

TopSky plugin for EuroScope

- version 2.2 -

General Information

EuroScope | power of control

Foreword

EuroScope, a controller client developed by Gergely Csernák for the VATSIM network, was first released for public use in September 2007. One of the biggest changes in version 3.1 was the possibility for the user community to customize the program to an even higher degree than was possible before by writing their own plugins that can be used to alter the way information is presented and even create completely new functionality into the program. This allowed creating very detailed simulations of all kinds of ATC systems without making the main program overly complex. Version 3.2 expands on these possibilities, making it possible to create even better plugins.

The TopSky plugin (a.k.a. The Plugin Formerly Known As “EUROCAT 2000 E”) started out as a very small project to create a couple of customized aircraft tag items, but as more information about the real system and the possibilities with the plugin development became available, it slowly grew to include an almost complete set of tag items, tag menus, graphical elements on the radar display and some additional functionality.

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

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

Have fun!

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1 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.

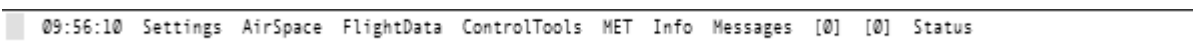
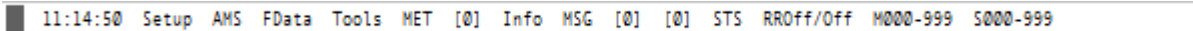
In case the plugin wasn't part of a package, there are problems with the settings files or you want to create your own setup, refer to the Developer Guide part of the manual set. It details the settings that are required in EuroScope to use the plugin the way it is supposed to.

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.

2 Global Menu

A:	 09:56:10 Settings AirSpace FlightData ControlTools MET Info Messages [0] [0] Status
B:	 11:14:50 Setup AMS FData Tools MET [0] Info MSG [0] [0] STS RROff/Off M000-999 5000-999

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.

2.1 Settings / Setup menu

- | | |
|---|---|
| <ul style="list-style-type: none"> - Default Setting - Local Settings > - Brightness Control > - Sign In... - Sign Out... - CPDLC Setting... - Raw Video Control... - <input type="checkbox"/> Raw Video - <input type="checkbox"/> FPASD - <input type="checkbox"/> PDC Audible alarm - <input type="checkbox"/> CPDLC Audible alarm - <input type="checkbox"/> AMID - <input type="checkbox"/> Flight Leg - <input type="checkbox"/> DAPs in Menus - <input type="checkbox"/> DAPs in Labels - RR Main > | <p>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.</p> <p>Opens the Local Settings submenu</p> <p>Opens the Brightness Control Window</p> <p>Loads specific settings for the current login callsign. When clicked, a confirmation window will open, asking to confirm the settings change. Note that if the login callsign is changed afterwards, the settings will not change unless a Sign Out followed by a new Sign In is performed.</p> <p>Clears any login callsign specific settings and resets all settings to their default values. When clicked, a confirmation window will open, asking to confirm the settings change.</p> <p>Opens the CPDLC Setting Window</p> <p>Opens the Raw Video Control Window. Only available when Raw Video is selected on.</p> <p>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.</p> <p>Toggles on/off the display of flight plan tracks</p> <p>Toggles on/off playing a sound for received PDC messages</p> <p>Toggles on/off playing a sound for received CPDLC messages</p> <p>Not implemented</p> <p>Toggles on/off the automatic display of the flight leg when a track becomes assumed. The flight leg will be automatically hidden after a specified time</p> <p>Toggles on/off the display of DAPs in menus</p> <p>Toggles on/off the display of DAPs in track labels</p> <p>Opens the RR Main submenu</p> |
|---|---|

2.1.1 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.

- System units Selects the units used by the plugin for altitudes, vertical speeds, speeds and distances:
 - Nautical Nautical units (feet, ft/min, knots, nautical miles)
 - Metric Metric units (meters, m/s, km/h, kilometers)
- 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)
- Equipment suffix codes Selects whether to use or disregard the equipment suffix codes found in the flight plans. As many pilots still file incorrect equipment codes, this setting should be used with caution.
- ASSR codes Selects the transponder code source:
 - Plugin plugin data file (reverts to ESE if no codes found)
 - Range fixed range
 - ESE ESE file
- Groundspeed Selects whether to use pilot client reported ground speed or a plugin calculated value. Normally the reported value should be used as it is more accurate and stable, but some clients report wrong values. If that causes problems, you can try selecting the plugin calculated value instead
- Transfer confirmation Selects when to display the Transfer Confirmation Window:
 - On Always when CFL is not equal to XFL
 - NotRFL When CFL is not equal to XFL unless XFL = RFL
 - Off Never, any CFL value is OK
- CFL menu default value Selects the default value for the CFL menu when it is opened:
 - XFL The XFL value, or current CFL value with no XFL
 - CFL The current CFL value
 - RFL The RFL value
- 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
- METAR source Selects the METAR data source for the plugin windows that display METAR data

2.1.2 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]DDMM[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

2.2 AirSpace / AMS menu

- TSA...
Opens the [TSA Areas Window](#)

2.3 FlightData / FData menu

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

2.4 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](#)

2.4.1 Flight Plan Lists submenu

- Lost List...
Opens the [Lost List](#)

2.4.2 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](#)

2.5 MET menu

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

2.6 [x] (number in square brackets)

Only displayed in **B**. Not implemented (always shows a zero value).

2.7 Info menu

- | | |
|---------------------------|---|
| - General Information... | Opens the General Information Window |
| - NOTAM... | Opens the NOTAM List Window |
| - Aerodrome... | Opens 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 |

By selecting one or more of the labels on, it is possible to find information on points displayed on the radar screen when the mouse cursor is placed over them. The “Label” buttons open submenus to select what information is shown on the corresponding labels. By default the airports show the ICAO code, the airport name and the runway identifiers (other selectable items are the frequency and coordinates). Fixes show the name (also coordinates can be shown) and NDBs and VORs show the identifier and the frequency (also coordinates can be shown). All information is gathered from the active sector file. The “Info” menu item has its background shown in “Global Menu Highlight” color whenever at least one of the label options is selected on.

2.8 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 |
| - Text notes > | Opens the Text notes submenu |

2.8.1 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.

2.9 [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.

2.10 [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.

2.11 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
(which opens the [Runway In Use Window](#))
- Supervisory > Opens the Supervisory submenu
- RWY line display... Opens the [Aerodrome menu](#)
(which opens the [Runway Approach Line Window](#))

2.11.1 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)

For development purposes, left-clicking on the “Reload” button reloads the corresponding data file, and left-clicking on the “View” button displays all the areas in the corresponding data file. In case of “BAD DATA”, the first faulty line in the file is shown on the right side of the buttons with the line number (not available for all data files) and a brief explanation of the problem.

2.11.2 Supervisory submenu

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

2.12 RRxxx/Off

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

2.13 Mxxx-yyy

Only displayed in **[B]**. Opens the [Altitude Filtering Window](#). If altitude filters are enabled, the color of the text is “Global Menu Highlight”. “xxx” displays the Lower filter value and “yyy” the Upper filter value, in 100’s of feet.

2.14 S000-999

Only displayed in **[B]**. Not implemented (shows static values).

3 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.

3.1 Callsign menu

3.1.1 Correlated track

A:

ASE063	- Assume	Assumes track
Callsign	- Refuse	Refuses the incoming transfer
Assume	- Transfer	Initiates a transfer to the next sector
Transfer		(opens the Transfer menu for CPDLC connected aircraft)
Trf & Release	- Trf & Release	Opens the Transfer & Release menu
Freq	- (X)Freq	Toggles the Freq indicator
HOP	- HOP	Initiates a Handover Proposal
ROF	- ROF	Sends a Request On Frequency message
Free	- Free	Releases track
▼ More	- Δ More	Shows additional less frequently used options (see below)
Highlight	- (X)Highlight	Toggles the Callsign field highlight
Mark	- (X)Mark	Toggles the Mark indicator
Missed App	- (X)Missed App	Toggles the “Missed App” manual alert
FPL...	- FPL...	Opens the Flight Plan Window
XCorrelate	- (X)Correlate	Uncorrelates/correlates the flight plan
Hold	- (X)Hold	“Hold” opens the Hold menu , “XHold” cancels a given holding clearance
Manual Transfer	- Manual Transfer	Opens the Manual Transfer menu
End CPDLC	- Start/End CPDLC	Starts/Ends CPDLC connection with the aircraft
Squawk Ident	- Squawk Ident	Sends a “SQUAWK IDENT” CPDLC message to the aircraft
CPDLC Free Text	- CPDLC Free Text	Opens the CPDLC Free Text menu
PRL	- PRL	Opens the Prediction Line menu
Inbound Est	- (X)Inbound Est	Toggles the “Inbound Est” manual alert
Irregular	- (X)Irregular	Toggles the “Irregular” manual alert

B:

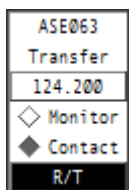
ASE063	- Assume	Assumes track
Callsign	- Refuse	Refuses the incoming transfer
Assume	- Transfer	Initiates a transfer to the next sector
Transfer	- Trf & Release	Opens the Transfer & Release menu
Trf & Release	- ROF	Sends a Request On Frequency message
ROF	- (X)Freq	Toggles the Freq indicator
Freq	- (X)Highlight	Toggles the Callsign highlight
Highlight	- (X)S-Highlight	Toggles the Callsign+AFL fields highlight
S-Highlight	- PRL	Opens the Prediction Line menu
PRL	- (X)Hold	"Hold" opens the Hold menu ,
Hold	- Δ More	"XHold" cancels a given holding clearance
More		Shows additional less frequently used options (see below)
Manual Transfer	- Manual Transfer	Opens the Manual Transfer menu
Inbound Est	- (X)Inbound Est	Toggles the "Inbound Est" manual alert
HOP	- HOP	Initiates a Handover Proposal
Mark	- (X)Mark	Toggles the Mark indicator
XCouple	- (X)Couple	Uncorrelates/correlates the flight plan
FPL...	- FPL...	Opens the Flight Plan Window
Irregular	- (X)Irregular	Toggles the "Irregular" manual alert
End CPDLC	- Start/End CPDLC	Starts/Ends CPDLC connection with the aircraft
Squawk Ident	- Squawk Ident	Sends a "SQUAWK IDENT" CPDLC message to the aircraft
CPDLC Free Text	- CPDLC Free Text	Opens the CPDLC Free Text menu
Free	- Free	Releases track
Missed App	- (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"** and **"Freq"** 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.

3.1.2 Uncorrelated track

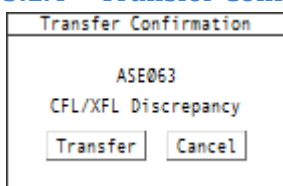
A4554	- Correlate	Correlates the radar track with the next clicked "Callsign" field
Callsign	- Create APL	Opens the Create APL Window
Correlate	- PRL	Opens the Prediction Line menu
Create APL		
PRL		

3.1.3 Transfer menu



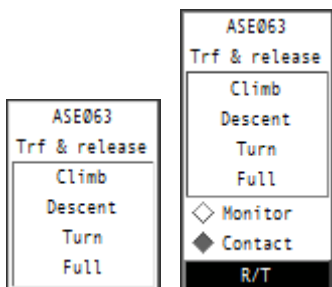
For CPDLC connected aircraft, the menu contains options related to the transfer. “**R/T**” selects how the message is to be sent. When the button is highlighted, the transfer message is given via radio, otherwise via CPDLC. “**Monitor**” and “**Contact**” select which of the two CPDLC message types will be sent. Left-clicking on the frequency button initiates the transfer (and sends the CPDLC message if “**R/T**” is deselected).

3.1.4 Transfer Confirmation Window



If an aircraft has a defined XFL value and hasn’t been cleared to it (i.e. 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.

3.1.5 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 additional options. “**R/T**” selects how the message is to be sent. When the button is highlighted, the transfer message is given via radio, otherwise via CPDLC. “**Monitor**” and “**Contact**” select which of the two CPDLC message types will be sent.

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.

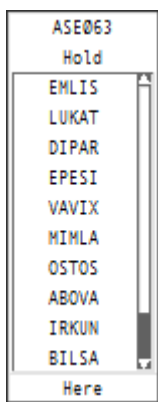
3.1.6 Request On Frequency message

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.

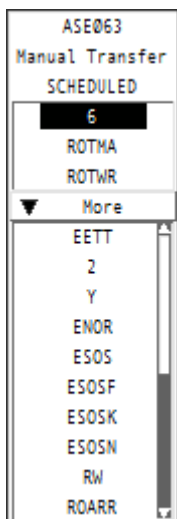
- A successfully sent message will be displayed in the [Message Out Window](#)
- If there is an error or the message fails to go through, a message will be put into the [Personal Queue Window](#).

3.1.7 Hold menu



The Hold menu allows you to enter a holding clearance (add the aircraft to the holding list). It displays for selection the points in the aircraft’s route that are ahead of its current position. Left-clicking “**Here**” enters the present position coordinates as the holding point, right-clicking opens a text entry box to enter any holding point name. 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.

3.1.8 Manual Transfer menu



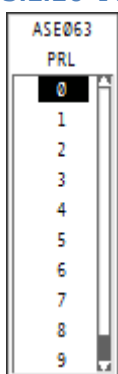
The Manual Transfer menu allows transferring the aircraft to any controller. In the SCHEDULED list are the controllers that are in the current sector sequence sorted in the order the aircraft is planned to enter the controllers' sectors, with the next controller being the default item. When opened, the "More" list displays all the other controllers for selection. Click on a controller ID to start the transfer. For CPDLC connected aircraft, clicking on a controller ID opens the [Transfer menu](#).

3.1.9 CPDLC Free Text menu

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

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

3.1.10 Prediction Line menu



The Prediction Line menu allows displaying a PRL with a specific length for each aircraft even if the PRL selection is off in the Radar Menu. The default value is the set PRL value if available, otherwise the PRL length value from the Track Control Window. Changing the PRL length value in the [Track Control Window](#) or changing the PRL setting in the [Radar Menu](#) will delete all manually set PRL lengths.

3.2 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.

3.3 Waypoint menu

ASE063	- Δ Routing	Opens the “COPN point” or “COPX point” submenu (EuroScope default item)
Waypoint	- Δ Arrival	Opens the “Assign STAR” submenu (EuroScope default item)
▲ Routing	- Δ Departure	Opens the “Assign SID” submenu (EuroScope default item)
▲ Arrival	- Δ TSA Hold	Opens the TSA Hold submenu (not available if a holding clearance is active)
▲ Departure	- Δ Hold	Opens the Hold submenu (not available if a TSA holding clearance is active)
▲ TSA Hold		
▲ Hold		

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 exit point.

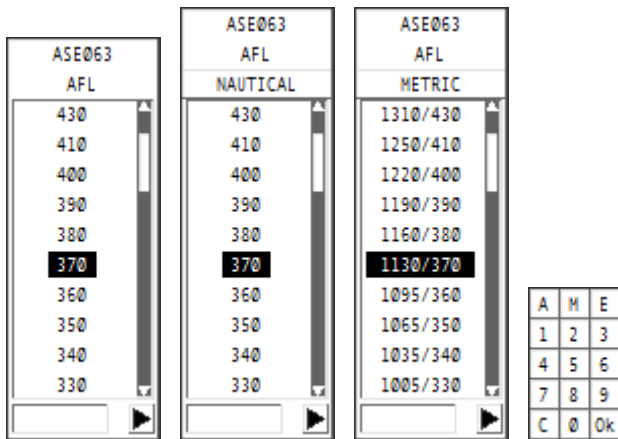
3.3.1 TSA Hold submenu

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 clearance given here will exclude the aircraft from all APW and SAP processing.

3.3.2 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.

3.4 AFL menu



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

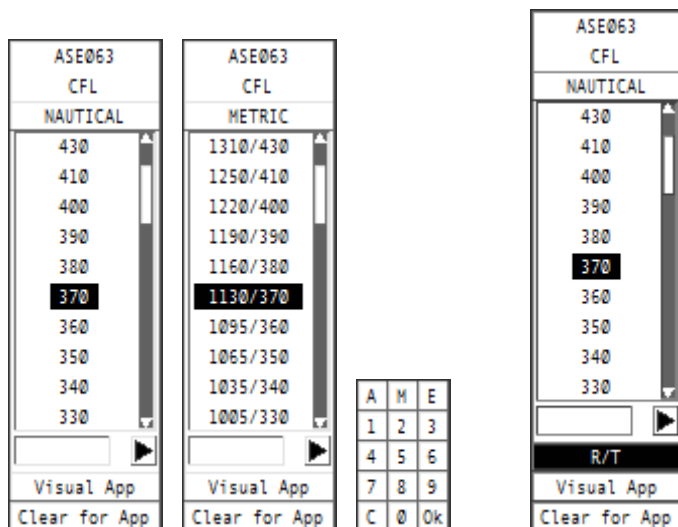
By default the menu (as well as the AFL label item) is always showing nautical units, regardless of the system units or the selected units for the aircraft. If this behavior is selected off, the list units can be toggled with the **"NAUTICAL"** / **"METRIC"** item. There are three ways to set the AFL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

Note: All altitude related menus in this document show the menu for **A**. The only difference in **B** is that the metric level values are shown with 5 digits (**A** displays metric levels in meters/10, **B** in meters). The same difference exists everywhere where metric levels are displayed. Likewise, entering metric levels in **A** must be done in meters/10 (4 digits) and in **B** in meters (5 digits).

3.5 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:

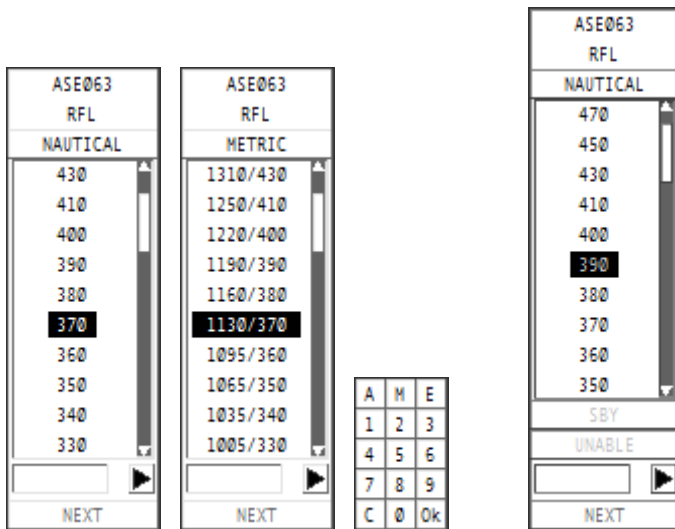
- Clicking a level value in the list or one of the two approach clearance items
- Clicking the text entry box between the level list and the approach clearance items and entering the value there
- Clicking the right-pointing triangle to open a keyboard that can be used to type in the value using the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

For CPDLC connected aircraft, the menu contains an “R/T” button to select whether a level clearance is to be sent via RTF or CPDLC. When the button is highlighted, the clearance is given via radio.

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

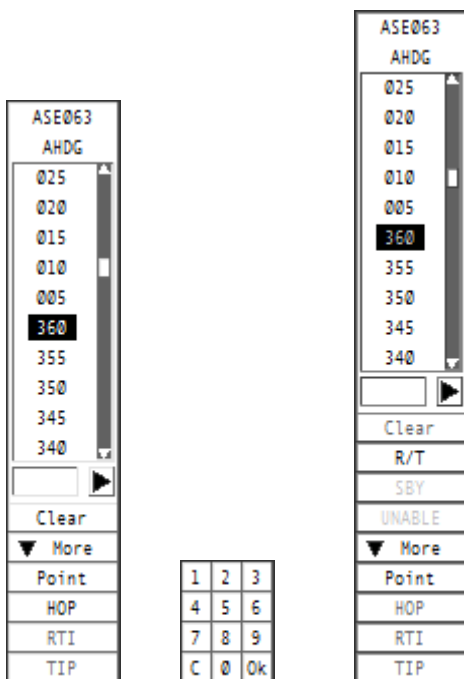
3.6 RFL menu



The RFL menu allows setting the requested flight level. The operation is similar to the AFL and CFL menus.

For CPDLC connected aircraft, when there is an open downlink level request, the menu contains buttons to send STANDBY (“**SBY**”) and UNABLE (“**UNABLE**”) responses. To approve the request, the CFL menu must be used to send a level clearance.

3.7 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 “R/T” button is deselected.

“**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**” selects whether a heading/direct-to clearance is to be sent via RTF or CPDLC. When the button is highlighted, the clearance is given via radio.

- When a heading request downlink has been received, the “R/T” button 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 “R/T” button is selected and cannot be deselected. 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.

3.7.1 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.

3.7.2 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](#).

3.7.3 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. 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.

3.8 ARC menu

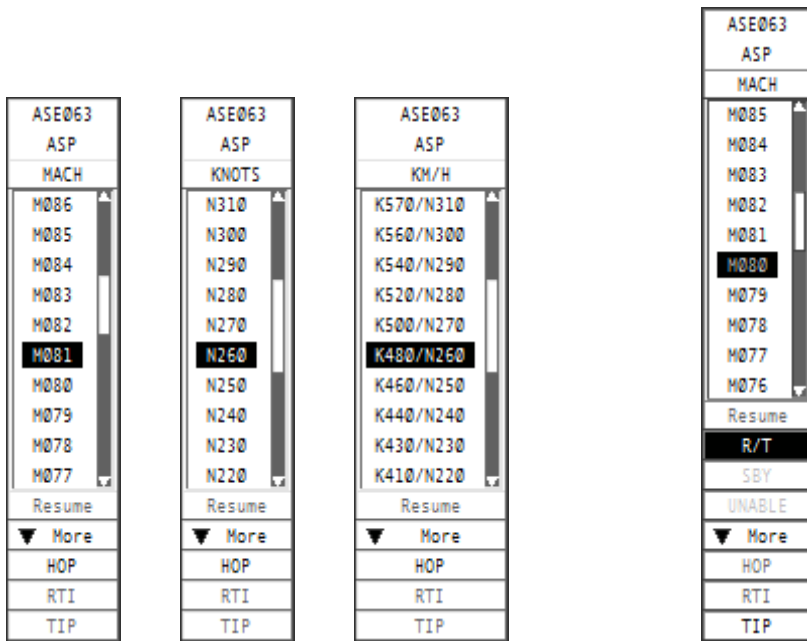
ASE063	ASE063
ARC	ARC
100ft/min	m/s
50	25
45	20
40	15
35	10
30	05
25	
20	
15	
10	
05	
<input type="checkbox"/> -	<input type="checkbox"/> -
<input type="checkbox"/> +	<input type="checkbox"/> +
Resume	Resume
▼ More	▼ More
RTI	RTI
TIP	TIP

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

3.9 ASP menu



The ASP menu allows setting an assigned speed or Mach number. The default value will be the closest value to the assigned one if set, otherwise the plugin will suggest the closest value to the aircraft's present speed based on the ground speed (zero wind will be assumed). The menu will initially open in IAS mode if the aircraft's CFL is below 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 **"Resume"** item clears an assigned value. For CPDLC connected aircraft, it sends the **"RESUME NORMAL SPEED"** CPDLC message if the **"R/T"** button is deselected.

In **B** the **"Resume"** button 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 **"R/T"** button is deselected.

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

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

For CPDLC connected aircraft, the menu contains additional buttons:

"R/T" selects whether a speed clearance is to be sent via RTF or CPDLC. When the button is highlighted, the clearance is given via radio.

- When a speed request downlink has been received, the **"R/T"** button is deselected and cannot be selected. The request must be replied to using CPDLC.
- When a speed clearance uplink has been sent, the **"R/T"** button 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 heading request message.

3.10 ASSR menu

ASE063		
SSR		
4554		
1	2	3
4	5	6
7	8	9
C	Ø	Ok

The ASSR menu allows assigning a 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.

3.11 Combined Transfer menu

NAX221
CTM
none
none
none
Accept

The Combined Transfer menu displays the proposed transfer parameters for a HOP. It is opened by clicking on the AHDG, ASP or COPN/COPX items in the track label or flight list, or the list row displaying the HOP message in the [Message In Window](#). From top to bottom, the displayed values are the direct-to point, speed/mach value, and the assigned heading value. If one or more of them are not proposed, the value will be replaced by the string “none” (the image above shows the menu for a HOP without any proposed parameters). Clicking on “Accept” will send a message to the upstream controller that the proposed parameters, if any, are all acceptable.

3.12 Tactical Transfer menu

ASE063	
TTM	
AHDG	360
ASP	250
Accept	
Reject	

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

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

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

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

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

3.13 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.

3.14 NPT menu

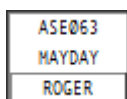


The NPT menu is used to answer a direct-to downlink request using CPDLC. The menu contains three options:

- | | |
|------------------------|---|
| - Requested 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 using the AHDG menu “Point” option.

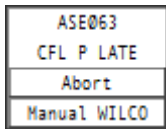
3.15 CPDLC Emergency Acknowledgement menu



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.

3.16 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.

3.17 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.

3.18 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 not sent to other controllers or even to other EuroScope instances.

4 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:

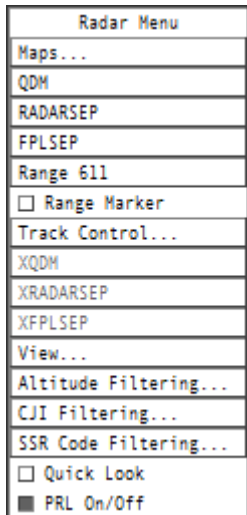
- Dragging a scroll bar slider using the left mouse button will move the slider
- Left-clicking on the scrollbar background area outside the slider will move the slider by a predefined amount (in list windows, the view will be scrolled by the number of visible items)
- Right-clicking on the scrollbar 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.

4.1 Radar Menu

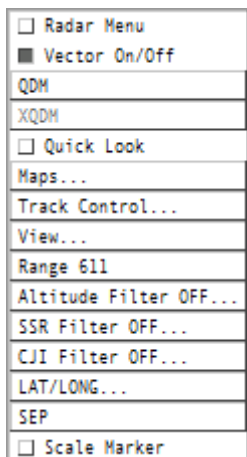
<ALT> + Right-click anywhere on the radar screen background

A:



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

B:



- [] Radar Menu Toggles keeping the menu permanently displayed
- [] Vector On/Off Toggles all prediction lines on/off
- QDM Starts a new [QDM vector](#)
- XQDM Deletes all QDM vectors
- [] Quick Look Toggles function to bypass all filters and show all track labels
- Maps... Opens the [Maps Window](#)
- Track Control... Opens the [Track Control Window](#)
- View... Opens the [View Window](#)
- Range XXX Opens the [Zoom Window](#) (XXX = distance: center -> right edge)
- Altitude Filter... Opens the [Altitude Filtering Window](#), displays the filter status
- SSR Filter... Opens the [SSR Code Filtering Window](#), displays the filter status
- CJI Filter... Opens the [CJI Filtering Window](#), displays the filter status
- LAT/LONG... Opens the [Cursor Lat/Long Window](#)
- SEP Starts a new [Minimum separation tool](#)
- [] Scale Marker Toggles the [Scale Marker](#) 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.

4.1.1 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

The search order cannot be changed, but if necessary, all types except the position symbols can be excluded from the search (their click areas are then deactivated) in the Local Settings.

Right-clicking will abort drawing the vector.

To remove a QDM vector:

- Right-click on either end point of the line

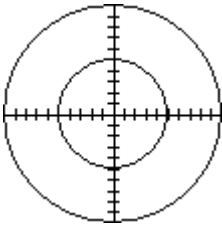
To adjust a QDM vector:

- 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)

4.1.2 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

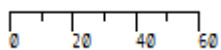
To remove the Range Marker:

- Left-click on the "Range Marker" item in the Radar Menu
- or**
- Right-click on the marker's center point

4.1.3 Scale Marker

(Only available in **B**)

Radar Menu -> [] Scale Marker



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

4.1.4 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.

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 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:

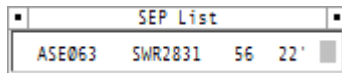
To draw minimum separation lines between two radar tracks:

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

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 is by default displayed near the end of one of those lines.

Three 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 and the line color 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 the tracks are no longer converging.

4.1.5 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.

4.2 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.

4.3 Zoom Window

Radar Menu -> Range XXX

Zoom
120

The Zoom Window displays and enables to change the radar screen range. The display is limited to setting range values from 10 to 250 nautical miles.

4.4 Maps Window

Radar Menu -> Maps...

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

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

The Maps Window enables to display predefined maps on the radar screen. The maps are arranged to folders. Clicking on a folder name shows the maps in that folder below all the folders. Left-clicking on a map name will display the map; right-clicking will remove it from display. A map that is displayed on the radar screen will have a black background in the window. Left-double-clicking on any map name will display (right-double-clicking will remove from display) all maps in the current 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. In **A** all the items are “Map 2” color, in **B** the airports and NDBs are “Map 1”, VORs and Fixes “Map 3”, and all labels “Map 1”. 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.

Maps in the “AUTO” folder contain automatic activation schedules. In addition to the “auto” mode, the maps can also be forced on or off. The default state is “auto” (map name displayed with *Foreground4* background color). Left-click will force the map on (*Foreground* background color) and Right-click to off (no background color). To put the map back to “auto” state, right-click the map name when it’s on, or left-click when it’s off.

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 and GEO. The elements from the sector file will unfortunately not show the black background when active. The names of these elements will be shown in grey letters to serve as reminders that their display status isn’t known by the plugin.

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.

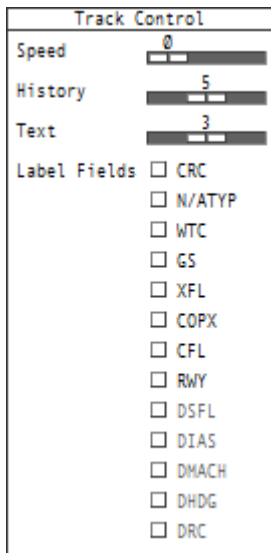
The plugin data files may include additional data to the abovementioned sector file. If present, the data is activated and deactivated together with the sector file item when done via the Maps Window.

4.5 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.

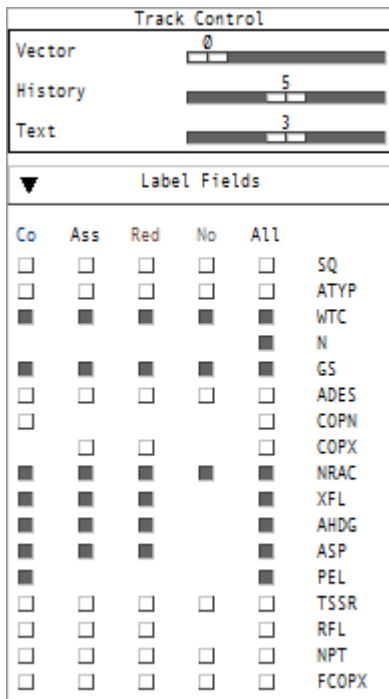
A:



- 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.

B:



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

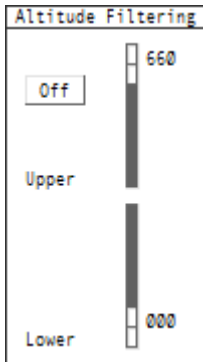
The Label Fields section allows controlling the visibility of certain track label fields in the unselected label. The visibility can be set depending on the state of the fight plan (Coordinated, Assumed, Redundant or Notified/Unconcerned). The “All” buttons toggle all the state buttons for that field 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.

4.6 Altitude Filtering Window

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

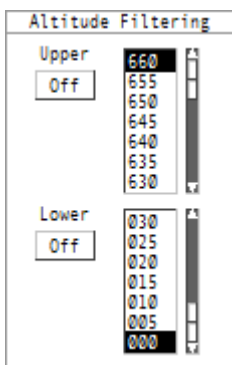
The Altitude Filtering Window is used to filter the displayed track labels based on the aircrafts' altitudes. It closes when the mouse cursor leaves the window area.

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).

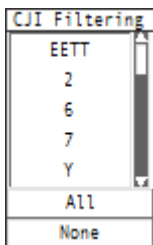
B:



To set the filtering limits, values from 0ft to FL660 are available with 500ft steps. 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).

4.7 CJI Filtering Window

Radar Menu -> CJI Filtering.../CJI Filter [ON/OFF]...

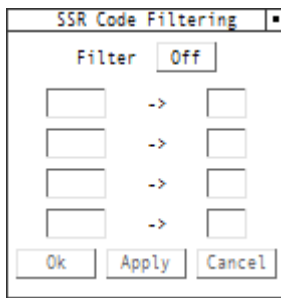


The CJI Filtering Window closes when the mouse cursor leaves the window area.

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.

4.8 SSR Code Filtering Window

Radar Menu -> SSR Code Filtering.../SSR Filter [ON/OFF]...



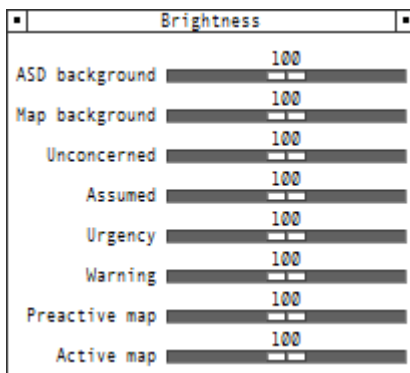
The SSR Code Filtering Window is used to filter the displayed track labels based on the aircrafts' SSR codes. Four different codes or code ranges can be set. The boxes on the left side of the window are the code range start boxes. The input syntax is a valid SSR code to be filtered. If filtering a range 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

4.9 Brightness Control Window

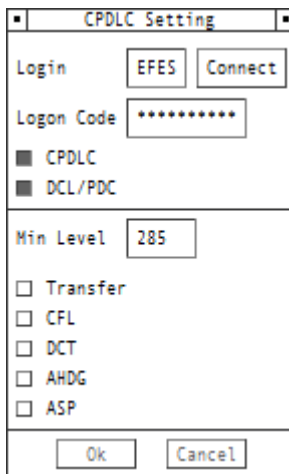
Global Menu -> Settings/Setup -> Brightness Control...



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

4.10 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 login 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.

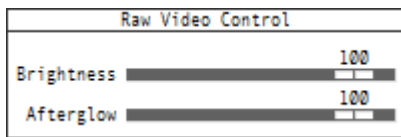
The **“CPDLC”** and **“DCL/PDC”** selections are used to define the offered services. For CTR and FSS logins both are selected by default, for others only **“DCL/PDC”** is selected.

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).

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.

4.11 Raw Video Control Window

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



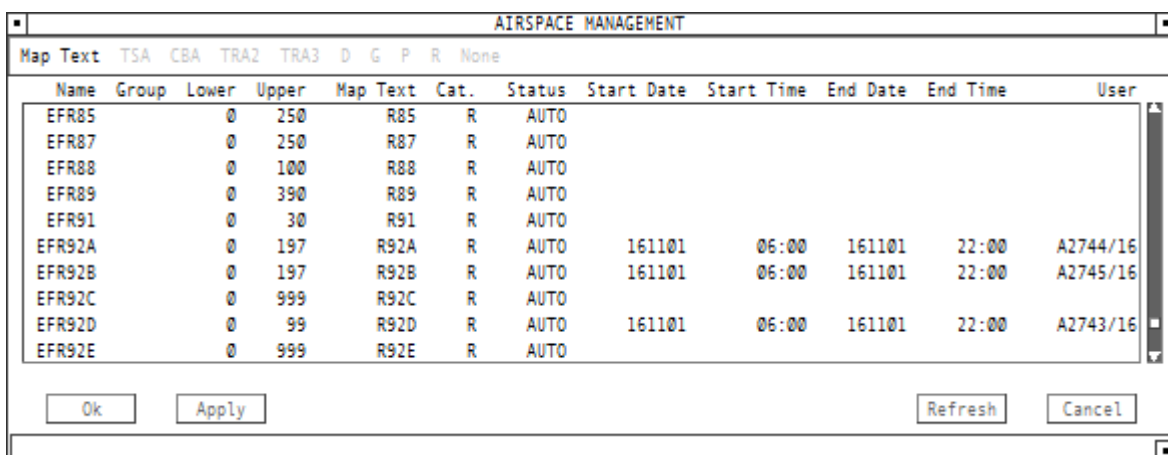
The Raw Video Control Window closes when the mouse cursor leaves the window area.

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

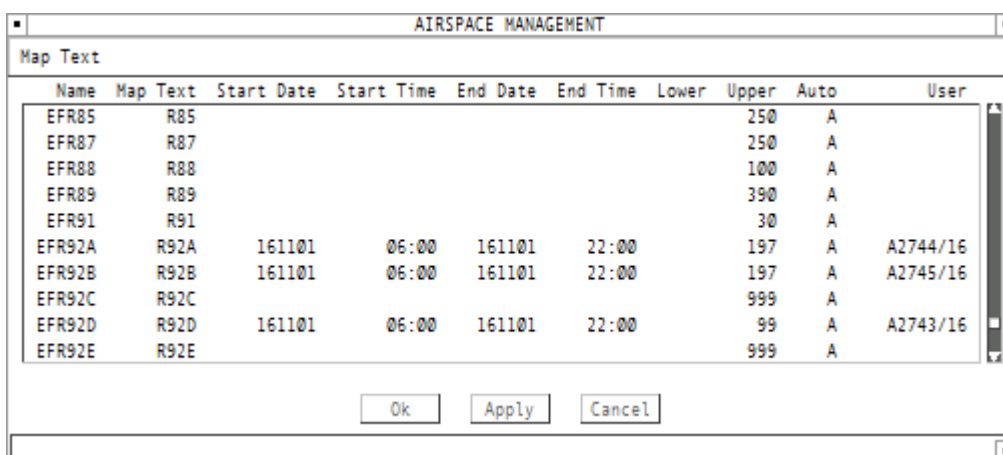
4.12 TSA Areas Window

Global Menu -> AirSpace/AMS -> TSA...

A:



B:



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 TSA Areas 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

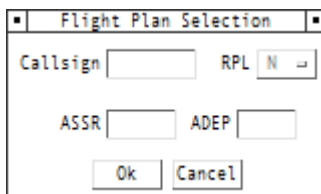
```

- 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.

4.13 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.

4.14 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...

Aircraft track label->"ADES" item

The screenshot shows the 'Flight Plan' window with the following elements:

- Buttons:** CRE, MOD, Find, Probe, Force, ACT, SAC, CREAPL, MODAPL, CONV, Unforce, Terminate, CNL.
- Fields:** Callsign, FRUL, FTYP, NRAC, ATYP/W, EQCST, EOBD, EOBT, EQUIP, ADEP, ADES, EET, ALTN, ETD, ETB, TAS, RFL.
- Text Areas:** RTE, Other, SUP.
- Fields:** PSSR, ASSR, PEL/CFL, Type, Status, ETN, COPN, ETX, COPX, LFUNC.
- Navigation:** Prev, 0/0, Next, INI, Refresh, Apply, Cancel.

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 (rough translation from the FAA equipment suffix only)
 - During creation and modifying, the field will show the FAA suffix
- 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
 - the "EQUIP" entry must be a single character (FAA equipment suffix)
 - **"Apply"** creates the FPL, **"Cancel"** aborts the operation
- MOD Modify the currently displayed FPL
 - available fields will be highlighted
 - the "EQUIP" entry must be a single character (FAA equipment suffix)
 - **"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”** creates the FPL, **“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
 - the **“EQUIP”** entry must be a single character (FAA equipment suffix)
 - **“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 following information: Callsign, ASSR, FRUL, ATYP, ADEP and ADES. If it contains any other information it will be considered to be an FPL.

4.15 Complete Route Window

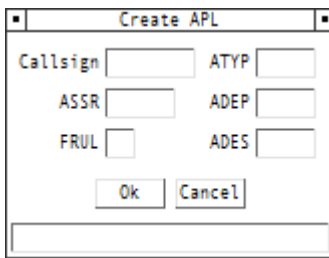
Flight Plan Window -> **“RTE”** button

Complete Route					
TILDO	EMLIS	LUKAT	DIPAR	EPESI	VAVIX
---	---	1916	1917	1922	1924
---	---	350	350	350	350

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.

4.16 Create APL Window

Callsign menu (uncorrelated track only) -> "Create APL" item

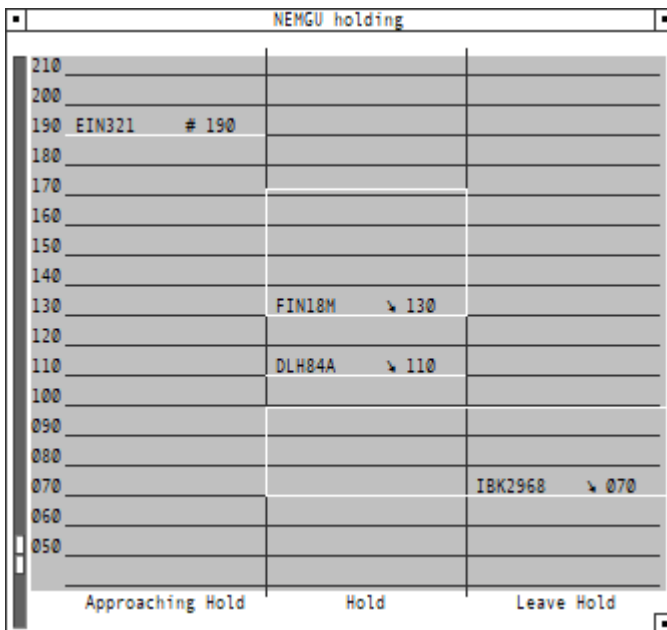


The bottom area of the window will show status and error messages.

Enter all the available information (the only required field is the callsign) and click "**Ok**" to create the APL. The available choices for FRUL are "I" and "V". If neither is specified, "V" (VFR) is assumed. "**Cancel**" will clear all the fields.

4.17 Stack Manager Window

Holding List... -> "HPT" item



Altitude	Approaching Hold	Hold	Leave Hold
210			
200			
190	EIN321 # 190		
180			
170			
160			
150			
140			
130		FIN18M ↘ 130	
120			
110		DLH84A ↘ 110	
100			
090			
080			
070			IBK2968 ↘ 070
060			
050			

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:

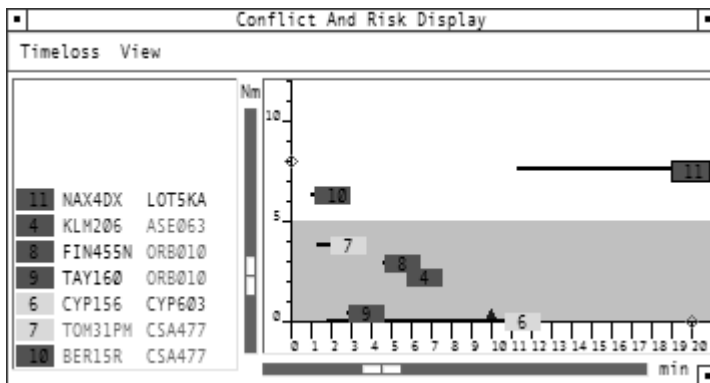
- | | |
|----------------------------------|---|
| - Slider or view background area | Drag to adjust the lowest shown FL |
| - Aircraft callsigns | Open Callsign menu (*) |
| - CFLs | Open CFL menu (**) |
| - + symbol | Open window to view all callsigns with that CFL |
| - FL numbers | Toggle overflight 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](#).

4.18 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 has an "Urgency" colored label and a risk has a "Warning" one. Potential conflicts are displayed with "Information" 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:

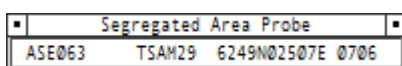
- List Toggles display of the list area
- Graphic Toggles display of the graphical area
- Grid Toggles a nm/min grid on the graphical area
- Risk Toggles display of MTCD risks (warnings are always displayed)
- Potential Toggles display of potential conflicts (lateral but not vertical conflict)
- PLC 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)

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

4.19 SAP Window

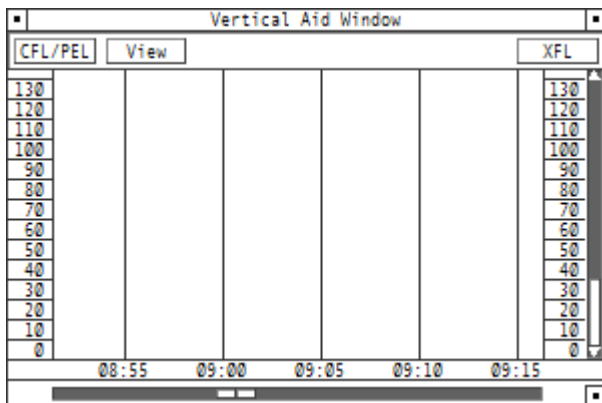
Global Menu -> ControlTools/Tools -> SAP...



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

4.20 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), “Warning” (risk) 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

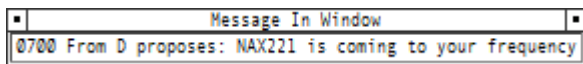
From the “View” menu it is possible to toggle various MTCD related:

- Risk Toggles display of MTCD risks (warnings are always displayed)
- Potential Toggles display of potential conflicts (lateral but not vertical conflict)
- Notif Toggles whether tracks in the notified state are shown
- Unco Toggles whether unconcerned tracks are shown

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.

4.21 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.

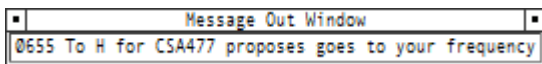
The available message types are:

- "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. The parameters are only displayed if they contain data
 - 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 as a response 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 as a response 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 an active coordination
 - o Removed when the track becomes Assumed

- “From <SI> for <Callsign> proposes [COPX xxxxx] [XFL xxx]”
 - Displayed when an exit coordination has been received
 - Left-clicking on a value opens the EuroScope default menu to answer an active coordination
- “From <SI>: <Callsign> will be squawking <ASSR>”
 - Displayed when a previous controller assigns a new SSR code for a track
 - Left-clicking on the line manually removes it

4.22 Message Out Window

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



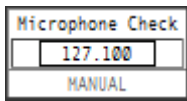
The Message Out Window shows the coordination messages you have sent, sorted by time, with the newest ones at the top of the list. The messages will be automatically removed when the track becomes Unconcerned. To manually remove a line, left-click on it.

The available message types are:

- “To <SI> for <Callsign> proposes goes to your frequency”
 - Displayed when you transfer a track
- “To <SI> Request <Callsign> on frequency”
 - Displayed when you have sent a ROF message
- “To <SI> for <Callsign> proposes Handover [HDG xxx] [DCT xxxxx] [SP xxx]”
 - Displayed when you have sent a HOP. The parameters are only displayed if they contain data
- “To <SI> for <Callsign> RTI [HDG xxx] [SP xxx] [ARC xx]”
 - Displayed when you have sent an RTI message
- “To <SI> for <Callsign> TIP [HDG xxx] [SP xxx] [ARC xx]”
 - Displayed when you have sent a TIP message
- “To <SI> for <Callsign> proposes HOP/RTI/TIP Accepted”
 - Displayed when you have sent an Accept message as a response to HOP, RTI or TIP
- “To <SI> for <Callsign> proposes RTI/TIP rejected [by timeout]”
 - Displayed when you have sent a Reject message as a response 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]”
 - Displayed when you have sent an entry coordination
- “To <SI> for <Callsign> proposes [COPX xxxxx] [XFL xxx]”
 - Displayed when you have sent an exit coordination
- “To <SI> for <Callsign> proposes will squawk <ASSR>”
 - Displayed when you have assigned a new SSR code and there is a next controller online for the track

4.23 Microphone Check menu

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

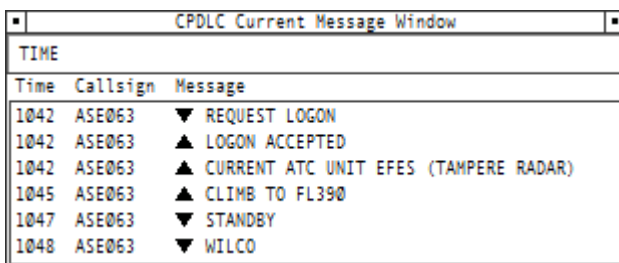


The Microphone Check menu is used to send a "CHECK STUCK MICROPHONE <frequency>" CPDLC message to all CPDLC connected aircraft when a stuck mic is suspected. The menu lists all active frequencies; left-clicking on one sends the messages. Manual frequency entry is not available.

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

4.24 CPDLC Current Message Window

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

A window titled "CPDLC Current Message Window" containing a table of messages.

TIME		
Time	Callsign	Message
1042	ASE063	▼ REQUEST LOGON
1042	ASE063	▲ LOGON ACCEPTED
1042	ASE063	▲ CURRENT ATC UNIT EFES (TAMPERE RADAR)
1045	ASE063	▲ CLIMB TO FL390
1047	ASE063	▼ STANDBY
1048	ASE063	▼ 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 (default) Messages sorted according to send/receive time
- DIALOG Messages grouped to dialogues, dialogues sorted by time of first message
- C/S 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
- Manual Reply Opens a window (see below) to type a free text reply
- ACCEPT Accepts a logon request (only available if the message is "REQUEST LOGON")
- UNABLE Denies a logon request (only available if the message is "REQUEST LOGON")

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.

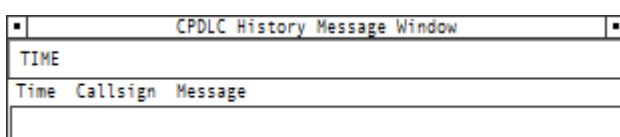
4.24.1 Manual Reply Window

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!

4.25 CPDLC History Message Window

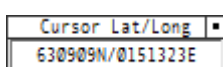
Global Menu -> ControlTools/Tools -> CPDLC -> History Messages...



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

4.26 Cursor Lat/Long Window

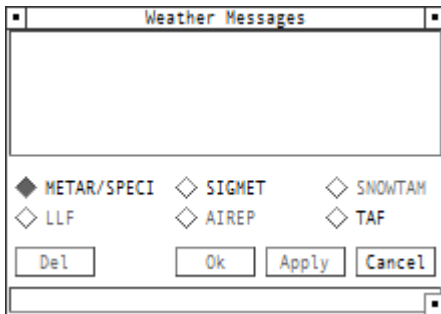
Global Menu -> ControlTools/Tools -> LAT/LONG...



Displays the latitude and longitude values of the cursor position.

4.27 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 “SNOWTAM”, “LLF” and “AIREP” options are not available).

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

In addition, the window can display SIGMETs and TAFs. The SIGMETs are retrieved when the “**SIGMET**” button is selected for the first time, and are then updated at one hour intervals. Selecting the “**TAF**” option will open the [Aerodrome menu](#) where the desired stations must be selected. 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 METAR/SIGMET/TAF per line)
- Single (showing only a single METAR/SIGMET/TAF)
- Single decoded (showing a single METAR in a decoded format)

To view a single METAR/SIGMET/TAF:

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

To view a single METAR in the decoded format:

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

To return to the list view:

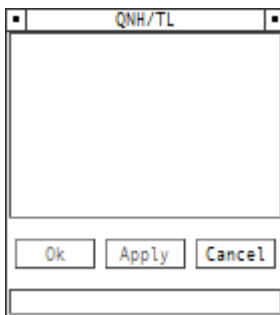
- Left-click on a single METAR/SIGMET/TAF
or
- Right-click on a decoded METAR

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

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

4.28 QNH/TL Window

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



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.

4.29 General Information Window

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

A:

General Information					
status: normal			WP:		
radar: ART					
mode: Replay					
role: G			sectors:		
Alert functions					
stca		msaw		apw mtc d	
FPASD: off		CPDLC Def: OFF		LINES	
ARTAS FDP		FDX AIS		AGCS CDP-R1	
MSTS SNMAP		FPCP SSR		CCAMS CDP-R2	

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

- | | |
|------------------------------|---|
| - QNH (below the “WP:” item) | Shows the local QNH value |
| - 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 |

B:

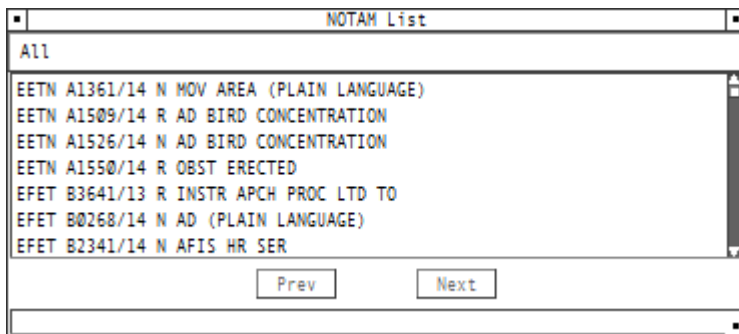
General Information					
Free			Normal		
ARTAS ACC MFS CPDLC Def: OFF FPASD:					
STCA	MSAW	APW	AIW	SAP	MTCD CCAMS <u>LINES</u>
ARTAS	MSTS	MFS	FFS	FDX	AGCS
SNMAP	MTCD	SSR	AIF	CDP	

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 (between the mode and the “Normal” item) | Own controller ID |
| - QNH (below the “Normal” item) | Shows the local QNH value |
| - Alert function labels | 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 |

4.30 NOTAM List Window

Global Menu -> Info -> NOTAM...



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

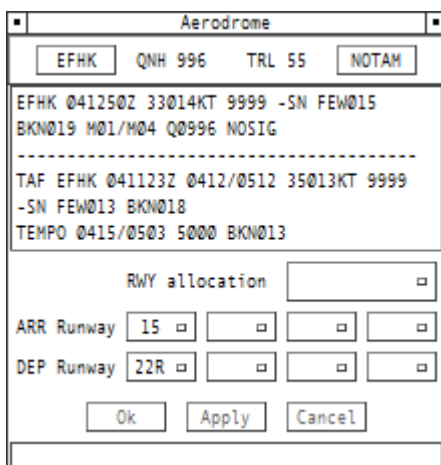
- Location ID (ICAO designator)
- Serial number
- Type ("N"=new, "R"=replaces earlier NOTAM, "C"=cancels earlier NOTAM)
- Abbreviated form of the NOTAM message contents (basic data from the NOTAM header)

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".

4.31 Aerodrome Window

Global Menu -> Info -> Aerodrome...



The Aerodrome Window displays information about the selected airport.

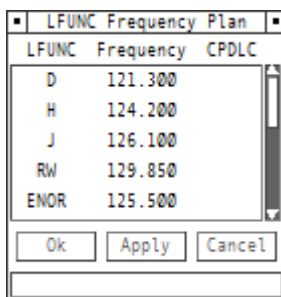
Left-clicking on the airport ICAO code opens the [Aerodrome menu](#) to select another airport, and left-clicking on the “NOTAM” button opens the [NOTAM List Window](#), showing only the NOTAMs for the selected airport.

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

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

4.32 LFUNC Frequency Plan Window

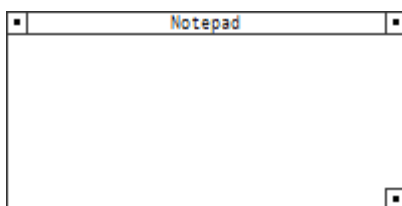
Global Menu -> Info -> LFUNC Frequency Plan...



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

4.33 Notepad Window

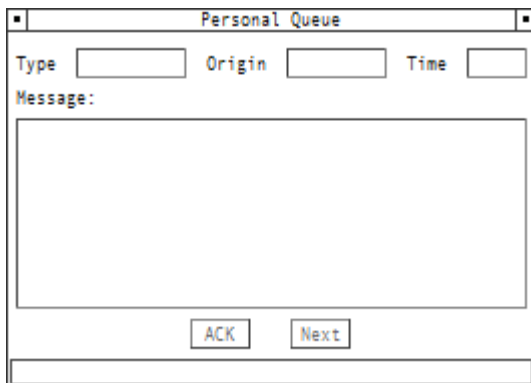
Global Menu -> Messages/MSG -> Notepad...



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, it is not possible to force line breaks. 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.

4.34 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.

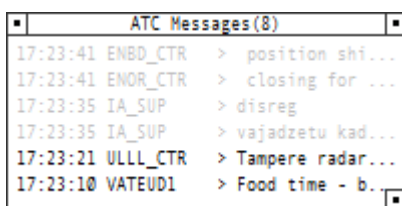
The window currently only displays "ALERT" type messages, and the origin for them is always empty. The time field displays the UTC time when the currently viewed message was created.

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.

4.35 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.

4.36 Safety Nets Status Window

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

STCA	MSAW	APW	AIW
On	On	On	Off

STCA MSAW APW Inhibited Callsigns

STCA MSAW APW Inhibited SSR Codes

STCA Inhibition Areas

Area	Lower	Upper	Status
------	-------	-------	--------

Ok Apply Cancel

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 the listed 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 the listed 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).

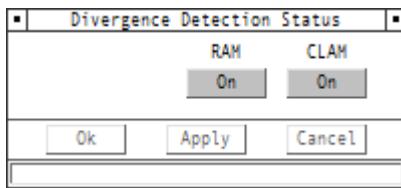
If there are STCA inhibition areas defined in the area data file, they will be listed in the area in the bottom part of the window. The area vertical limits (displayed in 100’s of feet or meters+”m” depending on system units) can be edited by clicking on the values, and the area activation can be toggled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

4.37 Divergence Detection Status Window

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



RAM	CLAM
On	On

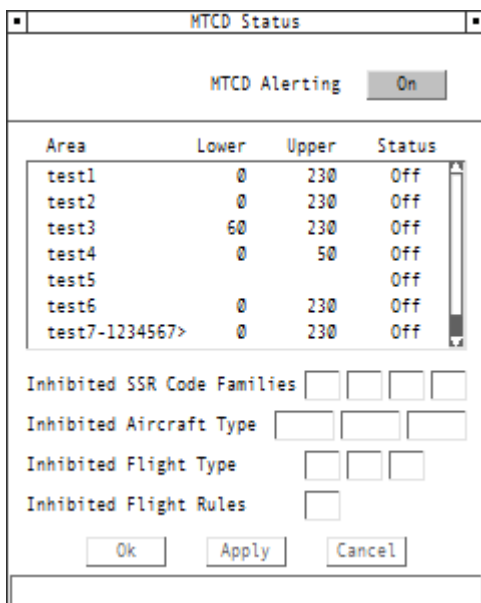
Ok Apply Cancel

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

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

4.38 MTCD Status Window

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



Area	Lower	Upper	Status
test1	0	230	Off
test2	0	230	Off
test3	60	230	Off
test4	0	50	Off
test5			Off
test6	0	230	Off
test7-1234567>	0	230	Off

Inhibited SSR Code Families ☐ ☐ ☐ ☐

Inhibited Aircraft Type

Inhibited Flight Type

Inhibited Flight Rules

Ok Apply Cancel

Allows setting the status for the MTCD system. The “On/Off” button controls the system’s status.

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

The last box is used to exclude all flight plans with specific flight rules. Allowable entries are "I", "V", "Y" or "Z". Only one character can be entered.

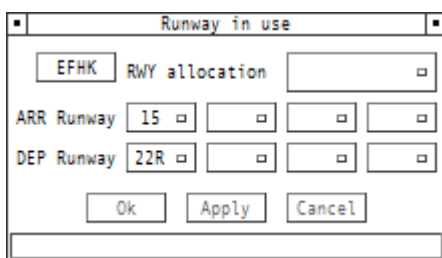
All changes to the window must be applied using the buttons in the bottom of the window to take effect.

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

4.39 Runway In Use Window

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

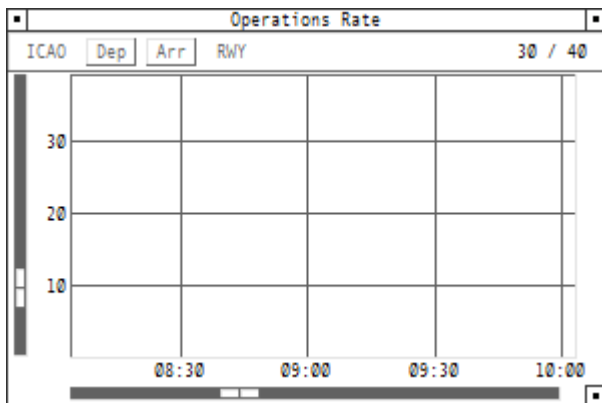
Radar screen -> middle-click on Airport symbol...



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.

4.40 Operations Rate Window

Global Menu -> Status/STS -> Supervisory -> Operations Rate...



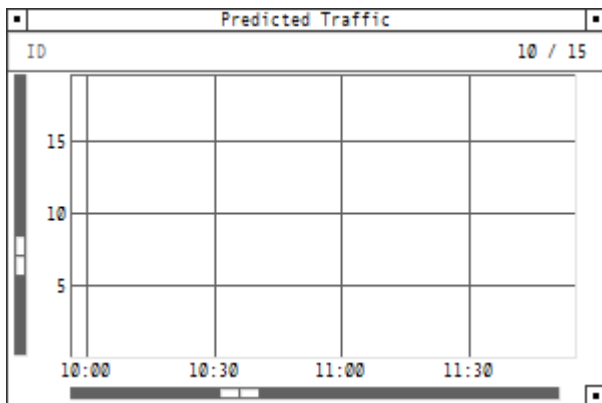
The Operations Rate Window displays the predicted hourly operations rate at a specified airport. The data is displayed in 5 minute steps and shown up to 5 hours into the future. The arrival prediction is based on aircraft tracks as calculated by EuroScope. The departures are predicted to depart in the next 5 minutes if their ground status is set to "DEPA", in 5-10 minutes if "TAXI" and in 10-15 minutes if "PUSH". 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 rate 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".

- 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

4.41 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.

4.42 Runway Approach Line Window

Global Menu -> Status/STS -> RWY line display... (opens the [Aerodrome menu](#) for airport selection)

Radar screen -> right-click on Airport symbol...

EFTU	
RWL DISPLAY	
08 <input type="checkbox"/>	26 <input type="checkbox"/>
ARR RWL DISPLAY	
<input type="checkbox"/>	
Runways in use	
ARR: 26	
DEP:	

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 [Maps Window](#) 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.

4.43 Tactical Info Window

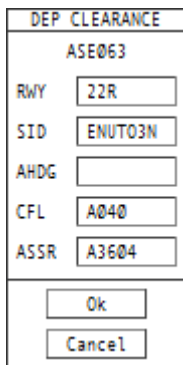
Track label -> right-click on COORD item

TACTICAL	
ASE063	
AHDG	360
ASP	250
ARC	none

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

4.44 Pre-Departure Clearance Window

Departure list -> left-click on CLR item



DEP CLEARANCE	
ASE063	
RWY	22R
SID	ENUTO3N
AHDG	
CFL	A040
ASSR	A3604
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 The departure runway (left-click to open RWY setup popup list)
- SID The SID (left-click to open SID setup popup list)
- AHDG The 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](#))
- NFREQ Next frequency (left-click to edit)
- DFREQ Departure frequency (left-click to edit)
- ASSR Assigned transponder code (left-click to open [ASSR menu](#))
- START Start-up clearance (left-click to toggle between "YES" and "NO")
- 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, a "rmk" label is displayed. Left-click on it to view and 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, 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" and "ASSR" fields contain data.

5 Aircraft lists

5.1 Holding List

The list includes the aircraft that have been given a holding clearance. It is automatically displayed whenever there is at least one aircraft in the list.

Holding List(5) 0/0						
View Options ETO on Holding point						
Label	Callsign	AFL	CFL	HPT	ETO	
■	FIN455N	380	380	VAVIX		
■	TAY160	320	320	VAVIX	1655	
■	NAX4DX	301	350	VAVIX	1657	
■	LOT5KA	351	350	VAVIX	1701	
■	GZP2112	400	400	VAVIX	1704	

“View” opens the View menu which contains only one item, “Header”. It toggles the visibility of the list header line. The “Options” menu is inaccessible as there are no selectable options in the holding list. The list sorting option is displayed next to the “Options” menu. Clicking on it opens a menu to select between “ETO on Holding point” (sorting criteria in priority order: ETO at the holding point, holding point name, callsign) and “Holding point” (sorting criteria in priority order: holding point name, CFL, callsign).

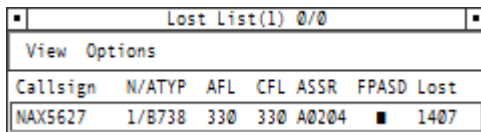
Field	Left click	Right click
- Label	Hide/display track label	-
- Callsign	Open Callsign menu	-
- AFL	Open AFL menu	Toggle route draw
- (attitude indicator)	-	-
- CFL	Open CFL menu	Toggle route draw
- HPT	Open Stack Manager Window	-
- ETO	-	-

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

5.2 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.



Lost List(1) 0/0						
View Options						
Callsign	N/ATYP	AFL	CFL	ASSR	FPASD	Lost
NAX5627	1/B738	330	330	A0204	■	1407

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.

6 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> |
| -  Start a new flight plan minimum separation line | <ALT> + <P> |
| - Reposition cursor at the center of the radar screen | <ALT> + <C> |

“Selected flight” in the above means that the mouse cursor is over that flight’s track label. The keys need to be held down until the function starts (it takes up to a second until the key presses are registered). For the timed functions, activating the shortcut while the timer is running restarts the timer from zero.

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.

7 Safety Nets

7.1 AIW (Airspace Infringement Warning)

7.1.1 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.

7.1.2 Alert display

An alert is shown by displaying the text “AIW” in the Alert message field on line 0 of the track label. 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.

7.2 APW (Area Proximity Warning)

7.2.1 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 TSA Areas window.

7.2.2 Alert display

An alert is shown by displaying the text “APW” in the Alert message field on line 0 of the track label. Note that an MSAW alert will have priority over an APW alert.

7.3 MSAW (Minimum Safe Altitude Warning)

7.3.1 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.

7.3.2 Alert display

An alert is shown by displaying the text “MSAW” in the Alert message field on line 0 of the track label.

7.4 STCA (Short Term Conflict Alert)

7.4.1 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.

7.4.2 Alert display

- A** 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.
- B** 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. In addition, the radar position symbol and history dots are displayed in "Urgency" color, and a one minute long prediction line is displayed in "Urgency" color regardless of the prediction line settings.

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

8 Flight Plan Conflict Probe

8.1 MTCD (Medium Term Conflict Detection)

8.1.1 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 during that time period.

In the vertical plane, the plugin can be set up to use either of the two following setups:

- Level-band setup: conflicts detected in the vertical plane by assuming the aircraft to occupy all levels between AFL and CFL. A conflict risk would be shown for a problem between AFL and the highest/lowest predicted future level that is not a conflict.
- 4D setup: otherwise the same, but conflicts/risks are only shown if they occur within a specified buffer (8000ft by default) around the ES predicted vertical path of the aircraft.

In short:

Conflict

- Current clearance may lead to loss of separation

Risk

- Current clearance will not lead to loss of separation, but clearing the aircraft to some other level may do so.

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.

8.1.2 Conflict and risk display

- A** The track label displays the text **MTCD** in "Warning" color on line 0 if there is a conflict for the aircraft within the set warning parameters (can be set to warn for risks as well). The default values are 10 minutes to loss of separation with an 8 nm separation minimum.
- B** The track label displays a dot in "Urgency" color on line 1 before the CALLSIGN item if there is a conflict for the aircraft within the set warning parameters (can be set to warn for risks as well). The default values are 10 minutes to loss of separation with an 8 nm separation minimum.

The MTCD conflicts are also displayed in the [Conflict and Risk Display](#).

8.2 SAP (Segregated Area Probe)

8.2.1 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.

8.2.2 Conflict and Risk display on the track label

A SAP conflict is shown by displaying the Military coordination indicator (“**M**”) on line 0 of the track label. 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](#).

8.3 FPCP results display in the 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.

- B** The Flight Leg displays symbols at the calculated top of climb (an upward pointing triangle, colored “System Calculated TOC”) and top of descent (a downward pointing triangle, colored “System Calculated TOD”) points.

9 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. Don't manually edit those boxes or use them to store any other data. The other boxes, marked by minus signs, are currently not used by the plugin in any way.

-	-	-	3602
-	-	X	
X	X	X	

10 Known issues

Plugin data communication with multiple EuroScope instances

Some data such as callsign highlights is stored internally within the plugin for each EuroScope instance. This can cause minor problems when using multiple instances and not having all the data synchronized.

Airport and area hotspots blocking 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.

Mouse wheel functionality is occasionally lost

Especially on slower computers, the mouse wheel functionality of the plugin is sometimes lost. It is possible to reset it by left-clicking the colored rectangle located left of the time value on the Global Menu.