TopSky plugin for EuroScope

- version 2.4 -

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!

Table of Contents

1   Acknowledgements

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

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

2   Getting started

The plugin is usually included in a package that includes a set of compatible settings files for its operation. They usually contain everything that is needed to use the plugin except complete profile files since they contain information that is system and user specific. Starting to use the plugin is then just a matter of completing the necessary profile files by editing an existing file or starting from the one contained in the package and adding the user specific data in EuroScope (open the supplied profile file in EuroScope, set all settings in the Connect dialog, Voice hardware test and setup, Sounds setup and then save the profile).

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 manual is divided into three parts. This part explains the general features of the plugin. The two other parts are the localization part that includes the features of the plugin that are setup-specific, and the Developer Guide that includes information to people interested in either developing data files for the plugin or changing some of the plugin settings.

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 from external files 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.

There are references to A and B in many parts of this document. They refer to the two main ways the plugin can be set up. The easiest way to determine which plugin type you have set up is to check what the [Global Menu](#) looks like. Some plugin features are available only in one type, and others may work differently on the two types.

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

The effect of using track filters depends on the proportion of tracks that would be filtered. If many tracks are filtered out, there is some performance gain for not having to draw their track labels, but in cases where only a small number of tracks are filtered, the active filters may actually slightly 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", "Notif" and "Future" are deselected in the CARD View menu unless required
- Reduce the FPCP inhibit time in Settings/Setup -> Local Settings
- Reduce the prediction time in the CARD (diamond on the time scale)
- Turn the whole system off (MTCD Status Window). Major effect but complete loss of the system.

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/Setup -> Local Settings (All > Own+Co > Own)
- Turn the whole system(s) off (Safety Nets Status Window)

4   Global Menu

A :

```
20:20:20  Settings  AirSpace  FlightData  ControlTools  MET  Info  Messages  [0]  [0]  Status  M   S
```

B :

```
11:14:50  Setup  AMS  FData  Tools  MET  [0]  Info  MSG  [0]  [0]  STS  RROff/Off  M000-999  S000-999
```

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 / Setup menu

- Weather Map	>	Opens the Weather Map submenu
- Unit Settings	>	Opens the Unit Settings submenu
- Default Setting		Resets all settings to their default values (keeps login callsign specific ones if they are active at the time). When clicked, a confirmation window will open, asking to confirm the reset.
- Local Settings	>	Opens the Local Settings submenu
- Brightness Control	>	Opens the Brightness Control Window
- Sign In…		Loads personal settings. The settings are specified in a data file (see the Developer Guide). When clicked, a confirmation window will open, asking to confirm the settings change.
- Sign Out…		Clears any personal settings and resets all settings to their default values. When clicked, a confirmation window will open, asking to confirm the settings change.
- CPDLC Setting…		Opens the CPDLC Setting Window
- Raw Video Control…		Opens the Raw Video Control Window. Only clickable when Raw Video is selected on.
- [] Raw Video		Toggles on/off the display of raw video radar plots 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. The raw video selection may not be available for every login callsign.
- [] 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	>	Opens the Direction Finder submenu

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 >=30dBZ (yellow on aircraft displays) and the darker shade >=40dBZ (red). The image is refreshed every 10 minutes. The data is only available when a position to center the image on has been entered in the settings data file. It is possible to configure a third level using the settings files.

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

4.1.2 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 all codes
    - ICAO   Use all codes when specified in ICAO format
    - ICAO-alt   As ICAO, but force transponder to report altitude
    - None   Disregard all codes

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

4.1.4   RR Main submenu

- [] Rings On/Off   Toggles the range rings on/off
- Point   Sets the rings centerpoint. Either click on the radar screen or enter the desired point in the text field. Fixes, VORs, NDBs and airports from the active sector file can be used as well as coordinates in the flight plan format (DD[N/S]DDD[E/W] or DDMM[N/S]DDDMM[E/W], e.g. 60N025E or 0811S00300W). Entering an empty text string resets the rings to be shown at the radar screen centerpoint.
- 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

4.1.5   Direction Finder submenu

- Off   No DF data shown
- Primary   Not implemented
- All   DF active for all active voice channels

The DF system, when activated, 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 / AMS menu

- TSA…   Opens the Airspace Management Window

4.3   FlightData / FData menu

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

4.4   ControlTools / Tools menu

- Flight Plan Lists >   Opens the Flight Plan Lists submenu
- CARD…   Opens the Conflict And Risk Display
- SAP…   Opens the Segregated Area Probe Window
- 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
- A Pre-Activation List… /	Opens the Pre-Activation List /
B Load Factor List…	Load Factor List
- B ETWR List…	Opens the ETWR List
- B <adep>	ETWR List departure airports filter
- A Main VFR List… /	Opens the Main VFR List /
B Uncont. List 1…	Uncontrolled List 1
- <filter>	Main VFR / Uncontrolled 1 List state filter
- <units>	Main VFR / Uncontrolled 1 List units filter
- A Secondary VFR List… /	Opens the Secondary VFR List /
B Uncont. List 2…	Uncontrolled List 2
- <filter>	Secondary VFR / Uncontrolled 2 List state filter
- <units>	Secondary VFR / Uncontrolled 2 List units filter
- Lost List…	Opens the Lost List
- B Resectorisation List…	Opens the Resectorisation List
- B <lfunc>	Resectorisation List LFUNC filter
- B Traffic Mgmt. List 1…	Opens the Traffic Management List 1
- B <state>	Traffic Management List 1 flight plan state filter
- B <ades>	Traffic Management List 1 destination airports filter
- B <via>	Traffic Management List 1 route points filter
- B Traffic Mgmt. List 2…	Opens the Traffic Management List 2
- B <state>	Traffic Management List 2 flight plan state filter
- B <ades>	Traffic Management List 2 destination airports filter
- B <via>	Traffic Management List 2 route points filter

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

When enabled, the list options bar displays "Info Conc Redu Filter Filter" on the right edge of the Global Menu. The first three toggle the respective settings for the Sector List and are colored with the appropriate color when enabled, and the last two are displayed in "VFR" color when the corresponding VFR/Uncontrolled list is somehow filtered. Clicking on them opens the Flight Plan Lists submenu to change the filtering options.

Left-clicking <filter> cycles through "ALL" (no filtering), "ON-CONTACT" (only tracks on-contact with anyone), "ON-CONTACT-PPOS" (only tracks on-contact with you) and "FREE" (only tracks in the free state).

Left-clicking <units> opens a text entry box to enter a comma-separated list of aerodrome ICAO codes to filter the list. When entered, the list will display a flight only if one of the entered codes is its departure or destination, or the code is found in its scratchpad (OP-TEXT2).

Left-clicking <lfunc>, <adep>, <ades> and <via> open text entry boxes to enter comma-separated lists for controlled ID's, ICAO codes and point names respectively to filter the affected lists.

Left-clicking <state> toggles between "ALL" (no filtering), "SIMUL+TERM" (not started flight plans filtered), "NOTST+SIMUL" (terminated flight plans filtered) and "SIMUL" (not started and terminated flight plans filtered).

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

4.5   MET menu
- Messages…   Opens the Weather Messages Window
- QNH/TL…   Opens the QNH/TL Window

4.6   [x] (number in square brackets)
Only displayed in B . Not implemented (always shows a zero value).

4.7   Info menu
- General Information…   Opens the General Information Window
- Document Viewer…   Opens the Document Viewer 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.

4.8   Messages / MSG menu

-	Notepad…	Opens a new Notepad Window for text entry
-	Personal Queue…	Opens the Personal Queue Window
-	ATC Messages…	Opens the ATC Messages Window
-	Prim Freq Messages…	Opens the Primary Frequency Messages Window
-	NAT Track Messages…	Opens the NAT Track Messages Window
-	Text notes >	Opens the Text notes submenu

4.8.1   Text notes submenu

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

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

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

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

4.9   [x] (number in square brackets)

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

4.10 [x] (number in square brackets)

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

4.11 Status / STS menu

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

- Supervisory >   Opens the Supervisory submenu
- RWY line display…   Opens the Aerodrome menu
                                 (to open the Runway Approach Line Window)

4.11.1 Plugin Status submenu

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

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

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

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

Left-clicking the ⃞Save⃞ 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 set⃞ and ⃞Load set⃞ functions can be used to transfer the display state of these maps from one radar screen to another.

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

4.11.2 Supervisory submenu

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

4.12 RRxxx/Off

Only displayed in ⃞B⃞. Opens the Range Rings menu (see [RR Main submenu](#)). If the rings are selected on, "xxx" displays the distance between consecutive rings, otherwise "Off".

4.13 M <filters> / Mxxx-yyy

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

A : 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.

B : Only the altitude filter status is shown. "xxx" displays the Lower filter value and "yyy" the Upper filter value, in hundreds of feet.

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

4.14 S / S000-999

Not implemented (shows static values).

5 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 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	"Assumed"	Track is on-contact (a plugin custom state) with you
- Free	"VFR"	Track is not assumed or on-contact with anyone (the use of this color requires specific plugin setup)
- Otherwise	"Unconcerned"	

5.2 Aircraft position symbol

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

○	Flight plan track (position is not based on surveillance data but calculated by EuroScope)
✕	Coasted track (no position updates in over 30 seconds, position no longer reliable)

A :
✛	Primary radar track
◇	Secondary or combined radar track without Downlink Aircraft Parameters (DAPs)
▨	Secondary or combined radar track with Downlink Aircraft Parameters (DAPs)
⊠	ADS-B only track (in the plugin, tracks with mode S data only)

B : ● Primary radar track

◇ Secondary or combined radar track (uncontrolled)

■ Secondary or combined radar track (controlled)

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

Secondary radar track without DAPs with Special Position Indication

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

Secondary radar track without DAPs with divergence alert

5.3   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.

5.4   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,

A : 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

B : starting with "Track Default" at the position symbol and then alternating with "Track Highlight"

with every segment representing one minute of flying time. The length of the prediction line can be changed for all tracks via the Track Control Window, or for a single track via the Prediction Line menu. The example below shows a selected track with 5 history dots and a 3-minute prediction line. Prediction lines are not displayed for flight plan tracks.
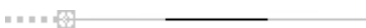
5.5   Track label

There are four types of track labels that can be displayed: *Standard*, *Reduced*, *Extended* and *Uncorrelated*. In addition, each label except the extended one has an *unselected* and a *selected* state, the *selected* state being shown when the mouse cursor is over the label.

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

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

6   Flight Leg

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

- "Urgency FL"   MTCD and/or SAP conflict
- "Warning FL"   MTCD and/or SAP risk
- "Potential FL"   MTCD potential conflict
- "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. In A the desired fields can be selected in the Track Control Window, in B they are pre-defined.

- 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 "*")

B :   The Flight Leg displays symbols at the following calculated profile points:
- top of climb (an upward pointing triangle, colored "System Calculated TOC")
- top of descent (a downward pointing triangle, colored "System Calculated TOD")

7 Track label menus

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

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

7.1 Callsign menu

7.1.1 Controlled track

A :

- Assume	Assumes track
- Refuse	Refuses the incoming transfer
- Transfer	Initiates a transfer to the next sector
	(opens the Transfer menu for CPDLC connected aircraft)
- Trf & Release	Opens the Transfer & Release menu
- (X)Freq	Toggles the Freq indicator
- HOP	Initiates a Handover Proposal
- ROF	Sends a Request On Frequency message
- Free	Releases track
- On Contact	Sets track in On-Contact state
- Δ More	Shows additional less frequently used options (see below)

- (X)Highlight	Toggles the Callsign field highlight
- (X)Mark	Toggles the Mark indicator
- (X)Missed App	Toggles the "Missed App" manual alert
- FPL…	Opens the Flight Plan Window
- (X)Correlate	Uncorrelates/correlates the flight plan
- (X)Hold	"Hold" opens the Hold menu,
	"XHold" cancels a given holding clearance
- Manual Transfer	Opens the Manual Transfer menu
- Start/End CPDLC	Starts/Ends CPDLC connection with the aircraft
- VCI	Opens the VCI menu
- Squawk Ident	Sends a "SQUAWK IDENT" CPDLC message to the aircraft
- CPDLC Free Text	Opens the CPDLC Free Text menu
- PRL	Opens the Prediction Line menu
- (X)Inbound Est	Toggles the "Inbound Est" manual alert
- (X)Irregular	Toggles the "Irregular" manual alert

B :

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

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

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

7.1.2 Uncontrolled track

- On Contact	Sets track in On-Contact state
	("Assumed" color, can't be filtered, but still uncontrolled)
- Free	Releases track
- Assume	Assumes track (which then changes it to a controlled track) (*
- (X)Highlight	Toggles the Callsign highlight
- (X)S-Highlight	Toggles the Callsign+AFL fields highlight (B only)
- (X)Correlate	Uncorrelates/correlates the flight plan (in B : (X)Couple)
- (X)Hold	"Hold" opens the Hold menu,
	"XHold" cancels a given holding clearance
- FPL…	Opens the Flight Plan Window
- PRL	Opens the Prediction Line menu

*) 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.

7.1.3 Uncorrelated track

- Correlate	Correlates the radar track with the next clicked "Callsign" field
- Create APL	Opens the Create APL Window
- PRL	Opens the Prediction Line menu

7.1.4 Transfer menu

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

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

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

7.1.5 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.

7.1.6   Transfer & Release menu
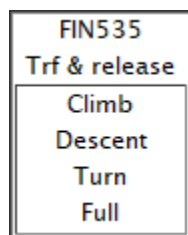
The Transfer & Release menu allows specifying a release condition for a track to be transferred. The transfer is initiated after selecting the desired condition (climb, descent, turn or full). The release will be shown on line 0 of the track label (**C** for climb, **D** for descent, **T** for turn and **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.
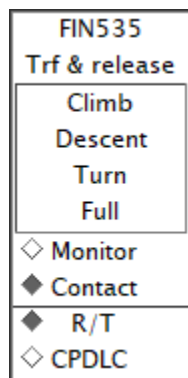
For CPDLC connected aircraft, the menu contains options related to the transfer:

"**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.

7.1.7   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.

7.1.8 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.

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

7.1.9 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.

7.1.10 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.

7.1.11 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.

7.1.12 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.

7.2 Sequence number menu

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

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

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7.3 Waypoint menu

FIN535 Waypoint
▲ Routing
▲ Arrival
▲ Departure
▲ TSA Hold
▲ Hold

- Δ Routing   Opens the "COPN point" or "COPX point" submenu (EuroScope default item)
- Δ Arrival   Opens the "Assign STAR" submenu (EuroScope default item)
- Δ Departure Opens the "Assign SID" submenu (EuroScope default item)
- Δ TSA Hold Opens the TSA Hold submenu (not available if a holding clearance is active)
- Δ Hold   Opens the Hold submenu (not available if a TSA holding clearance is active)

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

FIN530 Waypoint
▲ Routing
Accept
Reject

When an entry or exit coordination has been received, the menu opens looking like this instead. The options are:

- Δ Routing   Opens the "COPN point" or "COPX point" submenu (EuroScope default item)
- Accept   Accepts the coordination
- Reject   Rejects the coordination

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

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

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

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

FIN535 Waypoint
▼ Routing
NEPIX
SBY
UNABLE
◇ R/T
◆ CPDLC
▲ 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.

7.3.1 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.

7.3.2 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.

7.4 AFL menu

FIN535 AFL NAUTICAL	FIN535 AFL METRIC
350	1065/350
340	1035/340
330	1005/330
320	0975/320
310	0945/310
300	**0915/300**
290	0885/290
280	0855/280
270	0825/270
260	0790/260

A	M	E
1	2	3
4	5	6
7	8	9
C	0	Ok

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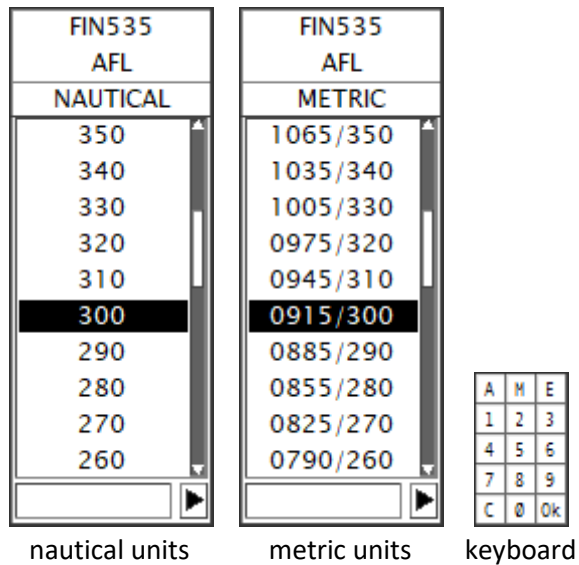
This menu can be used to set the AFL value for aircraft that don't have an altitude reporting transponder. The default value is the previously set manual AFL value if set, otherwise the CFL value.

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

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

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

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

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

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

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).

7.5 CFL menu

In the track label the CFL menu is combined with the COPN altitude coordination menu and the CFL menu opens only when the aircraft is assumed. The default value is by default the XFL, but it can be changed to the current CFL or the RFL in the Local Settings menu. Altitudes up to the transition altitude are prefixed with "**A**" in the nautical units list and with "**M**" in the metric units list. QFE heights are prefixed with "**E**" in both lists. Selectable values are from 500ft to FL510 with 500ft intervals up to the transition altitude, then 1000ft intervals up to FL410 and 2000ft intervals above it.

"**Visual App**" / "**VA**" and "**Clear for App**" / "**CA**" set the corresponding approach clearances.

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

- Clicking a level value in the list or one of the two approach clearance items
- Clicking the text entry box between the level list and the approach clearance items 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.

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

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

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

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

7.6 RFL menu

FIN535
RFL
NAUTICAL
350
340
330
320
310
300
290
280
270
260
▶
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.

7.7 AHDG menu

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

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

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

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

For CPDLC connected aircraft, the menu contains additional buttons:

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

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

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

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

7.7.1   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.

7.7.2   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 on line 0 of the track label in "Proposition" color.

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

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

- A successfully sent message will be displayed in the 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.

7.7.3 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.

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

7.8 ARC menu

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

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

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

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

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

7.9 ASP menu

FIN535	FIN535	FIN535
ASP	ASP	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
☐ –	☐ –	☐ –
☐ +	☐ +	☐ +
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 the IAS/Mach altitude value defined in the Local Settings (FL275 by default), and in Mach mode if above it. The selectable values range from 100 to 400 knots and from Ma0.50 to Ma1.00.

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

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

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

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

FIN535
ASP
MACH
M083
M082
M081
M080
M079
M078
M077
M076
M075
M074
☐ –
☐ +
Resume
◇ R/T
◆ CPDLC
SBY
UNABLE
▼ More
HOP
RTI
TIP

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

For CPDLC connected aircraft, the menu contains additional buttons:

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

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

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

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

7.10 ASSR menu

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

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

7.11 Combined Transfer menu

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

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

7.12 Tactical Transfer menu

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

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

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

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

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

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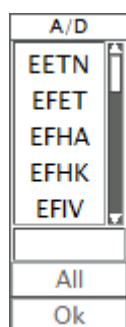
The Aerodrome menu is used to select the aerodrome(s) for aerodrome related windows and functions. The list contains all aerodromes with runways defined in the active sector file. To select an aerodrome, left-click on it or type its identifier into the text entry box below the list.

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.

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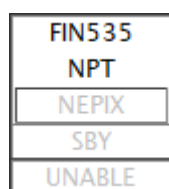
The NPT menu is used to answer a direct-to downlink request using CPDLC. The menu contains three options:

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

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

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

7.15 CPDLC Emergency Acknowledgement menu
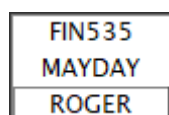
When a CPDLC emergency message has been received, this menu is used to respond to it (if applicable), and then acknowledge the situation. When a reply is required, the menu button will read "**ROGER**". Left-clicking on it will send the "ROGER" CPDLC message and close the menu. When opening the menu again (or when a reply was not required), the button reads "**Ack**". Left-clicking on it will acknowledge the emergency.
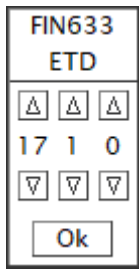
The menu is closed when the "ROGER"/"Ack" button is clicked or the cursor leaves the menu area.

7.16 CPDLC Pilot Late Acknowledgement menu
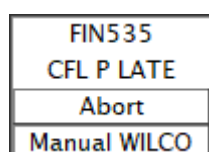
When there is no answer to a CPDLC uplink clearance, this menu can be used to resolve the situation. "**Abort**" discards the uplink and "**Manual WILCO**" simulates reception of a WILCO message.

7.17 Time menu

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

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

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

7.18 Departure Sequence menu

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

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

8 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.

8.1 Radar Menu

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

A :

Radar Menu		
Maps…	- Maps…	Opens the Maps Window
QDM	- QDM	Starts a new QDM vector
RADARSEP	- RADARSEP	Starts a new Minimum separation tool
FPLSEP	- FPLSEP	Starts a new Flight plan minimum separation tool
Range 360	- Range XXX	Opens the Zoom Window (XXX = distance: center -> right edge)
☐ Range Marker	- [] Range Marker	Toggles the Range Marker on/off
Track Control…	- Track Control…	Opens the Track Control Window
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 View Window
Altitude Filtering…	- Altitude Filtering…	Opens the Altitude Filtering Window
CJI Filtering…	- CJI Filtering…	Opens the CJI Filtering Window
SSR Code Filtering…	- SSR Code Filtering…	Opens the SSR Code Filtering Window
☐ Quick Look	- [] Quick Look	Toggles function to bypass all filters and show all track labels
■ PRL On/Off	- [] PRL On/Off	Toggles all prediction lines on/off

B :

Radar Menu		
☐ Radar Menu	- [] Radar Menu	Toggles keeping the menu permanently displayed
■ Vector On/Off	- [] Vector On/Off	Toggles all prediction lines on/off
QDM	- QDM	Starts a new QDM vector
SEP	- SEP	Starts a new Minimum separation tool
☐ Quick Look	- [] Quick Look	Toggles function to bypass all filters and show all track labels
Maps…	- Maps…	Opens the Maps Window
Track Control…	- Track Control…	Opens the Track Control Window
View…	- View…	Opens the View Window
Range 350	- Range XXX	Opens the Zoom Window (XXX = distance: center -> right edge)
Altitude Filter OFF …	- Altitude Filter X…	Opens the Altitude Filtering Window, displays the filter status
SSR Filter OFF …	- SSR Filter X…	Opens the SSR Code Filtering Window, displays the filter status
CJI Filter OFF …	- CJI Filter X…	Opens the CJI Filtering Window, displays the filter status
LAT/LONG…	- LAT/LONG…	Opens the Cursor Lat/Long Window
Find Track	- Find Track	Not implemented
☐ Scale Marker	- [] Scale Marker	Toggles the Scale Marker on/off
☐ Direction Finder	- [] Direction Finder	Toggles the Direction Finder position circles or lines on/off

The Radar Menu closes when a selection is made or the mouse cursor leaves the menu area (unless the "Radar Menu" option is selected on).

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

8.1.1 QDM vector

To draw a new QDM vector:

- Left-click on the "QDM" menu item
- Left-click on the desired start point (radar track or fixed position)
- 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. 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 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 are the following, and are searched in this order:

- Radar track position symbols
- VORs in the active sector file
- NDBs in the active sector file
- Fixes in the active sector file
- Airports in the active sector file

Right-clicking will abort drawing the vector.

To remove a QDM vector:

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

To adjust a QDM vector:

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

8.1.2   Range Marker

(Only available in A)

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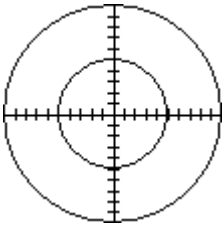
The Range Marker displays 5 and 10 nm radius circles around a selected point. In addition, there are horizontal and vertical lines centered on the point and intermediate lines at 1nm intervals along the lines.

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

8.1.3   Scale Marker

(Only available in B)

Radar Menu -> [] Scale Marker
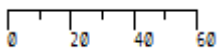
Displays a range scale in the bottom right corner of the radar screen.

8.1.4 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.

A :

To draw minimum separation lines between two radar tracks:

- Left-click on the "RADARSEP" menu item
- Left-click on the first radar track
- 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.

B :

To draw minimum separation lines between two radar tracks:

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

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

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

7 sets of lines can be simultaneously drawn (plus one from the CARD). When at least one set is drawn, a SEP List Window is opened:
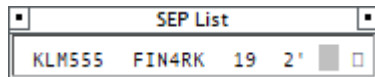
The window lists the tracks, the minimum predicted separation, the time to the minimum separation, the line color and a locked/unlocked indicator for each set of lines.

To remove the minimum separation lines:

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

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

To lock/unlock a set of lines:

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

To display vertical separation information on the lines:

- Right-click on the colored box for a set of lines to enable vertical separation display.
- Right-click again to hide the vertical separation labels
- Right-click once again to disable the vertical separation display

The letter "V" is shown inside the box when activated ("v" when labels have been hidden), and on both lines, two points are displayed, the first showing the point where the tracks' vertical separation is calculated to become smaller than an offline-defined value, and the second the point after that where it is calculated to become greater. The calculation is done using the tracks' current vertical speeds.

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

8.1.5 Flight plan minimum separation tool

(Only available in ⌐A⌐)

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
- Left-click on the first radar track
- 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.

8.2 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.

8.3 Zoom Window

Radar Menu -> Range XXX
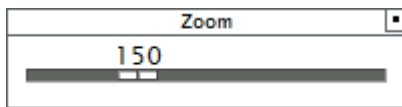
The Zoom Window displays and enables to change the radar screen range.

8.4 Maps Window

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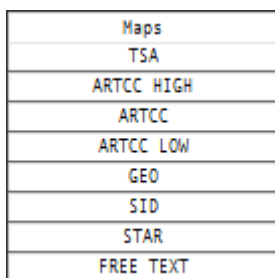
The Maps Window closes when the mouse cursor leaves the window area. If this is not desired, there is a hidden click spot in the top right corner of the menu (where the "close" button would be). Left-clicking in that area will disable the automatic closure of the menu and display the close button, which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

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

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

- Name   *Foreground* text   Not displayed
- Name   *Foreground* text, *Foreground4* background Automatic (not displayed)
- Name   *Foreground4* background   Automatic (displayed)
- Name   *Foreground* background   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.

The "AD_Hotspots" map in the **"Aerodromes"** folder is an automatically created map that contains aerodrome symbols that are used to open the Runway In Use Window and Runway Approach Line Window.

The "AIRPORTS", "FIXES" (fixes with numbers filtered out), "FIXES ALL", "NDBS" and "VORS" maps (and their "+ L" counterparts) in the **"MISC"** folder are automatically generated maps that contain the corresponding items with and without text labels from the active sector file. 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 GRP" (where "GRP" 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 "!GRP!" in the sector file, where "GRP" is the desired group name. All following navaids of that type will be put in the "FIXES GRP" 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.

In addition to plugin defined maps, the window can be used to toggle the visibility of some elements from the active sector file. These are **"ARTCC HIGH"**, **"ARTCC"**, **"ARTCC LOW"**, **"AIRWAYS H"**, **"AIRWAYS L"**, **"SID"**, **"STAR"**, **"GEO"**, **"REGIONS"** and **"FREE TEXT"**. The elements from the sector file will not show the black background when active as the plugin does not know their state. The names of these elements will be shown in grey letters to serve as reminders about this limitation.

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(GRP)[1]" and "A2(GRP)[1]" in the sector file would be labeled "GRP 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.

NAT tracks extracted from downloaded track messages (see NAT Track Messages Window) can be found in the **"NAT"** folder. Eastbound tracks are colored *East NAT Map*, westbound ones *West NAT Map*.
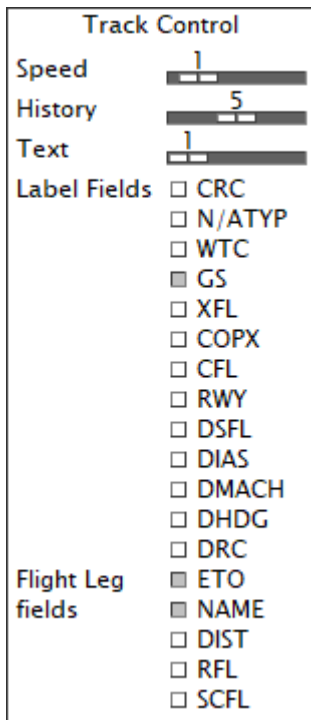
The plugin data files may include additional data to the abovementioned sector file. If present, the data is activated and deactivated together with the sector file item when done via the Maps Window.

8.5 Track Control Window

Radar Menu -> Track Control…

The Track Control Window is used to set track and track label related options. Note that the PRL/Vector 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.

A :

- 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.

B :

Track Control

Vector		1			
History		5			
Text		1			

▼ Unselected Label Fields

Co	Ass	Red	No	All	
☐	☐	☐	☐	☐	SQ
☐	☐	☐	☐	☐	ATYP
☑	☑	☑	☑	☑	WTC
				☑	N
☑	☑	☑	☑	☑	GS
☐	☐	☐	☐	☐	ADES
☐				☐	COPN
	☐	☐		☐	COPX
☑	☑	☑	☑	☑	NRAC
☑	☑	☑		☑	XFL
☑	☑	☑		☑	AHDG
☑	☑	☑		☑	ASP
☑				☑	PEL
☐	☐	☐	☐	☐	TSSR
☐	☐	☐		☐	RFL
☐	☐	☐	☐	☐	NPT
☐	☐	☐	☐	☐	FCOPX

▼ Unselected Label DAPs Fields

Co	Ass	Red	No	All	
☐	☐	☐	☐	☐	DSFL
☐	☐	☐	☐	☐	DHDG
☐	☐	☐	☐	☐	DIAS
☐	☐	☐	☐	☐	DMACH
☐	☐	☐	☐	☐	DRC

▼ Selected Label DAPs Fields

Co	Ass	Red	No	All	
☐	☐	☐	☐	☐	DSFL
☑	☑	☑	☑	☑	DHDG
☐	☐	☐	☐	☐	DIAS
☐	☐	☐	☐	☐	DMACH
☑	☑	☑	☑	☑	DRC

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

- X Label Fields   Opens/closes the corresponding Label Fields section

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

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

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

8.6   Altitude Filtering Window

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

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

A :
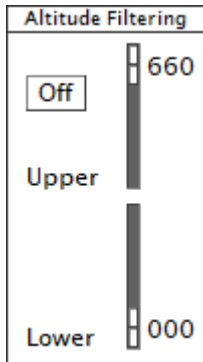
To set the filtering limits, values from 0ft to FL660 are available with 100ft steps up to 5000ft, then with 500ft steps up to FL290 and with 1000ft steps up to FL660. Select the levels and click on the filter on/off button to activate the limits. Values at or below the transition altitude are considered to be altitudes (for example with a transition altitude of 5000ft, "050" means 5000ft and "055" means FL55).

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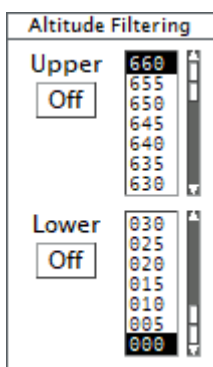
To set the filtering limits, values from -1200ft to FL660 are available with 100ft steps up to 5000ft, then with 500ft steps up to FL660. Select the level and click on the filter on/off button to activate the limit. There are separate on/off buttons for the upper and lower limits, and it is possible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

8.7   CJI Filtering Window

Radar Menu -> CJI Filtering…/CJI Filter [ON/OFF]…
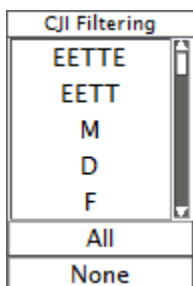
The CJI Filtering Window closes when the mouse cursor leaves the window area.

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"** will filter all controllers, and clicking **"None"** will clear all controller ID filters.

8.8 SSR Code Filtering Window

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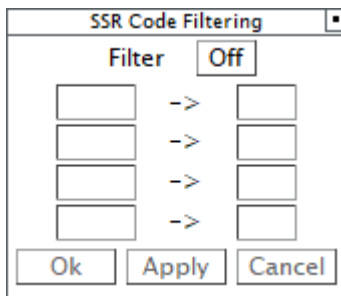
The SSR Code Filtering Window is used to filter the displayed track labels based on the aircrafts' SSR codes. Four different codes or code ranges can be set. The boxes on the left side of the window are the code range start boxes. The input syntax is a valid SSR code to be filtered. If filtering a range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

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

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

8.9 Brightness Control Window

Global Menu -> Settings/Setup -> Brightness Control…
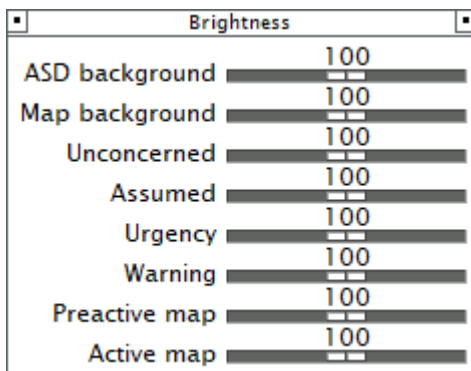
The Brightness Control Window allows setting the brightness for some screen colors. The Map background slider only controls the plugin created maps.

8.10 CPDLC Setting Window

Global Menu -> Settings/Setup -> CPDLC Setting…
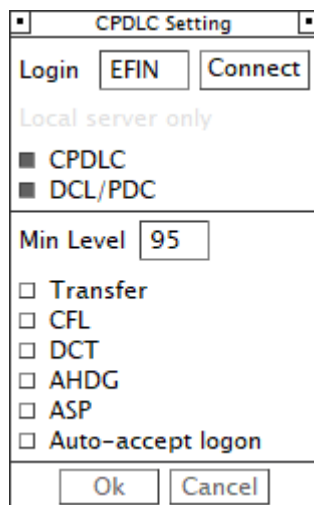
The CPDLC Setting Window is used to begin/end the connection to the CPDLC network, and change some CPDLC related settings.

The "**Connect**" button becomes available once you are connected to the VATSIM network as a controller and both the Login (four-character callsign used for the CPDLC connection) and the Logon Code (your personal password to the Hoppie network) have been entered. Left-clicking on it connects the plugin to the CPDLC network. Once a connection has been established, the button background color changes to *Information* and the button text changes to "**Online**". Once connected, left-clicking on the button disconnects the plugin from the CPDLC network.

> **Note:** It is possible to have the Logon Code pre-filled by creating a text file called "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. For CTR and FSS logins, the CPDLC login comes from a data file, and for others it is the beginning of the VATSIM login (which usually is the airport code). If necessary, the CPDLC login can be changed.

The "CPDLC" and "DCL/PDC" selections are used to define the offered services. For CTR and FSS logins both are selected by default, for others only "DCL/PDC" is selected.

Sending a clearance via CPDLC can be 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, and the CPDLC Default Status (in Global Menu->Status/STS) must be "On". The "DCT" option does not do anything at the moment (DCT clearance via CPDLC is given using the "Point" option in the AHDG menu, so the "AHDG" option controls that as well). "Auto-accept logon" automatically accepts valid logon requests from tracks above "Min Level".

When making changes to the "Min Level" or the menu selections, the "Ok" and "Cancel" buttons become active. Left-click on "**Ok**" to apply the changes or "**Cancel**" to abort.

8.11 Raw Video Control Window

Global Menu -> Settings/Setup -> Raw Video Control…

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

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

8.12 Airspace Management Window

Global Menu -> AirSpace/AMS -> TSA…

A:

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

B:

AIRSPACE MANAGEMENT

Start date/time

Name	Map Text	Start Date	Start Time	End Date	End Time	Lower	Upper	Auto	User
EFD658	D658	210421	21:00	220420	20:59		11	A	
EFR112A	R112A	210503	07:00	210508	15:00		230	A	A0746/21
EFR112B	R112B	210503	07:00	210508	15:00		230	A	A0746/21
EFR73A	R73A	210504	05:00	210508	21:00		50	A	A0982/21
EFD653A	D653A	210508	01:00	210508	20:00		35	A	A0932/21
EFD653B	D653B	210508	01:00	210508	20:00		35	A	A0932/21
EFD677	D677	210508	04:00	210508	17:00		5	A	A1160/21
EFR93A	R93A	210508	04:30	210508	18:00		150	A	A0805/21
EFD113	D113	210508	05:00	210508	13:00		35	A	A1151/21
EFR113	R113	210508	05:00	210508	13:00		35	A	A1150/21

Ok   Apply   Cancel

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

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

Altitudes are shown in hundreds of feet (or in meters+"m" if metric units chosen) if at or below the transition altitude, otherwise in flight levels (or meters standard+"m"). They must be entered in the same format ("m" character optional with meters).

An area's activation status can be inactive, pre-active or active. A pre-active area is an area that will become active within a specified time (10min by default) and is shown with "Selected Period" color text on a "TSA Preactive" color background. An active area is shown with "Selected Period" color text on a "TSA Active" background. The APW system will not alert for a pre-active area, but for the SAP system a pre-active area is considered as being active.

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
- ⬚A: Category labels   Left-click to toggle display of the relevant areas in the list
- ⬚A: "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
- ⬚A: "Refresh" button   Not implemented

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
- ⬚A: Group   Sorts alphabetically based on the Group field
- ⬚A: Category   Sorts alphabetically based on the Category field
- ⬚A: Status   Sorts based on the activity status. The sorting order is
                         PRE_ACT -> ACTIVE -> INACTIVE -> AUTO

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

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

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

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.

A :

With the group pop-up menu opened, the area text row background changes to "Flight Highlight" color. The menu title shows the group name, and 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

For the first three, 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.

Preactive and active areas are displayed on the radar screen. The area border is drawn using a predefined color and it may be filled as well. A predefined text label may also be displayed, showing information about the area. If the area definition in the data file includes at least a position for the label, a very small "+" symbol will be drawn at that location. By holding the left mouse button down on that symbol, 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
- UPPER / LOWER   The area level limits
- START_TIME   The area activation start time
- END_TIME   The area activation end time
- TIME_TO_ACT   For preactive areas, the time in minutes until the area becomes active

The standard label can be configured to display any of these fields except TIME_TO_ACT.

8.13 Flight Plan Selection Window

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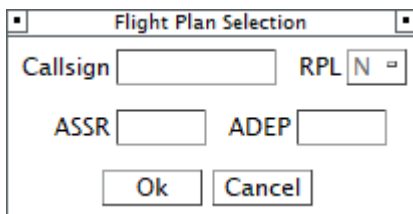
The Flight Plan Selection window is used to search for flight plans based on any combination of callsign, assigned transponder code and departure airport. All flight plans that are a match with all given information will be listed in the Flight Plan Window and can be viewed using its "Prev" and "Next"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

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

8.14 Flight Plan Window

Global Menu -> FlightData/FData -> Flight Plan Window…

Flight Plan Selection Window -> Create a list of one or more flight plans

Callsign menu -> More -> 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)
- FTYP   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.

8.15 Complete Route Window
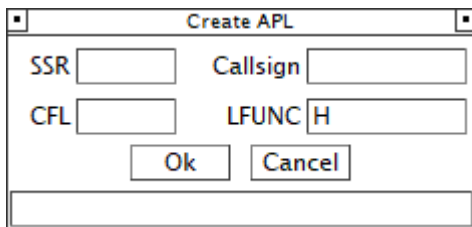
Flight Plan Window -> "RTE" button

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

8.16 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.
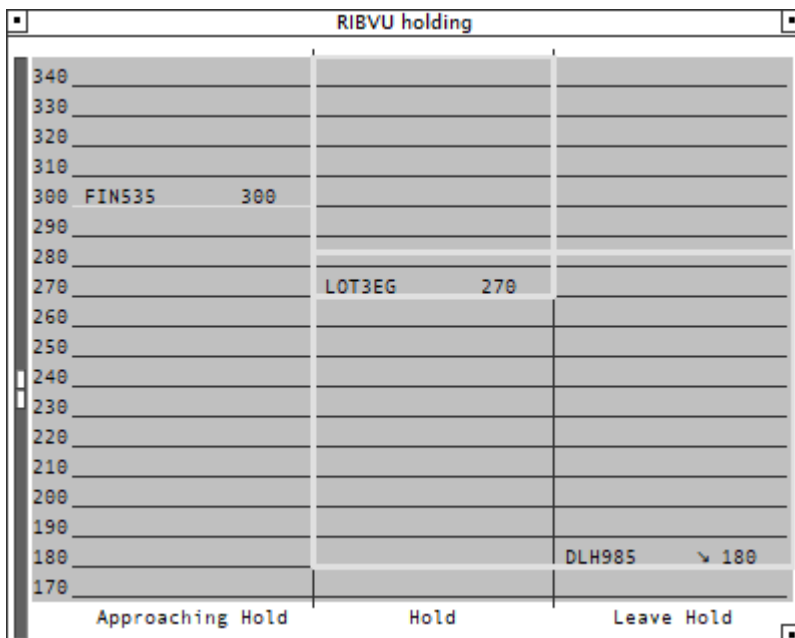
If the SSR field is left empty, a code will be automatically assigned from a dedicated APL code range. If no codes are available, an error message will be shown and a code must be manually entered.

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.

8.17 Stack Manager Window

Holding List… -> "HPT" item

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

The window is split into three columns:

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

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

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

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

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

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

The mouse click areas of the Stack Manager Window:

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

*) Right-clicking a callsign in the Leave Hold column immediately removes the aircraft from display.

**) 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.

8.18 CARD (Conflict And Risk Display)

Global Menu -> ControlTools/Tools -> CARD…
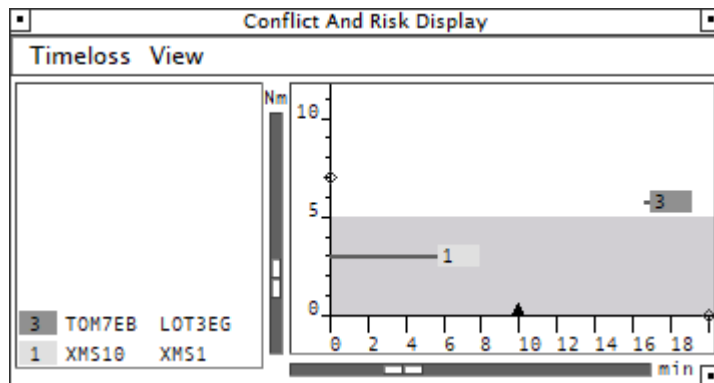
The CARD window presents the MTCD conflicts and conflict risks. It also allows setting some of the related parameters. It is divided into two parts:

On the left is the list area which includes all the detected conflicts and shows the concerned aircrafts' callsigns. A conflict or potential predicted conflict has an "Urgency" colored label and a risk or potential risk of conflict has a "Warning" one. Potential conflicts are displayed with "Potential" colored labels. The conflict numbers are shown in "CARD Conflict Number" color. An "Urgency" colored background on a callsign means that the aircraft also has a Short Term Conflict Alert. A highlighted callsign will be highlighted in this list as well. An acknowledged conflict (shown in "Unconcerned" color) will not display the MTCD warning in the track label. An acknowledged problem 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 "Field Highlight" color.

The mouse click areas of the CARD window:

- "Timeloss" / "Distance"   Opens a pop-up menu to select the sorting option
                                   (Time to start of conflict / Predicted minimum separation)
- "View" menu label   Toggle the View menu.
- Vertical slider   Drag to adjust the distance scale
- Horizontal slider   Drag to adjust the time scale
- Diamond on vertical axis   Drag to adjust prediction distance

-	Diamond on horizontal axis	Drag to adjust prediction time
-	Triangle on horizontal axis	Drag to adjust warning time
-	A : 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
-	B : Conflict number labels	Left-click to open Mark/ACK menu
		Right-click to toggle SEP (minimum separation lines)

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

-	List	Toggles display of the list area
-	Graphic	Toggles display of the graphical area
-	Grid	Toggles a nm/min grid on the graphical area
-	Risk	Toggles display of MTCD risks of conflict
-	Potential Predicted	Toggles display of MTCD potential predicted conflicts (*
-	Potential Risk	Toggles display of MTCD potential risks of conflict (*
-	Potential	Toggles display of MTCD potential conflicts (*
-	PLC	Toggles display of planner controller conflicts
		(conflict starts later than the triangle displayed on the time axis)
-	MTCD Ind	Toggles the display of the MTCD indicator on the track label
-	Notif	Toggles whether tracks in the notified state are considered for MTCD
-	Unco	Toggles whether unconcerned tracks are considered for MTCD
-	Future	Toggles whether flight plan tracks are considered for MTCD
		(flight plan tracks must be at least in the coordinated state regardless of the "Notif" and "Unco" selections)

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

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

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

8.19 SAP Window

Global Menu -> ControlTools/Tools -> SAP…


```
·    Segregated Area Probe     ·
EMR018      TSAV26  6444N02432E 2018
```
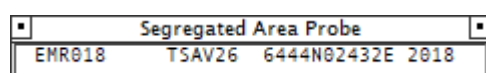
The SAP window lists the aircraft that have SAP conflicts (can be set to also show risks). The list shows the aircraft callsign, the area it will enter and the coordinates and the time when it will enter it. Only the first entered area will be shown if the aircraft is predicted to enter more than one 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.

8.20 Vertical Aid Window

Global Menu -> ControlTools/Tools -> Vertical Aid Window…
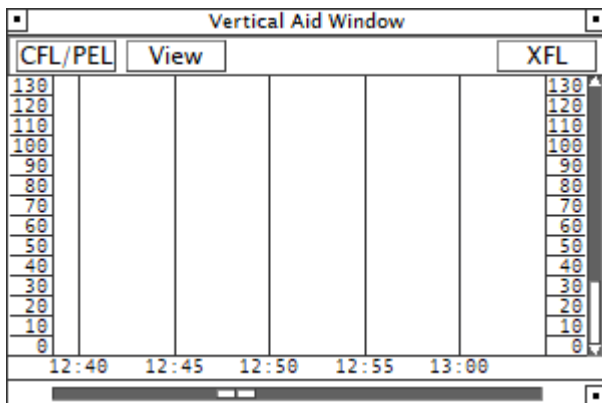
The Vertical Aid Window shows the predicted vertical trajectory of the selected aircraft (ASEL), starting from its current position (marked with a dot in "VAW Track Position" color), and the trajectories of all aircraft conflicting with it. The trajectories are displayed as calculated by EuroScope. The 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. Other sector boundary crossings are displayed with vertical lines in "VAW Sector Limits" color. The trajectory of the ASEL aircraft is drawn in "VAW Profile" color and the conflicting aircrafts' trajectories in "Urgency" (conflict or potential predicted conflict), "Warning" (risk or potential risk of conflict) or "Potential" (potential).

 It is also possible to send PEL and XFL coordinations and set the CFL from this window using the two buttons:

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

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

- Risk   Toggles display of MTCD risks
- Potential Predicted   Toggles display of MTCD potential predicted conflicts (*
- Potential Risk   Toggles display of MTCD potential risks of conflict (*
- Potential   Toggles display of potential conflicts (*
- Notif   Toggles whether tracks in the notified state are shown
- Unco   Toggles whether unconcerned tracks are shown

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

The PEL and XFL values are displayed in "Coordination" color, or in "Proposition" if being coordinated. After a refused coordination, the original value is shown in "Warning" color. The CFL value is displayed as a horizontal line across the screen.

8.21 Message In Window

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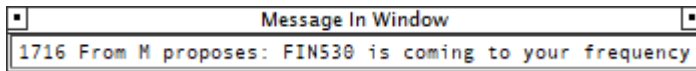
The Message In Window shows received coordination messages, sorted by time, with the newest ones at the top of the list. For the ones requiring an answer, it is possible to send it either from this window, the aircraft track label or any aircraft list where the relevant items are displayed. The messages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

The available message types are:

- "From <SI> 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]"
    - 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 [COPN xxxxx] [PEL xxx]"
    - 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 [COPX xxxxx] [XFL xxx]"
    - 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

8.22 Message Out Window

Global Menu -> ControlTools/Tools -> Message Out…

```
■         Message Out Window          ■
1703 To Z for DLH985 proposes goes to your frequency
```
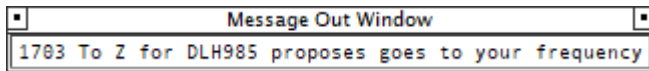
The Message Out Window shows the coordination messages you have sent, sorted by time, with the newest ones at the top of the list. The messages will be automatically removed when the track becomes Unconcerned. To manually remove a line, left-click on it.

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]"
  - 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 [COPN xxxxx] [PEL xxx]"
  - o Displayed when you have sent an entry coordination
- "To <SI> for <Callsign> proposes [COPX xxxxx] [XFL xxx]"
  - 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

8.23 Microphone Check menu

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

```
Microphone Check
    124.200
    126.100
    MANUAL
```
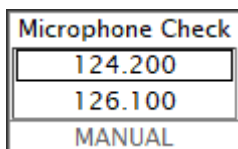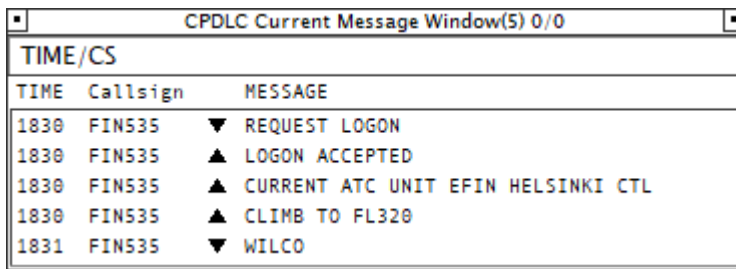
The Microphone Check menu is used to send a "CHECK STUCK MICROPHONE <frequency>" CPDLC message to all CPDLC connected aircraft when a stuck mic is suspected. The menu lists all frequencies selected for XMT TXT in EuroScope; left-clicking on one sends the messages. Manual frequency entry is not available.

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

8.24 CPDLC Current Message Window

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

```
┌─────────────────────────────────────────────────────┐
│ ■        CPDLC Current Message Window(5) 0/0        ■ │
├─────────────────────────────────────────────────────┤
│ TIME/CS                                               │
├─────────────────────────────────────────────────────┤
│ 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" for CPDLC emergency messages that have not been replied to
- "CPDLC Failed" for failed uplink messages
- "CPDLC Unable" for uplink clearances replied to with "UNABLE"
- "CPDLC Standby" for uplink clearances replied to with "STANDBY", and not timed out
- "CPDLC UM Clearance" for uplink clearances waiting for reply, and not timed out
- "CPDLC Pilot Late" for timed out uplink clearances
- "CPDLC Discarded" for discarded messages
- "CPDLC DM Request" for downlink requests waiting for controller reply, and not timed out
- "CPDLC Controller Late" for timed out downlink requests
- "Foreground" for other messages

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

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

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

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

If the message is "REQUEST LOGON":

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

For other messages:

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

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

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

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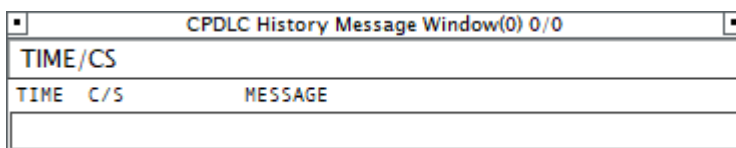
This window is used to send a manually composed reply to a CPDLC message (max 99 characters). Left-click on the area below the "Message text" label to enter the message and select one of the "Expected reply" options. Then left-click on "Send" to send the message.

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!

8.25 CPDLC History Message Window

Global Menu -> ControlTools/Tools -> CPDLC -> History Messages…
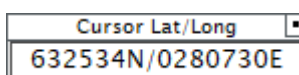
The CPDLC History Message Window contains CPDLC messages that have been archived from the CPDLC Current Message Window.

8.26 Cursor Lat/Long Window

Global Menu -> ControlTools/Tools -> LAT/LONG…

Displays the latitude and longitude values of the cursor position.

8.27 Weather Messages Window

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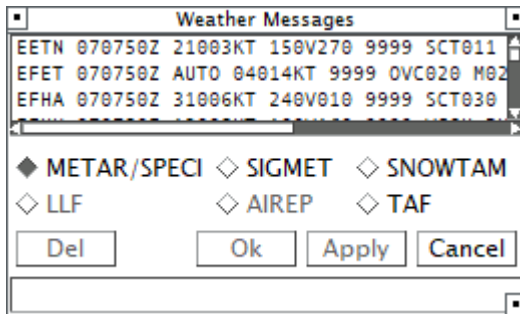
The Weather Messages Window displays weather related messages. By default, METAR/SPECI messages are shown. To view other types of messages, left-click on the desired option button (the "LLF" and "AIREP" options are not available).

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

In addition, the window can display SIGMETs, SNOWTAMs and TAFs. The SIGMETs are retrieved when the "**SIGMET**" button is selected for the first time, and are then updated at one-hour intervals. Selecting the "**SNOWTAM**" or "**TAF**" option will open the Aerodrome menu where the desired stations must be selected. SNOWTAM data is downloaded together with the NOTAMs, and refreshed every three hours. TAF data is never updated automatically; to get updated forecasts the TAF option (and the stations) must be selected again. 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 and the data is never updated automatically).

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

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

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

To view a single message:

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

To view a single METAR in the decoded format:

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

To return to the list view:
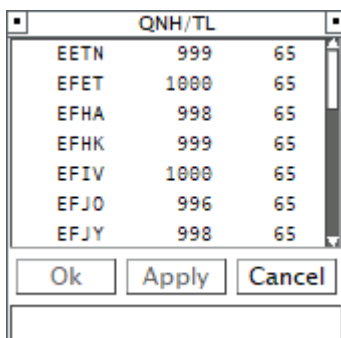
- Left-click on a single METAR/SIGMET/SNOWTAM/TAF
  or
- Right-click on a decoded METAR

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

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

8.28 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.

8.29 General Information Window

Global menu -> Info -> General Information…

A :

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   Displays the state of the FPASD setting
- CPDLC Def   Displays the state of the CPDLC Default setting
- AGCS   "Warning" color if Hoppie datalink comms are failed
- FPCP   "Warning" color if prediction time is set to zero
- CCAMS   Plugin selected as the code source:
  - "Urgency" color if the SSR data file contains no codes
  - "Warning" color if simulated traffic is not downloaded

  ESE file or fixed range selected as the code source:
  - "Warning" color

B :

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

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

-	CPDLC Def	Displays the state of the CPDLC Default setting
-	FPASD	Displays the state of the FPASD setting Alert
-	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.
-	CCAMS	Plugin selected as the code source:

  - "Urgency" color if the SSR data file contains no codes
  - "Warning" color if simulated traffic is not downloaded

  ESE file or fixed range selected as the code source:

  - "Warning" color

-	AGCS	"Warning" color if Hoppie datalink comms are failed
-	MTCD	"Warning" color if prediction time is set to zero

8.30 Document Viewer Window

Global Menu -> Info -> Document Viewer…

```
Document Viewer                          ▪
Filter: [                                              ]
Aircraft   A002  L G 1P   IRKUT A-002
Locations  A1    M L 1P   DOUGLAS Skyraider
Callsigns  A10   M L 2J   FAIRCHILD A-10 Thunderbolt 2
Operators  A109  L H 2T   AGUSTA A-109 (Grand/Power/Nexu...
           A119  L H 1T   AGUSTA A-119/AW-119 Koala
           A122  L L 1P   AEROTEC A-122 Uirapuru, T-23
           A124  H L 4J   ANTONOV An-124 Ruslan
```
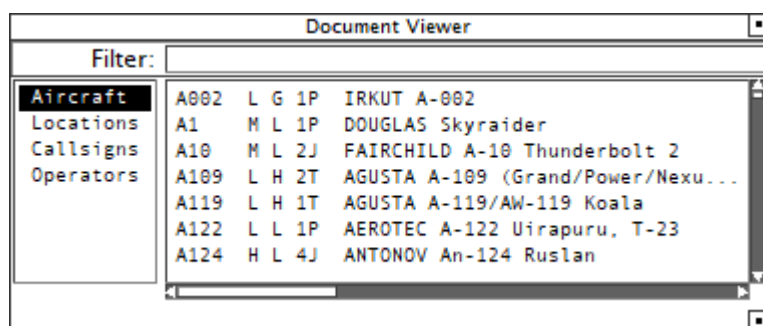
The Document Viewer Window is used to browse and search for information in specific data files

- Aircraft   Information about aircraft types
  o   Type designator
  o   Wake turbulence category
  o   Description (Amphibian, Gyrocopter, Helicopter, Landplane, Seaplane, Tiltrotor)
  o   Engine count and type (Electric, Jet, Piston, Rocket, 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)

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

8.31 NOTAM List Window

Global Menu -> Info -> NOTAM...

```
┌■─────────────────── NOTAM List ────────────────────■┐
│  All                                                 │
│ EETN A0500/21 R OBST ERECTED                      ▲  │
│ EETN A0541/21 N INSTR APCH PROC NOT AVBL          │  │
│ EETN A0567/21 R AD (PLAIN LANGUAGE)               │  │
│ EETN A0671/21 N HLDG PROC (TRIGGER NOTAM)         │  │
│ EETN A0675/21 N AD (TRIGGER NOTAM)                │  │
│ EETN A0795/21 N ILS CAT I U/S                     │  │
│ EETN A0802/21 N TEMPO RESTRICTED AREA ACT         │  │
│ EETN A0838/21 R OBST ERECTED                      ▼  │
│              ┌───────┐    ┌───────┐                  │
│              │ Prev  │    │ Next  │                  │
│              └───────┘    └───────┘                  │
│                                                   ■  │
└─────────────────────────────────────────────────────┘
```
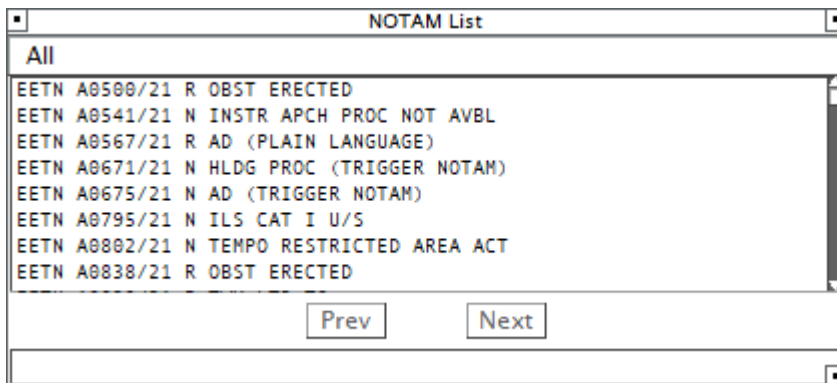
The NOTAM List Window displays a list of received NOTAMs. The NOTAMs are retrieved when the window is first opened and the list will take a couple of seconds to populate. The NOTAMs are automatically updated every two hours. Each NOTAM shows the following information:

- 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**".

8.32 Aerodrome Window

Global Menu -> Info -> Aerodrome...

```
┌■────── Aerodrome ──────■┐
│ ┌─────┬──────┬──────┬───────┐ │
│ │EFHK │QNH 999│TRL 65│ NOTAM │ │
│ └─────┴──────┴──────┴───────┘ │
│ EFHK 070750Z 13005KT 100V160 9999 ▲ │
│ VCSH BKN006 FEW020CB 04/03 Q0999   │ │
│ NOSIG                              │ │
│ ---                                │ │
│ TAF AMD EFHK 070738Z 0707/0806     │ │
│ 12005KT 9999 -RA BKN007          ▼ │
│                                      │
│    RWY allocation  [            □]   │
│                                      │
│ ARR Runway [15 □] [  □] [  □] [  □]  │
│ DEP Runway [22R□] [  □] [  □] [  □]  │
│                                      │
│    ┌────┐ ┌───────┐ ┌────────┐      │
│    │ Ok │ │ Apply │ │ Cancel │      │
│    └────┘ └───────┘ └────────┘      │
│                                   ■  │
└──────────────────────────────────────┘
```
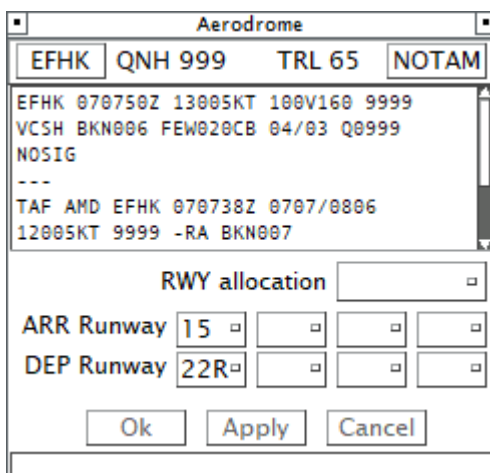
The Aerodrome Window displays information about the selected airport.

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.

8.33 LFUNC Frequency Plan Window

Global Menu -> Info -> LFUNC Frequency Plan…
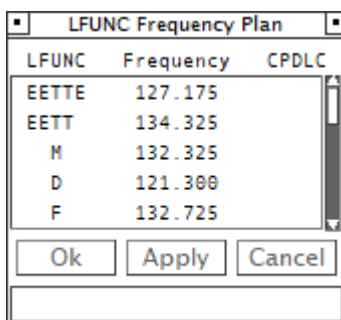
The LFUNC Frequency Plan Window displays the currently online controllers and their primary frequencies as well as their CPDLC logon callsigns where applicable.

8.34 Notepad Window

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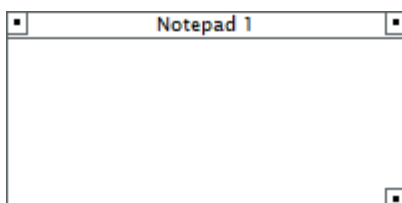
The Notepad Windows can be used to display any user entered text. Multiple Notepad Windows can be opened simultaneously. To enter new text or edit the existing one, click on the window area. The text will be automatically wrapped, and if necessary, the "|" character can be used to force a line break.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

8.35 Personal Queue Window

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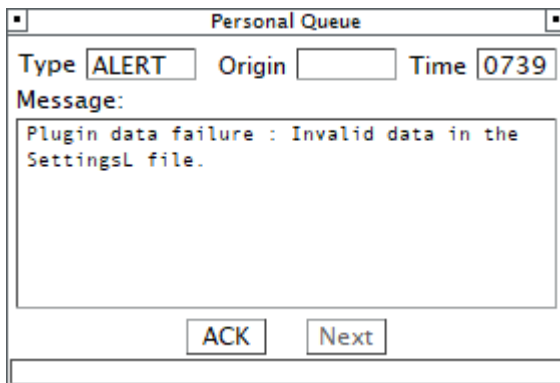
The Personal Queue Window displays warning messages related to the plugin's operation: high priority messages informing about potential critical failures in the plugin code, and low priority messages informing about faults in the plugin's external data files or timeout alerts for coordination messages.

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

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

8.36 ATC Messages Window / Primary Frequency Messages Window

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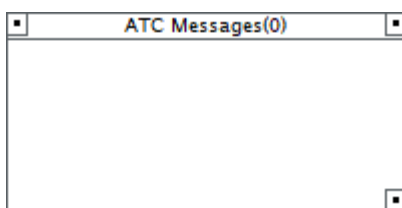
These windows display up to 99 last messages transmitted on the relevant text channel ("ATC" or the primary frequency). Each message line displays a time stamp, the sender callsign (blank if you) and the message itself.

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.

8.37 NAT Track Messages Window

Global Menu -> Messages/MSG -> NAT Track Messages…


```
                   NAT Track Messages
061257 CZQXZQZX
 (NAT-1/1 TRACKS FLS 320/400 INCLUSIVE
MAY 07/0100Z TO MAY 07/0800Z
PART ONE OF ONE PARTS-
Y RAFIN 45/50 47/40 48/30 49/20 SOMAX ATSUR
EAST LVLS 320 340 360 380 400
WEST LVLS NIL
EUR RTS EAST NIL
```
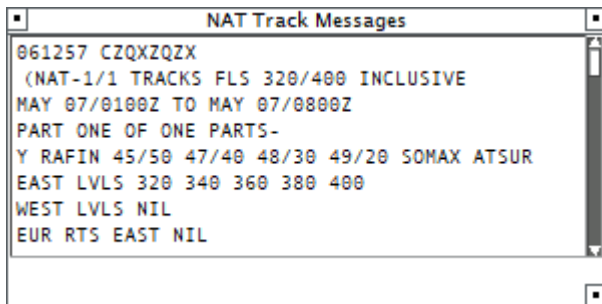
The NAT Track Messages Window displays the downloaded track messages. The messages are downloaded when the window is opened the first time and then updated hourly. The tracks extracted from the messages can be displayed on the radar screen – they are placed to a "NAT" folder in the Maps Window. Any named waypoints in the tracks that cannot be found in the active sector file are just skipped so the displayed tracks may not be accurate. The track letter is added to the name of the first and last waypoints in parentheses, so a missing track letter is a sure sign of at least some waypoints missing.

8.38 Safety Nets Status Window

Global Menu -> Status/STS -> Safety Nets Status…
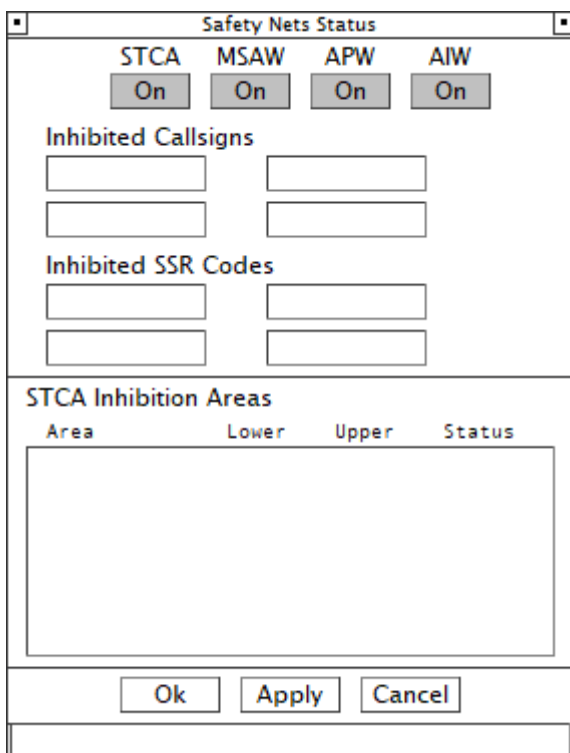
Allows setting the status for the STCA, MSAW, APW and AIW systems. The "On/Off" buttons control the corresponding system's status.

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

8.39 Divergence Detection Status Window

Global Menu -> Status/STS -> Divergence Detection Status…
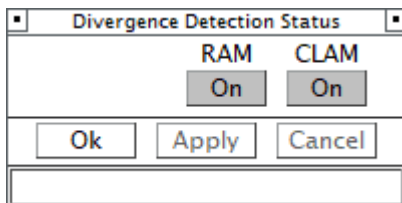
Allows setting the status for the RAM and CLAM alerting. The "On/Off" buttons control the corresponding system's status. All changes must be applied using the buttons below to take effect.

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

8.40 MTCD Status Window

Global Menu -> Status/STS -> MTCD Status…

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

If there are MTCD inhibition areas defined in the area data file, they will be listed in the area below the "On/Off" button. The area 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.

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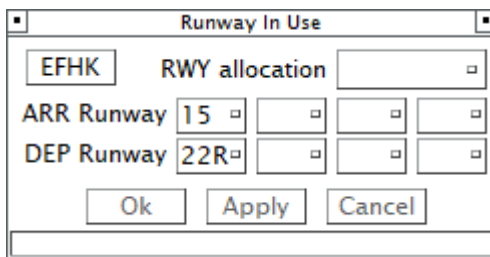
All changes to the window must be applied using the buttons in the bottom of the window to take effect.

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

8.41 Runway In Use Window

Global Menu -> Status/STS -> 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.

8.42 Operations Rate Window

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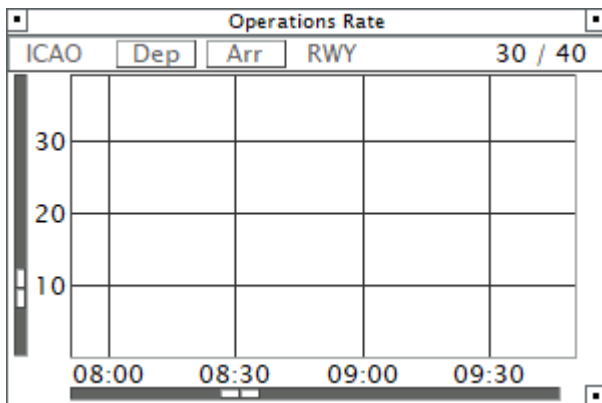
The Operations Rate Window displays the predicted hourly operations rate at a specified airport. The data is displayed in 5-minute steps and shown up to 5 hours into the future. The arrival prediction is based on aircraft tracks as calculated by EuroScope. The departures are predicted to depart immediately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

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

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

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

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

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

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

8.43 Predicted Traffic Window

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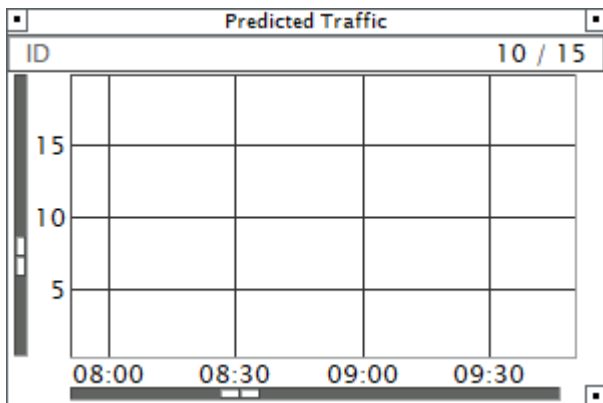
The Predicted Traffic Window shows the number of aircraft that are predicted to be inside a specified controller's airspace. The data is displayed in 5-minute steps and shown up to 5 hours into the future. The prediction is based on the sector ownership and the aircraft tracks are as calculated by EuroScope.

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

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

The two sliders change the traffic number and time scales.

8.44 Runway Approach Line Window

Global Menu -> Status/STS -> RWY line display… (opens the <u>Aerodrome menu</u> for airport selection)
Radar screen -> right-click on Airport symbol drawn by the plugin's "AD_Hotspots" map…

To open the window from the radar screen, right-click on an airport symbol (+) on the radar screen (for the click spots to be active, the "AD_Hotspots" map in the "Aerodromes" folder of the <u>Maps Window</u> must be active). Only those airports with runways specified have active click spots.

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 for the airport. 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 (A) or 20nm (B) 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.

8.45 Tactical Info Window

"Open Tactical Info Window" tag function

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 <u>Tactical Transfer menu</u>.

8.46 Pre-Departure Clearance Window

"Open PDC Window" tag function

DEP CLEARANCE	
FIN633	
RWY	21
SID	RENVI3A
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)
- NPT   Next route point (left-click to edit)
- CFL   Cleared level (left-click to open CFL menu)
- ASSR   Assigned transponder code (left-click to open ASSR menu)
- START   Start-up clearance (left-click to toggle between "YES" and "NO")
- NFREQ   Next frequency (left-click to edit)
- DFREQ   Departure frequency (left-click to edit)
- RMK   Free text remarks to send with a datalink clearance (left-click to edit)

The NPT, NFREQ, DFREQ, START and RMK fields are only displayed if a datalink clearance has been requested and the clearance format (defined in the CPDLC data file) includes them.

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.

When the datalink clearance format includes the possibility to switch between "track" and "heading" modes, the "AHDG" label is displayed as a button. Left-click on it to toggle between "AHDG" and "TRACK".

When the RMK field contains text, the window displays the full text if it is not longer than 8 characters, otherwise the 7 first characters + "…". Left-click to edit the text.

When the aircraft has requested a clearance via datalink, the two buttons in the window are:

- Send DCL   Sends a departure clearance via datalink, closes the window
- Voice   Sends an error message "REVERT TO VOICE PROCEDURE", closes the window

When the aircraft has not requested a clearance via datalink, not enough data is entered, or the controller has used the **"Voice"** option above to abort the datalink clearance process, the buttons are:

- Ok   Sets the clearance flag "On", closes the window
- Cancel   Sets the clearance flag "Off", closes the window

The **"Send DCL"** and **"Ok"** buttons are active when at least the "RWY", "CFL", "ASSR", all displayed frequency fields and the "NPT" field, if displayed, contain data.

8.47 Departure Coordination Window

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

```
┌─────────────────┐
│   DEP COORD     │
│     FIN633      │
│       21        │
│     RENVI3A     │
│ CFL  │  350     │
│ ASSR │  A1352   │
│ EOBT │  1710    │
│     Cancel      │
│       Ok        │
└─────────────────┘
```

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

- CFL   Opens the CFL menu
- ASSR   Opens the ASSR 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

9 Aircraft lists

9.1 Sector List

Available in EuroScope versions starting from 3.2.1.29

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

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

- Informed   (if corresponding selection made in the Global menu)
- Concerned (*   (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)

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

9.2 Pre-Activation List / Load Factor List

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> ControlTools/Tools -> Flight Plan Lists -> Pre-Activation List… / Load Factor List…

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

9.3 Main VFR List / Uncontrolled List 1

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> ControlTools/Tools -> Flight Plan Lists -> Main VFR List… / Uncontrolled List 1…

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

9.4 Secondary VFR List / Uncontrolled List 2

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> ControlTools/Tools -> Flight Plan Lists -> Secondary VFR List… / Uncontrolled List 2…

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

9.5 ETWR List

(Only available in B)

Available in EuroScope versions starting from 3.2.1.29

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

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

9.6 Resectorisation List

(Only available in B)

Available in EuroScope versions starting from 3.2.1.29

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

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

9.7 Traffic Management List 1

(Only available in B)

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> ControlTools/Tools -> Flight Plan Lists -> Traffic Management List 1…

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

9.8 Traffic Management List 2

(Only available in B)

Available in EuroScope versions starting from 3.2.1.29

Global Menu -> ControlTools/Tools -> Flight Plan Lists -> Traffic Management List 2…

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

9.9 Lost List

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

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

The lost list contains the following fields:

	Field	Type	Left click	Right click
-	Callsign	mandatory	Open Callsign menu	-
-	N/ATYP	optional	-	-
-	AFL (last received)	optional	-	Toggle route draw
-	CFL	optional	Open CFL menu	Toggle route draw
-	ASSR	mandatory	Open ASSR menu	-
-	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.

9.10 Holding List

The Holding List contains aircraft in the assumed, transfer initiated and on-contact with the position states that have been given a holding clearance. The list is automatically displayed whenever there is at least one aircraft in the list.

```
┌──────────────────────────────────┐
│ ▪     HOLDING LIST(2) 0/0         │
├──────────────────────────────────┤
│ View   Options   ETO on Holding point │
├──────────────────────────────────┤
│ Label Callsign   AFL    CFL HPT   ETO │
├──────────────────────────────────┤
│   ▪    LOT3EG     350    270 RIBVU 1703 │
│   ▪    FIN535     300    300 RIBVU 1707 │
└──────────────────────────────────┘
```

"View" opens the View menu which contains only one item, "Header". It toggles the visibility of the list's header line.

"Options" is inaccessible as there are no selectable options in the holding list.

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

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.

Field	Left click	Right click
- Label	Hide/display track label	-
- Callsign	Open Callsign menu	-
- AFL	Open AFL menu	Toggle route draw
- (attitude indicator)	-	-
- CFL	Open CFL menu	Toggle route draw
- HPT	Open Stack Manager Window	-
- ETO	-	-

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.

10 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   \<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   \<ALT\> + \<L\>
- Start a new minimum separation line   \<ALT\> + \<S\>
- A : 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   \<ALT\> + \<1\>…\<0\>

"Selected flight" in the above means that the mouse cursor is over that flight's track label. For the timed functions, activating the shortcut while the timer is running restarts the timer from zero.

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

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

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

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

11 Safety Nets

11.1 AIW (Airspace Infringement Warning)

11.1.1 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.

11.1.2 Alert display

An alert is shown by displaying the text "AIW" in the ALRT track label field. Note that MSAW and APW alerts will have priority over an AIW alert. 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.

11.2 APW (Area Proximity Warning)

11.2.1 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.

11.2.2 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 track label field (an MSAW alert will have priority over an APW alert there).

11.3 MSAW (Minimum Safe Altitude Warning)

11.3.1 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.

11.3.2 Alert display

An alert is shown by displaying the text "MSAW" in the ALRT track label field.

11.4 STCA (Short Term Conflict Alert)

11.4.1 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.

11.4.2 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.

B : 	In addition to the above, the radar position symbol and history dots are displayed in "Urgency" color.

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

12 Monitoring Aids

12.1 CLAM (Cleared Level Adherence Monitoring)

12.1.1 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.

12.1.2 Alert display
An alert is shown by displaying a circle around the aircraft position symbol and the text "CLAM" in the ALRT track label field. Note that MSAW, APW and AIW alerts will have priority over a CLAM alert in the track label.

12.2 RAM (Route Adherence Monitoring)

12.2.1 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.

12.2.2 Alert display
An alert is shown by displaying a circle around the aircraft position symbol and the text "RAM" in the ALRT track label field. Note that an MSAW, APW, AIW and CLAM alerts will have priority over a RAM alert in the track label.

13 Flight Plan Conflict Probe

13.1 MTCD (Medium Term Conflict Detection)

13.1.1 General

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

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

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

4D setup (default)
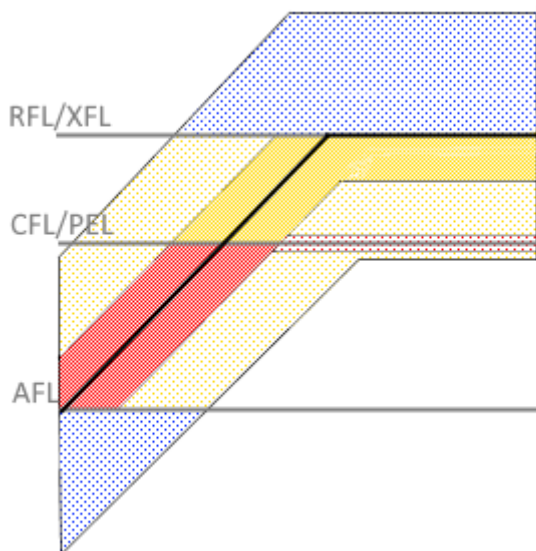
- **Conflicts** (area with red shading)
    - detected within a specified buffer (default 4000ft) around the predicted vertical path of the aircraft between AFL and CFL/PEL
    - current clearances may lead to a loss of separation
- **Conflict risks** (area with yellow shading)
    - detected within the same buffer, but outside of the AFL-CFL/PEL level range
    - current clearances will not lead to a loss of separation, but clearing one of the tracks to another level may turn the risk into a conflict
- **Potential predicted conflicts** (area with light red shading)
    - detected for tracks with equal CFL/PEL values, after the level is calculated to have been reached, when the predicted path contains further climb/descent
    - at least one of the tracks must be in the assumed sector state
    - current clearances may lead to a loss of separation if further climb/descent is not given

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

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

Level-band setup

The level-band setup is a simple one that does not take the predicted vertical path of the aircraft into account, only the relevant levels.
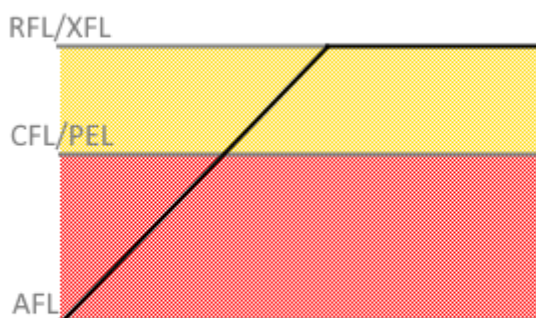
- **Conflicts** (area with red shading)
  - detected for all levels between AFL and CFL/PEL
  - current clearances may lead to a loss of separation
- **Conflict risks** (area with yellow shading)
  - detected for the whole planned level range outside of the AFL-CFL/PEL level range
  - current clearances will not lead to a loss of separation, but clearing one of the tracks to another level may turn the risk into a conflict

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

13.1.2 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.

- (A) ALRT track label field   "**MTCD**" in "Warning" color
- MTCD track label field   Either "•" in "Urgency" color or "**MTCD**" in "Warning" color

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

13.2 SAP (Segregated Area Probe)

13.2.1 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.

13.2.2 Conflict and Risk display on the track label

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.

14 Data stored in the flight strip annotation boxes

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

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

-	-	-	3602
-	-	X	
X	X	X	

15 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	A : Warning B : Information
+	Field 18 information	A : "■", B : "+" if defined text (by default "RMK/" or "STS/") found in FPL remarks field	
*	Unit	"*" if label units are different from the system units	If metric system units chosen: 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	
ADEP	Departure aerodrome	ICAO code, 4 characters	
ADES	Destination aerodrome	ICAO code, 4 characters	

Data field	Description	Comments	Color
AFL	Actual Flight Level	Nautical: FL's with 3 digits, altitudes "A"+ 2/3 digits, heights "E"+ 2/3 digits, in hundreds of feet Metric: FL's with 4/5 digits, altitudes "M"+ 4 digits, heights "E"+ 4 digits, in tens of meters or meters The AFL display can be toggled to an enhanced display. In this state the field displays both the flight level and altitude: "FL/altitude" (altitude above TRL) "altitude/FL" (otherwise)	AIW: AIW intrusion Manually set: Warning B : Mark All: CARD Mark All S-Highlight: Suite Highlight
AHDG	Assigned heading	*(List)*: Assigned heading ("H" + 3 digits) or direct-to point name Unselected label: - Assigned heading - Direct-to point name (optionally hidden when direct to COPX) Selected label: - Assigned heading - Direct-to point name - * SID name if last point not yet overflown - * STAR name if next route point belongs to the STAR - * Next point on the route * are optional features If a heading clearance or request is in progress via CPDLC, displays "[heading]", followed by "+" if the request or answer contains a reason (i.e. DUE TO something). *(DEP list)* does not display the brackets for CPDLC status.	If a value is assigned and HOP: Proposition If a tactical coordination value is accepted but not set: Information If a CPDLC uplink message has been sent: CPDLC UM Clearance If a CPDLC downlink message has been received: CPDLC DM Request If controller timeout has expired following a CPDLC downlink request: CPDLC Controller Late If a CPDLC warning has been raised: color of the warning
AIW	AIW alert (see also ALRT)	"AIW"	AIW intrusion

Data field	Description	Comments	Color
ALRT	Alert message	"MSAW", "APW", "AIW", "CLAM", "RAM", "MTCD" (only in [A]) or "DUPE" (in this priority order)	MSAW, APW and MTCD: Warning AIW: AIW intrusion
ALT1	Alternate aerodrome 1	ICAO code, 4 characters	
ALT2	Alternate aerodrome 2	Second alternate can be set by inserting "ALT2/XXXX" (where XXXX is the aerodrome ICAO code) into the FPL remarks field	
APW	APW alert (see also ALRT)	"APW"	Warning
ARC	Assigned vertical rate	Nautical: "R" + 2 digits, in 100's of ft/min Metric: "R" + 2 digits, in m/s	If a value is assigned and HOP: Proposition If a tactical coordination value is accepted but not set: Information
ARWY	Arrival runway	Arrival runway identifier	If manually assigned: Rwy Locked (optional feature)
ASP	Assigned speed	Mach "M"+ 2 or 3 digits, in 1/100's of Ma [B]: "HS" for high speed clearance Nautical: Speed 2 digits, in 10's of knots or [A]: Speed "N"+ 3 digits, in knots [B]: Speed "S"+ 3 digits, in knots Metric: Speed "K"+ 2 digits, in 10's of km/h or 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).	If a value is assigned and HOP: Proposition If a tactical coordination value is accepted but not set: Information If a CPDLC uplink message has been sent: CPDLC UM Clearance If a CPDLC downlink message has been received: CPDLC DM Request If controller timeout has expired following a CPDLC downlink request: CPDLC Controller Late If a CPDLC warning has been raised: color of the warning

Data field	Description	Comments	Color
ASSR	Assigned mode 3/A code	4 digits or "A"+ 4 digits. If no code assigned, shows TSSR code if available (optional feature, always disabled in *(DEP list)*) If a SQUAWK SSR message is in progress via CPDLC, displays the code in brackets, followed by "+" of the answer contains a reason (i.e. DUE TO something). *(DEP list)* does not display the brackets for CPDLC status.	If different than TSSR: Warning (in *(DEP list)*, regardless of actual radar coverage) If a CPDLC uplink message has been sent: CPDLC UM Clearance If a CPDLC warning has been raised: color of the warning
ATD	Actual Time of Departure	UTC time in "HHMM" format	
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: A : Warning B : Information
CALLSIGN	Callsign	If more than one aircraft, suffixed by "+". If correlated to a primary track or to a secondary track with no ASSR code and a non-discrete TSSR code, suffixed by "*". If the flight is CPDLC connected, the callsign is displayed in brackets.	Priority order: A : STCA alert: Urgency HOP in: Proposition Highlight: Warning B : STCA alert: Urgency HOP in: Proposition Mark Own: CARD Mark Own Highlight: Warning Mark All: CARD Mark All S-Highlight: Suite Highlight If none of the above: Transfer in: Assumed Transfer out: Redundant

Data field	Description	Comments	Color
CFL	Cleared Flight Level	"CA" if Clear for App flag set, "VA" if Visual App flag set, See AFL field for number format. Unselected label: Not shown if equal to AFL A : "CFL" option in Track Control Window prevents this hiding If a level clearance is in progress via CPDLC, displays "[level]", followed by "+" if the answer contains a reason (i.e. DUE TO something). (DEP list) does not display the brackets for CPDLC status.	(DEP list): for CTR or FSS if CFL > PEL, for others if CFL > XFL: Warning (all versions): If a CPDLC uplink message has been sent: CPDLC UM Clearance If a CPDLC warning has been raised: color of the warning
CFL/PEL	Cleared Flight Level or Planned Entry Level	PEL is shown for flights in "coordinated" and "ongoing coordination" states, CFL otherwise. "CA" if Clear for App flag set, "VA" if Visual App flag set, See AFL field for number format. Unselected label: PEL: Not shown if equal to AFL and no ongoing coordination. CFL: Not shown if equal to AFL A : "CFL" option in Track Control Window prevents this hiding If a level clearance is in progress via CPDLC, displays "[level]", followed by "+" if the answer contains a reason (i.e. DUE TO something).	PEL: Ongoing coordination: Proposition Change just before ETN: Info Coord Coordination refused: Warning CFL: If a CPDLC uplink message has been sent: CPDLC UM Clearance If a CPDLC downlink message has been received: CPDLC DM Request If a CPDLC warning has been raised: color of the warning

Data field	Description	Comments	Color
CLR	Clearance received flag	If no clearance received and no data link clearance in progress: *(long):* blank, *(short)*: "□" If clearance requested via data link: *(long):* "REQ", *(short)*: "R" If waiting for answer from the aircraft for a sent data link clearance: *(long):* "ACK", *(short)*: "A" If clearance received: *(long):* "OK", *(short)*: "▮" "REQ"/"R" and "ACK"/"A" are blinking when less than 2 minutes are remaining to timeout	<u>"REQ"/"R":</u> When request contains free text: Urgency Otherwise: Warning <u>"ACK"/"A":</u> When blinking: Warning
COM	Communication type	"r" if voice receive only "t" if text only	Warning
COMP_CS	ICAO RTF callsign	The decoded ICAO RTF callsign B : "???" if not in database	
COORD	Coordination message	"ROF" if a Request On Frequency message has been received from the next sector The last changed tactical coordination parameter value (AHDG, ASP or ARC)	A : Coordination B : Proposition Proposed: Proposition Rejected: Warning
COPN	Entry point		Ongoing coordination: Proposition Coordination refused: Warning
COPX	Exit point	*(DEP list)*: If logged in as CTR and flight not inside active sector, displays COPN *(with holding)*: A holding clearance is displayed if there is no coordination. It shows the holding point name + " H" or for lat/lon point holdings, "POS H". For a TSA Hold clearance, the area name is shown.	Ongoing coordination: Proposition Coordination refused: Warning

Data field	Description	Comments	Color
COPN/COPX	Entry point or Exit point	COPN is shown for flights in "coordinated" and "ongoing coordination" states, COPX in "assumed", "transfer initiated" and "redundant" phases. *(with holding)*: A holding clearance is displayed if there is no coordination. It shows the holding point name + " H" or for lat/lon point holdings, "POS H". For a TSA Hold clearance, the area name is shown.	Ongoing coordination: Proposition Coordination refused: Warning
CPDLC_E	CPDLC Emergency	CPDLC emergency messages: "SQ7500", "[MAYDAY]", or "[PAN]"	Urgency
CPDLC_W	CPDLC Warning	CPDLC warning messages: "COMM FAIL" for network failure "<type> ERR" for message failure "<type> NOT CDA" for NOT CURRENT DATA AUTHORITY response "<type> P LATE" for timeout "<type> SBY" for STANDBY response "<type> UNA" for UNABLE response <type> is the type of message: "AHDG" for heading clearance "CFL" for level clearance "COF" for communication transfer "DCT" for direct-to clearance "SQI" for SQUAWK IDENT message "SSR" for SQUAWK SSR message "VCI" for communication transfer	"COMM FAIL", "<type> ERR" or "<type> NOT CDA": CPDLC Failed "<type> UNA": CPDLC Unable "<type> SBY": CPDLC Standby "<type> P LATE": CPDLC Pilot Late
CRC	Computed vertical rate	<u>Nautical:</u> 2 digits, in 100's of ft/min <u>Metric:</u> 2 digits, in m/s *(with sign)*: value preceded by "C" for climbing, "D" for descending	
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. Blank, not available on VATSIM.	
DMACH	Downloaded Mach number	Mach number as downloaded from the aircraft via mode S DAPs. Blank, not available on VATSIM.	

Data field	Description	Comments	Color
DRC	Downloaded rate of climb/descent	Rate of climb/descent as downloaded from the aircraft via mode S DAPs. Not available on VATSIM (computed rate displayed instead, see CRC (*with sign*)).	
DRWY	Departure runway	Departure runway identifier	*(DEP list)*: Clearance flag not set: Proposition Clearance flag set: Information
DSFL	Downloaded selected flight level	Selected flight level as downloaded from the aircraft via mode S DAPs. Blank, not available on VATSIM.	
DSQ	Departure sequence number		
EET	Estimated Elapsed Time	"HHMM"	
EMRG	Emergency	"HI" for squawk 7500, "CF" for squawk 7600, "EM" for squawk 7700	Urgency
EQUIP	FPL equipment field	Rough conversion to ICAO FPL *(COM/NAV)*: COM/NAV equipment *(SUR)*: "/" + surveillance equipment	
EST/DEP/ABT	Manual departure	"EST" when clearance flag not set and ground state not "DEPA", "DEP" when clearance flag set or ground state "DEPA" but not yet departed, "ABT" when departed	
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	For a departed aircraft, shows the actual departure, otherwise the estimated departure time. "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	
FCOPX	FIR COPX point		
FIELD15	Speed/Level/Route	The flight plan field 15 data (TAS, RFL and route). Max 360 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	
GS	Ground Speed	<u>Nautical:</u>　　3 digits, in knots `B`: optionally prefixed by "N" <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.	
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
MSAW	MSAW alert (see also ALRT)	"MSAW"	Warning
MTCD	MTCD indicator	*(dot)*: "•", *(text)*: "MTCD" if aircraft has an MTCD problem	*(dot)*: Urgency *(text)*: Warning
N/ATYP	Number of aircraft / Aircraft type	<u>Unselected label:</u> Number range 2 - 99 <u>Selected label or *(List)*:</u> Number range 1 - 99 Number can be set by prefixing the aircraft type in the FPL by "X/" where X is the number (max 99)	If highlighted: Warning
NPT	Next route point	<u>When a DCT request or clearance via CPDLC is in progress:</u> Displays the point name followed by "+" if the request contains a reason (i.e. DUE TO something) `B`: <u>Otherwise:</u> Next point on the route	If a CPDLC uplink message has been sent: CPDLC UM Clearance If a CPDLC downlink message has been received: CPDLC DM Request If controller timeout has expired following a CPDLC downlink request: CPDLC Controller Late If a CPDLC warning has been raised: color of the warning

Data field	Description	Comments	Color
NRAC	Number of aircraft	Number from 2 to 99 Extended label: "n" if 1 Other label or *(List)*: 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	A : Warning If a CPDLC uplink message has been sent: CPDLC UM Clearance If a CPDLC warning has been raised: color of the warning
OP_TEXT	Flight information message	User entered text, stored in the flight strip	
OP_TEXT2	OP_TEXT2 message	User entered text, stored in the scratchpad	
P	No P-RNAV/RNAV1 capability	"P" if aircraft equipment is not indicating P-RNAV/RNAV1 capability B : …and destination has arrival procedures requiring it	A : Not equipped: Urgency Unknown: Unknown B : Information
PEL	Planned Entry Level	"CA" if Clear for App set, "VA" if Visual App flag set, See AFL field for number format.	Ongoing coordination: Proposition Change just before ETN: Info Coord Coordination refused: Warning
PFREQ	Pilot monitored frequency	Displays your primary frequency when transfer of communications was done via CPDLC using the MONITOR option	CPDLC DM Request
PRFL	RFL requested by pilot via CPDLC	Displays "[requested level]", followed by "+" if the request contains a reason (i.e. DUE TO something)	If a CPDLC downlink message has been received: CPDLC DM Request If controller timeout has expired following a CPDLC downlink request: CPDLC Controller Late If a CPDLC warning has been raised: color of the warning

Data field	Description	Comments	Color
PSSR	Previous mode 3/A code	If not known, shows ASSR if available. Format as ASSR field.	
R	No B-RNAV/RNAV5 capability	"R" if aircraft equipment is not indicating B-RNAV/RNAV5 capability	Not equipped: Urgency Unknown: Unknown
RFL	Requested Flight Level	See AFL field for format *(List)*: If an RFL request is in progress via CPDLC, displays "[requested level]", followed by "+" if the request contains a reason (i.e. DUE TO something). *(DEP list)* does not display the brackets for CPDLC status.	In flight lists: If a CPDLC downlink message has been received: CPDLC DM Request If controller timeout has expired following a CPDLC downlink request: CPDLC Controller Late If a CPDLC warning has been raised: color of the warning
RI	Release Indicator	"F" fully released "C" released for climb "D" released for descent "T" released for turns Incoming release disappears 3 min after track is assumed, outgoing when track is no longer redundant.	During transfer: Proposition
ROUTE	Flight plan route	*(DEP list)* - part 1 shows first 15 characters, part 2 characters 16-30 If departing from defined airports: - first 15 characters If arriving at a clearance flag airport: - last 15 characters Else: - first 15 characters	
S	Mode S mismatch indicator	"S" if downloaded callsign is different than coupled flight plan callsign	Warning

Data field	Description	Comments	Color
SI	Sector Indicator	<u>Assumed track:</u> Next sector identifier or frequency. Displayed in brackets if a communications transfer is in progress via CPDLC, followed by "+" if the answer contains a reason (i.e. DUE TO something). The frequency display is forced on during a transfer via CPDLC. <u>Other tracks:</u> Tracking controller identifier or frequency. *(List)*: frequency display is not possible *(DEP list)* does not display the brackets for CPDLC status. *(Current)* displays always the current tracking controller id *(Previous)* displays the current tracking controller id unless it is you or the track is in redundant state *(Next)* displays the next controller id when assumed, or current when in redundant state	Priority order: Outgoing HOP: Proposition Manually changed next sector: Warning Normal next sector: Coordination If a CPDLC communications transfer uplink message has been sent: CPDLC UM Clearance If a CPDLC warning has been raised: color of the warning
SID	Assigned/planned SID	SID identifier	If automatically assigned: Sid Star No Allocation If manually assigned: Sid Star Allocation (optional feature)
SQ	Arrival sequence number	A number from 1 to 50	
STAR	Assigned/planned STAR	STAR identifier	If automatically assigned: Sid Star No Allocation If manually assigned: Sid Star Allocation (optional feature)
STS	Ground state	EuroScope default ground state	
TAS	Flight Plan TAS	See GS field for format	
TEXT2	OP-TEXT2 message	A : If more than 6 characters, then shows first 5 + "+" B : If more than 10 characters, then shows first 9 + ">"	

Data field	Description	Comments	Color
TRACK	Ground track	"T" + the aircraft's current ground track in degrees *(true)*: true *(magnetic)*: magnetic	
TSSR	Aircraft transponded mode 3/A code	4 digits or "A"+ 4 digits	
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
WTC	Wake turbulence category	"J" for Super, "H" for Heavy, "M" for Medium, "L" for Light "?" for unknown B : Unselected label: Only displayed if not medium unless the field is highlighted	If highlighted: Warning
/WTC	Wake turbulence category	"/J" for Super, "/H" for Heavy, "/M" for Medium, "/L" for Light "?" for unknown B : Unselected label: Only displayed if not medium unless the field is highlighted	If highlighted: Warning
XFL	Exit Flight Level	"CA" if Clear for App set, "VA" if Visual App flag set, See AFL field for number format. Unselected label: Not shown if equal to CFL/PEL and no ongoing coordination. A : "XFL" option in Track Control Window prevents this hiding *(DEP list)*: If logged in as CTR and flight not inside active sector, displays PEL. Otherwise displays XFL.	Ongoing coordination: Proposition Coordination refused: Warning
Y	No 8.33kHz capability	"Y" if aircraft equipment is not indicating 8.33kHz capability	Not equipped: Urgency Exempt: Information Unknown: Unknown

Appendix 2: Color values

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

Color name	Default color		Usage
	A	B	
Aircraft colors			
Assumed			Labels, Tracks
CARD Mark All	N/A		Labels
CARD Mark Own	N/A		Labels
Concerned			Labels, Tracks
Coordination			Labels, Tracks
Freq Indicator			Labels
Info Coord			Labels
Information			Labels, Windows
Informed 1			Labels, Tracks
Informed 2			Labels, Tracks
Informed 3			Labels, Tracks
Proposition Accepted			Labels
Proposition In			Labels
Proposition Out			Labels
Redundant			Labels, Tracks
Rwy Locked			Labels
Sid Star Allocation			Labels
Sid Star No Allocation			Labels
Suite Highlight	N/A		Labels
Track Default			Tracks
Track Highlight			Tracks (when selected)
Unconcerned			Labels, Tracks
Unknown			Labels
Urgency			Labels, STCA callsign background on plugin windows/lists
VFR			Labels, Tracks
Warning			Labels, APW callsign background on plugin windows/lists, Windows
CPDLC colors			
CPDLC Controller Late			Labels, Windows
CPDLC Discarded			Windows
CPDLC DM Request			Labels, Windows
CPDLC Failed			Labels, Windows
CPDLC Pilot Late			Labels, Windows
CPDLC Standby			Labels, Windows
CPDLC UM Clearance			Labels, Windows
CPDLC Unable			Labels, Windows
CPDLC Urgency			Labels, Windows
Aircraft related items on the radar screen			
AIW intrusion			AIW alert related items
CARD Min Sep	N/A		CARD SEP Tool
Flight Leg			Part of flight leg without MTCD and SAP coverage

Color name	Default color		Usage
	A	B	
FPLSEP Tool 1		N/A	Flight plan separation tool 1
FPLSEP Tool 2		N/A	Flight plan separation tool 2
FPLSEP Tool 3		N/A	Flight plan separation tool 3
FPLSEP Tool 4		N/A	Flight plan separation tool 4
FPLSEP Tool 5		N/A	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
SEP Tool 6	N/A		Minimum separation tool 6
SEP Tool 7	N/A		Minimum separation tool 7
SEP Vert	N/A		Extensions of minimum separation tools
System Calculated TOC	N/A		TOC symbol on flight leg
System Calculated TOD	N/A		TOD symbol on flight leg
Urgency FL			Part of flight leg with MTCD or SAP conflict
Warning FL			Part of flight leg with MTCD or SAP risk
Map colors			
Active Map			Active TSA map border
Active Map Type 1			TSA map border/fill
Active Map Type 2			TSA map border/fill
Active Map Type 3			TSA map border/fill
Active Map Type 4			TSA map border/fill
Active Map Type 5			TSA map border/fill
Active Map Type 6			TSA map border/fill
Active Map Type 7			TSA map border/fill
Active Map Type 8			TSA map border/fill
Active Map Type 9			TSA map border/fill
Active Map Type 10			TSA map border/fill
Active Map Type 11			TSA map border/fill
Active Map Type 12			TSA map border/fill
Active Map Type 13			TSA map border/fill
Active Map Type 14			TSA map border/fill
Active Map Type 15			TSA map border/fill
Active Map Type 16			TSA map border/fill
Active Map Type 17			TSA map border/fill
Active Map Type 18			TSA map border/fill
Active Map Type 19			TSA map border/fill
Active Map Type 20			TSA map border/fill
Active RD Infill Map			Active R or D map fill
Active RD Map			Active R or D map border
Active Text Map			Active TSA map text
Auto Map Label			Auto-generated maps
Auto Map Symbol			Auto-generated maps

Color name	Default color		Usage
	A	B	
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
Preactive Map			Pre-active map border
Preactive Text Map			Pre-active map text
Predisplay Map			Pre-display map border
Rwy App Line Inuse			Runway approach line for runways in use
Rwy App Line Not Inuse			Runway approach line for runways not in use
TSA Border Highlight			Highlighted TSA map border
Weather Map			Weather radar data
West NAT Map			Auto-generated maps, maps
Window and menu colors			
Arm			Inactive window texts
Map Bright			Stack Manager Window, VAW
Background			Background
Border			Various lines in windows
BottomShadow			3D effects in windows
CARD Conflict Number			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 and VAW background
LatLong Info	N/A		Coordinate value in Lat/Long Window
Overflown			Overflown points in Complete Route Window
Potential			Potential conflicts in CARD/VAW
Select			Selected radio buttons and selection boxes
Selected			Active filters in Radar menu
Selected Group		N/A	Group of TSA areas in multi edit mode
Selected Period			Active areas text in area window
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		N/A	Active categories in area window
TSA Preactive			Pre-active areas background in area window

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