Ground Radar plugin for EuroScope

- version 1.5 -

Developer Guide

EuroScope | power of control

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1   Installation

- In EuroScope, open the "OTHER SET" menu, then click on the "Plug-ins…" item
- Check if the "Ground Radar plugin" is already loaded. If not, click on "Load" and select the plugin file (GRplugin.dll). Then close the Plug-ins Dialog with "Close".
- If you are using other plugins and they need to draw on the screen when a Ground Radar plugin ASR file is open, they need permission to do so. For example, if you are using the TopSky plugin and the aircraft lists use menus by that plugin, the TopSky plugin needs to be given permission to draw on the Ground Radar display: On the plugins list area click on "TopSky plugin", then move "Ground Radar display" from the "Forbidden to draw on types" box to the "Allowed to draw on types" box.
- Open the "OTHER SET" menu and click on "Save profile". This will automatically load the plugin with the profile when it's used the next time. You can also select "Save profile as" if you want to create a different profile for this plugin for some reason.
- At this point you should see no difference on your screen. To use the plugin, a specific ASR file needs to be created. This is explained in the next chapter.

2   ASR file setup

Regardless of which mode you plan to create, the first step is to create an ASR file. Select the desired sector file, set a good zoom level, use the Display settings dialog to select what you want to be shown and then save the ASR file ("OPEN SCT" menu, "Save as…"). Then exit EuroScope and open the ASR file in a text editor such as Notepad. How to edit the file depends on which of the two modes you wish to see, but in both cases the file should contain the following lines:

```
DisplayTypeName:Ground Radar display
DisplayTypeNeedRadarContent:0
DisplayTypeGeoReferenced:1
```

If some of these items are missing (or contain different values), insert the lines and/or correct the values.

If you are using the TopSky plugin, insert the following line to hide some unnecessary TopSky graphics:

```
PLUGIN:TopSky plugin:NoDraw:1
```

The next step depends on the desired mode:

2.1   Ground mode

The ground mode needs at least one additional line added to the ASR file:

```
PLUGIN:Ground Radar plugin:GroundMode:EFHK
```

It tells the plugin to use the ground movement radar mode and the airport ICAO code. The code is used to set up the Approach and Inbound Windows, as well as coloring the arriving and departing tracks differently.

A bit more information about the airport is required to filter out high flying aircraft from the ground radar display and on-ground traffic from the Approach Window. The information can be in the plugin's settings file, or in the ASR file. If it is entered in the ASR file, use the following two lines:

```
PLUGIN:Ground Radar plugin:AirportElevation:179
PLUGIN:Ground Radar plugin:AirportRadius:1.9
```

The first line is the airport elevation in feet. The second line contains the airport radius in nautical miles. It is the distance from the airport reference point to the furthest corner of the airport. Aircraft within that circle and below elevation+50ft will be filtered out from the Approach Window.

2.2   Tower mode

The tower mode only needs one additional line added to the ASR file:

```
PLUGIN:Ground Radar plugin:TowerMode:ESSA
```

It tells the plugin to use the tower mode and the airport ICAO code to color the arriving and departing tracks differently.

3   Plugin data files

This chapter gives guidance on developing the data files used by the plugin for various features. Even though the plugin does its best to check the data for errors, some errors may get through and cause all kinds of issues, possibly leading to ES crashing, so it's important to be careful to provide correctly formed data when creating the files. Errors in these files discovered by the plugin are reported in a "GRplugin" chat tab when the files are loaded (for some of the files only the first error in the file is displayed).

3.1   GRpluginEventStands.txt

This file contains pre-defined stand assignments (for example for event use). The information in the file is only used for stand assignments made inside the defined validity period. The following example is used to show the syntax (optional lines in grey color):

START:1608011600	Validity start time
END:1608012100	Validity end time
// EFHK arrivals	Comment
FIN123:EFHK:22	Stand assignment

Validity start time

START:StartTime

A mandatory line that defines the start time for the file validity period. Any stand assignments made before this time will use the default assignment criteria.

- StartTime   UTC time (format YYMMDDHHMM)

Validity end time

END:EndTime

A mandatory line that defines the end time for the file validity period. Any stand assignments made after this time will use the default assignment criteria.

- EndTime   UTC time (format YYMMDDHHMM)

Stand assignment

Callsign:Ades:Stand

Pre-defines a stand assignment for a flight matching both the callsign and the destination.

- Callsign   Flight callsign (text string)
- Ades   Destination airport ICAO code (text string)
- Stand   Stand designator (text string, must be found in the GRpluginStands.txt file)

3.2   GRpluginMaps.txt

This file contains the definitions for the plugin drawn maps. The following example area is used to show the syntax (optional lines in grey color):

COLORDEF:Runway:0:0:0	Color definition
// runway 01L/19R	Comment
MAP:01L/19R	Name
FOLDER:ESSA	Folder
ACTIVE:RWY:ARR:ESSA01L:DEP:*	Active
ACTIVE:RWY:ARR:ESSA19R:DEP:*	Active
ACTIVE:RWY:ARR:*:DEP:ESSA01L	Active
ACTIVE:RWY:ARR:*:DEP:ESSA19R	Active
COLOR:Runway	Color
N059.38.14.252 E017.54.49.244	Coordinate
N059.39.58.802 E017.55.26.928	Coordinate
N059.39.59.055 E017.55.24.239	Coordinate
N059.38.14.503 E017.54.46.513	Coordinate

The mandatory items for each map are a name, a folder and some type of contents (drawing, runway or stand closure or stand limitation).

Color definition

COLORDEF:ColorName:R:G:B

Every color used in the maps must be defined using one of these lines.

- ColorName   Color name to be used in the Color lines (text string)
- R   Color's red component value (0-255)
- G   Color's green component value (0-255)
- B   Color's blue component value (0-255)

Symbol definition

SYMBOLDEF:SymbolName

The first line for each symbol must be a *symbol definition* line.

- SymbolName   Symbol name to use for this symbol in the Symbol lines (text string)

The symbol itself can consist of various elements, drawn by the following lines. The X and Y coordinates are relative to the symbol centerpoint, with the X axis having increasing values to the right and the Y axis having increasing values to the down direction. The commands are the same as in the EuroScope Symbology dialog with the exception of the possibility to draw elliptical arcs and the ":" separating the values here so the ES dialog can be used in most cases to test the results.

MOVETO:X:Y

Sets the starting point for the next LINETO command

- X   Number of pixels from the symbol centerpoint in the left(-)-right(+) direction
- Y   Number of pixels from the symbol centerpoint in the up(-)-down(+) direction

LINETO:X:Y

Draws a straight line from the previous position

- X   Number of pixels from the symbol centerpoint in the left(-)-right(+) direction
- Y   Number of pixels from the symbol centerpoint in the up(-)-down(+) direction

SETPIXEL:X:Y

Paints the selected pixel

- X   Number of pixels from the symbol centerpoint in the left(-)-right(+) direction
- Y   Number of pixels from the symbol centerpoint in the up(-)-down(+) direction

ARC:X:Y:Radius:StartAngle:EndAngle
ARC:X:Y:Radius$_X$:Radius$_Y$:StartAngle:EndAngle

Draws a part of a circle

- X   Centerpoint offset from the symbol centerpoint in the left(-)-right(+) direction
- Y   Centerpoint offset from the symbol centerpoint in the up(-)-down(+) direction
- Radius   Arc radius in pixels (to make a circular arc)
- Radius$_X$ Arc radius in relation to the X axis in pixels (to make an elliptical arc)
- Radius$_Y$ Arc radius in relation to the Y axis in pixels (to make an elliptical arc)
- StartAngle   Arc starting angle (integer degrees, 0 degrees is at positive X-axis, increasing counterclockwise)
- EndAngle   Arc ending angle (integer degrees, 0 degrees is at positive X-axis, increasing counterclockwise)

FILLARC:X:Y:Radius:StartAngle:EndAngle
FILLARC:X:Y:Radius$_X$:Radius$_Y$:StartAngle:EndAngle

Otherwise the same as ARC above but the result is filled

POLYGON:X$_1$:Y$_1$: X$_2$:Y$_2$:…: X$_n$:Y$_n$

Draws a filled polygon with n vertices

Name

MAP:MapName
MAP:MapName:VisibilityOptions

The first line for each map definition must be a *name* line.

- MapName   Map name (text string)
- VisibilityOptions   Optional flag to set the map visibility (one or more of the following):
    - A   Visible on APP Window
    - G   Visible on Ground mode main radar screen
    - T   Visible on Tower mode
    - 2   Visible on 2nd Traffic Situation Window

If the visibility options flag is not specified, a default value of "GT2" is used.

Folder

FOLDER:FolderName

Every map must belong to a folder. There is practically no limit to how many maps a single folder can contain.

- FolderName   Folder name for the map (text string)

Note: the folder name may not start with an empty space character, and may not contain the backslash ("\") character.

Airport

AIRPORT:Icao

- Icao   Airport ICAO code – comma-separated list if more than one (text string)

The map can be set to display in the map list only for specific airports by using an *airport* line. This may be useful if the maps data file contains maps for many airports.

Screen-specific

SCREEN-SPECIFIC

When a map contains this line, each radar screen will toggle the map's visibility independently instead of affecting all other radar screens. Setting this is only possible for maps with no *active* lines.

Zoom

ZOOM:ZoomLevel

A whole map or parts of it can be hidden based on the current zoom level. With a positive value set, when the radar screen is zoomed out so that there are less than the specified number of pixels per nautical mile, the lines of the map definition after this line are not read. There can be more than one *zoom* line in one map to hide parts of the map at different zoom levels. When the set value is negative, the following lines are not read when the radar screen is zoomed in more than the set value.

- ZoomLevel   Radar screen zoom level (pixels per nautical mile, decimal value)

Note: when there is more than one zoom line in a map, their order is important (for example "ZOOM:5" has to be before "ZOOM:10" to have any effect as with zoom below 10 pix/nm the "ZOOM:5" line will never be read if it's after the "ZOOM:10" line...)

ASRdata

ASRDATA:ItemList

Display of certain parts of the map can be decided based on information entered in the currently active ASR file. This line defines the "type" of the following lines in the map until the next *ASRdata* line. It is then checked against any definitions in the ASR file. "ASRDATA:*" reads the following lines regardless of ASR definitions.

- ItemList   Comma-separated list of items

The formats to define map data in the ASR file are as follows:

PLUGIN:Ground Radar plugin:ShowMapData:<ItemList>
PLUGIN:Ground Radar plugin:HideMapData:<ItemList>

<ItemList> is a comma-separated list of items. ShowMapData draws only those parts of plugin maps affected by *ASRdata* lines that contain at least one of the defined items, HideMapData hides such parts.

SctData

SCTDATA:Type
SCTDATA:Type\Name
SCTDATA:FREETEXT\Group
SCTDATA:FREETEXT\Group\Name

The *SctData* line is used to draw items from the active sector file data. Specifying only the Type or Group will draw all items. Due to limitations in the data available from EuroScope, the drawing will only look correct when an item contains a single polygon or polyline with the points in consecutive order. The items are drawn using the current map line style and color regardless of what is specified in the sector file.

- Type   Type of item(s) to draw
    - "LOW AIRWAY", "HIGH AIRWAY", "ARTCC LOW", "ARTCC", "ARTCC HIGH", "SID", "STAR" or "GEO"
- Group   Group name of free text item(s) to draw
- Name   Name of item to draw

SctFileData

SCTFILEDATA:Type
SCTFILEDATA:Type\Name
SCTFILEDATA:FREETEXT\Group
SCTFILEDATA:FREETEXT\Group\Name

The *SctFileData* line is used to draw items from a sector file specified with the *SctFilePath* line. Specifying only the Type or Group will draw all items. The items are drawn using the current map line style and color unless a specific color is set in the sector file.

- Type   Type of item(s) to draw
    - "LOW AIRWAY", "HIGH AIRWAY", "ARTCC LOW", "ARTCC", "ARTCC HIGH", "SID", "STAR", "GEO", "REGIONS", "SECTOR" or "SECTORLINE"
- Group   Group name of free text item(s) to draw
- Name   Name of item to draw

Note: To force all items to be drawn using the current map color regardless of possible specific colors set in the sector file, start the line with "SCTFILEDATA/MONO" instead of "SCTFILEDATA".

SctFilePath

SCTFILEPATH:FileLocation

The *SctFilePath* line sets the location for the sector file to use as the data source for the *SctFileData* lines.

- FileLocation   Location of the sector file including the file name

The path can be either absolute or relative to the folder where the plugin dll is located. If the path ends with the "*" character, all files matching up to that and having the ".sct" extension will be considered and the one that's alphabetically last will be chosen. (e.g. "..\ABCD-*" will search the parent folder of the plugin dll folder for any files starting with "ABCD-" and with ".sct" extension. If "ABCD-1234.sct" and "ABCD-1235.sct" are found, "ABCD-1235.sct" will be used).

Blocks

BLOCKS:AirportCode:StandList

A map can be set to block specified stands when it is active using this line. A map can contain more than one *blocks* line if necessary. This only blocks the stands from automatic assignment.

- AirportCode   Airport ICAO code
- StandList   Comma-separated list of stand designators to be blocked

Limits

LIMITS:AirportCode:StandList:WingspanOrCode
LIMITS:AirportCode:StandList:WingspanOrCode:Length

A map can be set to limit aircraft dimensions on specified stands when it is active using this line. A map can contain more than one *limits* line if necessary. The length parameter is optional.

- AirportCode   Airport ICAO code
- StandList   Comma-separated list of stand designators to be limited
- WingspanOrCode   Wingspan in meters (0.1-999) or element 2 of the aerodrome reference code (A-F)
- Length   Length in meters (0.1-999)

RwyClosedArr

RWYCLOSEDARR:AirportCode:RwyList

The *RwyClosedArr* line is used to set runways closed for arrivals. When one of these runways is assigned as the arrival runway for an aircraft, an alert will be shown. If the runway surface is closed completely or partially, it needs to be specified separately as a polygon (see the *CoordType* and *coordinate* lines). Only one *RwyClosedArr* line may be used in a single map.

- AirportCode   Airport ICAO code
- RwyList   Comma-separated list of runways

RwyClosedDep

RWYCLOSEDDEP:AirportCode:RwyList

The *RwyClosedDep* line is used to set runways closed for departures. When one of these runways is assigned as the departure runway for an aircraft, an alert will be shown. If the runway surface is closed completely or partially, it needs to be specified separately as a polygon (see the *CoordType* and *coordinate* lines). Only one *RwyClosedDep* line may be used in a single map.

- AirportCode   Airport ICAO code
- RwyList   Comma-separated list of runways

Color

COLOR:ColorName
COLOR:ColorName:FillColorName

Every map drawing something on the screen must have at least one *color* line. It sets the color to be used to draw the subsequent drawings. Each line, symbol, etc. within a map can be drawn with a different color by including a new *color* line when a color change is required. If the FillColorName is not specified, it is set to the same color as ColorName. The color names must be defined in the file with a *color definition* line.

- ColorName   Color to be used for drawing lines and texts
- FillColorName   Color to be used for filling FILLARC, POLYGON and region type objects

Style

STYLE:StyleName
STYLE:StyleName:Width

The *style* line defines the line type for any subsequent *line* items within this map. It is not mandatory; a Solid type line with width 1 pixel will be drawn by default. As with the *color* line, a single map may contain any required number of *style* lines to draw different line styles within the same map. The width is only taken into account for Solid type lines. If a width is not defined, a 1-pixel width is drawn by default.

- StyleName   Style to be used (Solid, Dash, Dot, DashDot or DashDotDot)
- Width   Width of line (pixels)

Line

LINE:Lat_1:Lon_1:Lat_2:Lon_2
LINE:StartPointName:EndPointName

Draws a line from one point to another using the previously defined line style.

- Lat_1 Latitude of starting point (decimal degrees or sector file format)
- Lon_1 Longitude of starting point (decimal degrees or sector file format)
- Lat_2 Latitude of end point (decimal degrees or sector file format)
- Lon_2 Longitude of end point (decimal degrees or sector file format)
- StartPointName   Fix, VOR, NDB, airport code or runway (must be found in the active sector file)
- EndPointName   Fix, VOR, NDB, airport code or runway (must be found in the active sector file)

Note: the syntax to define a runway threshold as a StartPointName or an EndPointName is the 4-letter ICAO airport designator followed by a forward slash and the runway identifier.

CoordType

COORDTYPE:AreaType:DrawType
COORDTYPE:AreaType:DrawType:HatchType

The *CoordType* line is used to define the type of area drawn by the following *coordinate* lines.

- AreaType   Type of area to be drawn
  - APM   Area for the APM safety net
  - RWYCLOSED   Area defined as a closed part of a runway
  - TWYCLOSED   Area defined as a closed part of a taxiway
  - AREATYPE   Area defined as a restricted area for the RVM safety net
  - TWYTYPE   Area defined as a restricted taxiway for the RVM safety net
  - OTHER   Other type (no safety nets involved)
- DrawType   Drawing type for the area
  - POLYGON   Area outline drawn

- POLYLINE   Otherwise same as above but does not draw a line from the last coordinate to the first one to close the shape
- REGION   Filled area drawn
- NONE   Area not drawn

- HatchType   Hatch type (only applicable when DrawType is REGION). If not specified, the region is filled using a solid color.
  - /   45-degree upward left-to-right hatch
  - +   Horizontal and vertical crosshatch
  - X   45-degree crosshatch
  - \\   45-degree downward left-to-right hatch
  - -   Horizontal hatch
  - | Vertical hatch

When AreaType is set to either AREATYPE or TWYTYPE, the restriction conditions need to be specified using *restriction* lines (see below).

Restriction

RESTRICTION:Type:Value

The *restriction* line is used to set restrictions to AREATYPE and TWYTYPE areas whose coordinates are specified after the *restriction* line. More than one *restriction* line can be used, but successive lines with the same Type will override the earlier ones. If a map contains more than one AREATYPE and/or TWYTYPE polygon, the previously set restrictions in the same map will be used for the polygons unless overridden by new *restriction* lines with the same Types.

- Type   Restriction type
  - MAXWTC   Maximum wake turbulence category (L,M,H or J)
  - MAXWEIGHT   Maximum weight (in kilograms, 0-999999.9)
  - MAXWINGSPAN   Maximum wingspan (in meters, 0-999.9)
  - MAXCODE   Maximum aerodrome reference code (A-F, but only the wingspan is checked)
  - NOTENGINETYPES   Prohibited engine types (any combination of P, T, J and E)
  - NOTATYP   Prohibited aircraft types (comma-separated list of aircraft type codes)
- Value   Restriction value or list of values where allowed

The NOTATYP type can contain "Groups" in the Value item (which must have been defined earlier in the file using a *group* line). The syntax to use a group is to use "GROUP_<groupname>" in the value list. It is then automatically expanded to the list of items in the group definition.

Group

GROUP:Name:Contents

Defines a text alias to represent a group of values.

- Name   Name for the group
- Contents   Text strings, separated with ":"

Coordinate

Lat Lon
Lat:Lon
COORD:Lat:Lon

Defines a vertex point for a filled region or polygon. The region or polygon is drawn with the color(s) defined in a preceding *color* line. To draw more than one region or polygon in a map, another line type must appear between them (for example a *color* line).

- Lat   Latitude (decimal degrees or sector file format)
- Lon   Longitude (decimal degrees or sector file format)

Circle

CIRCLE:Lat:Lon:Radius:Spacing

Defines a set of vertex points making up a circle for a filled region or polygon (the same as defining them one by one using *Coordinate* lines, just simpler). The region or polygon is drawn with the color(s) defined in a preceding *color* line. To draw more than one region or polygon in a map, another line type must appear between them (for example a *color* line).

- Lat   Center point latitude (decimal degrees or sector file format)
- Lon   Center point longitude (decimal degrees or sector file format)
- Radius   Radius (in nautical miles, 0.1-9999.9)
- Spacing   Vertex spacing (in degrees, 0.1-120.0)

Active

The *active* line is optional. If there is no *active* line, the map will not be automatically activated. A map can contain more than one *active* line; the plugin will check all of them to set the activation status.

ACTIVE:1

Activates the map automatically when the plugin is loaded. Note that this option cannot be used together with other *active* lines.

ACTIVE:SchedStartDate:SchedEndDate:SchedWeekdays:StartTime:EndTime

Used to set activation schedules.

- SchedStartDate   First day to activate the map
  - month and day in the format MMDD (for recurring periods every year)
  - year, month and day in the format YYMMDD (for a single period)
- SchedEndDate   Last day to activate the map, formats as above
- SchedWeekdays   Days of the week to activate the map
  - list of numbers representing the days to activate the map, for example "145" means the map will activate on Mondays, Thursdays and Fridays
  - "0" (zero) to activate the map continuously from StartTime on SchedStartDate to EndTime on SchedEndDate
- StartTime   Time to activate the map (UTC time in the format HHMM)
- EndTime   Time to deactivate the map (UTC time in the format HHMM)

Note: SchedEndDate and SchedWeekdays only limit the activation of the map. If the activation time extends past midnight, the map stays active until EndTime on the following day.

ACTIVE:RWY:ARR:ArrRwyList:DEP:DepRwyList

Activates the map based on active runways. If <u>all</u> the specified runways are active, the map is activated. If even one of them is not, the map will be deactivated. The runway identifiers must be in the format "<4-letter ICAO code><runwayID>", for example "EFHK15".

- ArrRwyList   Comma-separated list of runways. Enter "*" to allow any runway.
- DepRwyList   Comma-separated list of runways. Enter "*" to allow any runway.

ACTIVE:ID:YourIdList:NotYourIdList:OnlineIdList:NotOnlineIdList

Activates the map based on the current controller position ID, and the IDs of other online controllers. The map is activated if the current controller position ID is found in YourIdList, not found in NotYourIdList, all controllers specified in OnlineIdList and none of the controllers specified in NotOnlineIdList are online.

- YourIdList   Comma-separated list of controller IDs (enter "*" to disregard)
- NotYourIdList   Comma-separated list of controller IDs (enter "*" to disregard)
- OnlineIdList   Comma-separated list of controller IDs (enter "*" to disregard)
- NotOnlineIdList   Comma-separated list of controller IDs (enter "*" to disregard)

FontSize

FONTSIZE:Type:Size
FONTSIZE:0

Each new map starts out with the default font size. It can be modified using the *FontSize* line. All texts after the line in that map use the new size. "FONTSIZE:0" sets the size back to the default value.

- Type   Type of change (the resulting font size is limited to values between 1 and 99)
  - =   sets a new size
  - -   reduces the size from the default by the given amount
  - +   increases the size from the default by the given amount
  - *   multiplies the size of the default by the given amount
- Size   New font size (1-99)

FontStyle

FONTSTYLE:Weight:Italic:Underline:Strikethrough
FONTSTYLE:0

Each new map starts out with the default font style. It can be modified using the *FontStyle* line. All texts after the line in that map use the new style. "FONTSTYLE:0" sets the style back to the default settings.

- Weight   Font weight (0-1000)
  - some example values are 0=default weight, 400=normal, 700=bold
- Italic   Italic (1=yes, 0=no)
- Underline   Underline (1=yes, 0=no)
- Strikethrough   Strikethrough (1=yes, 0=no)

TextAlign

TEXTALIGN:Flags

Sets the default text alignment used in the *Text* and *Symbol* lines. If defined before the first map, becomes the default alignment for all maps. If defined within a map, becomes the default alignment for all following lines of that map.

- Flags   Combination of the following:
  - "L", "C" or "R"   for left, center or right-aligned horizontally
  - "T", "C" or "B"   for top, center or bottom-aligned vertically

By default, the alignment is centered both horizontally and vertically, i.e. the text label is centered on the defined position. Entering for example "LT" puts the text label's top left corner in the defined position instead.

Text

TEXT:Lat:Lon:Label
TEXT:Lat:Lon:Label:OffsetX:OffsetY
TEXT:PointName:Label
TEXT:PointName:Label:OffsetX:OffsetY

Draws a text label on the screen. Optionally, the label can be offset a given number of pixels from the given position. The text alignment can be set using the *TextAlign* line (see also note 2 below).

- Lat   Latitude of label anchor point (decimal degrees or sector file format)
- Lon   Longitude of label anchor point (decimal degrees or sector file format)
- PointName   Fix, VOR, NDB, airport code or runway (must be found in the active sector file)
- Label   Text label (text string)
- OffsetX   Number of pixels to offset the label in the left(-)-right(+) direction
- OffsetY   Number of pixels to offset the label in the up(-)-down(+) direction

Note 1: the syntax to define a runway threshold as a PointName is the 4-letter ICAO airport designator followed by a forward slash and the runway identifier.

Note 2: to set the text alignment for just this label, it is possible to suffix TEXT with a forward slash followed by the required alignment flags, e.g. TEXT/LT to align the label top left corner on the anchor point.

Symbol

SYMBOL:SymbolName:Lat:Lon
SYMBOL:SymbolName:Lat:Lon:Label:OffsetX:OffsetY
SYMBOL:SymbolName:PointName
SYMBOL:SymbolName:PointName:Label:OffsetX:OffsetY

Draws a predefined symbol on the screen. Optionally, can also display a text label. The text alignment can be set using the *TextAlign* line (see also note 2 below). If a text label is defined, the offset values need to be entered, even if 0.

- SymbolName   Name of symbol
- Lat   Latitude of symbol centerpoint (decimal degrees or sector file format)
- Lon   Longitude of symbol centerpoint (decimal degrees or sector file format)
- PointName   Fix, VOR, NDB, airport code or runway (must be found in the active sector file)
- Label   Text label (text string)
- OffsetX   Number of pixels to offset the label in the left(-)-right(+) direction
- OffsetY   Number of pixels to offset the label in the up(-)-down(+) direction

Note 1: the syntax to define a runway threshold as a PointName is the 4-letter ICAO airport designator followed by a forward slash and the runway identifier.

Note 2: to set the text alignment for just this label, it is possible to suffix SYMBOL with a forward slash followed by the required alignment flags, e.g. SYMBOL/LT to align the label top left corner on the symbol centerpoint.

3.3 GRpluginOperatorInfo.txt

This file lists typical use categories based on callsigns to improve the quality of the stand assignment feature. The file has one callsign per line and the format is *Callsign<TAB>Use*, for example:

BOX	C

When a callsign is found in this data file, the defined use category will override the aircraft type based one.

Valid entries for the Use field are the use categories – see ICAO_Aircraft.json.

More than one character may be entered. If the aircraft type based use category is found in the list, it is used. If not, all the listed use categories are used when assigning a stand.

Two special items may be used as well:

- Mil   Defines the operator as military. This causes the following use categories to be assigned, in the following priority order:
  - o "CARGO" found in FPL remarks   T
  - o aircraft type based use category is "C"   T
  - o aircraft type based use category is "H"   I
  - o WTC L or M   M
  - o WTC H or J   T

- Civ   Defines the operator as civilian. This causes the following use categories to be assigned, in the following priority order:
  - o aircraft type based use category is "T"   C
  - o aircraft type based use category is "I"   H
  - o WTC L, M, H or J   default use category based on the WTC

3.4 GRpluginSettings.txt & GRpluginSettingsLocal.txt

These files allow adjusting the plugin settings. Each setting must be on its own line, and the syntax is *SettingName=Value*, for example *Equip_ProMode=1* to set the pro mode on by default. It is possible to set most settings to be airport-specific by using an [icao] line. For example, if there is a line *[EFHK]* anywhere in the file, any settings after that are only applied for EFHK until another [icao] line is found.

The settings are read in the following order:

1. System-wide settings from GRpluginSettings.txt
2. System-wide settings from GRpluginSettingsLocal.txt
3. Airport-specific settings from GRpluginSettings.txt
4. Airport-specific settings from GRpluginSettingsLocal.txt

If a given setting is found more than once, the last read value will take effect.

When creating a setup for others to use, it is recommended to only provide GRpluginSettings.txt in the package, leaving GRpluginSettingsLocal.txt for personal preferences such as graphics scaling and window positions.

The available settings, their default values, short descriptions and acceptable values are listed below.

3.4.1 Settings that must be system-wide

Setting name	Default value	Description
List_Inbound_DefPos	100,100	Default position (x,y) of the Time To Threshold Lists
List_Outbound_DefPos	100,100	Default position (x,y) of the Dep Timer Lists
Window_APW_DefPos	100,100	Default position (x,y) of the Approach Path Windows
Window_APW_DefSize	370,200	Default size (width,height) of the Approach Path Windows
Equip_ProMode	0	Pro mode on(1)/off(0)
Equip_ModeS	WZLCISG	List of "mode S equipped" equipment code letters
Equip_NonAlt	XTDBMNYCVS	List of "non-altitude-reporting" equipment code letters
Aircraft_DefaultWTC	?	Default wake turbulence category when unknown (L, M, H or J to force a category or ? to leave as unknown)
Aircraft_DefaultUse_?	A	Default use for unknown WTC category aircraft when unknown (one character, see AircraftInfo data file, or ? to leave unknown)
Aircraft_DefaultUse_L	P	Default use for WTC category L aircraft when unknown (one character, see AircraftInfo data file, or ? to leave unknown)
Aircraft_DefaultUse_M	A	Default use for WTC category M aircraft when unknown (one character, see AircraftInfo data file, or ? to leave unknown)
Aircraft_DefaultUse_H	A	Default use for WTC category H aircraft when unknown (one character, see AircraftInfo data file, or ? to leave unknown)
Aircraft_DefaultUse_J	A	Default use for WTC category J aircraft when unknown (one character, see AircraftInfo data file, or ? to leave unknown)
System_GUI_Scale_GlobalMenu	1.0	Graphics scale factor for the top bar and its menus (0.2-10.0)
System_GUI_Scale_Lists	1.0	Graphics scale factor for the plugin lists (0.2-10.0)
System_GUI_Scale_Screen	1.0	Graphics scale factor for the screen drawings (0.2-10.0)

Setting	Value	Description
System_GUI_Scale_Tracks	1.0	Graphics scale factor for track related items (0.2-10.0)
System_GUI_Scale_Windows	1.0	Graphics scale factor for the plugin windows (0.2-10.0)
System_TagColor	0	The colors used for the plugin's tag items:

0   EuroScope default
1   TopSky plugin [A]   (124,1,124)
2   TopSky plugin [B]   (110,153,110)
R,G,B   TopSky plugin custom   (entered RGB value)
(the color value in parentheses is the "Concerned" color to use, the other colors are taken from EuroScope settings)

Setting	Value	Description
System_UseReportedGS	1	Use reported(1)/calculated(0) ground speed
System_GS_Samples	5	Number of positions used for calculated ground speed (1-19)
System_GS_DeleteMinMax	0	Disregard highest and lowest from above(1)/Use all values(0)
System_Unblock_GS	5	Groundspeed to unblock a manually blocked stand (1-999)
System_AutoAssignDist	100	Default distance from destination [nm] to auto-assign a stand (0-999) Setting the value to zero disables the automatic assignment. Airport-specific distances can be set using the format "ICAO,distance" - each airport in its own settings line - the default value will be used for airports without a specific value
System_RwyArea	45.0	Default "on runway" distance from centerline in meters (0.1-999.9)
System_RwyArea_LVP	45.0	Default "on runway" distance from centerline in meters in LVP (0.1-999.9)
System_RwyBufferArea	90.0	Default "on runway" buffer area from centerline in meters (0.1-999.9)
System_RwyBufferArea_LVP	90.0	Default "on runway" buffer area from centerline in meters in LVP (0.1-999.9)
System_SchengenArea	BI,EB,ED,EE,EF,EH, EK,EL,EN,EP,ES,ET, EV,EY,GC,LE,LF,LG, LH,LI,LJ,LK,LM,LO, LP,LS,LZ	Comma-separated list of Schengen area ICAO codes
System_SchengenArea_Exclude	ENAS,ENSA,ENSB	Comma-separated list of ICAO codes to exclude from the above list
System_State_OnFreq	ON FREQ	Text for "ON FREQ" ground state (plugin specific state)
System_State_DeIce	DEICE	Text for "DEICE" ground state (plugin specific state)
System_State_StartUp	START UP	Text for "START UP" ground state (ES default state)
System_State_Push	PUSH	Text for "PUSH" ground state (ES default state)
System_State_Taxi_In	TAXI	Text for "TAXI IN" ground state (ES default state)
System_State_Taxi_Out	TAXI	Text for "TAXI OUT" ground state (ES default state)
System_State_LineUp	LINE UP	Text for "LINE UP" ground state (plugin specific state)
System_State_Depa	TAKE OFF	Text for "DEPA" ground state (ES default state)
System_State_Parked	PARKED	Text for "PARKED" ground state (ES default state)

3.4.2 Settings that must be airport-specific

Setting name	Default value	Description
List_Inbound		Default state and position of the Time To Threshold Lists
		Format either: "id,state" or "id,state,x-pos,y-pos"
		- id: runway identifier (or "*" for all runways)
		- state: 0 (not displayed)
		1 (displayed)
		2 (automatic)
		- x-pos and y-pos: list top left corner coordinates
List_Outbound		Default state and position of the Dep Timer Lists
		Format either: "id,state" or "id,state,x-pos,y-pos"
		- id: runway identifier (or "*" for all runways)
		- state: 0 (not displayed)
		1 (displayed)
		2 (automatic)
		- x-pos and y-pos: list top left corner coordinates

Setting the state to automatic displays the list when the runway is active. Closing an automatically opened list or manually opening a list from the top menu bar cancels its automatic state.

Setting name	Default value	Description
Window_APW		Default state and position of the Approach Path Windows
		Format either: "id,state" or "id,state,x-pos,y-pos"
		- id: approach name
		- state: 0 (not displayed)
		1 (displayed)
		2/rwyId (automatic)
		- x-pos and y-pos: list top left corner coordinates

Setting the state to automatic displays the window when the specified runway ("rwyId") is active. Closing an automatically opened window or manually opening a window from the top menu bar cancels its automatic state.

Setting name	Default value	Description
Airport_SMR_Raw	1	Primary radar raw video availability: 0(no), 1(ESE), 2(yes)
Airport_SMR_Track	1	Primary radar tracks availability: 0(no), 1(ESE), 2(yes)
Airport_ModeA	1	Mode A SSR tracks availability: 0(no), 1(ESE), 2(yes)
Airport_ModeS	2	Mode S SSR tracks availability: 0(no), 1(ESE), 2(yes)

These settings define what data will be shown at this airport when using the 'Pro mode' of the plugin. Setting "0" will not display that data, "1" will use the radar station definitions in the ESE file and the EuroScope setting that decides if the radar coverage simulation is used (and for the SSR options, also the transponder mode), "2" will display the data regardless of EuroScope and ESE file radar station settings.

Setting name	Default value	Description
Airport_Elevation	0	Airport elevation in feet (-1000-30000)
Airport_Radius	0	Radius of the airport area from the reference point in nm (0.1-100.0)
Airport_Refpoint	from sct file	Airport reference point latitude and longitude separated by ":"
		Can be entered either as decimal degrees or in the sector file format.

The airport elevation and radius can be defined also in the ASR file, but if defined, the values in the settings file override them. The reference point can be overridden here to optimize the airport area when the reference point is not near the geographical center of the airport area, but this is normally not necessary as the airport area is only used for filtering primary radar raw video and Approach Window traffic.

Airport_Dep_Transfer_Height	99999	Height AAL in feet (50-99999) to give the "Transfer?" info
Airport_Dep_Transfer_Dist	999.9	Distance in nm from ref point (0.1-999.9) to give the "Transfer?" info
Airport_Runway_End	from sct file	Runway end coordinates if different from sct file data. Runway ID, lat and lon, all separated by ":" Coordinate formats are decimal degrees or the sector file format. This means the end of the runway where the runway <u>starts</u>.
Airport_Runway_Thr	from sct file	Runway threshold coordinates if different from sct file data. Format as above.

The runway ends and thresholds can be defined here if the values from the sector file need to be adjusted. One case would be a runway with a displaced threshold: To give correct RIM alerts, the plugin must know the locations of both the physical ends of the runway as well as the thresholds. The default values for both the thresholds and runway ends are the coordinates from the sector file, so depending on which ones are defined in the sector file, the other ones must be specified here.

Airport_Runway_Approach	from sct file	Approach path to the runway if different from straight-in Runway ID, lat, lon, course and delta distance, separated by ":"

By default, the code for the Inbound Lists as well as the safety nets determines aircraft on approach to a runway assuming the approach is flown on the runway extended centerline. If this is not the case, the approach can be defined here. The lat and lon (decimal degrees or sector file format) define the "end point" of the approach, course the approach course (degrees true), and delta distance the distance (nm) that the code adds to the aircraft's distance from the "end point" for display in the Inbound List. This setting must be located after the "Airport_Runway_Thr" setting for the same runway if it exists.

Airport_Runway_FinalLength	4.0	Distance in nm from threshold to consider flight on final Runway ID and distance, separated by ":"
Airport_Runway_FinalXTE	0.3:0.3	Cross-track distance in nm to consider flight on final Runway ID, cross-track error left, cross-track error right, all separated by ":"
Airport_Runway_LongFinalLength	30.0	Distance in nm from threshold to consider flight on final Runway ID and distance, separated by ":"
Airport_Runway_LongFinalXTE	0.6:0.6	Cross-track distance in nm to consider flight on final to assigned runway Runway ID, cross-track error left, cross-track error right, all separated by ":"

The first two values are used to determine if an aircraft is on final to a runway regardless of whether it is the assigned runway or not. For closely separated runways, it may be necessary to reduce the XTE value to avoid overlap (the aircraft will be considered to be on final to the first runway meeting the conditions). The third and fourth values are used to determine if the aircraft is on final to the assigned runway if it has not been determined to be on final to any runway using the criteria set by the first two settings.

Airport_Runway_Area	from sct file	Runway area polygon Runway ID and list of polygon vertex coordinates, all separated by ":" or

		Runway ID and width of area from centerline in meters, separated by ":"
Airport_Runway_Area_LVP	from sct file	Runway area polygon in LVP
Airport_Runway_Buffer	from sct file	Runway buffer area polygon
		Runway ID and list of polygon vertex coordinates, all separated by ":"
		or
		Runway ID and width of buffer from centerline in meters, separated by ":"
Airport_Runway_Buffer_LVP	from sct file	Runway buffer area polygon

The runway areas and buffers are normally constructed automatically from sector file data using default values (System_RwyArea(_LVP) and System_RwyBufferArea(_LVP)), but if that does not provide satisfactory results, the area widths can be defined per runway, or the entire areas can be defined as polygons. The runway id specified may be for either end, the area or buffer is constructed for the whole runway.

Airport_Runway_MaxCode	F	Maximum aerodrome reference code letter for the runway
		Runway ID and code letter (A-F), separated by ":"
Airport_Runway_MaxWeight	999999.9	Maximum weight for the runway
		Runway ID and weight in kg (0.1-999999.9), separated by ":"
Airport_Runway_MaxWingspan	999.9	Maximum wingspan for the runway
		Runway ID and wingspan in meters (0.1-999.9), separated by ":"
Airport_Runway_MaxWTC	J	Maximum wake turbulence category for the runway
		Runway ID and WTC (L, M, H or J), separated by ":"
Airport_Runway_NotATYP		Prohibited aircraft types for the runway
		Runway ID followed by ":" and a comma-separated list of types
Airport_Runway_NotEngineTypes		Prohibited engine types for the runway
		Runway ID followed by ":" and a list of types (can contain P, T, J and E)

The above settings limit the runway area as well as departures and arrivals to both ends, regardless of which end's runway ID is specified. To limit just approaches or departures to a specific runway end, the following settings can be used instead (formats and accepted values as above):

Airport_Runway_MaxCode_Arr
Airport_Runway_MaxCode_Dep
Airport_Runway_MaxWeight_Arr
Airport_Runway_MaxWeight_Dep
Airport_Runway_MaxWingspan_Arr
Airport_Runway_MaxWingspan_Dep
Airport_Runway_MaxWTC_Arr
Airport_Runway_MaxWTC_Dep
Airport_Runway_NotATYP_Arr
Airport_Runway_NotATYP_Dep
Airport_Runway_NotEngineTypes_Arr
Airport_Runway_NotEngineTypes_Dep

Airport_Runway_Closed_Arr	Specified runway ID is closed for all arrivals
	to close more than one runway, use one of these settings for each runway ID
Airport_Runway_Closed_Dep	Specified runway ID is closed for all departures

3.4.3 Settings that can be either system-wide or airport-specific

Setting name	Default value	Description
AppPath		See separate section Approach path definitions for details
System_GroundMode_AltFilter_AAL	5000	Hide tracks above this height in feet above airport elevation (100-99900)
System_TowerMode_AltFilter_Low	-1000	Hide labels for tracks below this altitude in feet (-1000-99900)
System_TowerMode_AltFilter_High	99900	Hide labels for tracks above this altitude in feet (-1000-99900)
System_GlobalMenu_Pin	1	Pin(1)/unpin(0) Global Menu
System_GlobalMenu_QNH	1	Show(1)/hide(0) QNH item in Global Menu
System_GlobalMenu_Date	1	Show(1)/hide(0) date item Global Menu
System_APM	1	Area Penetration Monitoring on(1)/off(0)
System_CVM	1	Clearance Violation Monitoring on(1)/off(0)
System_ECM	1	Emergency Code Monitoring on(1)/off(0)
System_OSM	1	Occupied Stand Monitoring on(1)/off(0)
System_RIM	1	Runway Incursion Monitoring on(1)/off(0)
System_RVM	1	Restriction Violation Monitoring on(1)/off(0)
System_SRM	1	SID/Runway Monitoring on(1)/off(0)
System_RMCA_RWY_Closure	50	Closure speed to trigger the alert in knots (0-1000)
System_RMCA_RWY_Closure_Info	20	Closure speed to trigger the info in knots (0-1000)
System_RMCA_RWY_Closure_LVP	40	Closure speed to trigger the alert in LVP in knots (0-1000)
System_RMCA_RWY_Closure_LVP_Info	20	Closure speed to trigger the info in LVP in knots (0-1000)
System_RMCA_APP_Distance	0.7	Distance to threshold to trigger the alert in nm (0.0-100.0)
System_RMCA_APP_Distance_Info	1.2	Distance to threshold to trigger the info in nm (0.0-100.0)
System_RMCA_APP_Distance_LVP	1.2	Distance to threshold to trigger the alert in LVP in nm (0.0-100.0)
System_RMCA_APP_Distance_LVP_Info	1.7	Distance to threshold to trigger the info in LVP in nm (0.0-100.0)
System_RMCA_APP_Time	20	Time to threshold to trigger the alert in sec (0-999)
System_RMCA_APP_Time_Info	35	Time to threshold to trigger the info in sec (0-999)
System_RMCA_APP_Time_LVP	35	Time to threshold to trigger the alert in LVP in sec (0-999)
System_RMCA_APP_Time_LVP_Info	50	Time to threshold to trigger the info in LVP in sec (0-999)
System_RMCA_rwy_div	5	Divergence rate from runway centerline to inhibit RIM in knots (0-1000)
System_RMCA_rwy_div_LVP	10	Divergence rate from runway centerline to inhibit RIM in LVP in knots (0-1000)
System_RMCA_X_extension	2.0	Runway extensions considered for crossing runway checks in nm (0.0-100.0)
System_RMCA_NoLineUpState	0	Line Up state in use(0)/not in use(1) for RIM alerts
System_CMAC_HighSpeed	55	Speed to trigger the alert in knots (0-1000)
System_CMAC_HighSpeed_Info	40	Speed to trigger the info in knots (0-1000)
System_CMAC_NoTakeOffClr_Speed	20	Speed to trigger the alert in knots (0-1000)
System_CMAC_NoTaxiClr_Speed_Info	10	Speed to trigger the info in knots (0-1000)
System_CMAC_NoContact_Distance_Info	4.0	Distance to threshold to trigger the info in nm (0.0-100.0)
System_CMAC_NoContact_Time_Info	120	Time to threshold to trigger the info in sec (0-999)
Color_APP_Background	0,0,0	R,G,B value of the APP window background color
Color_APP_Runway	160,160,160	R,G,B value of the APP window runway color
Color_APP_RunwayExtension	80,80,80	R,G,B value of the APP window runway extension color
Color_AppPath_Background	90,90,90	R,G,B value of the AppPath Window background color
Color_AppPath_Grid	105,105,105	R,G,B value of the AppPath Window distance lines
Color_AppPath_Grid5	130,105,80	R,G,B value of the AppPath Window distance lines (every 5th)
Color_AppPath_Path	140,140,140	R,G,B value of the AppPath Window approach vertical path
Color_AppPath_Fill_H	140,125,110	R,G,B value of the AppPath Window horizontal path fill area
Color_AppPath_Fill_V	100,115,130	R,G,B value of the AppPath Window vertical path fill area
Color_AppPath_Track	0,0,130	R,G,B value of the AppPath Window horizontal part track/history
Color_Arrival	255,255,64	R,G,B value of the arrival flight color

Color_Caution	224,224,0	R,G,B value of the caution color
Color_CautionText	0,0,0	R,G,B value of the caution text color
Color_Departure	64,255,255	R,G,B value of the departure flight color
Color_New_Stand	255,127,0	R,G,B value of the changed stand assignment color
Color_RawVideo	224,224,0	R,G,B value of the raw video data (latest positions)
Color_RawVideoHistory	224,224,0	R,G,B value of the raw video data (older positions)
Color_Selected	255,255,255	R,G,B value of color for mouse-over flights
Color_SelectedLabelBorder_App	0,0,0	R,G,B value of edge color for mouse-over APP window label
Color_SelectedLabelBorder_APW	0,0,0	R,G,B value of edge color for mouse-over AppPath window label
Color_SelectedLabelBorder_Gnd	0,0,0	R,G,B value of edge color for mouse-over ground mode label
Color_SelectedLabelBorder_Twr	0,0,0	R,G,B value of edge color for mouse-over tower mode label
Color_SelectedLabelFill_App	255,255,255	R,G,B value of fill color for mouse-over APP window label
Color_SelectedLabelFill_APW	255,255,255	R,G,B value of fill color for mouse-over AppPath window label
Color_SelectedLabelFill_Gnd	255,255,255	R,G,B value of fill color for mouse-over ground mode label
Color_SelectedLabelFill_Twr	255,255,255	R,G,B value of fill color for mouse-over tower mode label
Color_SelectedFieldFill_App	0,0,0	R,G,B value of fill color for APP window mouse-over label field
Color_SelectedFieldFill_APW	0,0,0	R,G,B value of fill color for AppPath window mouse-over label field
Color_SelectedFieldFill_Gnd	0,0,0	R,G,B value of fill color for ground mode mouse-over label field
Color_SelectedFieldFill_Twr	0,0,0	R,G,B value of fill color for tower mode mouse-over label field
Color_Text_Notes	255,255,255	R,G,B value of the text notes color
Color_TSW2_Background	none	R,G,B value of the TSW2 window background color
Color_Unknown	224,224,224	R,G,B value of the unknown flight color
Color_Warning	224,0,0	R,G,B value of the warning color
Color_WarningText	255,255,255	R,G,B value of the warning text color
Color_WBackground	165,165,165	R,G,B value of the menu bars background color
Color_WBackground2	111,111,111	R,G,B value of the window background color
Color_WBackground3	199,199,199	R,G,B value of the QNH and LVP boxes background color
Color_WBorder	160,160,160	R,G,B value of the window border color
Color_WForeground	0,0,0	R,G,B value of the window texts
Color_WForeground2	96,96,96	R,G,B value of the disabled window titles and APP window scale
Color_WSlider_Bg	143,143,143	R,G,B value of the window scrollbar background color
Color_WTitleBar	143,143,143	R,G,B value of the window title bar color
Color_WTitleText	228,228,228	R,G,B value of the window title bar text color
System_GlobalMenu_Font	EuroScope	Font used for the Global Menu and its submenus
System_GlobalMenu_FontSize	13	Font size for the Global Menu and its submenus (1-99)
System_GlobalMenu_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)
System_Lists_Font	EuroScope	Font used for the plugin lists
System_Lists_FontSize	13	Font size for the plugin lists (1-99)
System_Lists_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)
System_Windows_Font	EuroScope	Font used for the plugin windows
System_Windows_FontSize	13	Font size for the plugin windows (1-99)
System_Windows_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)

Maps_Font	EuroScope	Font used for map texts
Maps_FontSize	11	Font size for map texts (1-99)
Maps_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)
TextNotes_Font	Lucida Sans Unicode	Font used for text notes
TextNotes_FontSize	10	Font size for text notes (1-99)
TextNotes_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)
GroundLabel_Font	Lucida Sans Unicode	Font used for ground mode track labels
GroundLabel_FontSize	13	Font size for ground mode track labels (1-99)
GroundLabel_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)
AppLabel_Font	Lucida Sans Unicode	Font used for APP window track labels
AppLabel_FontSize	13	Font size for APP window track labels (1-99)
AppLabel_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)
ApwLabel_Font	Lucida Sans Unicode	Font used for Approach Path Window track labels
ApwLabel_FontSize	13	Font size for Approach Path Window track labels (1-99)
ApwLabel_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)
TowerLabel_Font	EuroScope	Font used for tower mode track labels
TowerLabel_FontSize	13	Font size for tower mode track labels (1-99)
TowerLabel_FontStyle	0,0,0,0	Font style: weight (0-1000), italic (0/1), underline (0/1), strikeout (0/1)
Label		See separate section Track label definitions for details
Label_AFL	0,0,1,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_AFL+VS	0,0,1,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_AHDG	0,0,1,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_ARWY	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_ASSR	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_ATYP	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_CFL	0,0,1,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_DEP	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_DRWY	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_GS	0,0,1,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_REF	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_REG	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_RMK	1,1,1,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_SID	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_STAND	1,1,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_STAR	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_TSSR	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_TYP	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_VS	0,0,1,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_WTC	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels

Label_WTG	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
Label_WTG_EU	0,0,0,0	Show(1)/hide(0) field in [APP window, ground, tower, AppPath] labels
AppLabel_UseSelColor	0	Use(1)/Don't use(0) fixed color for mouse-over flights
AppLabel_Transparency_Bd	0	Transparency value, 0(fully transparent) to 255(fully opaque) for edge around mouse-over label
AppLabel_Transparency_Bg	0	Transparency value, 0(fully transparent) to 255(fully opaque) for mouse-over label background
AppLabel_Field_Transparency_Bg	0	Transparency value, 0(fully transparent) to 255(fully opaque) for mouse-over label field background
ApwLabel_UseSelColor	0	Use(1)/Don't use(0) fixed color for mouse-over flights
ApwLabel_Transparency_Bd	0	Transparency value, 0(fully transparent) to 255(fully opaque) for edge around mouse-over label
ApwLabel_Transparency_Bg	0	Transparency value, 0(fully transparent) to 255(fully opaque) for mouse-over label background
ApwLabel_Field_Transparency_Bg	0	Transparency value, 0(fully transparent) to 255(fully opaque) for mouse-over label field background
GroundLabel	1	Show(1)/hide(0) the label, track symbol, history and heading line in ground mode
GroundLabel_UseSelColor	0	Use(1)/Don't use(0) fixed color for mouse-over flights
GroundLabel_Transparency_Bd	0	Transparency value, 0(fully transparent) to 255(fully opaque) for edge around mouse-over label
GroundLabel_Transparency_Bg	0	Transparency value, 0(fully transparent) to 255(fully opaque) for mouse-over label background
GroundLabel_Field_Transparency_Bg	0	Transparency value, 0(fully transparent) to 255(fully opaque) for mouse-over label field background
GroundLabel_Filter_Stby	0	Hide(1)/Show(0) labels for tracks with transponder in standby
GroundLabel_Filter_NoState	0	Hide(1)/Show(0) labels for departures with no ground state set
GroundLabel_Filter_OnFreq	0	Hide(1)/Show(0) labels for tracks with ground state ON FREQ
GroundLabel_Filter_Parked	0	Hide(1)/Show(0) labels for tracks with ground state PARKED
TowerLabel_UseSelColor	0	Use(1)/Don't use(0) fixed color for mouse-over flights
TowerLabel_Transparency_Bd	0	Transparency value, 0(fully transparent) to 255(fully opaque) for edge around mouse-over label
TowerLabel_Transparency_Bg	0	Transparency value, 0(fully transparent) to 255(fully opaque) for mouse-over label background
TowerLabel_Field_Transparency_Bg	0	Transparency value, 0(fully transparent) to 255(fully opaque) for mouse-over label field background
Track_PredictionLine_APP	0	APP window prediction line length in minutes (0-99)
Track_PredictionLine_TWR	0	Tower mode prediction line length in minutes (0-99)
Track_HistoryDots_APP	5	Number of history dots in APP window (0-19)
Track_HistoryDots_APW	5	Number of history dots in Approach Path Window (0-19)
Track_HistoryDots_GND	5	Number of history dots in ground mode (0-19)
Track_HistoryDots_TWR	5	Number of history dots in tower mode (0-19)
Track_HistoryDots_TWR_Type	0	History dot a small "+"(0) or a 2x2 pixels box(1)
Track_Heading_Line	0	Show(1)/hide(0) the heading line in ground mode
List_Alerts	0,100,100	Default state and position of the Alerts List
		Format either: "state" or "state,x-pos,y-pos"
		- state: 0(not displayed) or 1(displayed)
		- x-pos and y-pos: list top left corner coordinates
List_Alerts_Items	10	Number of flights to display in Alerts list (5-999)
List_Arrival	0,100,100	Default state and position of the Arrival List
		(see List_Alerts above for format)
List_Arrival_RWY	0	Show(1)/hide(0) RWY in Arrival list

List_Arrival_TYPE	0	Show(1)/hide(0) TYPE in Arrival list
List_Arrival_WTC	0	Show(1)/hide(0) WTC in Arrival list
List_Arrival_ADEP	0	Show(1)/hide(0) ADEP in Arrival list
List_Arrival_ETA	1	Show(1)/hide(0) ETA in Arrival list
List_Arrival_STAND	1	Show(1)/hide(0) STAND in Arrival list
List_Arrival_Items	10	Number of flights to display in Arrival list (5-999)
List_Arrival_MaxTime	60	Display flights in Arrival list this time (min) before arrival (0-999)
List_Arrival_WTC_Type	0	Type of WTC to display: WTC(0), RECAT-EU(1), ICAO WTG(2)
List_Departure	0,100,100	Default state and position of the Departure List
		(see List_Alerts above for format)
List_Departure_RWY	0	Show(1)/hide(0) RWY in Departure list
List_Departure_SID	0	Show(1)/hide(0) SID in Departure list
List_Departure_TYPE	0	Show(1)/hide(0) TYPE in Departure list
List_Departure_WTC	0	Show(1)/hide(0) WTC in Departure list
List_Departure_ADES	0	Show(1)/hide(0) ADES in Departure list
List_Departure_EOBT	1	Show(1)/hide(0) EOBT in Departure list
List_Departure_STAND	1	Show(1)/hide(0) STAND in Departure list
List_Departure_Items	10	Number of flights to display in Departure list (5-999)
List_Departure_WTC_Type	0	Type of WTC to display: WTC(0), RECAT-EU(1), ICAO WTG(2)
List_Departure_SID_MaxChars	7	Maximum characters to display for the SID field
List_Inbound_DTT	0	Show(1)/hide(0) DTT in Time To Threshold lists
List_Inbound_TYPE	0	Show(1)/hide(0) TYPE in Time To Threshold lists
List_Inbound_WTC	0	Show(1)/hide(0) WTC in Time To Threshold lists
List_Inbound_ETA	0	Show(1)/hide(0) ETA in Time To Threshold lists
List_Inbound_STAND	1	Show(1)/hide(0) STAND in Time To Threshold lists
List_Inbound_WTC_Type	0	Type of WTC to display: WTC(0), RECAT-EU(1), ICAO WTG(2)
List_Outbound_TYPE	0	Show(1)/hide(0) TYPE in Dep Timer lists
List_Outbound_WTC	0	Show(1)/hide(0) WTC in Dep Timer lists
List_Outbound_SID	0	Show(1)/hide(0) SID in Dep Timer lists
List_Outbound_ADES	0	Show(1)/hide(0) ADES in Dep Timer lists
List_Outbound_ExpiryTime	600	Automatically remove flights after this time (1-5940sec)
List_Outbound_WTC_Type	0	Type of WTC to display: WTC(0), RECAT-EU(1), ICAO WTG(2)
List_Outbound_SID_MaxChars	7	Maximum characters to display for the SID field
List_Stand	0,100,100	Default state and position of the Stands List
		(see List_Alerts above for format)
List_Stand_Items	10	Number of stands to display in Stands list (5-999)
Window_2nd	0,100,100,100,100	Default state and position of the 2nd Traffic Situation Window
		"state" or "state,x-pos,y-pos" or "state,x-pos,y-pos,width,height"
		- state: 0(not displayed) or 1(displayed)
		- x-pos and y-pos: window top left corner coordinates
		- width and height: window width and height
Window_2nd_Scale	10.0	2nd Traffic Situation Window scale in pixels/nm (1.0-100000.0)

Window_2nd_Rotation	Auto	2nd Traffic Situation Window view rotation in degrees
		(-360.0 to 360.0 or "Auto" to match main display rotation value)
Window_APP	0,100,100,100,100	Default state and position of the APP Window
		"state" or "state,x-pos,y-pos" or "state,x-pos,y-pos,width,height"
		- state: 0(not displayed) or 1(displayed)
		- x-pos and y-pos: window top left corner coordinates
		- width and height: window width and height
Window_APP_Scale	10.0	APP window scale in pixels/nm (1.0-100.0)
Window_APP_Extensions	0	APP window runway extensions length in nm (0-999)
Window_APP_Extensions_TickWidth	0.2	APP window runway extensions tick width in nm (0.0-99.0)
Window_APP_Rotation	0.0	APP window view rotation in degrees
		(-360.0 to 360.0 or "Auto" to match main display rotation value)
Window_APP_AltFilter	99900	APP window altitude filter in feet (0 to 99900)
Window_APW_MaxDist	8	Approach Path Window displayed distance (1-99nm)
Window_RwyConf	0,100,100	Default state and position of the Runway Configuration Window
		"state" or "state,x-pos,y-pos"
		- state: 0(not displayed) or 1(displayed)
		- x-pos and y-pos: window top left corner coordinates
Window_RVR	0,100,100	Default state and position of the RVR Window
		"state" or "state,x-pos,y-pos"
		- state: 0(not displayed) or 1(displayed)
		- x-pos and y-pos: window top left corner coordinates
RawVideo	1	Show(1)/hide(0) raw video data
RawVideo_Gradient	0	(1) Fade all raw video from *Color_RawVideo* to
		Color_RawVideoHistory based on plot age
		(0) Use *Color_Rawvideo* for latest plot and
		Color_RawVideoHistory for all history plots
RawVideo_Brightness	100	Raw video data brightness (0-100)
RawVideo_Afterglow	30	Raw video data afterglow (0-100)
RawVideo_MaxHistory	10	Raw video data maximum history positions displayed (0-10)

3.4.4 Approach path definitions

The approaches for the Approach Path Windows are defined using "AppPath" settings lines. The lines may be anywhere within the file. The approach is defined as a straight line with a constant vertical angle leading to a defined point in space. If the cross-track error limits are not defined, a default value of 1 nm on either side will be used.

Approach definition

AppPath=Icao:Name:EndLat:EndLon:InbdCrsT:Direction:EndAlt:VertAngle

AppPath=Icao:Name:EndLat:EndLon:InbdCrsT:Direction:EndAlt:VertAngle:XTElimitL:XTElimitR

- Icao   Airport ICAO code
- Name   Approach name to display in list and window title
- EndLat   Approach end point latitude (decimal degrees or sector file format)
- EndLon   Approach end point longitude (decimal degrees or sector file format)
- InbdCrsT   Approach inbound course in degrees true (0.0-360.0)
- Direction   Display direction of approach in the window ("L" or "R")
- EndAlt   Approach end point altitude in feet AMSL (-999 to 99999)
- VertAngle   Approach vertical angle in degrees (0.1-89.9)
- XTElimitL   Filter out tracks more than this distance left of approach course (0.1-99.9nm)
- XTElimitR   Filter out tracks more than this distance right of approach course (0.1-99.9nm)

3.4.5 Track label definitions

Using the "Label" setting it is possible to customize the track labels for the ground and tower modes, as well as the APP window. For example, the default ground mode track label for an arrival track would be defined as follows:

```
Label=GND:ARR:0:ALRT,0,0:ASSR_E,0,1:COMM,0,1
Label=GND:ARR:1:CALLSIGN,0,0:STAND,0,1
Label=GND:ARR:2:ATYP,0,0:WTC,0,1:RMK,0,1
Label=GND:ARR:3:
```

Label setting syntax

Label=Mode:Type:Line:Field₁:Field₂:…

- Mode
  Label mode: "APP", "APW", "GND", "TWR" or "ALL"
  (APP window, App Path Window, ground mode, tower mode or all of them)
- Type
  Track type: "ARR", "DEP", "OTH", "UNC" or "ALL"
  (arrival, departure, other/unknown, uncorrelated or all of them)
- Line
  Label line number: "0", "1", "2" or "3"
  (line 1 is the main line to which the leader line connects to)
- Field$_x$
  Label field to display, see below for details
  (to leave a line empty, do not define any fields as in the example's line 3)

Field item syntax

Name,MinPos,SpacesBefore
Name,MinPos,SpacesBefore,ExtraData

- Name
  Field name
- MinPos
  Minimum position (number of characters) from left edge of label
- SpacesBefore
  If not the first displayed item in the line, needs at least this many whitespace characters between this and the previous item
- ExtraData
  Field-specific settings (numeric value, defaults to 0 if not entered)

Available field types

Name	Description	ExtraData
ADEP	Departure aerodrome ICAO code	
ADES	Destination aerodrome ICAO code	

Name	Description	ExtraData
AFL	Actual flight level (hundreds of feet)	Group 1 (number format): - "0" (default) is same as "3" - "2" shows altitudes with minimum 2 digits - "3" shows altitudes with minimum 3 digits - "4" shows altitudes with minimum 3 digits and makes the field 4 characters wide, right-aligned Group 2 (prefix): - "0" (default) prefix altitudes with "A" - "10" prefix altitudes with "A", FLs with "F" - "20" prefix only flight levels with "F" - "30" no prefix 0-1 numbers from each group can be used by adding them together (for example "13" is OK and sets "3" and "10", "33" is not OK as it would use both "10" and "20")
AFL+VS	AFL and VS fields combined	Group 1 (number format): - same as AFL field Group 2 (VS format): - "0" (default) is same as "20" - "10" displays "v" for descent, "^" for climb - "20" displays arrows (must use ES font) Group 3 (prefix): - "0" (default) prefix altitudes with "A" - "100" prefix altitudes with "A", FLs with "F" - "200" prefix only flight levels with "F" - "300" no prefix
AHDG	Assigned heading	- "0" (default) does not show DCT point - "1" shows DCT point if no AHDG value is set
ALRT	Alert indicator (displays various alerts and infos)	
ARWY	Arrival runway (automatically displayed with Warning background if not an active arrival runway)	- "0" (default) no additional behavior - "1" also automatically displayed when there is more than one active arrival runway
ASSR	Assigned SSR code	- "0" (default) no additional behavior - "1" prefixes the code with "A"
ASSR_E	SSR code error indicator (displays ASSR code in Warning color if different from transponded code)	- "0" (default) no additional behavior - "1" prefixes the code with "A"
ATYP	Aircraft type (ICAO)	
CALLSIGN	Callsign - TSSR code for uncorrelated secondary tracks - "----" for uncorrelated primary tracks	

Name	Description	ExtraData
CFL	Cleared flight level - "CA" for cleared for approach, - "VA" for cleared for visual app	Group 1 (number format): - same as AFL field Group 2 (auto-hide when within 300ft of AFL): - "0" (default) hides field - "10" does not hide field Group 3 (prefix): - same as AFL+VS field
COMM	Communication type indicator - "r" for voice receive only - "t" for text only (displayed in Warning color)	- "0" (default) no additional behavior - "1" prefixes the indicator letter with "/"
DEP	Departure (displays AHDG if set, SID if not)	
DRWY	Departure runway (if SRM is selected on, automatically displayed with Warning background if not an active departure runway)	- "0" (default) no additional behavior - "1" automatically displayed when there is more than one active departure runway
FLTID	Mode S downlinked callsign	
FLTID_E	Mode S correlation error (if mode S downlinked callsign is different from correlated flightplan callsign, displays in Warning color: - on unselected label: "S" - on selected label: mode S downlinked callsign	
GS	Ground speed (knots)	- "0" (default) displays exact value - "1" displays value divided by 10 - "2" displays value rounded to nearest 10
REF	Aerodrome reference code letter ("A"-"F", based on wingspan only)	
REG	Aircraft registration code (searched for in the FPL remarks)	
RMK	Remarks (scratchpad text)	
SID	SID designator	
STAND	Assigned arrival stand name (in New Stand color if assignment has been changed and not acknowledged)	
STAR	STAR designator	
TSSR	Transponded SSR code (meant to be used in correlated labels)	
TYP	Aircraft type (IATA) (may not be the correct one in cases where more than one choice exists for a given aircraft ICAO code)	
VS	Vertical speed indicator	- "0" (default) is same as "2" - "1" displays "v" for descent, "^" for climb - "2" displays arrows (must use ES font then) (blank space displayed for level flight or unknown)

Name	Description	ExtraData
WTC	Wake turbulence category	- "0" (default) displays only the WTC letter - "1" prefixes the WTC letter with "/"
WTG	Wake turbulence group (ICAO)	- "0" (default) displays only the WTG letter - "1" prefixes the WTG letter with "/"
WTG_EU	Wake turbulence group (RECAT-EU)	- "0" (default) displays only the WTG letter - "1" prefixes the WTG letter with "/"

Field mouse functions

Name	Left-click	Right-click
AHDG	Open assigned heading popup list	
ARWY	Open RWY setup popup list	
CALLSIGN	Open Callsign menu	
CFL	Open temporary altitude popup list	
DEP	Open SID setup popup list	Open assigned heading popup list
RMK	Edit scratch pad string	
SID	Open SID setup popup list	
STAND	New assignment: Acknowledge it Otherwise: Open Stand assignment menu	
STAR	Open STAR setup popup list	

3.5 GRpluginStands.txt

The file contains the stand definitions to be used when assigning arrival stands via the plugin. The following example shows the syntax (optional lines in grey color):

// stand 221	Comment
STAND:EFHK:221:N060.18.39.640:E024.58.42.050:20	Stand
BLOCKS:222	Blocks
WTC:LM	WTC
PRIORITY:-1	Priority
USE:C	Use

The plugin's stand assignment system checks the flightplan, finds out which code stands are available for that flightplan, checks for stands already in use, and then assigns one of the available stands.

The example stand definition above defines a stand "221" at EFHK, at the given coordinates and with a 20m radius. Whenever it's assigned or occupied, it blocks stand "222". It's restricted to cargo flights with wake turbulence categories light or medium. It's also classified as a lesser priority stand, to be used only when higher priority stands are not available for assignment.

If automatic stand assignment fails to find a suitable stand, the plugin tries again with some restrictions removed (first the CALLSIGN, then also the NOTCALLSIGN, USE*, ADEP, NOTADEP, SCHENGEN, NONSCHENGEN, VIA, NOTVIA, REMARKS and NOTREMARKS restrictions are lifted).

*) USE restriction is not lifted if the stand is for helicopter use only ("H" and/or "I" only)

Group

GROUP:GroupName:Item$_1$:Item$_2$:Item$_3$:…

The *group* line can be used as a shortcut to writing a large number of text entries. It can be used in line types where lists of text strings are used. To use a group in a line, enter "GROUP_<groupname>" like any other text string. It will be automatically expanded to the list of text strings in the group definition.

- GroupName   Group name
- Item$_x$ Text string

Note: the item separator to be used here is the colon (:), regardless of what's used in the target line type.

Standlist

STANDLIST:Icao:CallsignList:Points:StandList

The *standlist* line can be used together with or as an alternative to the *callsign* and *notcallsign* lines to assign stands based on callsign data. The plugin attempts to assign one of the specified stands for matching callsigns if possible (priority numbers and any stand-specific restrictions except *callsign* lines are taken into account). More than one *standlist* line can be used and the relative priorities of the lines can be adjusted as needed to make certain stands more likely to be assigned than others. For example, with two *standlist* lines, to make the first set 10 times more likely to be chosen, the points of the lines can be set to 10 and 1 (100 and 10 will achieve the same result, it's the ratio of the numbers that matters). To have a set of stands

to be assigned only when none of the stands in these two lines are available, define one or more *standlist* lines with points set to 0 (zero chance of being assigned compared to the higher points lines)

- Icao   Airport ICAO code
- CallsignList   Comma-separated list of callsign beginnings
- Points   Priority points for the stands in this line (0-10000)
- StandList   Comma-separated list of stands

Stand

STAND:AirportCode:StandName:Lat:Lon:Radius
STAND:AirportCode:StandName

This line is the only mandatory line for a stand definition and must always be the first line in a definition. The latitude, longitude and radius define a circle which is used to check if the stand is occupied. In the second version, the stand area is defined using *coord* lines.

- AirportCode   Airport ICAO code
- StandName   Designator for the stand
- Lat   Latitude of the stand area (decimal degrees or sector file format)
- Lon   Longitude of the stand area (decimal degrees or sector file format)
- Radius   Radius of the stand area (meters, decimal value)

Coord

COORD:Lat:Lon

The *coord* line is used to define a polygon vertex when defining a stand area as a polygon.

- Lat   Vertex latitude (decimal degrees or sector file format)
- Lon   Vertex longitude (decimal degrees or sector file format)

Heading

HEADING:HdgT
HEADING:HdgT:Tolerance

An optional heading value for the stand. If specified, the stand is considered occupied only when the aircraft heading in the stand area is within the given tolerance from the specified heading. If the tolerance value is not specified, it defaults to 20 degrees. This can be used to mark the correct stand as occupied when two or more stands overlap but are differently orientated.

- HdgT   Heading in degrees true (0.0 to 360.0)
- Tolerance   Allowed error in the heading in degrees (0.0 to 180.0)

Manual

MANUAL

Excludes this stand from automatic assignment.

AREA

Defines the stand as an area capable of parking (and being assigned to) multiple aircraft at the same time. These stands can be blocked but not manually assigned using the Stand Window.

Copy

COPY

Ends the current stand definition and immediately starts a new one as a copy of it. Can be used for example to create a lesser priority copy for another use. Note that the following definitions are not carried over and need to be stated again if relevant: *ADEP/NotADEP, Callsign/NotCallsign, Remarks/NotRemarks, Via/NotVia* and *Schengen/Non-Schengen*. If necessary, the other definitions can be adjusted by stating them again.

Blocks

BLOCKS:StandList
BLOCKS:StandList:WingspanOrCode
BLOCKS:StandList:WingspanOrCode:Length

Blocks the specified stands from assignment when this stand is assigned or occupied. The first type blocks the specified stand(s) regardless of the dimensions of the aircraft on this stand, the second one only when the wingspan on this stand exceeds the given value, and the third only when either the wingspan or the length on this stand exceeds the given values. The wingspan value can be set also based on the aerodrome reference code letter.

- StandList   Comma-separated list of stands to be blocked
- WingspanOrCode   Wingspan in meters (0.0-999.9) or code letter (A-F)
- Length   Length in meters (0.0-999.9)

Limits

LIMITS:StandList:WingspanOrCode:LimitedWOC
LIMITS:StandList:WingspanOrCode:LimitedWOC:Length:LimitedLength

Limits the maximum aircraft dimensions of other stands when this stand is assigned or occupied. The first type sets a wingspan limit to the specified stand(s) when the wingspan on this stand exceeds the WingspanOrCode value, the second sets both wingspan <u>and</u> length limits when either the wingspan <u>or</u> the length on this stand exceed the WingspanOrCode and Length values. The wingspan values can be set also based on the aerodrome reference code letter.

- StandList   Comma-separated list of stands to be limited
- WingspanOrCode   Wingspan in meters (0.0-999.9) or code letter (A-F)
- LimitedWOC   Limited wingspan value (0.1-999.9) or code letter (A-F) on the specified stand(s)
- Length   Length in meters (0.0-999.9)
- LimitedLength   Limited length (0.1-999) on the specified stand(s)

Priority

PRIORITY:PriorityNumber

Assigns a priority group number to the stand. When assigning stands, available ones are checked according to priority groups, with the higher priority stands first. Stands in lower priority groups will be assigned only when matching higher priority ones are not available. A neutral (zero) priority is assigned by default.

- PriorityNumber   Priority group number (from -3 to +3)

Use

USE:Users

Limits the stand assignment only to specified categories of aircraft. By default, all categories are allowed.

- Users   Allowed categories (any combination of the following)
  - A   (airliners/commuter aircraft)
  - B   (business/corporate aircraft)
  - C   (cargo aircraft)
  - H   (helicopters)
  - I   (military helicopters)
  - M   (military aircraft)
  - P   (private aircraft)
  - T   (military tanker/transport aircraft)

Note: The categories are checked from the ICAO_Aircraft.json data file. For the cargo category also the flightplan remarks field is checked for "CARGO" and the callsign is compared against the list in the OperatorInfo data file.

Schengen

SCHENGEN

Causes the stand to be assigned only to flights arriving from the Schengen area.

Non-Schengen

NON-SCHENGEN

Causes the stand to be assigned only to flights arriving from outside the Schengen area.

ATYP

ATYP:TypeList

Limits the stand assignment to the specified aircraft types. To allow partial matches, enter "*" after the type string. For example, "A3" will only look for A3, whereas "A3*" will match anything beginning with A3 and having at least one character after it, so A3 will not be a match but A320 will be.

- TypeList   Comma-separated list of aircraft types (complete or partial)

NotATYP

NOTATYP:TypeList

Blocks the stand assignment from the specified aircraft types. Otherwise, the format and limitations are the same as in the *ATYP* line.

- TypeList   Comma-separated list of aircraft types (complete or partial)

WTC

WTC:CategoryList

Limits the stand assignment to the specified wake turbulence categories.

- CategoryList   Allowed category letters (any combination of the following)
  - L   (light)
  - M   (medium)
  - H   (heavy)
  - J   (super)

NotWTC

NOTWTC:CategoryList

Blocks the stand assignment from the specified wake turbulence categories.

- CategoryList   Blocked category letters (see *WTC* line above for available options)

EngineType

ENGINETYPE:TypeList

Limits the stand assignment to the specified engine types.

- TypeList   Allowed type letters (any combination of the following)
  - E   (electric)
  - J   (jet)
  - P   (piston)
  - R   (rocket)
  - T   (turboprop/turboshaft)

NotEngineType

NOTENGINETYPE:TypeList

Blocks the stand assignment from the specified engine types.

- TypeList   Blocked type letters (see *EngineType* line above for available options)

Wingspan

WINGSPAN:MinSpan:MaxSpan
WINGSPAN:MaxSpan

Limits the stand assignment based on aircraft wingspan. The first option sets both the minimum and maximum values while the second only limits the maximum value.

- MinSpan   Minimum allowed wingspan (meters, decimal value)
- MaxSpan   Maximum allowed wingspan (meters, decimal value)

Note: The wingspans are checked from the ICAO_Aircraft.json data file. In case the information for a specific type is not found, a fixed value based on the wake turbulence category and group is used.

Length

LENGTH:MinLength:MaxLength
LENGTH:MaxLength

Limits the stand assignment based on aircraft fuselage length. The first option sets both the minimum and maximum values while the second only limits the maximum value.

- MinLength   Minimum allowed fuselage length (meters, decimal value)
- MaxLength   Maximum allowed fuselage length (meters, decimal value)

Note: The fuselage lengths are checked from the ICAO_Aircraft.json data file. In case the information for a specific type is not found, a value of 0 meters is used.

Height

HEIGHT:MinHeight:MaxHeight
HEIGHT:MaxHeight

Limits the stand assignment based on aircraft height. The first option sets both the minimum and maximum values while the second only limits the maximum value.

- MinHeight   Minimum allowed height (meters, decimal value)
- MaxHeight   Maximum allowed height (meters, decimal value)

Note: The heights are checked from the ICAO_Aircraft.json data file. In case the information for a specific type is not found, a value of 0 meters is used.

MTOW

MTOW:MinMTOW:MaxMTOW
MTOW:MaxMTOW

Limits the stand assignment based on the aircraft's maximum takeoff weight. The first option sets both the minimum and maximum values while the second only limits the maximum value.

- MinMTOW   Minimum allowed MTOW (kilograms, decimal value)
- MaxMTOW   Maximum allowed MTOW (kilograms, decimal value)

Note: The MTOWs are checked from the ICAO_Aircraft.json data file. In case the information for a specific type is not found, a fixed value based on the wake turbulence category and group is used.

Code

CODE:MinCode:MaxCode
CODE:MaxCode

Limits the stand assignment based on element 2 of the aerodrome reference code. The first option sets both the minimum and maximum values while the second only limits the maximum value.

- MinCode   Minimum allowed code letter (A-F)
- MaxCode   Maximum allowed code letter (A-F)

Note: This line type currently enforces only the wingspan limits (i.e. CODE:C has the same effect as WINGSPAN:35.999).

Callsign

CALLSIGN:CallsignList

Causes the stand to be assigned only to matching callsigns. Stands with a *callsign* line are always assigned first even when higher priority stands but without *callsign* lines would be available.

- CallsignList   Comma-separated list of partial or full callsigns
    ("SAS" matches with all callsigns beginning with "SAS")

NotCallsign

NOTCALLSIGN:CallsignList

Causes the stand to be blocked from the matching callsigns.

- CallsignList   Comma-separated list of partial or full callsigns
    ("SAS" matches with all callsigns beginning with "SAS")

ADEP

ADEP:ICAOcodeList

Limits the stand assignment to flights departing from one of the defined airports. The whole ICAO airport code is not needed; the match can also be done on the first one or more letters, e.g. entering "EF" will match all airports with ICAO designators beginning with "EF". The *ADEP* line can contain one or more airport codes and one stand definition can also have more than one *ADEP* line if necessary.

- ICAOcodeList   Comma-separated list of airport ICAO codes (complete or partial)

NotADEP

NOTADEP:ICAOcodeList

Limits the stand assignment to flights <u>not</u> departing from any of the defined airports. Otherwise, the format and limitations are the same as in the *ADEP* line.

- ICAOcodeList   Comma-separated list of airport ICAO codes (complete or partial)

Via

VIA:PointList

Limits the stand assignment to flights routing via at least one of the defined points. The point can be anywhere along the flightplan. One or more points can be defined in one *via* line and one stand definition can contain more than one *via* line if necessary.

- PointList   Comma-separated list of point names (Fix, VOR, NDB or airport)

NotVia

NOTVIA:PointList

Limits the stand assignment to flights <u>not</u> routing via any of the defined points. Otherwise, the format and limitations are the same as in the *via* line.

- PointList   Comma-separated list of point names (Fix, VOR, NDB or airport)

Remarks

REMARKS:Text$_1$:Text$_2$:Text$_3$:…

This line limits the stand assignment based on the flightplan remarks. When all the specified text strings are found in the remarks section, the line is a match. The *remarks* line can contain one or more text strings and one stand definition can also have more than one *remarks* line if necessary (in this case it is enough that one of the lines is a match for the stand to be used).

- Text$_x$ Text string to look for in the flightplan remarks

NotRemarks

NOTREMARKS:Text$_1$:Text$_2$:Text$_3$:…

Same as above but limits the stand assignment to flightplans whose remarks section contains none of the specified text strings. When more than one *NotRemarks* line is used in a stand definition, the stand is used when even one of the lines is a match.

- Text$_x$ Text string to look for in the flightplan remarks

3.6 ICAO_Aircraft.json

This file contains more detailed information on the aircraft types. It is a JSON file containing an array of objects with the following keys:

Key	Data type	Description
- ICAO	string	Type designator (mandatory item)
- Description	string	Three-character description
		▪ First character – description: A (Amphibian), G (Gyrocopter), H (Helicopter), L (Landplane), S (Seaplane) or T (Tiltrotor)
		▪ Second character – engine count: 1-8 or C (Two engines coupled to drive a single propeller system)
		▪ Third character – engine type: E (Electric), J (Jet), P (Piston), R (Rocket) or T (Turboprop/turboshaft)
- WTC	string	Wake turbulence category
		▪ L, M, H or J
- WTG	string	ICAO wake turbulence group
		▪ A, B, C, D, E, F or G
- RECAT-EU	string	RECAT-EU wake turbulence group
		▪ A, B, C, D, E or F
- Wingspan	number	Wingspan in meters
- Length	number	Length in meters
- Height	number	Height in meters
- MTOW	number	Maximum take-off weight in kilograms
- Use	string	Typical use(s) for the aircraft
		▪ One or more of the following: A (Airliner/commuter), B (Business/corporate), C (Cargo), H (Helicopter, other than military), I (Military helicopter), M (Military, other than helicopter), P (Private), T (Military tanker/transport)
- IATA	string	IATA designator
- IATA_cargo	string	IATA designator when used as cargo aircraft
- Manufacturer	string	Manufacturer name
- Model	string	Aircraft model name(s) for this type designator

The "ICAO" key is the only mandatory one. Keys that are irrelevant or whose values are not known can be left out.

3.7 ICAO_Airlines.txt & ICAO_Airlines_Virtual.txt

These files contain radiotelephony callsigns. The latter is used for virtual airlines, and only designators not conflicting with ones found in "ICAO_Airlines.txt" are used from it. The following example line shows the syntax:

AAB	Abelag Aviation	ABG		Callsign definition

The format of the files is the same as in the "ICAO_Airlines.txt" file provided with EuroScope. Only one callsign must be defined per line.

Callsign definition

ThreeLetterID<tab>**OperatorName**<tab>**Callsign**

- ThreeLetterID   Three-letter designator in the flightplan
- OperatorName   Operator name – Notifying state
- Callsign   Radiotelephony callsign

As an alternative to having the callsign data, the file can contain the location of another file that has the data. In that case, this file should have only one line, containing the data file location. The location can be defined as absolute or relative. Relative locations starting with ".\" or "..\" are relative to the plugin folder. The data in the pointed file must be in the above format, and the pointed file must contain the callsign data, not a path to another file.

4 Data communication

The plugin uses scratchpad broadcasts (setting a specific text and then immediately after the original text) to communicate certain events. These are explained in this chapter. Note that if it becomes necessary, the messages or their formats may be changed without prior notice. The plugin documentation will then be updated to reflect the current message set.

4.1 Ground states

Like the default states, the custom states are communicated using scratchpad broadcasts. The scratchpad texts sent are as follows:

- No state (departure)   NSTS   (*
- On Freq   ONFREQ
- De-Ice   DE-ICE
- Start-Up   STUP   (*
- Line Up   LINEUP
- Taxi In   TXIN   (*
- No state (arrival)   NOSTATE
- Parked   PARK   (*

*) These states are default states in the latest EuroScope betas, and are implemented as custom states to work also with earlier EuroScope versions.

4.2 Stand assignments

Stand assignments are broadcast using scratchpad messages automatically when the assignment is made and later at specific points, or manually by controller action. The broadcasts are as follows:

- "GRP/S/<stand>"
    o Stand <stand> assigned for that aircraft at its destination airport
- "GRP/S/"
    o Previous stand assignment has been cancelled
- "GRP/M/<icao>/<stand>"
    o Stand <stand> at airport <icao> manually marked as occupied by that aircraft
- "GRP/M/"
    o Previous manual occupancy of a stand cancelled