TopSky plugin for EuroScope

- version 2.1 -

Denmark/Sweden

EuroScope | power of control

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1   Track presentation

The presentation of radar and flight plan tracks consists of the following elements:

-   Aircraft position symbol
-   History dots
-   Prediction line
-   Track label

1.1   Colors

Most of the track presentation coloring depends on the flight sector state. The states are as follows:

Sector state name	Color name	Condition
- Unconcerned	"Unconcerned"	Track will not enter the active sector
- Notified	"Concerned"	Track will enter the active sector (> 15 min)
- Coordinated	"Coordination"	Track will enter the active sector (< 15 min)
- Assumed	"Assumed"	Track is assumed
- Transfer Initiated	"Assumed"	Track is being transferred to the next controller
- Redundant	"Redundant"	Track has been transferred to the next controller but is still inside the active sector

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

Many track label fields have specific coloring rules to indicate various events. Refer to Label fields description for these. For the color definitions, refer to Colors.

1.2   Aircraft position symbol

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

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

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

●   Primary radar track

◇   Uncontrolled secondary or combined radar track

■   Controlled secondary or combined radar track

An indication of an SPI (transponder ident) can be added to either of the two last symbols. It draws a cross over the symbol and prints the text "SPI" above and to the right of the symbol:

SPI

        Controlled secondary or combined radar track with Special Position Indication

For all the three radar position symbols, a divergence alert will be drawn in case of a RAM or CLAM alert. This is a circle drawn around the symbol (will not be drawn if SPI is active):

◉　　　　　Controlled secondary or combined radar track with divergence alert

1.3　History dots

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

1.4　Prediction line

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

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1.5　Track label

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

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

The following descriptions show the positions of the data fields in the different labels of the set that is provided with the plugin and the available mouse click areas. The contents and any special coloring rules for the data fields are explained in Label fields description. Note that an uncorrelated primary radar track will not show a label at all.

Data fields in grey color can be selected globally on/off via the Track Control Window, or for some of them, for individual tracks via the selected or *Extended* track label. In case of the CFL/PEL field, only the PEL display can be selected off.

1.5.1 Uncorrelated label

Unselected track

Selected track

```
EMRG  ALRT
TSSR
AFL  a  GS
```

```
EMRG  ALRT
TSSR
AFL  a  GS
```

1.5.2 Reduced label

Unselected track

Selected track

```
V  W  EMRG  ALRT
MTCD  CALLSIGN  SI  NRAC  ATYP  WTC  TSSR
AFL  a  GS  NPT  ADES
```

```
COM * V W M A + C TEL I EMRG ALRT TEXT2
MTCD  CALLSIGN  SI  NRAC  ATYP  WTC  TSSR
AFL  a  GS  NPT  ADES
CFL
OP_TEXT [max 2 lines of text]
```

1.5.3 Standard label

Unselected track

Selected track

```
COM V W R P Y M • • A + C TEL I EMRG ALRT RI COORD TEXT2
MTCD  CALLSIGN  SI  NRAC  ATYP  WTC  TSSR
AFL  a  COPN/COPX  GS  NPT  RFL  ADES
CFL/PEL  XFL  AHDG  ASP
```

```
COM * V W R P Y M • • A + C TEL I EMRG ALRT RI COORD TEXT2
MTCD  CALLSIGN  SI  NRAC  ATYP  WTC  TSSR
AFL  a  COPN/COPX  GS  NPT  RFL  ADES
CFL/PEL  XFL  AHDG  ASP
OP_TEXT [max 2 lines of text]
```

1.5.4 Extended label

```
COM * V W R P Y M • • A + C TEL I EMRG ALRT RI COORD TEXT2
MTCD  CALLSIGN  SI  NRAC  ATYP  WTC          TSSR  ASSR  PSSR  FLTID  FLTADD
AFL  a  COPN/COPX  GS  NPT  RFL  ADES        ADEP  EOBT/ETD/ATD
CFL/PEL  XFL  AHDG  ASP                       EET
                                             ALT1  ALT2
COMP_CS
FIELD15 [max 6 lines of text]
FIELD18 [max 6 lines of text]
MALRT  OP_TEXT [max 2 lines of text]
OP_TEXT2
```

1.5.5 Mouse functions in track labels

Data field	Left-click action	Right-click action
*	Toggle units	
+		Open extended label
A		Open extended label
ADES	Open Flight Plan Window	Toggle display in unselected label
AFL	Open AFL menu	Toggle flight leg display
AHDG	Open AHDG menu / AHDG vector	
ASP	Open ASP menu	Clear assigned ASP value
ASSR	Open ASSR menu	
ATYP	Toggle aircraft type highlight	Toggle display in unselected label
C	Toggle inbound clearance flag	
CALLSIGN	Open Callsign menu	Open extended label
CFL/PEL	Acknowledge PEL highlight, Open CFL / COPN altitude menu	Toggle flight leg display
COORD	Open Tactical Transfer menu	Open Tactical Info Window
COPN/COPX	Open Waypoint menu	Toggle flight leg display
GS		Toggle display in unselected label
I		Open extended label
M	Toggle military coordination flag	
NPT	Open Waypoint menu	
OP_TEXT	Edit OP-TEXT	
OP_TEXT2	Edit OP-TEXT2	
RFL	Open RFL menu	
SI	Open next controller menu	Toggle sector ID/freq display
TEL	Accept manual coordination	
TEXT2		Open extended label
TSSR	Open correlate popup	
XFL	Open COPX altitude menu	Toggle flight leg display

2 Flight lists

The ES default lists have the following items and functionality (some fields are deselected by default):

2.1 Sector In List (SIL) and Sector Exit List (SEL)

Data field	Left-click action	Right-click action
U	Toggle units	
No		
C/S	Open Callsign menu	
W		
R		
ETN	Open estimate popup	
PEL	Acknowledge PEL highlight, Open COPN altitude coordination list	Toggle flight leg display
COPN	Open Waypoint menu	Toggle flight leg display
CFL	Open CFL menu	Toggle flight leg display
XFL	Open COPX altitude coordination list	Toggle flight leg display
COPX	Open Waypoint menu	Toggle flight leg display
RFL	Open RFL menu	
ASSR	Open ASSR menu	
ADEP		
ADES	Open Flight Plan Window	Open ES flight plan dialog
SI	Open next controller popup list	
ATYP	Toggle ATYP highlight	
ETA	Open estimate popup	
STAR	Open STAR setup popup list	
ARWY	Open RWY setup popup list	

2.2 Departure List

Data field	Left-click action	Right-click action
U	Toggle units	
No		
C/S	Open Callsign menu	
W		
R		
TIME		
DSQ		
CFL	Open CFL menu	Toggle flight leg display
XFL	Open COPX altitude coordination list	Toggle flight leg display
COPX	Open Waypoint menu	Toggle flight leg display
ADEP		
ADES	Open Flight Plan Window	Open ES flight plan dialog
RFL	Open RFL menu	
ATYP	Toggle ATYP highlight	
ASSR	Open ASSR menu	
AHDG	Open AHDG menu	
SID	Open SID setup popup list	
DRWY	Open RWY setup popup list	
SI	Open next controller popup list	
DEP	Open ground status popup list	
CLR	Set clearance received flag	

2.3 Arrival List

Data field	Left-click action	Right-click action
C/S	Open Callsign menu	
OP_TEXT2	Edit OP-TEXT2	

2.4 Flight Plan List

Data field	Left-click action	Right-click action
C/S	Open Callsign menu	
R		
ETO	Open estimate popup	
PEL	Open COPN altitude coordination list	Toggle flight leg display
ADEP		
ADES	Open Flight Plan Window	Open ES flight plan dialog
STS	Open FP track status popup	

3 Label fields description

Treatment of fields with no data

In the unselected track labels, a data field that contains no data will be blank. An exception to this is the AFL field which will display "AFL" when no altitude data is available for the track. In the selected and extended track labels a field with no data will still be displayed, usually displaying the field name (for example "AHDG"). Exceptions to this are all fields on line 0, the attitude indicator, FIELD15, FIELD18 and MALRT data fields. In flight lists, the display of a field with no data depends on the specific field.

Active and inactive indicators

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

Data fields description and coloring

The table below describes the data fields used in the labels and flight lists and their coloring rules, if different from the normal flight sector colors.

Data field	Description	Comments	Color
•	Frequency	"•", set from Callsign menu	Freq Indicator
•	Mark	"•", set from Callsign menu	Information
+	Field 18 information	"+" if "PER/", "RMK/" or "STS/" found in FPL remarks field	
*	Unit	"*" if label units are different from the other aircraft	If metric system units chosen: Warning
A	Manual alerts	"A" if Manual alert(s) active	Warning
a	Attitude indicator	Climbing: up arrow Descending: down arrow Level flight or unknown: blank	
ADEP	Departure aerodrome	ICAO code, 4 characters	
ADES	Destination aerodrome	ICAO code, 4 characters	
AFL	Actual Flight Level	Nautical: FL's with 3 digits, altitudes "A"+ 2 digits, heights "E"+ 2 digits, in hundreds of feet Metric: FL's with 5 digits, altitudes "M"+max 4 digits, heights "E"+max 4 digits, leading spaces added if necessary to make 5 characters total	Manually set: Warning Mark All: CARD Mark All S-Highlight: Warning

Data field	Description	Comments	Color
AHDG	Assigned heading	Assigned heading ("H"+ 3 digits) or direct point name. <u>Unselected label:</u> Point name is not shown for unselected track if it is the same as the COPX	If a value is assigned and HOP: Proposition If a tactical coordination value is accepted but not set: Information
ALRT	Alert message	"MSAW", "APW", "AIW", "CLAM", "RAM" or "DUPE" (in this priority order)	MSAW, APW or AIW: Warning
ALT1	Alternate aerodrome 1	ICAO code, 4 characters	
ALT2	Alternate aerodrome 2	Second alternate can be set by inserting "ALT2/XXXX" (where XXXX is the aerodrome ICAO code) into the FPL remarks field	
ARWY	Arrival runway	Arrival runway identifier	If manually assigned: Rwy Locked
ASP	Assigned speed	Mach "M"+ 2 or 3 digits, in 1/100's of Ma, max "M999". "HS" for high speed clearance. <u>Nautical:</u> Speed 2 digits, in 10's of knots, max "99" <u>Metric:</u> Speed "K"+ 2 digits, in 10's of km/h, max "K99"	If a value is assigned and HOP: Proposition If a tactical coordination value is accepted but not set: Information
ASSR	Assigned mode 3/A code	4 digits. If no code assigned, shows TSSR code if available	If different than TSSR: Warning
ATYP	Aircraft type	Type with max 4 characters	If highlighted: Warning
C	Inbound clearance	"C" if ADES is one of the defined airports -> aircraft needs inbound clearance	Active state: Information
CALLSIGN (track labels) C/S (flight lists)	Callsign	If more than one aircraft, suffixed by "+". If correlated to a primary track or to a secondary track with no ASSR code and a non-discrete TSSR code, suffixed by "*".	Priority order: STCA alert: Urgency HOP in: Proposition Mark Own: CARD Mark Own Highlight: Warning Mark All: CARD Mark All S-Highlight: Warning <u>If none of the above:</u> Notified: Coordinated Transfer in: Assumed Transfer out: Redundant
CFL	Cleared Flight Level	"CA" if Clear for App flag set, "VA" if Visual App flag set, See AFL field for number format. <u>Unselected label:</u> Not shown if equal to AFL	<u>Departure list:</u> if CTR or FSS & CFL > PEL, for others if CFL > XFL: Warning

Data field	Description	Comments	Color
CFL/PEL	Cleared Flight Level or Planned Entry Level	PEL is shown for flights in "coordinated" and "ongoing coordination" states, CFL otherwise. "CA" if Clear for App flag set, "VA" if Visual App flag set, See AFL field for number format. <u>Unselected label:</u> Not shown if equal to AFL and no ongoing coordination.	<u>PEL:</u> Ongoing coordination: Proposition Change just before ETN: Info Coord Coordination refused: Warning
COM	Communication type	"r" if voice receive only "t" if text only	Warning
COMP_CS	ICAO RTF callsign	The decoded ICAO RTF callsign, "???" if not in database	
COORD	Coordination message	"ROF" if a Request On Frequency message has been received from the next sector The last changed tactical coordination parameter value (AHDG, ASP or ARC)	Coordination Proposed: Proposition Rejected: Warning
COPN	Entry point	A holding clearance is displayed if there is no coordination. It shows the holding point name + " H" or for lat/lon point holdings, "POS H". For a TSA Hold clearance, the area name is shown.	Ongoing coordination: Proposition Coordination refused: Warning
COPX	Exit point	See COPN	Ongoing coordination: Proposition Coordination refused: Warning
COPN/COPX	Entry point or Exit point	COPN is shown for controlled flights in "coordinated" and "ongoing coordination" states, COPX in "assumed", "transfer initiated" and "redundant". For uncontrolled unconcerned tracks, FIR exit COP (FCOPX) is shown here. For more information see COPN.	Ongoing coordination: Proposition Coordination refused: Warning
DRWY	Departure runway	Departure runway identifier	<u>If the runway is not an active departure runway:</u> Clearance flag not set: Proposition Clearance flag set: Information
EET	Estimated Elapsed Time	"HHMM"	

Data field	Description	Comments	Color
EMRG	Emergency	"HI" for squawk 7500, "CF" for squawk 7600, "EM" for squawk 7700	Urgency
EOBT/ETD/ATD	Estimated Off-Block Time or Estimated Time of Departure or Actual Time of Departure	For a departed aircraft, shows the actual departure, otherwise the estimated departure time. "HHMM", both times taken from the FPL data	
ETA	Estimated Time or Arrival	"HHMM"	
ETN	Estimated Time over COPN or sector entry	"HHMM"	
FIELD15	Speed/Level/Route	The flight plan field 15 data (TAS, RFL and route). Max 270 characters	
FIELD18	Other information	The flight plan field 18 data (remarks). Max 270 characters	
FLTADD	Mode S transponder address	Displays the mode S transponder hex address for mode S targets (if found in the flightplan)	
FLTID	Mode S Callsign value	Displays the radar track callsign for mode S targets	
GS	Ground Speed	<u>Nautical:</u> 3 digits, in knots, max "999". Optionally prefixed by "N". <u>Metric:</u> "K"+ 3 digits, in km/h, max "K999"	
I	Flight information	"I" if OP-TEXT has data	
M	Military coordination	"M" if military coordination is required	Active state: Warning
MALRT	Manual alerts	Displays alerts entered via the Callsign menu	Warning
MTCD	MTCD indicator	"●" if aircraft has an MTCD problem	Urgency
NRAC (track labels) No (flight lists)	Number of aircraft	Number from 2 to 99 <u>Extended label:</u> "n" if 1 <u>Other label or flight list:</u> blank if 1 Number can be set by prefixing the aircraft type in the FPL by "X/" where X is the number (max 99).	
NPT	Next point	Next point on the route	
OP_TEXT	Flight information message	User entered text, stored in the flight strip	
OP_TEXT2	OP-TEXT2 message	User entered text, stored in the scratchpad	

Data field	Description	Comments	Color
P	No P-RNAV capability	"P" if aircraft equipment is not indicating P-RNAV capability and destination has P-RNAV arrival procedures	Information
PEL	Planned Entry Level	"CA" if Clear for App set, "VA" if Visual App flag set, See AFL field for number format.	Ongoing coordination: Proposition Change just before ETN: Info Coord Coordination refused: Warning
PSSR	Previous mode 3/A code	If not known, shows ASSR value. Otherwise format as ASSR field.	
R (track labels)	No B-RNAV capability	"R" if aircraft equipment is not indicating B-RNAV capability	Not approved: Urgency Unknown: Unknown
R (flight lists)	Flight rules	"V" if VFR, "Y" if first IFR and later VFR, "Z" if first VFR and later IFR	
RFL	Requested Flight Level	See AFL field for format	
RI	Release Indicator	"F" fully released "C" released for climb "D" released for descent "T" released for turns Incoming release disappears 3 min after track is assumed, outgoing when track is no longer redundant.	During transfer: Proposition
SI	Sector Indicator	Assumed track: Next sector identifier or frequency. Other tracks: Tracking controller identifier or frequency.	Priority order: Outgoing HOP: Proposition Transfer out: Redundant Manually changed next sector: Warning Normal next sector: Coordination
SID	Assigned/planned SID	SID identifier	If automatically assigned: Sid Star No Allocation If manually assigned: Sid Star Allocation
STAR	Assigned/planned STAR	STAR identifier	If automatically assigned: Sid Star No Allocation If manually assigned: Sid Star Allocation

Data field	Description	Comments	Color
TEL	Manual coordination flag (EuroScope default item)	Displays a telephone symbol when ongoing coordination has been attempted with a controller not using EuroScope. Coordinate manually (using text messages, interphone, etc.) and then click the symbol to accept the coordination values.	ES Symbology dialog -> Datablock -> information
TEXT2	OP-TEXT2 message	If more than 10 characters, then shows first 9 + ">"	
TSSR	Aircraft transponded mode 3/A code	4 digits	
U	Unit	"*" if label units are different from the other aircraft	If metric system units chosen: Warning
V	Flight rules	"V" if VFR, "Y" if first IFR and later VFR, "Z" if first VFR and later IFR	
W (track labels)	No RVSM capability	"W" if aircraft equipment is not indicating RVSM capability	Not approved: Urgency Exempt: Information Unknown: Unknown
W (flight lists)	Wake turbulence category	"J" for Super, "H" for Heavy, "M" for Medium, "L" for Light	
WTC	Wake turbulence category	"J" for Super, "H" for Heavy, "M" for Medium, "L" for Light Unselected label: Blank if "M"	If highlighted: Warning
XFL	Exit Flight Level	"CA" if Clear for App set, "VA" if Visual App flag set, See AFL field for number format. Unselected label: Not shown if equal to CFL/PEL and no ongoing coordination.	Ongoing coordination: Proposition Coordination refused: Warning
Y	No 8.33kHz capability	"Y" if aircraft equipment is not indicating 8.33kHz capability	Not approved: Urgency Exempt: Information Unknown: Unknown

4 Colors

The following table shows the plugin defined colors (and where applicable, their EuroScope counterparts, which should be set the same for best results). The Usage column indicates where the colors are used (the list may not be complete). In the aircraft colors "Labels" means track labels and any lists where aircraft information is displayed, "Tracks" radar position symbols, history dots, prediction lines and divergence symbols.

All the EuroScope colors in the table can be found in the *Datablock* group in the *Symbology* dialog except the active and inactive sector backgrounds which are in the *Sector* group.

Color name	Corresponding ES color	Default color	Usage
Aircraft colors			
Assumed	assumed		Labels, Tracks
CARD Mark All			Labels
CARD Mark Own			Labels
Concerned			Labels, Tracks
Coordination	notified		Labels, Tracks
Freq Indicator			Labels
Info Coord			Labels
Information			Labels, Windows
Informed			Labels, Windows
Proposition			Labels
Redundant	redundant		Labels, Tracks
Rwy Locked			Labels
Sid Star Allocation			Labels
Sid Star No Allocation			Labels
Suite Highlight			Labels
Track Default			Tracks
Track Highlight			Tracks (when selected)
Unconcerned	non concerned		Labels, Tracks
Unknown			Labels
Urgency			Labels, CARD callsign STCA background
Warning	information		Labels, Windows
Aircraft related items on the radar screen			
AIW Intrusion			Prediction line with AIW alert active
CARD Min Sep			CARD SEP Tool
Flight Leg			Part of flight leg without MTCD and SAP coverage
Heading Vector			Heading vector
Information FL			Part of flight leg with no MTCD or SAP problems
Potential FL			Part of flight leg with MTCD or SAP potential conflict
QDM			QDM vector
SEP Tool 1			SEP Tool 1
SEP Tool 2			SEP Tool 2
SEP Tool 3			SEP Tool 3
Urgency FL			Part of flight leg with MTCD or SAP conflict
Warning FL			Part of flight leg with MTCD or SAP risk

Color name	Corresponding ES color	Default color	Usage
Map colors			
Active Map Type 1			Active TSA map type 1 border
Active Map Type 2			Active TSA map type 2 border
Active Map Type 3			Active TSA map type 3 border
Active Map Type 4			Active TSA map type 4 border
Active Map Type 5			Active TSA map type 5 border
Active RD Infill Map			Active TSA map fill
Active Text Map			Active TSA map text
Map 1			Auto-generated maps
Map 2			Auto-generated maps
Map 3			Auto-generated maps
Map 4			Auto-generated maps
Map Hotspot			Map hotspots
Map Info			Range rings
Preactive Map			Pre-active map border
Preactive Text Map			Pre-active map text
Predisplay Map			Pre-display map border
Rwy App Line Inuse			Runway approach line for runways in use
Rwy App Line Not Inuse			Runway approach line for runways not in use
Window and menu colors			
Arm			Inactive window texts
Active Sector	active sector background		Stack Manager Window, VAW
Background			Background
Border			Various lines in windows
BottomShadow			3D effects in windows
CARD Conflict Number			CARD conflict numbers
CARD Time Vector			CARD time vectors
Field Highlight	active item background		Selected field
Flight Highlight	detailed background		Selected item
Foreground			Window titles, menu items, active texts, close/min/resize boxes, range marker
Global Menu Highlight			Highlighted items in the Global Menu
Inactive Sector	inactive sector background		CARD and VAW background
Overflown			Overflown points in Complete Route Window
Potential			Potential conflicts in VAW
Selected			
Selected Period			Active areas text in area window
SMW Level Band			AFL-CFL boxes in SMW
SMW Overflight			Overflight lines in SMW
SMW Overlap			Overlapping AFL-CFL boxes in SMW
SMW Overlap Box			Multiple same CFL's box in SMW
SMW Overshoot			Level bust AFL-CFL boxes in SMW
TopShadow			3D effects in windows
Trough			Slider area background, active selections
TSA Active			Active areas background in area window
TSA Preactive			Pre-active areas background in area window
VAW Profile			Selected aircraft profile in VAW
VAW Sector Limits			Sector boundaries in VAW

Color name	Corresponding ES color	Default color	Usage
VAW Track Position			Selected aircraft position in VAW
WM Active Fg			Active window title text
WM Bg			Window title bar background
WM Border			Window border line
WM Fg			Window texts
WM Frame			Window frame when dragging
Other colors			
Raw Video 1			Raw radar video youngest plots
Raw Video 2			Raw radar video
Raw Video 3			Raw radar video
Raw Video 4			Raw radar video
Raw Video 5			Raw radar video
Raw Video 6			Raw radar video
Raw Video 7			Raw radar video oldest plots
Text Notes			Text notes