

Target Generation Facility (TGF)

QPVD User's Guide

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1 INTRODUCTION

1.1 PURPOSE

The QPVD User's Guide describes how the Target Generator Facility (TGF) QPVD is used.

1.2 ORGANIZATION

The Target Generation Facility (TGF) at the Federal Aviation Administration William J. Hughes Technical Center (FAA Technical Center) is managed by the System Simulation Support Branch, ACB-860, of the Aviation Simulation and Human Factors Division, ACB-800.

Simulation Group (ACB-860)
Real & Virtual Division (ACB-800)

2 OVERVIEW

2.1 QPVD System Overview

QPVD provides a graphical interface showing the targets that the TGF create.

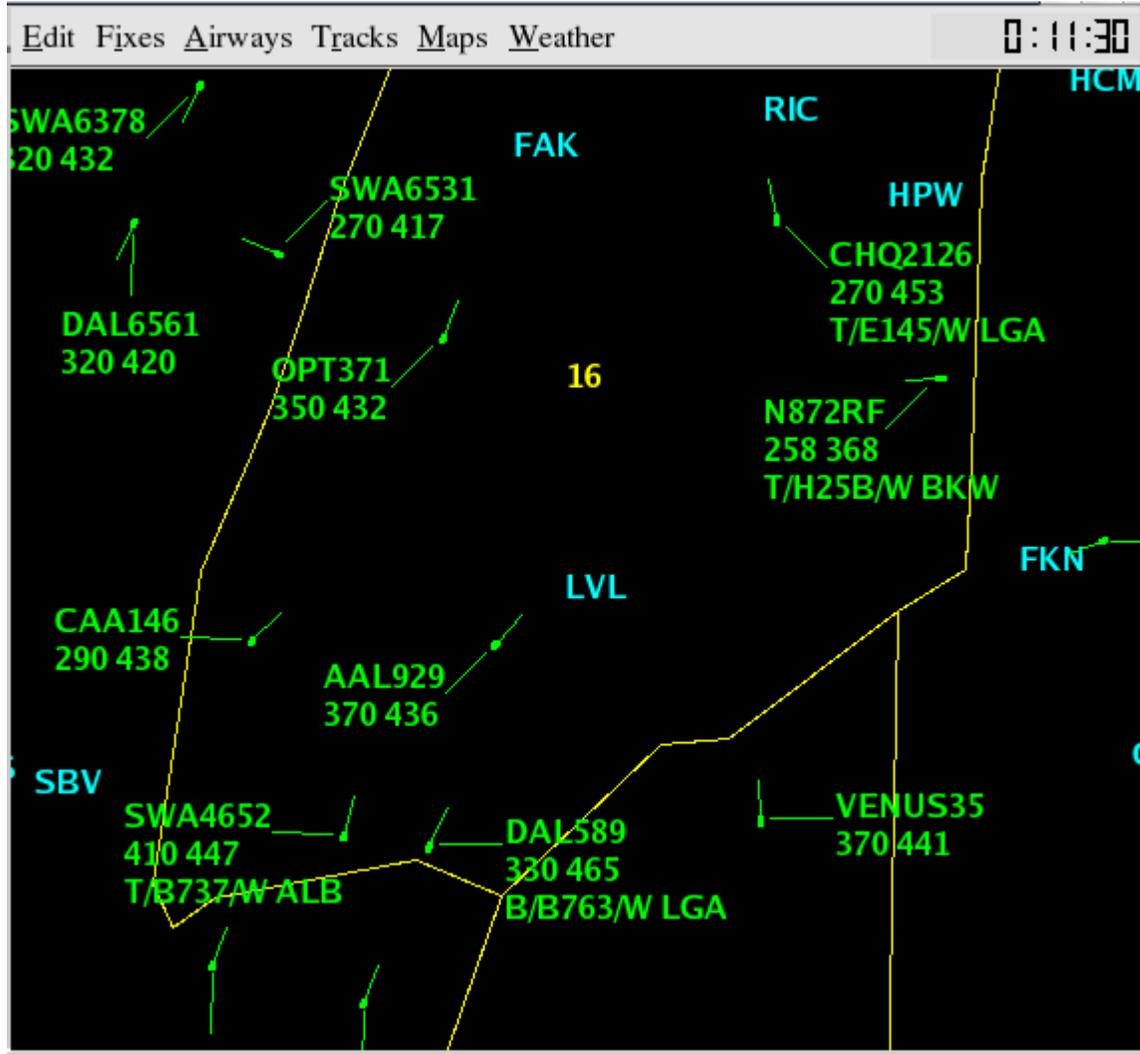


Figure 1 QPVD fully populated

3 The QPVD GUI

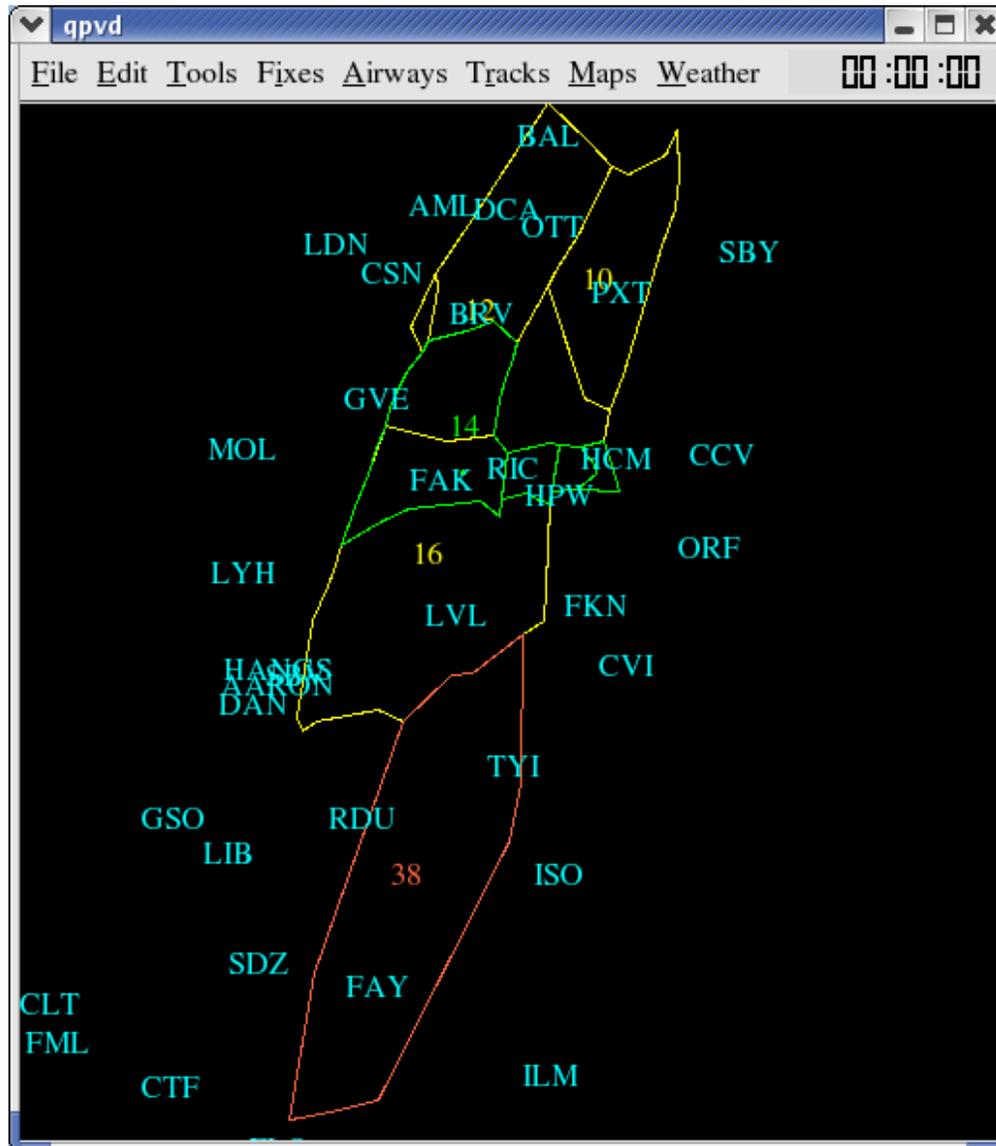


Figure 2 initial QPVD GUI

3.1 QPVD Menubar

The QPVD GUI contains a custom menubar. Depending on how QPVD was started determines which menu items are displayed.

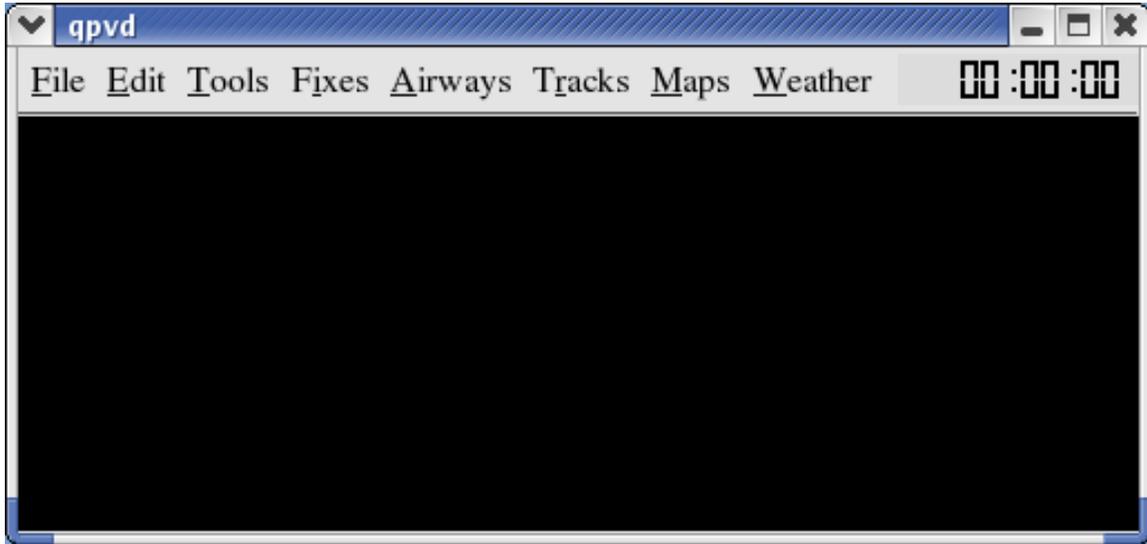


Figure 3 QPVD Menubar

NOTE: Several menu items will not be displayed when using QPVD within the SimPilot workstation, (such as File and Tools) You may ignore sections [3.1.1 File](#) and [3.1.3 Tools](#).

3.1.1 File (Not available on SimPilot Workstations)

The submenus of the **File menu** are:

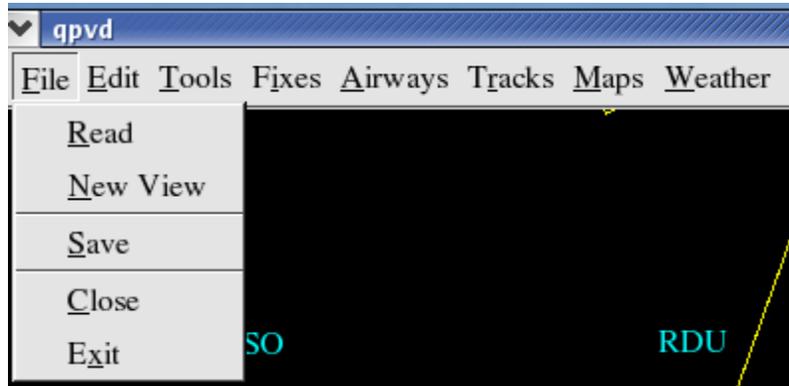


Figure 4 File Menu

3.1.1.1 Read

This opens a dialog where you can select an XML file to be read in. Appropriate files (for the time being) are airspace definitions, the specific map details and all static data. Inside the file selection dialog, you can use the icons and directories to navigate to the desired file, or you can input the path in the textbox at the top. This will take you to the desired directory where you must still select the desired file. Normally this file is read in automatically when the **QPVD** screen is brought up together with a specified argument.

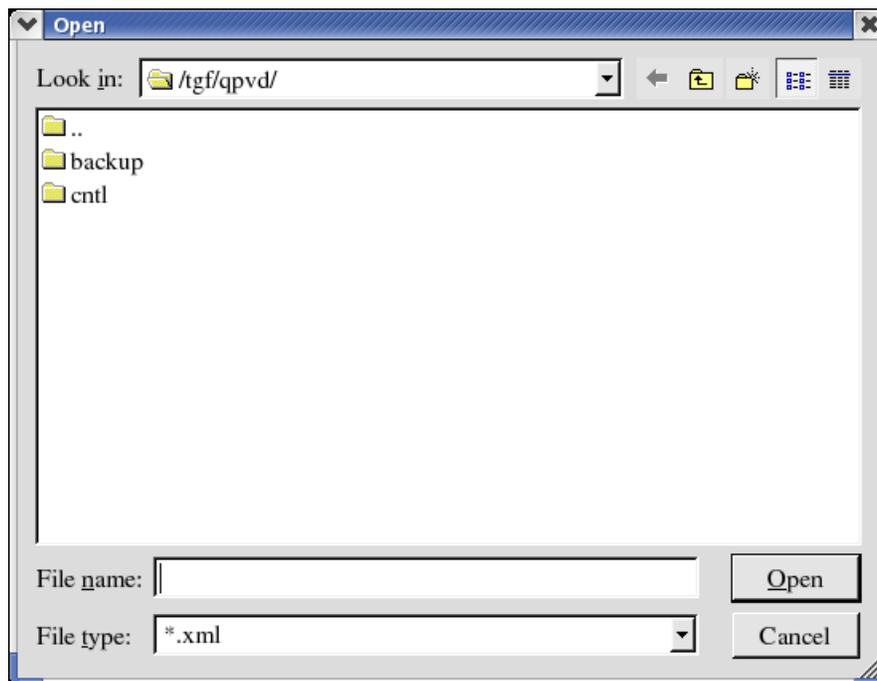


Figure 5 Open XML file

3.1.1.2 New View

This spawns a new window of qpv. The new window functions separately from the original window, to a degree. Anything “static” will affect both windows. For example, displaying certain fixes in one window will not affect the other. Changing the default color for fixes in one window will, however, affect the other window.

3.1.1.3 Save

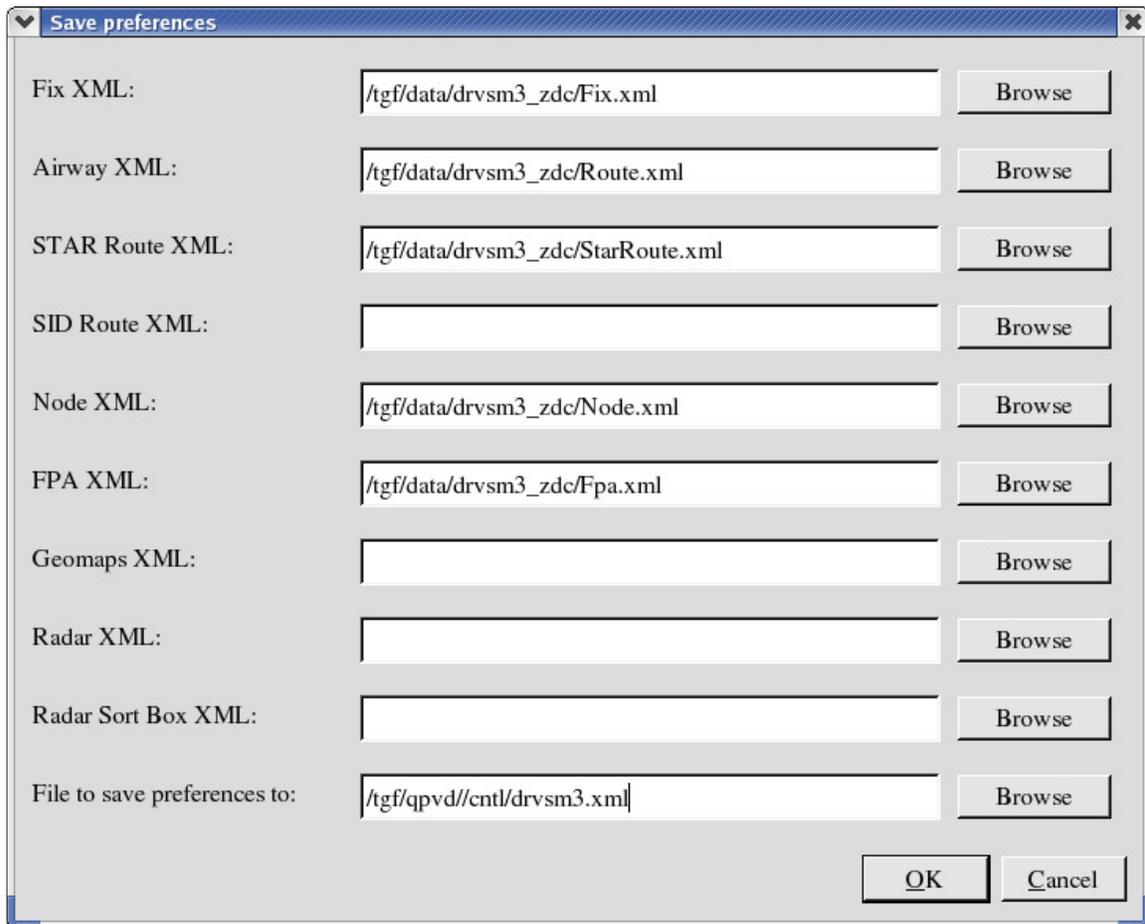


Figure 6 Save preferences

3.1.1.4 Close

This will close the current window. If there is only one window open for qpvd, this will cause the program to terminate.

3.1.1.5 Exit

This causes the program to terminate and exit, regardless of how many windows are open.

3.1.2 Edit

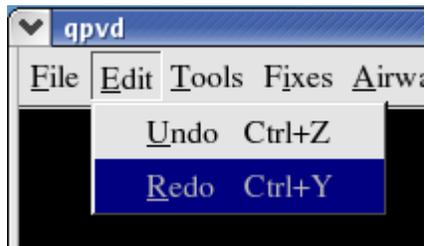


Figure 7 Edit

The submenus of the **Edit menu** are Undo and Redo.

Undo: This will undo the last change made or the last command entered.

Redo: This will redo the last undone command or change.

3.1.3 Tools (Not available on SimPilot Workstations)

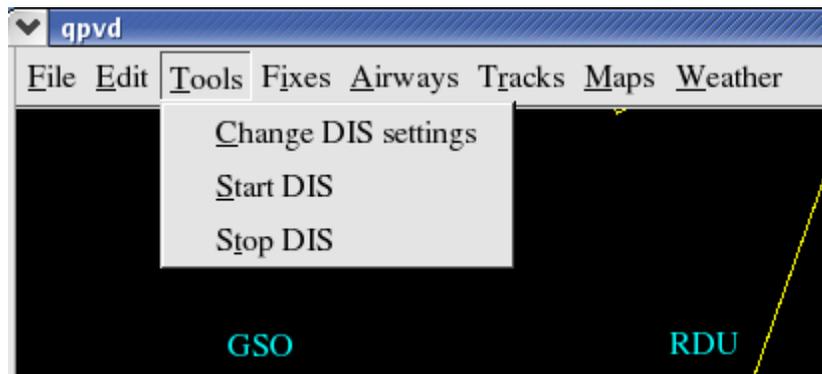


Figure 8 Tools

3.1.3.1 Change DIS settings

This will create a dialog which allows the user to change which port to listen for DIS broadcasts on. Currently the host IP is hard-coded and entering anything in this field will not affect anything.



Figure 9 Change DIS settings

3.1.3.2 Start DIS

This will cause qpvd to begin listening for DIS broadcasts on the specified port. (The default port is 3240.)

3.1.3.3 Stop DIS

This will cause qpvd to cease listening for DIS broadcasts.

3.1.4 Fixes

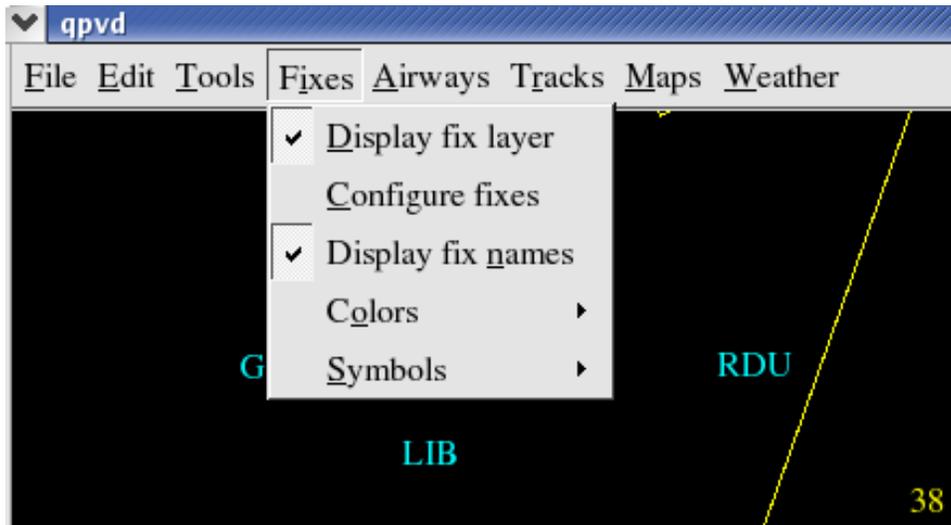


Figure 10 Fixes

The FIXES submenu contains all the fixes in the current exercise. Each fix when chosen will be able to be placed on the map according to its latitude and longitude coordinates.

The fix customization dialog allows the user to extensively alter what fixes are displayed, as well as the manner in which they are displayed. On the left-hand side of the dialog is a list box which contains all the fixes in the current airspace definition, as well as the option, “Default”. Any changes made to “Default” will affect fixes drawn in the default style—that is, a fix which has had no specific style dictated. Any change made to a specific fix will affect that fix only, but will label it as non-default.

For example, the default style is changed to draw in the color green (instead of cyan). A specific fix is changed to have a circle drawn on its position (and no other changes are made). Because that specific fix has been altered, it no longer utilizes the default style for fixes, and will still be drawn in the color cyan. To have a non-default fix use the default style, it must be “removed” from the display, then re-displayed. This is possible through the command and the configuration dialog. To do this through the configuration dialog, you must select the fix, de-select the “Display this fix” check-box, and then click the “OK” button. Next, go back in to the configuration dialog, find the fix, and select the “Display this fix” check-box and click “OK” again.

Any changes made through the configuration dialog occur once the “OK” button is clicked. In addition, they occur at the same time, so selecting “undo” from the “Edit” menu will undo all changes of just executed.

3.1.4.1 Display fix layer

This will toggle the display of the fix layer. This will not destroy any data on what fixes are displayed, or in what manner they are displayed—it will simply tell qpvd to not draw fixes to the screen. This is a toggle option, so selecting it will turn it on or off.

3.1.4.2 Configure fixes

This will open a dialog, allowing the user to extensively customize the manner in which fixes are displayed.

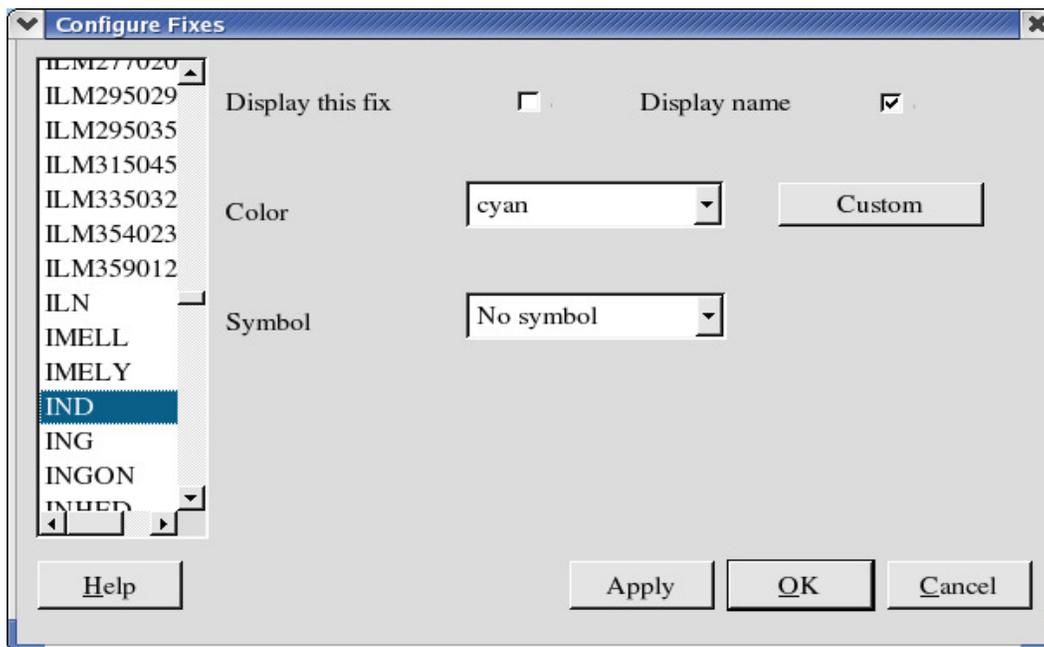


Figure 11 Configure Fixes

There is a list of predefined colors, as well as the ability to select a custom color by either clicking the appropriate “Custom” button, or selecting “custom” from the drop-down list.

3.1.4.2.1 Custom Color

Anytime the custom (color) button is selected, the following GUI appears:

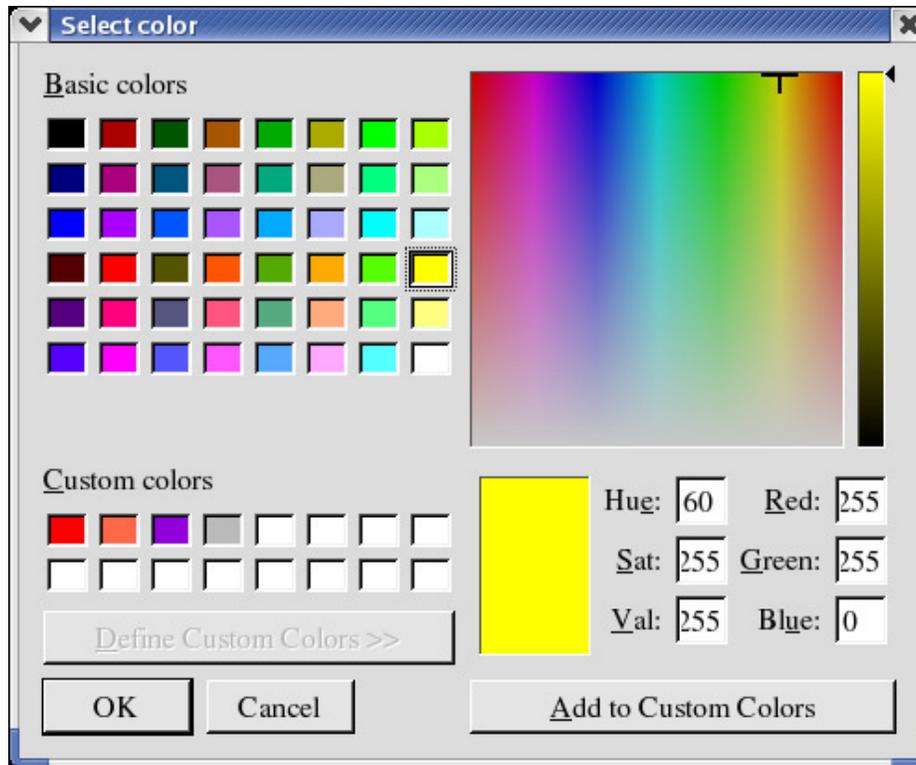


Figure 12 Select custom color

Here you may choose any basic color or create your own custom color.

3.1.4.3 Display fix names

This will toggle the display of the fix names, selecting it will turn them on or off.

3.1.4.4 Colors

This will open another list, containing a list of colors. Selecting a color will affect the default color for fixes to be drawn in.

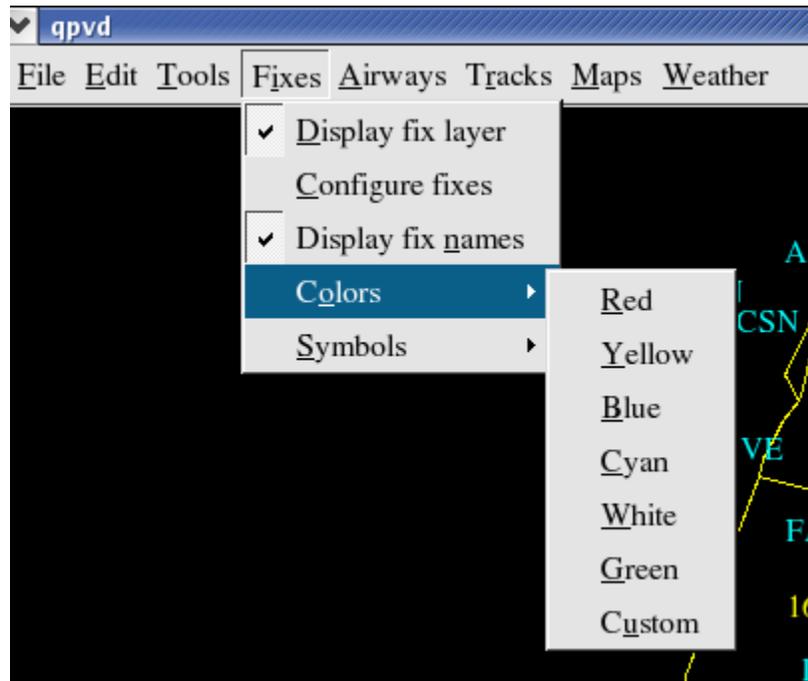


Figure 13 Fix colors

Selecting “custom” from the drop-down list will also display the Custom Color GUI. See [Section 3.1.4.2.1 Custom Color](#).

3.1.4.5 Symbols

This will open a list, containing a list of symbols. Selecting a symbol type will affect whether by default, a symbol should be drawn on the location of a fix.

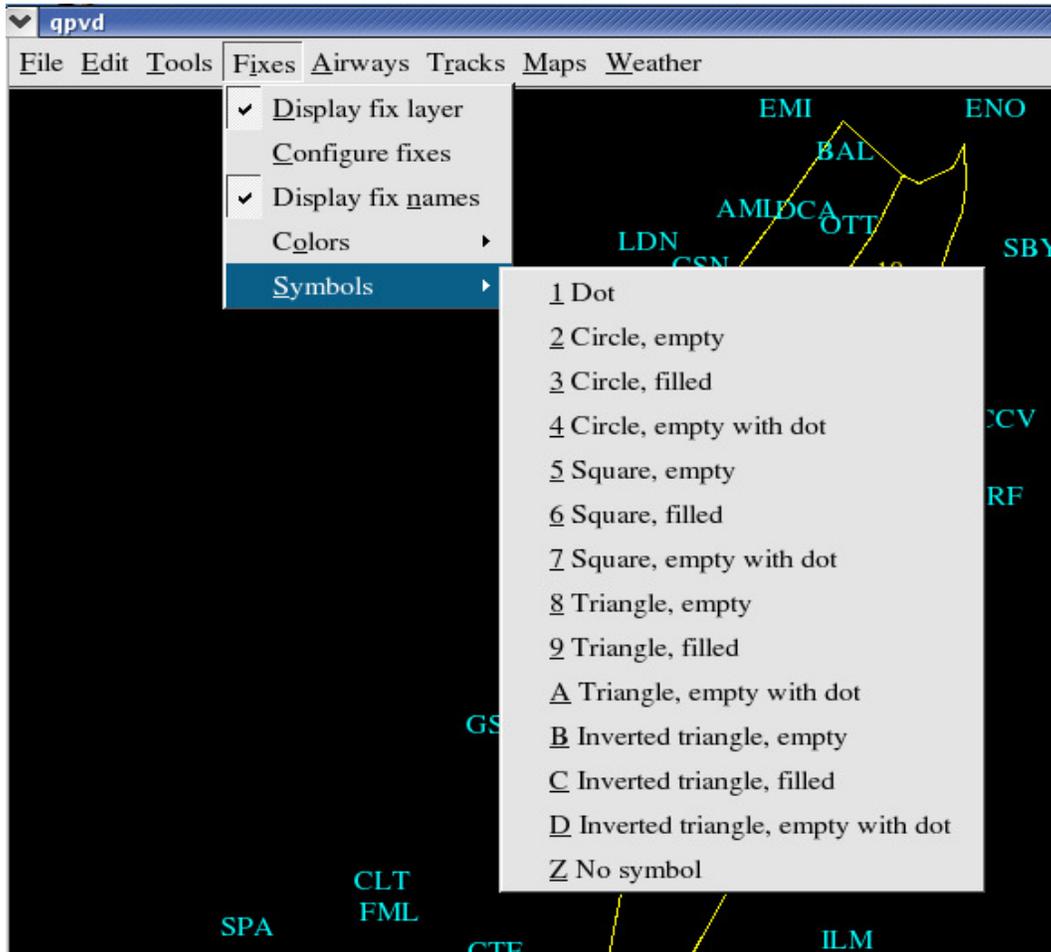


Figure 14 Symbols

3.1.5 Airways

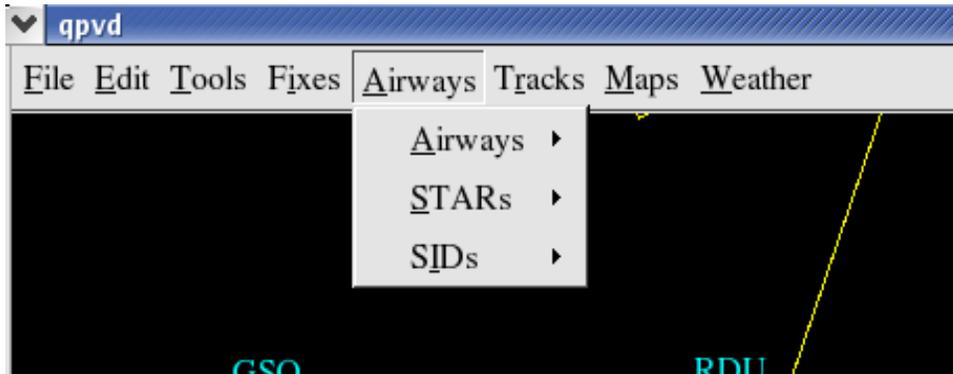


Figure 15 Airways

The AIRWAYS menu will contain all the airways in the particular simulation exercise currently running. If there are none it will be indicated by an appropriate dialog pop-up. Any airway of interest can be chosen from the AIRWAYS submenu.

There are configuration dialogs for airways (for example, “jet” and “victor” airways), STARs, and SIDS. Though they all affect a different type of airway, the dialogs utilize an identical interface. On the left-hand side of the dialog is a list of the airways in the current airspace definition, in addition to the “Default” option. Changes made to the “Default” option affect airways drawn in the default style. See the section above (“Fixes”) for more information on what types of objects are excluded from this.

The “Display this airway” option toggles whether a specific airway should be drawn. The user may also specify a color for the airway to be drawn in, choosing from a list of predefined colors or specifying a custom color using the color selection dialog. (Try clicking “Custom”--the dialog is intuitive.) The user may also select a symbol to be drawn at each fix along the airway, and a line-style to draw the airway using. Finally, the user may specify if (and how) names should be drawn along the airway.

Changes are made once the “OK” button is clicked and occur in unison. If the “undo” (or “redo”) functions are used, they will undo and redo all the changes the user just made.

3.1.5.1 Airways

This menu option encompasses three other options: “Airways”, “STARs”, and “SIDs”. Each of these options gives the user the ability to change how airways, STARs, and SIDs are displayed. The sub menus for each of them is the same – [See Section 3.2.5.4 Sub Menus for Airways.](#)

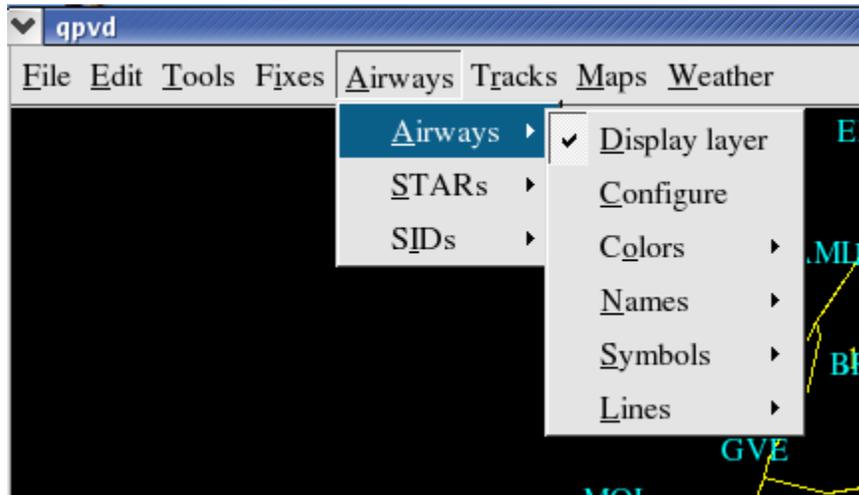


Figure 16 Airways

3.1.5.2 STARs

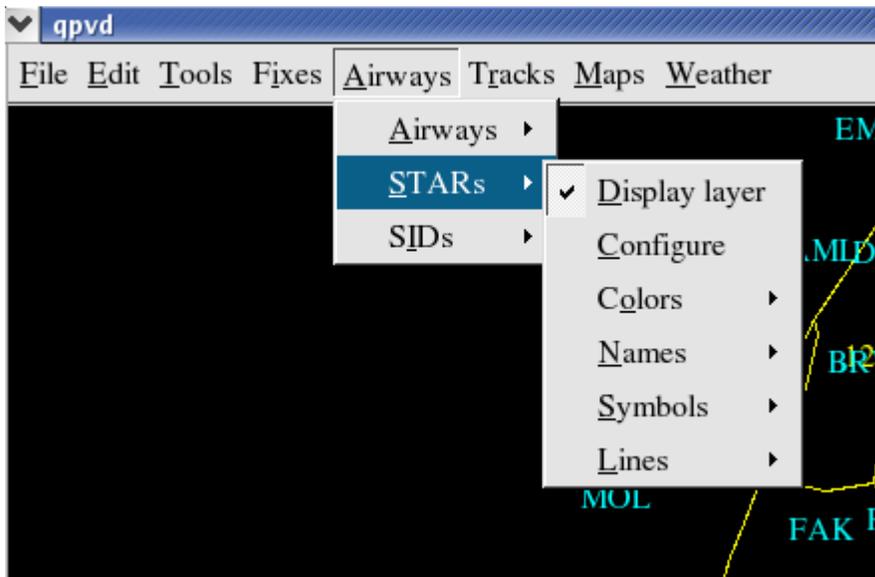


Figure 17 STARs

3.1.5.3 SIDs

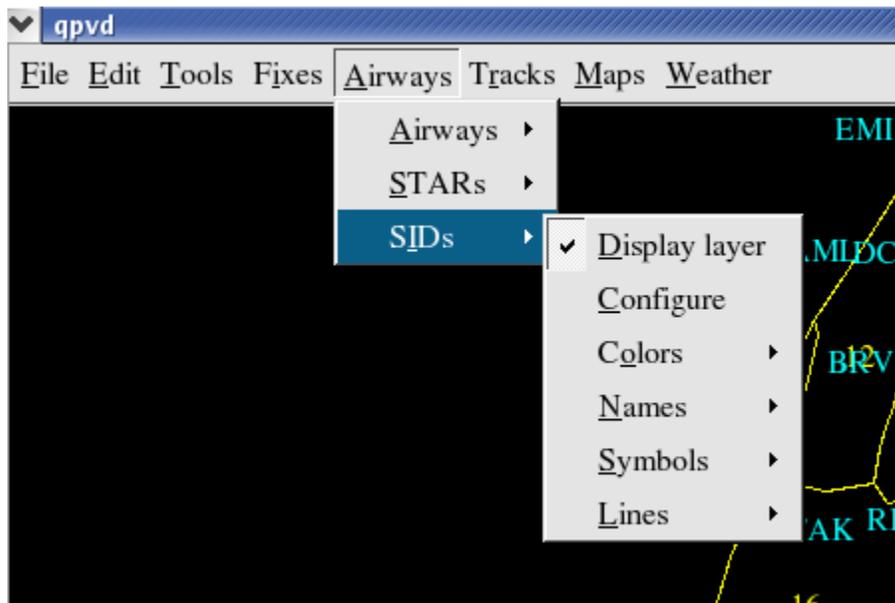


Figure 18 SIDS

3.1.5.4 Submenus for airways

Each sub menu of airways has the same options:

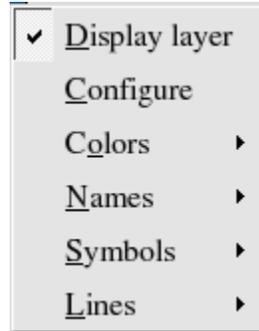


Figure 19 Airways options

3.1.5.4.1 Display layer

This toggles whether the layer containing these objects should be drawn.

3.1.5.4.2 Configure

This opens a dialog, allowing the user to customize which airways are displayed and in what manner.

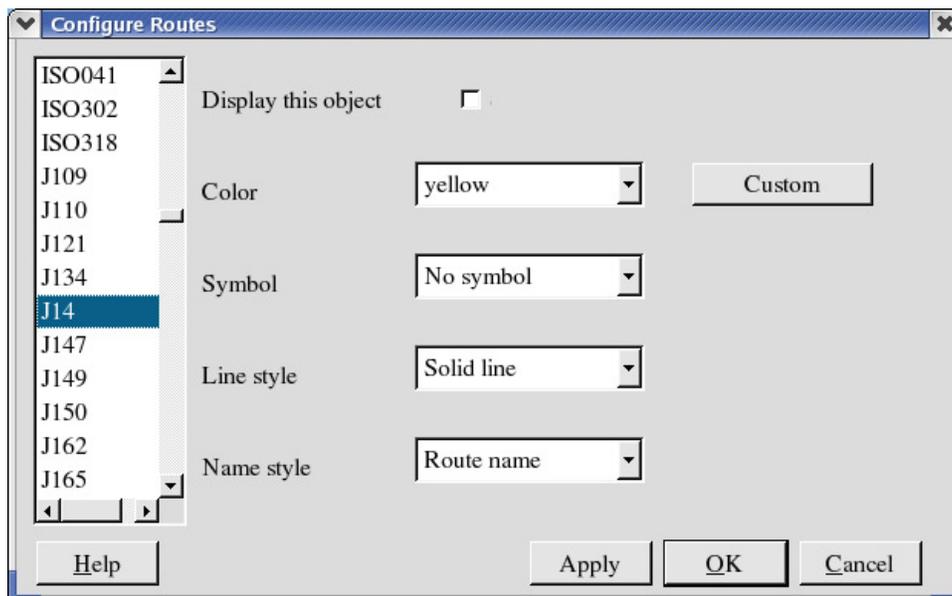


Figure 20 Configure Routes

3.1.5.4.3 Colors

This allows the user to change the default color airways are drawn in, without having to use the configuration dialog, or choose custom to select custom colors.

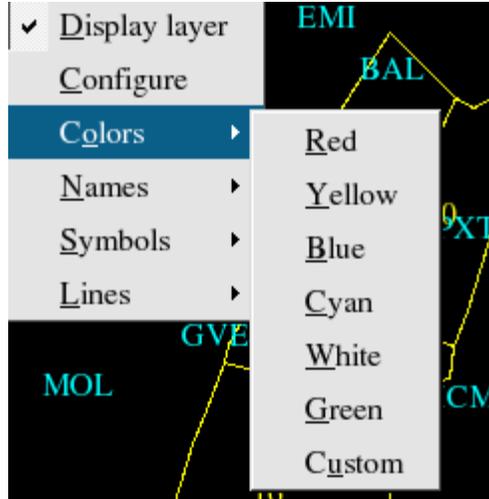


Figure 21 Color choices

3.1.5.4.4 Names

This allows the user to change how (and if) names are drawn along the airway by default.

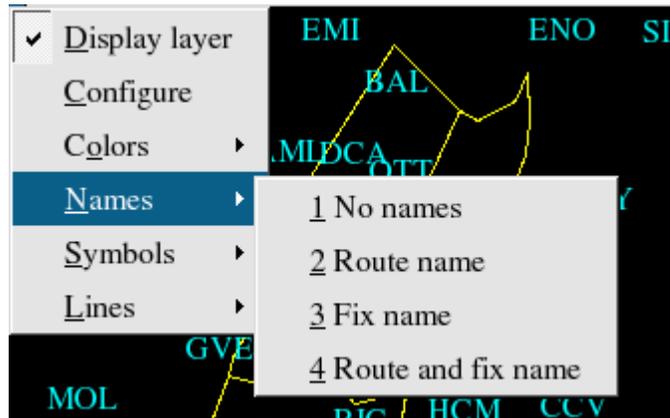


Figure 22 Names

3.1.5.4.5 Symbols

This allows the user to change whether a symbol is drawn at each fix along a given airway by default.

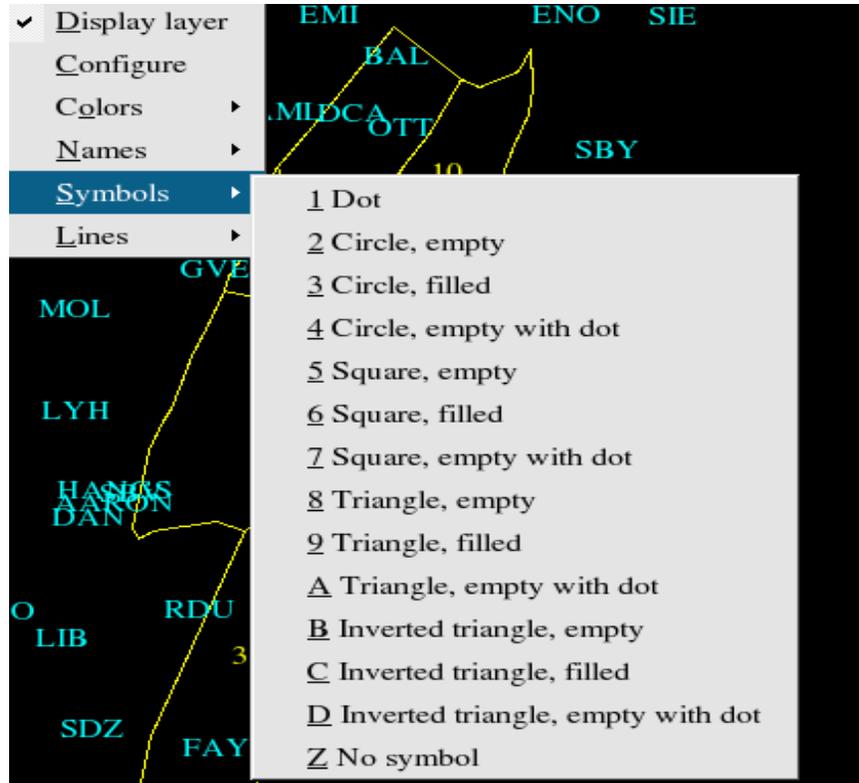


Figure 23 Symbols

3.1.5.4.6 Lines

This allows the user to change the type of line used to draw an airway by default.

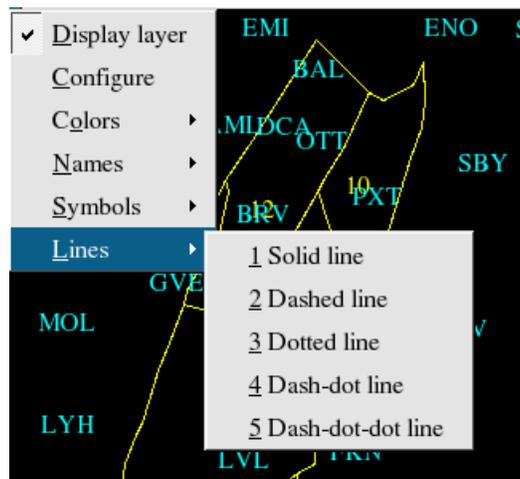


Figure 24 Lines

3.1.6 Tracks

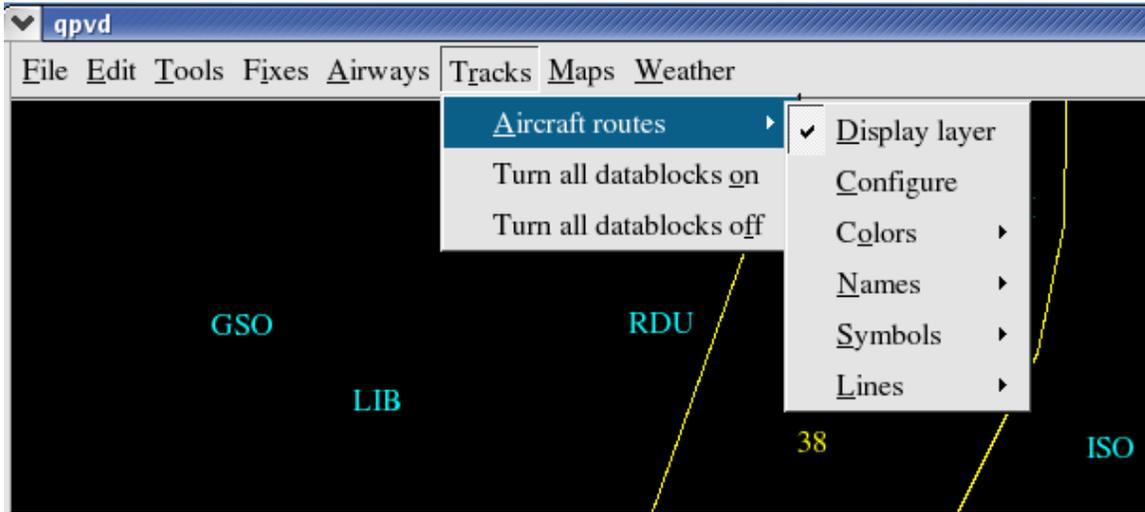


Figure 25 Tracks

3.1.6.1 Aircraft routes

The same dropdown menu choices are used as airways. See [section 3.1.5.4. Submenus for airways](#)

Turn all datablocks on – toggles flight datablocks to be displayed.

Turn all datablocks off – toggles flight datablocks not to be displayed.



Figure 26 Flight displayed with datablocks on

3.1.7 Maps

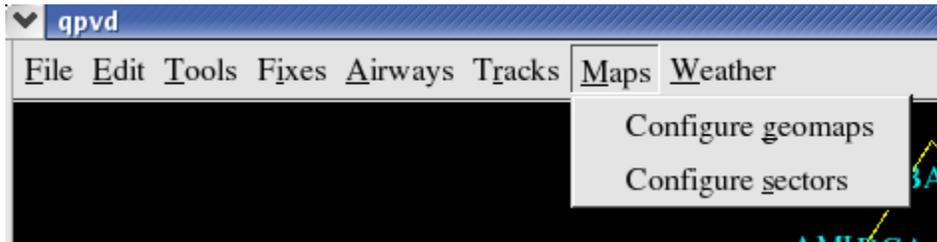


Figure 27 Maps

3.1.7.1 Configure geomaps

This opens a dialog allowing the user to customize the geomap being displayed. The geomaps information must be loaded before this can become useful. Only one geomap can be displayed at a time

The geomaps configuration dialog allows the user to change the map being displayed, as well as what lines or symbols are displayed (and in what color they are drawn). The list box on the left-hand side of the dialog contains a list of geomaps that qpvd knows about, in addition to the option, "None".

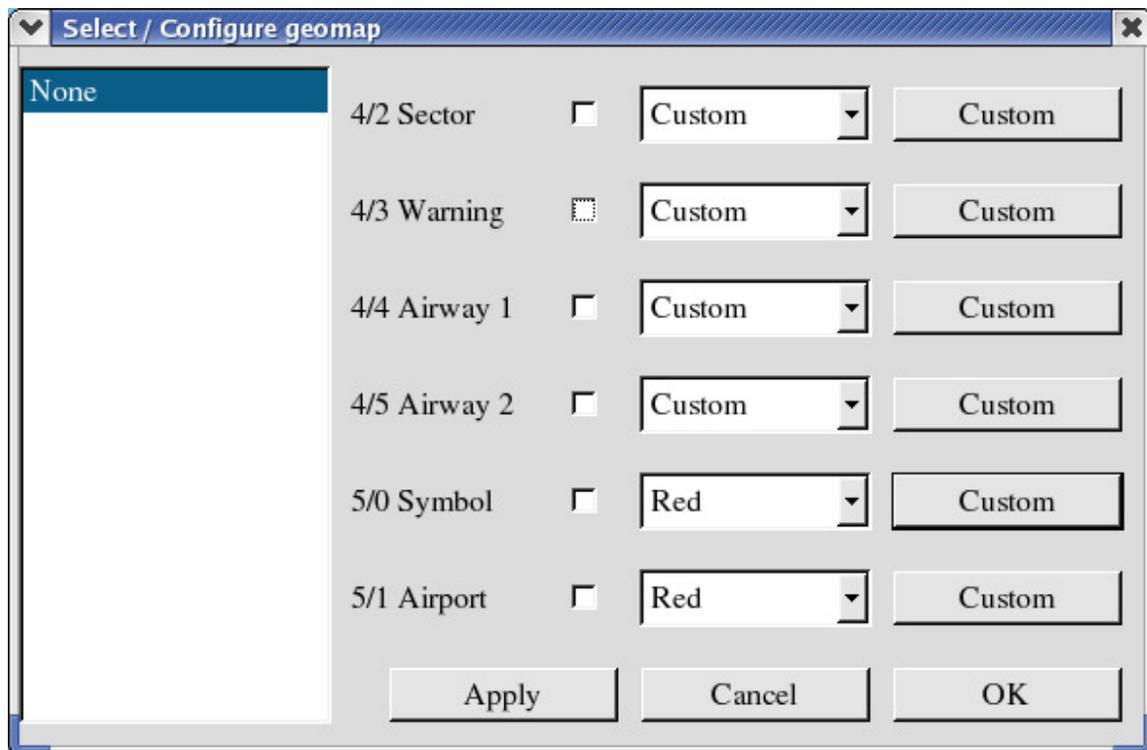


Figure 28 Configure geomaps

Each line and symbol type is followed by a check-box. Selecting or de-selecting this check-box will affect whether those lines or symbols are drawn. In addition, the user can use the drop-down list to select a color for a specific line or symbol group. There is a list of predefined colors, as well as the ability to select a custom color by either clicking the appropriate “Custom” button, or selecting “custom” from the drop-down list.

Changes are made in unison once the “OK” button is clicked—using the undo or redo options will affect all the changes that were just made.

3.1.7.2 Configure sectors

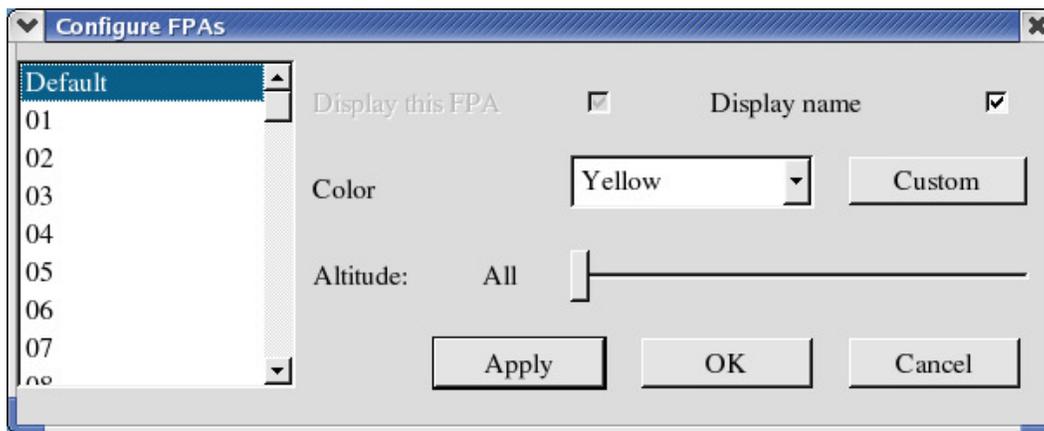


Figure 29 Configure sectors

This allows the user to change which flight plan areas (FPAs) are displayed. The FPAs are separated by sector number, so selecting a sector to be displayed will draw all FPAs for that sector.

When the Altitude slider is all the way to the left, all FPA’s will be displayed, otherwise an FPA is displayed if it includes the specified altitude.

3.1.8 Weather

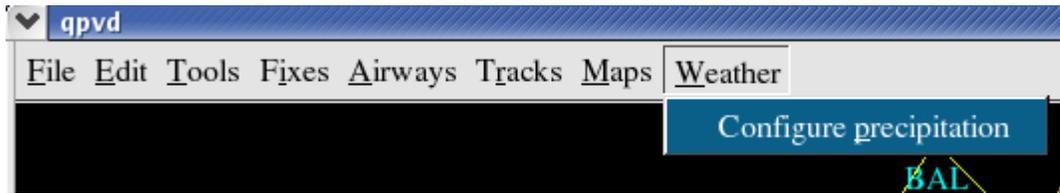


Figure 30 Weather

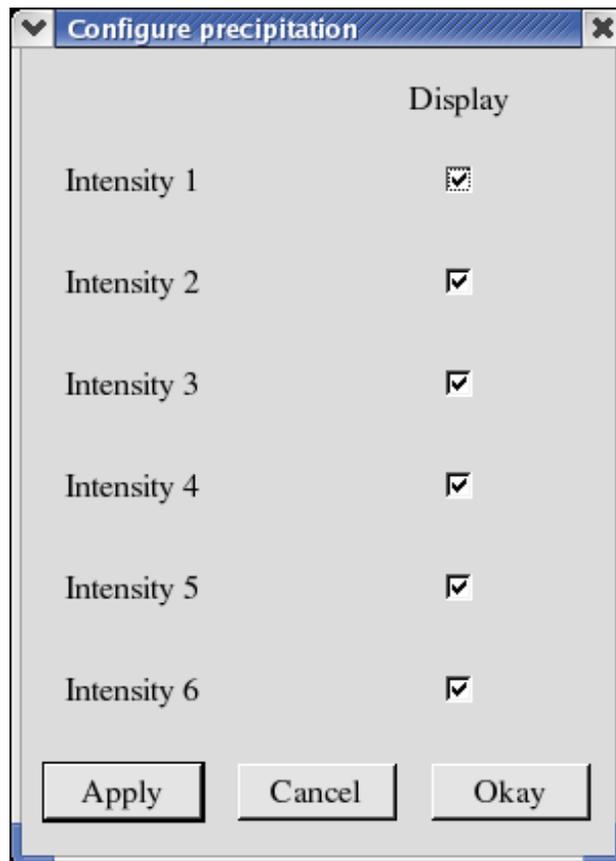


Figure 31 Configure precipitation

4 Mouse Buttons

Left button – select current aircraft

Center button – toggle display of single aircraft data block

Right button – alter datablock offset

Shift and left button – zoom in

Shift and center button – re-centers map

Shift and right button – zoom out

Control and left button – highlight aircraft

Control and right button – display route of aircraft