

EuroScope

Users Guide

For version 3.0a

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About EuroScope

In September 2007, VATSIM controllers were presented with a ground-breaking new ATC client, the EuroScope. A state-of-the-art ATC software that combines features learned from real-life radar software and years of online virtual controlling experience, EuroScope set the standards of controlling environment to new heights. The innovative display and handling of controlled airspaces, fully customizable aircraft tags, the projection and planning of flights and radar display details, or the built-in simulator are just a few of EuroScope's features without which more and more controllers could not imagine controlling anymore.

Over the last 6 months, software designer Gergely Csernák continued development work on EuroScope based on feedback and wishes of users. The new version 3.0 arrives now again to provide VATSIM controllers with brand new functions and advancements of existing features, such as:

- ➔ Advanced coordination functions with upstream and downstream controllers: agree or disagree with altitude and cleared waypoint suggestions with just a click of the mouse! "Who controls which aircraft and where" have never been as clear before
 - ➔ Tower view mode: see the aircrafts you control with the built-in FsInn? client!
 - ➔ Customizable SID/STAR and Runway selection: make the exact route of flights clear for yourself and downstream controllers!
 - ➔ New automated checks: EuroScope will monitor the aircraft's adherence to cleared altitude and route (CLAM/RAM)!
 - ➔ New shared information: scratchpad texts, new ground status flags will be displayed to all relevant controllers
 - ➔ New lists: Plan ahead and keep overview of your flights with the advanced sector inbound/exit and departure lists; display multiple METARs
 - ➔ Easier voice and text ATIS setup
 - ➔ Easier sector file development: new functions to draw and handle sector lines
 - ➔ LS, Visual Approach flags
 - ➔ New built-in tag families (Eurocat 2000, SATCAM, etc.)
 - ➔ a number of new keyboard shortcuts
- and many more you will be thrilled to discover.

Have you ever imagined you could control virtual flights as real as it gets?
Download the latest version of EuroScope and see for yourself.

Credits For v3.0

Without the help of several supporters EuroScope would never become a public VATSIM radar client. Therefore I would like to thank this help to:

➔ **Attila Ábrahám** - He inspired me to work on the new features and most importantly the ongoing Coordination. He always supplied me all the information that was necessary to have it as close to the real life system as possible. And I have to say that (among others) Attila has the most rigorous eye on the functionality. He also created a full featured ATIS interpreter.

➔ **Todor Atanasov, Bernard Candela and Stephan Boerner** - They helped me a lot to finalize the documentation you are reading just now.

➔ **Sami Ylismäki** - for creating UNIAtis, the customizable ATIS interpreter (<http://www.uniatis.net/forum/>).

➔ **Juha Holopainen** - for collecting and converting all the aircraft data for EuroScope.

➔ **Tobias Reimann** - for creating a EuroScope extract function from his ICAO airlines database (<http://vatdb.tr-media.org/>).

➔ **All the beta testers** - Once again they helped me a lot to fix bugs, implement the right functions you need for everyday controlling.

Credits For v2.9

➔ **Eric Bocaneanu** - Who always believed that we can make a client that can be accepted by VATSIM governors. He made all the discussions, advertisements to start the beta testing EuroScope. He also helped me a lot in testing, writing documentation and making suggestions.

➔ **Péter Selmecsi** - Who created the initial WEB site, redesigned my awful WEB pages. He helped in testing, writing and finalizing the documentation and also with lots of new ideas.

➔ **Péter Selmecsi and Iván Radó** - For the name: EuroScope.

➔ **Attila Ábrahám and Ádám Orbán** - They made a really strong pressure on me to develop EuroScope to the good direction. They also helped me a lot in testing.

➔ **Dani Vértesy** - To help me writing the documentations among others.

➔ **Iván Nagy** - Who registered euroscope.hu domain for me without any cost so far.

➔ **Todor Atanasov** - Who created the final WEB site.

➔ **Ross Carlson and Ben Supnik** - They helped me a lot how to make EuroScope VATSIM compatible. I received immediate support when I had any technical question about the FSD protocol or VATSIM voice library. Ross made the beta test possible and updated my beta test members regularly.

➔ **Richard Stefan and Navigraph FMS Data Support** - They allowed me to pack the FMS data with the installer of EuroScope. If you need to update the AIRAC cycle visit <http://www.navigraph.com/> for the latest release. Always download the version for FSNavigator 4.X.

➔ **All beta test members** - They tested EuroScope in different environments and surely in different ways. Many things that I would have never thought were discovered by them. And they also helped me writing this documentation.

➔ **All VACCHUN members** - Who was not part of the beta test team still helped me a lot on testing VRC and ASRC compatibility questions.

1. Quick start

Installation

The step by step instructions are available in the [*Installation page*](#).

If You Have A Previous Release Installed

It is very important that the new version saves all data in files instead of the registry. When you first start the new release, you have the chance to import the registry content into a file. Please, read the documentation about it in the [*Where My Settings Are Saved*](#) page.

What you see

➔ **Sector file selection** - When you start EuroScope for the first time it will ask for the sectorfile to be used. Select the appropriate for your position. Use the one for LHBP if you do not have any other or simply use a sectorfile you have been using with ASRC or VRC.

➔ **Radar screen configuration** - Normally EuroScope saves your display settings to files with *.ASR extensions. When you start EuroScope it will load the lastly opened *.ASR file. But if you start it for the first time then you surely do not have such file. In this case the default settings will be applied to your first screen. It will contain only the VOR symbols, airport names, high airway lines and ARTCC boundaries. Be sure to open the [*Display settings*](#) dialog to switch on and off the individual items, modify the radar layout to your taste and save it into an .ASR file for your next session. If you do not like the default coloring or line styles just go to the [*Symbology settings*](#) dialog and change.

➔ **VATSIM statistics data** - As you started EuroScope, selected the sectorfile just wait for 10-30 seconds. After that period of time the radar screen comes alive and displays controllers and planes just as you were online. That is because EuroScope incorporates with VATSIM statistics data. It downloads data about the online members and starts simulating them while you are offline. But in this state you can start analyzing the traffic, see who is online, what is next on VATSIM.

! Tip: Open the Voice Settings dialog, select any position as primary frequency and the radar screen will be displayed as you were online with that callsign of the voice connection name and frequency.

What You Hear

Before going online you should go to the [*Voice Communication Setup*](#) dialog to define your voice connections, furthermore to press the **Hardware setup** button and configure your sound hardware with the [*Voice Hardware Test And Setup*](#) dialog. Without that you will not be able to listen to or talk to anyone.

How To Use Existing Sector And Position Files

To be able to use all of the features of EuroScope one has to create a sector file extension. This is a real hard work and needs special knowledge of the area you are controlling within. The ESE files should be created by the appropriate staff members of your FIR. We are ready to support all ESE file related questions via the [support e-mail](#).

But to be able to start quickly you should do the following modifications:

Edit the runway section in the .SCT file. Add the airport name or code to the end of each line.

Original:

[RUNWAY]

13L 31R 130 310 N047.26.43.520 E019.15.27.180 N047.25.22.620 E019.17.37.880

Modified to:

[RUNWAY]

13L 31R 130 310 N047.26.43.520 E019.15.27.180 N047.25.22.620 E019.17.37.880 LHBP

Ferihegy

To use your POF file simply rename it to the same name as your SCT file with the extension ESE (eg. You have `myfir.sct` and `mypos.pof` then rename the `mypos.pof` to `myfir.es`). Then add a new line to the beginning of the file:

`[POSITIONS]`

In this way you will be able to use both the sector and the position file without hard modification.

1.1 Installation

If You Have A Previous Release Installed

The installer of the new release will execute an uninstall of the previous version. The uninstaller will delete all files that were copied to your computer by the installer. It includes the original settings, the ICAO airlines and airports files and also the FSNavigator database files. It also deletes the ASR files that were provided for the LHCC sectorfile.

If you have saved any configuration to these files, or updated them manually, or downloaded a newer AIRAC database, then be sure to **SAVE THEM** to another place before running the installer.

Installation

Installation of EuroScope is really easy. Just download the MSI file from any of the sites and run it. Then follow the instructions of the installer. Well, the only thing you should specify is the folder you would like to put the files.

The main download site is the home of Euroscope. This server is located in Hungary. Thanks to Ross Carlson and Metacraft Internet Services we have two mirror sites. They are both located in Dallas, Texas. **Mirror sites may not be available until the installers are copied there**. After selecting **Install** the installer will download the package installer and run it.

- ➔ Download from EuroScope home server (<http://euroscope.hu/install/EuroScopeSetup.msi>) or
- ➔ Download from Mirror 1 (http://vatsim.metacraft.com/es_mirror/EuroScopeSetup.msi) or
- ➔ Download from Mirror 2 (http://es_mirror.metacraft.com/EuroScopeSetup.msi).

Prerequisites

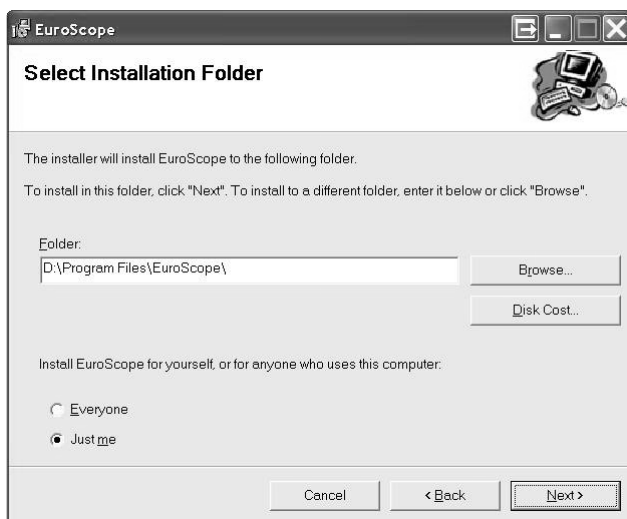
The installer requires that you have .NET framework 2.0 installed on your computer. The MSI will prompt for it if you do not have it.

Installation Process

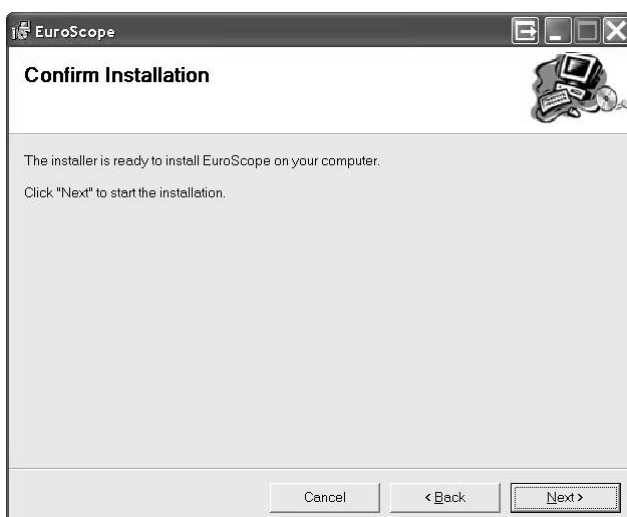
Download the MSI installer. When ready, simply start it. After some preparation seconds the installer Welcome screen appears:



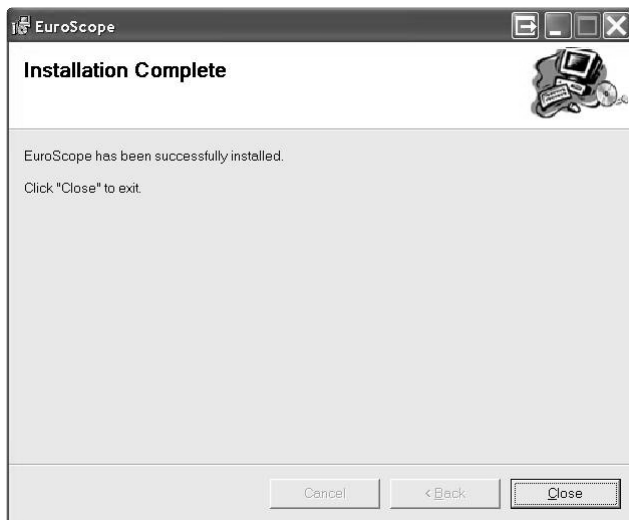
Just press **Next** to get to the location selector screen:



Select the appropriate folder where you would like to place EuroScope, and decide if the installation is for you or for every user of the computer. Then press **Next** again to see the final confirmation screen:



Simply press **Next** if you are sure to install EuroScope. The rest is automatic. The progress bar will go from 0 to 100% several times then the installation is ready:



Press the **close** button and go to the *Start menu* and under *Programs* you will find EuroScope current version. Just start and enjoy using it.

If it is the first time you have installed EuroScope be sure to follow [Quick start](#) page instructions.

Another Important Note For Previous Release Users

It seems that the in some cases the new installer is unable to overwrite the font set that was installed before. That will cause some symbols missing in the new release. If you experience this then go to the Windows/Fonts folder. Manually delete the EuroScope.ttf file. Then run the installer again. In that case it will ask if you would like to repair or remove EuroScope from the system.



Select the repair. It will now copy the right font to the fonts folder.

2.1 Where My Settings Are Saved

About Settings

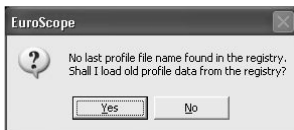
I have to regret that the saving of the different settings and setups are not really straightforward in EuroScope. Please, forgive me if something is not really logical or you would put some information to another place.

The Profile Files

The profile files are created to store all installation or workstation dependent information. They are not intending to be moved from one workstation to another as there are full paths, video card size information there too. The profile files are just plane textfiles (it is quite common for EuroScope) with the extension **PRF**. You can put them to any place in your workstation.

The good thing about saving these data to a file instead of the registry is that you may have as many configurations as you need. All profiles are completely independent from the others (except if they are referencing to the same files). The name of the profile file can also be used as a command line parameter for EuroScope. In this way you can setup as many shortcuts, desktop icons as you need, and start the right configuration with a doubleclick.

If you are version 2.9a user then you may noticed that several data is stored in the registry (under **My Computer\HKEY_CURRENT_USER\Software\Csernak Gergely\EuroScope**). From version 3.0 all this information is moved to a profile file. If you run version 3.0 for the first time while you have saved data in the registry EuroScope will detect and prompt to load the data saved in the registry:



If you accept then it reads the old data from the registry. Be sure to save your newly loaded profile to a file just after loading it from the registry. If you decline then the default values will be used instead.

From this point only the name of the lastly used profile file and two flags (to indicate auto load and auto save of the last profile) are stored in the registry. The rest may be removed.

Going into details about the profile file: As the data here came from the registry, it is structured like the registry entries. First the *section* name, after that the *key* itself. In the file the following information is stored:

→ **Last Session** section – It contains data about your last EuroScope session. They are one by one related to the fields in the Connection Settings. The only exception is the ATIS airport and letter that is used in Voice ATIS dialog.

- **atis_airport** – the airport served by voice ATIS
- **atis_letter** – the last time used ATIS letter in your airport
- **atis2, atis3, atis4** – the text ATIS message lines (numbered from 2, as the first is always your voice channel description)
- **callsign** – the connect callsign
- **certificate** – your VATSIM ID
- **connecttype** – a code how you connected last time
- **facility** – the facility of the last session
- **password** – the password entered - **Important:** your password is stored in this file without any encryption. Due that you MUST NOT give your profile file to someone else.
- **playback** – the last playback file with full path name
- **range** – the visual range of the last session
- **rating** – your rating
- **realname** – your real name
- **scenario** – the last use simulation scenario file with full path
- **server** – the lastly connected VATSIM server

→ **Recent Files** section – It is a simple numbered list of your lastly used ASR files. The files here will be displayed in the **sct** menu.

→ **Settings** section – In this section there are data about how your environment are set up. What configuration files do be loaded and what hardware elements do you use:

- **aircraft** – full path to the ICAO Aircraft file
- **airlines** – full path to the ICAO Airlines file
- **airports** – full path to the ICAO Airports file

- **airways** – full path to the FSNavigator database
- **alias** – full path to the alias file
- **Asel Key** – the aircraft select key code
- **Atis Folder** – full path to the voice ATIS description file
- **Freq Key** – the primary frequency key code
- **ipaddr** – full path to the VATSIM server descriptor file
- **sector** – the main sectorfile (as it is from the last session it may be better to put to the Last Session section)
- **Settings File** – full path to the settings file (many installation independent data is stored there)
- **Sounds section** – Full path of the file names used for voice messages. They are not self explanatory, just numbered.
- **Voice section** - Here are the settings about your sound hardware configuration.
 - **bass_filter** – enable or disable bass filtering
 - **input_hardware** – the primary mike input device name
 - **input_hardware2** – the secondary mike input device name
 - **output_hardware** – the primary speaker/headphone device name
 - **output_hardware2** – the secondary speaker/headphone device name
 - **PPPT** – the primary push to talk button code
 - **SPPT** – the secondary push to talk button code
 - **squelch** – the value measured on primary mike
 - **squelch2** – the value measured on secondary mike

Important note: As you see from the above list, your last session user name and password is in the profile file. And they are there without any encryption. Therefore be very careful and DO NOT give, send, share your profiles to anyone else.

Settings Files

This file contains several different kinds of settings. You can open them with a text editor to learn more since there are many parameters, most of them being self explanatory. We are not going to specify every single line in this file, just some words about the groups:

- **settings** – All lines beginning with #m_# are the general settings. You can change them via the Quick Set menu or one of the settings dialogs. I suppose the names here are really readable.
- **SYMBOLGY** section - Here you can find the values from the display settings dialog. It describes what colors, sizes, line styles to be used for the map display.
- **VOICE** section – Your ground to air voice communication setup. The registered voice connections are saved here.
- **PROFILE** section – The login profiles from the connect dialog. It contains the callsign, facility, range and ATIS lines.
- **TAGS** section – The user defined TAG families.
- **SIL, SEL, DEP** sections – The definition of the advanced AC lists.

ASR Files

The **.asr** file keeps reference to your current Display Dialog settings. It describes what items are to be displayed from the sectorfile. It also contains some screen dependent settings data too.

Once again without the complete description some notes about the lines inside:

- **SECTORFILE** – The path of your current sector file this ASR is used for. When you open an ASR it will look if the sectorfile is loaded or not. If not then it loads the appropriate one.
- **SECTORTITLE** – Just a quick access to the title to show in the popup list.
- **SHOWC** – (value if 1 if checked or 0 if unchecked) "Show squawk C aircraft" option.
- **SHOWSB** – "Show squawk STBY aircraft" option.
- **BELOW** – xxxxx. The value if you choose not to display aircrafts below xxxxx feet altitude (your floor level). Zero indicates no filter at all.
- **ABOVE** – xxxxx. The value if you choose not to display aircrafts above xxxxx feet altitude (your ceiling level). Zero indicates no filter at all.

- ➔ **LEADER** – The length of the leader line. Positive values are interpreted as NM, negative as MIN.
- ➔ **SHOWLEADER** – Indicates if the leader line should be shown as default or not.
- ➔ **HISTORYDOTS** – The number of history trails appearing for each aircraft.
- ➔ **TAGFAMILY** – The name of the tag family used (generally MATIAS (built in)).
- ➔ **WINDOWAREA** – param1:param2:param3:param4 – The geographic coordinates in degrees of the bottom left corner and of the top right corner of the scope. It is important that even if you do not change any settings, just zoom in and out and pan, this value is most likely to be updated. In this way it is quite normal that you will be prompted at nearly all ASR close to decide weather to save or cancel the update of the area.
- ➔ **individual sectorfile elements** – Then follows the list of all your checked items in the display dialog. You can not save the SECTORLINE and SECTOR elements as they can be switched on just for debugging purposes and not for next session display.

Sector Files

Sector files are the files which contain all information about the area you want to control. EuroScope can use the same sector files as ASRC or VRC. There are two places where you should or can modify them:

The first is the Runway section. It is described in the [Quick Start](#) page too. You should modify this to be able to display and use the runway data inside EuroScope.

Original:

[RUNWAY]

13L 31R 130 310 N047.26.43.520 E019.15.27.180 N047.25.22.620 E019.17.37.880

Modified to:

[RUNWAY]

13L 31R 130 310 N047.26.43.520 E019.15.27.180 N047.25.22.620 E019.17.37.880 LHBP

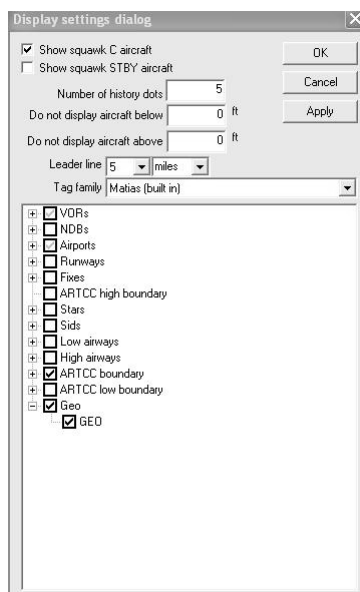
Ferihegy

There is another option for the GEO section. In a ASRC/VRC sector file, GEO lines appear like that:

N036.58.51.798 E008.51.32.509 N036.58.50.305 E008.51.32.422 white

So in VRC, you can display GEO lines or not but always as a whole.

If you load a normal ASRC/VRC sector file in Euroscope, you see that:

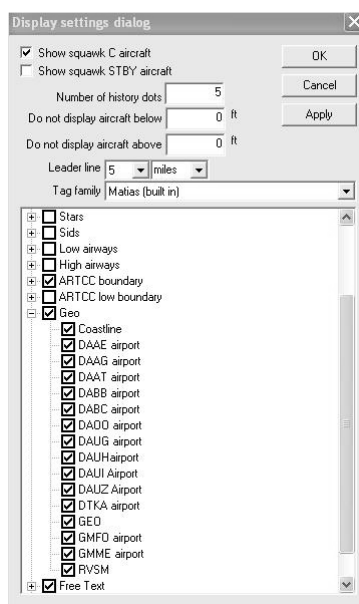


You can display GEO lines or not, in the same manner than with VRC.

But EuroScope allows us to define sub-categories in GEO lines by adding a category name at the beginning of each normal GEO line like the one below:

DTKA airport N036.58.51.798 E008.51.32.509 N036.58.50.305 E008.51.32.422 white

And when all lines have been modified (that's done very easily with Excel) the Display Dialog appears like that:



So, you can easily filter which kind of GEO lines appears on your screen, and this avoids overwhelming screen with unuseful features.

! NOTE: When sector files have been customized for EuroScope, they can't be used anymore with ASRC or VRC. So, before customizing a sector file for EuroScope, don't forget to keep an original version for ASRC/VRC users.

In fact the name is only needed in front of the first line of each subsection. For example, the following **[GEO]** section works fine:

```
[GEO]
Red triangle N000.00.00.000 E000.00.00.000 N000.00.00.000 E000.00.00.000
N060.00.00.000 E020.00.00.000 N070.00.00.000 E030.00.00.000 redcolor
N070.00.00.000 E030.00.00.000 N060.00.00.000 E030.00.00.000 redcolor
N060.00.00.000 E030.00.00.000 N060.00.00.000 E020.00.00.000 redcolor

Yellow triangle N000.00.00.000 E000.00.00.000 N000.00.00.000 E000.00.00.000
N062.00.00.000 E024.00.00.000 N066.00.00.000 E028.00.00.000 yellowcolor
N066.00.00.000 E028.00.00.000 N062.00.00.000 E028.00.00.000 yellowcolor
N062.00.00.000 E028.00.00.000 N062.00.00.000 E024.00.00.000 yellowcolor
```

In EuroScope you will get the two triangles selectable in the Display Settings. This section will also work with ASRC and VRC. The **N000.00.00.000 E000.00.00.000** coordinates in the lines where the names are would not be needed for ES but since both ASRC and VRC seem to disregard those lines completely it's better to put coordinates in there that aren't something you want to display.

If you put the name in front of each line works in ES but it will not work with the other clients. But if you use the above way, then the same SCT file could be used with the other clients without any problems.

Sector File Extension Files

This section is here just to make this page complete. The content of the sector file extension is described in the [ESE Files Description](#) page, and also there is a [Tutorial](#) about how to build an ESE file from scratch.

Runway Files

The runway files are saved along the SCT files, with the same names and the RWY extensions. They are also TEXT files. There you can find information about the active airports and runways of your last session when the SCT file was used as main sectorfile.

```
ACTIVE_AIRPORT:LHBP:1
ACTIVE_AIRPORT:LHBP:0
ACTIVE_RUNWAY:LHBP:31R:0
ACTIVE_RUNWAY:LHBP:31L:1
ACTIVE_RUNWAY:LHBP:31L:0
```

There are two different kind of lines here:

→ **ACTIVE_AIRPORT** – It describes if an airport was active in the last session. The last 0/1 digit means if it was active for departure (1) or arrival (0).

→ **ACTIVE_RUNWAY** – The same for runways. It describes if a RWY of an airport was active in the last session. Of course here you also have the airport name and the final number means the same.

2. Get connected

Connection settings

To learn how to set up the connection parameters, how to use the main connect dialog, go to the [*Connection settings*](#) section.

Voice communication setup

Detailed about the voice setup is in the [*Voice communication setup*](#) section.

Voice ATIS

The [*Voice ATIS*](#) section describes how to set up your own voice atis station. How to record and play the atis message.

Connection features

Much more detailed why and how the connection works can be found in the [*Connection features*](#) section. What ports are to be opened, how to forward ports when behind a router.

2.1 Connection settings

Connect dialog

By clicking on CONNECT in the menu bar, the Connect dialog appears. Definitely, it seems more complex than the ones we have been using so far, but shortly you will understand its advantages. Pay close attention, because this is one of the most important chapters of this guide.

Select connection

First of all you have to select a connection mode:

- ➔ **Direct to VATSIM** – normally connect to VATSIM network
- ➔ **To VATSIM via proxy** – connect to VATSIM using a proxy server
- ➔ **Start simulator server** – be the host of a simulator session
- ➔ **Playback log file** – playback a recorded ATC session

The rest of the connect dialog is divided into these 4 sections.

VATSIM connection

This part of the window has fields that must sound familiar to you:

- ➔ **Callsign** – desired callsign (PETER_OBS, LHBP_TWR, EURE_E_FSS, etc.)
- ➔ **Real name** – your full name, as registered on VATSIM
- ➔ **Certificate** – your VATSIM controller ID (6 digit numeric)
- ➔ **Password** – your secret password
- ➔ **Facility** – category of ATC service you are to provide (Observer, Tower, Center, etc.)
- ➔ **Rating** – your VATSIM controller rating (Student1, Controller3, Supervisor, etc.)

- ➔ **Server** – list of servers (VATSIM and simulator host IP addresses are read from ipaddr.txt), when joining to a simulator session, simply the host IP has to be typed
- ➔ **Status** – once successfully connected "**Connected to VATSIM**" is shown

Understanding the rest of this section might require further explanation:

- ➔ **ATIS line 2 - 4** – Since VATSIM limits the number of lines used for ATIS, only 3 additional lines are available (your voice channel is counted ATIS line 1). The same aliases can be used as in ASRC (\$altim(ICAO), etc.).
- ➔ **Load servers** – update your server list

PROFILES

- ➔ **Save profile** – This is something really cool! You can save various profiles, which store your callsign, facility, range setting and ATIS information. So next time you come controlling, it will take a second to connect, you just click the callsign you wish to be. (as shown in the picture below)

Important: The changes in the profiles are not saved automatically. You should explicitly call the *Save all settings* function to store the profiles for your next session.

- ➔ **Delete profile** - delete selected profile
- ➔ **Range** - set your radar surveillance range from 1NM to 600NM but remember the limits: **DEL/GND: 10NM, TWR: 30NM, APP/DEP: 100NM, CTR/FSS: 300-600NM**

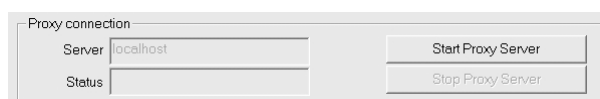
EuroScope limits the maximum possible range setting based on the facility and the rating you are specifying. These data are still higher than the values above:

- ➔ **Observer** - 300 NM
- ➔ **Clearance/Delivery** - 100 NM
- ➔ **Ground** - 100 NM
- ➔ **Tower** - 100 NM
- ➔ **Approach/Departure** - 200 NM
- ➔ **Center** - 600 NM
- ➔ **Flight Service Station** - 1500 NM

Supervisors are allowed to set 600 NM range, independently from the actual facility.

Important: when joining to a simulator session as a client (as trainee) the connection mode has to be Direct to VATSIM - just like with a normal connection - and the simulator host has to be selected from the server list or its IP address can be typed directly.

Proxy connection



The proxy connection is originally defined to allow multiple instances of EuroScope to be started in the same machine and share the VATSIM connection between them. On the other hand the implementation is general so there is no restriction to one computer.

The proxy connection needs two parties to be set up: one server and one client. To start a server just press the /Start Proxy Server/. That will start listening the 6810 port in the local machine and accept incoming connections. To connect to a proxy server from another instance of EuroScope select the /To VATSIM via proxy/ connection type, change the server if different from /localhost/ and connect.

When connecting to a proxy server the secondary client does not need any authentication setup as it uses all the data from the primary client. The primary client then can be connected to VATSIM and both clients will work with the same rights with the same callsign. When you have a proxy connection the two clients are sending special messages to each other (e.g. when you type something in one client command editor it will appear in the second as well, when you select an

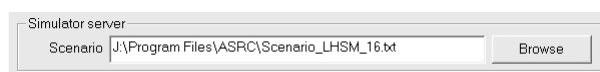
aircraft it will be selected in the other as well etc.). To disable this feature uncheck the /Enable advanced proxy communication/ menu item.

When you start the second instance of EuroScope on the same machine the voice subsystem will not be initialized. In the toolbar you will see that the voice dialog icon is flagged by two red lines. That is because only one program can listen the appropriate UDP port. The second instance will not be able to produce any voice related functionality (and it is blocked by the code). Therefore always use the firstly started instance for voice setup.

In the new release you also have an option for /Automatic proxy connection/. This is really a handy tool. When your first EuroScope instance starts then it will start the proxy server immediately. The furthermore instances will find that the proxy is running and connect to it immediately. When you regularly use multiple instances (e.g. in a multimonitor environment) then it is really easy to connect them with this option.

Simulator server

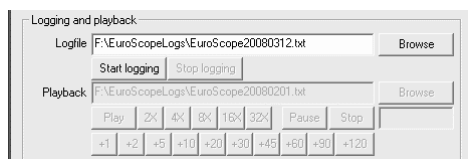
To host a simulator session select **connection mode: Start simulator server**



For more detailed information see the *Built in simulator* section.

Logging and playback

To save your current session and play it back later is just as easy with EuroScope as pressing two buttons.



Whenever you have an active session (direct or simulation) simple select a file name in the *Logfile* edit and press *Start logging*. From that moment all data around your session is saved to the selected file. Even your primary voice communication is saved to a file with the same name and an additional .vvl extension. When finished just press *Stop logging*.

Important: Your authentication information is never stored in the file so that you can send it to others without publishing your password. But everything else is stored there so all your private chat communications can be played back later!

If you have a saved session just select **connection mode: Playback log file** and select the file name to the *Playback* edit box. When you press the *Connect* button the file will be played immediately. With the speed buttons you can make the playback faster. You can pause and restart the playback with the *Pause* and *Stop* buttons.

The voice data is stored in the logfile in 30 seconds splits. Whenever a new split is to be played it is copied to a new file and its playback is started. So that when the speed of the playback is not normal the voice will be played at normal speed but parts of it will be missed.

The buttons are really self explanatory:

- ➔ **Play** – It starts playing a paused or stopped playback, and also returns to a normal 1x playback after fast forward.
- ➔ **2x-32x** – It increases the playback speed.
- ➔ **Pause** – It suspends the playback. During the suspended playback the timeout checking is disabled even no position update is coming from the planes.
- ➔ **Stop** – It stops the playback, and reverses the file pointer back to the beginning of the logfile.
- ➔ **+1-+120** – This is another fast forward tool. Using it you can easily jump some minutes forward. Be patient when jumping longer times. EuroScope still executes all lines from the file and computes

all necessary data along with it. In this way a one hour jump in a busy session may take a few minutes to skip.

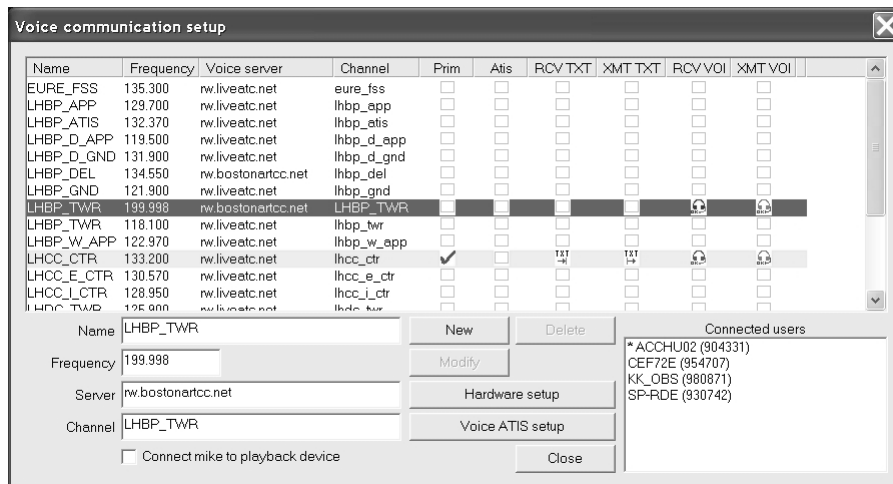
Connect / Disconnect / Close

Probably not necessary to write too much about these buttons.

2.2. Voice communication setup

The voice communication setup dialog

All settings around voice communication can be setup using the following dialog:



The main part of the dialog is the list on top. Every line here describes one ground-to-air voice connection and also its status. The left four columns (Name, Frequency, Voice server and Channel) are the description part, while there are six check-box-like items on the right (Prim, Atis, RCV TXT, XMT TXT, RCV VOI and XMT VOI) that can be used to indicate and to modify the actual status of the voice connection.

When you select an item from the list its detailed information will be displayed in the controls below, where you can modify them. By clicking on the check-boxes you can change the actual status.

Important: This dialog box never saves its modifications. You must call an explicit *Save all settings* to save voice setup between sessions.

Also important: If you run EuroScope for the first time then before using this dialog to setup your voice communication be sure to visit the [Voice hardware test and setup](#) dialog to define your mike, speaker and push-to-talk buttons.

Note: Here I used both rw.liveatc.net and rw.bostonartcc.net to indicate that you can use as many different voice servers as you like. But remember that rw.bostonartcc.net is dedicated voice server for KBOS controllers.

Dialog controls

→ Name edit

In this control the actual name of the ground-to-air connection is displayed and can be modified. The name is just a pure attribute not used for anything just for user information. Therefore it can be completely free string like "Budapest Radar" or "Ferihegy Tower". But when you are offline and select a primary frequency it will be used as your login callsign. And to be able to match the sectors associated with the callsign it is a good idea to use the same name as the desired real callsign. E.g.: LHCC_CTR, LHBP_TWR. It is not necessary to have unique names. As it is just a list you can define the values as you wish.

When you log in successfully with a callsign then EuroScope searches for the callsign here in the name fields and also the channel name fields. Once a match is found then selects that voice communication setup as primary frequency and connects to the voice server automatically.

→ **Frequency edit**

Here you can define the associated primary frequency. The value entered here will be sent to the network if the definition is selected as primary frequency.

→ **Server edit**

The name or the IP address of the voice server. So far not possible to define ports.

→ **Channel edit**

The voice channel name in the voice server. Once again this field is scanned after a successful logon to set it as primary frequency if matching.

→ **New button**

By pressing this button you can create a new entry to the ground-to-air communication list. All the data will come from the edit controls, therefore they must be filled in.

→ **Modify button**

With this button you can change the description of one communication line. This button is enabled only if no communication is selected at all. You can not update a description if selected for anything.

→ **Delete button**

It is used to delete one line from the descriptions. It is enabled at the same time when *Modify button* is enabled.

→ **Hardware setup button**

This button opens up the Voice hardware test and setup dialog box where you can setup the voice hardware configuration. Before you try to do anything with voice be sure to go there to specify your hardware.

→ **Voice ATIS setup**

As voice ATIS is closely related to this dialog it is available from here as well. It will open the Voice ATIS dialog.

→ **Connect mike to playback device check-box**

It is a funny test tool. It simply connects your primary and secondary mike input to the speakers. When you press a PTT button and start talking your voice is extracted from the mike device and directed to the speaker immediately. In this way you can listen back what you are talking. And as it goes through all the encoding/decoding phases you will listen back exactly what others can hear from you.

→ **Close**

Just to be complete.

→ **Connected users list-box**

This list box is filled with the users who are currently joined to the voice room of the selected line. Your callsign will be flagged by an '*'.

The check-boxes

In the top area there is a list control with all the ground-to-air communications definitions. Every line contains six check-boxes. With them you can manage the status of your voice connections.

→ **Prim - as Primary frequency**

By clicking any of the check-boxes in this row will select your primary frequency. This frequency along with the voice channel definition will be populated via the network so pilots will be able to find your voice using this data. **Important:** By selecting the primary frequency you are not being connected to the voice server. You should do it manually.

When you select your primary frequency the text send and receive check-boxes are set automatically and you can not deselect them. If another primary frequency was selected before it will be cleared. You can deselect your primary frequency by clicking on the check-box again (it will not deselect the text send and receive flags).

The primary frequency description line is highlighted by yellow background even when not selected. If you select your primary frequency when offline then EuroScope will assume that you are logged in as the name of the voice communication and with the frequency. By that all the sectors defined to that position will be assigned to you and you can see the offline simulated traffic arrival estimates.

→ **ATIS**

Same as primary frequency but it defines the primary frequency information of your secondary ATIS connection (for more go to the [Voice ATIS](#) dialog). It is required by VATSIM that the channel name on the ATIS primary voice server must be the same as the callsign of your ATIS connection. Therefore you can not select it before connecting your ATIS user to the servers.

→ **RCV TXT - Receive text messages**

By checking it you will receive text messages from this frequency. You can not switch it off at primary. **Important:** When you are connecting to VATSIM via a proxy in the secondary client you should set up the text receive in each client as they are independent from each other.

→ **XMT TXT - Transmit text messages**

Your text messages will be sent to all frequencies that are checked. You can not switch it off at primary.

→ **RCV VOI - Receive voice**

It enables voice data to receive from this room. This check box also stands for the connect and disconnect. When you press EuroScope will start to connect you to the server. In case of primary frequency after a successful connect the *send voice* will be enabled automatically.

In the place of the check-box you can see the status of the voice channel. It changes the symbol from X to OK when the connection is established and also indicates when voice is coming or sending via this channel.

When voice is being received or sent on the primary voice channel all secondary voice connections are muted. That works quite well but notice that there may be certain situations when the communication ends, but the program doesn't receive an end-message on the primary voice channel. In that case your secondary connections are muted. To avoid this just press the secondary PTT for a while that will clear this flag and enable secondary communications. (You can always check here if there is communication being sent/received on the headphone icon.)

→ **XMT VOI - Transmit voice**

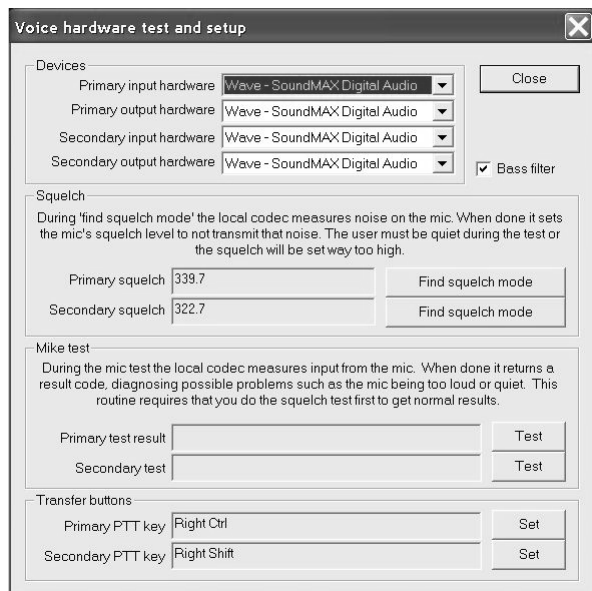
It specifies if voice should be sent to this channel when pressing the PTT button or not. When you press the primary PTT then the voice is sent to the primary channel only. When you press the secondary PTT then your voice will be sent to all secondary channels simultaneously.

2.2.1. Voice hardware test and setup

The voice hardware setup and test dialog is rarely used. At the very first time just select what voice hardware you would like to use, test them and only come back here if something is changed in your system.

EuroScope has two independent voice hardware connections and each can be set up individually. It is possible to use the same device for both setup but there is the possibility to use different (e.g. send the primary voice to headphone while the secondary to the desktop speakers). As it comes from the names the primary connection has a some priority over the secondary. It means that whenever a voice is transmitted over the primary voice channel the secondary is muted.

In the following dialog you can change and test your hardware:



→ Primary and secondary input hardware combo

Use this combo to select the primary and secondary microphone to be used. They might be the same but can be different.

→ Primary and secondary output hardware combo

Use this combo to select the primary and secondary headphone or speaker to be used. They might be the same but can be different.

→ Bass filter check-box

If checked the built in bass filter is enabled. Sometimes it sounds better, easier to understand if only higher frequency voice is transmitted. But check it out yourself.

→ Find squelch mode buttons

When you press the button keep silence for about 5 seconds. During that EuroScope tests the background noise of your system. You should test your system squelch value before using voice connection.

→ Test buttons

After pressing the mike *Test* button speak normally for about 5 seconds. During this period EuroScope tests the difference between your silent and normal speaking voice level. You might test to change the volume level of your mike based on the test result.

→ Set buttons

The Push To Talk buttons are used to transmit voice to the connected voice channels. It is not necessary but highly recommended to set different buttons for primary and secondary voice transmit.

2.3 Voice ATIS

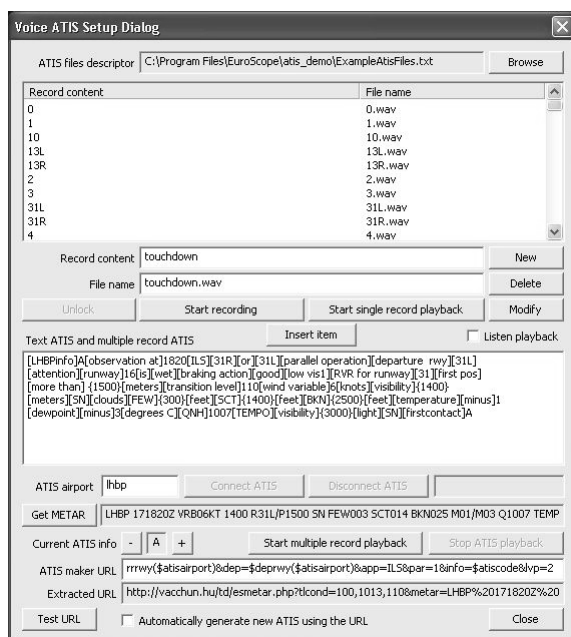
Voice ATIS makes it possible for the pilot to listen to the actual information of the departure or arrival airport also on voice rather than just reading it in few lines they used to receive when tuning in to a controller's frequency. This is a major step to bring the simulation closer to real life. EuroScope is supporting this feature from the beginning.

To enable a second voice channel connection that can be tuned by pilots you need a second VATSIM connection with its primary frequency set. Before setting up a voice ATIS station, make sure to read the relevant part of [*VATSIM's Code of Conduct*](#) or see the Member Policy change about duplicate connections at [*VATSIM forum*](#). This second connection is rather restricted. You can not specify your callsign freely. It is required to have <airport ICAO code>_ATIS (eg. LHBP_ATIS). Because of that restriction you can not define the whole callsign only the airport code you are serving with voice ATIS.

The _ATIS postfix will be added automatically by EuroScope (see the [Connection settings](#) page). When you select LHBP as the ATIS airport then your second VATSIM connection callsign will be LHBP_ATIS. There is no way to alter this callsign and it is also required that the selected airport be defined in you sectorfile. When you make a secondary ATIS connection you will probably see yourself back in the controller list as *_ATIS.

To set the primary frequency of the secondary connection go to the [Voice communication setup](#) dialog and select the appropriate definition as ATIS frequency. It will define the primary frequency and the voice server plus channel. There is one more restriction: the channel name must be the same as you secondary callsign. So if you are going to serve LHBP with voice ATIS then be sure to define a connection that has LHBP_ATIS as channel name. As in the primary connection by selecting the ATIS frequency and voice server you are not yet connected. You should enable voice receive and transfer to the voice server. That makes you connected and also starts the voice transfer when necessary. Do not be afraid of receiving voice from the channel it is never connected to your speaker and will not disturb you.

Common setup



All the files necessary for the ATIS playback should be placed into one directory. At the top of the dialog box you should specify the descriptor file. This file contains all the information about the records you have and also defines the folder to be used. If you start the system at the first time it is possible that you receive the error message that the atis descriptor file can not be opened. In this case create an empty folder and create the descriptor file there.

The voice atis setup is an exemption to the not saving anything rule. Any click in this dialog, any change in any data will be saved immediately to the descriptor file.

The commonly usable controls:

➔ Browse - the descriptor file

This button opens a file create dialog box to specify a new folder and descriptor file. As normally you will create new descriptor file this is a create file dialog. And so it will warn you to avoid file overwrite if you select an existing file but it will open and read the content instead.

➔ Records list

The top list contains your records. The amount of records you need depends on the way you would like to use the voice atis. When you select an item in the list the *record content* and the *file name* will be copied to the edit boxes below where you can overwrite them.

➔ Record content edit

It is a free text that describes the content of your record. It is up to you what you write here but in some cases it will be part of your text atis.

→ **File name edit**

The name of the file to save the recorded voice. If the file extension is .wav then it will not be modified, otherwise a .atis extension will be appended automatically.

→ **New button**

If you press this button a new record description will be added to the list. Both the record content and the file name should not be empty to create a new item. It is not necessary for the record content to be unique, but file name should not be repeated.

→ **Delete button**

It simply deletes the selected item from the records list. It also deletes the file associated.

→ **Modify button**

It changes the selected item in the record list by the content of the edit boxes.

→ **Start recording/Stop recording button**

When you have an item selected in the record list, just press the *Start recording* button to record the message or part of it. When the recording is in progress then the title of the button changes to *Stop recording*. To stop the recording press it again. If the dialog is reopened and the record file exists then this button is disabled to avoid accidental overwrite of your records. In this case press the *Unlock* to enable rerecording.

→ **Unlock button**

This button is used to enable rerecording of files. See the previous button description.

→ **METAR station edit**

Here you can ask for a METAR of a station. Type the station name here.

→ **Connect ATIS button**

This is a new button here in this dialog. Originally it was on the /Connect Dialog/ but we found it much more convenient to do all voice ATIS related work here in this form. Therefore this button is used to make your secondary VATSIM connection to serve as Voice ATIS controller. The button is enabled only in case you have a live, direct connection to VATSIM. The ATIS airport in front will be used for the callsign.

→ **Disconnect ATIS button**

Use it to disconnect the ATIS controller. It is available only when you are connected.

→ **ATIS connect status**

Just next to the /Disconnect ATIS/ button there is a status field. It shows the actual status of the voice ATIS connection.

→ **Get METAR button**

This button gets the METAR of the selected station. If it is the first time you use it then nothing will happen when you press it as it may take some seconds to receive the information back from the servers. So press it again in some seconds.

→ **Current ATIS letter and + and - buttons**

The current ATIS letter is displayed in the toolbar of the main window. By pressing the + and - buttons you can change it. These buttons are also scan the *Text ATIS and multiple record ATIS* and if the current atis letter is found there in a separated place (separated means space-letter-space) then it will be replaced by the new letter.

→ **Stop ATIS playback**

It stops the current ATIS playback.

→ **Listen playback check-box**

If you check this box the actual playback is sent to the secondary output. In this way you can check what is sent to the voice server.

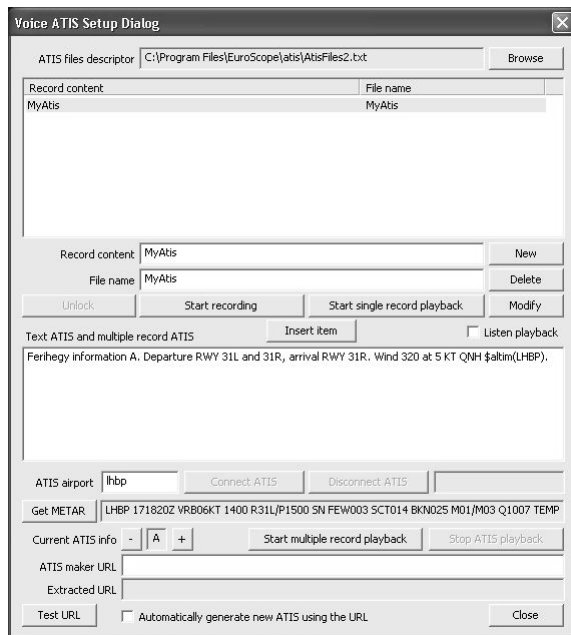
Voice ATIS playback modes

Before you start providing the voice ATIS you should decide which of the two methods you would like to use: single or multiple record playback modes. That makes completely different how you can/should use the dialog. Therefore there will be two descriptions even some buttons can be used for the same purpose.

Single record playback mode

This mode is the easier, more simple way to provide the voice atis. In this mode you simply record your atis message into a file and EuroScope plays it back in a n endless loop.

A typical content of a single record playback mode looks like this:



In the top side list box you may have several records, but in this case only one atis record is necessary. Just define a record by providing the description and the filename. Press the *New* button (if the list is empty) to register a new record. Then press the *Start recording* button, tell your atis message. When ready press the *Stop recording* and press *Start single record playback* to play your message in an endless loop. That is all.

If you would like to change the message just press again the *Start recording* and tell your new message. It is not necessary to stop the playback before you record your new message. It can be done parallel. When you have the new message, stop the playback by pressing the *Stop ATIS playback* and start your new message play.

Special controls:

→ Start single record playback button

It starts playing back the selected record in an endless loop.

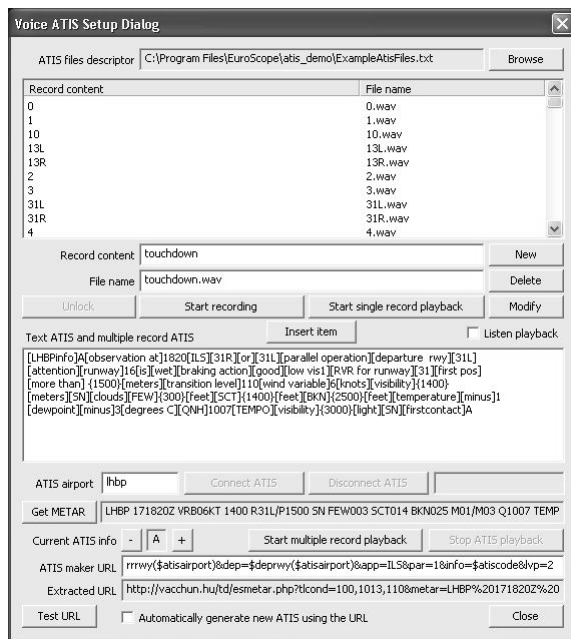
→ Text ATIS and multiple record ATIS edit

In this mode this edit box is "just" for a *Text ATIS*. Simply type your ATIS message and it will be sent to the pilot who asks for it.

Multiple record playback mode

I found that recording a complete atis message may take 20-30 seconds if you can do it at once without any error. At peak times when you are alone in your sector you do not have so much time at all. Therefore a new way of atis presentation was invented where the atis message is built up from

prerecorded pieces. It might sound a little bit more complicated at the beginning, but when it becomes a routine it requires less time and more importantly less silence in the surrounding to setup your atis.



To be able to use this mode, first you should record all the possible pieces. You can do it in the same way as you record the single records. You should however remember that concatenating records recorded here in this dialog is not smooth enough. There will be too much silence between the pieces. To avoid that, EuroScope can handle WAVE files. The best way is to record and trim your message parts in an external WAVE editor. There you can make more precise trimmings. Then save and register the files in the record list. Do not forget to add the .wav extension to avoid the automatic extension assignment. When using wave files the concatenation is far smoother and the result is really close to a single record playback.

Important: At this moment only 7350 Hz sample rate 16 bits signed mono PCM files are accepted by EuroScope (do not ask why). It is not a big thing to convert the records to this format using any wave editor.

Once you have all the recorded pieces you need, you can start building up your complete message from these. To copy a recorded item just select it and press the *Insert Item* button or press ENTER. That will copy the record content string to the *Text ATIS and multiple record ATIS* edit box and places it between [] squared brackets. If you press the ENTER it will move the focus to the editor allowing you to edit the message immediately. You can copy as many items from the records as you wish. To go back to the list just press the TAB key. When you are back in the list you can start typing the record content and the item will be selected.

You can also enter free text to the edit box that will be compiled letter by letter. When you press the *Start multiple record playback* EuroScope gets the content of the edit field. First it extracts and replaces all function calls. In this way you can enter free texts like \$altim(LHBP) and before playback it will be changed to the actual value. Then EuroScope extracts the pieces from the string. When a piece in [] squared brackets are found then the part will be searched in the record content fields of the record list. If one matches then the recorded file will be concatenated to the ATIS message.

If there is a number between {} brackets then EuroScope will tell this number not by digits but a well formed number. Eg. {1500} will result like [1][thousand][and][5][hundred]. To be able to add all possible numbers EuroScope requires the following prerecorded files:

- ➔ Numbers from 0 to 19 - [0], [1], ... [10], [11], ... [18], [19].
- ➔ The ten numbers - [20], [30], ... [80], [90].
- ➔ Hundred and thousand - [hundred], [thousand].
- ➔ and - [and].

If the next part is not between [] nor {} brackets then it will be compiled letter by letter. Every letter will be searched in the record content and the matching record file will be concatenated. Therefore it is highly recommended to have record for every letter and every number. Finally the created file starts playing back in an endless loop.

As the content of the edit box is compiled just when pressing the button you are free to edit not only the free text parts but the [] bracketed parts too. But be careful to provide a string that matches one of the records. If not you may receive several error messages like: "No matching record item".

On the other hand the content of the /Text ATIS and multiple record ATIS/ will be used as text ATIS message (just the []s and {}s will be eliminated from it). In this way in one editor you can build you voice and text ATIS in one single step.

The special controls once again:

→ Insert item button

It copies the selected record item into the editor. It will be placed to the actual cursor position. If there is a selection then it will be deleted.

→ Start multiple record playback button

It examines the content of the edit box, concatenates the voice files and also starts the endless loop playback.

External ATIS Interpreter

A really new innovation in the voice ATIS is that EuroScope enables external ATIS interpreter tools to be used. To use such a tool you should specify a well parameterized URL that will be called from EuroScope. The URL should be entered to the /ATIS maker URL/ filed. Here you can use all the functions, aliases to extract information from the system necessary for the ATIS. We specifically added new functions and aliases for the ATIS maker:

- `$atisairport` – The ICAO code of the airport you are serving with voice ATIS. Actually the content of the /ATIS airport/ edit filed.
- `$arrrrwy(<ICAO code>)` – This function lists all the runway names separated by commas that are flagged as active for arrival in the *Active Airports Runways*.
- `$deprwy(<ICAO code>)` – The same for the departure airports.
- `$metar(<ICAO code>)` – The long METAR of the selected airport.
- `$atiscode` – The current ATIS info set above.

The controls to be used:

→ ATIS maker URL edit

As said above you can enter the full parameterized URL to here. It will be saved along your settings.

→ Extracted URL edit

It is just a debugging tool. When you press the /Test URL/ button then EuroScope extracts the aliases and functions from the base URL. The result will be shown here in a worm it is sent to the Internet. In this way you can check if all the parameters are correct and how to fix invalid calls, missing parameters.

→ Test URL button

When you press this button the original URL is extracted and the result is sent to the Internet. When EuroScope receives the answer it is copied back to the /Text ATIS and multiple record ATIS/ edit control. There you have the chance to test or modify before it goes to the voice channel. This button will not start the playback.

→ Automatically generate new ATIS using the URL check box

If you check this box and a new METAR for the ATIS airport arrives to EuroScope, then it automatically stops the current playback, increases the ATIS letter by one, sends the URL with the new METAR data to the external interpreter, fills the result to the /Text ATIS and multiple record

ATIS/ and immediately start the multiple playback. If you still has all the necessary prerecorded pieces then all works automatically without any touch of a control.

By the time this documentation was created there are two external tool that can be used:

→ **The VACCHUN interpreter** – It is built by Attila Ábrahám. You can find a complete set of wave files and also a complete reference manual in the **atis_demo** folder of your EuroScope installation. Of course the wave files are limited to LHBP only, but you are free to rerecord them to your area.

→ **UNIAtis by Sami Ylismäki** – This is a really configurable ATIS interpreter. Currently it supports full METAR decoding with the exception of remarks and every field can be customized to support a wide variety of formats. It includes support for semi-freely customized fields in the ATIS. If you would like to join him and make your own area specification contact him via the forum of UNIAtis at <http://www.uniatis.net/forum/>.

2.4. Connection features

Connection features

There are just a few things to be set up to assure a successful connection to the network without any problem. However, if you miss them, you will not be able to use all the features of EuroScope.

→ **Outgoing connection** - When you are connecting directly to the VATSIM or any simulated session hosted by EuroScope you will go out on port 6809. You should allow outgoing connection on this port to reach external servers.

→ **Built-in simulator** - When you are hosting a simulator session then EuroScope binds the 6809 and waits for incoming connections. In that case you should open this port to enable incoming calls. When you are behind a router you should forward this port to your workstation. **Note:** The tower view feature uses this port too. If you are to run the Flight Simulator on another machine you need to open this port.

→ **Ground to air voice communication** - When you are joining to a voice room the connection is made via UDP port 3291. This port should be opened for outgoing connections. When you are accepting landline voice calls you will use this port as well.

→ **Ground to ground voice communication** - When you initiate a landline voice call and the remote controller accepts it then the remote computer will try to reach your computer UDP port. Therefore to be able to initiate landline calls you should open UDP port 3291 for incoming requests. When you are behind a router you should forward this port to your workstation.

→ **Proxy server** - Normally you use the proxy server for internal communication only. That does not need additional settings. But if you would like to allow controller from an external machine to be connected open the port 6810 for incoming requests. When you are behind a router you should forward this port to your workstation.

→ **Proxy client** - Once again normally you use it internally and you do not need additional settings. But if you would like to join to an external proxy server open the port 6810 for outgoing requests.

→ **VATSIM statistics data** - The statistics data is downloaded by normal HTTP request. Therefore it needs port 80 to be open for outgoing requests. Normally it should work if you have a proxy server. But if the proxy needs an authentication EuroScope will fail so far.

3. Going into details

Multiple Sectorfile Usage

The first public release 2.9a was unable to load more than one sectorfile at a time. An improvement is that in the new release any number of sectorfiles can be loaded. But as several things in

EuroScope depends on the sectorfile it is extremely important to understand which file is used for what. It is described in the [Multiple Sectorfiles](#) page.

Sectors and aircraft states

Before learning about how the software functions work, some basic principles must be understood. One of EuroScope's main features is how it handles the sectors you are controlling and how the aircrafts are classified by your sectors. All this is described in the [Sectors And Aircraft States](#) page.

Radar screen

In the [Radar Screen](#) section you can read about the main screen, the upper and lower display and of course the menus.

TAGs

To learn what you can do with the TAGs in the standard Matias format just check the [TAGs](#) section. If you would like to move forward and create own TAG content then check the [TAG editor](#).

Controller To Controller Communications

A complete list (including the new ongoing coordination feature) of the different communication ways between controllers are described at the [Controller To Controller Communication](#) page.

Display settings

The [Display settings](#) section describes how you can set up what to be displayed on the radar screen. Also how to save and restore them with a single click.

Additional display features

The way you can customize what colors, line styles, font sizes, etc is attributed to items on the radar screen is described in the [Symbolology Settings](#) section.

Sounds setup

[Sounds setup](#) is about different warning messages from EuroScope.

Non Standard Extensions Used In EuroScope

We use some tricks to publish the unpublishable data. Read more about it at [Non Standard Extensions](#) page.

3.1. Multiple Sectorfiles

In the first public release v2.9a only one sectorfile was allowed to be loaded into one session. The cause of this restriction was that the sectorfile itself and more the extension contains information that is global for a session. Such information is the sector hierarchy and the automatic sector assignment. It would look quite awful if multiple screens powered by different sectorfiles show completely different areas you are controlling and different active handoff areas to the neighbor controllers.

Active Sectorfile

Actually the above statement is still true, we can have only one sectorfile that is used to extract these data. In this way even it is allowed to load several sectorfiles there is one among them that is used more than the others. This is the so called *Active Sectorfile*.

When you start EuroScope it loads the last time active sectorfile before loading any ASR files. If there is no information about the last active file or it does not exist then you will be prompted for the

sectorfile. Whenever you load a new sectorfile using the Open SCT/Load sectorfile command it becomes the active immediately.

One of the most visible information used from the sectorfile is the projection center point. This point is where the display of the latitude/longitude coordinates are to most precise. You can easily notice that when you load a new sectorfile the projection parameters of your screen might be changed and your active radar screen is stretched.

When you load a sectorfile then all already loaded ASR files referencing this sectorfile will be refreshed automatically. But the ones not referencing it will not be changed at all. Therefore if you are loading a sectorfile that is not referenced by the currently visible ASR then it is quite normal that you notice no change in the display at all.

ASR Files Are Connected To Sectorfiles

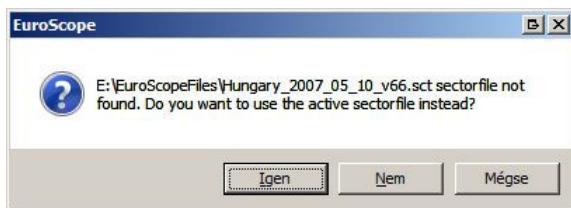
One change from 2.9a is that the ASR file itself holds a reference to the sectorfile (see the [*Where My Settings Are Saved*](#) page for more about it).

When you first time load an ASR file that was created by 2.9a and therefore does not have the sectorfile reference will be connected to the active sectorfile automatically. When you close the ASR you will be prompted to save this reference.

When you load an ASR file it looks for the referenced sectorfile. If the sectorfile is loaded then nothing will happen, it will use the already loaded information. If the sectorfile is not loaded then EuroScope will load it automatically. After the successful load you will be prompted if you wish to use the newly loaded sectorfile as active:



When you load an ASR that references to a sectorfile that does not exist EuroScope will prompt you if you would like to use the active sectorfile or if you would like to browse for the file manually:



If you accept then the active sectorfile will be associated with the ASR. If you refuse you have to browse and locate the sectorfile to be used with the ASR.

Actually there is no function in EuroScope that allows you to change the sectorfile reference of an ASR (except the situation if the file does not exists). If you need to modify it, delete the reference using a notepad, or rename the referenced sectorfile, then you will be prompted.

3.2. Sectors and aircraft states

Sectors

What is a sector? A sector is a piece of airspace with a polygon boundary as lateral limits and with defined bottom and top altitudes/levels as vertical limits. The airspace controlled by the controller is his/her sector. (e.g. LHBP_APP sector covers the Budapest TMA, LHCC_CTR covers all Hungarian airspace, or after a division, LHCC_E_CTR can cover the Eastern part of Hungary)

NEW in Euroscope: An important feature of Euroscope is that it can make the airspace you are controlling visually appear, and on top of that, since it "knows" the vertical and horizontal limits of the airspace you own, it can handle aircrafts differently. Suppose you log in to control the Netherlands as EHAA_CTR, the territory between the North Sea to the German and Belgian borders (practically the "FIR") lights up. Further suppose that heavy traffic makes it necessary to split up this sector and your colleague comes online as EHAA_W_CTR to deal with the London inbound in the Western part, that part of your earlier "lit-up" will "go blank", since it is not owned by you anymore.

Another nice example is controlling multiple-sector airspaces, like the VATSIM Eurocontrol positions: with EuroScope the controller's work becomes much easier - it will be discussed below in details.

You may ask, how does Euroscope know all this? The programming is surely very sophisticated, but the division and handling of sectors is always the competency of VACCs and controllers. So once they are agreed on (and most VACCs have been smartly using airspaces), it has to be loaded to the software so that it knows all the vertical and horizontal sector information. Since other VATSIM controller clients did not have this airspace handling capacity, technically these sector definitions are put in a separate ESE file. (So EuroScope uses two files to determine your sector: (1) the earlier used SCT files and (2) the new ESE files.)

This may sound complicated, but don't get scared: it is a one-time issue (or only at AIRAC changes), and in fact it makes life easier! The philosophy of EuroScope is to integrate all airspace information of a VACC into one SCT and ESE file; if you switch controlled sector in your VACC, a different airspace is lit up, and you don't have to reload SCT files! Therefore VACCs are expected to take care of updating the sector information so that controllers can use them easily.

The complete definition can be found in the *Airspace* section of the [ESE files description](#) page. Please, consult it how you can define your sectors.

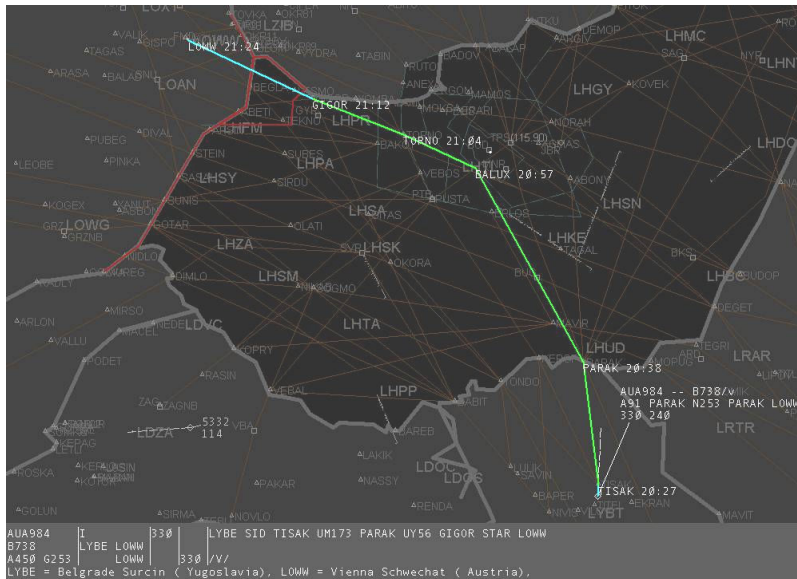
You can define any number of sectors for one sectorfile. Each sector may have a hierarchy list that defines which controller will control that individual sector. In this way every logged in controller will be assigned by one or more sectors to be worked within.

These are completely dynamic in EuroScope. When another controller logs in who has higher priority for a sector, it will be reassigned immediately. On the other way a leaving controller's sectors may be inherited by the online ones. The hierarchy makes it possible to define the sector e.g. for a tower with the hierarchy list that assigns the sector first to the tower controller, then to the appropriate approach and finally the control. In this way if tower is online the sector belongs to him even if approach is online. But if tower controller quits the sector will be assigned to the approach immediately.

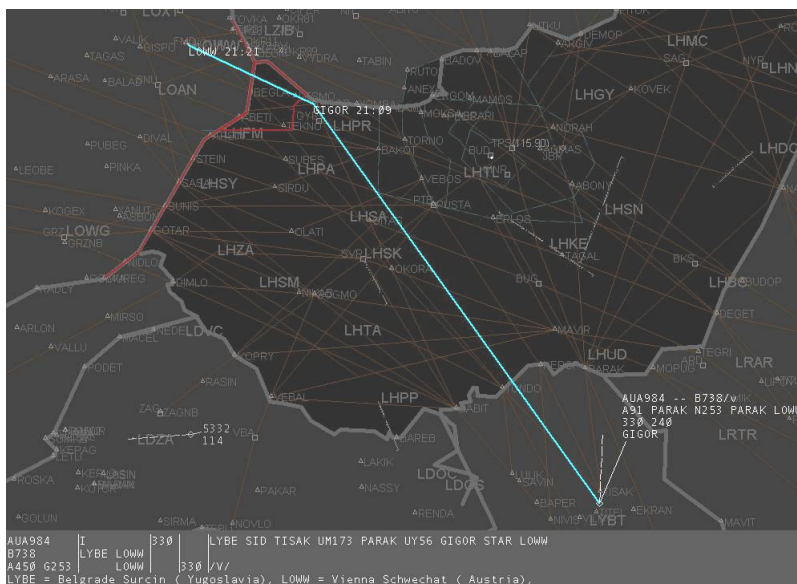
The sectors owned by you and not owned by you are displayed with different background colors. That way it is really easy to notice where you are controlling. This feature probably helps best for the Euro Control position controllers, who can see immediately when a FIR controller come online or leaves the system.

On top of the horizontal route data EuroScope extends it with a vertical profile. For that all the coordination point (see again in the [ESE files description](#) page) descriptions are used and also a rough climb and descend rate calculator is implemented. In this way a complete 3-dimensional flight route is calculated for each known aircraft.

In this picture you can see that just from fixes and airway names the whole flight plan will be extracted point by point.



It could happen that you or another controller gives a shortcut to a pilot. It can be very easily set through the TAG. Once the waypoint is defined the extracted route is also changed (so does the distance-to-go calculation).



Aircraft states

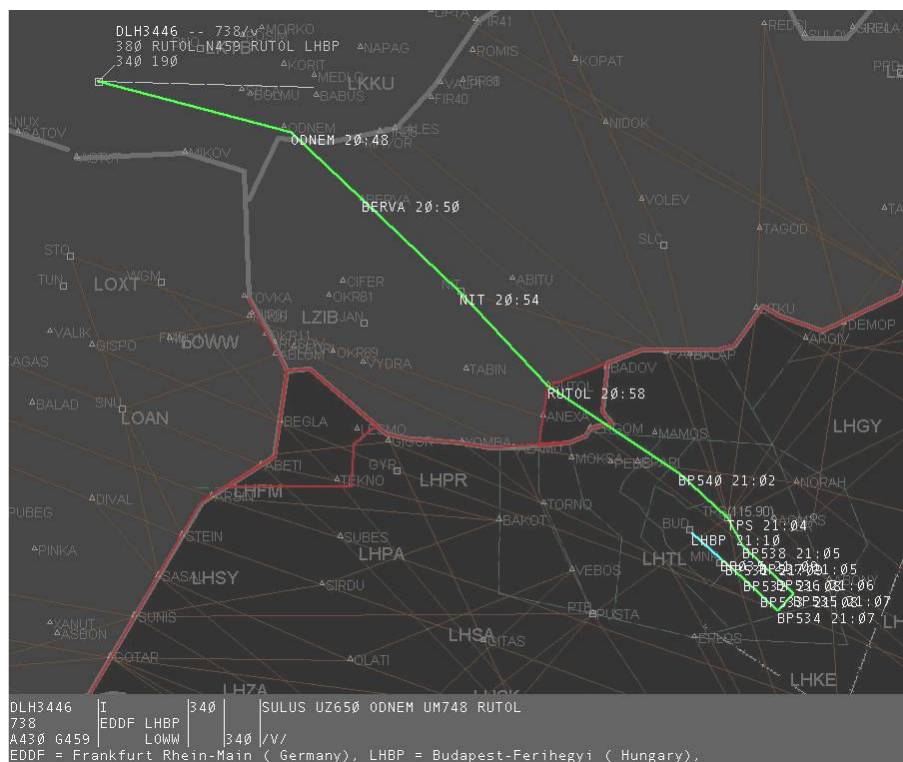
Now, as we have this complete three dimensional flight route estimations, EuroScope can compare them with the sector definitions. The result of this comparison is that EuroScope is able to classify the aircrafts to the following categories:

Non concerned - an aircraft that is not inside any of your sectors and (based on the flight plan) will never ever enter there. Basically you will never control that aircraft.

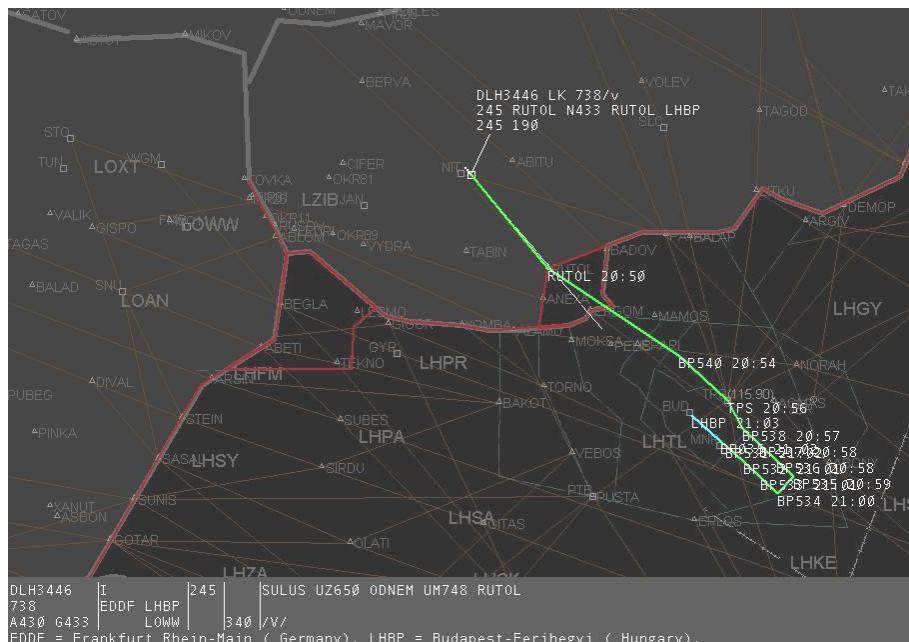
This picture is really interesting. I am controlling Budapest Radar, Budapest approach is also online and DLH3446 is coming to LHBP. But as the coordinated flight level at Budapest TMA entry point (RUTOL) is FL190 and approach is controlling up to FL195 this aircraft never enters to my sector at all just to approach.



Notified - an aircraft that is still far away but if follows the flight plan route will enter to your sector. Note that approach has left, therefore I am controlling that sector too.



Coordinated - in real world this is a very important state indicates that the neighbour controllers are agreed how the AC will be handed off. As there are no such tools in VATSIM all *Notified* aircraft become *Coordinated* 15 minutes prior entering your sector.



Transfer to me initiated - another controller initiated a handoff to me.



Assumed - you are controlling the aircraft. Note the sector indicator already indicating that the next controller I will handoff the aircraft will be Ferihegy Tower (abbreviation used is FT).



As the aircraft is within **3 minutes time to the next controller** the sector indicator automatically changes to display the next controller frequency.



Transfer from me initiated - when I initiated a handoff to the next controller.

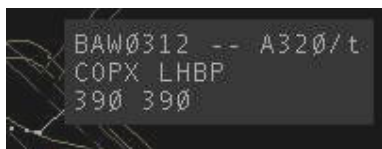


Redundant - when the aircraft is still inside your sector but the next controller is already tracking it.

Non concerned - just to close the sequence, as the aircraft leaves your sector and will not come back its state changes to *Non concerned* again. (The one we have started with.)

Radar connection states

There are three different ways an aircraft may be identified on the screen:



squawk stand-by - If an aircraft is not squawking C then there is no sign at the aircraft position.



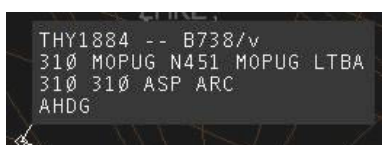
squawk C - If an aircraft is squawking C then a rectangle indicates its position.



squawk ident - If an aircraft is squawking IDENT then this special "4-legged" icon with text saying: SPI (Special Position Identification) indicates its position.



timeout - When there is no position update for 30 seconds the sign of the aircraft changes to #. (Also referred to as coasting targets)



no primary radar sign - When an aircraft is out of the radar range (visibility range) but its position and flight plan is available from VATSIM statistics WEB site, EuroScope is able to simulate its predicted position. Its sign is a diamond.

3.3. Radar screen

Layout of the screen

We might divide the screen into 3 sections:

- **Menu bar** - the upper menu bar is fixed, yet some of its items might be turned on/off.
- **Main screen** - the main screen is the operational part of the radar screen. Thus its layout can be modified to your own taste.
- **Command line** - the lower command line is used as text input and 'single click' info bar.

Menu bar

On top of the screen you can find *The Menu Bar*:



Main Screen

When mentioning main screen, we have to think about the radar screen itself. We are not going to go into details concerning radar screen in this section, rather focus on parts of the screen, which are not related to the radar itself.

The documentation of those elements are divided into the separate functions of the main screen's elements:

- **The Basic Lists**: The lists similar to those already known from VRC.
- **The Advanced Lists**: More advanced lists, containing all important information for the different states of flight.
- **The Distance Separation Tools**.
- **The Chat Box**.
- **The traditional Flight Strip as it is known from ASRC and VRC**.






Command Line



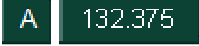

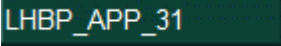




The bottom bar is called *The Command Line*.

3.3.1. The Menu Bar

Most of the menu items can be activated with left mouse button as usual, though there are some buttons where right mouse button might be used, too.

 MENU ITEMS	Turn on/off some blocks of menu items, like: <ul style="list-style-type: none">→ Show controller login name→ Show file name→ Show primary frequency→ Show ATIS frequency→ Show selected aircraft→ Show clock→ Show leader data→ Show transition altitude→ Show altitude filters
   	Clicking here will take you to <i>Connection Settings</i> dialog. The icons with orange border will show you the actual connection mode. These

CONNECT DIALOG	are: → VATSIM connection → Playback logfile → Simulator session
LHBP_APP [SUP] CONTROLLER LOGIN NAME	During active connection the callsign and the your actual rating (in brackets) are shown.
 VOICE SETUP COMMUNICATION	Voice setup (similar to VSCS in ASRC). Select text/voice frequencies for receiving/transmitting. Voice hardware setup (PTT selection), etc. Primary frequency status is shown on the icon: → Headphones are orange: receiving → Microphone is orange: transmitting → Red cross: the voice subsystem is not initialized (mostly due that a second instance is started) and no voice function is enabled
 PRIMARY FREQUENCY	Your primary frequency is displayed here. (To change it, go to the voice communication setup.) It turns orange, when you issue a .break command, for a position relief.
 VOICE ATIS SETUP	Your voice ATIS compiler can be found here. Letter of the actual ATIS will be shown here. Once your voice ATIS is running, its frequency will be displayed on the right side of the ATIS designator.
 SECTOR FILES	→ Reopen your last opened sector layouts (.asr files) → Open : open an existing .asr file → Close : close the actual .asr file → Save : save changes to the actual .asr file → Save As : save the actual .asr file with a different name → New : create a new .asr file → Load Sector File : load your main .sct ASRC sector file → Load Aliases : alias file (.txt), same format as ASRC alias files → Load ICAO Airlines data : data file to decode ICAO airline codes (ICAO_Airlines.txt) → Load ICAO Airports data : data file to decode ICAO airport codes (ICAO_Airports.txt) → Load FSNavigator data : FSNavigator data file for the actual AIRAC (AIRWAY.txt) → Load VATSIM Server IP addresses : ipaddr.txt file (exported from Servinfo) → About EuroScope : current version of EuroScope
 ACTUAL SECTOR LAYOUT	The name of the currently displayed sector layout is shown here, if you open more than one .asr files and switch between them with [F7] then the name of the actual one will here. Clicking on this item will let you manually select another already opened layout.
 SELECTED AIRCRAFT	The name of the currently selected aircraft will appear here.
 CLOCK	Your system time is shown in UTC (zulu time).



OTHER SETTINGS






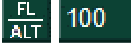
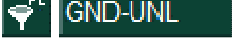
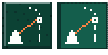

This is the main settings menu for deeper changes in your program.






- **Save profile** : To save the current configuration in the current profile file
- **Save profile as** : To save the current configuration in another profile file with another name
- **Auto load last profile on startup** : if this menu item is checked, EuroScope will load the lastly used profile file on next startup
- **Auto save profile on exit** : if this menu item is checked, EuroScope will save the current profile file when exiting.
- **Save all settings** : to save parameters that are not saved in the .asr file, call this item; it is really **important** to realize that no settings are saved automatically by EuroScope, you should always call this menu item to change your settings permanently for later sessions
- **Save all settings as** : save your settings with a new name
- **Load all settings** : replace your settings with previously saved ones
- **General settings** : Some general settings such as ASEL and FREQ key, current squawk range (further details under [General settings](#))
- **Display settings** : select what to be displayed on your radar screen (further details under [Display settings](#))
- **Symbolology settings** : set the colors, font sizes and line types used on the radar screen (further details under [Symbolology settings](#))
- **TAG editor** : create your own radar tags/labels using this editor (further details under [TAG editor](#))
- **Sounds** : audio notifications can be configured here (further details under [Sounds setup](#))
- **Voice** : voice communication setup (same as the one available through the icon, further details under [Voice communication setup](#))
- **Active airports/runways** : select airports to be concerned in your traffic prediction lists, select active runways for displaying default procedures (SID/STAR) and accurate distance calculation (further details under [Active airports runways](#))
- **Message dialog** : check if all needed files have been loaded from the right source (further details under [Message dialog](#))
- **Extended centerline setup** : EuroScope is able to draw enhanced runway centerlines on your radar screen. (Easy configuration, neat result.)(further details under [Extended centerline setup](#)) To turn on runway centerline items go to [Display settings](#).
- **Short term conflict alert setup** : you can setup when an alert is to be displayed (further details under [Short term conflict alert settings dialog](#))
- **Sector ownership setup** : here you can set up how the sector assignment should work (further details under [Sector ownership setup](#))
- **Save chat to a file** : Save the content of your current chat into a text file.
- **Save chat to the clipboard** : Copy the entire text of your current chat to the clipboard.



QUICK SETTINGS

- **Show sector inbound list** : show flight strip with all aircrafts incoming to the sector.
- **Show sector exit list** : show flight strip with all aircrafts exiting from the sector.
- **Show departure list** : show flight strip with all aircrafts departing from this position
- **Show controller list** : Show list of controllers (also observers, any connections with ATC clients).
- **Show aircraft list** : Show a list of predicted traffic that are to enter your airspace, or have already entered it.
- **Show voice room list** : Indicate the names of those, who are on your voice channel.
- **Show METAR list** : Display a floating bar showing all METAR requested if checked, otherwise not.
- **Show ATIS letter in METAR list** : Display the ATIS letter in the METAR list if checked, otherwise not.
- **Connect SIL to Top messages** : If checked, locks Sector Inbound List flight strip bay under the incoming messages list, otherwise you can put that list anywhere you want on your screen.
- **Connect SEL to SIL bottom** : If checked, locks Sector Exit List flight strip bay under the Sector Inbound List flight strip bay, otherwise you can put that list anywhere you want on your screen.
- **Connect DEP to SEL bottom** : If checked, locks Departure List flight strip bay under the Sector Exit List flight strip bay, otherwise you can put that list anywhere you want on your screen.
- **Show text messages** : As we prefer voice communication, we might miss important text messages coming on our primary frequency. With this option we can display the incoming messages (with time stamp) on top of the radar screen, with double clicking we can hide them and go to answer them.
- **Show STBY aircraft** : This tool comes handy, when you would like to turn on the radar tags for aircraft that are squawking STBY.
- **Show simulated traffic** : Traffic falling out of your range are also simulated. This way, you can have information on flights that are not in your range yet. If this option is on when you are not connected to the network you can see all aircrafts and controllers online based on VATSIM statistics data.
- **Play sounds** : Play sound files for certain events, like handoff, etc. Configuration is possible in Other Options -> Sounds.
- **Show magnetic north up** : If this option is checked then the magnetic north will be displayed to the UP side of the monitor. If unchecked then the true north.
- **Enable advanced proxy communication** : EuroScope is designed to be easily used in systems with two or more monitors and displays. In this case you should start two instances of ES and connect the second to the main program via proxy connection. In this case both clients will be a full station using only a single VATSIM connection. If advanced communication is enabled then several messages are sent between the clients (e.g. the selected screen item, the opened chat windows, the entered message to the command line etc.) With the help of it you are able to write the command in one instance and click the aircraft in the second one and it will still work. On the other hand when someone is connected to your proxy externally then it is not a good idea to see what he/she is typing. This flag is set automatically. If a proxy connection is made to the "localhost" client then it is enabled otherwise disabled as default.

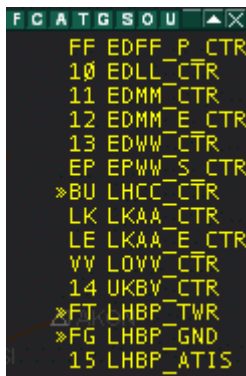
 <p>ACTIVE AIRPORTS / RUNWAYS</p>	<p>Here you may select the airports to be concerned in your traffic prediction lists, select active runways for displaying default procedures (SID/STAR) and accurate distance calculation. Clicking on the left side of the runway designator will select the airport, in the right hand columns the departure and arrival runways can be ticked (further details under <i>Active airports runways</i>).</p>
 <p>LEADER LINE ON/OFF</p>	<p>Toggle the time/distance vector for all displayed aircraft. (Mind you, it is possible to toggle the leader line of a given aircraft by right clicking on an empty section of the detailed tag.) Clicking with the right menu button a popup list appears that allows a quick setting of the leader lines.</p>
 <p>LEADER LINE TYPE/LENGTH</p>	<p>You may set the type of leader line, depending whether time or distance vector you prefer at the moment. Also, by clicking on the numbered button (left click to increase, right mouse button to decrease) you can set an exact length for the vectors.</p>
 <p>HISTORY TRAILS</p>	<p>Toggle history trails for all aircraft. (Small dots symbolize the previous positions of the aircraft.)</p>
 <p>SHOW STBY AIRCRAFT</p>	<p>This tool comes handy, when you would like to turn on the radar tags for aircraft that are squawking STBY.</p>
 <p>TRANSITION ALTITUDE</p>	<p>This is just a reminder of the actual transition altitude for you. Set the values with your left and right mouse buttons (left click to increase, right click to decrease). Below FL100 the levels can be adjusted by 500 ft, above FL100 by 1000 ft.</p>
 <p>ALTITUDE FILTER</p>	<p>You may set an interval (open, or closed) in which you want traffic to be displayed. Default value is GND-UNL which means that all traffic is shown on the radar.</p>
 <p>DISTANCE TOOL</p>	<p>A smart tool for measuring distance and time, checking radials, headings, coordinates, etc. This button calls the .distance command, which can be followed by callsigns, fixes, etc. Selecting the points can be done either by typing the points or by selecting them on the radar by a single mouse click.</p>
 <p>SEPARATION TOOL</p>	<p>Use separation tool if you are not sure whether two aircraft on converging tracks would require further attention in order to keep the separation between them. With this you can predict what the minimum distance between these planes would be, and when exactly this situation would happen.</p>

 <p>SHORT METAR</p>	<p>To display the short metar of an airport press [F2] type the ICAO code of the airport and hit [ENTER] (this is equivalent to command: .QD XXXX in the text input). If a new METAR is received from the server, it will be shown in orange to draw your attention. By clicking on it (acknowledging it) the color will change to white and also the complete metar is displayed in the status bar.</p> <p>If the place is long enough to show the full metar string then it will be displayed instead of the short version. If you have to display more station data at one time you may run out of space for them (actually it is not a too big area). In this case with a right click you can loop over the displayed metar data. A doubleclick will remove the clicked metar just as F2 and ICAO code.</p>
 <p>SEND SCREEN TO NEXT DESKTOP</p>	<p>This button is hidden unless you have a multi-monitor system. Users with 2 monitors can send the screen to the other monitor using this button.</p>
 <p>MINIMIZE TO TASKBAR</p>	<p>The standard Windows minimize to taskbar button.</p>
 <p>MAXIMIZE/RESTORE WINDOW</p>	<p>This is once again the standard maximize/restore Windows button. But a little bit limited behavior. As EuroScope does not have a resizing frame around there is no meaning to make smaller than the screen. So the only difference between maximized and restored state of the screen is that in maximized state even the taskbar is covered by the radar. In restored state the taskbar is visible. My experience shows that when the screen is maximized MSN will show your state busy but not in restored state. Clicking here with the right button a popup menu appears that allows you to select the position of the window from a short list. You can split the screen vertically to two half and horizontally to two half or three third. The selected position is used only if EuroScope is not maximized.</p>
 <p>QUIT</p>	<p>Finish working EuroScope.</p>

3.3.2. Basic Lists

The Controller List

Most of the menu items can be activated with left mouse button as usual, though there are some buttons where right mouse button might be used, too.



This floating bar can be set on any position on screen at user discretion. It displays some information about the controllers in the area of your center.

The top bar allows you to filter which controller positions are displayed on screen by clicking on the buttons located in left part of the floating bar.

F: Displays FSS stations on line (Flight Service Stations).
C: Displays CTR stations on line (Center positions).
A: Displays APP stations on line (Approach positions).
T: Displays TWR stations on line (Tower positions).
G: Displays GND stations on line (Ground positions).
S: Displays ATIS stations on line (ATIS positions).
O: Displays OBS stations on line (Observers positions).
U: Displays unidentified stations on line (Non identified positions).

For each position, the following items are displayed in the Controller list:

1. Ground to ground communication status
2. Ongoing coordination flag indicating that the controller uses radar client that is ready for ongoing coordination.
3. The position identifier as defined in the ese file.
4. The complete callsign.

The color of the controller means:

→ **yellow** - normally
→ **pink** - when leaving shortly
→ **white** - when no position update in the last 30 seconds and they are assumed to be disconnected.





With a left single click on any position in the list a detailed data is copied to the message area. With a doubleclick you can open a chat window with the controller.

With a right click a special popup menu appears that shows the following items:

→ **Listen to frequency** - using this item a normal voice connection to the controller's frequency is added to the voice dialog, where only voice receiving is selected. In addition you can set transmission manually.
→ **Leave frequency** - to quickly disconnect from the controllers main frequency channel.
→ **Get ATIS** - this item calls for the actual ATIS of the controller, the answer will be shown as private message in the chat area.
→ **Intercom** - it starts a bilateral communication, where your secondary input and output hardwares are used (for transmission use your secondary PTT).
→ **Override** - for the caller it works exactly like an intercom call (transmits on the secondary output device, with the secondary PTT), for the receiving unit voice comes on his secondary output, to transmit there is no need to press the PTT secondary voice input and the communication on the primary frequency is transmitted to the other party.
→ **Monitor** - listen to the selected controller's frequency, without having the opportunity to transmit on the frequency.
→ **Accept** - to accept an external ground-to-ground communication call.
→ **Refuse** - to refuse an external ground-to-ground communication call.
→ **Disconnect** - to close the active landline connection

Note: At one time only one ground-to-ground communication can be opened to a specific controller.

EuroScope uses the following ground to ground communication status indicators:

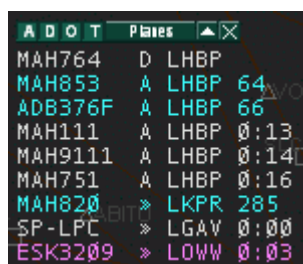
- outgoing INTERCOM, not accepted yet
- incoming INTERCOM, not accepted yet
- successfully established INTERCOM connection
- outgoing OVERRIDE, not accepted yet

- ✖- incoming OVERRIDE, not accepted yet
- ✖- outgoing OVERRIDE, successfully established
- ✖- incoming OVERRIDE, successfully established

- ✖- outgoing MONITOR, not accepted yet
- ✖- incoming MONITOR, not accepted yet
- ✖- outgoing MONITOR, successfully established
- ✖- incoming MONITOR, successfully established

The Aircraft List

This floating bar displays the aircrafts which are relevant for your position active position. Both the in range and the simulated planes are here. Each line is colored depending on the aircraft state, according to the definition in the datablock settings in symbology dialog. A left click on a line selects the aircraft - it can be used as a click on the TAG itself, right click opens the flightplan editor.



A	D	O	T	Planes
	D			LHBP
MAH764				
MAH853	A			LHBP 64
ADB376F	A			LHBP 66
MAH111	A			LHBP 0:13
MAH9111	A			LHBP 0:14
MAH751	A			LHBP 0:16
MAH820			>>	LKPR 285
SP-LPC			>>	LGAV 0:00
ESK3209			>>	LOWW 0:03

The first item is the aircraft callsign. With a handoff request in progress, a left click opens the handoff popup menu.

The second item can either be an A, D or >>.

→ **A** indicates the aircraft is an arrival for one of the users active airports.

→ **D** indicates the same for departures.

→ **>>** indicates the aircraft's destination is outside your sector and the aircraft is going to leave or enter your sector.

The third item is the aircraft departure or destination airport.

The fourth item depends on the aircraft state. For departures it is the assigned squawk, for arrivals it is the distance remaining to the destination airport. When the user is working an active sector which the aircraft is going to enter, it is changed to the time left until entering the sector.

The list can be filtered by the header left letters:

→ **A** - is for arrival planes,

→ **D** - is for departures,

→ **O** - is for overflights,

→ **T** - is for tracked planes.

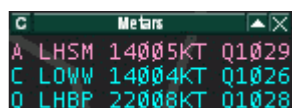
The Metar List

This floating bar displays the METAR stations requested by the controller.

The user requests a METAR by typing the F2 function key or by typing .QD then the ICAO code of the requested station. It appears in orange color in the menu bar and in the METAR floating bar in short METAR format.

Short format line: DAAG vrb03kt Q1029

Long format line: DAAG 101030Z vrb03kt 9999 FEW020 14/04 Q1029



C	Metars
A	LHSM 14005KT Q1029
C	LOWW 14004KT Q1026
Q	LHBP 22008KT Q1028

If the user clicks on an orange METAR, the change of the METAR is acknowledged, the color changes from orange to blue and it is displayed in long METAR format in the right side of the command line.

Using the **C** button on top left of the floating bar, the user can acknowledge all METAR changes with one click.

Via Quick Settings You can add the current ATIS designator to the METAR lines.

The Voice List



This floating bar displays information about pilots connected on the controller primary frequency. Two buttons allows filtering of frequencies:

- **F**: Displays pilots connected on PRIM frequency
- **A**: Displays pilots connected on ATIS frequency

3.3.3. Advanced Lists

Summary Of This Page

There are 3 different lists available in EuroScope. All those lists have three small buttons located on the upper left corner of the list window.

The first left button defines the size of the list window. The following options are available:

- **unlimited**: in that case, there is no limit to the number of lines in the list window. The lists shrinks or expands according to the number of aircrafts.
- **maximum nn**: in that case, the window has a variable size according to the number of aircrafts and expands only to the maximal size indicated by the nn parameter.
- **fix nn**: in that case, the window has a fixed length and displays the nn first items.

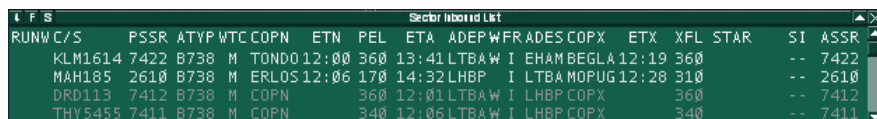
By clicking on the header of a column in each list, the order of the aircrafts in the list can be changed. This can be saved in the setting file.

The second button allows you to define which item must be displayed in the strip window. Full details are described below.

The third button allows you to display the Strip List Columns Setup Dialog and to customize the display. Full explanation is given at the end of this page.

The Sector Inbound List

The Sector Inbound List keeps track of all aircrafts that will enter your sector but are not currently inside. This strip is mostly read only, You can use that list only for ongoing coordination (as described in *Controller To Controller Communication*). The default order of this list is by the estimated sector entry time.



RUNW	C/S	PSSR	ATYP	WTC	COPN	ETN	PEL	ETA	ADEP	WFR	ADES	COPX	ETX	XFL	STAR	SI	ASSR
KLM1614	7422	B738	M	TOND0	12:00	360	13:41	LTBAW	I	EHAMB	BEGLA	12:19	360	--	7422		
MAH185	2610	B738	M	ERLOS	12:06	170	14:32	LHBP	I	LTBAW	MOPUG	12:28	310	--	2610		
DRD113	7412	B738	M	COPN		360	12:01	LTBAW	I	LHBP	COPX		360	--	7412		
THY5455	7411	B738	M	COPN		340	12:06	LTBAW	I	LHBP	COPX		340	--	7411		

As default the following fields are available in that list:

- **RUNW**: Assigned runway
- **C/S**: Aircraft callsign
- **PSSR**: Current squawk number
- **ATYP**: Aircraft type
- **WTC**: Aircraft category
- **COPN**: Sector entry point name
- **ETN**: Sector planned entry time
- **PEL**: Sector planned entry level
- **ETA**: Expected time of arrival
- **ADEP**: Departure aerodrome

- **W**: RVSM indicator
- **FR**: Flight rule (can be I, V or S)
- **ADES**: Destination airport
- **COPX**: Sector exit point name
- **ETX**: Sector exit time
- **XFL**: Sector exit level
- **STAR**: Assigned STAR
- **SI**: Sector indicator (cant' be modified)
- **ASSR**: Assigned squawk number

The Sector Exit List

This list displays all information about the aircrafts which are inside your sector and tracked by you. You can modify some of these parameters by clicking on it. In some cases, a popup menu appears like in the detailed TAG and allows you to modify this parameter. The default order of this list is by the estimated sector exit time.

10 F IS										Sector Exit List										
RUNW	C/S	ATYP	WTC	PSSR	AFL	CFL	ADEP	SID		ADES	ETA	RFL	FRW	COPX	ETX	XFL	ASSR	STAR	SI	
31R	DRD129	A319	M	7417	111	360	LTBA			LHBP	12:11	360	I	WCOPX	12:00	360	7417	ABONY3R	AP	
31R	THY6391	B763	H	7444	150	100	LTBA			LHBP	12:20	340	I	WABONY	12:04	100	7444	ABONY3R	AP	
	B1A032	B763	H	5423	322	340	VABB			LOWW	12:26	340	I	COPX	12:22	340	5423		--	

As default the following fields are available in that list:

- **RUNW**: Assigned runway
- **C/S**: Aircraft callsign
- **ATYP**: Aircraft type
- **WTC**: Aircraft category
- **PSSR**: Current squawk number
- **AFL**: Aircraft current altitude
- **CFL**: Aircraft temporary altitude
- **ADEP**: Departure airport
- **SID**: Assigned SID
- **ADES**: Destination airport
- **ETA**: Expected time of arrival
- **RFL**: Final or cruise altitude
- **FR**: Flight rule (can be I, V or S)
- **W**: RVSM indicator
- **COPX**: Sector exit point name
- **ETX**: Sector exit time
- **XFL**: Sector exit level
- **ASSR**: Assigned squawk number
- **STAR**: Assigned STAR
- **SI**: Sector indicator (cant' be modified)

The Departure List

This strip displays all information about the aircrafts which are inside your sector and tracked by you. You can modify some of these parameters by clicking on it. In some cases, a popup menu appears like in the detailed TAG and allows you to modify this parameter. The default order of this list is by the estimated sector exit time.

Departure List															
DSQ	C/S	ADEP	ATYP	WTC	RUNW	SID	COPN	CFL	ASSR	ECOPX	XFL	ADES	RFL	FRW	STS
1	ROT234	LHBP	B737	M	31L	ERLOS3D	ERLOS	270	5427	QTEGRI	270	LROP	270	I	WDEPA
	DLH2EN	LHBP	A320	M	31L	BAKOT3D	BAKOT	360	2612	QARSIN	360	EDDF	360	I	WTAXI

As default the following fields are available in that list:

- **DSQ**: Assigned departure order
- **C/S**: Aircraft callsign
- **ADEP**: Departure airport
- **ATYP**: Aircraft type
- **WTC**: Aircraft category

- ➔ **RUNW:** Assigned runway
- ➔ **SID:** Assigned SID
- ➔ **COPN:** Sector entry point name
- ➔ **CFL:** Aircraft temporary altitude
- ➔ **ASSR:** Assigned squawk number
- ➔ **E:** Clearance receive flag
- ➔ **COPX:** Sector exit point name
- ➔ **XFL:** Sector exit level
- ➔ **ADES:** Destination airport
- ➔ **RFL:** Final or cruise altitude
- ➔ **FR:** Flight rule (can be I, V or S)
- ➔ **W:** RVSM indicator
- ➔ **STS:** Ground status

List Columns Setup Dialog

This dialog allows to the user to customize the way strips are reacting when the user clicks on an item.

Item type	Width	Center	Left button function	Right button function
Assigned runway	3	C	Open RWY setup popup list	Open RWY setup popup list
Call sign	7	-	Open handoff popup menu	
Squawk	5	C		
Aircraft type	4	C		
Aircraft category	3	C		
Sector entry point name	5	-	Open COPN point coordination list	Open COPN point coordination list
Sector planned entry time	5	C		
Sector planned entry level	4	C	Open COPN altitude coordination list	Open COPN altitude coordination list
Altitude	3	C	Toggle route prediction points draw	Toggle route draw
Destination ETA	5	C		
Departure aerodrome	4	C		
RVSM indicator	1	C		
Flight rule (I,V,S)	2	C		
Destination airport	4	C	Open flight plan dialog box	
Sector exit point name	5	-	Open COPX point coordination list	Open COPX point coordination list
Sector exit time	5	C		
Sector exit level	4	C	Open COPX altitude coordination list	Open COPX altitude coordination list
Assigned STAR	7	-	Open STAR setup popup list	Open STAR setup popup list
Sector Indicator (unchangeable)	2	C	Open next controller popup list	
Assigned squawk	5	C		

Tag item type:

Header name: Width: ☐ Align to center

Left button: Add Item Item Up OK

Right button: Delete Item Item Down Cancel

There are four columns in this dialog:

- ➔ **Item type:** the user can choose in the Tag item type popup menu which characteristic applies to the selected item.
- ➔ **Header name:** chosen abbreviation for the selected item.
- ➔ **Width:** the width of the column in characters.
- ➔ **Align to center:** this parameter can be set with the "Align to center" checkbox to align to center text in the column for the selected item.
- ➔ **Left button function:** this popup menu allows the user to choose in a list of preset actions to apply when the user left clicks on an item in the strip.
- ➔ **Right button function:** this popup menu allows the user to choose in a list of preset actions to apply when the user right clicks on an item in the strip.

The different buttons "add item", "item up", "item down" and "Delete item" allows the user to add, move up or down or delete an item in the dialog.

3.3.4. Distance Separation Tools

The Distance Tool



It is located on the right side of the main menu bar. It allows to display the distance between two points. These points can be an aircraft, a VOR, a NDB, or even a single geographic point. After clicking on the distance separation tool icon, the user selects an aircraft by clicking on its TAG. After clicking has been done, a white line is following the mouse and displays a tag above it showing distance and heading from the first clicked point.

If the user clicks on a second point, the line remains displayed on screen and the resulting information is displayed in the upper left corner of the screen in the following format:

```
N057.14.-N059.09. 338/158 d=124
N058.36.-N057.39. 123/303 d=105
AEE275-N035.30. 248/068 d=540
N040.02.-EMD031 139/319 d=2.9
EMD031-N036.04. 183/003 d=237
```

The first item is the first clicked point followed by the second clicked point, then the heading of the line joining both points, the inverse heading and the distance in nautical miles between them.

When the user clicks on the icon the `#.distance#` command is entered to the command line. The user has the option to go down and write parameters manually. Two parameters can be entered that can be anything: fix, ndb, vor or airport name, aircraft callsign or a geographical point in the following format: `N046.39.34.935,E020.24.14.512`. The user also has an option to change the `.distance` command to `.distance2`. This command will show direction values at both ends of the line.

The Separation Tool



It is located on the right side of the main menu bar. Use it if you think that two aircraft are on convergent tracks and need special attention to avoid a conflict. This tool indicates the minimum distance between both aircraft and the time from now when this situation will occur. It displays also for each aircraft a bold white line from current position until minimum approach position.

Here below, both aircraft are heading to LGAV.



The tag in the upper left corner is updated as both aircraft situations evolve. Here below is the tag result few minutes after.

```
OAL869-OAL946 9.0/17
```

3.3.5. The Chat Box

```
login
[19:04:04] server: at www.vatsim.net/docs.html. All logins are tracked and identification
[19:04:04] server: numbers are recorded.
[19:04:04] server: Users must enter their real full first names and surnames when logging
[19:04:04] server: onto any of the VATSIM.net servers. Rev. 01-10-02 2342
```

On this picture you can see the message received from the server. You will have the list of names above the box, with whom you are in conversation with. These names can be one of the followings:

- **callsigns** - pilot or controller to indicate private chats
- **frequencies** - to see text messages come and sent
- **server** - to see server messages (welcome and other notifications)
- **ATC** - for ATC broadcast messages (not that you can not write here directly, just with the / command)
- **Broadcast** - to see supervisor broadcast messages

primary frequency hit **the primary frequency send key** you defined in you *General Settings* to send, not [ENTER]. To **send text messages** or give in **commands** use [ENTER] (further details under *Working with keyboard*).

The right side of this bar is an info bar. Clicking on screen items e.g.: aircraft, controller, ATIS, etc. you can get detailed information. On the left side, the callsign of the currently selected aircraft is displayed. You can deselect the aircraft with the [Esc] key.

3.4 TAGs

Default MATIAS TAGs

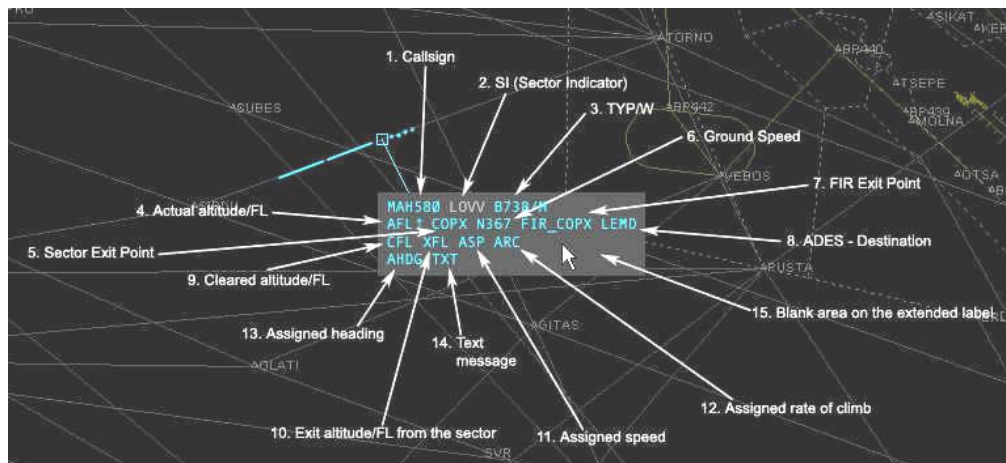
An aircraft is shown on the screen as a radar target and an associated TAG, that shows the controller relevant information on the aircraft's situation and flight. EuroScope comes with the default and unchangeable Matias TAG family. It really closely simulates the version used by the real Hungarian ANS's system - MATIAS contains a very rich set of relevant information and is rather similar to what is also used in other real-world workstations, e.g. on Eurocat models. Still, if you want to simulate a different system, you are free to do so. In EuroScope, you always have the possibility to customize the outlook and/or the behavior of TAG items. See the *TAG editor* page.

Every TAG family have four different outlook types:

- **Detailed**
- **Tagged**
- **Untagged**
- **Unidentified**

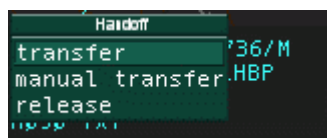
Detailed

The *Detailed* TAG comes visible when you move the mouse over a *Tagged* TAG. At one time only one TAG can be detailed. And this type has many functions connected to special parts of it.



1. Callsign - It displays the callsign of the aircraft

When you are tracking the aircraft there is a popup menu available with left button that allows you to transfer it:



The first list comes up if there is a controller who is controlling the sector just after yours. The second list is missing the *transfer* command when no next controller is detected. The functions are the followings:

- ➔ **transfer** - initiates a handoff to the controller next to your sector.
- ➔ **manual transfer** - pops up another list with all the available controllers; select one from the list and a handoff is initiated to him/her.
- ➔ **release** - simple drops the aircraft.

When another controller has initiated a handoff to you then another popup menu is available (the first picture displays the initiated handoff):

```
MAH616 FT B737/M/t
A51↑ INIT N228 KEROP LWSK
270 070 ASP ARC
AHDG TXT
```

```
Track
assume FT B737/M/t
refuse IIT N228 KEROP LWSK
270 070 ASP ARC
AHDG TXT
```

- ➔ **assume** - accept handoff.
- ➔ **refuse** - refuse handoff.

2. Sector indicator - indicates the current or the next sector controller

When you are not tracking the aircraft it simply indicates the controller who is tracking it. "--" means no controller owns it. If no owner of the aircraft at all then a left click here starts tracking it.

```
MAH2100 -- B737/M/?
307↑ MOPUG N475 MOPUG LCLK
390 310 ASP ARC
H140 TXT
```

```
AMT8132 AP B738/M
A64 ERLOS N254 MOPUG OEKM
350 170 ASP ARC
AHDG TXT
```

When you are tracking the aircraft it indicates the controller of the next sector. If no online controller who is controlling the next sector then a "--" will appear here. By right button click the controller short ID can be changed to the primary frequency. EuroScope will change the ID to frequency automatically when the aircraft is within 3 minutes to the borderline.

```
MAH583 -- B736/M
250 COPX N409 LHBP
390
```

```
MAH583 122.80 B736/M
250 COPX N409 LHBP
390
```

```
MAH583 AP B736/M
250 VEBOS N409 LHBP
390 170
```

```
MAH583 129.70 B736/M
250 VEBOS N409 LHBP
390 170
```

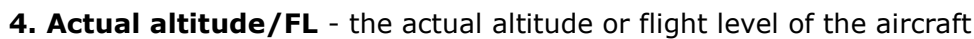
You have the chance to override the next controller calculated by EuroScope. Click with the left button on the sector indicator. It opens a popup menu with the reachable controllers. Select one from the list. It will be assumed as next controller independently what sectors are next. The overridden controller is flagged by accepted ongoing coordination color. Select reset to allow EuroScope to detect the next controller based on route and sectors. You also have the possibility to delete next controller by selecting UNICOM.

```
Nextcontroller
129.100 EDMC_CTR
123.920 EDWW_CTR
123.220 EDWW_E_CTR
118.400 ESOS_CTR
YAF371 135.450 EURM_CTR
300 ARS 126.150 LFMM_CTR
300 300 127.120 LKAA_CTR
ARSIN T 123.770 LYBA_CTR
HTA 119.700 EDBB_N_APP
-- reset
-- UNICOM
```

```
YAF371 EM B734/M
300 ARSIN N457 ARSIN EDDM
300 300 ASP ARC
ARSIN TXT
```

3. Aircraft type - the type of the aircraft coming from the flight plan

To set the communication type just click on the sign (there are to spaces in the detailed TAG for /v types that allows the mouse clicks). Then a popup menu appears to select the right type.



With right button click it toggles the route display of the aircraft.

In the first picture I am Budapest Radar and no approach is online. Therefore the coordination point over ERLOS is not active as I control both sectors. Only the FIR exit point MOPUG is effective.

MAH1202
A75 ERL05 N269 MOPUG
340 170

B738/v

LHTL

STA

ERL05 19:23

LHKE
ATACAL

BKS

LH

MAVIR 19:33

LHUB

ARER

ARAK

MOBUG

ATEGR

ARD

MOPUG 19:41

By clicking on it with the right button you can toggle its display in the *Tagged* TAG.

7. FIR exit point - the coordination point along the route where the aircraft leaves the actual FIR

The definition of the FIR exit point is similar to the sector exit point.

By clicking on it with the right button you can toggle its display in the *Tagged* TAG.

8. Destination - the ICAO code of the destination airport

A left button click on this item opens the *Flight plan setting dialog* where you can amend the flight plan. By clicking on it with the right button you can toggle its display in the *Tagged* TAG.

9. Cleared altitude/FL - the altitude or flight level cleared to be reached

CFL popup



That is actually the temporary altitude in VATSIM.

A left click on this item opens a popup menu with a list of the altitudes and flight levels from ground to FL610. If the aircraft has cleared flight level then it will be selected. Just select one and it will be assigned to the aircraft.

There are four special elements in this popup list:

→ **CL/APP** - select this items to indicate that the AC is cleared for ILS approach.

→ **VAPP** - select this items to indicate that the AC is cleared for a visual approach.

→ **---** - this selection clears the temporary altitude setting the final as cleared.

→ **RFL** - this popup menu will open another popup menu that allows you to change the requested flight level/altitude.

Important: When making a simulation session (alone or for a candidate) setting the cleared level via the popup menu will drive the simulated aircraft to the specified altitude.

RFL popup

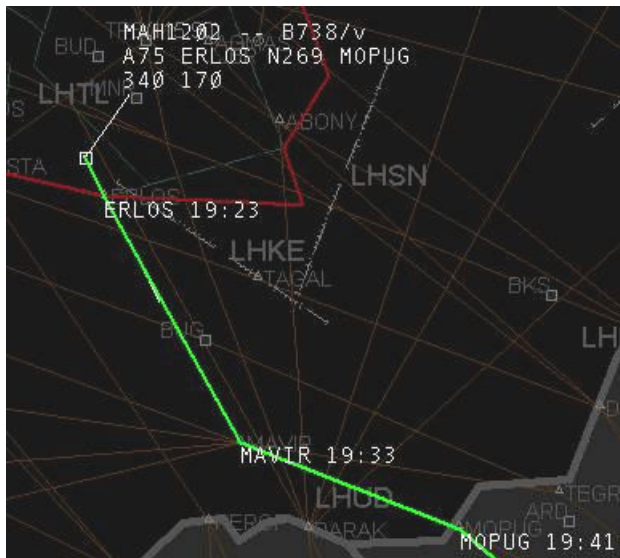


10. Exit altitude/FL from the sector - the coordinated altitude or flight level at the next coordination point

If no such point defined then the final cruising altitude. See the pictures again from the *sector exit point* description.

In the first picture no approach is online. Therefore the next coordination point is the FIR exit point MOPUG. The coordination altitude is FL310 there.

When approach is online then the coordination point is ERLOS and the coordination altitude is FL170.



When the aircraft is directed to a waypoint using the popup list from *sector exit point* then the name of the point will be visible here.

Important: When making a simulation session (alone or for a candidate) setting the assigned heading will drive the simulated aircraft to the specified heading. In this case it is really important to be able to turn the aircraft to the left or to the right. For that the list contains the values from -360 degrees to +360 degrees from the actual heading.

14. Text message - the scratch pad

Note that if the scratch pad is recognized by EuroScope then the scratch pad remains empty and the appropriate other item is changed. On the other hand if the scratch pad is not empty a static letter "I" is displayed over the first line. The length of the scratch pad is limited to 60 chars only, but for compatibility reasons only the first 5 is propagated to ASRC and VRC clients (while EuroScope clients will receive the whole length). By clicking on the scratch pad area in the TAG the message itself can be edited there.

I YAF371 EM B734/M 300 ARSIN N457 ARSIN EDDM 300 300 M0.70 ARC ARSIN 31L	I YAF371 EM B734/M 300 ARSIN N457 ARSIN EDDM 300 300 M0.70 ARC ARSIN But it can be really long	I YAF371 EM B734/M 300 ARSIN N457 ARSIN EDDM 300 300 M0.70 ARC ARSIN 31L
--	--	--

Tagged

The tagged TAG is similar to the detailed but contains less information. The following items are not visible at all:

→ **assigned speed**

→ **assigned rate**

→ **assigned heading** - only if heading is assigned, but if a direct to waypoint is specified then it is visible

→ **scratch pad**

There are also items that can be switched to be displayed or to be hidden. You can switch the following items by a right click:

→ **aircraft type**

→ **ground speed**

→ **FIR exit point**

→ **destination airport**



The altitude display is also different. The logic behind is to display only the values that are different from the other ones. In this way when all three values (actual, cleared/temporary and coordinated/final) are the same then only the actual altitude is displayed.



When the cleared/temporary is not defined or equals to coordinated/final, then only the coordinated/final is displayed. And to be easily visible the coordinated/final altitude is not displayed at the beginning of the line but one letter to the right.



And finally of course if all three are different, or even if temporary and actual are the same, then all three values are displayed.



Untagged

The *untagged* TAG is a really compressed with limited data available. Only the squawk code and the altitude is visible. And also the color of the TAG can be different.



Here the order is: non concerned, notified and redundant.

Unidentified

The *unidentified* TAG is used when the aircraft is assumed to be flying (at least it is supposed from the GS) but not squawking "C". In this case you can see a static message **TSSR** and the ground speed below.



3.4.1. TAG editor

TAG families

In EuroScope the TAGs are not fixed at all. It is up to the user what he/she would like to see on the radar screen.

To define your own TAG displays you should add and edit TAG families. You should define each member of the family, then you can assign the whole family to the layout settings (ASR) files. TAG family is a set of four TAG definitions. Each must be completely defined before using the family. The members are as follows:

→ **Untagged**

This is used for aircrafts that are not considered by the controller. This type should be as compact as possible, but should contain information enough to provide safe separation. In EuroScope a doubleclick on the TAG will tag it up or down.

→ **Tagged**

This is the normal TAG used for aircraft tracked or considered. It contains far more information therefore needs a little bit more space. You can not tag down TAGs that are tracked by you or a handoff initiated to you. All the rest can be down. In the real life Matias system even the concerned aircraft TAG can not be moved to down, but as we have a smaller screen I let it be switched on or off. So if you are a real fun of Matias never let it go down.

→ **Detailed**

This is something really unique in EuroScope. Even if the *Tagged up* TAGs can contain more information still has something that is not necessary always but handy to have it very fast. For that

a *Detailed* TAG member is invented. When you are moving your mouse as you are over a *Tagged up* TAG it will change to *Detailed* and you will see even more information about the aircraft. At one time only one TAG can be detailed. And on a detailed TAG you can have several function connected to the part of the TAG.

→ Unidentified

This is also unique. This TAG is used whenever an aircraft is flying (at least it is supposed from the GS) but does not squawk C then this TAG will be displayed. Of course if you select that you would like to see standby aircraft too then this mode is not used at all.

How a TAG is built up?

Every TAG in EuroScope is built up from TAG items. The available TAG items are defined by the system. All such item has a piece of code that calculates the actual string to be displayed every time. There are items that always have content they are never empty but there can be ones that are sometimes empty display nothing. There is a special item, the *Next line* item that never displays anything but creates a new line.

So that the only thing that you should do is to make a list of these items and it will form a TAG that can be displayed.

The following TAG items are defined at this moment in EuroScope:

→ Aircraft category

The weight turbulence category of the aircraft. The actual symbols can be modified via the General Settings dialog.

→ Aircraft category with slash

The same as the above one, but starts with a / letter.

→ Aircraft type

The sort name of the aircraft type.

→ Aircraft type (switchable)

The same as above but can be switched on/off in tagged up TAG.

→ Aircraft type/category combined

It is a combination of the type and the category separated by a slash. Use it if you would like to hide/show them at once.

→ Aircraft type/category combined (switchable)

The same as above but can be switched on/off in tagged up TAG.

→ Altitude

The actual altitude of the aircraft. Over the set transition level it displays the value in three digits (e.g.: 310, 050), below the transition level it assigns an #A# (for altitude) and displays two or three numbers (e.g.: A55, A06, A110). The A can be switched off via the General Settings dialog.

→ Assigned departure order

When the plane is assigned to be departed soon it receives a departure order number. This number is displayed in the item (it is rarely used in the TAG itself, but on the advanced aircraft lists).

→ Assigned heading

Assigned heading is an attribute of the aircraft. It indicates the heading given to it by the controller. It can be set in EuroScope but not published via the network so far. If no heading is assigned then a static string AHDG is displayed. Otherwise an H plus the heading in three digits (e.g.: H110). This item can also display the content of the scratch pad in case the content is a waypoint along the route in the flight plan (from 2.8h version any valid waypoint)(e.g.: VEBOS)

→ Assigned heading (if set)

The same as above but not shown if no heading is assigned.

→ **Assigned rate**

Assigned rate is an attribute of the aircraft. It indicates the climb or descent rate given to it by the controller. It can be set in EuroScope but not published via the network so far. If no rate is assigned then a static string **ARC** is displayed. If rate is assigned then an **R** followed by the signed rate value is visible (e.g.: **R1500**).

→ **Assigned rate (if set)**

The same as above but not shown if no rate is assigned.

→ **Assigned runway**

The assigned departure or arrival runway. The runway can be assigned by the controller, but can be calculated by EuroScope from route, SID/STAR and active runways.

→ **Assigned SID**

The assigned standard departure route. The SID can be assigned by the controller, but can be calculated by EuroScope from route and active runways.

→ **Assigned speed**

Assigned speed is an attribute of the aircraft. It indicates the speed given to it by the controller. It can be set in EuroScope but not published via the network so far. If no speed is assigned then a static string **ASP** is displayed. If speed is assigned then an **S** followed by the value is visible (e.g.: **S160**).

→ **Assigned speed (if set)**

The same as above but not shown if no speed is assigned.

→ **Assigned squawk**

The squawk assigned by the controller.

→ **Assigned STAR**

The assigned standard arrival route. The STAR can be assigned by the controller, but can be calculated by EuroScope from route and active runways.

→ **Callsign**

The callsign of the aircraft. It is never empty and most cases used as primary/main item (see later).

→ **CLAM warning**

The stand alone Cleared Route Adherence Monitoring warning. A static **CLAM** string when the pilot does not follow the altitude restrictions.

→ **Clearance received flag**

It indicates if the plane has received the clearance flag or not.

→ **Collision alert indicator**

This item is normally empty. But if short term conflict alert is switched on and there are two aircraft too close to each other, then a **CA** is displayed by this item.

→ **Communication type**

The type of the communication the aircraft is able. The well known **/t** or **/x** will be displayed. **Note** that **/v** is never displayed by EuroScope as voice is the main form of communication in VATSIM. If the plane is voiceable two SPACE chars are displayed to have a place to popup the communication type menu. If the type can not be extracted from the remark field a **/?** is shown.

→ **Communication type (reduced)**

The same as the above, but voice communication is really empty there. In that case it will not be possible to popup the selection menu from this item. We suggest using it on the tagged type but not in the detailed.

→ **Compound warning item**

This item combines the following warning flags in this priority order:

- Emergency indicator

- Radio failure indicator
- Hijack indicator
- Collision alert
- Squawk error
- Duplicated squawk flag
- CLAM/RAM warning

→ **Departure aerodrome**

The departure airport extracted from the flight plan.

→ **Destination airport**

The destination airport extracted from the flight plan.

→ **Destination airport (switchable)**

Same as the previous, but can be switched off by the controller to reduce the size of the TAG.

→ **Destination ETA**

Estimated time of arrival to destination airport.

→ **Direct to point name**

If a direct is given to the specified aircraft then the name of the point can be displayed by this item.

→ **Duplicated squawk**

If the assigned squawk is used by another aircraft then a static **DUPE** string. Otherwise empty.

→ **Emergency indicator**

If the aircraft is squawking 7700 then a static **EMG** string. Otherwise empty.

→ **Final altitude**

The final cruising level/altitude defined by the flight plan and might be overwritten by the controller.

→ **FIR exit point (switchable)**

Same as the previous, but can be switched off by the controller to reduce the size of the TAG.

→ **FIR exit point name**

The name of the next point from the flight plan route that is defined as FIR exit point in the sector file extension. If no such point then it is empty.

→ **Flight rule**

The flight plan route I/V/S.

→ **Ground speed (with N)**

The ground speed of the aircraft with an **N** letter in front.

→ **Ground speed (with N)(switchable)**

Same as the previous, but can be switched off by the controller to reduce the size of the TAG.

→ **Ground speed (without N)**

The ground speed of the aircraft (just the numbers).

→ **Ground speed (without N)(switchable)**

Same as the previous, but can be switched off by the controller to reduce the size of the TAG.

→ **Ground status**

The status of the aircraft in the departure sequence. The following values can be selected and displayed here:

- **PUSH** - when pushback is approved
- **TAXI** - when the plane is taxiing
- **DEPA** - when the plane is about to be departing

→ **Handoff target ID**

The ID of the controller who has is targeted by a handoff request. This item is used rarely now as the /Sector indicator/ does this work also.

→ Hijack indicator

If the aircraft is squawking 7500 then a static **HII** string. Otherwise empty. It is inside the code even this squawk is not permitted on VATSIM.

→ Manual coordination flag

A telephone symbol, that indicates when something needs to be coordinated with an adjacent controller who uses a client that does not support the ongoing coordination feature.

→ Next line

It is a special item. It never displays anything but starts a new line in the TAG. TAGs are always left justified.

→ Next line if not empty

The same as the previous but it starts a new line only if the current line is not empty. Using this you can be sure that no empty lines are displayed in the TAG.

→ Non RVSM indicator

When an IFR plane that does not indicate RVS equipment in the plane type a static **w** is displayed. Otherwise it is empty.

→ Not cleared or not reached temporary altitude

This is the sector exit or (if not given) the final altitude. If different from sector exit altitude, the displayed by three digits 150 or 050. If same as sector exit but the aircraft is not at this level then an extra space is added to the beginning. Otherwise empty.

→ Not cleared sector entry/exit altitude

It is a combined tag item. If the plane is coming into your sector then sector entry level/altitude is displayed. If inside your sector then the sector exit level/altitude. If the sector entry/exit level is not defined then the requested level is displayed here. This item is changing the color on coordinated values.

→ Not reached temporary altitude

It is the temporary or if not set the final altitude. It is displayed only if it is different from the actual level/altitude. If it is reached then empty.

→ Radio failure indicator

If the aircraft is squawking 7600 then a static **RDO** string. Otherwise empty.

→ RAM warning

If the aircraft is more than 5nm away from its calculated route, the RAM warning is shown. RAM is not shown if the plane is on the ground or cleared for approach, has a direct to point or assigned heading. And not shown for VFR plans.

→ RVSM indicator

It indicates that the plane is equipped to be able to fly in RVSM airspace. The symbol is strikethrough **w**. If the plane is non RVSM able then empty.

→ Scratch pad filled indicator

If the aircraft scratch pad is not empty a static **#I#** string. Otherwise empty. Do not forget that if the content of the scratch pad is a name of a waypoint then the scratch pad itself is considered as empty.

→ Scratch pad

The content of the scratch pad if not empty. Once again if the content of the scratch pad is a name of a waypoint then the scratch pad itself is considered as empty.

→ Scratch pad (always)

Same as above, but item is always visible. If empty then a static **TXT** is shown.

→ **Sector entry point name**

The point name along the flight plan route of an aircraft where it should enter the sector. The definition of the sector entry points is once again an extension to the original sector file.

→ **Sector entry/exit altitude**

The altitude where the aircraft should be (as described by the standard procedures) when entering or exiting the sector of the controller who is currently tracking. If no such point is defined in the sector extension file then the final cruising altitude is displayed.

→ **Sector entry/exit point name**

The point name along the flight plan route of an aircraft where it should enter or leave the sector. The definition of the sector entry/exit points is once again an extension to the original sector file.

→ **Sector exit level**

The flightlevel/altitude at which the aircraft is supposed to leave the sector.

→ **Sector exit point name**

The point name along the flight plan route of an aircraft where it should leave the sector. The definition of the sector exit points is once again an extension to the original sector file.

→ **Sector exit time**

The estimated time over the sector exit point. Be careful if you coordinate a point that is far from the sector border, this value might be different from the actual sector exit time.

→ **Sector indicator**

It is a compound item and can show several things. If the aircraft is not tracked by you then it simply shows the current owner ID. "---" stands for a non-tracked aircraft. If the aircraft is tracked by you then it calculates which sector is the next along the route and displays the ID of the next controller if he/she is online. There can be "---" also if no next sector is defined or the next sector is not controlled (no controller online). When the aircraft within three minutes time to the sector border the next controller ID is changed to the primary frequency. E.g.: **AP, BU, NED, 133.20, --**.

→ **Sector indicator (unchangeable)**

Same as above, but can't be changed by the controller.

→ **Sector planned entry level**

The flightlevel/altitude at which the aircraft is going to enter the sector based on the flightplan.

→ **Sector planned entry time**

The time at which the aircraft is over the planned entry point. Be careful if you coordinate a point that is far from the sector border, this value might be different from the actual sector entry time.

→ **Squawk**

The squawk code sending by the aircraft. As it is never empty it is once again a good item to be primary.

→ **Squawk error indicator**

This item is normally empty. But if the squawk sending by the aircraft differs from the assigned squawk it displays an **A** then the assigned squawk. E.g.: **A2602**

→ **Squawk/callsign**

This item shows the squawk of an aircraft unless it is tracked. Then it changes to the callsign of the aircraft. This is very handy to create tiny compact TAGs.

→ **Static string**

It is up to the designer. If you need a static string in the TAG you can add an item like this and specify the text itself. EuroScope does nothing with it just displays.

→ **Temporary altitude**

The assigned temporary altitude. If not set then the assigned final altitude is displayed. Above transition level it is displayed with 3 digits (e.g.: 170, 050), below the transition level it is displayed with an **A** followed by two or three digits (e.g.: **A50**, **A100**).

→ **Temporary altitude (if set)**

Same as above, but hidden if no temporary altitude is set.

→ **Temporary if different from sector exit**

The temporary altitude if set and if different from the sector exit. Otherwise it is empty.

→ **Tracking controller ID**

It is the ID of the controller who is currently tracking the aircraft. It is no more used since the *Sector indicator* is developed.

→ **TSSR text**

It is a simple static text but built in. For non-squawking aircraft display.

→ **Two letter assigned speed**

Assigned speed is an attribute of the aircraft. It indicates the speed that were given to it by the controller. It is published by a special scratch pad string, that can be interpreted by other EuroScope clients. If no speed is assigned then a static string **ASP** is displayed. If speed is assigned than an **s** followed by the first two digits of the value is visible (e.g.: **s16**).

→ **Two letter assigned speed (if set)**

Same as above, but only visible if a speed is assigned.

→ **Two letter ground speed**

The ground speed of the aircraft with only the first two digits indicated.

→ **Two letter ground speed (switchable)**

Same as above, but can be switched on/off in tagged up TAG.

→ **Vertical speed**

This is the actual vertical speed value. It is displayed only if climb rate or descending rate is bigger than 100 f/m. It displays the absolute value without direction sign. The value is the 100th of the actual rate displayed to zero decimal digit (e.g.: 1 - 100 f/m, 25 - 2500 f/m). Its value is really far from exact due to the random position updates coming from the planes.

→ **Vertical speed indicator**

It is a small arrow to the UP or DOWN depending on the vertical speed. It is displayed only if the climb rate or descending rate is bigger than 100 f/m. If you do not have the right EuroScope font installed you will see ^ and | in place of the arrow.

Functions on the TAG

You are able to change not only the outlook of the TAG but also the behavior. It can be done by assigning functions to TAG items. Each TAG item may have a function associated with the left mouse button click or the right (works for middle too) mouse click. The functions are available only on the detailed TAG. You can assign the following functions:

→ **Accept manual coordination**

This function needs to be assigned to the Manual coordination flag to confirm the manual coordination and hide the manual coordination flag itself.

→ **Edit scratch pad string**

This function adds a text entry box to change the text in the scratch pad. It is not available if someone else is tracking the aircraft.

→ **Open assigned heading popup list**

This function pops up a list with the possible heading values to be assigned. It has no real meaning to add this function other than the *assigned heading* item. This function is not available if someone else is tracking the aircraft.

→ **Open assigned MACH popup list**

This function pops up a list with the possible mach numbers to be assigned. It has no real meaning to add this function other than the */assigned speed/* item. This function is not available if someone else is tracking the aircraft.

→ **Open assigned rate popup list**

This function pops up a list with the possible climb or descent rate values to be assigned. It has no real meaning to add this function other than the *assigned rate* item. This function is not available if someone else is tracking the aircraft.

→ **Open assigned speed popup list**

This function pops up a list with the possible speed (IAS) values to be assigned. It has no real meaning to add this function other than the *assigned speed* item. This function is not available if someone else is tracking the aircraft.

→ **Open communication type popup**

Assigned to the communication type item, this function allows you to change the communication type of the aircraft as you would do it using [F9]. This function is not available if someone else is tracking the aircraft.

→ **Open COPN altitude coordination list**

This function is part of the ongoing coordination feature and allows you to coordinate an altitude at which an aircraft shall enter your sector from the previous controller. This function is not available if the plane is not coming to your sector or if it has no owner.

→ **Open COPN point coordination list**

This function is part of the ongoing coordination feature and allows you to coordinate a different routing an aircraft shall enter your sector with the previous controller. This works similar to giving a direct, the only difference is, that the direct is a recommendation to the other controller that he accept or refuse. This function is not available if the plane is not coming to your sector or if it has no owner.

→ **Open COPN/COPX altitude coordination list**

This function is part of the ongoing coordination feature and allows you to coordinate an altitude at which an aircraft shall enter or exit your sector with adjacent controllers. You can use it to assign direct points within your sector. If the plane has owner and is going to come to your sector then it opens the COPN point list. If you are tracking the AC then it opens the COPX point list. In that list all points are masked if it is going to start a coordination and with which controller or not.

→ **Open COPX altitude coordination list**

This function is part of the ongoing coordination feature and allows you to coordinate an altitude at which an aircraft shall leave your sector with adjacent controllers. This function is not available if someone else is tracking the aircraft.

→ **Open COPX point coordination list**

This function is part of the ongoing coordination feature and allows you to coordinate a different routing an aircraft shall leave your sector on with adjacent controllers. This works similar to giving a direct, the only difference is, that the direct is a recommendation to the other controller that he accept or refuse. If you select the point with LEFT click it sets the direct or starts the coordination according with the flags. Using the RIGHT button you can assign direct point beyond the sector exit.

→ **Open final altitude popup list**

This function pops up a list with the possible final altitude values to be assigned. It has no real meaning to add this function other than the */final altitude/* item. This function is not available if someone else is tracking the aircraft.

→ **Open flight plan dialog**

This function opens up the flight plan setting dialog box. This function is always available even if someone else is tracking the aircraft. But in that case you will not be able to save changes made in the plan.

→ **Open ground status popup list**

This function pops up a list with the possible ground states /PUSH, TAXI, DEPA/ to be assigned. It has no real meaning to add this function other than the /ground status/ item.

→ **Open handoff popup menu**

This function pops up a menu that allows you to start tracking, to drop track or initiate a handoff to another controller. There are several cases when different items are displayed in this menu:

→ The plane has no owner - In this case you can start tracking it by selecting *Assume*. Here *Refuse* has no meaning.

→ A handoff is initiated to you - In this case the menu contains items to *Assume* or to *Refuse* the handoff.

→ You are tracking the AC - Then this popup menu the *Drop track* and the *Manual handoff* is always available. Selecting the first item will drop the aircraft tracking while the second will pop up another list that contains all online controllers within range. If the sector file extension is prepared and so the next sector can be detected and the controller is online then a simple *Handoff* menu item appears that will initiate a handoff to the controller calculated by EuroScope.

→ **Open next controller popup list**

This function opens a list with the currently online active controllers, which you can use to override the automatically selected next controller indicated in the /Sector indicator/ item. This function is not available if someone else is tracking the aircraft.

→ **Open next points popup list**

This function opens the same point as the /Open COPX point coordination list/.

→ **Open RWY setup popup list**

When the plane is on the ground at the departure airport then this function opens a popup list that contains the list of the available runways of the airport. Otherwise the list contains the arrival airport runway list. When you select an item here the FP is amended to hold information about the departure or arrival RWY.

→ **Open SID setup popup list**

It opens a popup menu with the available departure routes. If there is an assigned departure runway then the list contains the SIDs connected to the runway only. When you select an item here the FP is amended to hold information about the departure route.

→ **Open SQUAWK setup popup list**

It opens a popup that holds two items. One is for automatic SQ assignment and another for manual. In that case you can manually enter the SQ value.

→ **Open STAR setup popup list**

It opens a popup menu with the available arrival routes. If there is an assigned arrival runway then the list contains the STARs connected to the runway only. When you select an item here the FP is amended to hold information about the arrival route.

→ **Open temporary altitude popup list**

This function pops up a list with the possible temporary values to be assigned. It has no real meaning to add this function other than the *temporary altitude* item. This function is not available if someone else is tracking the aircraft.

→ **Set clearance received flag**

This function sets or clears the clearance received flag. It has no real meaning to add this function other than the /clearance received/ item.

→ **Toggle destination display**

This function switches on/off the destination item display. It has no real meaning to add this function other than the *destination* item.

→ Toggle FIR exit point display

This function switches on/off the FIR exit point item display. It has no real meaning to add this function other than the *FIR exit point* item.

→ Toggle ground speed display

This function switches on/off the ground speed item display. It has no real meaning to add this function other than the *ground speed* item.

→ Toggle next sector ID/freq display

This function switches between the ID or the frequency of the next controller. It has no real meaning to add this function other than the *sector indicator* item.

→ Toggle plane type display

This function switches on/off the plane type item display. It has no real meaning to add this function other than the *plane type* item.

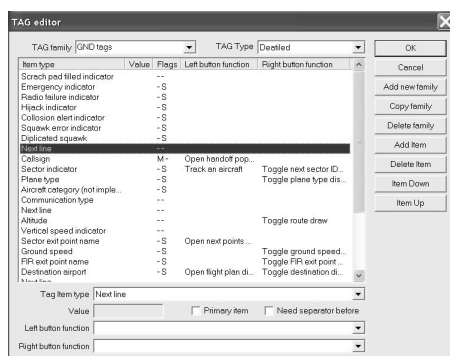
→ Toggle route draw

This function switches on/off the display of the calculated route track of the aircraft. It also displays the estimated time of arrival to each point.

→ Track an aircraft

This is a quick start tracking of untracked aircraft.

Editing the TAGs



This dialog box helps you creating new or modifying existing TAGs, TAG families. The built in Matias family can not be modified. It is hard coded into EuroScope and will be rebuilt at every startup. In reality when the system is up it works the very same way as a user defined family.

To create your own TAGs you always have to build a complete family. When ready and saved you can select your family in the *Display settings* dialog and save it to the ASR file. In this way the system will remember what TAGs to be used for what display layout.

The elements and functions of the editor dialog box:

→ TAG family combo

In this combo you can switch between your TAG families. It is also used to rename the current family. You can also edit the name of the built-in TAG, but it will be ignored.

→ TAG type combo

This combo is used to switch between the four types of the TAGs in the family. You should define all types to be able to save the family.

→ The item list

Major part of the dialog box is the item list defined for the specified family and type. If you select an item here then its data is copied to the controls below and you can change the data there. The order of the items is extremely important as EuroScope will display them in the way it finds them in this list.

→ Tag item type combo

With this combo you can change the selected item in the list.

→ Value editor

This editor is available only if a *free text item* is selected. In this case you can write the string itself to here.

→ Primary item check-box

The primary item plays an important role in the TAG definition. The line from the aircraft position will point to the center of this item. If the primary item is not visible then no way to connect the TAG

with the aircraft position and you will be lost. So select an item the is always visible (squawk, callsign, TSSR etc.). Of course only one primary item can be defined for one TAG. It mark is an M (:)) letter in the *Flags* column.

→ **Need separator before check-box**

This check box indicates the a space will be added before this item if the current line is not empty so far. That makes it a little bit easier to have some spacing between items.

→ **Left and right button function combo**

With these combo boxes you can define the function you would like to have when clicking on the item. It is available only for detailed TAGs.

→ **OK button**

Nothing to say. Saves your edit and closes the dialog. Some tests are executed before saving the TAGs and you may receive error message if something is wrong (e.g.: no primary item selected for a TAG).

→ **Cancel button**

It closes the dialog and discards all changes yo have made.

→ **Add new family button**

It inserts a completely empty family to the system. You can use it if you want to start from a clean paper.

→ **Copy family button**

It copies the content of the selected TAG family into a new name. You can use it if you just want a family that is a little bit different from another.

→ **Delete family button**

Stands for its name. It deletes a family. Of course the built-in family can not be deleted.

→ **Add item button**

It inserts a new item to the list. If no selected item then it is placed as last. If there is a selected then it will be placed just before the selected. You can immediately start editing it by the bottom controls.

→ **Delete item button**

It simply deletes the selected item from the list.

→ **Item up button**

With it you can move your item one up in the list. Sorry I was lazy to write the real drag-and-drop.

→ **Item down button**

With it you can move your item one down in the list. Sorry again I was lazy to write the real drag-and-drop.

3.5. Controller To Controller Communication

Basic Communication

In this section you can find just a brief list of the communication types between controllers with a reference inside the documentation. The basic communication is when you provide information that is available to all neighbor controllers. In this cases you just spread out the data you have and you do not request any answer to them.

→ **Temporary altitude assignment** - The cleared climb or descend flight level or altitude. You can do it using the .QQ (F8) command or via the appropriate popup menu. In EuroScope there are special values to clear an aircraft for ILS or visual approach, which disable the CLAM-warning.

➔ **Final altitude assignment** - Different final / cruising altitude assignment. It is important to notice that the .qz (F5) altitude assignment does not modify the flight plan. It is published using controller to controller messages only.

➔ **Scratch pad string** - The free text area for adding notes up to 60 characters. In addition to that the scratchpad is used more heavily inside EuroScope. For more about it see the [Non Standard Extensions](#) page.

➔ **Squawk assignment** - The squawk assignment is somewhat different. It is published between controller clients but the servers are also storing some information about it.

Flight Plan Amendment

A little bit more advanced, but the flight plan amendment is still just a data propagation. There are two different ways to do that:

➔ **Simple FP editing** - You can change all parts of the flight plan using the [Flight Plan Setting Dialog](#).

➔ **Automatic FP change** - In EuroScope there are new functions that are using the flight plan amendment.

➔ **SID/STAR assignment** - When you assign a SID or STAR to an aircraft its flight plan route section is amended to hold the information about it. It is visible to all controllers, but EuroScope clients will interpret it automatically.

➔ **Departure/arrival runway assignment** - Similarly the runway assignment amends the route section like the one above. And once again EuroScope clients can interpret the modified route automatically.

Look at the [Non Standard Extensions](#) page to see how EuroScope will change the route section of the flight plan when a runway or a SID/STAR is assigned via the popup menus.

Advanced Communication

We can say advanced communication when the two controllers are sending information to each other and in many cases they need an answer for their messages. The following communications are here:

➔ **Handoff** - When you initiate handoff to the next controller he receives a message about it. Then he has the possibility to accept or refuse it.

There are also two not really formalized communication form:

➔ **Chat area** - You can chat with all controllers. Even with the ones that are out of your area.

➔ **Ground to ground voice** - Using the G2G voice communication you can talk to each other without disturbing the others. Actually this form of communication is sometimes not really easy to set up.

The Ongoing Coordination

The ongoing coordination is a new advanced feature in EuroScope. It allows neighbor controller to offer, accept, refuse points and altitudes the plane is expected. The coordination point may be just in the border of the sectors of the controllers, but it is also possible to coordinate a point well ahead in the next sector. The ongoing coordination is a brand new innovation in EuroScope, and at the time of writing this documentation EuroScope is the only controller that are prepared for it. Unfortunately it has a back draw that you can not use this when the other party did not use EuroScope. In this case some features are still available, but not all. To realize who is able to use the coordination features look at the controller lists:

```

FCATGSOU
FF EDFF_P_CTR
10 EDLL_CTR
11 EDMM_CTR
12 EDMM_E_CTR
13 EDWW_CTR
EP EPWW_S_CTR
>BU LHCC_CTR
LK LKAA_CTR
LE LKAA_E_CTR
VV LOVV_CTR
14 UKBV_CTR
>FT LHBP_TWR
>FG LHBP_GND
15 LHBP_ATIS

```

All controllers who are ready to answer is flagged by a >> sign. You can expect answers from them to your coordination requests.

There are three different scenario when you can use ongoing coordination:

→ **Exit point/altitude coordination** - when you are tracking an aircraft and you would like to suggest a different point or altitude to the controller of the next sector.

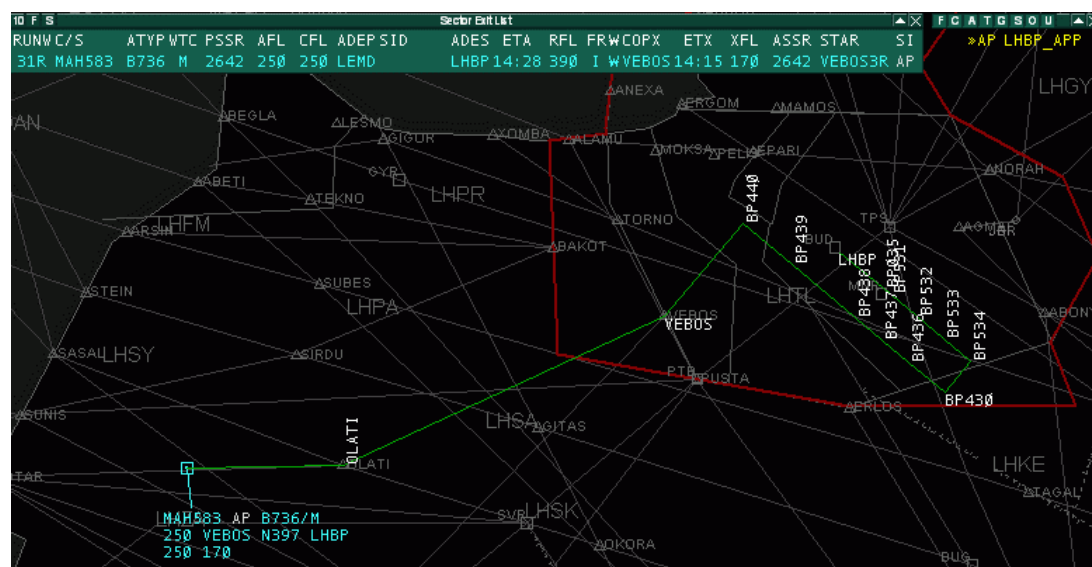
→ **Entry point/altitude coordination** - when you are expecting an aircraft to enter to your sector and you would like to suggest a different point or altitude to the controller who is currently tracking it.

→ **Bypass coordination** - when you are expecting an aircraft to enter to your sector, but for a too short time and you are aware that it will does not require any instruction from you then simple offer a handoff to the controller after you to the current owner.

From the above list it is visible that the first two cases are always in pairs. If you would like to coordinate the exit point/altitude the it is a coordination of the entry point/altitude for the next controller. And opposite: an entry point/altitude coordination for you is az exit point/altitude coordination for the current owner of the AC. The last one is different, not symmetrical at all.

Exit Point/Altitude Coordination

Probably the easiest way to describe the feature is to start with an example.



In this first example you see that I am controlling the Hungarian FIR as LHCC_CTR and approach for LHBP is online too. See the *>>* indicating that he is able to do the coordination. I have a plane that is coming from the southwest and destination is LHBP. In the TAG is is already indicating that the next controller will be Budapest Approach. The route is plotted in the picture and it is visible that a real big turnaround is ahead the plane if he follows the route to VEBOS point that is the normal handoff point between CTR and APP, and then follows the VEBOS3R transition to RWY 31R. If the traffic allows it why not to give him a shortcut to a point that leads him to the base immediately.

COPX point

GOTAR (--) - UP978

OLATI - UY58

VEBOS - UY58

BP440 (AP) - VEBOS3R

BP439 (AP) - VEBOS3R

BP438 (AP) - VEBOS3R

BP437 (AP) - VEBOS3R

BP436 (AP) - VEBOS3R

BP430 (AP) - VEBOS3R

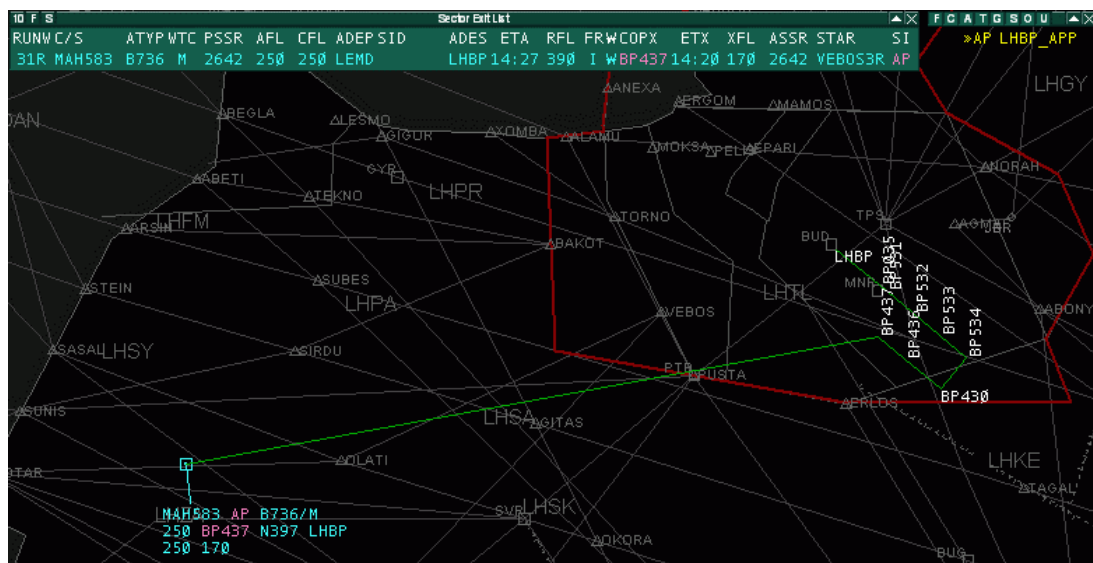
Clear direct

Enter name

To start a coordination request with APP I popup the next points list from the TAG.

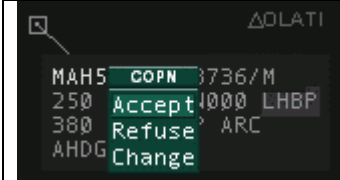


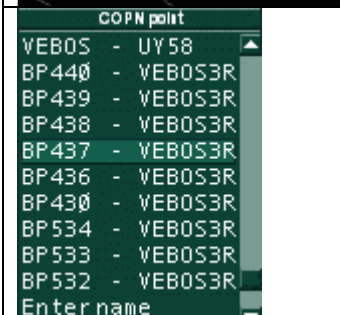
Here in the list you can now see the points along the route and also a flag that indicates if a point is required a coordination with another controller or not. You see that until the VEBOS point I am free to give any direct as the plane will still go to VEBOS for the handoff. But the points after VEBOS are marked with the ID of Budapest Approach (*AP*). These indicators mean that a direct needs a coordination with Approach, he has to accept my offer.

If I select the point **BP437** a coordination request is sent to approach. For me the new point name is displayed with different color. And also the route plot is showing the desired new route.

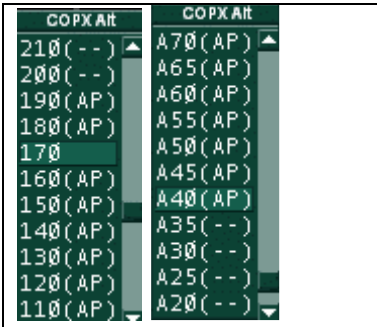




On the approach side the owner and the desired destination point is colored to indicate the incoming request. There is also a configurable audio warning about it.



	<p>If the plane itself is not inside the screen approach still can see the colored values in the sector entry list. This time the approach has 90 seconds to decide what to do with the request. He can click on the desired new point to answer to the call.</p>
	<p>Accept - To accept the coordination as it is. When accepted</p>
	<p>Refuse - To refuse the coordination at all. When the coordination is refused the values are turning back in both sides to the original state. And depending on the symbology and settings it is once again flagged by a different color.</p>
	<p>Change - When approach is ready for a shortcut, but the offered point is not the best for him, he can select the /Change/ option. Then a popup menu appears with the available other options. Selecting an item here will start a new entry point coordination with CTR.</p>

OK, we have completed the shortcut coordination. But you can still see some pictures above that even the new point is BP437 the coordination altitude remained FL170 that is far too high at that point. When CTR realizes it, it can offer a lower level/altitude. He can click on the sector exit altitude item.

	<p>In the list there are the possible altitude values. All are followed by the ID of the controller that will be called for coordination. You can see that FL170 is not flagged as it is the so far accepted value, and it does not need any coordination. FL200 and above are not marked with AP as approach controls up to FL195 and a higher altitude will not drive the plane to his sector at all. In this way it does not need any coordination. The same is visible if the altitude is 3500ft or lower. In this case EuroScope detects a path from present position to BP437 that leaves CTR sector before enters to APP sector (as CTR bottom level is FL100). Therefore no controller is indicated for coordination.</p>
	<p>When the CTR selects the altitude it will start a coordination.</p>
	<p>It is also indicated at approach like this.</p>

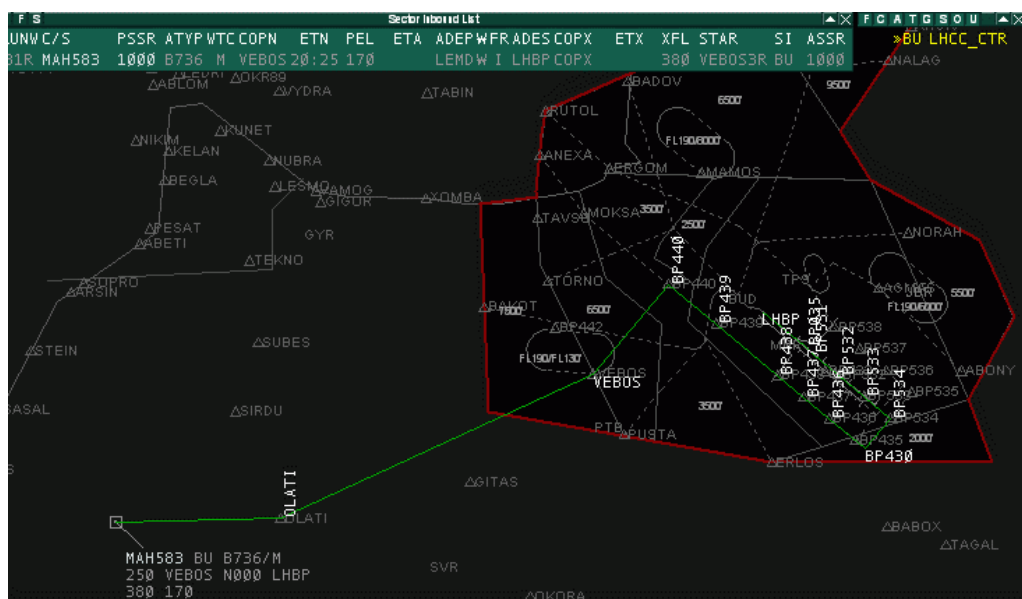
The way to accept, refuse and change is the very same that was described at the next point coordination.

Some notes:

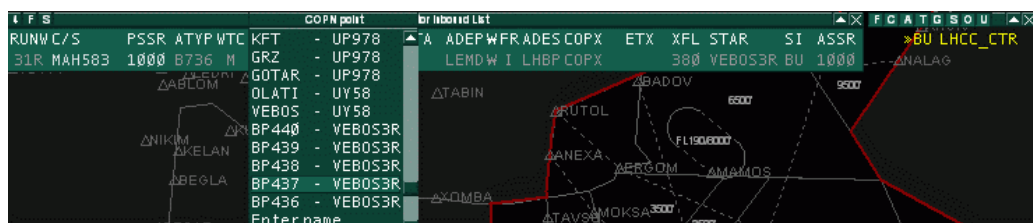
- ➔ If CTR decides that he do not want to coordinate but set the direct on his own discretion he can select the point name in the list by a right mouse click. In that case it will set, but not coordinated.
- ➔ If the plane is still outside the visual range of the APP, the coordination will be refused immediately and a generated message is sent to CTR: "LHBP_APP: ES generated - MAH583 is out of my range".
- ➔ When you start an exit point/altitude coordination EuroScope will connect the plane actual position with the requested new position with a straight line. Along this line it will detect what sectors are crossed. And the first that is outside the sectors of the current owner will be called for coordination.
- ➔ The controller who is tracking the AC has the right to change the next controller. Clicking on the sector indicator item he can select the appropriate controller from the menu. If the next controller is forced in this way EuroScope will start coordinating with that controller independently from the sectors detected.

Entry Point/Altitude Coordination

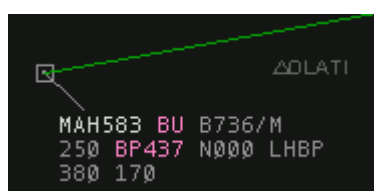
Let us now see the very same example from the approach point of view.



Now approach sees the arriving traffic that is currently tracked by CTR. For some reason it would be better for approach to ask CTR to send the plane direct to **BP437** point rather than **VEBOS** and also he wants it to descend to 4000ft altitude. First he opens the COPN point popup list on the TAG or on the sector entry list (whatever is the easiest) and requests **BP437**.



A controller can open up the COPN coordination menus only if the plane is controlled by someone else and it is going to enter to his sector later. Here you can see that there is no signal what controller will be called as an entry point coordination is requested from the current tracker of the plane. Approach here selects **BP437** and the value is signaled in both clients.

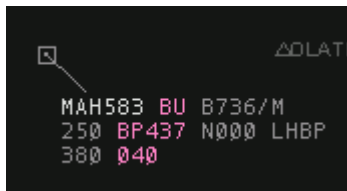


- APP view



- CTR view

Now CTR has 90 seconds to respond. Let us change the scenario a little bit. Approach still has an option. To start the altitude coordination before receiving the answer to the point request. He simply open up the COPN altitude list and select a new requested altitude. Then both requests will be shown in both clients simultaneously:



- APP view

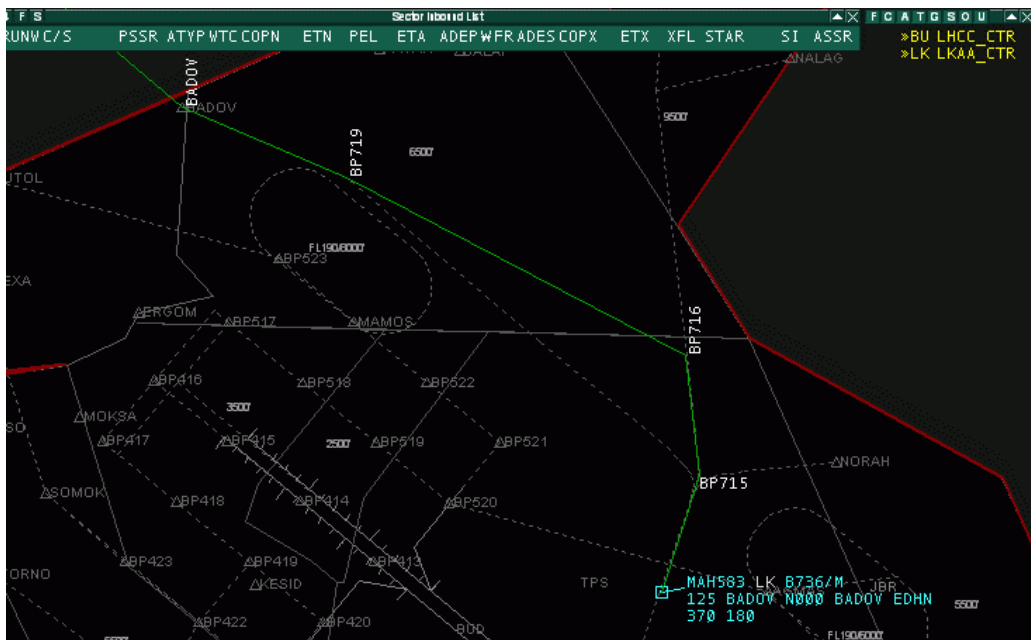


- CTR view

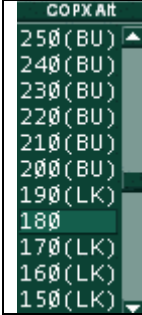
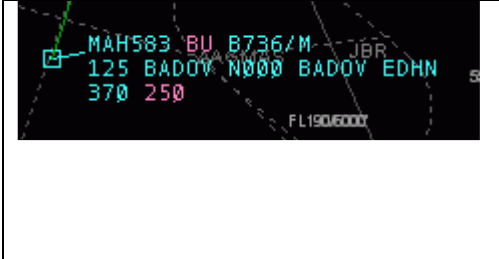




In this case CTR has the option to accept or refuse them with a single click.

Bypass Coordination

This is a little bit different scenario. It is not symmetric at all. We have now a departure from LHBP. The active runway is 13L for departure. In this case the standard exit point for north bound departures BADOV at FL180.



As FL180 is below the top of approach sector the plane is not intend to leave the sector on the top to Budapest Radar, but goes directly to Bratislava (normally controlled by Praha). But in case of RWY13 configuration it is quite probably that the plane climbs much faster then necessary and reaches FL180 well advance BADOV.

	<p>When approach realizes it, he start an altitude coordination.</p> <p>You can see in the popup list that up to FL190 Praha will be contacted for coordination, but at FL200 and above Budapest Radar as in this case the plane will leave the sector on top. Let us assume that approach stats an exit altitude coordination and Budapest Radar accepts it.</p>
	<p>Even Budapest accepted the coordination and allowed the plane to climb above FL180 up to FL250 the plane will just cross the section and will not spend there more than 1 or 2 minutes. As there is not other traffic in the area and the plane does not need any command from Budapest Radar it is better to handoff to Praha from Approach skipping Budapest. Therefore CTR opens a popup menu and sets Praha as next controller. It start a coordination with APP.</p>
	<p>CTR starts the coordination</p>
	<p>CTR point of view</p>
	<p>APP point of view</p>
	<p>APP can accept and refuse the same way as and exit or entry point coordination. Once he has accepted the new next controller is displayed in the sector indicator item.</p>

3.4. General settings

General settings dialog

General settings dialog

Keys

Aircraft select key

Num +

Set

Primary frequency send key

Num *

Set

OK

Cancel

Squawk options

Squawk interval

2600

2677

VFR squawk

7000

☒ Assign random squawks

WTC symbols

Light

L

Medium

M

Heavy

H

A380

J

Display options

☒ Display airspace lines

☒ Show route when accepting

☒ Show CLAM warnings

☒ Display FIX name at route points

☐ Lock show route when accepting

☒ Show RAM warnings

☒ Display ETA at route points

☒ Rotate texts along the route

☒ Never close FREQ chat

Miscellaneous options

☐ Assume aircraft on the ground as STBY

☒ Use calculated heading

☒ Show 'A' for altitudes

☒ Allow concerned aircraft tag down

☒ Auto Proxy connections

☒ Show 500 Ft items for non VFR

☐ Allow assumed aircraft tag down

☒ Keep scratch pad content after direct

☒ Use hovering TAG for key commands

☐ Inhibit auto flight strip push on handoff

☒ Auto messages for TEXT aircraft

☒ Automatically display METAR of active airports

☐ Set active APT by owned sectors

☐ Capitalize FP fields and scratch pad

Coordination options

☐ Do not use accepted coordination color

☒ Put incoming coordinations to first place

☐ Do not use refused coordination color

☐ Allow direct beyond COPX point

Who is online URL

http://vatsim.metacraft.com/satnet-data.txt

It is a very simple modal dialog to setup some non display related settings such as ASEL and FREQ keys and the actual squawk range.

→ Key options

→ Aircraft select key Set button

In front of the Set button you can read the actual name of the aircraft select button. The default value is the **numpad +**. To change it press the Set button then the desired aircraft select button.

→ Primary frequency send key Set button

In front of the Set button you can read the actual name of the primary frequency button. The default value is the **numpad ***. To change it press the Set button then the desired aircraft select button.

→ Squawk options

→ Squawk interval edits

Here the actual squawk interval is displayed. You also can override them here. But if you change your position the actual squawk range will be reloaded from the positions section of the ESE file.

→ **VFR squawk** - Here you can specify the VFR squawk. Entering the VFR code here will remove the DUPE warning for VFR airplanes squawking that code.

→ **Assign random squawks checkbox**: if this box is checked, EuroScope assigns random squawk numbers in the defined squawk range. If it is unchecked, EuroScope assigns squawk numbers from the beginning and incrementing in sequential order. It checks if the next squawk number is free and if so, assigns it to the selected aircraft.

→ WTC symbols

→ **WTC four categories** - Here are predefined symbols for different aircraft categories. The user can modify them if he is willing to.

→ Display options

→ **Display airspace lines**: Highlight sector border, where adjacent sector is online.

→ **Display FIX name at route points**: If that option is checked, every FIX name in the route appears near the displayed route. Otherwise, not.

→ **Display ETA at route points**: If that option is checked, the expected time of arrival at every FIX name in the route appears near the displayed route. Otherwise, not.

→ **Show route when accepting**: If that option is checked, the route is immediately displayed upon handoff approval.

→ **Lock show route when accepting**: When accepting a handoff, the routing of the aircraft is locked visible.

→ **Rotate text along the route**: If the route is closer to east-west than to south-north, the route annotations are rotated by 90 degrees.

→ **Show CLAM warnings**: CLAM stands for Cleared Level Adherence Monitoring. It indicates that the pilot does not follow the cleared level. It is shown if the plane is outside the +-200 ft range of his temporary or final altitude and his vertical speed does not indicate that he is trying to reach it. There are some exceptions:

1. CLAM is not displayed on the ground.
2. CLAM is not displayed if the AC is cleared for approach.
3. CLAM is not displayed if no temporary altitude set and the plane is not tracked.
4. CLAM is not displayed if AC is flying at final altitude but cleared for lower.

→ **Show RAM warnings:** RAM stands for Route Adherence Monitoring. It is displayed when the AC is out of the 5-5 NM (fixed value and no settings so far) range of the route calculated by EuroScope. Here are also some exceptions:

1. RAM is not displayed on the ground.
2. RAM is not displayed if the AC is cleared for approach.
3. RAM is not displayed when a direct is set or has assigned heading.

→ Miscellaneous options

→ **Assume aircraft on the ground as STBY:** Simulate STBY mode for all aircraft on ground, even if they are squawking C.

→ **Allow concerned aircraft tag down:** Normally when an aircraft status is notified or coordinated you can not close its TAG down (for more information about aircraft statuses look at the Sectors And Aircraft States page). If you select this option you will be able to close the TAGs in this state.

→ **Allow assumed aircraft tag down:** Normally you can not close down TAG that are tracked by you. This option allows you to do it.

→ **Use calculated headings:** If this option is checked then EuroScope will calculate the heading of the aircraft based on the actual and the previous points received. In this case the leader line will show the actual track heading. If this option is off then the true heading reported by the aircraft will be used to display the leader line. In case of high winds that could be really different from the route.

→ **Auto Proxy connections:** The Proxy Connection is automatically activated. If used on the primary instance, the Proxy Server is activated, any subsidiary instance is automatically connected to the primary instance (on the same computer).

→ **Keep scratch pad content after direct:** For VRC and ASRC compatibility EuroScope deletes the scratch pad content after a direct is assigned, and the point name is stored there. With this option you can disable it and keep the original content. This will cause that VRC and ASRC users will not see the assigned point.

→ **Show 'A' for altitudes:** Altitudes are preceded by A depending on the setting in The Menu Bar.

→ **Show 500 ft items for non VFR:** If this option is set then in the altitude assignment popup lists below 1000 ft all 500 ft items are shown for all AC. If disabled, then for IFR planes only the 1000 ft items are displayed.

→ **Use hovering TAG for key commands:** If that option is checked, when the mouse is over a detailed TAG and the controller types any command, that command is directly sent to the selected aircraft without any need to press the Enter key.

→ **Auto messages for TEXT aircraft:** When this option is checked whenever something is set via the TAG menus then EuroScope generates a message to be sent via the frequency chat. It is placed into the command editor but not sent automatically.

→ **Set active APT by owned sectors:** This option automatically activates airports in the Active Airports Runways dialog, if they are defined in the sector definition of the ESE file.

→ **Inhibit auto flight strip push on handoff:** If this box is checked, the aircraft flight plan is not automatically pushed to the next controller. It's up to the controller to push the flight plan using the **.SS** "controller ID" command or with the popup menu on the flight strip.

→ **Automatically display METAR of active airports:** The metar of active airports is automatically added to the Metar List, if there are runways activated for those airports.

→ **Capitalize FP fields and scratch pad:** With this option enabled, text in the flightplan and the scratch pad is capitalized.

→ Coordination options:

→ **Do not use** accepted coordination color: Indicates that accepted coordinations are to be displayed with normal color and does not need a highlight.

→ **Do not use refused coordination color**: Indicates that refused coordinations are to be displayed with normal color and does not need a highlight.

→ **Put incoming coordinations to first place**: Aircrafts with incoming coordination requests are moved to the top of the Advanced Lists.

→ **Allow direct beyond COPX point**: If set then no coordination is initiated if a point is selected beyond the actual COPX.

→ **Who is online URL** - Here you can specify the URL from where EuroScope can download VATSIM's data for the "Show simulated traffic" function. Here are some servers:

→ <http://vatsim.info/servinfo/satnet-data.txt>


→ <http://europe-cw.vatsim.net/data/satnet-data.txt>

→ <http://vatsim.metacraft.com/satnet-data.txt>

3.7. Display settings

Display settings dialog

This is where you can customize the display settings. EuroScope takes a big step forward from previous radar clients by allowing users to switch on/off individual items on the radar screen. You may want to have a clear view and switch off most nav aids, but you need a given VOR or a FIX; you want to see a certain Runway or a centerline, without having to see others making the screen confusing - this is the setup dialog for you! Earlier witty .sct file creators used the SID/STAR settings to add adjustable little practical details to the screen - now with EuroScope, there's no need for that anymore!

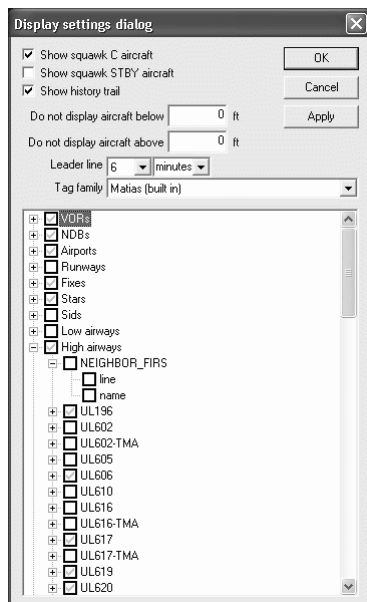
Open the Display Settings Dialog by clicking on the upper toolbar on 

OTHER SETTINGS > Display settings...

or

Directly by clicking on the  (Altitude filter/Display settings) icon.

Important! All the changes you make in this dialog last only in the current session. Leaving EuroScope your modifications are forgotten. To save them call Sector file > Save ... menu.



→ **Show squawk C aircraft** - Display or hide targets with squawk mode Charlie

→ **Show squawk stand-by aircrafts** - Display or hide targets with squawk stand-by

→ **Show history trail** - Display or hide history trail points

→ **Do not display aircrafts below [] ft** - Filters all targets below the given altitude in feet (a value of 0 means filter is OFF)

→ **Do not display aircrafts above [] ft** - Filters all targets above the given altitude in feet (a value of 0 means filter is OFF)

→ **Leader line [] [MINUTES/MILES]** - Set leader line to predict aircraft's position in given minutes or nautical miles. Minutes or NM can take up values between 1-10, or "No leader line".

→ **Tag family** - Select presaved TAG settings from the list. Default TAG is the one used in the Matias system at Budapest ACC/APP

→ **Check boxes** (explained below)

Check boxes

Now this is a real novelty of EuroScope: by ticking, you can not only switch all VORs, NDBs, etc.s on/off, but by going into the tree, you can switch on/off practically all individual items on the radar screen! (Data of course should previously have to be set up in the .sct and .ese files)

Using this hierarchy tree it is quite easy to switch items on/off in groups. Clicking on the VOR check box all the items below this one follow its state and will be switched on or off accordingly. That is quite straightforward. On the other hand sometimes there is a need to change the settings on items grouped by their type. E.g. it is quite common that you would like to see all VOR's symbol and name but not the frequency. With this hierarchy you should click every frequency member one by one that is really boring. To speed up settings like this EuroScope offers the doubleclick function. First select the item you would like to change (e.g. VOR's frequency), then set the state to the desired at one item. Then make a doubleclick on that item and at once all items with the same name and level will follow it.

It still can take time to create your finest working environment, but as a help, EuroScope can remember your settings in the .asr files that can be saved and loaded.

→ **VORs** - switch ON/OFF each symbol/name/frequency

→ **NDBs** - switch ON/OFF each symbol/name/frequency

→ **Airports** - switch ON/OFF each symbol/name

→ **Runways** - switch ON/OFF the following items: centerline (=the runway)/name/extended centerline 1 (1st direction extended centerline)/...left or right clicks (ticks every 1 nm on extended centerline between 5-20 nm)/...vectoring (draws a 30 degrees interception track for a 10 nm final)/...base (draws a base leg track line leading to the interception tracks)

→ **Fixes** - switch ON/OFF each symbol/name

→ **STARs** - switch ON/OFF individual Stars (or elements of the STARs section)

→ **SIDs** - switch ON/OFF individual Sids (elements of the SIDs section)

→ **Low airways** - switch ON/OFF each airway line/name

→ **High airways** - switch ON/OFF each airway line/name

→ **ARTCC high boundary** - switch ON/OFF sections of high sector boundary

→ **ARTCC boundary** - switch ON/OFF sections of sector boundary

→ **ARTCC low boundary** - switch ON/OFF sections of low sector boundary

→ **Geo** - switch ON/OFF Geo data (coastlines, rivers, lakes, other lines of under the Geo section)

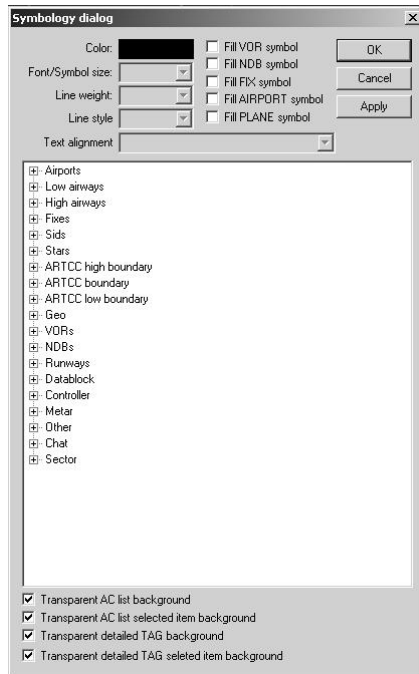
→ **Free text** - switch ON/OFF free text label items (NEW in EuroScope: text labels can be programmed on the radar screen, e.g. for min. sector altitudes or taxiway names)

In addition to allowing to switching the items ON/OFF, EuroScope also allows different attributes of each symbol (color, font size, line width, line type, etc.) that users can set up - this will be shown in details in the Symbology settings section.

3.8. Symbology settings

Similar to *Display settings*, the settings in the symbology settings window gives a controller some new tools: EuroScope allows to have different colors, line width or fonts for every individual item on the radar screen.

Click on  --> **Symbology settings...** and the following dialog will appear:



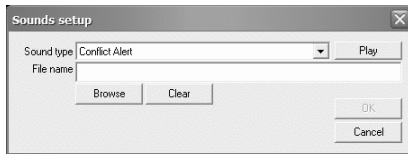
The settings are quite straight forward, **colors** can be chosen from a palette, **font size** can be adjusted as required, .5 (values are also accepted), set **line weight** to a value of 0-10, and select **line style** from values of **solid, dash, dot, dash-dot, dash-dot-dot**.

Fill VOR, NDB, FIX, AIRPORT, PLANE - filling the symbols for the VOR, NDB, Fix, Airport and Plane.

- **Airports** - set attributes for symbol/name
- **Low airways** - set attributes for line/name
- **High airways** - set attributes for line/name
- **Fixes** - set attributes for symbol/name
- **Sids** - set line attributes for each Sid (or elements of the SIDs section)
- **Stars** - set line attributes for each Star (or elements of the STARs section)
- **ARTCC high boundary** - set line attributes for each high sector boundary
- **ARTCC boundary** - set line attributes for each sector boundary
- **ARTCC low boundary** - set line attributes for each low sector boundary
- **Geo** - set line attributes for Geo data (coastlines, rivers, lakes, other lines of under the Geo section; NOTE: colors are defined in the **.sct** file)
- **VORs** - set attributes for each symbol/name/frequency
- **NDBs** - set attributes for each symbol/name/frequency
- **Runways** - set attributes for each runway centerline, extended centerline and name
- **Datablock** - set attributes for aircraft datablocks (tags) that are... non concerned/notified/assumed/redundant/information/emergency and detailed background/active item background
- **Controller** - set attributes for controllers in modes normal/breaking/timeout
- **Metar** - set attributes for normal/modified/timeout METAR info text
- **Other** - set attributes for wait/distance line/distance values/distance annotation/separation leader/find/valid airway/bad direction airway/unconnected airway/direct no airway/route annotation/freetext
- **Transitions** - set attributes for individual transitions and transition grids
- **Title** - set attributes for items on the title line such as datafile/controller/primfreq normal/primfreq breaking/clock
- **Chat** - set attributes for items related to chat and chat windows, such as text/background/name normal/name unread
- **Sector** - set attributes for sector line/active sector background/inactive sector background
- **Transparent AC list background** - if selected, the background of the aircraft coordination lists (SIL,SEL,DEP) is transparent.

- ➔ **Transparent AC list selected item background** - if selected, the currently selected aircraft won't be highlighted in the lists.
- ➔ **Transparent detailed TAG background** - if selected, the background of detailed tags will be transparent.
- ➔ **Transparent detailed TAG selected item background** - if selected, the specific item within the detailed tags won't be highlighted.

3.9. Sounds setup



To define audio notifications to certain events go to **Other settings > Sounds** in the menu. In a simple configuration window you can assign any **.wav** files to the following actions:

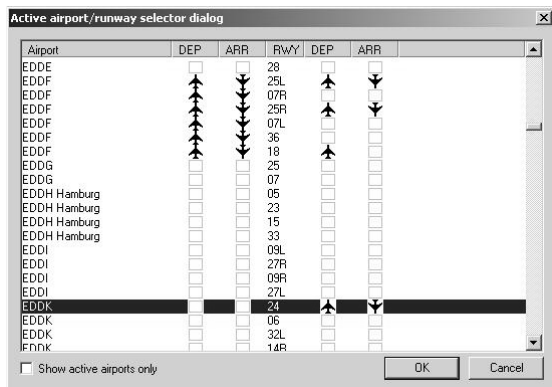
- ➔ **Handoff request** - sound is played upon receiving a handoff request
- ➔ **Handoff accept** - sound is played when handoff is accepted by another controller
- ➔ **Conflict alert** - if the minimum separation is not kept, conflict alert notification will be played. Separation minima can be configured in the [Short term conflict alert settings dialog](#)
- ➔ **Radio message** - audio notification of incoming messages on your primary frequency
- ➔ **Private message** - audio notification of incoming private messages
- ➔ **ATC message** - audio notification of messages on the ATC board
- ➔ **Broadcast message** - audio notification of broadcast messages
- ➔ **Landline request** - audio notification for incoming landline calls (e.g. intercom)
- ➔ **Supervisor call** - audio notification of incoming supervisor messages
- ➔ **Connected** - sound is played when connection is established
- ➔ **Disconnected** - sound is played upon disconnection
- ➔ **Ongoing coordination request** - audio notification of incoming ongoing coordination requests
- ➔ **Ongoing coordination accepted** - audio notification of accepted ongoing coordination requests
- ➔ **Ongoing coordination refused** - audio notification of refused ongoing coordination requests
- ➔ **Manual ongoing coordination** - audio notification of manual ongoing coordination
- ➔ **New ATIS message** - sound is played whenever a new automated ATIS notification is received

3.10. Active airports runways

Here you may select which airports are under your control, thus what flights should be listed in the aircraft and departure list. You can activate arrival and departure functionality for each airport separately. In the aircraft list, every arrival or departing flights will be displayed in addition to aircrafts concerned by your sector. If defined in the ESE file's sector definitions, active airports will be set automatically dependent on the sectors under your control.

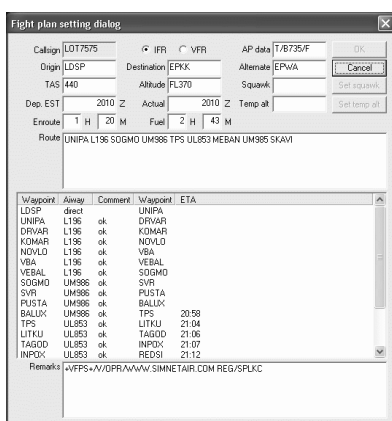
You can also set the runways in use regardless of the active airports. The active runways are relevant for the SID and STAR prediction, and optional also for the display of extended centerlines and the calculation of COPX points.

Optional the active airports with runways assigned can be automatically added to the metar list.



- ➔ To make an airport active click on the first two boxed columns next to the airport name. In this example only EDDF Frankfurt is selected (both DEP and ARR)
- ➔ To select the active departure and arrival runways click the DEP and ARR columns for the given runway. In this example departure runways 25L, 25R and 18 and arrival runways 25L and 25R are selected for EDDF Frankfurt. In addition to that, for EDDK Cologne-Bonn runway 24 is selected to allow Euroscope the calculation of the correct COPX points.
- ➔ You can reduce the list to show only the active airports.

3.11. Flight plan setting dialog



Most part of the dialog is really straightforward and needs not too much explanation. It contains the most important pieces (not all of them) of a flight plan and makes it possible to be modified. Just edit the values you would like to modify then press OK to save or Cancel to forget it. You can open the flight plan dialog even if you are an observer or someone else is tracking the aircraft but in this case you will not be able to save your modifications.

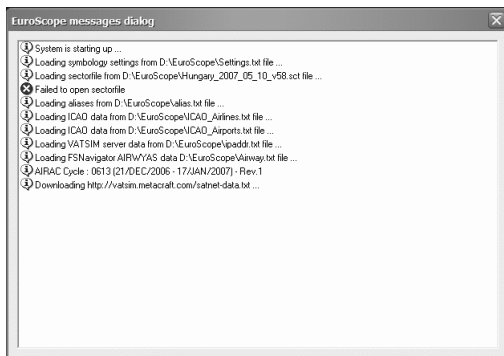
Probably the route section is a little bit more interesting then the others. It is a simple text edit box. The addition is that for every single character modification the route is compiled from the string and the extracted point by point route is displayed in the list control below. There you can see all waypoints the airway to that waypoint and a comment about the airway usage. If the aircraft is flying then the estimated time of arrival is also calculated for every point along the route.

There are two other buttons that works immediately and not when saving the dialog:

- ➔ **Set squawk** - It assigns the squawk value to the aircraft. If the field is empty the a new squawk is generated based on the controller position.
- ➔ **Set temp alt** - It sets the temporary altitude.

3.12. Message dialog

The dialog



This dialog shows you whenever an error occurs on loading some necessary files or data. It will automatically appear when loading a file fails, but it is also available through the menu: **Other settings -> Message dialog**

In this example loading the sector file has failed, the window popped up after starting EuroScope.

Some Common Error Messages

➔ Sector definition DAOO_TWR_SECTOR is missing in line xxxx

This message appears when you make a reference to a sector in a DISPLAY_SECTORLINE instruction and you have forgotten to define the corresponding sector.

➔ Sectorline name not found in line xxxx

This message appears if you make a reference to a sectorline, and that you omit to define the corresponding sectorline.

➔ Invalid line name in sector BORDER : DAOO_TWR_SECTOR / DAOO_TWR_SCL in line xxxx

This message appears if you make a reference to a sectorline in the BORDER line of a sector definition, and that you omit to define the corresponding sectorline.

➔ Invalid COORD in line xxxx

This error message is generally due to a syntax error (comma instead of colon). May occur when you paste directly the coordinates copied after a **.distance** command and if you forget to replace the comma by a colon. To avoid it, it's better to use the **.sline** command.

➔ Invalid keyword in line xxxx

This error message occurs if you type a keyword that EuroScope does not recognize. It happens also if you have an empty line with a space character.

TIP: For finding quickly the error line, one good idea is to load the ese file in Excel or in any other editor that displays the line numbers, and it's easy to jump directly to it.

3.13. Short term conflict alert settings dialog

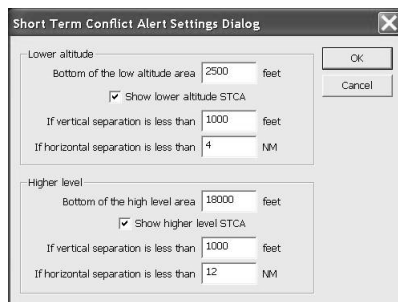
In this dialog you can setup in which situation a conflict alert should be displayed (and also an warning sound to be played).

The short term conflict alert detector divides the world into three sectors vertically.

➔ The first sector is from the ground until the bottom of the lower altitude area. In this area there are no conflict alert detection at all.

➔ Between the bottom of the lower altitude area and the bottom of the higher level area. Conflicts in this area are detected using the values from the *Lower altitude* box.

➔ From the bottom of the higher level area and up. Conflicts in this area are detected using the values from the *Higher level* box.



The values you should specify for both areas are the same:

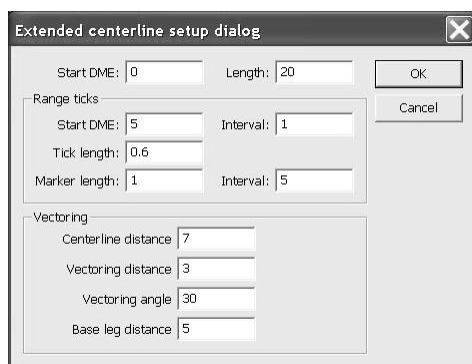
- **Bottom of the ... area** - The lower level/altitude of the area. The settings are used above this value.
- **Show ... STCA** - Indicates to detect conflicts at all or not. Switching them off no conflict alerts are ever fired.
- **If vertical separation is less than** - The minimum vertical separation for the alert. If the separation exactly the number specified no alerts will be fired.
- **If horizontal separation is less than** - The minimum horizontal separation for the alert. It is advised to be higher than the separation minimum to allow the controller to react to the alert.

3.14. Extended centerline setup



Let us start from a picture with the result before going into details how you can configure the display.

The extended centerline setup dialog



Main centerline

- **Start DME** - The offset in NM the main line of the centerline will be started.
- **Length** - The length of the main line of the centerline. Note that the endpoint will be *Start DME + Length* distance from the runway threshold.

Range ticks

- **Start DME** - The first tick mark to be displayed distance in NM from the threshold. The tick marks will be displayed from here until the end of the main line.
- **Interval** (after Start DME) - How often (in NM) a tick mark should be displayed.
- **Tick length** - The length of the tick marks (ortogonally to the main line).
- **Marker length** - The length of the marker tick marks (ortogonally to the main line).
- **Interval** (after Marker length) - How often in (NM) a marker tick mark should be displayed.

Vectoring lines

- **Centerline distance** - The distance from the threshold of the end of the vectoring line in the main line (where vectoring line touches the main line).
- **Vectoring distance** - The length of the vectoring line.
- **Vectoring angle** - The angle between the main line and the vectoring line.
- **Base leg distance** - The length of the base leg line (it always starts at the other end of the vectoring line).

How to display them

In this dialog you only can setup how the extended centerline pieces are built up. To display them you should go to the Display settings dialog. There you can switch on and off individual runway centerline pieces:

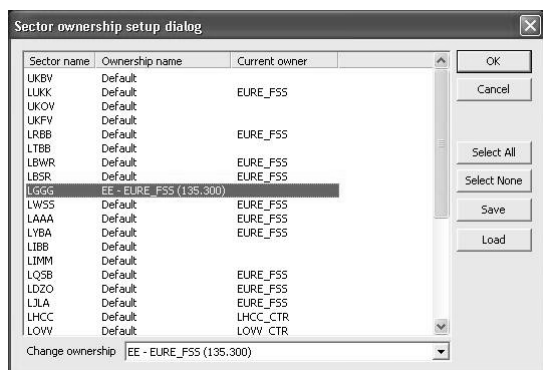
The **centerline** and the **name** are the main items to be displayed. They are not related to the extended setup anyhow.

In the sectorfile there is only one definition of a runway even it can be used from both directions and therefore has two names. In this picture you can see LHBP second runway 13L-13R. To distinguish between the directions all extended centerline items are duplicated and named as extended centerline 1 ... or extended centerline 2 ... where 1 refers to the first end (here 13L) and 2 refers to the other end (31R) of the runway. As the picture on top of this page shows a 31 configuration only the 31R end of the runway extended lines are displayed.

It is also not necessary to display the ticks, vectoring lines and base lines on both sides of the extended centerline. That is quite useful when you display them in a parallel runway airport. In the pictures you can see that in this case only the right side items are switched on for runway 31R while only the left side items for 31L.

If You are using the "Show extended centerline for active arrival runways only" option, it is important to keep in mind, that You need to setup all extended lines in the Display Settings regardless of which will be used in the specific situation. When Euroscope automatically activates the centerlines for the arrival runways, it uses the display settings. On the other hand, with this option activated, ES will not show an extended centerline for an inactive runway, even though it is setup here.

3.15. Sector ownership setup



Using this dialog one can change how the sector allocation works. In the main list there are the sectors defined in the ESE file. The first column is the sector name, the second is the ownership rule name while the last is the callsign of the actual owner (this is the situation of the dialog open moment and is not updated while the dialog is opened).

The most important idea one can change here is the ownership rule. That drives EuroScope how it allocates the sectors to the controllers. Each sector can have one of the following three roles for allocation:

➔ **Default** - The default role. In this case the OWNER line of the sector definition defines the hierarchy of the controllers. The first controller in the list will own the sector.

➔ **An alternate ownership name** - If there are alternate ownership rules in the ESE file then it can be defined for every sector. It works the very same way as *Default* except that it uses an alternate ownership hierarchy. If the selected alternate name is not defined for a sector then the *Default* will be used instead.

➔ **A position** - It is also possible to assign a sector directly to a controller. In this case if the controller is online he/she will own the sector but if off line there will be no alternate owner.

The controls can be used as follows:

➔ **Sector list** - It displays the actual assignment. One can select one or more sectors from the list. The combo box bellow will follow the ownership name of the selected sectors. If different rules are assigned then there will be no selection there.

➔ **Change ownership combo** - Using this combo it is possible to change the ownership role. The combo box contains the *Default*, the *Alternate* role names and after them all *Position* definitions from the ESE file. The selected value will be assigned to all sectors.

➔ **Select all** - To select all sectors from the list.

➔ **Select none** - To deselect all sectors from the list.

➔ **Save** - Using this button you can save the ownership setup to a text file. This file can be published (e.g. for a flyin) and reloaded later.

➔ **Load** - To load a previously saved configuration.

4. Working with keyboard

While EuroScope can be used by simple mouse clicking still there are a lot of things where keyboard makes our life much easier. As they can speed up the work there are several keyboard tricks.

Function keys and other key shortcuts

This paragraph describes the meaning of several keyboard elements which behave differently than a simple text editor. Many things come from ASRC, so if you have ever used ASRC, you will find them familiar. However in some cases we changed the meaning of the key completely or made it work slightly different.

➔ F1 key

As in EuroScope the TAG up and TAG down is available with a double click on the TAG this key has been freed up. Its role is to accelerate issuing commands that are important, yet not so often used. When you first press the F1 key, then **F1** will appear in the command line. Then there are some shortcuts:

F1+a - changes to .am

F1+c - changes to .chat

F1+d - changes to .distance

F1+f - changes to .find

F1+i - changes to .inf

F1+k - changes to .kill

F1+s - changes to .sep

F1+u - changes to .SS

F1+w - changes to .wait

➔ F2 key

It simply places the .QD command to the command line to display METAR information on selected stations.

➔ F3 key

It places the .QT command to the command line to start tracking an aircraft or to accept handoff. Like .contacme it also works on the aircraft that is under the cursor making it very simple to accept handoffs.

➔ F4 key

It places the .QX command to the command line to drop an aircraft or initiate handoff. Like .contactme it also works on the aircraft that is under the cursor. **Important** .QX without parameter initiates a handoff to the next controller (if available) instead of dropping target.

→ **Shift+F4 key**

It places the .QY command to the command line to drop an aircraft. Like .contactme it also works on the aircraft that is under the cursor.

→ **F5 key**

It simply places the .QZ command to the command line to change the final altitude.

→ **F6 key**

Without SHIFT it changes to the read only flight plan window that is displayed as a standard CHAT window. By pressing SHIFT it places the .QU command to the command line to draw the route of an aircraft. It is very rarely used as this function works far better from the TAG.

→ **Shift+F6 key**

It places the .QU command to the command line to draw the route of an aircraft. It is very rarely used as this function works far better from the TAG.

→ **F7 key**

If you are using more than one radar layouts at a time press this key to switch between them.

→ **F8 key**

It simply places the .QQ command to the command line to set or clear temporary altitude.

→ **F9 key**

It places the .QB command to the command line to set squawk code or communication type (/t, /v, /r). For aircraft that is under the mouse it assigns the next available squawk automatically.

→ **F11 key**

This key zooms in the radar screen. This is a replacement of the mouse wheel zoom.

→ **F12 key**

This key zooms out the radar screen. This is a replacement of the mouse wheel zoom.

→ **FREQ key (as default the numeric STAR [*] key)**

First of all it opens your primary frequency chat window. If the command line is not empty (e.g.: a message to a pilot is written in there) then it sends the command line content to the primary frequency, addressing the message to the selected aircraft.

→ **ASEL key (as default the numeric PLUS [+] key)**

This is the aircraft selector key. To use there should be some letters typed from the callsign. Pressing this button the first callsign that matches the letters typed before will be selected. You can press the + key again to select the next match. You can do it in a loop to see all callsigns matching.

→ **HOME**

If the command line is not empty then it is the good old HOME key that moves the cursor to the beginning of the line. But if the command line is empty then it places the .contactme command to the editor. Important, if there is an aircraft which TAG is in detailed mode (the mouse is over it) then the command is executed immediately.

→ **INS**

The insert button places the .QS command to the command line to set or clear the scratch pad of an aircraft. Like the **HOME** key it is executed immediately on the aircraft which has the mouse over its detailed TAG. In this way you can clear the scratch pad fast.

Editing in the command line

Some buttons do not have a real function connected to but simple changes the content of the command line in some way.

→ TAB

The TAB key has two different meanings depending on the content of the command line:

- If the line is empty then it selects the next displayed chat window.
- If the line is not empty then it extracts the function names from the command line and selects next parameter. See later in the *Aliases* section.

→ ESC

The escape button has three different meanings:

- If the command line is not empty, then it simply clears it.
- If empty but has an aircraft selected then it deselects all aircraft. This way you can send messages on your primary frequency to anyone, even if you are unable to select him/her.
- If empty and no aircraft is selected then it closes the chat window. You can open it again by a doubleclick on any chat name or initiating a new chat (see command line functions).

→ Ctrl+Up arrow

The Up key with Ctrl pressed gets the previous line from the CHAT window and puts it into the command line. There you can reedit, copy part of it to the clipboard, etc.

→ Ctrl+Down arrow

Like the previous but it goes to the next line.

→ Shift+Up arrow

The Up key with Shift pressed gets the previously entered command to the command line.

→ Shift+Down arrow

The Down key with Shift pressed gets the next entered command to the command line.

→ Up arrow

It scrolls the chat content one line down to see one more line on top.

→ Down arrow

It scrolls the chat content one line up to see one more line on bottom.

→ Page Up

It scrolls the chat content three lines down to see more lines on top.

→ Down arrow

It scrolls the chat content three lines up to see more lines on bottom.

Note: The primary and the secondary PTT buttons are disabled in the chat window. If you select a key as PTT you will not be able to use it in the command line.

Aliases

Alias files are the same that you used for ASRC. You can load them as they are and if the functions are implemented in EuroScope as well then you can use them.

The general format of one alias line is:

.<alias name> <alias value>

Where alias name is the short name you would like to type and the value is what should be inserted into the command line as replacement. The alias value string can contain several function calls (see later), parameters **\$1**, **\$2**, ... **\$9** and of course free text. An alias value should not contain another alias name. Well it can, but it will not be extended.

The way you can use the aliases are completely different from ASRC. It replaces the alias name to value as you type not only when you send it to somewhere. Just type your message as you like. Whenever a SPACE is pressed EuroScope tests the last word typed and if it starts with a DOT and matches any alias name it will replace the word immediately. It is not necessary to start the alias at the beginning of the line, it is not necessary to be at the end of the line. Only to press a SPACE. This idea makes it possible to see the extracted message before sending it.

As the alias name is replaced immediately the parameter definition should work also differently. As the name replaced EuroScope searches for the parameters. When it finds the first one it become selected in the command line. In this way you just simply type the parameter and the selected portion of the text will be replaced as it works in a normal edit box. When you finish with the parameter just press the TAB key to search for the next parameter place to be selected. When the TAB is pressed EuroScope first test if the same parameter is used in the alias again or not. If used then it will replace that occurrence with the newly typed value too. After that it tries to evaluate all the functions in the line once again. In this way an alias parameter can be parameter of a function too. See the next example:

The original alias is:

```
.cont Contact $radioname($1) on frequency $freq($1)
```

After typing `.cont` and a space the command line will be extended to:

```
Contact $radioname($1) on frequency $freq($1)
```

and the first `$1` will be selected. As you overwrite it with e.g. **AP** and press TAB key the line will be changed to:

```
Contact Budapest Approach on frequency 129.700
```

Using this method you should not memorize what parameters comes each after as you see the context before specifying the value. One backward of the method is that it could not recognize if the same parameter is in the line more than once. So in that case one should specify the same value several times.

Command line functions

In alphabetical order:

→ .am

This command opens the flightplan amendment dialog of an aircraft.

Syntax:

```
.am <click on a TAG or AC in the list>
```

```
.am <ASEL to use selected aircraft>
```

```
.am <aircraft callsign>
```

→ .atis

This function asks the ATIS information of a specified controller. The answer will come as private chat message. If no controller is specified then it wall send the query to the controller who's chat window is active.

Syntax:

```
.atis [<conroller callsign>]
```

→ .break

Request for relief. It changes the status of the controller to "leaving soon".

Syntax:

```
.break
```

→ .busy

Signal that you are really to busy for private chats. In EuroScope there is only a one level simple busy status. When set the followings are changed:

- No sounds for ATC messages,
- No sounds for Broadcast messages,
- An automatic "Sorry but I am busy, I may not read your message" answer for all incoming private messages. And no sounds for them.

→ .callsign

This function allows you to change the ICAO_Airlines.txt file from EuroScope. Enter the name of the airliner then click on the TAG. EuroScope will replace the original entry in the file. Note: that when you download a newer version of the ICAO_Airlines.txt your changes will be lost.

Syntax:

```
.callsign <airline name> <click on a TAG or AC in the list>
```


`.callsign <airline name> <ASEL to use selected aircraft>`

➔ **.center**

A supervisor only command. It moves the center of the view to the selected location. Location can be any object: vor, ndb, fix, airport, controller callsign (in that case the center of the visibility area is used) or an aircraft callsign. Sending the command without parameter will go back to the original center position (the one before the previous `.center` command).

Syntax:

`.center <any object name>`
`.center`

➔ **.chat**

It opens a chat window to a specified controller or pilot.

Syntax:

`.chat <controller or pilot callsign> [<callsign2>] [<callsign3>] ...`
`.chat <click on a TAG or AC in the list>`
`.chat <ASEL to use selected aircraft>`

➔ **.contactme** - available via the HOME button if command line is empty

This command sends the "Please contact me on XXX.XXX." private message to the selected aircraft.

Syntax:

`.contactme <click on a TAG or AC in the list>`
`.contactme <ASEL to use selected aircraft>`

This command can be executed by pressing the HOME key when the command line is empty and the mouse is over an opened TAG and therefore the detailed TAG is visible. In this case it is executed immediately no ENTER or click on TAG is required.

➔ **.dcenter**

Use this command to override the default latitude/longitude aspect ratio center. As default EuroScope calculates the length of one degree at the position defined in the sectorfile then uses it everywhere. That could be quite incorrect if you are too far from the mercator. By defining another point you can change the center point of the display.

Syntax:

`.dcenter <object>`

Where object can be anything: vor, ndb, fix or coordinate. The coordinate can be defined by clicking in an empty place by mouse.

➔ **.distance** - available as toolbar icon

The distance command shows distance between two objects or points on the radar screen. When this command is active then pressing the mouse button on a TAG or on an AC in the list its callsign goes to the command line as parameter. If you click to a position where nothing can be found then the coordinates are copied to the command line. If the first parameter is specified then moving the mouse displays the distance data from the selected point to the cursor. If the first selected object is an aircraft and the second is not then the distance and the time needed for the distance will be displayed. Otherwise only the distance.

Syntax:

`.distance <object1> <object2>`
`.distance <object1> <angle>/<distance>`

Where object can be anything: aircraft, vor, ndb, fix or coordinate. In the second place not only an object but an angle/distance pair also can be entered. In this case it will be calculated as relative to the first.

The distance data is also displayed on top of the screen. To remove a distance line make a doubleclick on this text line.

➔ **.distance2**

The same as before but displays the heading data too.

➔ **.find**

Using this command you can find an aircraft on the radar screen. It draws a wide white line from the center of the radar screen to the aircraft specified as parameter. The line remains on the screen for 5 seconds.

Syntax:

`.find <aircraft callsign>`

```
.find <click on a TAG or AC in the list>
.find <ASEL to use selected aircraft>
```

→ .ff, .fn, .fv, .fa, .fc, .fw

These commands are changing the display settings from the command line. The commands changes the display of the following element types (in the same order): FIX, NDB, VOR, Airport, Low airways, High airways.

All works in a way that looks for all the parameter names, tests if any of the components are displayed or not. If any is displayed then the command hides them, otherwise it displays some of them. The following components are tested and displayed using this command:

- FIX symbol and name,
- NDB symbol, name and frequency,
- VOR symbol, name and frequency,
- Airport symbol and name,
- Airways name and line.

→ .fpquery

A supervisor only command. It sends an information request to the servers to query the controller who modified the flight plan of the selected aircraft. The answer will come back as message to the "server" chat window. The command needs a selected aircraft.

Syntax:

```
.fpquery <aircraft callsign>
.fpquery <click on a TAG or AC in the list>
.fpquery <ASEL to use selected aircraft>
```

→ .getfp

It sends a request to the server to retrieve the flight plan of the selected aircraft. Use it if somehow you feel that the FP is not updated correctly.

Syntax:

```
.getfp <aircraft callsign>
.getfp <click on a TAG or AC in the list>
.getfp <ASEL to use selected aircraft>
```

→ .inf

A supervisor only command. It sends an information request to the selected controller or aircraft. The answer will come back as private message.

Syntax:

```
.inf <controller or aircraft callsign>
.inf <click on a TAG or AC in the list>
.inf <ASEL to use selected aircraft>
```

→ .kill

A supervisor only command. It sends sends a disconnect message to the selected controller or aircraft and disconnects him/her from the network immediately.

Syntax:

```
.kill <controller or aircraft callsign> [<a free text reason message>]
```

If the .kill message is active then clicking on a TAG will copy the callsign to the command line but never executes the command automatically. Only an explicit ENTER will do that.

→ .msg

It sends a private message to the selected pilot or controller.

Syntax:

```
.msg <controller or aircraft callsign> <free text>
```

→ .nobreak

Request for relief is withdrawn. It changes the status of the controller back to normal.

Syntax:

```
.break
```

→ .nobusy

It clears the busy status.

→ .novis

It clears the visibility centers and sets only the default one. Note: that it is not an immediate function as there is no way the call back you visibility centers from the server. It must be timed out. In that way it takes about 1-2 minutes to stop receiving position updates from the cleared area.

→ .point

To pointout and aircraft to a controller. When an aircraft is pointed to you it is displayed in the AC list with an arrow then the name of the controller who pointed out the aircraft.

Syntax:

```
.point <controller ID> <click on a TAG or AC in the list>  
.point <controller ID> <ASEL to use selected aircraft>
```

→ .qb - available by pressing F9

It sets the squawk code (manually or automatically) or the communication type of an aircraft. If no additional parameter then an automatic squawk value is assigned. The available squawk range is coming from the POSITION definition part of the ESE file (see [ESE files description](#)). If a 4 letter valid squawk is specified, than that value will be assigned. If 'V', 'R' or 'T' letter is defined that it sets the communication type to "voice", "receive only" or "text" respectively.

Syntax:

```
.qb <V or R or T> <click on a TAG or AC in the list>  
.qb <V or R or T> <ASEL to use selected aircraft>  
.qb [<valid squawk>] <click on a TAG or AC in the list>  
.qb [<valid squawk>] <ASEL to use selected aircraft>
```

→ .qd - available by pressing F2

It toggles the display of the metar of the specified stations.

Syntax:

```
.qd <station1> [<station2>] [<station3>] ...
```

→ .qs - available by pressing the INS key

It sets or clears the scratch pad text of an aircraft. If no text is specified then it clears the previously set value. In EuroScope there is no limit for the length of the scratch pad message (but probably your TAG will look like awful). But only the first 5 characters of the text will be published to the servers and to the neighbor controllers. There is also a trick in EuroScope that if the scratch pad text is a waypoint name along the route (from 2.8h any named point not only from route) then it will change the calculated track of the aircraft as the next point is the specified. The display of such scratch pad message is in the heading (AHDG) indicator in the TAG.

Syntax:

```
.qs [<free text or waypoint name>] <click on a TAG or AC in the list>  
.qs [<free text or waypoint name>] <ASEL to use selected aircraft>
```

→ .qt - available by pressing F3

It accepts handoff initiated to me or starts tracking an untracked aircraft.

Syntax:

```
.qt <click on a TAG or AC in the list>  
.qt <ASEL to use selected aircraft>
```

This command can be executed by pressing the F3 key when the mouse is over an opened TAG and therefore the detailed TAG is visible. In this case it is executed immediately no ENTER or click on TAG is required.

→ .qu - available by pressing Shift+F6

It simply deletes all displayed route line. It is an easy way to switch off all airplane route display if you have shown too many.

Syntax:

```
.qu
```

→ .qq - available by pressing F8

This function changes the temporary altitude of an aircraft. If no altitude data is specified then it clears the previously set temporary altitude.

Syntax:

```
.qq [<altitude in 100 feets>] <click on a TAG or AC in the list>  
.qq [<altitude in 100 feets>] <ASEL to use selected aircraft>
```

➔ **.quit**

This function leaves the system.

Syntax:

`.quit`

➔ **.qx** - available by pressing **F4**

It is used to drop track or initiate handoff to the next controller. **Important** that a simple .qx without any additional parameter will drop the target as in ASRC but initiates a handoff to the next controller defined by the sectors and the logged in controllers. If you would like to handoff the aircraft to a specific controller then type the short (normally two letter) ID before defining the aircraft. If an aircraft is displayed as tracked by someone but assumed that it is false type a /ok after .qx. In this way EuroScope will clear the owner flag of the aircraft and asks the system if someone is tracking it. If it is so then it will return to tracked state in a second.

Syntax:

`.qx [/ok] [<controller id>] <click on a TAG or AC in the list>`

`.qx [/ok] [<controller id>] <ASEL to use selected aircraft>`

This command can be executed by pressing the F4 key when the mouse is over an opened TAG and therefore the detailed TAG is visible. In this case it is executed immediately no ENTER or click on TAG is required.

➔ **.qy** - available by pressing Shift+F4

It is used to drop track of the aircraft.

Syntax:

`.qy <click on a TAG or AC in the list>`

`.qy <ASEL to use selected aircraft>`

➔ **.qz** - available by pressing **F5**

This function changes the final altitude of an aircraft. **Important** that it does not change the flight plan, just assigns a final altitude.

Syntax:

`.qz <altitude in 100 feet> <click on a TAG or AC in the list>`

`.qz <altitude in 100 feet> <ASEL to use selected aircraft>`

➔ **.rcenter**

Use this command to override the default range center position. The range position is calculated in EuroScope as follows: The default value is the one defined in the sectorfile. But if the login name first four letters match any airport name from the sectorfile, then the airport will be the center of the visible range (this way TWR positions with small range values will surely see what they need). By defining another point you can change the center of your visual range anytime. EuroScope needs some 10-15 seconds to publish the position and to update the visible elements.

Syntax:

`.rcenter <object>`

Where object can be anything: vor, ndb, fix or coordinate. The coordinate can be defined by clicking in an empty place by mouse.

➔ **.seeall**

A supervisor only command. It opens up all TAGs. Be careful! It just changes the display of the TAGs to be the same as they were up. But it is only a display setting, and the TAGs remain down. You will see that moving the mouse over a TAG like tis will not get the detailed TAG.

Syntax:

`.seeall`

➔ **.selcal**

It sends a SELCAL call for the selected aircraft. You may enter code manually or allow EuroScope to detect it from the flight plan remark section. When manually entered then no - can be entered, just the four letters without separators. When the code is not explicitly specified then the remarks field is scanned for SEL or SELCAL strings and extracts the code from the following letters. If EuroScope fails then an error message is displayed.

Syntax:

`.selcal [<CODE>] <click on a TAG or AC in the list>`

`.selcal [<CODE>] <ASEL to use selected aircraft>`

➔ **.sep** - available as toolbar icon

It displays the separation data between two aircraft. This function calculates the closest point of two converging aircraft current path. It displays the minimum distance and the time they need to reach that point. If the paths become diverging then the display shuts down automatically. The separation data is also displayed on top of the screen and can be switched off by a doubleclick on that line.

.sep <aircraft1> <aircraft2>

➔ **.sline**

The most useful command for an ese file developer. It collects successive geographic coordinate points in the clipboard in a ready to be pasted form in an ese file. To use it, type .sline in the command bar and Enter. Then LEFT click on every point you want to be included in your definition. When you have finished collecting points, just RIGHT click to end the command. You can now paste your resulting data everywhere you need to. The data are formatted in a correct manner for direct insertion as COORD points.

➔ **.showvis**

It displays the current visibility centers and radiuses. Using it you can visualize the are of you range.

➔ **.ss**

Push flight strip annotation. It sends the flight strip annotation to another controller. When you initiate a handoff it will be done automatically, you do not need to use this command.

.ss <controller ID> <click on a TAG or AC in the list>

.ss <controller ID> <ASEL to use selected aircraft>

➔ **.vis, .vis1, .vis2, .vis3, .vis4**

These commands set the multiple visibility centers of the current session. The .vis command may have 1-4 parameters to set all visibility centers in one command. The others may have only one.

Syntax:

#.vis <center definition> [<center definition> [<center definition> [<center definition>]]]

#.vis1 <center definition>

#.vis2 <center definition>

#.vis3 <center definition>

#.vis4 <center definition>

The center definition can be one of the followings:

- A comma separated latitude longitude pair. The easiest way is to start the .vis command then click on the screen. The coordinate will be copied to the command line.
- Angle/distance pair.
- An aircraft callsign.
- VOR, NDB, FIX or airport name

➔ **.x**

It closes the active chat.

➔ **.wait**

It adds a new entry to the wait or TODO list. The short message will be displayed on top of the screen with the callsign of the selected aircraft. The long message is optional and will be displayed in the status line if you click on the short message. To delete an item from the list just doubleclick it.

Syntax:

.wait <short message> [<long message>] <click on aircraft>

➔ **.wall**

A supervisor only command. It sends a broadcast message.

Syntax:

.wall <a free text message>

➔ **.wallop**

This function sends a message to all supervisors.

Syntax:

.wallop <a free text message>

Available functions

Functions are quite similar to aliases. There are some kind of string patterns that will be replaced by the system. The real difference is that in one hand their names are fixed coming from the code not from a file, on the other hand the result depends on the current session rather than a fixed value. A function may stand on its own or may have parameters. Parameters can come from anywhere even it can be a result of another function or can be an alias parameter.

Functions are evaluated in the command line and in the ATIS message lines. And since version 2.8h the letter-by-letter voice ATIS elements also use them. Aliases are not forgotten but as they are extracted by typing in the command line the functions in them will be evaluated there as well.

→ \$aircraft

The callsign of the selected aircraft.

→ \$alt

The temporary or the current altitude (if no temporary is specified) of the selected aircraft.

→ \$altim(station)

The altitude pressure value from the METAR of the station. For availability see \$metar

→ \$arr

The destination airport of the selected aircraft.

→ \$arrwy (airport ICAO code)

A comma separated list of the runways set as active for arrivals.

→ \$atccallsign [(handoffid)]

The callsign of the specified controller. If empty then the logged in controller callsign.

→ \$atisairport

The ICAO code of the airport selected to be served with voice ATIS in the _Voice_ATIS_ dialog.

→ \$atiscode

The actual ATIS letter specified in the _Voice_ATIS_ dialog.

→ \$bear(position)

It returns the bearing of the selected aircraft to the specified position. Position can be vor, ndb, fix or airport.

→ \$calt

The current altitude of the selected aircraft.

→ \$callsign

The login callsign of the controller.

→ \$com, \$com1

The primary frequency of the controller. It will return 199.998 if no primary frequency is selected.

→ \$cruise

The final cruise altitude of the selected aircraft.

→ \$dep

The departure airport of the selected aircraft.

→ \$deprwy (airport ICAO code)

A comma separated list of the runways set as active for departures.

→ \$dist(position)

It returns the distance of the selected aircraft to the specified position. Position can be vor, ndb, fix or airport.

→ **\$freq[(controller id)]**

If no parameter is given then it returns the primary frequency of the logged in controller (actually the same as \$com). If parameter is specified then it returns the primary frequency of the specified controller.

→ **\$ftime(minutes)**

The actual GMT time plus the specified minutes. Formatted to seconds.

→ **\$lc(anything)**

It simply makes the parameter to be lowercase.

→ **\$metar(station)**

The complete METAR string of the station. When you first call this function it may return an empty string. It is because when the METAR is needed EuroScope asks for it from the servers, but the evaluation is not suspended to wait for the result. Therefore an empty string will come, but next time as the METAR arrives it will be displayed correctly.

→ **\$myrealname**

The real name of the controller. Actually the name you specified in the login dialog.

→ **\$oclock(position)**

It returns the relative bearing of the selected aircraft to the specified position based on the current heading of the selected aircraft. Position can be vor, ndb, fix or airport.

→ **\$radioname[(controller ID)]**

If no parameter is specified then returns the radio name of the active controller. Otherwise it looks for the controller based on the short ID. The radio names are defined in the POSITIONS section of the ESE file.

→ **\$route**

The route string from the flight plan of the selected aircraft.

→ **\$squawk**

The squawk of the selected aircraft.

→ **\$temp**

The temporary altitude of the selected aircraft.

→ **\$time**

The actual GMT time in seconds without the Z sign.

→ **\$type [(callsign)]**

The type of the selected aircraft.

→ **\$uc(anything)**

It simply makes the parameter to be uppercase.

→ **\$wind**

The wind component of the METAR of the selected station. For availability see \$metar

5. Built in simulator

EuroScope has a never seen before special feature, the built in ATC simulator, for the purpose of practice and training. Here you don't need any connection for the VATSIM nor other servers, just sit down and take the control over the traffic.

Also for the ATC training, from now it is much more easier to set up a traffic and see how the candidate can deal with it. Prepare you EuroScope for a simulator session, share your IP with the student to let him be connected, and do the training. So simple.

You can use the built-in simulator in two different ways:

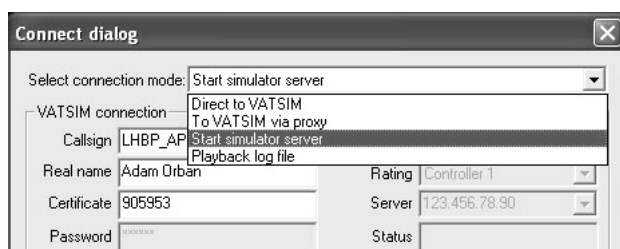
> **Trainer-candidate mode**

> **Self-training mode**

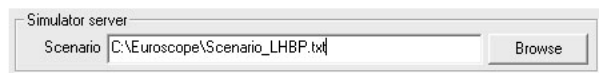
Starting a simulation session

It does not matter what kind of session you are going to have you have to start the simulation session in the same way. First of all, you have to set the connection mode as *Start simulator server*. In this mode, your computer going to simulate a VATSIM server for you candidate or for yourself, and this server can be accessed by the method described below.

Important! If you would like to use VATSIM voice servers during your simulation session you must authenticate yourself against the network. To do that you should first login to VATSIM (*Direct to VATSIM mode*). In this way your identity will be checked and you will be able to connect to any VATSIM voice server. We suggest to set up you voice connection for a non-used channel, like: *practice_lhbp* . Then disconnect and start your simulator session. When you disconnect your voice channel connection will remain for 30 seconds then disconnects. But if during this period you start your simulator the voice channel connection will not be disconnected.



Then you have to set the scenario, you want to use for this session:

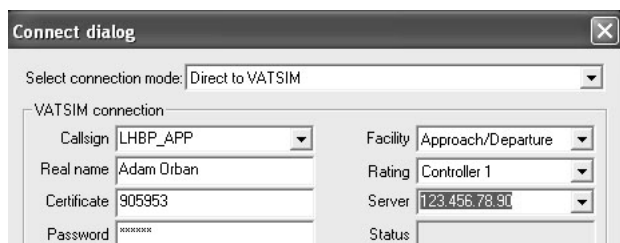


The scenario file contains the traffic for the simulation. The structure of the file is described in the [*Scenario file*](#) page. Just hit **Connect** to start the server.

Important! To allow the trainee to connect to your server you must open port 6809 for external access. If you are behind a router you even have to forward this port to your computer.

The trainer-candidate mode

Candidate setup: Set up your connection just like the normal way to join to the VATSIM, but type your trainers IP address as the server. (*You can also collect IP addresses and write down to the *ipaddr.txt* to have them in the list.*)



Hit Connect, set up you voice connection for a non-used channel, like: *practice_lhbp*. Also be sure to setup your primary frequency and connect to the voice channel. Be sure that the frequency of the voice channel is the same like the corresponding ATC facility, you are going to practice. If you forgot to set it up, you could not use the features of the EuroScope, connected to this setting.

The self-training mode

There is not too much to setup for a self-training mode. As in this case you are alone, you do not need ad voice server connection. But to identify the station you are controlling select the appropriate voice description and set your primary frequency. In this case the name of the voice communication will be used as your calling. Therefore if you would like to use all the features of EuroScope, select the right primary frequency.

The traffic control panel

When you start the simulator session the main control panel pops up. The simulator is running as far as this dialog is opened. When you close it, the session is over.

Callsign	St	Alt	IAS	GS	Head	WP	Route
MAH543	S	19000	315	400	134	RUTOL	ERGOM BP540 TPS BP538 BP537 E
MAH523	S	19000	306	389	103	ANEXA	MOKSA BP440 BP439 BP438 BP437
SWR2254	S	14000	270	324	64	VEBOS	BP440 BP439 BP438 BP437 BP436
MAH201	S	15000	298	361	309	ABONY	AGMAS BP539 TPS BP538 BP537 E
KAW4283	S	18000	313	393	230	JBR	AGMAS BP539 TPS BP538 BP537 E

In the bottom area you can see the list of the aircraft currently simulating. Most of the controls (but surely not all) displays or acts on the currently selected aircraft. They all become disabled if no aircraft is selected in the list below. When you select a TAG in the radar screen it is also selected in the simulator dialog. In this way you can follow the actions on the radar screen and just click sometimes in the controls. This feature makes the self-training mode possible.

In case you do not have a secondary monitor for the traffic control panel you can move out the whole list from the screen and use the radar to select the aircraft.

There is a new feature from version 2.8m, the pilot delay. In this way the simulated pilots will not follow your instructions immediately as you hit any of the control buttons, but will wait for a configurable random amount of time. That makes the simulation much more real. You can tune the individual pilots how quickly they respond to an order. On the dialog the new requests are shown immediately but in the plane status you can check if the pilot is already following it or not.

Let us see all controls one by one (without grouping just from top to the bottom and from left to the right):

➔ **CTR edit** - It is a simple information display. It shows the trainee controller. If an external trainee is connecting then here you can see if the connection is successful.

➔ **SQ edit** (it needs a selected AC) - The actual squawk of the aircraft. Simple type another value here and it will be changed.

➔ **EMG, RDO buttons** (they need a selected AC) - These buttons are for fast squawk change. Press *EMG* to set the squawk to 7700 and *RDO* to have 7600.

➔ **StBy, "C" buttons** (they need a selected AC) - Press them to change squawk to stand-by or to "C" mode.

→ **ILS buttons** (they need a selected AC) - These buttons are forcing the aircraft to approach to the selected runway. The number of runways can be used is limited to four. In this picture you can see the default LHBP configuration. Here are two parallel runways and both directions can be used in one session. But if you have more runways to be simulated or more airports then you are limited to four runways in one session.

For the simulation only ILS approach is implemented but of course you can communicate with the trainee any kind of approach. It drives the airplane only. You can press the button anytime but if the aircraft is not in the right position it will not be accepted. Right position means: distance is between 3 and 30 NM, heading in ± 30 degrees to the runway heading and must be below a 3 degree glide slope.

→ **Resume/Pause button** - It is a general button to stop and continue the simulation. When you press the *Resume* button it starts simulating and changes the button title to **Pause**. When you press the *Pause* button the simulation stops and the button changes to **Resume**.

→ **Direct edit** (it needs a selected AC) - This edit box contains the name of the fix the aircraft is proceeding to. You can simply edit and write any point name from the sectorfile to drive the plane toward that point.

→ **Holding button** (it needs a selected AC) - Pressing this button you can drive the aircraft following the holding pattern or leaving it. The available holding patterns can be defined in the Scenario file page. To enter an aircraft to a holding pattern it should proceed to the main point of the pattern. Actually the point name should be in the *Direct* edit box. When the aircraft is in the holding pattern you can press the *Holding* button again to leave it. In this case it gets back the next point from the route section and starts a direct to that point.

The holding pattern simulation is not the best at all. You can expect some non-standard movement. When entering to the holding pattern the aircraft always proceeds direct to the main point. When the aircraft passes the point start turning to the direction defined for the pattern (does not matter which direction the aircraft came). It turns until reaches 60 degrees angle to outbound leg of the pattern. Then smoothly joins to the outbound leg. When it reaches the end of the outbound leg it repeats the same for the main point. To be honest the first turn can be very strange, after that the pattern is followed not too badly.

→ **Status string** (it needs a selected AC) - It contains a readable description how the aircraft movement is simulating. It is really self explanatory.

→ **Restart button** - Just press it to restart the whole scenario.

→ **Route edit** (it needs a selected AC) - This editor contains the waypoints the aircraft will follow. You can edit it manually if the trainee orders a shortcut or defines a whole new route. When the aircraft reaches the next waypoint it selects the next from the route and the point is removed from the route.

→ **Next button** (it needs a selected AC) - Press this button if you would like to move the aircraft to the waypoint next to the actual. Surely you can press several times if the desired point is later in the route.

→ **Skip button** (it needs a selected AC) - This button deletes the next waypoint from the route string. It does not change the actual course but makes a shortcut after it.

→ **Pause button** (after the *Ac status*) (it needs a selected AC) - By pressing this button you can pause the movement of an individual aircraft.

→ **Go button** (it needs a selected AC) - By pressing this button you can start a paused aircraft.

→ **Handoff button** (it needs a selected AC) - This button initiates a handoff to the trainee. To use the aircraft should be tracked by one of the simulated controllers.

➔ **Taxi button** (it needs a selected AC) - The taxi button is a general purpose ground movement simulation. You can use it to simulate taxi, pushback and line up instructions. When you press the button you will have a rubber line following your mouse from the current aircraft position. Press the left mouse any number of times to define all the points to follow on the ground. When you are ready press the right button. The aircraft will start taxiing immediately.

➔ **Fast taxi** (it needs a selected AC) - Sometimes we need the aircraft to go on the ground a little bit faster than the programmed taxi speeds (e.g. when it is still on the runway and you need it to vacate). In fast taxi mode it moves much faster.

➔ **Takeoff buttons** (it needs a selected AC) - Here you have the four runway buttons again. These buttons are for the same runways as the *ILS* buttons. You can press one of the buttons to initiate a takeoff. There are some rules to be able to take an aircraft off. The distance to the threshold defined must be less than 0.5 NM and must be in front of the aircraft. The angle difference between the aircraft-threshold line and the runway heading must be between ± 5 degrees.

➔ **Remove AC button** (it needs a selected AC) - This button deletes the selected aircraft from the simulation.

➔ **Heading slider and display** (it needs a selected AC) - Using this slider you can turn the aircraft to the left or to the right. When the aircraft heading is the one that is desired the slider will always be in the middle. So this slider is never absolute but always relative. Move it to the right to force the aircraft turning right and left for left. A click to the right or left side makes a 5 degree turn request while you can move to any heading with dragging the slider. When you have the aircraft list selected the F1 directs a 5 degrees left, the F2 a 5 degrees right turn.

Right to the slider there is a read only edit box. It contains the actual and the requested heading. Between them a > or <; indicating the turn direction.

➔ **IAS combo, slider and display** (it needs a selected AC) - Using this slider you can change the speed of the aircraft. Every aircraft has a built in logic what IAS it will use. The speed is directly connected to the altitude but a ± 20 KTS is added randomly. The *IAS combo* defines how the speed will be assigned to the aircraft:

➔ **IAS free** - It means that the aircraft will define its speed as described above.

➔ **IAS =** - In this case the speed will be exactly the one defined by the slider.

➔ **IAS IAS >=** - The same as above but it leaves the speed only when the *free* speed is higher.

The slider works the same way as heading. But here the position of the button is absolute. You can vary the speed between 120 and 320 KTS. A click to the slider makes a 10 KTS change. You also can use the F3 and F4 buttons to change the speed. After the slider you can see the actual and the desired speed. Between them a ^ and v indicates accelerating or slowing.

➔ **Altitude slider and display** (it needs a selected AC) - Using this slider you can drive the requested altitude of the aircraft. Remember that we do not simulate air pressure. All the simulation works as there were standard pressure all the way. Therefore all altitude values can be defined in feet. The slider itself works the very same way as heading slider, but it is once again a fixed position slider that works between 0 and 41000 feet. A click to the slider makes a 500 feet change. You also can use the F5 and F6 buttons to change the altitude. After the slider you can see the actual and the desired altitude value. Between them a ^ and v signs indicate if the aircraft is climbing or descending.

All aircraft will follow a predefined standard descend or climb rate. If you need a higher than that then press the *Exp* button to expedite. When expediting the button changes to *Norm* to restore the normal rate. When descending in expedite mode then the IAS will not be reduced.

➔ **Simulated controllers** - EuroScope can simulate two neighbor controllers to the trainee. There are two set of controls to manipulate them:

➔ **Controller name** - Simple type the controller login name here.

➔ **Controller frequency** - Type the controller main frequency to here.

➔ **Login check** - Check this box to start simulating the controller. When the controller is on you can not change the name and the frequency.

➔ **Accept HO** - Use this button to start tracking an aircraft by the simulated controller. You can track untracked aircraft or accept handoff from the trainee.

➔ **Auto check-box** - This check box adds some extra automatic function. They are handy when you are making a self-training mode. The following actions are automatic when the box is checked:

- When an AC has been landed it turns the transponder to stand-by and removes itself from the list.
- 3 minutes into the sector then a handoff is initiated automatically.
- When a departing aircraft shows itself for the simulation it is assigned to the second controller starts the takeoff roll and initiates a handoff.
- When an arriving aircraft shows itself for the simulation it is assigned to the first controller.

➔ **Aircraft list** - Here in this list you can see nearly all the information about the all the aircraft. Most of the columns are really self explanatory. Probably the second column *St* needs some comment. It shows the aircraft status weather it is *P* paused or *S* simulated.

For a faster selection the list contains a hidden first column. Here only the numbers from the callsign is stored. The list box can search for its first column data when you type letters or numbers. In the picture above if the list box is on focus and you type 2254 the SWR2254 will be selected. After that you can use the buttons F1 and F6 for fast drive.

6. Tower View

The tower view feature is inspired by the similar possibility of VRC by Ross Carlson. But actually the implementation is totally different in EuroScope. Due to the built in simulator there is already a small FSD server inside EuroScope. This server can be also used to be connected by an FSD pilot client like SB3 or FSInn. Using this idea the tower view implemented in EuroScope is based on the FSD protocol rather than an FS multiplayer connect.

After some test and support request we decided to us **FSInn** (<http://www.mcdu.com/en/index.php>) as the FSD client for EuroScope tower view. There are some reasons why FSInn was selected and SB3 is dropped:

➔ FSInn can be used in other networks not only on VATSIM. Because of that it did not need any kind of modifications to connect to the built-in FSD server. On the other hand SB2 tests if the server has a valid VATSIM ID and do not connect to other places (nor to EuroScope).

➔ When I asked for technical assistance for the feature Benjamin Fells immediately responded to me and advised my all the information I needed. Unfortunately I have not receive even a negative answer from the SB3 team if we can work together.

Prepare EuroScope For Tower View

Actually you should not do anything in EuroScope side. It automatically asks fro the plane information that is necessary for the correct display. It is asked even if no tower view is started. All this information is also sent to the LOG files. It makes it possible to enable the tower view feature on online sessions and on playback sessions too.

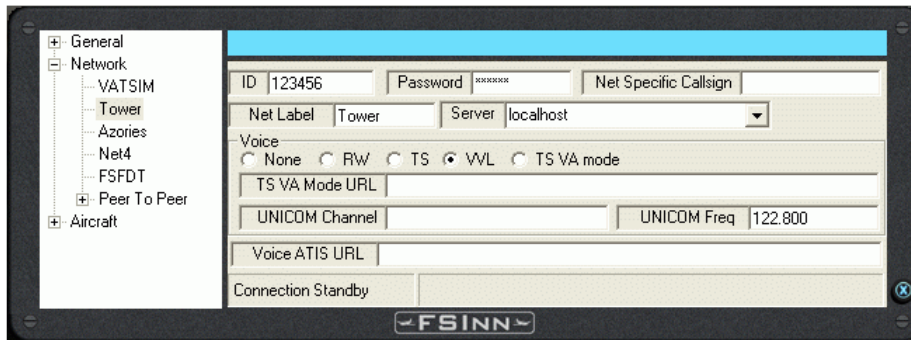
In this way you really do not have to do anything. Just connect to VATSIM for an online session or start a playback session. In both cases EuroScope automatically starts the built in FSD server and waits for an incoming connection from FSInn. When the connection is established all plane information is sent to the FS client.

Prepare FSInn Fro Tower View

Be sure to download and install the following products from MDCU:

- ➔ FSCopilot 1.6 (<http://www.mcdu.com/redirect.php?id=58>),
- ➔ FSInn 1.2 (<http://www.mcdu.com/redirect.php?id=57>),
- ➔ The appropriate VIP package for you FS.

In Flight Simulator start the Copilot/Inn Control Panel menu. Click on the SET button, and navigate to the Network settings. There are 5 slots (first is VATSIM but 4 are empty) that can be configured. Select a free one from there and fill in the fields:



The ID and the Password fields here are not important, as you are already connected to VATSIM with EuroScope. We suggest to use a name something like "Tower" or "Tower View". The only really important is to select the server. If you are running FS on the same machine where EuroScope has been started just specify "localhost" here. But you are free to start the tower view client on another computer in your local network. The rest of the fields are once again not important.

When ready and EuroScope session is running (online or playback) just click on the newly named server and enjoy the view.

Notes:

- ➔ If you disconnect from your EuroScope session the FSD server is also stopped. You need to reconnect after the new session is started.
- ➔ You should not use PAUSE or SLEW mode in FS as in these cases the display of the moving aircrafts are really jerky.

7. Appendices

Sectorfile modification

EuroScope uses the very same sectorfile as ASRC or VRC. If you have one just open it and use. All the extended description of your sector all additions are put to the ESE file (see below). Only one little information was missing from the original sectorfile that was not worth putting into the extension file. That is the airport code of the runway items in the [RUNWAY] section.

But to be able to put the runway names into the hierarchy we needed the name of the airport to be defined too. Therefore it is put to the end of the line like this:

The original line looks like this:

```
[RUNWAY]
13L 31R 130 310 N047.26.43.520 E019.15.27.180 N047.25.22.620 E019.17.37.880
```

Modified line:

```
[RUNWAY]
13L 31R 130 310 N047.26.43.520 E019.15.27.180 N047.25.22.620 E019.17.37.880 LHBP
Ferihegy
```

That can be a free text not necessarily the airport code. This string will be used in the Display settings dialog and also it will collect the runways of the *same name* airport into one subtree. As we tested this extension will not cause any harm for ASRC and VRC users.

ESE file description

What is the EuroScope Sector file Extension. Look for it in the ESE files description section.

Scenario file

The *Scenario file* section belongs to the built in simulator.

7.1. ESE files description

ESE SDK documentation

The standard sector file and position file does not provide enough functionality so a new format has been developed, called ESE. This file includes information about controller positions, callsings and frequencies in the POSITIONS section, standard departure and arrival routing in the SIDSTAR S section, additional static map elements such as FREETEXT and AIRSPACE section with the sector definition and auxiliary boundary information. This file is in addition to other resource configuration files.

This file may be edited and created with any text editor and saved as a standard text file. It must then be renamed to the file name of the sector file plus the ".ese" extension. And it also must be placed in the same folder where your ".sct" file is as in EuroScope you can load the ".sct" file only and the ".ese" will be loaded automatically.

Freetext section

This section provides additional map drawing elements. It provides the ability to display any ASCII character on the radar video map. The freetext section must be prefixed by this line: **[FREETEXT]** (without the quote marks). Freetext definition lines have the following format:

<latitude>:<Longitude>:[<group name>:]<characters>

The separator between each element is the : character. The coordinates of latitude and longitude are prefixed by the letter of the hemisphere and then the geographical coordinate. The format for the coordinate may be either the decimal format (eg. N013.32861) or in the degrees.minutes.seconds.decimals format (eg. N013.19.43.327). You can group the free texts using the group name. If you omit the group name then a **Default group** will be used. The character section may use any number of ASCII characters except carriage return. A finished line may look like this:

N044.34.6.524:E026.06.27.632:LROP texts:TORA-D/26L 2490m

A finished freetext section may look like this:

[FREETEXT]

N044.34.37.952:E026.05.53.935:LROP taxiways:W

N044.34.34.336:E026.05.28.289:LROP taxiways:O

N044.34.6.524:E026.06.27.632:LROP texts:TORA-D/26L 2490m

Terminal routing section

This section contains the routing for the standard terminal procedures such as SID and STAR. It also contains the rules for assignment of those procedures by runways in use and the route end point/route start point. This section must start with the following line: **"[SIDSSTARS]"** (without quotes).

The format of a routing line is:

<type of route (SID/STAR)>:<airport of destination/departure condition>:<runway related to that route>:<routing name>:<route points>

The lines priority is from top to bottom. The topmost line has most priority. The first line that completes all conditions will be chosen as the correct routing. The type of route can be SID or STAR and declares whether the next condition, airport, should be the departure or the arrival airport for that aircraft. The airport is declared as the full ICAO code for that airport. The next condition is the runway in use. Declare a new line for each runway that uses that respective routing. The name will

be the name of the SID/STAR with the discrete identifier. The route will be declared by any FIX, VOR or NDB that makes part of the routing with spaces between each route element. An example of a routing, below:

[SIDSSTARS]

```
STAR:LROP:08R:TUSET2E:TUSET BAREM MADIT OBELA OPW
STAR:LROP:08L:TUSET2E:TUSET AMETI ABATU DILAS OTL
STAR:LROP:26L:TUSET3F:TUSET FLR AMODA LEVTA OPE
STAR:LROP:26R:TUSET3F:TUSET FLR AMODA RARIT OTR
```

```
STAR:LROP:08R:VALPA1E:VALPA FLR OBELA OPW
STAR:LROP:08L:VALPA1E:VALPA FLR DILAS OTL
STAR:LROP:26L:VALPA2F:VALPA FLR AMODA LEVTA OPE
STAR:LROP:26R:VALPA2F:VALPA FLR AMODA RARIT OTR
```

```
SID:LROP:08R:VALPA1A:OPE BSE BSW MEGIK VALPA
SID:LROP:08L:VALPA1A:OTR BSE BSW MEGIK VALPA
SID:LROP:26L:VALPA1C:OPW FLR VALPA
SID:LROP:26R:VALPA1C:OTL FLR VALPA
```

```
SID:LROP:08R:NILOV1A:STJ NILOV
SID:LROP:08L:NILOV1A:STJ NILOV
SID:LROP:26L:NILOV1C:OPW NILOV
SID:LROP:26R:NILOV1C:OTL NILOV
```

The positions section

This section contains information about all recognized controller positions. It is used to recognize what controller is what position using information from the callsign and the frequency. This is a slightly modified POF file used before in ASRC and VRC. Users may simply copy that file and modify it accordingly.

The format of the Position line is the following:

```
<name      of      position>:<radio      callsign>:<frequency>:<identifier>:<middle
letter>:<prefix>:<suffix>:<not used>:<not used>:<A code start of range>:<code end of
range>[<VIS center1 latitude>:<VIS center1 longitude>[: ... ]]
```

The name of the position can be anything used to help in identifying the line inside the ESE file. Radio callsign shall be the official radiotelephony callsign that shall be used for that station. Frequency shall be in full with "." as decimal separator. The identifier is used in many places in the software and may be as short as one character and as long as required. It is recommended to use a standard length. In ASRC/VRC and FAA systems the length of that ID is 2 characters. Prefix and suffix are the first and last parts of the callsign used to identify the position. A code ranges are used to preset the assignment A code ranges from which the system will assign the codes for a specific position. Optionally there can be some visibility centers defined for the position. One center can be defined by two parameters: latitude and longitude. There can be maximum 4 visibility centers defined (that is altogether 8 optional elements in the line).

Some examples of a finished Position section below:

[POSITIONS]

```
ARGES_TOP:Bucharest Radar:121.170:AST:A:LRBB:CTR:-:-:5401:5477
ARGES_MID:Bucharest Radar:124.250:ASM:1:LRBB:CTR:-:-:5401:5477
NERDI_TOP:Bucharest Radar:122.020:NIT:N:LRBB:CTR:-:-:5401:5477
NERDI_MID:Bucharest Radar:125.150:NIM:4:LRBB:CTR:-:-:5401:5477
BUCHAREST_TMA:Bucharest Approach:118.250:TMA:-:LROP:APP:-:-:5401:5477
OTOPENI_S_CTR:Otopeni Tower:120.900:TOI:S:LROP:TWR:-:-:5401:5477
LHCC:Budapest Radar:133.200:BUD:-:LHCC:CTR:-:-:
LYBA:Beograd Radar:123.770:BEG:-:LYBA:CTR:-:-:
EUE:Eurocontrol East:135.300:EE:C:EURE:FSS:EURE:FSS:0200:0277:N050.54.1.002:E019.49.4
2.216:N042.40.42.169:E022.28.7.307
```

The airspace section

The airspace section is the section containing information about the sectors in the delegated area and auxiliary boundary information. To understand the Airspace section one has to understand the functions of Euroscope well. It has a first section prefix with SECTORLINE which defines actual broken line that is common for only two lateral sectors. Then the sector is built by two or more of these lines and then additional boundary information is added such as COP (Coordination Points).

Please also take a look to the [Tutorial](#) section that describes some steps how to define the sectors.

The sectorline subsection

Each sectorline piece is usually comprised of three sections. The first line/section is prefixed with SECTORLINE then ':' separator and the name of that respective sectorline.

SECTORLINE:MOPUG_LHCC

Then the declaration of that respective sectorline continues with an optional section prefixed with DISPLAY. It is used to declare when that respective border will be highlighted. More exactly, what sectors must be covered discretely by different controllers for that line to be highlighted.

DISPLAY:MGT:MGT:BUD

The prefix is DISPLAY with the ':' separator. The next item is the condition for the sector you are covering. In this case, for this line to be taken in account you must be covering MGT sector. NOTE: this sector is not from the POSITIONS section but from the SECTOR section which will be described next. Next are two conditions for which two sectors must be covered discretely for this line to be highlighted. In this case the sectors MGT and BUD must be covered by a different controller and you must be controlling sector MGT.

It is recommended to create more lines, one for each case that should verify.

Then the actual line must be declared using coordinates. Each coordinate point must be declared with the "COORD" prefix then followed by the LATITUDE and then the LONGITUDE.

COORD:N047.59.23.032:E023.30.49.151

A new COORD line will be made for each point making up the respective SECTORLINE. Make sure the end point of the SECTORLINE is common with the start point of the next SECTORLINE.

There is an easy way to create circle sectors without defining so many coordinates that form a circle on the screen. Just use the CIRCLE_SECTORLINE definition. Using that you can make a circular sector around any object (FIX, VOR, airport), or a coordinate defined in the line. In the first version it needs three parameters: sector line name, center point name, radius. In the second version it needs four parameters: sector line name, latitude, longitude, radius.

CIRCLE_SECTORLINE:LHBP_APP:LHBP:30

CIRCLE_SECTORLINE:LHBP_APP:N047.25.2.968:E019.21.31.221:30

Tips: A SECTORLINE is a border line which is common with only two lateral sectors.

SECTORLINE:BUDOP_LHCC

DISPLAY:BPT:BPT:BUD

DISPLAY:BPM:BPM:BUD

COORD:N046.37.12.101:E021.19.19.610

COORD:N047.29.04.510:E022.00.35.050

COORD:N047.57.13.950:E022.53.46.100

Translated this means: the SECTORLINE has been assigned a name of BUDOP_LHCC. It will be highlighted when condition [you are controlling BPT AND BPT and BUD sectors are controlled by different controllers] or [you are controlling BPM AND BPM and BUD sectors are controlled by different controllers]. The sector line is created by two segments, created by 3 coordinates/points.

You have the possibility to define the sectorline display away from the sectorline definition. We found that sometimes it is far easier to define this when defining the sectors. So whenever you need just add a DISPLAY_SECTORLINE entry (after the sectorline definition). Its syntax is the same as DISPLAY except that you have to define the sectorline name at the beginning.

```
DISPLAY_SECTORLINE:BUDOP_LHCC:BPM:BPM:BUD
```

The sector subsection

This is the subsection where you define the limits of a sector and controller assignments priorities.

```
SECTOR:MGT:34500:66000
OWNER:MGT:BPT:NIT:EUE
ALTOWNER:When no BPT:MGT:NIT:EUE
BORDER:MOPUG_LYBA:LOMOS_MOPUG:MOPUG_NERDI:BUDOP_MOPUG:MOPUG_LHCC
```

In the first line you declare the sector name and the vertical limits. Prefixed by SECTOR followed by the ':' separator then the assigned Sector Name (MGT) then followed by the lower altitude limit in feet (34500) then the upper altitude limit in feet (66000).

The next line is prefixed by OWNER and defines which controller will be recognized as controlling that respective sector and their priority. After the ':' separator will follow a list of position identifiers from the Positions section. The first has most priority and the last, the least priority. For example if MGT position is identified as online by the Positions table, the MGT sector will be assigned to it. If not it will move on to the next position, verify it and if it is open the sector will be assigned to the BPT sector. This line also defines which sector you will be controlling when you are online as a specific position.

The alternate owner line (ALTOWNER) makes it possible to define an alternate order of the sector ownership. The alternate rules can be selected at the [Sector ownership setup](#). Its syntax is the same as the OWNER line but needs a name in front.

Next follows the Border sector in which you define which borderlines make up the sector. Make sure a borderline and the next borderline have the end/start points common so it will be able to create a continuous border. Also make sure that it is a closed border, that is, that the last line ends at the start point of the first line.

The order of the sectors in the file is extremely important. EuroScope will check if an airplane is inside a sector in the order defined in the file. Therefore the first match will be used and the rest is not tested at all. You can use this behavior and create overlapping sectors. But be sure that the smaller is earlier in the list.

```
ACTIVE:LROP:08R
```

As default all sectors are active and are used in your session. However you may define sectors that are not always used just in some runway configuration. After the ACTIVE keyword you should define the airport and runway and this sector will be used only if the specified runway of the specified airport is active for arrival or departure. An example is the /Traffic Director/ in Hungary. He has the role to move the planes from downwind to the final and used only on real busy events. Because of its role he controls at the arrival end of the active runway. But as the runways have two ends we defined two /Traffic Director/ sector, but only one of them should be used in one session.

```
GUEST:APP:LROP:LROP
```

The GUEST line is a formal way to handle exceptions to the general roles. After the keyword you should define a position a departure airport (or a * for all airports) and a destination airport (or a * for all airports). When an aircraft is flying in this sector and its current owner is the controller defined in this line and the departure and the destination airport match the flight plan then the sector owner will be the current controller. This may be a special solution to a normal situation over Slovak airspace. Normally this area is controlled by Prague, but the arrivals from Austria is passed to Budapest Radar even the route crosses this sector for a while and never enters to the sector of Budapest Radar, but goes directly to the Approach. So the Bratislava sector has a guest controller,

Budapest Radar. And all arrival traffic to LHBP will accept it and EuroScope will not show the frequency of Prague indicating a necessary handoff.

```
DEPAPT:LHBP:LHDC:LHNY
ARRAPT:LHBP:LHDC:LHNY
```

The DEPAPT and the ARRAPT can be used to activate airports for departure and for arrival depending on what sectors belong to you. If there are airports defined for the sectors whenever you controlling sectors are changed the active airports data is updated. And as a side effect the your METAR list might be changed also as they depend on the active airports.

The coordination point subsection

This section defines the COP (COordination Points) used for coordination with adjacent sectors and ACCs. Here you can also add LOA (Letter of Agreement) details and EuroScope will show you're the appropriate action based on the LOA for each radar track.

```
COPX:DEP APT or FIX BEFORE:DEP RWY:FIX:ARR APT or FIX AFTER:ARR RWY:FROM SECTOR:TO
SECTOR2:CLIMB TO XFL:DESCEND TO XFL:XNAME
```

```
FIR_COPX:***:BUDOP:LHBP*:BPM:BUD*:28000:BUDOP
FIR_COPX:***:NARKA:***:BPT:BUD*:NARKA
FIR_COPX:***:NARKA:***:BUD:BPT*:NARKA
COPX:***:NEPOT:***:BPT:NIT*:NEPOT
COPX:***:NEPOT:***:NIT:BPT*:NEPOT
```

Each line defines a different set of conditions for a LOA point to be recognized. The first section defines the time of the COP you are declaring: a sector COP or a FIR COP. Use either the FIR_COPX or the COPX prefix. Next follows a previous point/departure airport rule. You can put in there any preceding point you want to use to filter out that COP line. Next is a departure runway rule. Next is the fix it applies on rule. Next is the next point or arrival airport rule. Then is the arrival runway rule. For any rules you want to bypass replace it with the '*' character. After the routing rules comes a display rule: the preceding sector and the succeeding sector. If these two sectors are controlled by the same controller then the COP code line will be bypassed. Next are the LOA instructions, either descend to, or climb to altitude in feet. Lastly the name of the COP is declared as you want it to be shown, usually the name of the COP.

The COP lines have a priority from top to bottom. So the topmost line that verifies all rules will be chosen even if lower is a more suitable line which should be chosen. Therefore place the lines with most rules at the top and the lines with least rules at the bottom.

7.2. Scenario file

The file

The scenario file is a pure TEXT file. You can edit it with any text editor. The file is processed line by line. There are no sections in this file you can mix all kind of definition lines with the others. The only exception is that the aircraft position must precede the flight plan and route description.

ILS/runway definitions

You can define four active runway for one session. It can be defined as an ILS:

```
ILS<runway name>:<threshold latitude>:<threshold longitude>:<runway heading>
```

The name of the runway will be shown in the four buttons.
An example line:

```
ILS31R:N047.25.24.615:E019.17.35.260:310
```

Holding definitions

You can define as many number of holding patterns as you need. The definition line is the following:

HOLDING:<fix name>:<inbound course>:<direction>

Where *fix name* can be anything (VOR, NDB, FIX) from the sectorfile. The *direction* can be 1 to indicate a right turn and -1 for a left turn. Here are some examples:

```
HOLDING:AGMAS:310:1
HOLDING:MAMOS:130:-1
HOLDING:VEBOS:95:-1
HOLDING:TPS:160:-1
```

Airport elevation

It is a single line definition:

AIRPORT_ALT:<altitude>

An example:

AIRPORT_ALT:550

Controllers Definitions

There can be two fake controllers in the simulation session. They also can be configured in the scenario file:

CONTROLLER:<index>:<callsign>:<frequency>

An example:

```
CONTROLLER:1:LHCC_CTR:133.2
CONTROLLER:2:LHBP_TWR:118.1
```

Aircraft positions

You can define as many number of aircraft as you need for the session. Be care that simulating an aircraft needs probably more concentration than controlling them. To define an aircraft you should define the starting position and altitude:

@<transponder flag>:<callsign>:<squawk code>:1:<latitude>:<longitude>:<altitude>:0:0:0

Where:

- ➔ transponder flag can be N for normal or S for stand by transponder mode
- ➔ latitude and longitude can be the format found in the sectorfile or simple double values
- ➔ do not forget the static 1 at the 4th position and the three static 0 values at the end (they are there for some technical reasons only)

Examples:

```
@N:MAH661:2622:1:N048.10.38.498:E018.10.36.537:15000:0:0:0
@N:MAH1501:2632:1:46.793880004674:17.795807317989:17000:312:4192376:450
@N:AZA525:2606:1:N047.26.41.961:E019.15.29.777:550:0:0:0
```

Flight plans

Every aircraft position line should follow a flight plan line. Do not change the order as EuroScope can save the flight plan only for aircraft with position. The flight plan line looks like this:

\$FP<callsign>:*A:<flight plan type>:<aircraft type>:<true air speed>:<origin airport>:<departure time EST>:<departure time ACT>:<final cruising altitude>:<destination airport>:<HRS en route>:<MINS en route>:<HRS fuel>:<MINS fuel>:<alternate airport>:<remarks>:<route>

Where *flight plan type* can be I or V. Do not forget the static *A from the second place. I think that the rest stands for the content.

Examples:

```
$FPMAH661:*A:I:B736:370:EHAM:1720:1720:390:LHBP:1:40:2:23:LOWW:/V/:ARNEM UL620 BIRKA
UZ21 OMELO UL620 KOPIT UM748 RUTOL
$FPMAH1501:*A:I:B738:430:GCTS:1730:1730:340:LHBP:1:20:2:0:LOWW:/V/:KORAL UG5 ESS
UN871 VJF UN851 MHN UM603 ALG UL5 VALMA UL865 ANC UM986 KOPRY UY53 VEBOS
$FPAZA525:*A:I:MD87:430:LHBP:1730:1730:360:LIMC:1:20:2:0:LIRF:/V/:BAKOT UY52 SUNIS
Q114 GRZ UP976 DETSA UM984 LUSIL
```

Route description

After the flight plan you should place a route description. The route is a point by point list of the route the plane should follow. It should not contain any information just the list of the waypoints.

\$ROUTE:<callsign>:<point by point route>[:<delay>][:<pilot minimum delay>][:<pilot maximum delay>][:<descend to waypoint>:<descend to altitude>]

The delay here is a time in minutes the aircraft will be added to the simulation. This is an optional parameter. If you omit a 0 will be used that means join immediately. The delay calculated on simulation time only. When the whole simulation is paused then the delay time is not counted.

The pilot minimum and maximum delay drives how fast the pilot will respond to an order. For every order you make in the simulation the aircraft will respond and start following it by random seconds of time between the minimum and the maximum value. The minimum is 0, the maximum is 30 seconds. If you omit these parameters then a minimum 12 and maximum 17 seconds will be used that were measured by real time controllers as average response time. The descend to waypoint and the descend to altitude parameters are used to setup an initial descent for the arrival planes. That makes the trainer life easier as the initial values should not be set for every plane. The planes with specified descend to values will reach the altitude at the given point.

Examples:

```
$ROUTE:MAH661:RUTOL BP523 MAMOS BP522 BP521 BP520 BP519 BP518 BP512 BP416 BP415 BP414
BP413 BP049
$ROUTE:MAH1501:VEBOS BP421 BP420 BP419 BP418 BP417 BP416 BP415 BP414 BP413
BP049:0:15:20
$ROUTE:AZA525:BP713 MNR BP612 BP610 BP614 BAKOT SIRDU SUNIS:10:5:10
$ROUTE:MAH663:RUTOL BP523 MAMOS BP522 BP521 BP520 BP519 BP518 BP512 BP416 BP415 BP414
BP413 BP049:10:5:10:RUTOL:19000
```

8. FAQ

In section you will find the most frequently asked questions, raised by users on our support forum. We are planning to extend this list of questions from time to time. Questions are grouped thematically.

ASR File / ESE File / SCT File / POF File /

❓ Can I use my old SCT and POF files in EuroScope?

Yes you can, but you will need to make a few modifications to get them fully compatible with ES. These changes are vital for the use of EuroScope's advanced features. For further details check the [Quick Start](#) How to use existing sector and position files section of the users guide.

❓ Can I use more SCT files at a time?

Yes, since v3.0 EuroScope supports using more than one SCT file at a time. For details check [Multiple Sectorfiles](#).

❓ What can I do if I would like to use more than one SCT file?

We recommend using one complex SCT file, but if you prefer, you may load two instances of EuroScope, connect them via proxy and load two different SCT files in the two instances that way you can switch between the two radars using [ALT]+[TAB].

❓ How can I create ASR files?

It is very simple. Go to OTHER SET -> Display settings and select/unselect items you need/do not need until you are satisfied with the layout of the radar. Now you will have to save it. Go to OPEN SCT -> Save as and give your ASR a file name. Then finally call a Save all settings in the OTHER SET menu. To open these saved layouts go to OPEN SCT -> Open and remember, you can load more than just one of these ASR files. To switch between them use [F7].

❓ When I load a new SCT it shows a blank screen. What's the problem with my SCT file?

There is nothing wrong with it. What happened is the following: the ASR file currently in use, does not belong to your newly loaded SCT file. Your ASR file would like to show data not included in this SCT, so it does not show anything useful. For proper use of your new SCT file go to OPEN SCT -> Close to close your current ASR. This will open a new ASR for your which you can configure. Or if you already have an ASR for this sector load it via OPEN SCT -> Load.

❓ I get an error saying "Failed to open sectorfile extension" in the message dialog. Why is that?

You are missing a file that EuroScope would like to use. And looks like it is something you did not have before! This error message should pop up when you load a SCT which does not have an ESE pair. ESE is a sector extension file that works together with your SCT file. This file is very complex (detailed description is available [ESE Files Description](#), but you can build a simple version, which of course does not provide full access to EuroScope's advanced features, but at least you will have one. You can use your old POF file for building your ESE file. For further details check the [Quick Start](#). How to use existing sector and position files section of the users guide.

❓ I try to save my color and line style settings without success. Isn't it stored in the ASR files?

Symbology settings and TAG layouts are saved in your settings.txt (its name can be different, but it has to be a TXT file) and not in your ASR files! Make sure you save symbology changes in the OTHER SET -> Save all settings.

❓ I would like to build an ESE file, is there any tool for making it?

For the time being making an ESE file is a bit inconvenient. You may find it hard at first sight, but the structure of it is well described in the [ESE Files Description](#) section of the manual. Hopefully there will be some tools to make life easier. The first one is a (http://fishu.kapsi.fi/draw_ease.php) sector visualization tool (made by Sami Ylismaki) which does the following:

"It will display all pasted sectorline coordinates on the google map. It is possible to copy and paste a single block and multiple sectorline blocks as long as the pasted sectorline blocks are preceded by "SECTORLINE:" and each coordinate by "COORD:". Pretty much straight forward copy & pasting from an .ese file. I made this for my own use but figured some others might like to see the sectorlines on a map.

An example of the proper format to be copy pasted into the utility:

```
SECTORLINE:RWY1_2
DISPLAY:TERM1:TERM1:RWY1
COORD:N047.25.46.561:E019.15.2.971
COORD:N047.25.49.211:E019.15.6.575
```

```
SECTORLINE:RWY1_3
DISPLAY:RWY1:RWY1:TERM2
DISPLAY:TERM2:RWY1:TERM2
COORD:N047.25.49.211:E019.15.6.575
COORD:N047.26.58.111:E019.13.14.847
```

It's possible to paste any number of such blocks and each will be drawn on the map. Beware that the coordinates are not located on the map exactly in the same location as in Euroscope."

Other Issues

❓ My menubar does not show completely

Well, there are more ways to cure this problem:

- 1.) Increase your screen resolution.
- 2.) Turn off some menu items you might not need using the first icon in the menubar on the left.

❓ I cannot select active airports and runways. There is nothing listed in the dialog!

You forgot to make some minor changes in your SCT file. That is: adding the airport codes and names to the runways. A short description of what to with SCT file is available in the [*Quick Start*](#). How to use existing sector and position files section of the users guide. But before jumping there via the link, let me share some good news with you. Sami Ylismaki created a tool which helps you in changing these lines (http://fishu.kapsi.fi/fixrunways_zjx.php).

"Just paste all the values below [runway] into it and it will reformat the runways. Once completed you'll only have to copy & paste it back into the sector file. It's a very simple utility completed in couple of minutes and made just for this. In fact writing this post will take longer. Should anyone else need help with similar reformatting the utility can be easily changed to accept different input formats, as long as the airport is mentioned somewhere in conjunction with the runway data. This is how it works:

The accepted format:

```
; EVB - NEW SMYRNA BEACH MUNI(AIRPORT)
02 20 000 000 N029.02.56.281 W080.56.59.021 N029.03.34.229 W080.56.46.140
06 24 000 000 N029.03.17.561 W080.57.28.789 N029.03.41.101 W080.56.39.232
11 29 000 000 N029.03.21.262 W080.57.13.460 N029.03.09.029 W080.56.26.830
```

The output:

```
02 20 000 000 N029.02.56.281 W080.56.59.021 N029.03.34.229 W080.56.46.140 EVB - NEW
SMYRNA BEACH MUNI
06 24 000 000 N029.03.17.561 W080.57.28.789 N029.03.41.101 W080.56.39.232 EVB - NEW
SMYRNA BEACH MUNI
11 29 000 000 N029.03.21.262 W080.57.13.460 N029.03.09.029 W080.56.26.830 EVB - NEW
SMYRNA BEACH MUNI
```

What it does: Each commented out line will trigger it to memorize the line and it will be copied to the end of each runway input until the next commented out line. It will ignore short lines, like empty commented out lines. Once done you can copy all the lines by pressing [CTRL]+[A] and then [CTRL]+[C]."

❓ Why do pilots not receive my message (intended to be sent on my primary frequency)?

Most probably you are not sending it to your primary frequency. The reason being that primary frequency works a little different in EuroScope. You should configure a PRIM FREQ key (primary frequency send key) in OTHER SET -> General settings, by default it is "num *" (numeric star) using which you may send the message directly to your primary frequency, no matter if a chat was open, or anything like that. So bear it in mind, send it with PRIM FREQ key, [ENTER] works only in case your primary frequency chat window is selected We highly recommend to use the PRIM FREQ key always as it does not have any prerequisites.

❓ I have tried some VRC commands and I could not get them working in EuroScope.

It might be that some commands are either different or not yet implemented. We have received a few requests from users asking for functions similar to those in VRC. We hope to have them programmed into the next release.

❓ Can we expect further development of EuroScope?

Yes, definitely EuroScope will be developed further by its author, Gergely Csernák. With the help of users an initial wishlist has been created and each request/bug report can be checked in our bug tracking system: (http://www.euroscope.hu/Mantis/view_all_bug_page.php).

❓ How can I group FREETEXT items? I see it is grouped in Default group now. I would prefer to toggle them in several groups.*

Default group appears when a line of FREETEXT is not named (in the ESE file) or there is a typo.

Here is an example of the proper format:

```
N062.13.09.998:E028.03.56.002:VFR fixes:VUORI
N060.19.02.300:E024.57.18.000:EFHK taxiways:Z
```

LATITUDE:LONGITUDE:GROUP:FREETEXT

❓ How can I get in contact with the author to report bugs, ask for help, etc. ?

Best way is to use the support forum, where not only the author, but member of the support team and many users might lend a helping hand. Feel free to participate in the discussions at <http://forums.vatsim.net/viewforum.php?f=71>.

❓ In what time interval does EuroScope update simulated traffic (in offline mode, or for traffic outside radar range)?

The position update for simulated aircraft (fully offline or outside visual range) is executed in every 60 seconds. The planes are grouped and updated by this groups to avoid 1000 position update in a single second. The VATSIM statistics data is downloaded in every 10 minutes. If it is older than 20 minutes then it is not used.

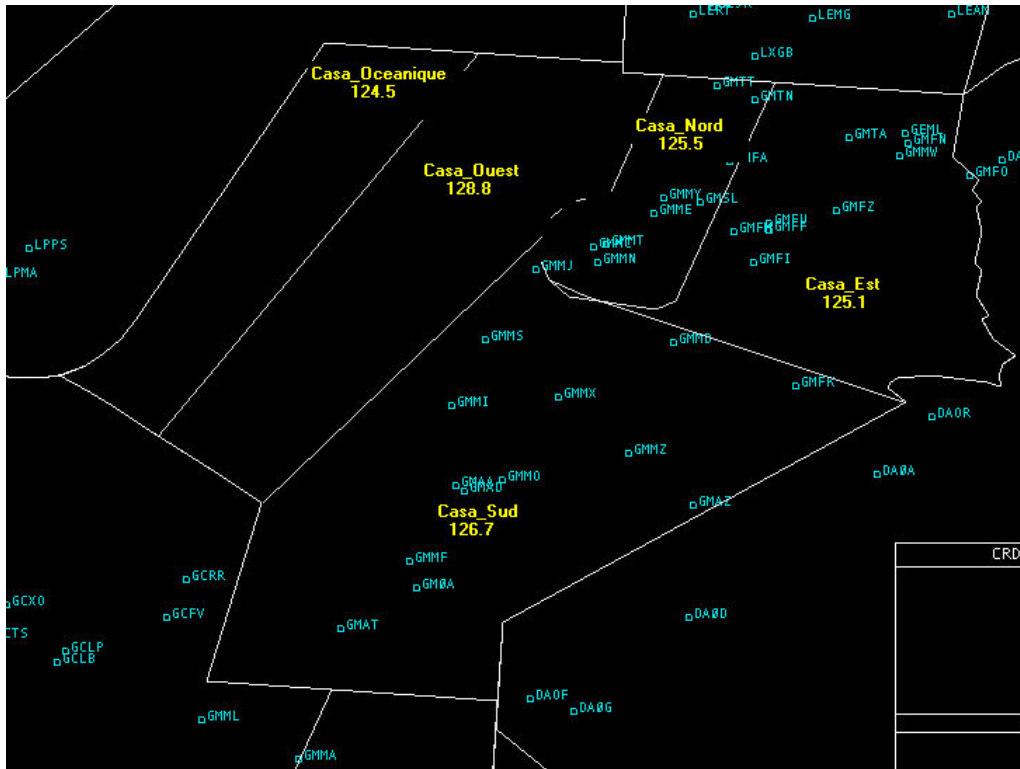
9. Tutorial

Introduction To This Tutorial

In that tutorial, I am going to explain in details, the important things to take in account for building an ese file. The complete ese file can be downloaded at http://www.vacc-morocco.org/Tutorial_GMMM.ese if you want to try it with EuroScope.

The Moroccan Fir

The Moroccan FIR is composed of five FIRs, here described below with their respective frequencies. I have chosen this FIR, not only because I know it very well but mainly because of its composition which makes it a good example for a tutorial.



So we will define the controller positions as following:

```
→ GMMM_CTR:CASABLANCA CONTROL:125.500:GMMC:C:GMMM:CTR:-:-:4201:4277
→ GMMN_CTR:CASABLANCA CONTROL NORTH:125.600:GMMMN:C:GMMN:CTR:-:-:4201:4277
→ GMMM_CTR:CASABLANCA CONTROL EAST:125.100:GMMME:C:GMME:CTR:-:-:4201:4277
→ GMMM_CTR:CASASABLANCA CONTROL WEST:128.800:GMMMW:C:GMMW:CTR:-:-:4201:4277
→ GMMM_CTR:CASASABLANCA CONTROL SOUTH:126.700:GMMMS:C:GMMS:CTR:-:-:4201:4277
→ GMMM_CTR:CASABLANCA CONTROL OCEANIC:124.500:GMMMO:C:GMMO:CTR:-:-:4201:4277
```

As you can see, we have five FIRs and six lines in the POSITIONS for Casablanca. This is because, on VATSIM, there are generally not enough controllers on line to man the five positions, and so Casablanca Control is controlling the five FIRs together. In that case, it is the first line with the 125.500 frequency which is used.

9.1. POSITIONS Definition

We are going to explain in details the different parameters of a POSITIONS line:

Example:

Example:
GMMM CTR:CASABLANCA CONTROL OCEANIC:124.500:GMMMO:C:GMMO:CTR:-:-:4201:4277

1. First parameter

The first parameter is there only to remember you the usage of the line. It can be anything and does not affect any function. As you can see, I used the same name for different lines.

2. Second parameter

The second parameter is the radio call sign, generally the official radiotelephony call sign to be used with that station.

3. Third parameter

The primary frequency of the station.

The fourth parameter is the identifier. It can be one character long or as long as you want. We use a five characters length one to make reading easier.

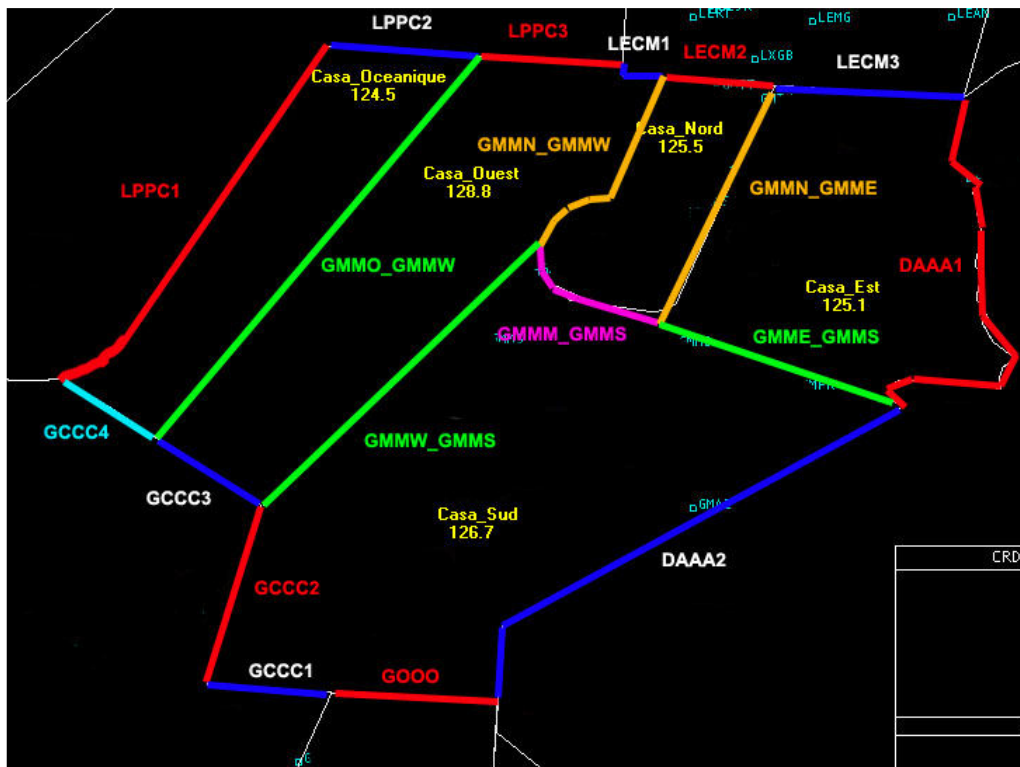
The first part of the call sign. This parameter is used to identify the position.

Not used.

Start of code squawk range used for that position.

End of code squawk range used for that position.

So, on the picture below you can see how we defined all these SECTORLINES.



```

1) SECTORLINE : GMMO_GMMW_SCL
2) DISPLAY : GMMM_O_CTR_SECT : GMMM_O_CTR_SECT : GMMM_W_CTR_SECT
3) DISPLAY : GMMM_W_CTR_SECT : GMMM_O_CTR_SECT : GMMM_W_CTR_SECT
4) COORD : N030.48.17.299 : W014.13.33.264

```

5) COORD : N035.57.32.923 : W009.39.27.732

1) The first line contains the name of the SECTORLINE. We had it the suffix _SCL to identify it immediately when reading.

2) The second line defines the conditions for this SECTORLINE to be displayed. Its general format is:

DISPLAY : param1 : param2 : param3 where all parameters are SECTORS and NOT identifiers from the POSITIONS section.

So the SECTORLINE will be displayed IF you are controlling param1 AND IF param2 AND param3 are controlled by two different controllers. And in our case the GMMO_GMMW SECTORLINE will be displayed if you are controlling GMMM_O_SECT and GMMM_O_SECT and GMMM_W_SECT are controlled by two different controllers.

3) The third line is the other condition for this line to be displayed and follows the same logic. And since this SECTORLINE is a straight line, we only need two coordinate points to define it.

4) The fourth line contains the geographical coordinates of the separation point between GCCC4 and GCCC3 SECTORLINES. This is the starting point of the SECTORLINE.

5) The fifth line contains the geographical coordinates of the separation point between LPPC2 and LPPC3 SECTORLINES. This is the ending point of the SECTORLINE.

All SECTORLINES follow the same rules, and are more or less complex according to their shape, so GMMO_GMMW is a simple one with only two coordinate points and we can also have a SECTORLINE like DAAA1 which is defined by 26 coordinate points.

Note: All SECTORLINES can be defined in any order.

9.3. SECTOR Definition

Now, we are going to see how SECTORS are defined.

A sector definition is as following:

```
SECTOR : < sector name > : < lower altitude limit> : < upper altitude limit>
OWNER  : < ID 1 > : < ID 2 >: ... : < ID n >
BORDER : < SECTORLINE 1 > : < SECTORLINE 2 > : ... : < SECTORLINE n >
```

The vertical limits are in feet. The identifiers are taken from the fourth parameter in the POSITIONS lines and are set in hierarchical order in the controller positions. So we have the following hierarchy: GND, then TWR, then APP, then TMA (if any), then CTR, then FSS.

