

# TopSky plugin for EuroScope

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*- version 2.5 -*

General Information

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
- GRIB2 data is parsed using the [NCEPLIBS-g2c](#) library

## 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 default setup.** 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 or apply filter in Settings->Local Settings  |
| - 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

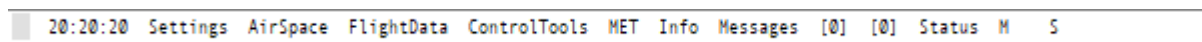
The calculations required for the FPCP functions increase rapidly with increasing traffic, so adjusting some of the following may help (in this order):

- Check "Unco" and "Notif" are deselected in the CARD View menu unless required
- Reduce the FPCP inhibit time in Settings -> 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 Settings -> 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 and contains a number of submenus which are explained below.

### 4.1 Settings menu

- 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... (1) Loads personal settings (usually done automatically)
- Sign Out... Clears any personal settings and resets all settings to their default values
- CPDLC Setting... Opens the [CPDLC Setting Window](#)
- Raw Video Control... (2) Opens the [Raw Video Control Window](#)
- ☐ Raw Video (2) Toggles on/off the display of raw video radar plots
- ☐ FPASD Toggles on/off the display of flight plan tracks
- ☐ PDC Audible alarm Toggles on/off playing a sound for received PDC messages
- ☐ CPDLC Audible alarm Toggles on/off playing a sound for received CPDLC messages
- ☐ STCA Audible alarm Toggles on/off playing a sound for STCA alerts
- ☐ APW Audible alarm Toggles on/off playing a sound for APW alerts
- ☐ AMID Not implemented
- ☐ Flight Leg Toggles on/off the automatic display of the [Flight Leg](#) for a specified time when a track becomes assumed
- ☐ DAPs in Menus Toggles on/off the display of DAPs in menus
- ☐ DAPs in Labels Toggles on/off the display of DAPs in track labels
- RR Main > Opens the RR Main submenu
- Direction Finder > (3) Opens the Direction Finder submenu

- 1) Personal plugin settings can be defined in a data file (see the Developer Guide)
- 2) 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.
- 3) Not shown if the DF system has been disabled in the plugin settings



#### 4.1.1 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  $\geq 30$ dBZ (yellow on aircraft displays) and the darker shade  $\geq 40$ dBZ (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.

#### 4.1.2 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)

#### 4.1.3 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 codes in both ICAO and FAA formats
  - ICAO             Use codes when specified in ICAO format
  - FAA              Use codes when specified in FAA format
  - None             Disregard all codes

- Selects specific capabilities to be taken into account:
  - R RNAV capability
  - PBN PBN string from FPL remarks
  - W RVSM capability
  - Y 8.33 kHz capability
  - AltRptg Transponder altitude reporting capability
  - Mode S Transponder mode S capability
  - EHS Mode S enhanced surveillance capability
  - FLTID Mode S flight ID downlink capability

When taking into account a specific capability is deselected, all aircraft are assumed to have it. This inhibits track label alerts and also affects safety net processing.

- 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:
  - Auto 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 with assumed and/or coordinated aircraft involved
  - Own Only alerts with assumed aircraft involved
- APW alert Selects which aircraft display the APW alert:
  - All All aircraft
  - Own+Co Only assumed and coordinated aircraft

- APW alert sound
  - Own      Only assumed aircraft
 Selects which STCA alerts trigger the alert sound:
  - All      All alerts
  - Own+Co      Only alerts for assumed or coordinated aircraft
- METAR source
  - Own      Only alerts for assumed aircraft
 Selects the METAR data source for the plugin windows that display METAR data
- FPASD filter
  - Own      Only alerts for assumed aircraft
 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

#### 4.1.4 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]DDMM[E/W], e.g. 60N025E or 0811S00300W). Entering an empty text string resets the rings to be shown at the radar screen centerpoint.

#### 4.1.5 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.

## 4.2 AirSpace 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 FlightData menu

- Flight Plan Selection... Opens the [Flight Plan Selection Window](#)
- Flight Plan Window... Opens the [Flight Plan Window](#)

### 4.4 ControlTools menu

- Flight Plan Lists > Opens the Flight Plan Lists submenu
- CARD... Opens the [Conflict And Risk Display](#)
- SAP... Opens the [Segregated Area Probe Window](#)
- Vertical Aid Window... Opens the [Vertical Aid Window](#)
- Message In... Opens the [Message In Window](#)
- Message Out... Opens the [Message Out Window](#)
- CPDLC > Opens the CPDLC submenu
- LAT/LONG... Opens the [Cursor Lat/Long Window](#)

#### 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
- Pre-Activation List... Opens the [Pre-Activation List](#)
- Main VFR List... Opens the [Main VFR List](#)
- <filter> Main VFR List state filter
- <units> Main VFR List units filter
- Secondary VFR List... Opens the [Secondary VFR List](#)
- <filter> Secondary VFR List state filter
- <units> Secondary VFR List units filter
- Lost List... Opens the [Lost List](#)

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

#### 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/Forecast QNH Window](#)
- QNH/TL... Opens the [QNH/TL Window](#)

#### 4.6 Info menu

- General Information... Opens the [General Information Window](#)
- MISC Information... Opens the [Miscellaneous Information Window](#)
- NOTAM... Opens the [NOTAM List Window](#)
- Aerodrome... Opens the [Aerodrome menu](#) (to open the [Aerodrome Window](#))
- LFUNC Frequency Plan... 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.

#### 4.7 Messages 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](#)
- NAT Track Messages... Opens the [NAT Track Messages Window](#)
- Text notes > Opens the Text notes submenu

##### 4.7.1 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.

#### 4.8 [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.

#### 4.9 [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.

#### 4.10 Status menu

- |                                  |  |
|----------------------------------|--|
| - Plugin Status >                | Opens the Plugin Status submenu  |
| - Safety Nets Status...          | Opens the <a href="#">Safety Nets Status Window</a>  |
| - Divergence Detection Status... | Opens the <a href="#">Divergence Detection Status Window</a>                                 |
| - MTCD Status...                 | Opens the <a href="#">MTCD Status Window</a>   |
| - CPDLC Default Status [ON/OFF]  | Toggles the CPDLC Default Status On/Off  |
| - Runway In Use                  | Opens the <a href="#">Aerodrome menu</a> (to open the <a href="#">Runway In Use Window</a> ) |
| - Supervisory >                  | Opens the Supervisory submenu  |

##### 4.10.1 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.

#### 4.10.2 Supervisory submenu

- Operations Rate... Opens a new [Operations Rate Window](#)
- Predicted Traffic... Opens a new [Predicted Traffic Window](#)

#### 4.11 M <filters>

Displays the status of the filters. If any filter is enabled and Quick Look is not toggled on, the color of the text is “Global Menu Highlight”.

An active altitude filter is shown as “Fxxx-yyy”, values in hundreds of feet. Active CJI/SSR filters are shown as “CJI” when CJI filter is on, “SSR” when SSR filter is on, and “CJISSR” when both are on.

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.

#### 4.12 S

Not implemented

## 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"/"VFR"	Track is not on-contact with anyone

The "VFR" 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, the three symbols are the normal symbol, divergence alert (RAM or CLAM) symbol and SPI (transponder ident) symbol.

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
		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)			
		Flight plan track	

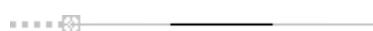
### 5.1.3 History dots

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 Highlight” for a selected track and “Track Default” for an unselected track at the position symbol and then alternating with the flight sector color, 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.

Basically, the *Standard* label is shown for aircraft that are in or will enter the active sector and the *Reduced* label for aircraft that will not enter the active sector. The *Extended* label can be opened from the *Standard* or *Reduced* label and stays open as long as the cursor is within the label area. The *Uncorrelated* label is shown for radar tracks that aren't correlated with a flight plan.

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 or potential risk, SAP 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 label that's shown on each route point can include the following fields. The desired fields can be selected in the [Track Control Window](#).

- |        |   |
|--------|---|
| - 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 "**") |

### 5.2.2 AHDG vector

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

## 5.3 Radar Menu

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

Radar Menu		
Maps...	- Maps...	Opens the <a href="#">Maps Window</a>
QDM	- QDM	Starts a new <a href="#">QDM vector</a>
RADARSEP	- RADARSEP	Starts a new <a href="#">Minimum separation tool</a>
FPLSEP	- FPLSEP	Starts a new <a href="#">Flight plan minimum separation tool</a>
Range 124	- Range XXX	Opens the <a href="#">Zoom Window</a> (XXX = distance: center -> right edge)
<input type="checkbox"/> Range Marker	- <input type="checkbox"/> Range Marker	Toggles the <a href="#">Range Marker</a> on/off
Track Control...	- Track Control...	Opens the <a href="#">Track Control Window</a>
XQDM	- XQDM	Deletes all QDM vectors
XRADARSEP	- XRADARSEP	Deletes all Minimum separation lines
XFPLSEP	- XFPLSEP	Deletes all Flight plan minimum separation lines
View...	- View...	Opens the <a href="#">View Window</a>
Altitude Filtering...	- Altitude Filtering...	Opens the <a href="#">Altitude Filtering Window</a>
CJI Filtering...	- CJI Filtering...	Opens the <a href="#">CJI Filtering Window</a>
SSR Code Filtering...	- SSR Code Filtering...	Opens the <a href="#">SSR Code Filtering Window</a>
<input type="checkbox"/> Quick Look	- <input type="checkbox"/> Quick Look	Toggles function to bypass all filters and show all track labels
<input checked="" type="checkbox"/> PRL On/Off	- <input type="checkbox"/> PRL On/Off	Toggles all prediction lines on/off
<input type="checkbox"/> Direction Finder	- <input type="checkbox"/> 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

The Radar Menu closes when a selection is made or the mouse cursor leaves the menu area.

### 5.3.1 Maps Window

Radar Menu -> Maps...

Maps
TSA
ARTCC HIGH
ARTCC
ARTCC LOW
GEO
SID
STAR
FREE TEXT

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
  - o AD\_Hotspots Aerodrome symbols that are used to open the [Runway In Use Window](#) and [Runway Approach Line Window](#)
- MISC (1)
  - o AIRPORTS (+ L) Airports (with labels) from the active sector file
  - o FIXES (+ L) Fixes without numbers (with labels) from the active sector file
  - o FIXES ALL (+ L) All fixes (with labels) from the active sector file
  - o NDBS (+ L) NDBs (with labels) from the active sector file
  - o VORS (+ L) VORs (with labels) from the active sector file
- TSA
  - o <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 navaid 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.

### 5.3.2 QDM vector

To draw a new QDM vector:

- Left-click on the “QDM” radar 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)  
**then**
- Left-click on the desired end point (radar track or fixed position)

The vector’s data label is located at the end of the line. Its position relative to the line end can be adjusted by middle-clicking the line end or the label itself. The available click spots for a radar track are the radar track position symbol and all its label items that have a TopSky plugin 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 or midpoint of the line or the label

To adjust a QDM vector:

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

### 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 “RADARSEP” menu item  
**then**
- Left-click on the first radar track  
**then**
- Left-click on the second radar track

If the tracks are not converging, the lines will not be drawn and an error message will be displayed. 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 and the remaining time in minutes to the point of minimum separation are by default displayed near the end of one of those lines.

5 sets of lines can be simultaneously drawn. It is not possible to select the same track for more than one set.

To remove the minimum separation lines:

- Left-click on the “XRADARSEP” menu item (this removes all minimum separation lines)  
**or**
- Right-click on either line’s end point

The lines will be automatically removed if one of the tracks is no longer available or the tracks are no longer converging.

#### **5.3.4 Flight plan minimum separation tool**

The flight plan minimum separation tool displays the predicted minimum lateral separation between two radar tracks within the next 30 minutes along their planned routes. 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 flight plan minimum separation lines between two correlated flights:

- Left-click on the “FPLSEP” menu item  
**then**
- Left-click on the first radar track  
**then**
- Left-click on the second radar track

If the tracks are not converging, either flight has a RAM alert or is in Hold state, the lines will not be drawn and an error message will be displayed. 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 and the remaining time in minutes to the point of minimum separation are by default displayed near the end of one of those lines.

Five sets of lines can be simultaneously drawn. It is not possible to select the same track for more than one set.

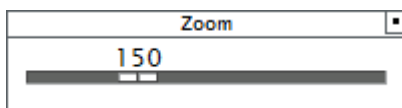
To remove the flight plan minimum separation lines:

- Left-click on the “XFPLSEP” menu item (this removes all flight plan minimum separation lines)  
**or**
- Right-click on either line’s end point

The lines will be automatically removed if one of the tracks is no longer available, the tracks are no longer converging or at least one of the tracks gets a RAM alert.

### 5.3.5 Zoom Window

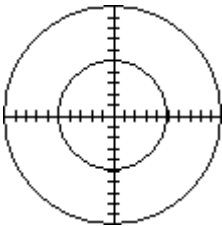
Radar Menu -> Range XXX



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

### 5.3.6 Range Marker

Radar Menu -> [ ] Range Marker



The Range Marker displays 5 and 10 nm radius circles around a selected point. In addition, there are horizontal and vertical lines centered on the point and intermediate lines at 1nm intervals along the lines.

The marker will be initially drawn at the center of the radar screen.

To move the Range Marker:

- Drag the marker’s center point with the left mouse button

To remove the Range Marker:

- Left-click on the “Range Marker” item in the Radar Menu  
**or**
- Right-click on the marker’s center point

### 5.3.7 Track Control Window

Radar Menu -> Track Control...

The Track Control Window is used to set track and track label related options. Note that the “PRL” selection must be on in the Radar Menu 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.

Track Control	
Speed	<input type="text" value="2"/>
History	<input type="text" value="5"/>
Text	<input type="text" value="1"/>
Label fields	<div><input type="checkbox"/> CRC <input type="checkbox"/> N/ATYP <input type="checkbox"/> WTC <input checked="" type="checkbox"/> GS <input type="checkbox"/> XFL <input type="checkbox"/> COPX <input type="checkbox"/> CFL <input type="checkbox"/> RWY <input type="checkbox"/> TTLTTG <input type="checkbox"/> DSFL <input type="checkbox"/> DIAS <input type="checkbox"/> DMACH <input type="checkbox"/> DHDG <input type="checkbox"/> DRC</div>
Flight Leg fields	<div><input checked="" type="checkbox"/> ETO <input checked="" type="checkbox"/> NAME <input type="checkbox"/> DIST <input type="checkbox"/> RFL <input type="checkbox"/> SCFL</div>

- Speed Sets the length of the prediction line in minutes
- History Sets the number of history dots
- Text Changes the track label text size

The visibility in the unselected label of certain track label fields can be set here. The CFL and XFL items prevent hiding the values when they normally would be (for example CFL would be hidden if equal to AFL).

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).

By default, all label fields are unselected. When the “DAPs in Labels” setting (in Global Menu -> Settings) is off, DSFL, DIAS, DMACH, DHDG and DRC are greyed out.

The Flight Leg fields options are used to select which of the fields are shown on the Flight Leg point labels.

### 5.3.8 View Window

Radar Menu -> View...

View
1
2
3

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.

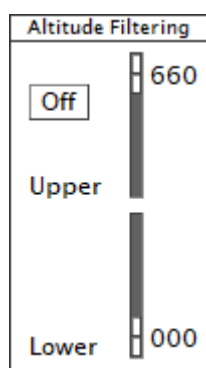


### 5.3.9 Track filtering

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.

#### 5.3.9.1 Altitude Filtering

Radar Menu -> Altitude Filtering...

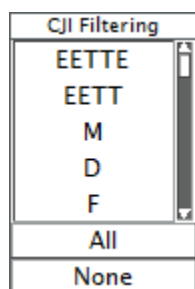


The Altitude Filtering Window is used to filter the displayed track labels based on the aircrafts' altitudes. It closes when the mouse cursor leaves the window area.

To set the filtering limits, values from 0ft to FL660 are available with 100ft steps up to 5000ft, then with 500ft steps up to FL290 and with 1000ft steps up to FL660. Select the levels and click on the filter on/off button to activate the limits. 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).

#### 5.3.9.2 CJI Filtering

Radar Menu -> CJI Filtering...



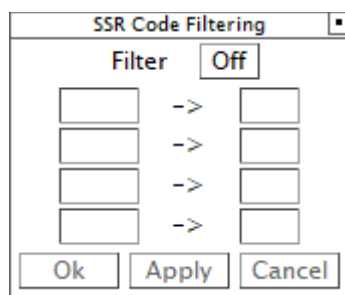
The CJI Filtering Window is used to filter the displayed track labels based on controller ID's. The window shows the currently online controllers. To filter a controller's tracks, click on the controller ID in the list. A filtered ID will be shown in inverse video.

Clicking “All” filters all controllers, “None” clears all controller ID filters.

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

#### 5.3.9.3 SSR Code Filtering

Radar Menu -> SSR Code Filtering...



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 any changes, closes the window

## 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

#### 6.1.1 Controlled track

FIN535	- Assume	Assumes track
Callsign	- Refuse	Refuses the incoming transfer
Assume	- Transfer	Initiates a transfer to the next sector
Transfer	- Trf & Release	Opens the <a href="#">Transfer &amp; Release menu</a>
Trf & Release	- (X)Freq	Toggles the Freq indicator
Freq	- HOP	Initiates a <a href="#">Handover Proposal</a>
HOP	- ROF	Sends a <a href="#">Request On Frequency message</a>
ROF	- Free	Releases track
Free	- On Contact	Sets track in On-Contact state (1)
On Contact	- Δ More	Shows additional less frequently used options (see below)
▼ More		
Highlight		
Mark	- (X)Highlight	Toggles the Callsign field highlight
Missed App	- (X)Mark	Toggles the Mark indicator
FPL...	- (X)Missed App	Toggles the “Missed App” manual alert
XCorrelate	- FPL...	Opens the <a href="#">Flight Plan Window</a>
Hold	- (X)Correlate	Uncorrelates/correlates the flight plan
Manual Transfer	- (X)Hold	“Hold” opens the <a href="#">Hold menu</a> , “XHold” cancels a given holding clearance
Start CPDLC	- Manual Transfer	Opens the <a href="#">Manual Transfer menu</a>
VCI	- Start/End CPDLC	Starts/Ends CPDLC connection with the aircraft
Squawk Ident	- VCI	Opens the <a href="#">VCI menu</a>
CPDLC Free Text	- Squawk Ident	Sends a “SQUAWK IDENT” CPDLC message to the aircraft
PRL	- CPDLC Free Text	Opens the <a href="#">CPDLC Free Text menu</a>
Inbound Est	- PRL	Opens the <a href="#">Prediction Line menu</a>
Irregular	- (X)Inbound Est	Toggles the “Inbound Est” manual alert
	- (X)Irregular	Toggles the “Irregular” manual alert
	- (X)Weather	Toggles the “Weather” manual alert

Besides the manual alerts, none of the selectable toggle options in this menu will be transmitted to other controllers, but the **“Mark”**, **“Freq”** and highlight selections will be seen in your other EuroScope instances. A holding clearance is 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 **“Correlate”** 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

FIN535 Callsign	- On Contact	Sets track in On-Contact state (“Assumed” color, can’t be filtered, but still uncontrolled)
On Contact	- Free	Releases track
Free	- Assume	Assumes track (which then changes it to a controlled track) (1)
Assume	- (X)Highlight	Toggles the Callsign highlight
Highlight	- (X)Correlate	Uncorrelates/correlates the flight plan
XCorrelate	- (X)Hold	“Hold” opens the <a href="#">Hold menu</a> , “XHold” cancels a given holding clearance
Hold	- FPL...	Opens the <a href="#">Flight Plan Window</a>
FPL...	- PRL	Opens the <a href="#">Prediction Line menu</a>
PRL		

- 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.

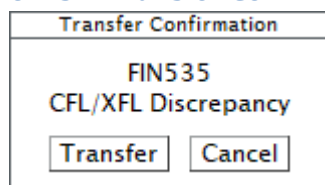
### 6.1.3 Uncorrelated track

A1206 Callsign	- Correlate	Correlates the radar track with the next clicked “Callsign” field
Correlate	- Create APL	Opens the <a href="#">Create APL Window</a>
Create APL	- PRL	Opens the <a href="#">Prediction Line menu</a>
PRL		

### 6.1.4 Transfer menu

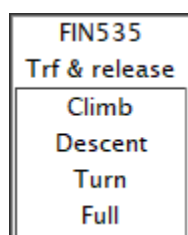
FIN535 Transfer	For CPDLC connected aircraft, the menu contains options related to the transfer. Left-clicking on the frequency button initiates the transfer (and sends the CPDLC message if selected).
129.900	
Select Freq	
◇ Monitor	<b>“Monitor” / “Contact”</b> select which of the two CPDLC message types will be sent.
◆ Contact	
◆ R/T	<b>“R/T” / “CPDLC”</b> select whether the transfer instruction is given via radio or as a CPDLC message.
◇ CPDLC	

### 6.1.5 Transfer Confirmation Window

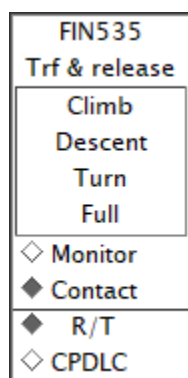


If an aircraft has a defined XFL value and hasn't been cleared to it (CFL is not equal to XFL), attempting to transfer the aircraft will open a Transfer Confirmation Window in the middle of the radar screen. While the window is open it will block all other attempts to click on items elsewhere on the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

FIN535
Hold
SUVIB
RIBVU
ASLUP
NEPIX
MIPGO
EKNOM
VEKIP
NIPAK
INSAR
EFRO
Here

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

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

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

### 6.1.9 Manual Transfer menu

FIN535
Manual Transfer
SCHEDULED
ROTMA
ROARA
ROTWA
▼ More
EETTE
EETT
M
D
F
ENBDC
ESOS
ESOS3
ESOSF
ESOSK

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

FIN535
VCI
124.200
Select Freq
◇ Monitor
◆ Contact

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

ABC521
Waypoint
▼ Routing
EVSET
RENV
TUTUT
NIPAK
INSAR
EFRO
◆ R/T
◇ CPDLC
▼ More
Probe
HOP
▲ Arrival
▲ Departure
▲ TSA Hold
▲ Hold

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 in either case. 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](#).

▲ **Arrival** Opens the EuroScope “Assign STAR” popup

▲ **Departure** Opens the EuroScope “Assign SID” popup

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

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

FIN530
Waypoint
▲ Routing
Accept
Reject
◆ R/T
◇ CPDLC

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

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

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.

ABC521
Waypoint
▼ Routing
EVSET
RENV
TUTUT
NIPAK
INSAR
EFRO
SBY
UNABLE
◇ R/T
◆ CPDLC
▲ More
▲ Arrival
▲ Departure
▲ TSA Hold
▲ Hold

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.



### 6.3.1 TSA Hold submenu

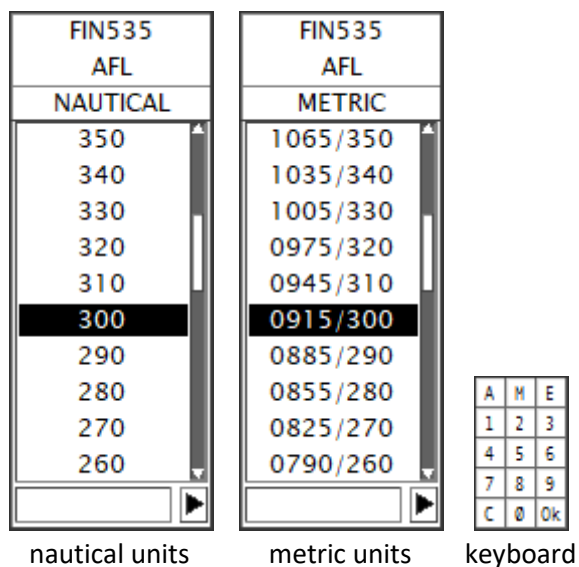
The TSA Hold submenu allows you to enter a clearance to enter an active military area. It displays the active and preactive TSA type areas. If a clearance already exists, the menu will only give the option to remove it with the “**XHold**” item.

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

### 6.3.2 Hold submenu

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

## 6.4 AFL menu



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=yes), the list units can be toggled with the **"NAUTICAL"** / **"METRIC"** item. There are three ways to set the AFL using this menu:

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

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

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

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

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

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

## 6.5 CFL menu

FIN535
CFL
NAUTICAL
150
140
130
120
110
100
090
080
070
060
Visual App
Clear for App

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.

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

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

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

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

FIN535
CFL
NAUTICAL
370
360
350
340
330
320
310
300
290
280
SBY
UNABLE
◇ R/T
◆ CPDLC
Visual App
Clear for App

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

If a level request has been received from the aircraft, there are also “SBY” and “UNABLE” buttons to send those messages as a reply.

When a level request downlink has been received, the “R/T” option is deselected and cannot be selected. The request must be replied to using CPDLC.

When a level clearance uplink 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 via radio (doing so also closes the open uplink message).

## 6.6 RFL menu

FIN535	
RFL	
NAUTICAL	
350	
340	
330	
320	
310	
300	
290	
280	
270	
260	
<input type="text"/>	
NEXT	

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

## 6.7 AHDG menu

FIN535	
AHDG	
015	▲
010	
005	
360	
355	
350	■
345	
340	
335	
330	▼
<input type="text"/>	
▶	
Clear	
▼ More	
Point	
HOP	
RTI	
TIP	

This menu includes items to set or clear an assigned heading or a direct route and to send a HOP. The initially highlighted heading value will be the closest one to the assigned heading if the aircraft has one, otherwise the closest one to the aircraft ground track (or the departure runway heading if the menu is opened from the DEP list).

Clicking on a heading value will set it as the assigned heading. The assigned heading can also be set by typing it into the entry box, using the pop-up keyboard, or by using the [AHDG vector](#).

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

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

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

For CPDLC connected aircraft, the menu contains additional buttons:

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

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

“**SBY**” and “**UNABLE**” send the corresponding answers to a downlink heading request message.

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

FIN535	
AHDG	
005	▲
360	
355	
350	■
345	
340	
335	
330	
325	
320	▼
<input type="text"/>	
▶	
Clear	
◇ R/T	
◆ CPDLC	
SBY	
UNABLE	
▼ More	
Point	
HOP	
RTI	
TIP	

### 6.7.1 Handover Proposal (HOP)

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

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

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

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

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

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

### 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 propose the parameters to the next sector when the aircraft is assumed. Contrary to the HOP function, these coordinations can be refused using the system, and they do not offer the aircraft for transfer.

When sent, the RTI/TIP is displayed on both controllers' screens by displaying the requested parameter in the COORD tag item in "Proposition" color.

To answer the RTI/TIP, open the [Tactical Transfer Menu](#) from the track label or by left-clicking the corresponding message in the [Message In Window](#).

**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 above 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

FIN535
ARC
100ft/mn
50
45
40
35
30
25
20
15
10
05
<input type="checkbox"/> -
<input checked="" type="checkbox"/> +
Resume
▼ More
RTI
TIP

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

Left-clicking on a value in the list assigns it.

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

"Resume" clears the assigned rate.

For "RTI" and "TIP" see the [AHDG menu](#).

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

FIN535
ARC
m/s
25
20
15
10
05
<input type="checkbox"/> -
<input checked="" type="checkbox"/> +
Resume
▼ More
RTI
TIP

## 6.9 ASP menu

FIN535 ASP	FIN535 ASP	FIN535 ASP
KNOTS	KM/H	MACH
N350	K650/N350	M084
N340	K630/N340	M083
N330	K610/N330	M082
N320	K590/N320	M081
N310	K570/N310	M080
N300	K560/N300	M079
N290	K540/N290	M078
N280	K520/N280	M077
N270	K500/N270	M076
N260	K480/N260	M075
<input type="checkbox"/> -	<input type="checkbox"/> -	<input type="checkbox"/> -
<input type="checkbox"/> +	<input type="checkbox"/> +	<input type="checkbox"/> +
Resume	Resume	Resume
▼ More	▼ More	▼ More
HOP	HOP	HOP
RTI	RTI	RTI
TIP	TIP	TIP

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.

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

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

For "HOP", "RTI" and "TIP" see the [AHDG menu](#).

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

FIN535 ASP
MACH
M083
M082
M081
M080
M079
M078
M077
M076
M075
M074
<input type="checkbox"/> -
<input type="checkbox"/> +
Resume
◇ R/T
◆ CPDLC
SBY
UNABLE
▼ More
HOP
RTI
TIP

For CPDLC connected aircraft, the menu contains additional buttons:

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

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

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

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



## 6.10 SSR Code menu

FIN535		
SSR		
1206		
1	2	3
4	5	6
7	8	9
C	0	Ok

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, clear the value and then left-click on “Ok” with the entry box left empty.

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

## 6.11 Combined Transfer menu

FIN535	
CTM	
none	
none	
none	
Accept	

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 Tactical Transfer menu

FIN535	
TTM	
AHDG	360
ASP	250
Accept	
Reject	

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

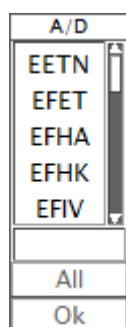
Clicking on “Accept” will accept all proposed values and “Reject” will reject them. The menu is then closed.

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

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

All tactical data coordinations (also any rejected ones) can be viewed in the [Tactical Info Window](#), but they cannot be answered or applied there.

## 6.13 Aerodrome menu

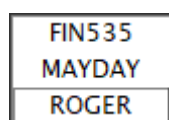


The Aerodrome menu is used to select the aerodrome(s) for aerodrome related windows and functions. The list contains all aerodromes with runways defined in the active sector file. To select an aerodrome, left-click on it or type its identifier into the text entry box below the list.

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.

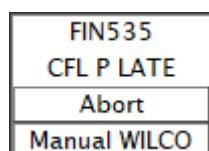
## 6.14 CPDLC Emergency Acknowledgement menu



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.

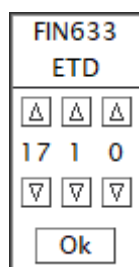
The menu is closed when the “**ROGER**”/“**Ack**” button is clicked or the cursor leaves the menu area.

## 6.15 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.

## 6.16 Time menu



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

- |        |  |
|--------|--|
| - ATD  | current time   |
| - EOBT | current time   |
| - ETD  | current field value                                      |
| - HTT  | current field value if available, current time otherwise |
| - SLOT | current field value if available, current time otherwise |

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

## 6.17 Departure Sequence menu



FIN633  
DSQ  
1  
2  
Clear

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.

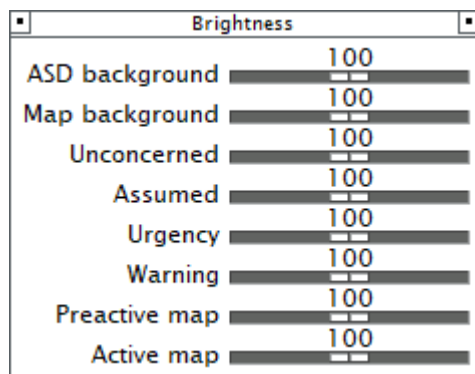
Some windows contain scrollbars to select values or change the items that are displayed:

- 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 Brightness Control Window

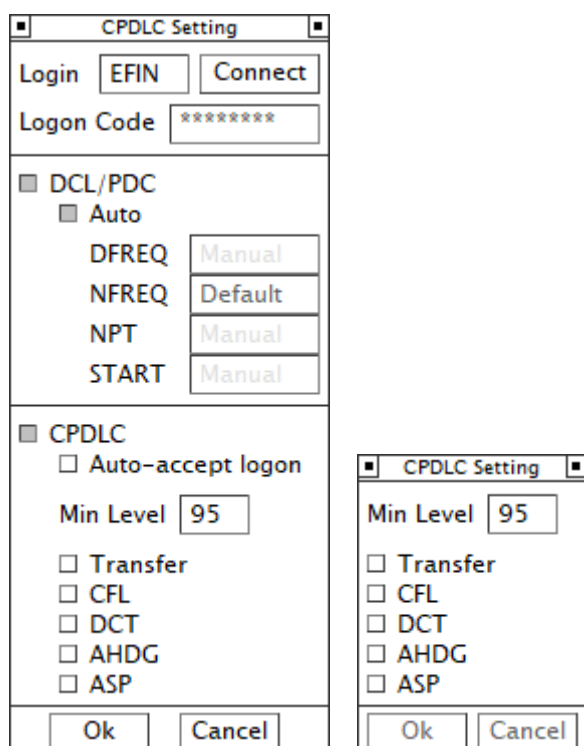
Global Menu -> Settings -> Brightness Control...



The Brightness Control Window allows setting the brightness for some screen colors. The Map background slider only controls the plugin created maps.

## 7.2 CPDLC Setting Window

Global Menu -> Settings -> 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 manually 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”

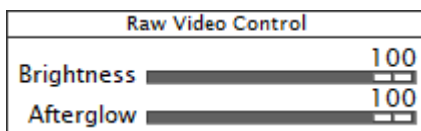
The following items are the only ones visible also in proxy EuroScope instances, and are used to determine whether sending a clearance via CPDLC is the default setting in some of the plugin menus. For this to happen,

- 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.

## 7.3 Raw Video Control Window

Global Menu -> Settings -> 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.

## 7.4 Airspace Management Window

Global Menu -> AirSpace -> TSA...

AIRSPACE MANAGEMENT												
Start Date	F95A	F95B	F95C	CBA	TSA	TRA	RD	DSGPO	DUAV	PR	LTRA	None
Name	Group	Lower	Upper	Map Text	Cat.	Status	Start Date	Start Time	End Date	End Time	User	
EFD658		0	11	D658	DUAV	AUTO	210421	21:00	220420	20:59		
EFR73A		0	50	R73A	RD	AUTO	210504	05:00	210508	21:00	A0982/21	
EFD653A		0	35	D653A	RD	AUTO	210508	01:00	210508	20:00	A0932/21	
EFD653B		0	35	D653B	RD	AUTO	210508	01:00	210508	20:00	A0932/21	
EFD677		0	5	D677	DUAV	AUTO	210508	04:00	210508	17:00	A1160/21	
EFR93A		0	150	R93A	RD	AUTO	210508	04:30	210508	18:00	A0805/21	
EFD113		0	35	D113	DUAV	AUTO	210508	05:00	210508	13:00	A1151/21	
EFR113		0	35	R113	RD	AUTO	210508	05:00	210508	13:00	A1150/21	
EFD678		0	23	D678	DUAV	AUTO	210510	05:00	210510	13:00	A1101/21	
EFR83		0	17	R83	RD	AUTO	210510	05:00	210510	17:00	A0611/21	

Ok Apply Refresh Cancel

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 the SAP system will.

When the cursor is over the window area, the bottom message area displays automatic map activation options depending on the setup. 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
- Category labels Left-click to toggle display of the relevant areas in the list
- "Group" field Left-click to edit field (when edit function active)  
Right-click to open a group pop-up menu (if group not empty)
- 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
- "Refresh" button Not implemented
- "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 |
| - "Master" label | Toggles saving/uploading area activation data    |

**The sorting pop-up menu contains the following items:**

- |              |   |
|--------------|---|
| - Start Date | Sorts based on the Start Date/Time, earliest first  |
| - Name       | Sorts alphabetically based on the Name field  |
| - Map Text   | Sorts alphabetically based on the Map Text field  |
| - Group      | Sorts alphabetically based on the Group field   |
| - Category   | Sorts alphabetically based on the Category field  |
| - Status     | Sorts based on the activity status. The sorting order is<br>PRE_ACT -> ACTIVE -> INACTIVE -> AUTO |

**The group pop-up menu contains the following items:**

- |                      |   |
|----------------------|---|
| - ACTIVATE GROUP     | Activates all areas belonging to the group    |
| - DEACTIVATE GROUP   | Deactivates all areas belonging to the group  |
| - EDIT MULTI         | Enters multi edit mode for the selected group |
| - ADD/REMOVE MEMBERS | Enters group edit mode for the selected group |

With the group pop-up menu opened, the area text row background changes to "Flight Highlight" color. The menu title shows the group name. For the first three items, a pop-up window opens to confirm the selection. In multi edit mode, all the areas in that group will be shown with "Selected Group" color, and editing any data field will cause the same value to be set to all areas in the group. After making the changes, click on "Ok", "Apply" or "Cancel". In group edit mode, the "Group" label on the window's menu bar is highlighted with "Selected Group" background. Left-clicking on any area's group field will add it to the selected group if it's not already in it, or remove it if it was in the group. Right-clicking will exit group edit mode, and the "Group" highlight on the menu bar is removed.

**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           |
| - VALIDATE   | Not implemented   |
| - EDIT       | Allows to change the area parameters  |
| - COPY       | Not implemented   |
| - DELETE     | Clears any activation times, returns label and altitude limits to their default values and deactivates the area |

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:

- |              |  |
|--------------|--|
| - Group      | Set/change/delete the group name           |
| - 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 (meters+”m” if metric units chosen) if at or below the transition altitude, otherwise in flight levels (meters standard+”m”). They must be entered in the same format.

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 will also be displayed in the area label on the radar screen.

### 7.4.1 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.

#### 7.4.1.1 Area label

An area may display a predefined reduced text label, showing information about the area. By holding the left mouse button down on the first of NAME, MAPTEXT or UPPER/LOWER (or on a very small “-” symbol if none of them are configured to be displayed for the area), a full area label will be displayed, showing:

```

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

```

- |                 |   |
|-----------------|---|
| - NAME          | The area name   |
| - MAPTEXT       | The area map text   |
| - USERTEXT      | The area user text string (not shown by default, must be enabled in plugin settings)      |
| - UPPER / LOWER | The area level limits   |
| - START_TIME    | The area activation start time (not shown by default, must be enabled in plugin settings) |
| - END_TIME      | The area activation end time (not shown by default, must be enabled in plugin settings)   |
| - TIME_TO_ACT   | For preactive areas, the time in minutes until the area becomes active                    |

The reduced label can be configured to display any of these fields except TIME\_TO\_ACT.

## 7.5 NAT List Window

Global Menu -> AirSpace -> 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.

## 7.6 Flight Plan Selection Window

Global Menu -> FlightData -> Flight Plan Selection...

Flight Plan Selection			
Callsign	<input type="text"/>	RPL	<input type="text" value="N"/>
ASSR	<input type="text"/>	ADEP	<input type="text"/>
<input type="button" value="Ok"/>		<input type="button" value="Cancel"/>	

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.

## 7.7 Flight Plan Window

Global Menu -> FlightData -> 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:

- Callsign                      Callsign of the aircraft
- FRUL                         Flight rules (I, V, Y or Z)
- FTYPE                        not available
- NRAC                         Number of aircraft
- ATYP/W                      Aircraft type and wake turbulence category
- EQCST                       Displays aircraft equipment status for certain equipment (W, Y, U, R and P)
  - “EQ” equipped, “NO” not equipped, “UN” unknown.
- EOBD                         Estimated Off-Block Date
- EOBT                         Estimated Off-Block Time
- 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
- EET                            Estimated Elapsed Time

- ALTN Alternate aerodrome(s)
- ETD Estimated Time of Departure
- ETB Estimated time to enter your sector
- TAS True Air Speed
- RFL Requested Flight Level
- RTE Route
- Other Flight plan remarks 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
- Type Type of flight plan (APL or FPL)
- Status Status of the flight plan
- ETN Estimated time to COPN
- COPN Entry coordination point
- ETX Estimated time to COPX
- COPX Exit coordination point
- LFUNC Controller who is currently tracking the aircraft
- 0/0 Number of the displayed FPL in the list / total number of flight plans in the list

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
- Probe Not implemented
- 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
- ACT Not implemented
- SAC Enter a slot time
  - Enter the time to the ETD field, **"Cancel"** aborts the operation
- CREAPL Create a new abbreviated flight plan (APL)
  - Editable fields will be highlighted
  - **"Apply"** creates the APL, **"Cancel"** aborts the operation
- MODAPL Modify the currently displayed APL

- Editable fields will be highlighted
  - **“Apply”** modifies the APL, **“Cancel”** aborts the operation
- CONV Convert an APL to an FPL
  - Editable fields will be highlighted
  - Default values will be set to FRUL, NRAC, EQUIP and Other fields
  - **“Apply”** converts the APL, **“Cancel”** aborts the operation
- Unforce Cancel the forced inclusion of this aircraft in the MTCD and SAP processing
- Terminate Not implemented
- CNL Not implemented
- RTE Opens the [Complete Route Window](#)
- 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](#))
- 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
- 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](#).

## 7.8 Complete Route Window

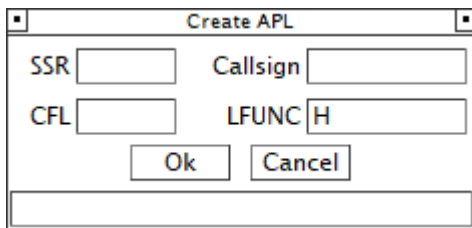
Flight Plan Window -> “RTE” button

Complete Route					
MIMRU	ELPOP	SUVIB	RIBVU	ASLUP	NEPIX
----	----	1238	1243	1245	1252
---	---	300	285	237	100

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.

## 7.9 Create APL Window

Callsign menu (uncorrelated track only) -> "Create 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.

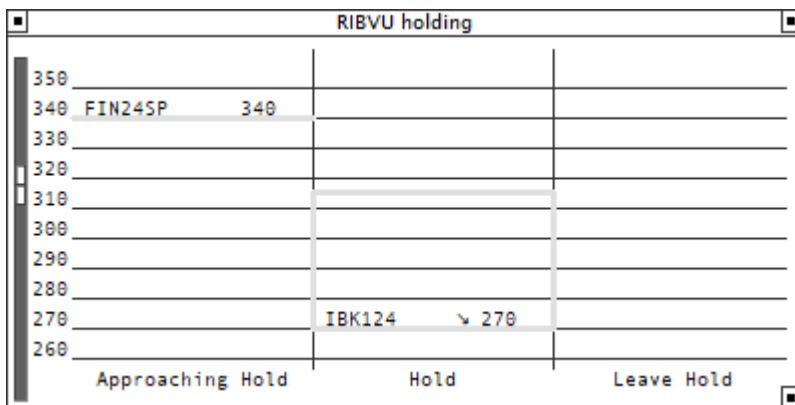
If the SSR field is left empty, a code will be automatically assigned from a dedicated APL code range. If no codes are available, an error message will be shown and a code must be manually entered.

For the accepted CFL entry formats, see [AFL menu](#).

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

## 7.10 Stack Manager Window

Holding List... -> "HPT" item



Altitude	Approaching Hold	Hold	Leave Hold
350			
340	FIN245P	340	
330			
320			
310			
300			
290			
280			
270		IBK124	270
260			

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 at their cleared flight levels. For each aircraft the label contains:

- Callsign
- Attitude indicator (“#” in “Warning” color for aircraft without altitude information)
- No RVSM capability flag
- CFL

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:**

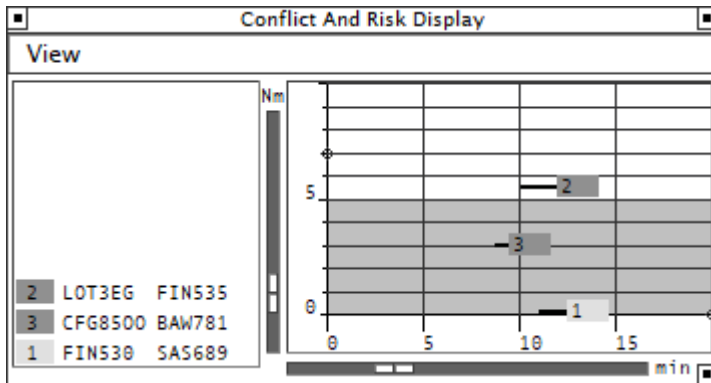
- |                                  |   |
|----------------------------------|---|
| - Slider or view background area | Drag to adjust the lowest shown FL              |
| - Aircraft callsigns             | Open <a href="#">Callsign menu</a> (1)          |
| - CFLs                           | Open <a href="#">CFL menu</a> (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](#).



## 7.11 CARD (Conflict And Risk Display)

Global Menu -> ControlTools -> 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 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. The conflict numbers are shown in "CARD Symbol Fg" color. An acknowledged conflict will be automatically de-acknowledged if the predicted minimum separation decreases by a predefined amount.

Hovering the mouse cursor over a conflict label will display the conflict on the radar screen.

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 with a "Foreground" colored edge.

The area below 5nm distance is drawn in "CARD Min Sep" color.

### The mouse click areas of the CARD window:

- |                              |   |
|------------------------------|---|
| - "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                        |
| - Conflict number labels     | Left-click to toggle acknowledgement status           |
|                              | Middle-click to toggle SEP (minimum separation lines) |
|                              | Right-click to toggle highlight of both callsigns     |

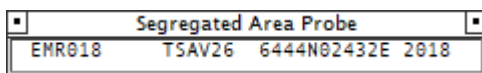
From the “View” menu it is possible to toggle various MTCD related options:

- List Toggles display of the list area
- Risk Toggles display of MTCD risks of conflict
- Potential Predicted Toggles display of MTCD potential predicted conflicts (1)
- Potential Risk Toggles display of MTCD potential risks of conflict (1)
- 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

## 7.12 SAP Window

Global Menu -> ControlTools -> SAP...

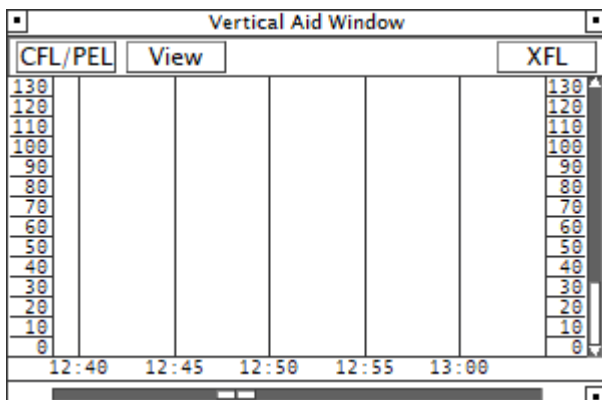


The SAP window lists the aircraft that have SAP conflicts (can be set to also show risks). The list shows the aircraft callsign, the area it will enter and the coordinates and the time when it will enter it. Only the first entered area will be shown if the aircraft is predicted to enter more than one active area. Placing the mouse cursor over an aircraft line will show the aircraft’s route on the radar screen up to the first point of entering an active area or the first point where there is a risk of doing so if risks are selected to be displayed on the window. The list is sorted according to the entry time field, with the earliest time on top.

## 7.13 Vertical Aid Window

“Open Vertical Aid Window” tag function

Middle-click callsign on CARD



The Vertical Aid Window shows the predicted vertical trajectory of the selected aircraft in “VAW Profile” color, starting from its current position (marked with a dot in “VAW Track Position” color), and its MTCD and SAP conflicts. 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.

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

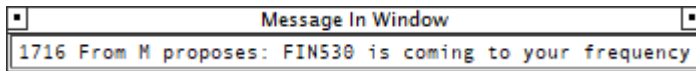
**From the View menu it is possible to toggle various MTCD related options:**

- 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.

## 7.14 Message In Window

Global Menu -> ControlTools -> Message In...



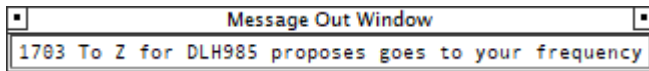
The Message In Window shows received coordination messages, sorted by time, with the newest ones at the top of the list. For the ones requiring an answer, it is possible to send it either from this window, the aircraft track label or any aircraft list where the relevant items are displayed. The messages 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> proposes: <Callsign> is coming to your frequency"
  - o Displayed when the track is being transferred to you
  - o Removed when the transfer is complete or cancelled
- "From <SI> for <Callsign> proposes Request on downstream frequency"
  - o Displayed when the next controller has sent a message requesting the track to be transferred to his frequency
  - o Left-clicking on the line manually removed it
  - o Removed when a transfer is started
- "From <SI> for <Callsign> proposes Handover [HDG xxx] [DCT xxxxx] [SP xxx]"
  - o Displayed when there is a HOP in progress
  - o Left-clicking on the line opens the [Combined Transfer Menu](#)
  - o Removed when the transfer is complete or cancelled
- "From <SI> for <Callsign> RTI [HDG xxx] [SP xxx] [ARC xx]"
  - o Displayed when an RTI message has been received
  - o Left-clicking on the line opens the [Tactical Transfer Menu](#)
- "From <SI> for <Callsign> TIP [HDG xxx] [SP xxx] [ARC xx]"
  - o Displayed when a TIP message has been received
  - o Left-clicking on the line opens the [Tactical Transfer Menu](#)
  - o Removed when the track becomes Assumed
- "From <SI> for <Callsign> proposes HOP/RTI/TIP Accepted"
  - o Displayed when an Accept message has been received to HOP, RTI or TIP
  - o Left-clicking on the line manually removes it
- "From <SI> for <Callsign> proposes RTI/TIP rejected [by timeout/by system]"
  - o Displayed when a reject message has been received to RTI or TIP
  - o Left-clicking on the line manually removes it
- "From <SI> for <Callsign> proposes CDN [level] [DCT xxxxx]"
  - o Displayed when an entry coordination has been received
  - o Left-clicking on a value opens the EuroScope default menu to answer
  - o Removed when the track becomes Assumed
- "From <SI> for <Callsign> proposes RAP/RRV [level] [DCT xxxxx]"
  - o Displayed when an exit coordination has been received
  - o Left-clicking on a value opens the EuroScope default menu to answer an active coordination
- "From <SI>: <Callsign> will be squawking <ASSR>"
  - o Displayed when a previous controller assigns a new SSR code for a track
  - o Left-clicking on the line manually removes it

## 7.15 Message Out Window

Global Menu -> ControlTools -> Message Out...



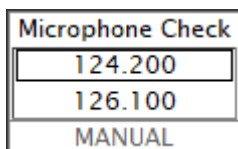
The Message Out Window shows the coordination messages you have sent, sorted by time, with the newest ones at the top of the list. The messages will be automatically removed when the track becomes Unconcerned. To manually remove a line, left-click on it.

The available message types are:

- "To <SI> for <Callsign> proposes goes to your frequency"
  - o Displayed when you transfer a track
- "To <SI> Request <Callsign> on frequency"
  - o Displayed when you have sent a ROF message
- "To <SI> for <Callsign> proposes Handover [HDG xxx] [DCT xxxxx] [SP xxx]"
  - o Displayed when you have sent a HOP
- "To <SI> for <Callsign> RTI [HDG xxx] [SP xxx] [ARC xx]"
  - o Displayed when you have sent an RTI message
- "To <SI> for <Callsign> TIP [HDG xxx] [SP xxx] [ARC xx]"
  - o Displayed when you have sent a TIP message
- "To <SI> for <Callsign> proposes HOP/RTI/TIP Accepted"
  - o Displayed when you have sent an Accept message to HOP, RTI or TIP
- "To <SI> for <Callsign> proposes RTI/TIP rejected [by timeout/by system]"
  - o 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> proposes RAP/RRV [level] [DCT xxxxx]"
  - o Displayed when you have sent an entry coordination
- "To <SI> for <Callsign> proposes CDN [level] [DCT xxxxx]"
  - o Displayed when you have sent an exit coordination
- "To <SI> for <Callsign> proposes will squawk <ASSR>"
  - o Displayed when you have assigned a new SSR code and there is a next controller online for the track

## 7.16 Microphone Check menu

Global Menu -> ControlTools -> CPDLC -> Microphone Check

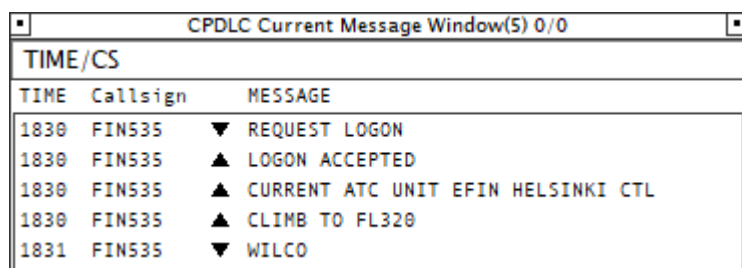


The Microphone Check menu is used to send a "CHECK STUCK MICROPHONE <frequency>" CPDLC message to all CPDLC connected aircraft when a stuck mic is suspected. The menu lists all frequencies selected for XMT TXT in EuroScope; left-clicking on one sends the messages. Manual frequency entry is not available.

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

## 7.17 CPDLC Current Message Window

Global Menu -> ControlTools -> CPDLC -> Current Messages...



TIME	Callsign	MESSAGE
1830	FIN535	▼ REQUEST LOGON
1830	FIN535	▲ LOGON ACCEPTED
1830	FIN535	▲ CURRENT ATC UNIT EFIN HELSINKI CTL
1830	FIN535	▲ CLIMB TO FL320
1831	FIN535	▼ WILCO

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” CPDLC emergency messages that have not been replied to
- “CPDLC Failed” Failed uplink messages
- “CPDLC Controller Late” Timed out downlink requests
- “CPDLC Pilot Late” Timed out uplink clearances
- “CPDLC DM Request” Downlink requests waiting for controller reply
- “CPDLC UM Clearance” Uplink clearances waiting for pilot reply
- “CPDLC Unable” Uplink clearances replied to with “UNABLE”
- “CPDLC Standby” Uplink clearances replied to with “STANDBY”
- “CPDLC Discarded” Discarded messages
- “Foreground” 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 archived automatically 60 seconds after they are closed. The manual “Archive” function may be used to archive them earlier if necessary, or if the automatic archiving fails for any reason.

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.

### 7.17.1 Manual Reply Window

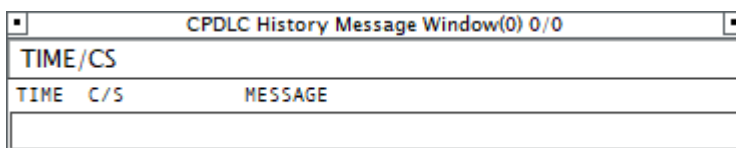
This window is used to send a manually composed reply to a CPDLC message (max 99 characters). Left-click on the area below the “Message text” label to enter the message and select one of the “Expected reply” options. Then left-click on “Send” to send the message.

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!

## 7.18 CPDLC History Message Window

Global Menu -> ControlTools -> CPDLC -> History Messages...

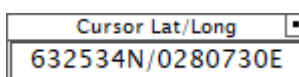


CPDLC History Message Window(0) 0/0			
TIME/CS			
TIME	C/S	MESSAGE	

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

## 7.19 Cursor Lat/Long Window

Global Menu -> ControlTools -> LAT/LONG...

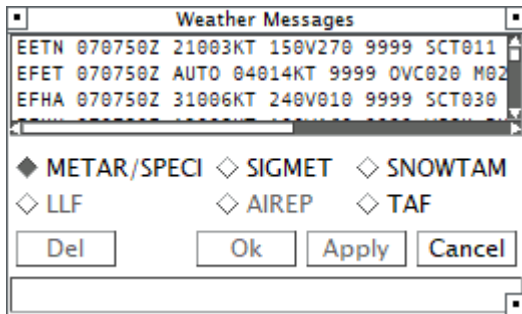


Cursor Lat/Long
632534N/0280730E

Displays the latitude and longitude values of the cursor position.

## 7.20 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 “SNOWTAM”, “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 and TAFs. The SIGMETs are retrieved when the “**SIGMET**” button is selected for the first time. Selecting the “**TAF**” option will open the [Aerodrome menu](#) where the desired stations must be selected. 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/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:

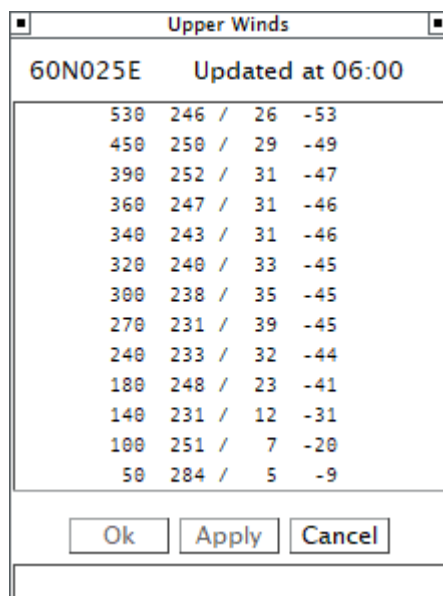
- Left-click on a single METAR/SIGMET/TAF
- or**
- Right-click on a decoded METAR

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)

## 7.21 Upper Winds Window

Global Menu -> MET -> Upper Winds...

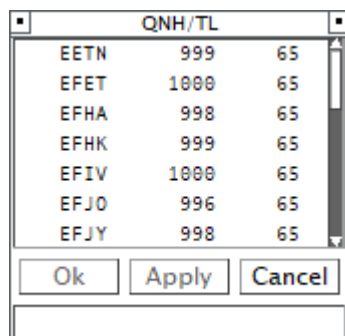


The window displays upper winds and temperatures from a range of levels at a user specified position. To enter the point, click on the “--N---E” item and enter the position. Acceptable entries are locations defined in the active sector file and lat/lon positions in whole degrees (either in the flight 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.

## 7.22 QNH/TL Window

Global Menu -> MET -> QNH/TL...



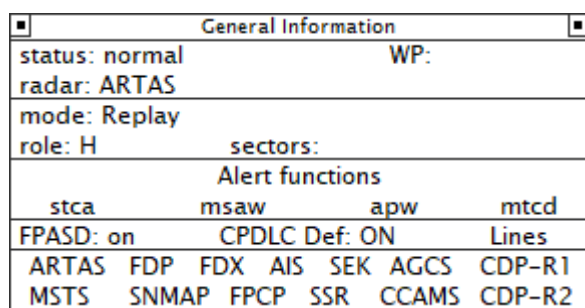
QNH/TL		
EETN	999	65
EFET	1000	65
EFHA	998	65
EFHK	999	65
EFIV	1000	65
EFJO	996	65
EFJY	998	65

Ok Apply Cancel

The window displays the QNH values and corresponding transition levels 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.

## 7.23 General Information Window

Global menu -> Info -> General Information...



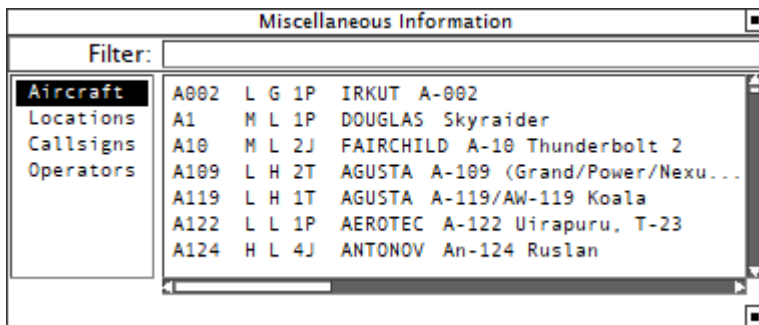
General Information						
status: normal		WP:				
radar: ARTAS						
mode: Replay						
role: H		sectors:				
Alert functions						
stca	msaw	apw	mtcd			
FPASD: on	CPDLC Def: ON	Lines				
ARTAS	FDP	FDX	AIS	SEK	AGCS	CDP-R1
MSTS	SNMAP	FPCP	SSR	CCAMS	CDP-R2	

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

- QNH Shows the local QNH value (below the "WP:" item when available)
- mode "Free", "Operational", "Proxy", "Replay" or "Training" depending on the connection method
- role Own controller ID
- 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.
- FPASD: [on|off] Displays the state of the FPASD setting
- CPDLC Def: [ON|OFF] Displays the state of the CPDLC Default setting
- SEK Displayed if plugin is receiving AMAN data. "Warning" color if data loading has failed.
- AGCS "Warning" color if Hoppie datalink comms are failed
- FPCP "Warning" color if prediction time is set to zero
- 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

## 7.24 Miscellaneous Information Window

Global Menu -> Info -> MISC Information...



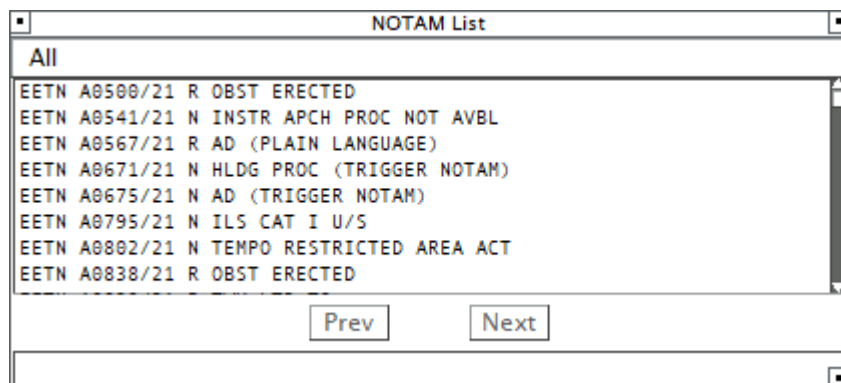
The Miscellaneous Information Window is used to browse and search for information in specific data files

- Aircraft                      Information about aircraft types
  - o Type designator
  - o Wake turbulence category
  - o Description (Amphibian, Gyrocopter, Helicopter, Landplane, Seamplane, Tiltrotor)
  - o Engine count and type (Electric, Jet, Piston, Rocket or Turboprop/turboshaft)
  - o Manufacturer and model
- Locations                    Information about aerodromes
  - o Location indicator
  - o Location name
  - o (State/Territory)
- Callsigns                    Information about aircraft operators
  - o Three-letter designator
  - o Telephony designator
  - o (Aircraft operating agency and notifying state)
- Operators                    Information about aircraft operators
  - o Three-letter designator
  - o Aircraft operating agency and notifying state
  - o (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).

## 7.25 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:

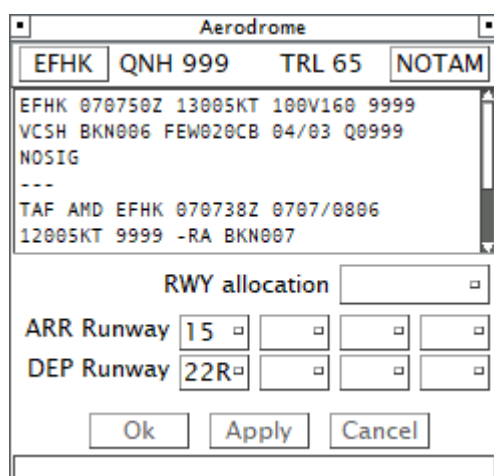
- Location ID (ICAO designator)
- Serial number
- Type ("N" = new, "R" = replaces earlier NOTAM, "C" = cancels earlier NOTAM)
- Abbreviated form of the NOTAM message contents (basic data from the NOTAM header)

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".

## 7.26 Aerodrome Window

Global Menu -> Info -> Aerodrome...



The Aerodrome Window displays information about the selected airport.

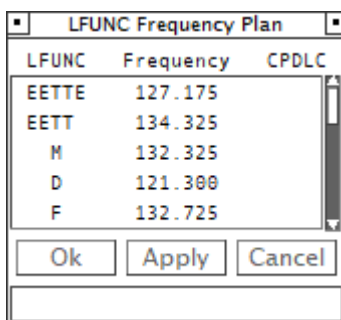
Left-clicking on the airport ICAO code opens the [Aerodrome menu](#) to select another airport, and left-clicking on the “NOTAM” button opens the [NOTAM List Window](#), showing only the NOTAMs for the selected airport.

Below the header, the latest METAR and TAF for the airport are displayed. The QNH and TRL in the header are based on the METAR data.

The bottom part of the window displays the arrival and departure runway allocation at the selected airport. The runway selections are read-only in this window.

## 7.27 LFUNC Frequency Plan Window

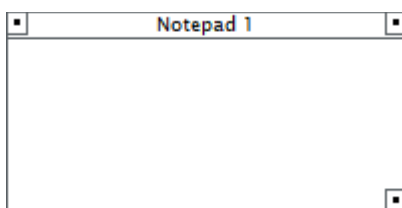
Global Menu -> Info -> LFUNC Frequency Plan...



The LFUNC Frequency Plan Window displays the currently online position-identified controllers and their primary frequencies as well as their CPDLC logon callsigns where applicable. The CPDLC information is not displayed on proxy instances or when there are no CPDLC stations online.

## 7.28 Notepad Window

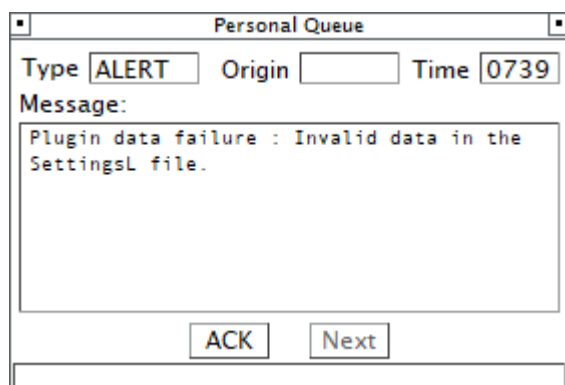
Global Menu -> Messages -> Notepad...



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.

## 7.29 Personal Queue Window

Global Menu -> Messages -> Personal Queue...



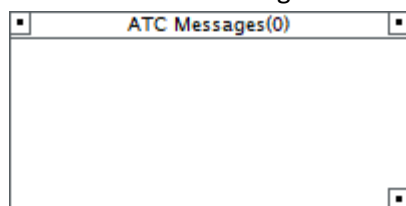
The Personal Queue Window displays warning messages related to the plugin's operation: high priority messages informing about potential critical failures in the plugin code, and low priority messages informing about faults in the plugin's external data files or timeout alerts for coordination messages.

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.

## 7.30 ATC Messages Window / Primary Frequency Messages Window

Global Menu -> Messages -> 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.

## 7.31 Safety Nets Status Window

Global Menu -> Status -> Safety Nets Status...

Area	Lower	Upper	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 all 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).

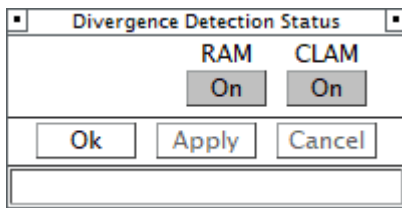
If there are STCA inhibition areas defined in the area data file, they will be listed in the area in the bottom part of the window. The area vertical limits (displayed in 100’s of feet or meters+“m” depending on system units) can be edited by clicking on the values, and the area activation can be toggled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

## 7.32 Divergence Detection Status Window

Global Menu -> Status -> Divergence Detection Status...



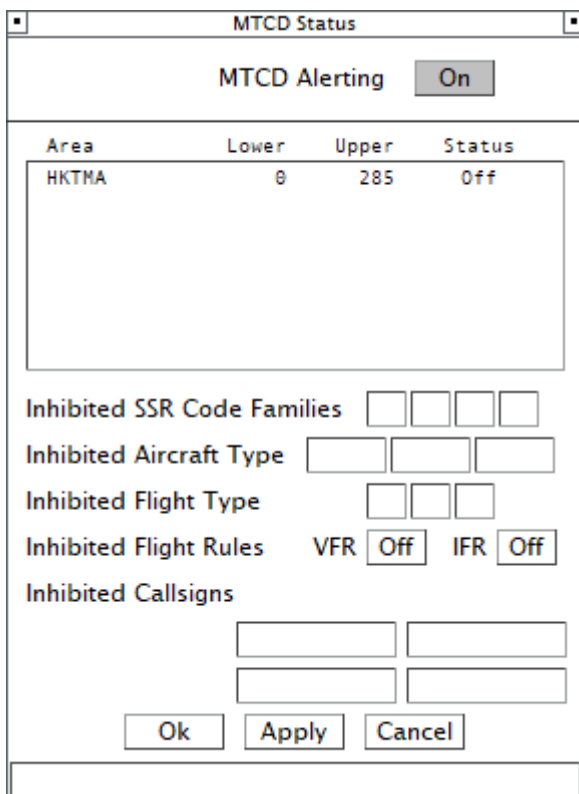
RAM	CLAM
On	On
Ok   Apply   Cancel	

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

## 7.33 MTCD Status Window

Global Menu -> Status -> MTCD Status...



Area	Lower	Upper	Status
HKTMA	0	285	Off

Inhibited SSR Code Families ☐ ☐ ☐ ☐

Inhibited Aircraft Type ☐ ☐ ☐

Inhibited Flight Type ☐ ☐ ☐

Inhibited Flight Rules VFR ☐ Off IFR ☐ Off

Inhibited Callsigns ☐ ☐ ☐ ☐

Ok   Apply   Cancel

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).

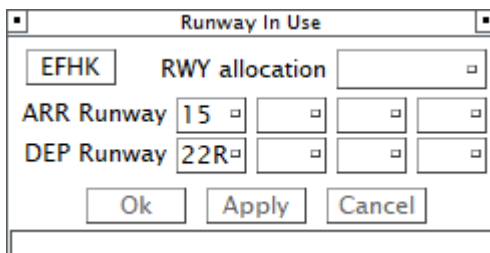
All changes to the window must be applied using the buttons in the bottom of the window to take effect.

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

## 7.34 Runway In Use Window

Global Menu -> Status -> Runway In Use...

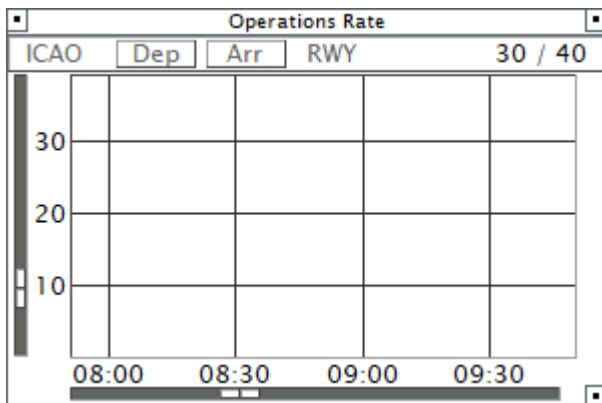
Radar screen -> middle-click on Airport symbol drawn by the plugin's "AD\_Hotspots" map...



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

## 7.35 Operations Rate Window

Global Menu -> Status -> 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).

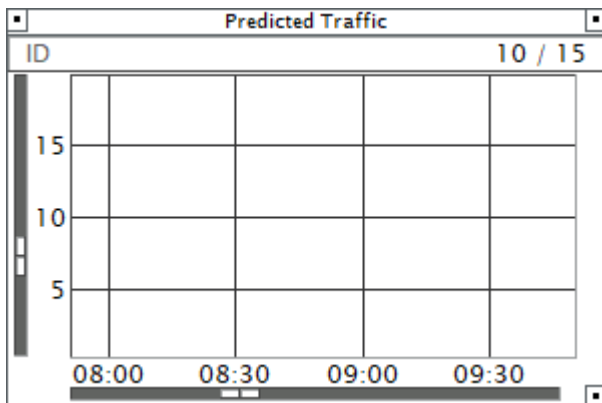
The "RWY" label allows entering one or more runway identifiers to filter traffic based on the assigned runway.

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 "Normal Load" color, a rate above that but at or below the warning limit in "Warning" and a rate above that in "Overload". 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

## 7.36 Predicted Traffic Window

Global Menu -> Status -> 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. If the monitored ID is your own, the data area background will be in "Active Sector" color, otherwise in "Inactive Sector".

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 "Normal Load" color, a number above that but at or below the warning limit in "Warning" and a number above that in "Overload".

The two sliders change the traffic number and time scales.

### 7.37 Runway Approach Line Window

Radar screen -> right-click on Airport symbol drawn by the plugin's "AD\_Hotspots" map...

EFHK	
RWL DISPLAY	
04L <input type="checkbox"/>	22R <input type="checkbox"/>
04R <input type="checkbox"/>	22L <input type="checkbox"/>
15 <input checked="" type="checkbox"/>	33 <input type="checkbox"/>
ARR RWL DISPLAY	
<input checked="" type="checkbox"/>	
Runways in use	
ARR: 15	
DEP: 22R	

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 runway approach line is by default 16nm long and has 5 distance markers at 2nm intervals. The color of the line is different depending on whether the runway is active for arrivals or not.

### 7.38 Tactical Info Window

"Open Tactical Info Window" tag function

TACTICAL	
FIN535	
AHDG	360
ASP	250
ARC	none

The Tactical Info Window displays coordinated tactical data (AHDG, ASP and/or ARC). Proposed data is in "Proposition", rejected data in "Warning" and accepted data in sector state color. This window only displays the information; to answer or apply the data use the [Tactical Transfer menu](#).

## 7.39 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	RENV13A
AHDG	
CFL	350
ASSR	A1352
Ok	
Cancel	

The Pre-Departure Clearance Window is used to issue departure clearances, either via R/T or datalink. 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.

## 7.40 Departure Coordination Window

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

DEP COORD	
FIN633	
21	
RENV13A	
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

## 7.41 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")   |

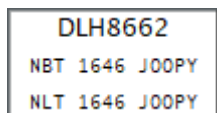
The buttons are as follows:

- |            |  |
|------------|--|
| - 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).

## 7.42 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

Global Menu -> ControlTools -> 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 Pre-Activation List

Global Menu -> ControlTools -> Flight Plan Lists -> Pre-Activation List...

The Pre-Activation 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 Main VFR List

Global Menu -> ControlTools -> Flight Plan Lists -> Main VFR List...

The Main VFR List 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.

### 8.4 Secondary VFR List

Global Menu -> ControlTools -> Flight Plan Lists -> Secondary VFR List...

The Secondary VFR List is another VFR list to be used if different filtering options are needed.



## 8.5 Lost List

Global Menu -> ControlTools -> 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.

LOST LIST(1) 0/0						
View Options						
Callsign	N/ATYP	AFL	CFL	ASSR	FPASD	Lost
FIN535	1/MD83	300	300	A1206	■	1644

The Lost List contains the following fields:

Field	Type	Left click	Right click
- Callsign	mandatory	Open <a href="#">Callsign menu</a>	-
- N/ATYP	optional	-	-
- AFL (last received)	optional	-	Toggle route draw
- CFL	optional	Open <a href="#">CFL menu</a>	Toggle route draw
- ASSR	mandatory	Open <a href="#">SSR Code menu</a>	-
- FPASD	optional	Toggle FPASD track (when globally off)	-
- Lost (time)	optional	-	-

**“View”** opens the View menu:

- Header Toggle visibility of the list header line
- Standard Set the list in Standard mode (only mandatory fields shown)
- Extended Set the list in Extended mode

**“Options”** opens the Options menu to select which optional fields are shown in Extended mode. The “All” selection shows all fields without affecting the individual selections.

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.

## 8.6 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.

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.

HOLDING LIST(3) 0/0									
View	Options	ETO on Holding point							
Label	Callsign	AFL	CFL	HPT	ETO	FF	STAFF	TTLTTG	HTT
■ IBK124		315 ▾	270	RIBVU	1038	NEPIX	1110	L23	□
■ DLH2871		352 ▾	340	GODOB	1041	NEPIX	1133	L36	□
■ FIN245P		340	340	RIBVU	1046	NEPIX	1134	L37	1140 ■

The Holding List contains the following fields:

Field	Type	Left click	Right click
- Label	mandatory	Hide/display track label	-
- Callsign	mandatory	Open <a href="#">Callsign menu</a>	-
- AFL	mandatory	Open <a href="#">AFL menu</a>	Toggle route draw
- (attitude indicator)	mandatory	-	-
- CFL	mandatory	Open <a href="#">CFL menu</a>	Toggle route draw
- HPT	mandatory	Open <a href="#">Stack Manager Window</a>	-
- ETO	mandatory	-	-
- FF (1)	optional	-	-
- STAFF (1)	optional	-	-
- TTLTTG (1)	optional	-	-
- HTT	mandatory	Open <a href="#">Time menu</a>	-
- (HTT given indicator)	mandatory	Toggle HTT given indicator	-

- 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

**“View”** opens the View menu:

- Header Toggle visibility of the list header line
- Standard Set the list in Standard mode (only mandatory fields shown)
- Extended Set the list in Extended mode

**“Options”** opens the Options menu to select which optional fields are shown in Extended mode. The “All” selection shows all fields without affecting the individual selections.

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

- ETO on Holding point ETO at the holding point -> Holding point name -> Callsign
- Holding point Holding point name -> CFL -> Callsign

- FF/STAFF

Feeder fix name -> Scheduled time at feeder fix -> Callsign

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.

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.

The holding termination time, if entered, is broadcast to other controllers as well. By default, 10 minutes after it a warning message will be entered into the tracking controller's [Personal Queue Window](#) if the holding has not been terminated. The HTT is not used for any predictions. The HTT given indicator is not transmitted to other controllers.

## 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>       |
| - Inhibit active filters for 5 seconds (Quick Look)                                      | <ALT> + <U>       |
| - Display the Flight Leg for the selected flight for 5 seconds (1)                       | <ALT> + <L>       |
| - Start a new minimum separation line  | <ALT> + <S>       |
| - Start a new flight plan minimum separation line  | <ALT> + <P>       |
| - 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) (2) | <ALT> + <0>...<9> |

- 1) "Selected flight" means that the mouse cursor is over that flight's track label
- 2) 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.

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

- 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 Create APL Window
- Open Runway Approach Line Window
- Open new Notepad Window
- Toggle QNH/TL Window

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 coloring the CALLSIGN item background (plugin drawn windows) or the text itself (elsewhere where the plugin can't control the background color) in “Warning” color unless the CALLSIGN item has been manually highlighted, and also by displaying the text “APW” in the ALRT tag item (an MSAW alert will have priority over an APW alert there) 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.

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

## 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 “CLAM” 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)

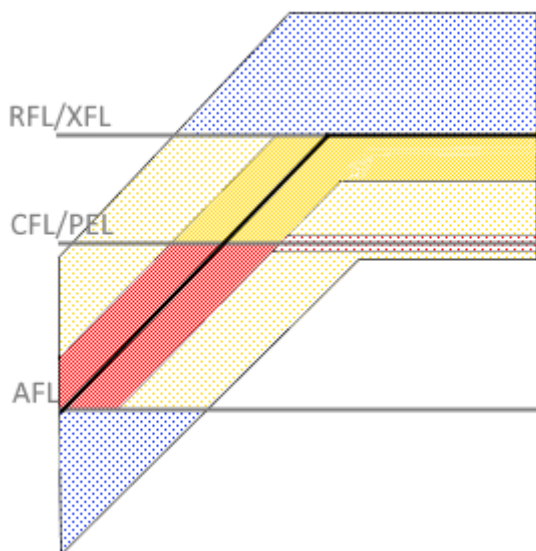
#### 12.1.1 General

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

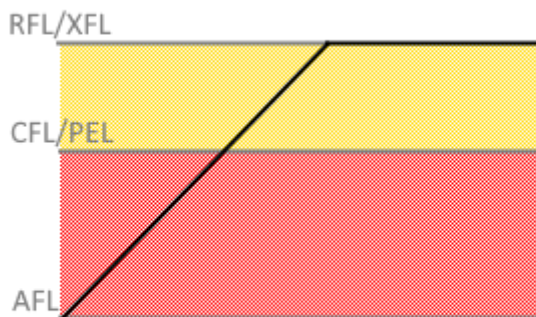


- **Potential risks of conflict** (area with light yellow shading)
  - o detected within a larger vertical buffer (default 10000ft) but within the minimum and maximum levels of the predicted vertical path
- **Potential conflicts** (area with light blue shading)
  - o detected within the larger vertical 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)
  - o detected for all levels between AFL and CFL/PEL
  - o current clearances may lead to a loss of separation
- **Conflict risks** (area with yellow shading)
  - o detected for the whole planned level range outside of the AFL-CFL/PEL level range
  - o 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.

- ALRT tag item      **"MTCD"** in "Warning" color
- 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 three of the nine boxes for its functions. They are the boxes 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.

-	-	-	3602
-	-	X	
X	X	-	

## 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	Warning
+	Field 18 information	“■” if defined text (by default “RMK/” or “STS/”) found in FPL remarks field	
+	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
ADEP	Departure aerodrome	ICAO code, 4 characters	
ADES	Destination aerodrome	ICAO code, 4 characters	If highlighted: Warning

Data field	Description	Comments	Color
AFL	Actual Flight Level	<p><u>Nautical:</u> FL's with 3 digits, altitudes "A" + 2/3 digits, heights "E" + 2/3 digits, in hundreds of feet</p> <p><u>Metric:</u> FL's with 4/5 digits, altitudes "M" + 4 digits, heights "E" + 4 digits, in tens of meters or meters</p> <p>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)</p>	<p>AIW:</p> <ul style="list-style-type: none"> <li>- AIW intrusion</li> </ul> <p>Manually set:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul> <p>Coasted track:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul> <p>If highlighted:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul>

Data field	Description	Comments	Color
AHDG	Assigned heading	<p>(List):</p> <ul style="list-style-type: none"> <li>- Assigned heading (“H” + 3 digits)</li> <li>- “H” (maintain present heading)</li> <li>- “LLZ” (localizer clearance)</li> <li>- Direct-to point name</li> </ul> <p>Unselected label:</p> <ul style="list-style-type: none"> <li>- Assigned heading</li> <li>- “H”</li> <li>- “LLZ”</li> <li>- Direct-to point name</li> </ul> <p>Selected label:</p> <ul style="list-style-type: none"> <li>- Assigned heading</li> <li>- “H”</li> <li>- “LLZ”</li> <li>- Direct-to point name</li> <li>- SID name if last point not yet overflown</li> <li>- STAR name if next route point belongs to the STAR</li> <li>- Next point on the route</li> </ul> <p>All except assigned heading are settings-file-based features. By default “H” and “LLZ” are disabled, direct-to point shown only if set using the AHDG menu, SID/STAR/NPT are enabled.</p> <p>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).</p> <p>(DEP list) does not display the brackets for CPDLC status.</p>	<p>If value assigned and HOP:</p> <p>Sent:</p> <ul style="list-style-type: none"> <li>- Proposition Out</li> </ul> <p>Received:</p> <ul style="list-style-type: none"> <li>- Proposition In</li> </ul> <p>Tactical coordination:</p> <p>Value accepted but not set:</p> <ul style="list-style-type: none"> <li>- Information</li> </ul> <p>CPDLC:</p> <p>Uplink message sent:</p> <ul style="list-style-type: none"> <li>- CPDLC UM Clearance</li> </ul> <p>Downlink message received:</p> <ul style="list-style-type: none"> <li>- CPDLC DM Request</li> </ul> <p>Controller timeout expired:</p> <ul style="list-style-type: none"> <li>- CPDLC Controller Late</li> </ul> <p>CPDLC warning raised:</p> <ul style="list-style-type: none"> <li>- Color of the warning</li> </ul>
AIW	AIW alert (see also ALRT)	“AIW”	AIW intrusion
ALRT	Alert message	<p>“MSAW”, “APW”, “AIW”, “CLAM”, “RAM”, “MTCD” or “DUPE”</p> <p>(in this priority order)</p>	<p>MSAW, APW and MTCD:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul> <p>AIW:</p> <ul style="list-style-type: none"> <li>- AIW intrusion</li> </ul>
ALT1	Alternate aerodrome 1	ICAO code, 4 characters	

Data field	Description	Comments	Color
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	
APW	APW alert (see also ALRT)	"APW"	Warning
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> 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" + 3 digits, in 1/100's of Ma  <u>Nautical:</u> Speed "N" + 3 digits, in knots  <u>Metric:</u> Speed "K" + 3 digits, in km/h  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> 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	<p>4 digits or "A" + 4 digits.</p> <p>If no code assigned, shows TSSR code if available (optional feature, always disabled in <i>(DEP list)</i> )</p> <p>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).</p> <p><i>(DEP list)</i> does not display the brackets for CPDLC status.</p>	<p>If different than TSSR:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul> <p>(in <i>(DEP list)</i>), regardless of actual radar coverage)</p> <p><u>CPDLC:</u></p> <p>Uplink message sent:</p> <ul style="list-style-type: none"> <li>- CPDLC UM Clearance</li> </ul> <p>CPDLC warning raised:</p> <ul style="list-style-type: none"> <li>- Color of the warning</li> </ul>
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: Warning
CALLSIGN	Callsign	<p>If label is minimized, prefixed by "&lt;" .</p> <p>If number of aircraft is more than one, suffixed by "+" .</p> <p>If correlated to a primary track or to a secondary track with no ASSR code and a non-discrete TSSR code, suffixed by "*" .</p> <p>If the flight is CPDLC connected, the callsign is displayed in brackets.</p>	<p><u>Priority order:</u></p> <p>STCA alert: Urgency</p> <p>HOP in: Proposition</p> <p>Highlight: Warning</p> <p><u>If none of the above:</u></p> <p>Transfer in: Assumed</p> <p>Transfer out: Redundant</p>

Data field	Description	Comments	Color
CFL	Cleared Flight Level	<p>“CA” if Clear for App flag set, “VA” if Visual App flag set, “CAT2”/“CAT3” See AFL field for number format.</p> <p><u>Unselected label:</u> Not shown if equal to AFL  (“CFL” option in Track Control Window prevents this hiding)</p> <p>If a level clearance is in progress via CPDLC, displays “[level]”, followed by “+” if the answer contains a reason (i.e. DUE TO something).</p> <p>(DEP list) does not display the brackets for CPDLC status.</p>	<p>(DEP list): for CTR or FSS if CFL &gt; PEL, for others if CFL &gt; XFL: - Warning</p> <p>(all versions): <u>CPDLC:</u> Uplink message sent: - CPDLC UM Clearance CPDLC warning raised: - Color of the warning</p>
CFL/PEL	Cleared Flight Level or Planned Entry Level	<p>PEL is shown for flights in “coordinated” and “ongoing coordination” states, CFL otherwise.</p> <p>“CA” if Clear for App flag set, “VA” if Visual App flag set, “CAT2”/“CAT3” See AFL field for number format.</p> <p><u>Unselected label:</u> PEL: Not shown if equal to AFL and no ongoing coordination. CFL: Not shown if equal to AFL (“CFL” option in Track Control Window prevents this hiding)</p> <p>If a level clearance is in progress via CPDLC, displays “[level]”, followed by “+” if the answer contains a reason (i.e. DUE TO something).</p>	<p><u>PEL:</u> Coordination sent: - Proposition Out Coordination received: - Proposition In Change just before ETN: - Info Coord Coordination refused: - Warning</p> <p><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</p>
CLAM	CLAM indicator (see also ALRT)	“CLAM”	Warning
CLR	Clearance received flag	<p>If clearance not received: (long): blank, (short): “□”</p> <p>If clearance received: (long): “OK”, (short): “■”</p>	

Data field	Description	Comments	Color
CLR/DCL/CMT	Combined clearance received flag, DCL dialogue status and CMT Text indicator	<p>Clearance received flag set manually:</p> <ul style="list-style-type: none"> <li>- "OK"</li> </ul> <p>otherwise, state of the datalink clearance dialogue (if any):</p> <ul style="list-style-type: none"> <li>- "RCD" (request received)</li> <li>- "SENT" (clearance sent)</li> <li>- "DONE" (ack received)</li> <li>- "R/T" (r/t sent)</li> <li>- "FAIL" (failed)</li> </ul> <p>("RCD•" and "R/T•" indicate remark text present in the RCD)</p>	If "RCD" or "RCD•": Warning
CLR/DCL/CMT (short)	Combined clearance received flag and DCL dialogue status	<p>Clearance received flag set:</p> <ul style="list-style-type: none"> <li>- "■"</li> </ul> <p>State of the datalink clearance dialogue:</p> <ul style="list-style-type: none"> <li>- "R" (request received)</li> <li>- "S" (clearance sent)</li> <li>- "F" (failed)</li> </ul> <p>Clearance flag not set:</p> <ul style="list-style-type: none"> <li>- "□"</li> </ul> <p>("R" alternates with "•" if remark text present in the RCD)</p>	If "R" or "•": 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	
COORD	Coordination message	<p>ROF message received:</p> <ul style="list-style-type: none"> <li>- "ROF"</li> </ul> <p>Transfer with release:</p> <ul style="list-style-type: none"> <li>- "F" fully released</li> <li>- "C" released for climb</li> <li>- "D" released for descent</li> <li>- "T" released for turns</li> </ul> <p>The last changed tactical coordination parameter value (AHDG, ASP or ARC)</p>	<p>Coordination</p> <p>Sent: Proposition Out Received: Proposition In (until assumed by the downstream position)</p> <p>Proposed: Proposition Rejected: Warning</p>
COPN	Entry point		<p>Coordination sent:</p> <ul style="list-style-type: none"> <li>- Proposition Out</li> </ul> <p>Coordination received:</p> <ul style="list-style-type: none"> <li>- Proposition In</li> </ul> <p>Coordination refused:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul>

Data field	Description	Comments	Color
COPX	Exit point	<p><i>(DEP list):</i> If logged in as CTR and flight not inside active sector, displays COPN</p> <p><i>(with holding):</i> 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.</p>	<p>Coordination sent:</p> <ul style="list-style-type: none"> <li>- Proposition Out</li> </ul> <p>Coordination received:</p> <ul style="list-style-type: none"> <li>- Proposition In</li> </ul> <p>Coordination refused:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul>
COPN/COPX	Entry point or Exit point	<p>COPN is shown for flights in “coordinated” and “ongoing coordination” states, COPX in “assumed”, “transfer initiated” and “redundant” phases.</p> <p><i>(with holding):</i> 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.</p>	<p>Coordination sent:</p> <ul style="list-style-type: none"> <li>- Proposition Out</li> </ul> <p>Coordination received:</p> <ul style="list-style-type: none"> <li>- Proposition In</li> </ul> <p>Coordination refused:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul>
CPDLC_E	CPDLC Emergency	CPDLC emergency messages: “SQ7500”, “[MAYDAY]”, or “[PAN]”	Urgency

Data field	Description	Comments	Color
CPDLC_W	CPDLC Warning	<p>CPDLC warning messages:</p> <p>"CONN FAIL"</p> <ul style="list-style-type: none"> <li>- network failure</li> </ul> <p>"CPDLC P ABT"</p> <ul style="list-style-type: none"> <li>- pilot logoff</li> </ul> <p>"&lt;type&gt; ERR"</p> <ul style="list-style-type: none"> <li>- message failure</li> </ul> <p>"&lt;type&gt; NOT CDA"</p> <ul style="list-style-type: none"> <li>- NOT CURRENT DATA</li> </ul> <p>AUTHORITY response</p> <p>"&lt;type&gt; P LATE"</p> <ul style="list-style-type: none"> <li>- pilot timeout</li> </ul> <p>"&lt;type&gt; SBY"</p> <ul style="list-style-type: none"> <li>- STANDBY response</li> </ul> <p>"&lt;type&gt; UNA"</p> <ul style="list-style-type: none"> <li>- UNABLE response</li> </ul> <p>&lt;type&gt; is the type of message:</p> <p>"AHDG"</p> <ul style="list-style-type: none"> <li>- heading clearance</li> </ul> <p>"CFL"</p> <ul style="list-style-type: none"> <li>- level clearance</li> </ul> <p>"COF"</p> <ul style="list-style-type: none"> <li>- communication transfer</li> </ul> <p>"DCT"</p> <ul style="list-style-type: none"> <li>- direct-to clearance</li> </ul> <p>"SQI"</p> <ul style="list-style-type: none"> <li>- SQUAWK IDENT message</li> </ul> <p>"SSR"</p> <ul style="list-style-type: none"> <li>- SQUAWK SSR message</li> </ul> <p>"VCI"</p> <ul style="list-style-type: none"> <li>- communication transfer</li> </ul>	<p>"CONN FAIL",</p> <p>"CPDLC P ABT",</p> <p>"&lt;type&gt; ERR" or</p> <p>"&lt;type&gt; NOT CDA":</p> <ul style="list-style-type: none"> <li>- CPDLC Failed</li> </ul> <p>"&lt;type&gt; P LATE":</p> <ul style="list-style-type: none"> <li>- CPDLC Pilot Late</li> </ul> <p>"&lt;type&gt; SBY":</p> <ul style="list-style-type: none"> <li>- CPDLC Standby</li> </ul> <p>"&lt;type&gt; UNA":</p> <ul style="list-style-type: none"> <li>- CPDLC Unable</li> </ul>
CRC	Computed vertical rate	<p><u>Nautical</u>: 2 digits, in 100's of ft/min</p> <p><u>Metric</u>: 2 digits, in m/s</p> <p>(with sign):</p> <p>value preceded by:</p> <ul style="list-style-type: none"> <li>- "C" for climbing</li> <li>- "D" for descending</li> </ul>	
CTO	Clearance time on OAN	"HHMM"	<p>Major difference between estimated time at point and CTO:</p> <ul style="list-style-type: none"> <li>- Urgency</li> </ul> <p>Minor difference between estimated time at point and CTO:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul> <p>Non-acknowledged OCM with changed CTO:</p> <ul style="list-style-type: none"> <li>- Information</li> </ul>

Data field	Description	Comments	Color
DCL	DCL dialogue status	State of the datalink clearance dialogue (if any): <ul style="list-style-type: none"> <li>- "RCD" (request received)</li> <li>- "SENT" (clearance sent)</li> <li>- "DONE" (ack received)</li> <li>- "R/T" (r/t sent)</li> <li>- "FAIL" (failed)</li> </ul>	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 ( <i>with sign</i> )).	
DRWY	Departure runway	Departure runway identifier	If manually assigned: <ul style="list-style-type: none"> <li>- Rwy Locked (optional feature)</li> </ul> <i>(DEP list):</i> Clearance flag not set: <ul style="list-style-type: none"> <li>- Proposition In</li> </ul> Clearance flag set: <ul style="list-style-type: none"> <li>- Information</li> </ul>
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)	"DUPE"	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
GS	Ground Speed	<u>Nautical:</u> 3 digits, in knots  <u>Metric:</u> "K" + 3 digits, in km/h	If highlighted: Warning
HP	Holding point	Holding point name or for lat/lon point holdings, "POS". For a TSA Hold clearance, the area name is shown.	
HTT	Holding Termination Time	Manually entered time in "HHMM" format	
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
MTCD	MTCD indicator	(dot): "•", (text): "MTCD" if aircraft has an MTCD problem	(dot): Urgency (Conflict Ack if all conflicts acknowledged) (text): 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
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
NLT	No Later than Time	Time restriction at OAN	Non-acknowledged: Warning



Data field	Description	Comments	Color
NPT	Next route point	When a DCT request or clearance via CPDLC is in progress: Displays the point name followed by “+” if the request contains a reason (i.e. DUE TO something)	CPDLC: 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	Warning  CPDLC: 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	
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	Not equipped: - Urgency Unknown: - Unknown

Data field	Description	Comments	Color
PEL	Planned Entry Level	<p>“CA” if Clear for App set,  “VA” if Visual App flag set,  “CAT2”/“CAT3”  See AFL field for number format.</p>	<p>Coordination sent:</p> <ul style="list-style-type: none"> <li>- Proposition Out</li> </ul> <p>Coordination received:</p> <ul style="list-style-type: none"> <li>- Proposition In</li> </ul> <p>Change just before ETN:</p> <ul style="list-style-type: none"> <li>- Info Coord</li> </ul> <p>Coordination refused:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul>
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)	<p><u>CPDLC:</u></p> <p>Downlink message received:</p> <ul style="list-style-type: none"> <li>- CPDLC DM Request</li> </ul> <p>Controller timeout expired:</p> <ul style="list-style-type: none"> <li>- CPDLC Controller Late</li> </ul> <p>CPDLC warning raised:</p> <ul style="list-style-type: none"> <li>- Color of the warning</li> </ul>
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	<p>Not equipped:</p> <ul style="list-style-type: none"> <li>- Urgency</li> </ul> <p>Exempted:</p> <ul style="list-style-type: none"> <li>- Information</li> </ul> <p>Unknown:</p> <ul style="list-style-type: none"> <li>- Unknown</li> </ul>
RAM	RAM indicator (see also ALRT)	“RAM”	Warning
RFL	Requested Flight Level	<p>See AFL field for format</p> <p><i>(List):</i>  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).</p> <p><i>(DEP list)</i> does not display the brackets for CPDLC status.</p>	<p><i>(List) and (DEP list):</i></p> <p><u>CPDLC:</u></p> <p>Downlink message received:</p> <ul style="list-style-type: none"> <li>- CPDLC DM Request</li> </ul> <p>Controller timeout expired:</p> <ul style="list-style-type: none"> <li>- CPDLC Controller Late</li> </ul> <p>CPDLC warning raised:</p> <ul style="list-style-type: none"> <li>- Color of the warning</li> </ul>

Data field	Description	Comments	Color
ROUTE	Flight plan route	<p>(DEP list)</p> <ul style="list-style-type: none"> <li>- part 1 shows first 15 characters, part 2 characters 16-30</li> </ul> <p>If departing from defined airports:</p> <ul style="list-style-type: none"> <li>- first 30/45 characters (2 or 3 parts)</li> </ul> <p>If arriving at a clearance flag airport:</p> <ul style="list-style-type: none"> <li>- last 30/45 characters (2 or 3 parts)</li> </ul> <p>Else:</p> <ul style="list-style-type: none"> <li>- first 30/45 characters (2 or 3 parts)</li> </ul>	
S	Mode S mismatch indicator	"S" if downloaded callsign is different than coupled flight plan callsign	Warning
SI	Sector Indicator	<p><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.</p> <p><u>Other tracks:</u> Tracking controller identifier or frequency.</p> <p>(List): frequency display is not possible</p> <p>(DEP list) does not display the brackets for CPDLC status.</p> <p>(Current) displays always the current tracking controller id</p> <p>(Previous) displays the current tracking controller id unless it is you or the track is in redundant state</p> <p>(Next) displays the next controller id when assumed, or current when in redundant state</p>	<p><u>Priority order:</u> HOP sent:</p> <ul style="list-style-type: none"> <li>- Proposition Out</li> </ul> <p>Next unit coordination received:</p> <ul style="list-style-type: none"> <li>- Proposition In</li> </ul> <p>Manually changed next sector:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul> <p>Normal next sector:</p> <ul style="list-style-type: none"> <li>- Coordination</li> </ul> <p><u>CPDLC:</u> Communications transfer message sent:</p> <ul style="list-style-type: none"> <li>- CPDLC UM Clearance</li> </ul> <p>CPDLC warning raised:</p> <ul style="list-style-type: none"> <li>- Color of the warning</li> </ul>
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	See GS field for format	
TEXT2	OP-TEXT2 message	If more than 6 characters, shows first 5 followed by “+”	
TRACK	Ground track	“T” + the aircraft’s current ground track in degrees ( <i>true</i> ): true ( <i>magnetic</i> ): 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	<p>“J” for Super, “H” for Heavy, “M” for Medium, “L” for Light</p> <p>(in /WTC all prefixed with a “/”)</p>	If highlighted: Warning
WTG and /WTG	Wake turbulence group	<p>ICAO or RECAT-EU wake turbulence group</p> <p>(in /WTG prefixed with a “/”)</p>	If highlighted: Warning
XFL	Exit Flight Level	<p>“CA” if Clear for App set, “VA” if Visual App flag set, “CAT2”/“CAT3” See AFL field for number format.</p> <p><u>Unselected label:</u> Not shown if equal to CFL/PEL and no ongoing coordination.  (“XFL” option in Track Control Window prevents this hiding)</p> <p><i>(DEP list):</i> If logged in as CTR and flight not inside active sector, displays PEL. Otherwise displays XFL.</p>	<p>Coordination sent:</p> <ul style="list-style-type: none"> <li>- Proposition Out</li> </ul> <p>Coordination received:</p> <ul style="list-style-type: none"> <li>- Proposition In</li> </ul> <p>Coordination refused:</p> <ul style="list-style-type: none"> <li>- Warning</li> </ul>
Y	No 8.33kHz capability	<p>“Y” if aircraft equipment is not indicating 8.33kHz capability</p>	<p>Not equipped:</p> <ul style="list-style-type: none"> <li>- Urgency</li> </ul> <p>Exempt:</p> <ul style="list-style-type: none"> <li>- Information</li> </ul> <p>Unknown:</p> <ul style="list-style-type: none"> <li>- Unknown</li> </ul>

## 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
<b>Aircraft colors</b>		
Assumed		Labels, Tracks
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
Proposition Accepted		Labels
Proposition In		Labels
Proposition Out		Labels
Redundant		Labels, Tracks
Rwy Locked		Labels
Sid Star Allocation		Labels
Sid Star No Allocation		Labels
Track Default		Tracks
Track Highlight		Tracks
Unconcerned		Labels, Tracks
Unknown		Labels
Urgency		Labels, STCA callsign background on plugin windows/lists, Windows
VFR		Labels, Tracks
Warning		Labels, APW callsign background on plugin windows/lists, Windows
<b>CPDLC colors</b>		
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
<b>Aircraft related items on the radar screen</b>		
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
FPLSEP Tool 1		Flight plan separation tool 1
FPLSEP Tool 2		Flight plan separation tool 2
FPLSEP Tool 3		Flight plan separation tool 3
FPLSEP Tool 4		Flight plan separation tool 4

Color name	Default color	Usage
FPLSEP Tool 5		Flight plan separation tool 5
Heading Vector		Heading vector
Information FL		Part of flight leg with no MTCD or SAP problems
Potential FL		Part of flight leg with MTCD or SAP potential conflict
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
Urgency FL		Part of flight leg with MTCD or SAP conflict
Warning FL		Part of flight leg with MTCD or SAP risk
<b>Map colors</b>		
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
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

Color name	Default color	Usage
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
<b>Window and menu colors</b>		
Active Sector		Predicted Traffic Window and VAW active sector background
Arm		Inactive window texts
Background		Background
Border		Various lines in windows
BottomShadow		3D effects in windows
Conflict Ack		Acknowledged conflicts in CARD and VAW
CARD Min Sep		CARD minimum separation area
CARD Symbol Fg		CARD conflict numbers
CARD Time Vector		CARD time vectors
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, Predicted Traffic Window, SMW and VAW background
Normal Load		Normal load color
Overflown		Overflown points in Complete Route Window
Overload		Overload color
Potential		Potential conflicts in CARD/VAW
Select		Selected radio buttons and selection boxes
Selected		Active filters in Radar menu
Selected Group		Group of TSA areas in multi edit mode
Selected Period		Active areas text in area window
SMW Highlight		AFL-CFL box in SMW when mouse is over it
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
TSA Active		Active areas background in area window
TSA Filter		Active categories 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



Color name	Default color	Usage
WM Frame		Window frame when dragging
<b>Other colors</b>		
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