stack Manager Window, the default value in the CFL menu is the current CFL regardless of the setting in the Local Settings menu.

7.12 CARD (Conflict And Risk Display)

Global Menu -> Tools -> CARD…



The CARD window presents the MTCD conflicts and conflict risks. It also allows setting some of the related parameters. It is divided into two parts:

On the left is the list area which includes all the detected conflicts and shows the concerned aircrafts' callsigns. The conflict label background is in "Urgency" color for a conflict or potential predicted conflict, "Warning" for a risk or potential risk of conflict and "Conflict Ack" for an acknowledged conflict. An acknowledged conflict will be automatically de-acknowledged if the predicted minimum separation decreases by a predefined amount.

On the right is the graphical display area that gives an overview to the severity and timeframe for each conflict. On the vertical (distance) axis the conflicts are placed to the predicted minimum separation and on the horizontal (time) axis the label is placed so that the left edge of the conflict number is at the time of closest point of approach. A line in "CARD Time Vector" color, extending to the left from the label, marks the time when the separation will decrease below the prediction distance. For fast closure rates the time from prediction distance to CPA may be too short to display the line. The conflict labels have the same mouse functions as the ones in the list area. If the label position would be outside the maximum time displayed in the window, the label is positioned at the maximum displayed time. The area below 5nm distance is drawn in "CARD Min Sep" color.

Conflicts starting earlier than the time marked with the triangle at the bottom of the graphical display area are displayed with a dot in the list area label, and with rounded corners of the label in the graphical area. If SEP (minimum separation lines) are displayed for the conflict pair, "S" is displayed on the label. Hovering the mouse cursor over a conflict label will display the flight legs of the conflict pair on the radar screen.

The mouse click areas of the CARD window:

- Sorting option — Opens a pop-up menu to select the sorting option
  - Time loss (time to start of conflict)
  - Time min dist (time to minimum separation)
  - Min dist (minimum separation)
- "View" menu label — Toggle the View menu
- Vertical slider — Drag to adjust the distance scale
- Horizontal slider — Drag to adjust the time scale
- Diamond on vertical axis — Drag to adjust prediction distance

- Diamond on horizontal axis — Drag to adjust prediction time
- Triangle on horizontal axis — Drag to adjust warning time
- Conflict labels — Left-click to open Mark/ACK menu
  Middle-click to display SEP (minimum separation lines)
  Right-click to remove SEP
- Conflict callsigns — Middle-click to open Vertical Aid Window

From the "View" menu it is possible to toggle various MTCD related options:

- List — Toggles display of the list area
- Graphic — Toggles display of the graphical area
- Risk — Toggles display of MTCD risks of conflict
- Downstream Predicted — Toggles display of conflicts starting in next sector
- Potential Predicted — Toggles display of MTCD potential predicted conflicts (1)
- Potential Risk — Toggles display of MTCD potential risks of conflict (1)
- PLC — Toggles display of PLC conflicts (starts later than the triangle displayed on the time axis)
- MTCD Ind — Toggles the display of the MTCD indicator on the track label
- Notif — Toggles whether tracks in the notified state are considered for MTCD
- Unco — Toggles whether unconcerned tracks are considered for MTCD
- Future — Toggles future conflicts (starting later than the currently visible time period)

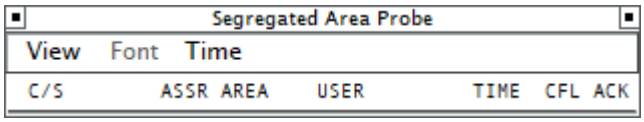
1) The availability of these items in the menu depends on the plugin setup

From the "Mark/ACK" menu it is possible to toggle conflict-specific options:

- Mark All — Toggles marking the Callsigns and AFL's of the concerned tracks with "CARD Mark All" color
- Mark Own — Toggles marking the Callsigns of the concerned tracks with "CARD Mark Own" color
- ACK — Toggles acknowledgement status
- Address — Not implemented

7.13 SAP Window

Global Menu -> Tools -> SAP…



The SAP window lists the aircraft that have SAP conflicts (can be set to also show risks). The list shows the following information about each conflict:

- C/S — Aircraft callsign
- ASSR — Assigned SSR code
- AREA — Name of the area
- USER — User text of the area
- TIME — Entry time into the area (current time if already inside)
- CFL — Cleared Flight Level
- ACK — Conflict acknowledgement status (military coordination indicator)

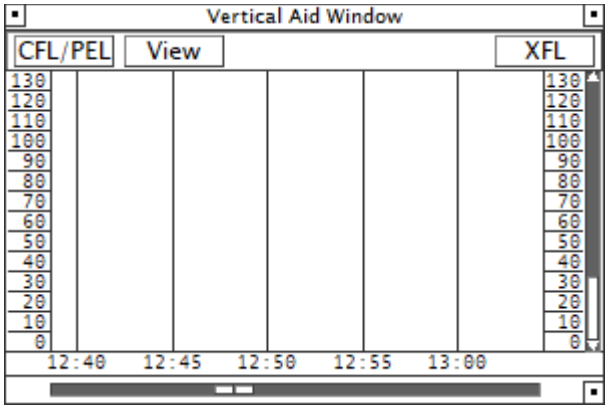
For active areas the area name is displayed in “TSA Active” color and for pre-active areas in “TSA Preactive”.

The mouse click areas of the SAP window:

- “View” menu label — Toggle the View menu
  - Header — Toggle display of list header row
- “Font” menu label — not implemented
- Sorting option — Opens a pop-up menu to select the sorting option
  - Time — (entry time)
  - Area — (area name)
- C/S — Left-click opens Callsign menu
- ASSR — Left-click opens SSR Code menu
- CFL — Left-click opens CFL menu
  Right-click opens Vertical Aid Window
- ACK — Left-click toggles military coordination indicator

7.14 Vertical Aid Window

Holding List / SAP Window -> right-click on CFL or XFL item
"Open Vertical Aid Window" tag function



The Vertical Aid Window shows the predicted vertical trajectory of the selected aircraft, starting from its current position (marked with a dot in "VAW Track Position" color), and the trajectories of all aircraft conflicting with it. The background color of the path area is by default the "Inactive Sector" color, but for the time the aircraft is predicted to be inside your sector the color will be the "Active Sector" color with "VAW Sector Limits" color edges. The trajectory of the ASEL aircraft is drawn in "VAW Profile" color.

MTCD conflicts are displayed as boxes covering the area horizontally from the start to the end of the conflict and vertically from the lowest to the highest level of the conflicting track during that period. The conflict number and callsign of conflicting track are displayed in the top left corner of the box. The different types of conflicts are shown as follows:

- Conflict — Filled box in "Urgency" color ("Conflict Ack" if acknowledged)
- Risk — Filled box in "Warning" color ("Conflict Ack" if acknowledged)
- Other — Unfilled box in "Potential" color ("Conflict Ack" if acknowledged)

SAP conflicts, if selected to be displayed, are displayed as unfilled boxes in "Warning" color, covering the area horizontally from the start to the end of the conflict and vertically from the bottom to the top of the area. The area name is shown at the top left corner of the box.

The mouse click areas of the Vertical Aid Window:

- "CFL/PEL" button — Opens the PEL or CFL menu depending on sector state
- "View" button — Toggles the View menu
- "XFL" button — Opens the XFL menu

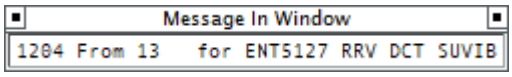
From the View menu it is possible to toggle various MTCD related options:

- Risk — Toggles display of MTCD risks
- Notif — Toggles whether tracks in the notified state are shown
- Unco — Toggles whether unconcerned tracks are shown
- SAP — Toggles whether SAP conflicts are shown

For assumed flights, the CFL value is displayed as a "Warning" color horizontal line across the screen if different from XFL.

7.15 Message In Window

Global Menu -> Tools -> Message In…



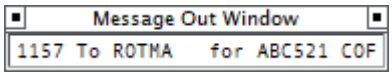
The Message In Window shows received coordination messages, sorted by time, with the newest ones at the top of the list. For the ones requiring an answer, it is possible to send it either from this window, the aircraft track label or any aircraft list where the relevant items are displayed. The messages will be automatically removed from the list when the track becomes Unconcerned, or for some messages, also based on a specific event.

The available message types are:

- "From <SI> for <Callsign> COF"
    - Displayed when the track is being transferred to you
    - Removed when the transfer is complete or cancelled
- "From <SI> for <Callsign> ROF"
    - Displayed when the next controller has sent a message requesting the track to be transferred to his frequency
    - Left-clicking on the line manually removed it
    - Removed when a transfer is started
- "From <SI> for <Callsign> HOP [HDG xxx] [DCT xxxxx] [SP xxx]"
    - Displayed when there is a HOP in progress
    - Left-clicking on the line opens the Combined Transfer Menu
    - Removed when the transfer is complete or cancelled
- "From <SI> for <Callsign> RTI [HDG xxx] [SP xxx] [ARC xx]"
    - Displayed when an RTI message has been received
- "From <SI> for <Callsign> TIP [HDG xxx] [SP xxx] [ARC xx]"
    - Displayed when a TIP message has been received
    - Removed when the track becomes Assumed
- "From <SI> for <Callsign> accept HOP/RTI/TIP"
    - Displayed when an Accept message has been received to HOP, RTI or TIP
    - Left-clicking on the line manually removes it
- "From <SI> for <Callsign> reject RTI/TIP [by timeout/by system]"
    - Displayed when a reject message has been received to RTI or TIP
    - Left-clicking on the line manually removes it
- "From <SI> for <Callsign> RAP/RRV [level] [DCT xxxxx]"
    - Displayed when an entry coordination has been received
    - Left-clicking on a value opens the EuroScope default menu to answer
    - Removed when the track becomes Assumed
- "From <SI> for <Callsign> CDN [level] [DCT xxxxx]"
    - Displayed when an exit coordination has been received
    - Left-clicking on a value opens the EuroScope default menu to answer an active coordination
- "From <SI> for <Callsign> COD <ASSR>"
    - Displayed when a previous controller assigns a new SSR code for a track
    - Left-clicking on the line manually removes it

7.16 Message Out Window

Global Menu -> Tools -> Message Out…



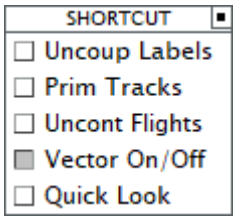
The Message Out Window shows the coordination messages you have sent, sorted by time, with the newest ones at the top of the list. The messages will be automatically removed when the track becomes Unconcerned. To manually remove a line, left-click on it.

The available message types are:

- "To <SI> for <Callsign> COF"
    - Displayed when you transfer a track
- "To <SI> for <Callsign> ROF"
    - Displayed when you have sent a ROF message
- "To <SI> for <Callsign> HOP [HDG xxx] [DCT xxxxx] [SP xxx]"
    - Displayed when you have sent a HOP
- "To <SI> for <Callsign> RTI [HDG xxx] [SP xxx] [ARC xx]"
    - Displayed when you have sent an RTI message
- "To <SI> for <Callsign> TIP [HDG xxx] [SP xxx] [ARC xx]"
    - Displayed when you have sent a TIP message
- "To <SI> for <Callsign> accept HOP/RTI/TIP"
    - Displayed when you have sent an Accept message to HOP, RTI or TIP
- "To <SI> for <Callsign> reject RTI/TIP [by timeout/by system]"
    - Displayed when you have sent a Reject message to RTI or TIP. "Rejected by timeout" will be sent automatically if the coordination is not answered within a specified time.
- "To <SI> for <Callsign> CDN [level] [DCT xxxxx]"
    - Displayed when you have sent an entry coordination
- "To <SI> for <Callsign> RAP/RRV [level] [DCT xxxxx]"
    - Displayed when you have sent an exit coordination
- "To <SI> for <Callsign> COD <ASSR>"
    - Displayed when you have assigned a new SSR code and there is a next controller online for the track

7.17 Shortcut Window

Global Menu -> Tools -> Shortcut…



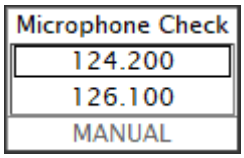
The Shortcut Window gives access to the following functions:

- Uncoup Labels — Toggles uncoupled labels filtering on/off
- Prim Tracks — Toggles primary track filtering on/off
- Uncont Flights — Toggles uncontrolled flight filtering on/off
- Vector On/Off — Toggles all prediction lines on/off
- Quick Look — Toggles function to bypass all filters and show all track labels

For each of them, when the box is filled, the filter or function is active.

7.18 Microphone Check menu

Global Menu -> Tools -> CPDLC -> Microphone Check

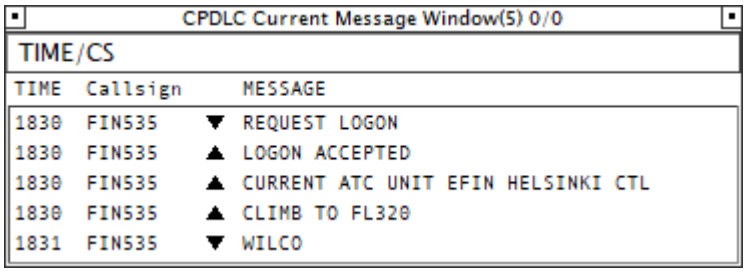


The Microphone Check menu is used to send a “CHECK STUCK MICROPHONE <frequency>” CPDLC message to all CPDLC connected aircraft when a stuck mic is suspected. The menu lists all frequencies selected for XMT TXT in EuroScope; left-clicking on one sends the messages. Manual frequency entry is not available.

The menu closes when a frequency is selected or the cursor leaves the menu area.

7.19 CPDLC Current Message Window

Global Menu -> Tools -> CPDLC -> Current Messages…



The CPDLC Current Message Window displays all sent and received CPDLC messages that have not been archived. Each line corresponds to one message, and contains the time the message was sent/received, the callsign of the aircraft, a filled triangle (pointing upward for uplink messages, downward for downlink messages) and the message text. If the message is too long to fit in the window, "…" is used to mark that there is more text in the message. Right-clicking on the message will open a small window that displays the entire message. The window will close automatically when the mouse cursor leaves its area.

The messages (for uplink clearances, also the responses) are color coded to display their status:

- "Urgency" for CPDLC emergency messages that have not been replied to
- "CPDLC Failed" for failed uplink messages
- "CPDLC Unable" for uplink clearances replied to with "UNABLE"
- "CPDLC Standby" for uplink clearances replied to with "STANDBY", and not timed out
- "CPDLC UM Clearance" for uplink clearances waiting for reply, and not timed out
- "CPDLC Pilot Late" for timed out uplink clearances
- "CPDLC Discarded" for discarded messages
- "CPDLC DM Request" for downlink requests waiting for controller reply, and not timed out
- "CPDLC Controller Late" for timed out downlink requests
- "Foreground" for other messages

Left-clicking on the current sorting option opens a popup to select the sorting order:

- TIME/CS — Messages sorted according to send/receive time (default option)
- DIALOG/CS — Messages grouped to dialogues, dialogues sorted by time of first message
- CS/DIALOG — Messages sorted by callsign, messages with same callsign sorted by time

Left-clicking on a message opens a popup to select some actions for the message:

- Archive — Closes the message dialogue if open, archives all messages in that dialogue
- Discard — Closes the message dialogue and discards all the messages in it

If the message is "REQUEST LOGON":

- ACCEPT — Accepts the logon request
- UNABLE — Denies the logon request

For other messages:

- Manual Reply — Opens a window (see below) to type a free text reply

Dialogues are never archived automatically, so make sure to manually archive dialogues when they are no longer relevant to keep the window from getting cluttered with messages.

Always reply to downlink requests using the relevant menu as it ensures correct formatting and type of message, and keeps the track label indications correct. The reply options here should only be used when a menu cannot be used, for example when the downlink was not parsed correctly and the request is therefore not shown on the track label.

7.19.1 Manual Reply Window

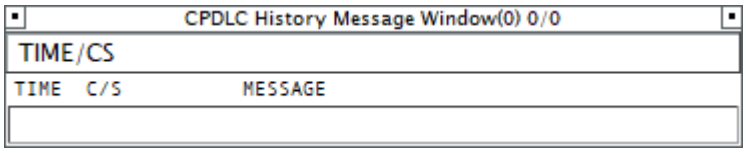
This window is used to send a manually composed reply to a CPDLC message (max 99 characters). Left-click on the area below the “Message text” label to enter the message and select one of the “Expected reply” options. Then left-click on “Send” to send the message.

The window closes automatically when the message is sent or the mouse cursor leaves the window area.

Warning: When replying to a downlink request using the Manual Reply Window, the track label is not updated accordingly. If the downlink had been recognized as a request, the request information is removed from the label, and if the reply is a clearance, it is not shown on the label, and the label values are not updated. Always use the label menus to answer a recognized downlink!

7.20 CPDLC History Message Window

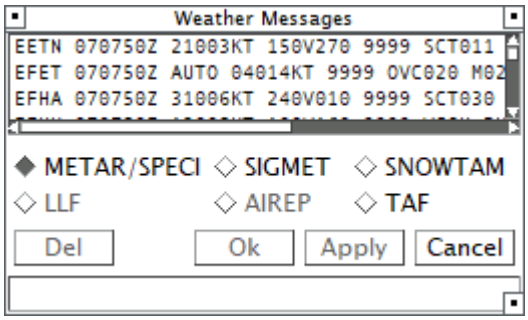
Global Menu -> Tools -> CPDLC -> History Messages…



The CPDLC History Message Window contains CPDLC messages that have been archived from the CPDLC Current Message Window.

7.21 Weather Messages Window

Global Menu -> MET -> Messages…



The Weather Messages Window displays weather related messages. By default, METAR/SPECI messages are shown. To view other types of messages, left-click on the desired option button (the "LLF" and "AIREP" options are not available).

By default, with the "**METAR/SPECI**" option button chosen, this window displays the METARs you have requested from the VATSIM server (i.e. [F2] <icao>) and any METARs EuroScope requests automatically. Whenever a new METAR is received from the server it is added to the list (an old METAR is removed when a newer one is received from the same station). New METARs and TAFs are displayed in "Warning" color until the mouse cursor is positioned on them (for the decoded METAR, this applies only for the first row).

In addition, the window can display SIGMETs, SNOWTAMs and TAFs. The SIGMETs are retrieved when the "**SIGMET**" button is selected for the first time. Selecting the "**SNOWTAM**" or "**TAF**" option will open the Aerodrome menu where the desired stations must be selected. SNOWTAM data is downloaded together with the NOTAMs (as of writing this, they are not included in the data and hence unavailable for the plugin). If the plugin is configured to use a non-VATSIM METAR source, the METAR/SPECI list behaves the same way as the TAF list (stations must be selected from a list). The messages are automatically updated at specified intervals - the status bar at the bottom displays the remaining time to the next automatic update when the mouse cursor is over the window area.

The messages are sorted alphabetically by the station identifier in the list.

The messages can be viewed in three modes (decoded only available for METARs):

- List (the default mode, showing one message per line)
- Single (showing only a single message)
- Single decoded (showing a single METAR in a decoded format)

To view a single message:

- Left-click on a METAR/SIGMET/SNOWTAM/TAF in the list
  or
- Left-click on a decoded METAR

To view a single METAR in the decoded format:

- Right-click on a METAR in the list
  or
- Right-click on a single METAR

To return to the list view:

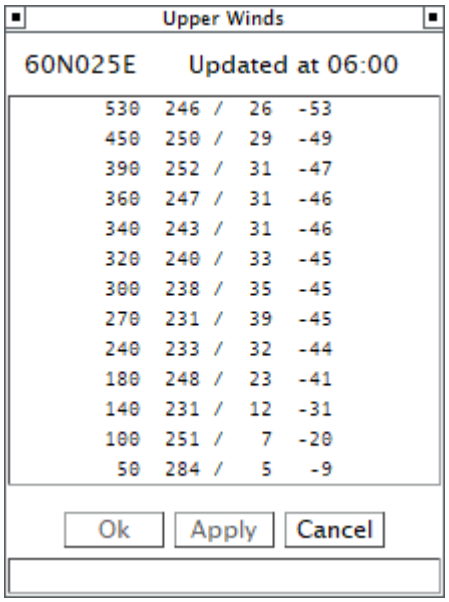
- Left-click on a single METAR/SIGMET/SNOWTAM/TAF
  or
- Right-click on a decoded METAR

To remove a METAR/SIGMET/TAF from the window:

- Display the METAR/SIGMET/TAF in the single or decoded mode
  then
- Left-click on the "**Del**" button
  then
- Left-click "**Yes**" in the confirmation window that opens ("**No**" cancels the operation)

7.22 Upper Winds Window

Global Menu -> MET -> Upper Winds…

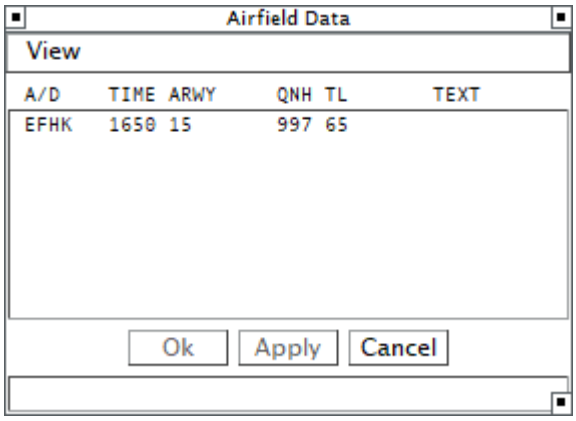


The window displays upper winds and temperatures from a range of levels at a user specified position. To enter the point, click on the "--N---E" item and enter the position. Acceptable entries are locations defined in the active sector file and lat/lon positions in whole degrees (either in the flight plan format or ARINC424 shorthand, i.e. "60N025E" or "6025E").

The "Updated at HH:MM" displays the timestamp of the data downloaded by the plugin (the data itself is the forecast for 6 hours after that time). If no time is shown, then no data is available.

7.23 Airfield Data Window

Global Menu -> MET -> Airfield Data…



The window displays the QNH values, transition levels and other information for those airports that have a METAR displayed in the Weather Messages Window. The transition level tables are defined in a data file, and if a table can't be found for an airport in the list, a transition level will not be shown. The buttons in the window have no functionality.

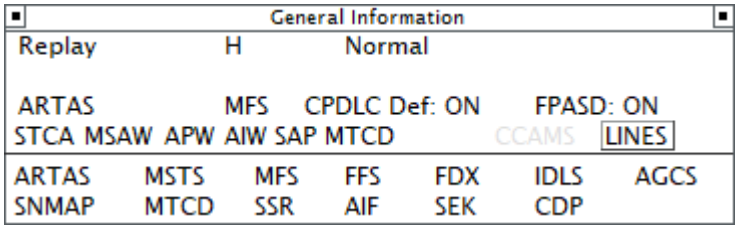
The following information is displayed:

- A/D — Aerodrome ICAO code
- TIME — METAR timestamp
- ARWY — Arrival runway (first one if more than one active)
- QNH — QNH value
- TL — Transition level
- TEXT — Other active arrival runways (if more than one)

TIME, ARWY and TEXT display can be toggled from the **"View"** menu.

7.24 General Information Window

Global menu -> Info -> General Information…



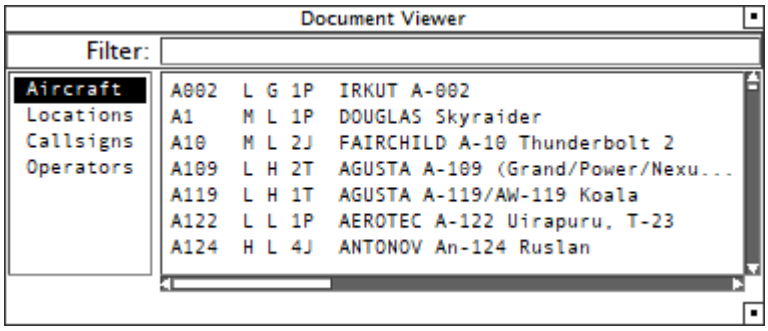
The General Information Window displays basic information on the system state. The following functionality is implemented in the plugin:

- mode — "Free", "Operational", "Proxy", "Replay" or "Training" depending on the connection method
- role — Own controller ID (between the mode and the "Normal" item)
- QNH — Shows the local QNH value (below the "Normal" item when available)
- CPDLC Def — Displays the state of the CPDLC Default setting

- FPASD — Displays the state of the FPASD setting
- Alert functions — Status of the alert functions. The function name is shown in “Warning” color if selected off or there’s a fault in the data file.
- A1000 — Displayed if plugin is set up to assign the mode S conspicuity code
- CCAMS — Displayed if plugin is selected as the SSR code source
    - “Urgency” color if the SSR data file contains no codes
    - “Warning” color if simulated traffic is not downloaded
- IDLS — Plugin set up to send PDC/DCL. “Warning” color if datalink comms are failed.
- AGCS — “Warning” color if Hoppie datalink comms are failed
- MTCD — “Warning” color if prediction time is set to zero
- SEK — Plugin is receiving AMAN data. “Warning” color if data loading has failed.

7.25 Document Viewer Window

Global Menu -> Info -> Document Viewer…



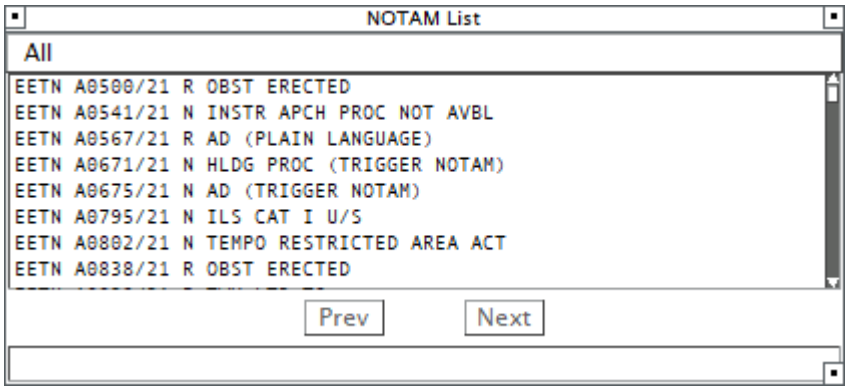
The Document Viewer Window is used to browse and search for information in specific data files

- Aircraft — Information about aircraft types
  - Type designator
  - Wake turbulence category
  - Description (**A**mphibian, **G**yrocopter, **H**elicopter, **L**andplane, **S**eaplane or **T**iltrotor)
  - Engine count and type (**E**lectric, **J**et, **P**iston, **R**ocket or **T**urboprop/turboshaft)
  - Manufacturer and model
- Locations — Information about aerodromes
  - Location indicator
  - Location name
  - (State/Territory)
- Callsigns — Information about aircraft operators
  - Three-letter designator
  - Telephony designator
  - (Aircraft operating agency and notifying state)
- Operators — Information about aircraft operators
  - Three-letter designator
  - Aircraft operating agency and notifying state
  - (Telephony designator)
- NAT TrkM — Downloaded NAT Track Message (for oceanic setups)

The information can be filtered using the “Filter” box. The list will only display lines containing the entered text string (case insensitive).

7.26 NOTAM List Window

Global Menu -> Info -> NOTAM...



The NOTAM List Window displays a list of received NOTAMs. The NOTAMs are retrieved when the window is first opened and the list will take a couple of seconds to populate. The NOTAMs are automatically updated every two hours. Each NOTAM shows the following information:

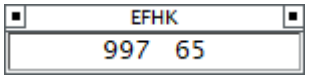
- Location ID (ICAO designator)
- Serial number
- Type (“N” = new, “R” = replaces earlier NOTAM, “C” = cancels earlier NOTAM)
- Abbreviated form of the NOTAM message contents (basic data from the NOTAM header)

To see the actual NOTAM contents, left-click on a NOTAM line. To return back to the NOTAM list, left-click on the single NOTAM.

By default, the window displays all received NOTAMs. Left-clicking on the “**All**” label opens a menu where the displayed NOTAMs can be filtered by their validity periods. The other available options are “**Today**” and “**Tomorrow**”.

7.27 Small QNH/TL Window

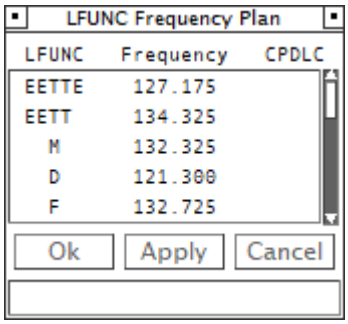
Global Menu -> Info -> Small QNH/TL…



Displays the QNH and transition level for one pre-defined aerodrome. If an aerodrome code has not been defined in the settings file, the code will be taken from the login callsign for APP logins and below. For CTR/FSS callsigns with no specific aerodrome code defined, the window will automatically close.

7.28 LFUNC Frequency Plan Window

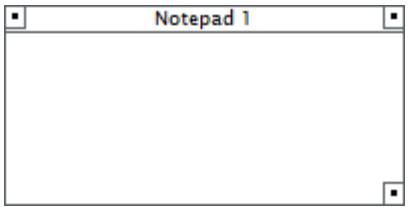
Global Menu -> Info -> LFUNC Frequency…



The LFUNC Frequency Plan Window displays the currently online controllers and their primary frequencies as well as their CPDLC logon callsigns where applicable.

7.29 Notepad Window

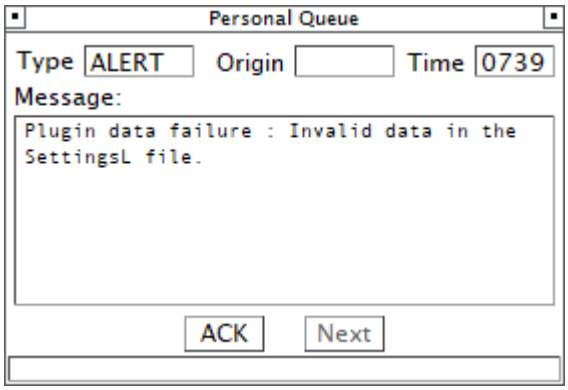
Global Menu -> MSG -> Notepad…



The Notepad Windows can be used to display any user entered text. Multiple Notepad Windows can be opened simultaneously. To enter new text or edit the existing one, click on the window area. The text will be automatically wrapped, and if necessary, the "|" character can be used to force a line break. If the window is not large enough to fit all the entered text, it will display "…" in the end to indicate that there is more information.

7.30 Personal Queue Window

Global Menu -> MSG -> Personal Queue…



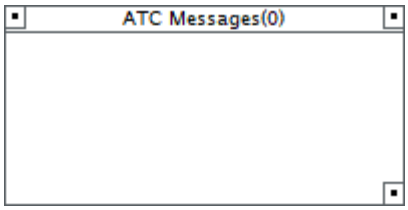
The Personal Queue Window displays warning messages related to the plugin's operation: high priority messages informing about potential critical failures in the plugin code, and low priority messages informing about faults in the plugin's external data files or timeout alerts for coordination messages.

The window currently only displays "ALERT" type messages, and the origin for them is always empty. The time field displays the UTC time when the currently viewed message was created.

The high priority messages are always displayed first. Only when there are no more high priority messages in the list, are the low priority ones shown. To acknowledge a message, click on the "**ACK**" button. This removes the message from the list and displays the next one. The "**Next**" button moves the currently viewed message to the back of the list and displays the next message of the same priority.

7.31 ATC Messages Window / Primary Frequency Messages Window

Global Menu -> MSG -> ATC Messages… / Prim Freq Messages…

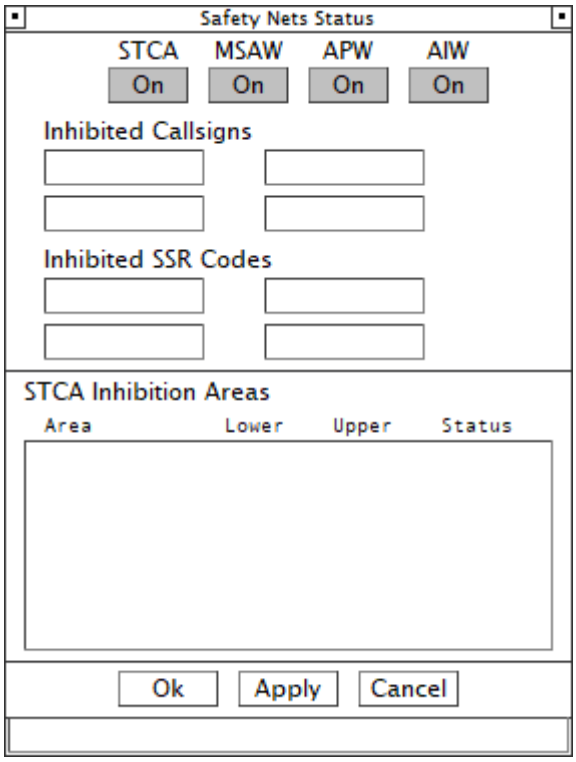


These windows display up to 99 last messages transmitted on the relevant text channel ("ATC" or the primary frequency). Each message line displays a time stamp, the sender callsign (blank if you) and the message itself.

New incoming messages are displayed in "Warning" color until left-clicked to mark them as read. Left-double-clicking on any message will mark all messages in the window read. The windows do not resize automatically to show all the messages in them, but the number in the title bar shows the total number of messages in the window. If the window is not wide enough to fit a complete message, it will display "…" in the end to indicate that there is more information. Holding a mouse button down on a message will display the entire message.

7.32 Safety Nets Status Window

Global Menu -> STS -> Safety Nets Status…



Allows setting the status for the STCA, MSAW, APW and AIW systems. The "On/Off" buttons control the corresponding system's status.

Below them, there are four entry boxes for callsigns to exclude specific callsigns from all the safety nets. The "*" wildcard can be used to match multiple callsigns. It causes all the callsigns that match up to the "*" to be a match (i.e. "ABC*" will match all callsigns that start with "ABC", but "*ABC" will match <u>all</u> callsigns as any characters after the "*" will be ignored).

Below the callsign fields, there are four SSR code boxes that can be used to exclude specific SSR codes from all the safety nets. The entered values must be 1-4 octal digits, and the system will match the number of digits entered (i.e. "2000" will match only code 2000, whereas "20" will match all codes in the range 2000-2077).

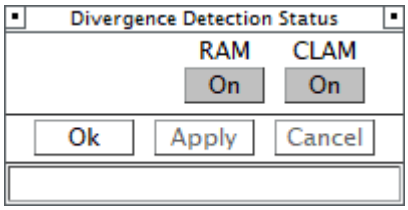
If there are STCA inhibition areas defined in the area data file, they will be listed in the area in the bottom part of the window. The area vertical limits (displayed in 100's of feet or meters+"m" depending on system units) can be edited by clicking on the values, and the area activation can be toggled by clicking on the area status.

All changes to the window must be applied using the buttons in the bottom of the window to take effect.

- Ok — Applies the changes if any, closes the window
- Apply — Applies the changes
- Cancel — Cancels the changes

7.33 Divergence Detection Status Window

Global Menu -> STS -> Divergence Detection Status…

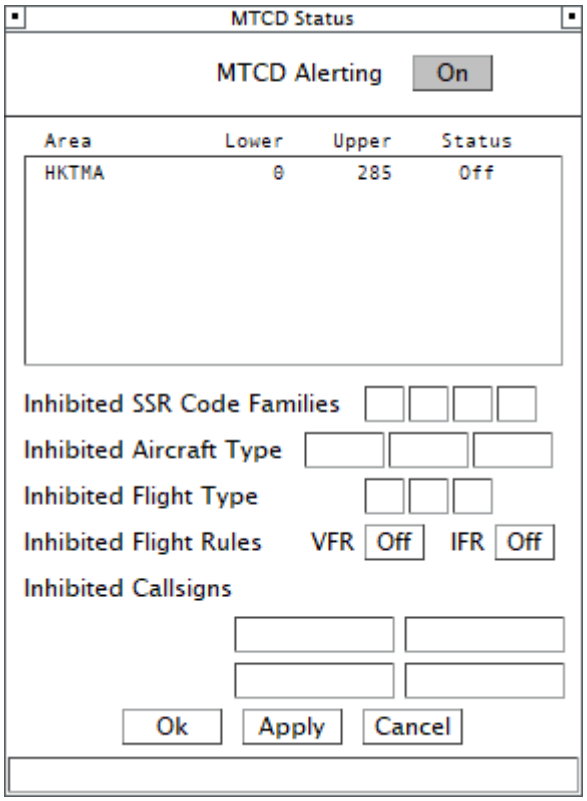


Allows setting the status for the RAM and CLAM alerting. The "On/Off" buttons control the corresponding system's status. All changes must be applied using the buttons below to take effect.

- Ok — Applies the changes if any, closes the window
- Apply — Applies the changes
- Cancel — Cancels the changes

7.34 MTCD Status Window

Global Menu -> STS -> MTCD Status…



Allows setting the status for the MTCD system. The "On/Off" button controls the system's status.

If there are MTCD inhibition areas defined in the area data file, they will be listed in the area below the "On/Off" button. The area activation can be toggled by clicking on the area status.

The rest of the inhibition settings affect both MTCD and SAP systems:

Below the inhibit areas, there are four SSR code boxes that can be used to exclude specific SSR codes from MTCD/SAP processing. The entered values must be 1-2 octal digits, and the system will match the number of digits entered (i.e. “2” will match codes 2000-2777, whereas “20” will match codes 2000-2077).

Below the SSR codes, there are four ATYP boxes to exclude specific aircraft types. The entered text strings must be exact ICAO aircraft type designators (no partial matches or wildcards).

The flight type inhibit is not available due to network restrictions.

VFR or IFR flights can be excluded by selecting the respective “Inhibited Flight Rules” button to “On”.

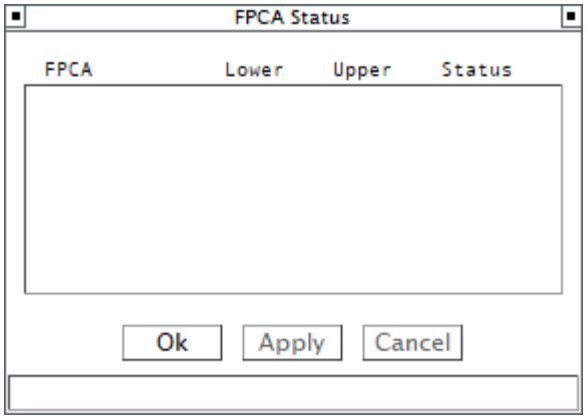
Finally, there are four entry boxes to exclude specific callsigns. The “*” wildcard can be used to match multiple callsigns. It causes all the callsigns that match up to the “*” to be a match (i.e. “ABC*” will match all callsigns that start with “ABC”, but “*ABC” will match all callsigns as any characters after the “*” will be ignored).

All changes to the window must be applied using the buttons in the bottom of the window to take effect.

- Ok — Applies the changes, closes the window
- Apply — Applies the changes
- Cancel — Cancels the changes

7.35 FPCA Status Window

Global Menu -> STS -> FPCA Status…



The FPCA Status Window displays and allows setting the status for the flight plan conflict areas defined in the area data file.

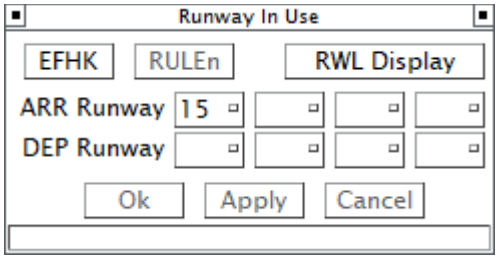
The area activation can be toggled by clicking on the area status.

All changes to the window must be applied using the buttons in the bottom of the window to take effect.

- Ok — Applies the changes, closes the window
- Apply — Applies the changes
- Cancel — Cancels the changes

7.36 Runway In Use Window

Global Menu -> STS -> Runway In Use… (opens the Aerodrome menu for airport selection)
Radar screen -> middle-click on Airport symbol drawn by the plugin's "AD_Hotspots" map…

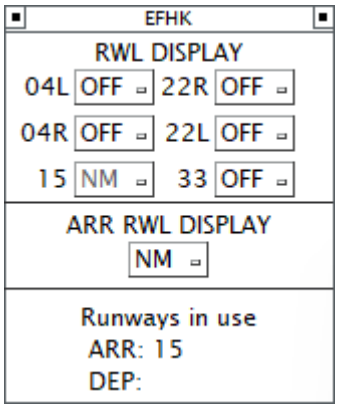


The Runway In Use Window displays the arrival and departure runway allocation at the selected aerodrome. Left-clicking on the airport ICAO code opens the Aerodrome menu to select another aerodrome. The runway selections are read-only in this window.

The "RWL Display" button opens the Runway Approach Line Window for this aerodrome.

7.37 Runway Approach Line Window

Global Menu -> STS -> RWY Line Display… (opens the Aerodrome menu for airport selection)
Radar screen -> right-click on Airport symbol drawn by the plugin's "AD_Hotspots" map…



The window will open below the mouse cursor, or will be repositioned there if already open.

The window contains selection buttons to toggle the display of the approach lines for the airport's runways, and a listing of the currently active runways. The "ARR RWL DISPLAY" option toggles the automatic display of all approach lines for runways that are selected active for arrival. The setting is global for all airports.

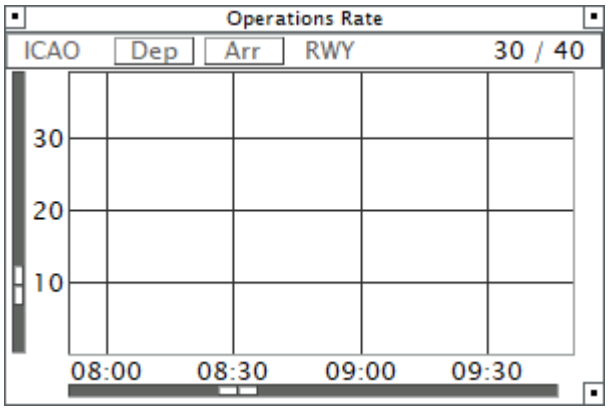
The options, and their default settings for the approach lines are as follows:

- OFF — No line drawn
- NM — 16nm line, 5 markers at 2nm intervals
- NME — 30nm line, 5 markers at 2nm intervals, then 4 markers at 5nm intervals
- Km — 30km line, 5 markers at 2km intervals, then 4 markers at 5km intervals

The color of the line is different depending on whether the runway is active for arrivals or not.

7.38 Operations Rate Window

Global Menu -> STS -> Supervisory -> Operations Rate…



The Operations Rate Window displays the predicted hourly operations rate at a specified airport. The data is displayed in 5-minute steps and shown up to 5 hours into the future. The arrival prediction is based on aircraft tracks as calculated by EuroScope. The departures are predicted to depart immediately if their ground status is set to “DEPA”, earliest in 5 minutes if “TAXI” and earliest in 10 minutes if “PUSH”, with a maximum departure rate of one aircraft per minute.

A number of these windows can be opened to simultaneously view multiple combinations of airport, departure/arrival state and runway(s).

In the area below the title bar, on the left is the ICAO identifier of the airport whose traffic is being monitored (a gray label “ICAO” is shown if no airport is selected yet).

The “Dep” and “Arr” buttons control whether departures and/or arrivals should be shown on the display (button background is shown in “Selected” color if selected on).

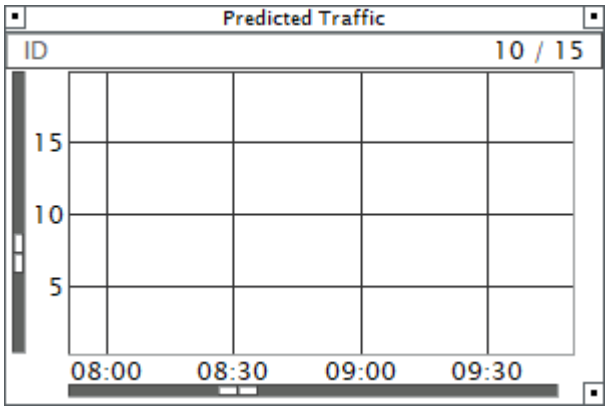
The “RWY” label allows entering one or more runway identifiers to filter traffic based on the assigned runway.

The numbers on the right side are the caution and warning limits. The rates are color coded so that a rate at or below the caution limit will be shown in “Information” color, a rate above that but at or below the warning limit in “Warning” and a rate above that in “Urgency”. When both arrivals and departures are selected for display, the departures are shown with a hatched color.

- ICAO — Enter airport identifier
- Dep — Toggle departures on/off
- Arr — Toggle arrivals on/off
- RWY — Enter runways
- XX / XX — Enter caution and warning limits
- Sliders — Change the rate number and time scales

7.39 Predicted Traffic Window

Global Menu -> STS -> Supervisory -> Predicted Traffic…



The Predicted Traffic Window shows the number of aircraft that are predicted to be inside a specified controller's airspace. The data is displayed in 5-minute steps and shown up to 5 hours into the future. The prediction is based on the sector ownership and the aircraft tracks are as calculated by EuroScope.

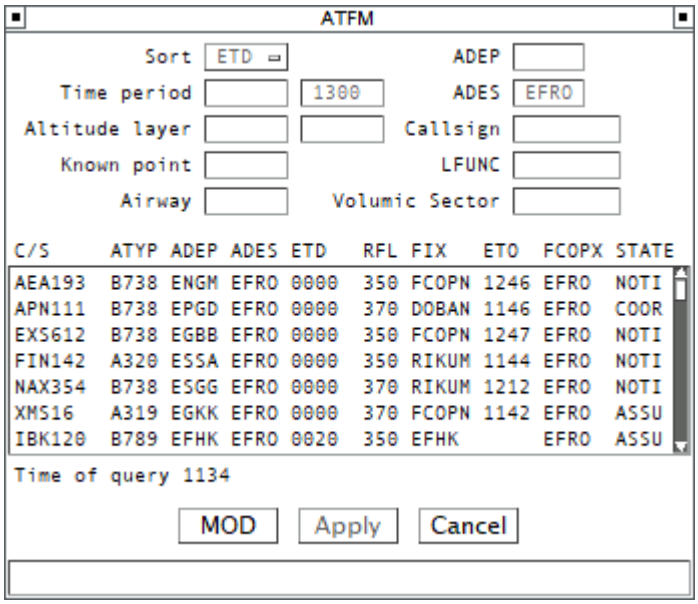
A number of these windows can be opened to simultaneously view multiple controllers' situation. In the area below the title bar, the left side shows the controller ID whose traffic is being monitored (a gray label "ID" is shown if no controller ID is selected yet). Left-click on the text to enter a new ID.

The numbers on the right side are the caution and warning limits. To change them, left-click on them and re-enter in the same format (warning can't be lower than caution; numbers must be separated by a forward slash). The traffic numbers are color coded so that a number at or below the caution limit will be shown in "Information" color, a number above that but at or below the warning limit in "Warning" and a number above that in "Urgency".

The two sliders change the traffic number and time scales.

7.40 Air Traffic Flow Management Window

Global Menu -> STS -> Flow Management…



The Air Traffic Flow Management Window can be used to list the aircraft flying in the AoR within a specified time period. The following options are available to sort and filter the results (the end of the time period is the only mandatory item):

- Sort — The list sorting parameter, click to toggle between ETD and C/S.
- Time period — The start and end of the specified time period
- Altitude layer — The lower and upper limits for the RFL value
- Known point — A point in the filed route
- Airway — An airway in the filed route
- ADEP — Departure airport (starting with the entered string)
- ADES — Destination airport (starting with the entered string)
- Callsign — Callsign (starting with the entered string)
- LFUNC — Predicted to enter airspace of this position ID
- Volumic Sector — Not implemented

For entry into the list, an aircraft must meet all specified filtering criteria. The list displays the following information about each aircraft:

- C/S — Callsign
- ATYP — Aircraft type
- ADEP — Departure airport
- ADES — Destination airport
- ETD — Estimated Time of Departure
- RFL — Requested Flight Level
- FIX — The “Known point” if specified, otherwise the FIR entry coordination point
- ETO — Estimated time over the fix
- FCOPX — FIR exit coordination point
- STATE — Flight plan system state

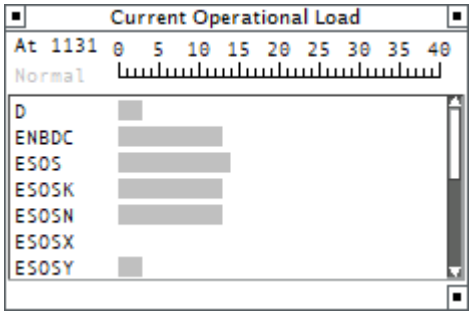
The buttons in the window:

- MOD — Makes the entry boxes and sorting option selectable, clears the list data.

- Apply — Calculates the data. Available only when MOD has been selected and at least the end of the time period has been entered. If the start of the time period is left empty, the current time is used.
- Cancel — Clears all entries and list data

7.41 Current Operational Load Window

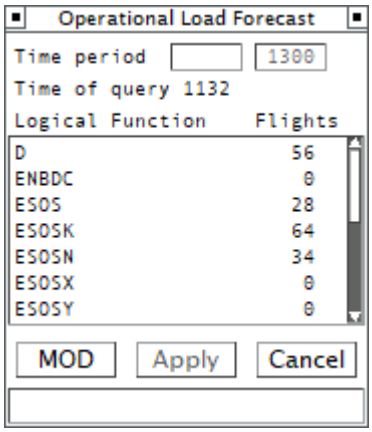
Global Menu -> STS -> Current Operational Load…



The Current Operational Load Window displays the number of aircraft currently assumed by or flying in the airspace of all recognized controllers. The display is refreshed at 60 second intervals. The bars displaying the number of aircraft are shown with “COL Under Threshold” color up to a defined number (20 by default), and with “COL Above Threshold” above it. The state is displayed as “Normal” unless at least one controller has more than the alert number of aircraft, in which case it is displayed as “Warning”.

7.42 Operational Load Forecast Window

Global Menu -> STS -> Operational Load Forecast…



The Operational Load Forecast Window displays the predicted number of aircraft entering the airspace of all recognized controllers within a specified time period.

- MOD — Makes the start and end of time period boxes selectable for entry.
- Apply — Calculates the data. Available only when MOD has been selected and at least the end of the time period has been entered. If the start of the time period is left empty, the current time is used.

- Cancel Clears all entries and data

7.43 Pre-Departure Clearance Window

"Open PDC Window" tag function

"Open DCL Window/PDC Window" tag function (when a datalink clearance has not been requested)

DEP CLEARANCE	
FIN633	
RWY	21
SID	RENVI3A
AHDG	
CFL	350
ASSR	A1352
Ok	
Cancel	

The Pre-Departure Clearance Window is used to adjust clearance data and toggle the clearance flag. The following data fields are displayed for review:

- RWY — Departure runway (left-click to open RWY setup popup list)
- SID — Assigned SID (left-click to open SID setup popup list)
- AHDG — Assigned heading (left-click to open AHDG menu)
- CFL — Cleared level (left-click to open CFL menu)
- ASSR — Assigned transponder code (left-click to open SSR Code menu)

The RWY field text is displayed in "Proposition" color if the clearance has not yet been issued and the selected runway is not active for departure. The CFL level background is displayed in "Warning" color for DEL/GND/TWR/APP/DEP controllers when it is above XFL, and for CTR/FSS controllers when it is above PEL.

- Ok — Sets the clearance flag, closes the window
- Cancel — Clears the clearance flag, closes the window

The **"Ok"** button is active when at least "RWY", "CFL" and "ASSR" contain data. The window closes automatically if the aircraft is assumed by another controller.

7.44 Departure Coordination Window

"Toggle EST/DEP/ABT" tag function (when clearance flag not set and ground state not "DEPA")

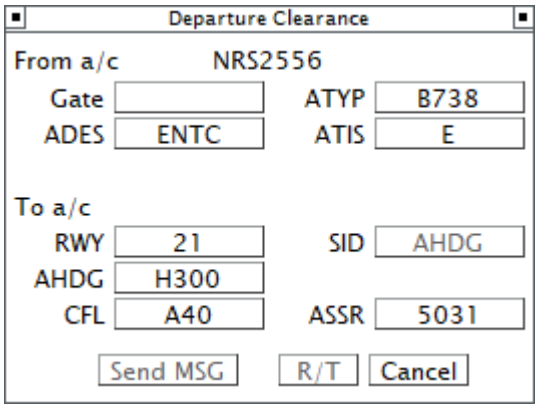
DEP COORD	
FIN633	
21	
RENVI3A	
CFL	350
ASSR	A1352
EOBT	1710
Cancel	
Ok	

The Departure Coordination Window can be used to set the clearance flag. The window displays the aircraft callsign, departure runway and SID and allows setting the CFL, ASSR and EOBT values.

- CFL Opens the CFL menu
- ASSR Opens the SSR Code menu
- EOBT Opens the Time menu
- Cancel Disregards any changes, closes the window
- Ok Applies any changes, sets the clearance flag and closes the window

7.45 Departure Clearance Window

"Open DCL Window" tag function (when a datalink clearance has been requested)
"Open DCL Window/PDC Window" tag function (when a datalink clearance has been requested)



The Departure Clearance Window is used to issue datalink clearances.

The top part of the window ("From a/c") displays the aircraft callsign and information received from the aircraft in the clearance request message:

- Gate Stand designator
- ATYP Aircraft type
- ADES Destination
- ATIS ATIS designator
- RCD-RMK Remarks text (only displayed if not empty)

The bottom part is used to compose and send a reply:

- RWY * Departure runway (left-click to open RWY setup popup list)
- SID SID designator (left-click to open SID setup popup list)
- AHDG Assigned heading (left-click to open AHDG menu)
- CFL * Cleared level (left-click to open CFL menu)
- ASSR * Assigned transponder code (left-click to open SSR Code menu)

If defined in the clearance data file, the AHDG label may be a toggle button instead. Left-click to toggle between "AHDG" and "TRACK".

Depending on the setup, one or more of the following fields may also be present:

- NPT * Next route point (left-click to open text entry box)
- NFREQ * Next frequency (left-click to open text entry box)

- DFREQ * Departure frequency (left-click to open text entry box)
- RMK Remarks text (left-click to open text entry box)
- START Start-up clearance (left-click to toggle “YES”/“NO”)

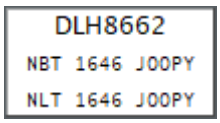
The buttons are as follows:

- Send MSG Sends the clearance message, closes the window
- R/T Sends a “REVERT TO VOICE” message, aborts the datalink clearance process
- Cancel Closes the window

The “Send MSG” button is available when a clearance can be sent – a defined format is available, all required fields have been filled (all fields marked with “*” above, when present, are required fields) and another controller is not tracking the aircraft (so it’s possible to set the clearance flag).

7.46 Oceanic Time Restriction Window

“Open Oceanic Time Restriction Window” tag function



The Oceanic Time Restriction Window displays the time restriction(s) contained in the OCM. The window closes when the cursor leaves the window area.

8 Aircraft lists

8.1 Sector List

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> Tools -> Flight Plan Lists -> Sector List…

The Sector List is a EuroScope-style list containing all departed controlled (all IFR, VFR only if ASSUMED) aircraft in the following states:

- Informed (if corresponding selection made in the Global menu)
- Concerned (1) (if corresponding selection made in the Global menu)
- Coordinated
- Transfer to me initiated
- Assumed
- Transfer from me initiated
- Redundant (if corresponding selection made in the Global menu)

1) The display of concerned aircraft is limited to those entering the sector within 60 minutes by default

8.2 Load Factor List

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> Tools -> Flight Plan Lists -> Load Factor List…

The Load Factor List is a EuroScope-style list containing all departed controlled (all IFR, VFR only if ASSUMED) aircraft in the concerned state and all non-departed controlled aircraft in the concerned and coordinated states expected to enter the sector within 4 hours by default.

8.3 Resectorisation List

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> Tools -> Flight Plan Lists -> Resectorisation List…

The Resectorisation List is a EuroScope-style list containing all flights assumed or on-contact with specified LFUNCs (controller IDs).

8.4 ETWR List

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> Tools -> Flight Plan Lists -> ETWR List…

The ETWR List is a EuroScope-style list containing notified and coordinated flights departing from specified airports.

8.5 Uncontrolled List 1

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> Tools -> Flight Plan Lists -> Uncont. List 1…

The Uncontrolled List 1 is a EuroScope-style list containing all or a subset of uncontrolled (VFR flights not in ASSUMED state) aircraft, depending on whether filters are set up.

8.6 Uncontrolled List 2

Available in EuroScope versions starting from 3.2.1.29

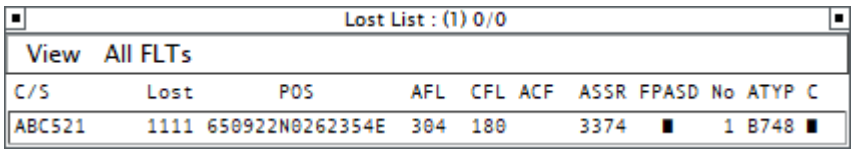
Global Menu -> Tools -> Flight Plan Lists -> Uncont. List 2…

The Uncontrolled List 2 is another uncontrolled list to be used if different filtering options are needed.

8.7 Lost List

Global Menu -> Tools -> Flight Plan Lists -> Lost List…

The list includes assumed flights that have previously been correlated to a radar track but radar contact has been lost. By default, the list opens automatically whenever a flight is added into it, and will be closed automatically when empty. If manually opened, the list cannot be manually closed until it is empty.



The lost list contains the following fields:

	Field	Type	Left click	Right click
-	C/S	mandatory	Open Callsign menu	-
-	Lost (time)	optional	-	-
-	POS (lost position)	optional	-	-
-	AFL (last received)	optional	-	-
-	CFL	optional	Open CFL menu	Open Vertical Aid Window
-	ACF (1)	optional	Toggle field text color	Cancel approach clearance
-	ASSR	optional	Open SSR Code menu	-
-	FPASD	optional	Toggle FPASD track (when globally off)	-
-	No	optional	-	-
-	ATYP	optional	-	-
-	C (local check indicator)	optional	Toggle local check indicator	-

1) The ACF item is only displayed when its use has been set up in the plugin settings

“View” opens the View menu:

- Header — Toggle visibility of the list header line
- Default — Sets field visibility to default (all optional fields off)
- <field> — Toggles field visibility

Filtering the flights entered in the list can be specified in the filtering menu:

- All FLTs — All lost flights will be entered
- ADES Filter — Flights lost within a specified distance from their destinations will not be entered into the list

The rows are sorted based on “Lost” time in descending order.

With the plugin set up to automatically open the Lost List when not empty, when a flight is added into the Lost List, its FPASD selection is initially set to “on” regardless of the FPASD setting in the Global menu.

8.8 Traffic Management List 1

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> Tools -> Flight Plan Lists -> Traffic Mgt. List 1…

The Traffic Management List 1 is a EuroScope-style list containing all uncontrolled flights and controlled flights at least in coordinated state with specified destinations, and routing via specified points. The ETO over the point (or ETA if no point specified) must be within 30 minutes, and the destination must be specified to include uncontrolled flights in the list.

8.9 Traffic Management List 2

Available in EuroScope versions starting from 3.2.1.29

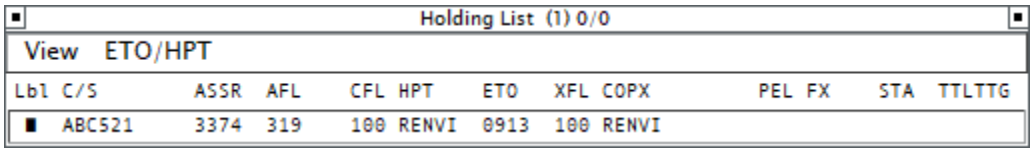
Global Menu -> Tools -> Flight Plan Lists -> Traffic Mgt. List 2…

The Traffic Management List 2 is another traffic management list to be used if different filtering options are needed.

8.10 Holding List

The Holding List contains aircraft that have been given a holding clearance (by default the aircraft need to be at least in the coordinated sector state). The list is automatically displayed whenever there is at least one aircraft in the list. Left-clicking the button at the top right corner collapses the list to display only the title bar.

It is possible to set up point-specific lists using the plugin settings file, in which case the generic list includes aircraft that are in a TSA hold, present position hold or holding at a point for which there is no specific list defined. For point-specific lists, the list title text begins with the point name.



"View" opens the View menu:

- Header — Toggle visibility of the list header line
- Default — Sets field visibility to default (all optional fields off)
- <field> — Toggles field visibility

Left-clicking adjusts only the current list, right-clicking sets the same value to all holding lists.

The list sorting option is displayed next to the "View" label. Clicking on it opens a menu to select between the following sorting options:

- ETO/HPT — ETO at the holding point -> Holding point name -> Callsign
- HPT/CFL/AFL — Holding point name -> CFL -> AFL -> Callsign
- FX/STA — Feeder fix name -> Scheduled time at feeder fix -> Callsign

For point-specific holding lists, the sorting options are "ETO", "CFL/AFL" and "FX/STA".

The ETO column initially displays the estimated time over the holding fix. Once the aircraft enters the holding, the displayed time is fixed to the holding start time. For present position holds and holding points whose positions are unknown, the time when the holding clearance was given is displayed.

The holding list contains the following fields:

	Field	Type	Left click	Right click
-	Lbl	optional	Hide/display track label	-
-	C/S	mandatory	Open Callsign menu	-
-	ASSR	optional	Open SSR Code menu	-
-	AFL	mandatory	Open AFL menu	-
-	(attitude indicator)	mandatory	-	-
-	CFL	mandatory	Open CFL menu	Open Vertical Aid Window
-	HPT	optional	Open Stack Manager Window	-
-	ETO	optional	-	-
-	XFL	optional	Open COPX Alt popup	-
-	COPX	optional	Open Waypoint menu	Toggle route draw

-	PEL	optional	Open COPN Alt popup	-
-	FX (1)	optional	-	-
-	STA (1)	optional	-	-
-	TTLTTG (1)	optional	-	-

1) These fields (feeder fix, scheduled time at fix and time to lose/gain) are available if the plugin has been set up to use AMAN data

If a track label has been hidden, it will be automatically unhidden if the aircraft is cleared to leave the holding or an incoming coordination message for the flight is received.

9 Keyboard shortcuts

Some plugin functions can be accessed using a keyboard shortcut. By default, each shortcut is a combination of two keys, with the first key needing to be down while the second is pressed to activate the function. The available shortcuts and their default keys are:

- Open FPL Window for the selected flight (1) <ALT> + <F>
- Open FPL Selection Window <ALT> + <E>
- Start new QDM line <ALT> + <Q>
- Remove all QDM lines <ALT> + <X>
- Toggle Quick Look function on/off <ALT> + <U>
- Display the Flight Leg for the selected flight for 5 seconds (1) <ALT> + <L>
- Start a new minimum separation line <ALT> + <S>
- Reposition cursor at the center of the radar screen <ALT> + <C>
- Toggle a specified map or transfer the selected flight to a defined controller (1) <ALT> + <1>…<0>

1) "Selected flight" means that the mouse cursor is over that flight's track label

The following shortcuts are also available but do not have keys specified by default:

- Toggle upper altitude filter on/off
- Toggle lower altitude filter on/off
- Start Find track function
- Toggle prediction lines globally on/off
- Toggle Zoom Window
- Open Maps Window
- Open Track Control Window
- Toggle Conflict And Risk Display
- Toggle Message In Window
- Toggle Message Out Window
- Toggle Airspace Management Window
- Toggle Brightness Window
- Toggle Personal Queue Window
- Toggle Shortcut Window
- Toggle Create APL Window
- Toggle Uncoupled Labels filter
- Open Runway Approach Line Window
- Open new Notepad Window
- Toggle Airfield Data Window

For the map toggle / transfer functions, the desired functionality needs to be set in the plugin settings. By default, none of the keys do anything.

For example entering "Shortcut_Xfr_Target=2,A" and "Shortcut_Map_Target=3,F\M" in the settings would result in <ALT> + <2> initiating a transfer to controller ID "A" and <ALT> + <3> toggling the state of map "M" in folder "F". If the defined map doesn't exist or the controller is not online when the key combination is pressed, nothing happens.

It is possible to disable some or all of the shortcuts or adjust the key assignments for each function (to define both keys or just a single key) by changing the plugin settings.

Warning: When changing the shortcut keys, care should be taken to avoid problems, as the selected key combinations (or single keys) will also be forwarded to EuroScope. If for example <SHIFT>+<A> is defined for a shortcut, using it will also enter the capital letter “A” in EuroScope chat.

10 Safety Nets

10.1 AIW (Airspace Infringement Warning)

10.1.1 General

The AIW system warns if an uncontrolled aircraft is already inside or going to enter controlled airspace within a defined time. The system will only scan correlated radar tracks.

10.1.2 Alert display

An alert is shown by displaying the text “AIW” in the ALRT tag item (MSAW and APW alerts will have priority over an AIW alert), or in the dedicated AIW tag item. The AFL item is also colored “AIW Intrusion” and a one-minute-long prediction line is displayed in “AIW Intrusion” color regardless of the prediction line settings.

10.2 APW (Area Proximity Warning)

10.2.1 General

The APW system warns if an aircraft is inside or about to enter an active area it shouldn’t be entering (for example active danger, restricted and TSA areas). The position of the aircraft is only predicted in 30 second intervals for performance reasons so very short future intrusions may not be noticed by the system. The areas are defined in an external text file and activated in the Airspace Management Window.

10.2.2 Alert display

An alert is shown by displaying the text “APW” in the ALRT tag item (an MSAW alert will have priority over an APW alert), or in the dedicated APW tag item.

10.3 MSAW (Minimum Safe Altitude Warning)

10.3.1 General

The MSAW system alerts when an aircraft is flying at an altitude below the minimum safe altitude. The minimum safe altitude data is read from an external file that has to be present for the system to give any warnings. There is an adjustable buffer value in the system that allows some altitude variation below the safe altitude to inhibit nuisance alerts for aircraft flying at the minimum safe altitude and not staying exactly at that altitude.

10.3.2 Alert display

An alert is shown by displaying the text “MSAW” in the ALRT tag item or in the dedicated MSAW tag item.

10.4 STCA (Short Term Conflict Alert)

10.4.1 General

The STCA system is designed to alert the controller of a possible or actual loss of separation between aircraft. The alert is given a specified time (for example 90 seconds) before a loss of separation is predicted to happen, but it is dependent on the relative positions and movement of the aircraft. The alert will not be shown if both aircraft have STCA alerting inhibited (see the Safety Nets Status Window), are inside exclusion areas for parallel approaches, or when either aircraft is inside an active STCA inhibit area.

In the vertical plane there is an option to always assume that an aircraft will level off at its cleared level. This will reduce the number of nuisance alerts caused by climbing and descending aircraft in busy airspace, but will delay the alert in case an aircraft continues through its cleared level. The alert will then be given only after the failure to level off is seen by the system.

10.4.2 Alert display

An alert is shown by coloring the CALLSIGN item background (plugin drawn windows) or the text itself (elsewhere where the plugin can't control the background color) in "Urgency" color. A one-minute-long prediction line is displayed in "Urgency" color regardless of the prediction line settings. The radar position symbol and history dots are displayed in "Urgency" color.

An aural alert can also be generated if the corresponding plugin setting is enabled.

Whenever at least one STCA alert is active, an STCA Alert List is automatically opened.

The list displays for each alert the callsign/FLTID/TSSR of each track, the minimum predicted horizontal separation between them, and a checkbox.

The alerts are sorted by minimum predicted horizontal separation. The list cannot be manually closed, it will close automatically when there are no more active alerts.

11 Monitoring Aids

11.1 CLAM (Cleared Level Adherence Monitoring)

11.1.1 General

The CLAM system warns if an aircraft is not maintaining its cleared level and its vertical rate is not towards the cleared level. The alert is inhibited when the cleared level is lower than a defined value (100ft), and for aircraft in level flight, for a specified time (60 sec) after a new cleared level is set.

11.1.2 Alert display

An alert is shown by displaying a “diverging” type aircraft position symbol and the text “L” in the ALRT tag item (MSAW, APW and AIW alerts will have priority over a CLAM alert), or in the dedicated CLAM tag item.

11.2 RAM (Route Adherence Monitoring)

11.2.1 General

The RAM system warns if an aircraft is deviating from its route by more than a defined distance (2nm). The alert is inhibited specific distances from the departure (30nm) and destination (30nm), and a larger cross-track error (5nm) is allowed near waypoints where the route makes a turn (over 10° course change).

For aircraft on a direct-to clearance, the alert is given if the difference between the aircraft’s track and the direct track to the cleared point exceeds a set value (5°). After a direct-to clearance is given, the alert is inhibited for a specified time (60 sec) or until the aircraft’s track is towards the point, whichever happens first.

11.2.2 Alert display

An alert is shown by displaying a “diverging” type aircraft position symbol and the text “RAM” in the ALRT tag item (MSAW, APW, AIW and CLAM alerts will have priority over a RAM alert), or in the dedicated RAM tag item.

12 Flight Plan Conflict Probe

12.1 MTCD (Medium Term Conflict Detection)

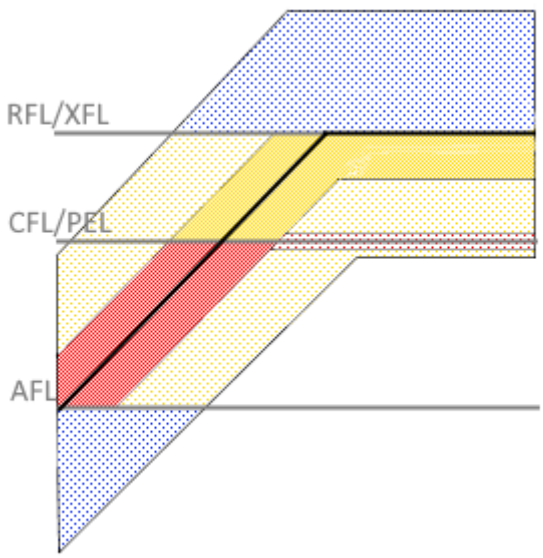
12.1.1 General

The MTCD system is a tool that enables the controller to predict possible future conflicts between aircraft. For performance reasons the maximum selectable look-ahead time (prediction time) is limited to 40 minutes and the separation distance that triggers the alert (prediction distance) to 20 nm. They can be set to any lower value, the defaults being 20 minutes and 8 nm.

In the lateral plane the system works by checking the aircraft's predicted route up to the defined prediction time and calculating if the separation with other aircraft will be less than the defined prediction distance.

In the vertical plane, the plugin can be set up to use either of the two following setups (example predicted vertical path of a climbing track in black color, relevant levels in grey):

4D setup (default)



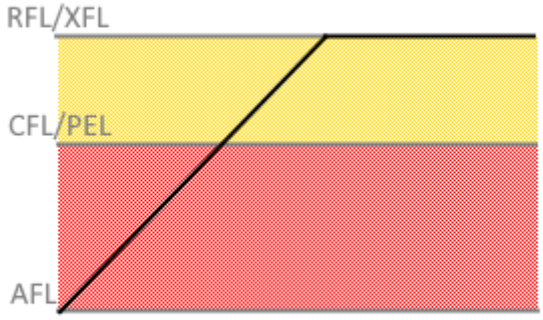
- **Conflicts** (area with red shading)
  - detected within a specified buffer (default 4000ft) around the predicted vertical path of the aircraft between AFL and CFL/PEL
  - current clearances may lead to a loss of separation
- **Conflict risks** (area with yellow shading)
  - detected within the same buffer, but outside of the AFL-CFL/PEL level range
  - current clearances will not lead to a loss of separation, but clearing one of the tracks to another level may turn the risk into a conflict
- **Potential predicted conflicts** (area with light red shading)
  - detected for tracks with equal CFL/PEL values, after the level is calculated to have been reached, when the predicted path contains further climb/descent
  - at least one of the tracks must be in the assumed sector state
  - current clearances may lead to a loss of separation if further climb/descent is not given

- **Potential risks of conflict** (area with light yellow shading)
    - detected within a larger vertical buffer (default 10000ft) but within the minimum and maximum levels of the predicted vertical path
- **Potential conflicts** (area with light blue shading)
    - detected within the larger vertical buffer, outside of the minimum and maximum levels of the predicted vertical path

Optionally, the detection of *potential predicted conflicts* and *potential risks of conflict* can be disabled, in which case they will be converted to *potential* conflicts.

Level-band setup

The level-band setup is a simple one that does not take the predicted vertical path of the aircraft into account, only the relevant levels.



- **Conflicts** (area with red shading)
    - detected for all levels between AFL and CFL/PEL
    - current clearances may lead to a loss of separation
- **Conflict risks** (area with yellow shading)
    - detected for the whole planned level range outside of the AFL-CFL/PEL level range
    - current clearances will not lead to a loss of separation, but clearing one of the tracks to another level may turn the risk into a conflict

For the predictions to be accurate, it's very important to keep the CFL and the aircraft's route updated at all times. MTCD can be disabled for aircraft that have an assigned heading or a RAM warning, as in those cases the system can't predict the aircraft's future positions. If it is enabled for them, the system assumes that the aircraft continues on its present track and ground speed for a specified time and stops the prediction there. The system is always disabled for flight plan tracks with an assigned heading.

12.1.2 Conflict and risk display

If there is a conflict or potential predicted conflict for the aircraft within the set warning parameters (can be set to warn for risks as well), the following indications are shown. The default values are 10 minutes to loss of separation with a 7nm separation minimum.

- MTCD tag item Either "•" in "Urgency" color or "**MTCD**" in "Warning" color

The MTCD conflicts are also displayed in the Conflict and Risk Display and Vertical Aid Window.

12.2 SAP (Segregated Area Probe)

12.2.1 General

Much like the MTCD system predicts future conflicts between aircraft, the SAP system predicts future intrusions into active areas. The system uses the same look-ahead time as the MTCD system. The future position predictions are done at one-minute intervals which means a very short intrusion into an active area may not be noticed by the system. The classification into risks and conflicts is the same as in MTCD: a conflict means that the current clearance may lead to the aircraft entering an active area, whereas a risk means that the current clearance will not lead to that but clearing the aircraft to its XFL or some other level beyond the current CFL may do so.

As with MTCD, keeping the CFL and the aircraft's route updated is important for the system's operation. Like MTCD, SAP can be disabled for any aircraft that has an assigned heading or a RAM warning. If enabled, the prediction logic is the same as in the MTCD case. SAP is disabled for non-altitude reporting traffic that doesn't have a manually set AFL.

12.2.2 Conflict and risk display

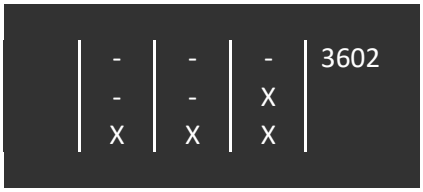
A conflict is shown by displaying the Military coordination indicator ("**M**"). The indicator can be set to warn for risks as well. Note that once the indicator is clicked and changes to inactive state, the system will not give further warnings for that aircraft as long as the indicator is in the inactive state. Click on the inactive indicator to re-arm the system once the aircraft has passed all the areas for which crossing clearance was given.

SAP conflicts (optionally also risks) are also shown in the SAP Window and Vertical Aid Window.

13 Data stored in the flight strip annotation boxes

The plugin stores some data in the flight strip annotation boxes (the group of nine boxes in three columns on the right side of the strip). This enables you to send this data to the next controller, or any other controller by manually pushing the strip. EuroScope can be set to automatically push the strip to the next controller on handoff. In addition, the plugin automatically pushes the strip when a handoff proposal (HOP) is sent.

The plugin needs to be able to use four of the nine boxes for its functions. They are the boxes in the bottom row as well as the right-most box in the center row, marked with X's in the picture below. Do not manually edit those boxes or use them to store any other data. The other boxes, marked by minus signs, are currently not used by the plugin in any way.



14 Known issues

Airport and area hotspots block screen panning

If you happen to drag one of the airport or area hotspot symbols when trying to move the screen, the screen will not move.

ROF/RTI/TIP message availability limited

As there is no real plugin-to-plugin communication available, the availability and success of sending the ROF, RTI and TIP messages is somewhat limited.

Problems opening the Radar Menu

The default method of opening the Radar Menu (<ALT>+right-click) may not always work on Mac hardware. It's possible to adjust the plugin settings to try another combination, but the easiest way is to insert the following line to the TopSkySettingsLocal.txt file:

Shortcut_RadarMenu_Combo=0x00

The Radar Menu is then opened by right-clicking anywhere on the Global Menu.

Appendix 1: Label field descriptions

Treatment of fields with no data

In the unselected track labels, a data field that contains no data will be blank. An exception to this is the AFL field which will display “AFL” when no altitude data is available for the track. In the selected and extended track labels a field with no data will still be displayed, usually displaying the field name (for example “AHDG”). Exceptions to this are all fields on line 0 and other fields as specified in the label definitions. With “List” type items, the display of a field with no data depends on the specific field.

Active and inactive indicators

Some of the indicator characters in line 0 of the track label have active and inactive states. In the inactive state the indicator is not shown on the unselected label, and on the selected and extended labels it is shown after the other indicators and in the normal flight sector color. For example, when clicking the Inbound clearance indicator, it changes to inactive state. Clicking the inactive indicator in the selected or extended label will restore it to active state.

Data fields description and coloring

The table below describes the data fields used in the labels and flight lists and their coloring rules, if different from the normal flight sector colors. When the information is relevant to a specific version of the item, the version is specified as *(version)*.

Data field	Description	Comments	Color
•	Frequency	“•”, set from Callsign menu	*(color)*: Freq Indicator
•	Mark	“•”, set from Callsign menu	Information
+	Field 18 / FMF indicator	“+” if defined text (by default “RMK/” or “STS/”) found in FPL remarks field or when FMF is not empty	
+	Time restriction indicator in OCM	“+” if time restriction information is present in OCM or has been manually entered	Non-acknowledged OCM with changed restriction: - Information
*	Unit	“*” if label units are different from the system units	System units set to metric: - Warning
A	Manual alerts	“A” if Manual alert(s) active	Warning
a	Attitude indicator	Climbing: up arrow Descending: down arrow Level flight or unknown: blank	
A1000	A1000 warning	“1000” when one of the conditions in the color column are met	Non-mode S track coupled on A1000: - Urgency ASSR A1000 and FPL does not indicate mode S FLTID capability: - Warning
ACF	Approach clearance	Approach clearance type: Approach: “CA”, Visual approach: “VA” CAT II approach: “CAT2” CAT III approach: “CAT3”	If toggled on: ACF Via CFL

Data field	Description	Comments	Color
ADEP	Departure aerodrome	ICAO code, 4 characters	
ADES	Destination aerodrome	ICAO code, 4 characters	If highlighted: Warning
AFL	Actual Flight Level	<u>Nautical:</u> FL's 3 digits, altitudes "A"+ 2/3 digits, heights "E"+ 2/3 digits, in hundreds of feet <u>Metric:</u> FL's 4/5 digits, altitudes "M"+ 4 digits, heights "E"+ 4 digits, in tens of meters or meters The AFL display can be toggled to an enhanced display. In this state the field displays both the flight level and altitude: "FL/altitude" (altitude above TRL) "altitude/FL" (otherwise)	AIW: - AIW intrusion Manually set value: - Warning Coasted track: - Warning Mark All: - CARD Mark All S-Highlight: - Suite Highlight

Data field	Description	Comments	Color
AHDG	Assigned heading	*(List)*: Assigned heading ("H" + 3 digits), direct-to point name, or "LLZ" for localizer clearance <u>Unselected label:</u> - Assigned heading - Direct-to point name (optionally hidden when direct to COPX) - "LLZ" <u>Selected label:</u> - Assigned heading - Direct-to point name - "LLZ" - * SID name if last point not yet overflown - * STAR name if next route point belongs to the STAR - * Next point on the route * are optional features If a heading clearance or request is in progress via CPDLC, displays "[heading]", followed by "+" if the request or answer contains a reason (i.e. DUE TO something). *(DEP list)* does not display the brackets for CPDLC status.	<u>If value assigned and HOP:</u> Sent: - Proposition Out Received: - Proposition In <u>Tactical coordination:</u> Sent: - Negotiation In Received: - Negotiation Out Rejected: - Warning Value accepted but not set: - Reminder <u>CPDLC:</u> Uplink message sent: - CPDLC UM Clearance Downlink message received: - CPDLC DM Request Controller timeout expired: - CPDLC Controller Late CPDLC warning raised: - Color of the warning
AIW	AIW alert (see also ALRT)	"AIW"	AIW intrusion
ALRT	Alert message	"MSAW", "APW", "AIW", "L" (CLAM), "RAM" or "D" (DUPE) (in this priority order)	MSAW, APW and MTCD: - Warning AIW: - AIW intrusion
ALT1	Alternate aerodrome 1	ICAO code, 4 characters	
ALT2	Alternate aerodrome 2	Second alternate can be set by inserting "ALT2/XXXX" (where XXXX is the aerodrome ICAO code) into the FPL remarks field	
AN	Area navigation	"P" if RNAV1 capable, "R" if RNAV5 capable	
APW	APW alert (see also ALRT)	"APW"	Warning

Data field	Description	Comments	Color
ARC	Assigned vertical rate	<u>Nautical:</u> “R” + 2 digits, in 100’s of ft/min <u>Metric:</u> “R” + 2 digits, in m/s (followed by “+” or “-” when applicable for a minimum or maximum rate clearance)	<u>If value assigned and HOP:</u> Sent: - Proposition Out Received: - Proposition In <u>Tactical coordination:</u> Sent: - Negotiation In Received: - Negotiation Out Rejected: - Warning Value accepted but not set: - Reminder
ARWY	Arrival runway	Arrival runway identifier	If manually assigned: Rwy Locked (optional feature)
ASI	Assuming sector		
ASP	Assigned speed	Mach “M”+ 2 digits, in 1/100’s of Ma “HS” for high speed clearance <u>Nautical:</u> Speed 2 digits, in 10’s of knots <u>Metric:</u> Speed “K”+ 2 digits, in 10’s of km/h (followed by “+” or “-” when applicable for a minimum or maximum speed clearance) If a speed clearance or request is in progress via CPDLC, displays “[speed]”, followed by “+” if the request or answer contains a reason (i.e. DUE TO something).	<u>If value assigned and HOP:</u> Sent: - Proposition Out Received: - Proposition In <u>Tactical coordination:</u> Sent: - Negotiation In Received: - Negotiation Out Rejected: - Warning Value accepted but not set: - Reminder <u>CPDLC:</u> Uplink message sent: - CPDLC UM Clearance Downlink message received: - CPDLC DM Request Controller timeout expired: - CPDLC Controller Late CPDLC warning raised: - Color of the warning

Data field	Description	Comments	Color
ASSR	Assigned mode 3/A code	4 digits or “A”+ 4 digits. If no code assigned, shows TSSR code if available (optional feature, always disabled in *(DEP list)*) If a SQUAWK SSR message is in progress via CPDLC, displays the code in brackets, followed by “+” of the answer contains a reason (i.e. DUE TO something). *(DEP list)* does not display the brackets for CPDLC status.	If different than TSSR: - Information (in *(DEP list)*, regardless of actual radar coverage) <u>CPDLC:</u> Uplink message sent: - CPDLC UM Clearance CPDLC warning raised: - Color of the warning
ATD	Actual Time of Departure	UTC time in “HHMM” format	
ATIS	ATIS designator		
ATYP	Aircraft type	Type with max 4 characters	If highlighted: Warning
ATYP/W	Aircraft type / Wake Turbulence Category	Type with max 4 characters + “/” + WTC (“L”, “M”, “H”, “J” or “?”)	If highlighted: Warning
C	Inbound clearance	“C” if ADES is one of the defined airports -> aircraft needs inbound clearance	Active state: Information
CALLSIGN	Callsign	If label is minimized, prefixed by “<”. If number of aircraft is more than one, suffixed by “+”. If correlated to a primary track or to a secondary track with no ASSR code and a non-discrete TSSR code, suffixed by “*”. If the flight is CPDLC connected, the callsign is displayed in brackets.	<u>Priority order:</u> STCA alert: Urgency HOP received: Proposition In Transfer in: Assumed HOP sent: Assumed Transfer out: Redundant Level band highlight AFL: Urgency Level band highlight XFL: Warning Mark Own: CARD Mark Own Highlight: Warning Mark All: CARD Mark All S-Highlight: Suite Highlight

Data field	Description	Comments	Color
CFL	Cleared Flight Level	See AFL field for number format. Approach clearance displayed if the use of ACF item is not set up. <u>Unselected label:</u> Not shown if equal to AFL If a level clearance is in progress via CPDLC, displays "[level]", followed by "+" if the answer contains a reason (i.e. DUE TO something). *(DEP list)* does not display the brackets for CPDLC status.	*(DEP list)*: for CTR or FSS if CFL > PEL, for others if CFL > XFL: - Warning *(all versions)*: <u>CPDLC:</u> Uplink message sent: - CPDLC UM Clearance CPDLC warning raised: - Color of the warning
CFL/PEL	Cleared Flight Level or Planned Entry Level	PEL is shown for flights in "coordinated" and "ongoing coordination" states, CFL otherwise. See AFL field for number format. Approach clearance displayed if the use of ACF item is not set up. <u>Unselected label:</u> PEL: Not shown if equal to AFL and no ongoing coordination. CFL: Not shown if equal to AFL If a level clearance is in progress via CPDLC, displays "[level]", followed by "+" if the answer contains a reason (i.e. DUE TO something).	<u>PEL:</u> Coordination sent: - Proposition Out Coordination received: - Proposition In Change just before ETN: - Info Coord Coordination refused: - Warning <u>CFL:</u> <u>CPDLC:</u> Uplink message sent: - CPDLC UM Clearance Downlink message received: - CPDLC DM Request CPDLC warning raised: - Color of the warning
CLAM	CLAM indicator (see also ALRT)	"L"	Warning
CLR	Clearance received flag	If clearance not received: *(long)*: blank, *(short)*: "□" If clearance received: *(long)*: "OK", *(short)*: "■"	

Data field	Description	Comments	Color
CLR/DCL/CMT	Combined clearance received flag, DCL dialogue status and CMT Text indicator	Clearance received flag set manually: - "OK" otherwise, state of the datalink clearance dialogue (if any): - "RCD" (request received) - "SENT" (clearance sent) - "DONE" (ack received) - "R/T" (r/t sent) - "FAIL" (failed) ("RCD•" and "R/T•" indicate remark text present in the RCD)	If "RCD" or "RCD•": Warning
CMT	CMT Text indicator	"•" if received RCD contains remark text	
CODE	FPL mode S hex code	"/" + aircraft's mode S hex code if found in the FPL remarks	
COM	Communication type	"r" if voice receive only "t" if text only	Warning
COMP_CS	ICAO RTF callsign	The decoded ICAO RTF callsign ("???" if not in database)	
COORD	Coordination message	ROF message sent/received: - "ROF" Transfer with release: - "F" fully released - "C" released for climb - "D" released for descent - "T" released for turns	Sent: - Proposition Out Received: - Proposition In (until assumed by the downstream position)
COPN	Entry point		Coordination sent: - Proposition Out Coordination received: - Proposition In Coordination refused: - Warning
COPX	Exit point	*(DEP list)*: If logged in as CTR and flight not inside active sector, displays COPN *(with holding)*: A holding clearance is displayed if there is no coordination. It shows the holding point name + " H" or for lat/lon point holdings, "POS H". For a TSA Hold clearance, the area name is shown.	Coordination sent: - Proposition Out Coordination received: - Proposition In Coordination refused: - Warning

Data field	Description	Comments	Color
COPN/COPX	Entry point or Exit point	COPN is shown for flights in "coordinated" and "ongoing coordination" states, COPX in "assumed", "transfer initiated" and "redundant" phases. *(with holding)*: A holding clearance is displayed if there is no coordination. It shows the holding point name + " H" or for lat/lon point holdings, "POS H". For a TSA Hold clearance, the area name is shown.	Coordination sent: - Proposition Out Coordination received: - Proposition In Coordination refused: - Warning
CPDLC_E	CPDLC Emergency	CPDLC emergency messages: "SQ7500", "[MAYDAY]", or "[PAN]"	Urgency

Data field	Description	Comments	Color
CPDLC_W	CPDLC Warning	CPDLC warning messages: “CPDLC FAIL” - network failure “CPDLC P ABT” - pilot logoff “<type> ERR” - message failure “<type> NOT CDA” - NOT CURRENT DATA AUTHORITY response “<type> P LATE” - pilot timeout “<type> SBY” - STANDBY response “<type> UNA” - UNABLE response “CPDLC MSG” - unidentified downlink <type> is the type of message: “AHDG” - heading clearance “CFL” - level clearance “COF” - communication transfer “DCT” - direct-to clearance “SQI” - SQUAWK IDENT message “SSR” - SQUAWK SSR message “VCI” - communication transfer	“CPDLC FAIL”, “CPDLC P ABT”, “<type> ERR” or “<type> NOT CDA”: - CPDLC Failed “<type> P LATE”: - CPDLC Pilot Late “<type> SBY”: - CPDLC Standby “<type> UNA”: - CPDLC Unable “CPDLC MSG” - CPDLC DM Request
CRC	Computed vertical rate	<u>Nautical:</u> 2 digits, in 100’s of ft/min <u>Metric:</u> 2 digits, in m/s *(with sign)*: value preceded by - “C” for climbing - “D” for descending	
CTO	Clearance time on OAN	“HHMM”	Major difference between estimated time at point and CTO: - Urgency Minor difference between estimated time at point and CTO: - Warning Non-acknowledged OCM with changed CTO: - Information

Data field	Description	Comments	Color
DCL	DCL dialogue status	State of the datalink clearance dialogue (if any): - "RCD" (request received) - "SENT" (clearance sent) - "DONE" (ack received) - "R/T" (r/t sent) - "FAIL" (failed)	If "RCD": Warning
DGS	Downloaded ground speed	Ground speed as downloaded from the aircraft via mode S DAPs. Format as in GS field.	
DHDG	Downloaded heading	Magnetic heading as downloaded from the aircraft via mode S DAPs. "H" + 3 digits.	
DIAS	Downloaded indicated airspeed	Indicated airspeed as downloaded from the aircraft via mode S DAPs. Not available on VATSIM. An estimated value is displayed if upper wind/temp data is available.	
DMACH	Downloaded Mach number	Mach number as downloaded from the aircraft via mode S DAPs. Not available on VATSIM. An estimated value is displayed if upper wind/temp data is available.	
DRC	Downloaded rate of climb/descent	Rate of climb/descent as downloaded from the aircraft via mode S DAPs. Not available on VATSIM (computed rate displayed instead, see CRC (*with sign*)).	
DRWY	Departure runway	Departure runway identifier	If manually assigned: - Rwy Locked *(DEP list)*: Clearance flag not set: - Proposition In Clearance flag set: - Information
DSFL	Downloaded selected flight level	Selected flight level as downloaded from the aircraft via mode S DAPs. Not available on VATSIM.	
DSQ	Departure sequence number		
DUPE	DUPE indicator (see also ALRT)	"D"	Warning
EET	Estimated Elapsed Time	"HHMM"	

Data field	Description	Comments	Color
EMRG	Emergency	"HI" for squawk 7500, "CF" for squawk 7600, "EM" for squawk 7700	Urgency
EQUIP	FPL equipment field	*(COM/NAV)*: - COM/NAV equipment *(SUR)*: - "/" + surveillance equipment If the FPL equipment is in the FAA format, a rough conversion to the ICAO format is made	
EST/DEP/ABT	Manual departure	Clearance flag not set: - "EST" Clearance flag set: - "DEP" Departed: - "ABT"	
ETA	Estimated Time of Arrival	UTC time in "HHMM" format or "HOLD" if flight in holding state	
ETD	Estimated Time of Departure	UTC time in "HHMM" format	
ETD/ATD	Estimated Time of Departure or Actual Time of Departure	Not departed: - ETD Departed: - ATD "HHMM", both times taken from the FPL data	
ETN	Estimated time over COPN or sector entry time if no COPN	UTC time in "HHMM" format *(sector entry)*: always entry time	
ETOHP	Estimated time over holding point or holding start time	UTC time in "HHMM" format	
ETX	Estimated time over COPX or sector exit time if no COPX	UTC time in "HHMM" format *(sector exit)*: always exit time	
F	No fix warning	"F" if IFR flight is not routing via one of specified fixes to its destination	Information
FCOPN	FIR COPN point	FIR entry coordination point	
FCOPX	FIR COPX point	FIR exit coordination point For inbound and domestic flights, displays ADES.	If different from OCM entry point: - Information
FETN	Estimated time over FCOPN		
FETX	Estimated time over FCOPX		
FF	Feeder fix	AMAN feeder fix name	
FIELD15	Speed/Level/Route	The flight plan field 15 data (TAS, RFL and route). Max 540 characters	

Data field	Description	Comments	Color
FIELD18	Other information	The flight plan field 18 data (remarks). Max 360 characters	
FLTADD	Mode S transponder address	Mode S transponder hex address	
FLTID	Aircraft identification	Callsign as received via mode S	
FLTID/TSSR	Aircraft identification or transponder code	FLTID if available, otherwise TSSR	If highlighted: Warning
FMF	Flight Message Field		
FText	Free text		
GS	Ground Speed	<u>Nautical:</u> 3 digits, in knots (optionally prefixed by "N") <u>Metric:</u> "K"+ 3 digits, in km/h	If highlighted: Warning
HOLD	Hold/XHold	Holding clearance state at point related to the traffic management list	Warning
HPT	Holding point	Holding point name or for lat/lon point holdings, "POS". For a TSA Hold clearance, the area name is shown.	
I	Flight information	"I" if OP_TEXT has data	
Label	Label hidden flag	"■" if label displayed, "□" if label hidden	
M	Military coordination	"M" if military coordination is required	Active state: Warning
MALRT	Manual alerts	Displays alerts entered via the Callsign menu	Warning
MFX	Metering fix	AMAN metering fix name	
MFX_FF	Metering fix or feeder fix	AMAN metering fix or feeder fix name	
MNR	Oceanic cruising speed	Cleared cruising speed from the last received OCM	Non-acknowledged OCM with changed MNR: - Information
MSAW	MSAW alert (see also ALRT)	"MSAW"	Warning
MTCD	MTCD indicator	*(dot)*: "•", *(text)*: "MTCD" if aircraft has an MTCD problem	*(dot)*: Urgency (Conflict Ack if all conflicts acknowledged) *(text)*: Warning
N/ATYP	Number of aircraft / Aircraft type	<u>Unselected label:</u> Number range 2 - 99 <u>Selected label or *(List)*:</u> Number range 1 - 99 Number can be set by prefixing the aircraft type in the FPL by "X/" where X is the number (max 99)	If highlighted: Warning
NAT	North Atlantic Track name	Cleared NAT name from the last received OCM ("#" for a random route)	Non-acknowledged OCM with changed NAT: - Information
NBT	Not Before Time	Time restriction at OAN	Non-acknowledged: Warning

Data field	Description	Comments	Color
NLT	No Later than Time	Time restriction at OAN	Non-acknowledged: Warning
NPT	Next route point	<u>When a DCT request or clearance via CPDLC is in progress:</u> Displays the point name followed by "+" if the request contains a reason (i.e. DUE TO something) <u>Otherwise:</u> Next point on the route	<u>CPDLC:</u> Uplink message sent: - CPDLC UM Clearance Downlink message received: - CPDLC DM Request Controller timeout expired: - CPDLC Controller Late CPDLC warning raised: - Color of the warning
NRAC	Number of aircraft	Number from 2 to 99 <u>Extended label:</u> "n" if 1 <u>Other label or *(List)*:</u> blank if 1 Number can be set by prefixing the aircraft type in the FPL by "X/" where X is the number (max 99).	
NSSR	SSR warning	Displays ASSR if different from TSSR (always displayed for flight plan tracks or when SQUAWK SSR CPDLC message has been sent)	<u>CPDLC:</u> Uplink message sent: - CPDLC UM Clearance CPDLC warning raised: - Color of the warning
O	Oceanic alert	"O" if Oceanic Clearance Message is not acknowledged	Warning
OAN	Cleared Oceanic Control Area entry point	Cleared entry point from the last received OCM	Non-acknowledged OCM with changed OAN: - Information
OCM	Oceanic Clearance Message		
OFL	Oceanic cruising Flight Level	Cleared oceanic flight level from the last received OCM	Non-acknowledged OCM with changed OFL: - Information
OP_TEXT	Flight information message	User entered text, stored in the flight strip	
OP_TEXT2	OP_TEXT2 message	User entered text, stored in the scratchpad	
P	No P-RNAV/RNAV1 capability	"P" if aircraft equipment is not indicating P-RNAV/RNAV1 capability and destination airport is in a pre-defined list	Not equipped: - Information Unknown: - Unknown

Data field	Description	Comments	Color
PEL	Planned Entry Level	See AFL field for number format. Approach clearance displayed if the use of ACF item is not set up.	Coordination sent: - Proposition Out Coordination received: - Proposition In Change just before ETN: - Info Coord Coordination refused: - Warning
PFREQ	Pilot monitored frequency	Displays your primary frequency when transfer of communications was done via CPDLC using the MONITOR option	CPDLC DM Request
PRFL	RFL requested by pilot via CPDLC	Displays "[requested level]", followed by "+" if the request contains a reason (i.e. DUE TO something)	<u>CPDLC:</u> Downlink message received: - CPDLC DM Request Controller timeout expired: - CPDLC Controller Late CPDLC warning raised: - Color of the warning
PSSR	Previous mode 3/A code	If not known, shows ASSR if available. Format as ASSR field.	
R	No B-RNAV/RNAV5 capability	"R" if aircraft equipment is not indicating B-RNAV/RNAV5 capability	Not equipped: - Urgency Exempted: - Information Unknown: - Unknown
RAM	RAM indicator (see also ALRT)	"RAM"	Warning
RFL	Requested Flight Level	See AFL field for format *(List)*: If an RFL request is in progress via CPDLC, displays "[requested level]", followed by "+" if the request contains a reason (i.e. DUE TO something). *(DEP list)* does not display the brackets for CPDLC status.	*(List) and (DEP list)*: <u>CPDLC:</u> Downlink message received: - CPDLC DM Request Controller timeout expired: - CPDLC Controller Late CPDLC warning raised: - Color of the warning

Data field	Description	Comments	Color
ROUTE	Flight plan route	*(DEP list)* - part 1 shows first 15 characters, part 2 characters 16-30 If departing from defined airports: - first 30/45 characters (2 or 3 parts) If arriving at a clearance flag airport: - last 30/45 characters (2 or 3 parts) Else: - first 30/45 characters (2 or 3 parts)	
S	Mode S mismatch indicator	"S" if downloaded callsign is different than coupled flight plan callsign	Warning
SI	Sector Indicator	<u>Assumed track:</u> Next sector identifier or frequency. Displayed in brackets if a communications transfer is in progress via CPDLC, followed by "+" if the answer contains a reason (i.e. DUE TO something). The frequency display is forced on during a transfer via CPDLC. <u>Other tracks:</u> Tracking controller identifier or frequency. *(List)*: frequency display is not possible *(DEP list)* does not display the brackets for CPDLC status. *(Current)* displays always the current tracking controller id *(Previous)* displays the current tracking controller id unless it is you or the track is in redundant state *(Next)* displays the next controller id when assumed, or current when in redundant state	<u>Priority order:</u> HOP sent: - Proposition Out Transfer initiated: - Redundant Next unit coordination received: - Proposition In Manually changed next sector: - Warning Normal next sector: - Coordination <u>CPDLC:</u> Communications transfer message sent: - CPDLC UM Clearance CPDLC warning raised: - Color of the warning
SID	Assigned/planned SID	SID identifier	New assignment: Sid Star Allocation (optional feature)

Data field	Description	Comments	Color
SQ	Arrival sequence number (manually set)	A number from 1 to 50	
SQ_AMAN	Arrival sequence number (provided by AMAN)	A number from 1 to 99	
STAFF	Scheduled Time of Arrival at feeder fix	AMAN calculated time to pass the feeder fix	
STAR	Assigned/planned STAR	STAR identifier	New assignment: Sid Star Allocation (optional feature)
STATE	Current system state	Notified: NOTI Coordinated: COOR On-going coordination: ONGC Assumed: ASSU Transfer initiated: TRAN Redundant: REDU Terminated: TERM Free: FREE On-contact: ONCT	
STS	Ground state	EuroScope default ground state	
TAS	Flight Plan TAS	TAS from flight plan, either: “K” + 4 digits, km/h “N” + 4 digits, knots “M” + 3 digits, 1/100’s of Ma	
TEXT2	OP-TEXT2 message	If more than 10 characters, shows first 9 + “>”	
TRACK	Ground track	“T” + the aircraft’s current ground track in degrees *(true)*: true *(magnetic)*: magnetic	
TOM	Time of Metering	AMAN calculated time to pass the metering fix	
TOM_STAFF	Time of Metering or Scheduled Time of Arrival at feeder fix	AMAN calculated time to pass the metering fix or feeder fix	
TSSR	Aircraft transponded mode 3/A code	4 digits or “A”+ 4 digits	
TTL_TTG	Time To Lose/Gain at metering fix		
TTLTTG_FF	Time To Lose/Gain at feeder fix		
TTLTTG_MFX_FF	Time To Lose/Gain at metering fix or feeder fix		
V	Flight rules	“V” if VFR, “Y” if first IFR and later VFR, “Z” if first VFR and later IFR	
W	No RVSM capability	“W” if aircraft equipment is not indicating RVSM capability	Not equipped: - Urgency Exempt: - Information Unknown: - Unknown

Data field	Description	Comments	Color
WTC and /WTC	Wake turbulence category	"J" for Super, "H" for Heavy, "M" for Medium, "L" for Light (in /WTC all prefixed with a "/") <u>Unselected label:</u> Only displayed if not medium unless the field is highlighted	If highlighted: Warning
WTG and /WTG	Wake turbulence group	ICAO or RECAT-EU wake turbulence group (in /WTG prefixed with a "/")	If highlighted: Warning
XFL	Exit Flight Level	See AFL field for number format. Approach clearance displayed if the use of ACF item is not set up. <u>Unselected label:</u> Not shown if equal to CFL/PEL and no ongoing coordination. *(DEP list)*: If logged in as CTR and flight not inside active sector, displays PEL. Otherwise displays XFL.	Coordination sent: - Proposition Out Coordination received: - Proposition In Coordination refused: - Warning
Y	No 8.33kHz capability	"Y" if aircraft equipment is not indicating 8.33kHz capability	Not equipped: - Urgency Exempt: - Information Unknown: - Unknown

Appendix 2: Color values

The following table shows the default values for the plugin colors. The Usage column indicates where the colors are used (the list may not be complete). In the aircraft colors “Labels” means track labels and any lists where aircraft information is displayed, “Tracks” radar position symbols, history dots, prediction lines and divergence symbols.

Color name	Default color	Usage
Aircraft colors		
ACF Via CFL		Labels
Assumed		Labels, Tracks
CARD Mark All		Labels
CARD Mark Own		Labels
Concerned		Labels, Tracks
Coordination		Labels, Tracks
Freq Indicator		Labels
Info Coord		Labels
Information		Labels, Windows
Informed 1		Labels, Tracks
Informed 2		Labels, Tracks
Informed 3		Labels, Tracks
Negotiation In		Labels
Negotiation Out		Labels
Oceanic Level Highlight		Labels
Proposition Accepted		Labels
Proposition In		Labels
Proposition Out		Labels
Redundant		Labels, Tracks
Reminder		Labels
Rwy Locked		Labels
Sid Star Allocation		Labels
Sid Star No Allocation		Labels
Suite Highlight		Labels
Temp Track Highlight		Labels (Find Track function)
Track Default		Tracks
Track Highlight		Tracks
Unconcerned		Labels, Tracks
Unknown		Labels
Urgency		Labels, STCA callsign background on plugin windows/lists
Warning		Labels, Windows
CPDLC colors		
CPDLC Controller Late		Labels, Windows
CPDLC Discarded		Windows
CPDLC DM Request		Labels, Windows
CPDLC Failed		Labels, Windows
CPDLC Pilot Late		Labels, Windows
CPDLC Standby		Labels, Windows
CPDLC UM Clearance		Labels, Windows
CPDLC Unable		Labels, Windows
CPDLC Urgency		Labels, Windows

Color name	Default color	Usage
Aircraft related items on the radar screen		
AIW intrusion		AIW alert related items
Conflict Ack FL		Part of flight leg with acknowledged conflict
Flight Leg		Part of flight leg without MTCD and SAP coverage
Heading Vector		Heading vector
Information FL		Part of flight leg with no MTCD or SAP problems
MQDM		MQDM vector
Potential FL		Part of flight leg with MTCD potential risk
QDM		QDM vector
SEP Tool 1		Minimum separation tool 1
SEP Tool 2		Minimum separation tool 2
SEP Tool 3		Minimum separation tool 3
SEP Tool 4		Minimum separation tool 4
SEP Tool 5		Minimum separation tool 5
SEP Tool 6		Minimum separation tool 6
SEP Tool 7		Minimum separation tool 7
SEP Vert		Extensions of minimum separation tools
System Calculated TOC		TOC symbol on flight leg
System Calculated TOD		TOD symbol on flight leg
Urgency FL		Part of flight leg with MTCD or SAP conflict
Warning FL		Part of flight leg with MTCD or SAP risk
Map colors		
Active Map		Active TSA map border
Active Map Type 1		TSA map border/fill
Active Map Type 2		TSA map border/fill
Active Map Type 3		TSA map border/fill
Active Map Type 4		TSA map border/fill
Active Map Type 5		TSA map border/fill
Active Map Type 6		TSA map border/fill
Active Map Type 7		TSA map border/fill
Active Map Type 8		TSA map border/fill
Active Map Type 9		TSA map border/fill
Active Map Type 10		TSA map border/fill
Active Map Type 11		TSA map border/fill
Active Map Type 12		TSA map border/fill
Active Map Type 13		TSA map border/fill
Active Map Type 14		TSA map border/fill
Active Map Type 15		TSA map border/fill
Active Map Type 16		TSA map border/fill
Active Map Type 17		TSA map border/fill
Active Map Type 18		TSA map border/fill
Active Map Type 19		TSA map border/fill
Active Map Type 20		TSA map border/fill
Active RD Infill Map		Active R or D map fill
Active RD Map		Active R or D map border
Active Text Map		Active TSA map text
Auto Map Label		Auto-generated maps
Auto Map Symbol		Auto-generated maps
East NAT Map		Auto-generated maps, maps

Color name	Default color	Usage
Map 1		Maps
Map 2		Maps
Map 3		Maps
Map 4		Maps
Map Hotspot		Map hotspots
Map Border		Maps
Map Info		Range rings, range marker
Map Land		Maps
Map Symbol		Maps
Preactive Map		Pre-active map border
Preactive Text Map		Pre-active map text
Predisplay Map		Pre-display map border
Rwy App Line In Use		Runway approach line for runways in use
Rwy App Line Not In Use		Runway approach line for runways not in use
TSA Border Highlight		Highlighted TSA map border
Weather Map		Weather radar data
West NAT Map		Auto-generated maps, maps
Window and menu colors		
Arm		Inactive window texts
Map Bright		Stack Manager Window, VAW
Background		Background
Border		Various lines in windows
BottomShadow		3D effects in windows
CARD Min Sep		CARD minimum separation area
CARD Reminder		CARD warning time triangle
CARD Symbol Fg		CARD conflict numbers
CARD Time Vector		CARD time vectors
COL Above Threshold		COL flight bars above warning threshold
COL Under Threshold		COL flight bars under warning threshold
Conflict Ack		Acknowledged conflicts in CARD/VAW
Field Highlight		Selected field
Flight Highlight		Selected item
Foreground		Window titles, menu items, active texts, close/min/resize boxes
Global Menu Highlight		Highlighted items in the Global Menu
Inactive Sector		CARD and VAW background
LatLong Info		Coordinate value in Lat/Long Window
Overflown		Overflown points in Complete Route Window
Potential		Potential conflicts in CARD/VAW
Select		Selected radio buttons and selection boxes
Selected		Active filters in Radar menu
Selected Period		Active areas text in area window
SMW Highlight		AFL-CFL boxes in SMW (mouse-over)
SMW Level Band		AFL-CFL boxes in SMW
SMW Overflight		Overflight lines in SMW
SMW Overlap		Overlapping AFL-CFL boxes in SMW
SMW Overlap Box		Multiple same CFL's box in SMW
SMW Overshoot		Level bust AFL-CFL boxes in SMW
TopShadow		3D effects in windows
Trough		Slider area background

Color name	Default color	Usage
TSA Active		Active areas background in area window
TSA Preactive		Pre-active areas background in area window
VAW Profile		Selected aircraft profile in VAW
VAW Sector Limits		Sector boundaries in VAW
VAW Track Position		Selected aircraft position in VAW
WM Active Fg		Active window title text
WM Bg		Window title bar background
WM Border		Window border line
WM Fg		Window texts
WM Frame		Window frame when dragging
Other colors		
Raw Video 1		Raw radar video youngest plots
Raw Video 2		Raw radar video
Raw Video 3		Raw radar video
Raw Video 4		Raw radar video
Raw Video 5		Raw radar video
Raw Video 6		Raw radar video
Raw Video 7		Raw radar video oldest plots
Standard Line RDF		Direction Finder position circle or direction line
Text Notes		Text notes