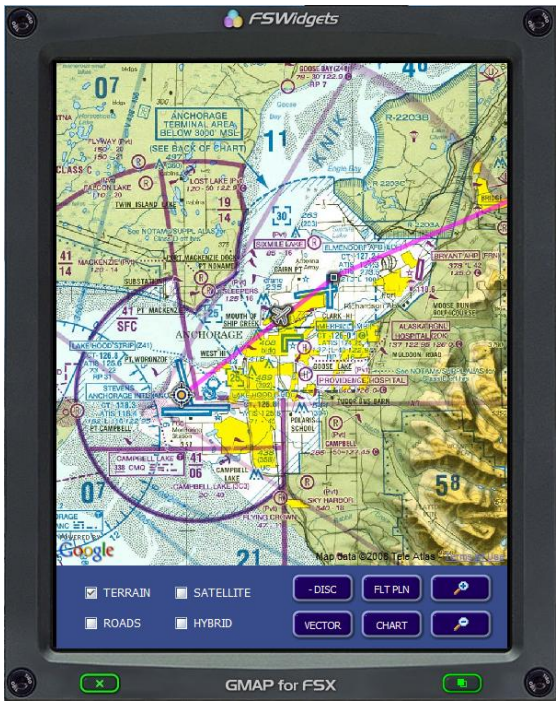
GMAP FOR X-PLANE
CHART SUPPLEMENT



INTRODUCTION

Version 1.0 of **GMap for X-Plane** (Freeware) introduces an optional feature that loads TAC/Sectional charts (or any correctly formatted chart), overlaying them onto the Google Maps display. A sample TAC and Sectional chart is included in the ZIP file.

This document outlines the new chart feature, its capabilities, limitations and some subtle changes to the initial Version 1.0 released for FSX in May 2008. The open format for supported charts is also explained so you can create your own.

Note 1: This feature is not the superior Cloud Based chart system (see separate PDF file), but an earlier chart overlay system that allows folk to create their own charts.

Note 2: For details about features and how to use the **GMap for X-Plane** application itself, please see the **FSWidgets GMap for X-Plane PDF** file included in the ZIP.

BASIC FEATURES

- Displays aeronautical charts (Sectionals/TAC, *etc*) on Google Maps.
- Open calibrated chart format, ability to create your own charts. *
- Charts are stored locally on the hard drive to increase loading performance.
- Default and Custom Chart Folder supported (Custom via INI file entry). #
- Easy to install new charts, supports an unlimited number.
- Memory Optimization control available via INI file entry. +

* See the section **GMap Chart Format** for details.

Consult the two separate sections **How to Install Charts – Using the Default Folder** and **How to Install Charts – Using a Custom Folder** for more details.

+ The **Memory Optimization** section explains this feature.

OPERATIONAL REQUIREMENTS/LIMITATIONS

- Only JPG/DAT charts supported, there are no plans for any other format.
- Only one chart can be loaded at a time, loading a new one will automatically clear the previously loaded chart to optimize memory usage.
- Using large charts may push up memory usage, especially in the Browser edition due to its larger display. This will also inevitably slow down some functions (*e.g.* zooming in and out). A special customizable memory trimming feature has been included to minimize the use of RAM. ^
- Due to different projection standards (Google Maps is Mercator, many aeronautical charts are Lambert Conformal) some chart features may not line up perfectly and a small divergence is to be expected.
- Google Maps itself has different sets of map data for each zoom level, generating razor-shape images at all times. This is not possible with a single chart image stretched over the Google Maps display. Generally speaking there are just a few zoom levels where the JPG charts will display sharp and the chart loading system will automatically readjust the zoom level to a more optimum setting for most aeronautical charts. You can of course create different charts (high/low resolution) for different zoom levels if you wish. The higher the resolution, the better the chart will look when zoomed in close, the lower the resolution the better it will look when zoomed out.

^ The **Memory Optimization** section explains this feature.

HOW TO LOAD A CHART

The first step is to select the desired chart folder from the drop-down menu. This list of folders corresponds to any chart sub-folders you have installed (please see the next two pages for information on how to install charts).

Selecting the chart folder from the list will display any installed charts. To load a chart, select it from the list and press the **Load** button. If the chart JPG is large you may need to wait a few seconds for it to fully display.

When a chart is loaded the map display will also automatically zoom in/out to a more optimum zoom level for the chart display.

TIP: While GMap is **connected** and you are *flying in the vicinity of the chart* you will see it overlaid on Google Maps more or less straight away. The map will of course not pan to another location - it stays centered on the aircraft symbol.

TIP: If wish to *view a chart not in the area you are currently flying in*, **disconnect** GMap before loading the chart. Then the map display will automatically move or pan to the center point (middle LAT/LON) of the chart.

HOW TO INSTALL CHARTS – USING THE DEFAULT FOLDER

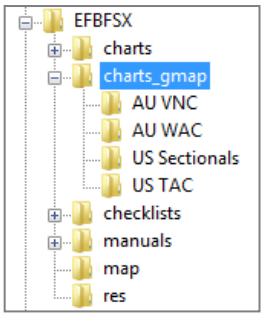
The default folder will *always* be the **charts_gmap** folder (must be located in the same folder as the **FSWidgetsGMap.exe** file).

If you are using the ready-made calibrated **Chart Pack** download products from FSWidgets then installing the charts is easy:

1. Run the automatic setup application and point the installer to the folder where the **FSWidgetsGMap.exe** file is on your system (*i.e.* **[X-Plane]\EFBXP** folder).

2. After the installation you will have a new **charts_gmap** sub-folder directly under the folder where you have the **FSWidgetsGMap.exe** file (or the **EFBXP.EXE**). The folder structure will look similar to the image on the right.

3. Any chart sub-folders under the **charts_gmap** folder will be added to the drop-down menu on the **Load Calibrated Chart** dialog (*e.g.* US Sectionals or US TAC).



If you will be installing charts **manually** then note these points:

1. Create the main **charts_gmap** folder with Windows Explorer under the folder where the **FSWidgetsGMap.exe** file is on your system (for **EFBXP** users that will be the same as the **[X-Plane]\EFBXP** folder).

2. Next, you can create as many chart sub-folders as desired under that main **charts_gmap** folder (*e.g.* US TAC, US Sectionals, AU WAC).

3. The main **charts_gmap** folder must be created in the same folder as the **FSWidgetsGMap.exe** file.

4. Only one folder level below the **charts_gmap** folder will be recognized as a chart sub-folder (*i.e.* will be added to the Chart Folders drop-down menu).

5. Use brief but descriptive chart sub-folder names to ease identification.

TIP: Want to quickly see the chart feature in action? On extracting the GMap ZIP file, set the option in your ZIP file utility to preserve the folder structure. That will extract the included sample charts folder (charts_gmap) to the same folder as the FSWidgetsGMap.exe file.

HOW TO INSTALL CHARTS – USING A CUSTOM FOLDER

You can also store the charts in a *custom folder* location (*i.e.* not under the EFBXP or GMap folder) and this option is enabled via a manual INI file entry.

If you are using the calibrated **Chart Pack** download products from FSWidgets:

1. Run the automatic setup application, follow the prompts and point the installer to the folder where you want to store the charts (*e.g.* C:\Data).

2. If the installer alerts you to the non-existence of the **FSWidgetsGMap.exe** file in the folder you selected, and this is because you are running GMap from a folder other than the custom chart folder location, just click YES to continue.

If adding your own Custom Charts folder **manually**:

1. Create the base folder with the Windows Explorer (*e.g.* C:\Data\GMap Charts). Chart sub-folders must then be added under that base folder (*e.g.* C:\Data\GMap Charts**US Sectional**).

Next, create a text file called **FSWidgetsGMap.ini** (or use the existing copy if you have implemented the Memory Optimization options) and add it to the same folder as the **FSWidgetsGMap.exe** file.

Finally, add a section in square brackets called **[Charts]** and under that add the Custom Charts Folder entry (see image on the right).

```
1  [Charts]
2  chartfolder=C:\Data\charts_gmap
3
```

The custom charts folder entry *must point to the base folder*. Any chart sub-folders under your Custom Charts folder will then be loaded into the drop-down menu on the GMap **Load Calibrated Chart** dialog.

TIP: If you are using an **FSWidgets Chart Pack** and you will be installing to a **custom** GMap chart folder, please note that in all cases the installer will create a main or base chart folder called **charts_gmap** in the folder location you select during the setup. You may manually change this base folder name if you wish, but please keep in mind this will affect the uninstaller (*i.e.* the uninstaller will not be able to locate the charts for deletion, should you choose that option).

GMAP CALIBRATED CHART FORMAT

You can easily create new charts from any existing digital or scanned chart images and the required file formats are as follows:

My Chart.jpg - Compressed JPG (image).
My Chart.dat - Calibration data file (text).

The format for the **DAT** calibration file (see image on the right) is rather simple and preparing a chart for use with GMap is easy as most have sufficient LAT/LON information on them.

```
1  [ChartMetaData]
2  type=SEC
3  xmin=142.850000
4  xmax=147.750000
5  ymin=-38.666666
6  ymax=-36.016667
7  clat=-37.341666
8  clon=145.300000
9  customzoom=8
10
```

The following table explains the **DAT** file entries:

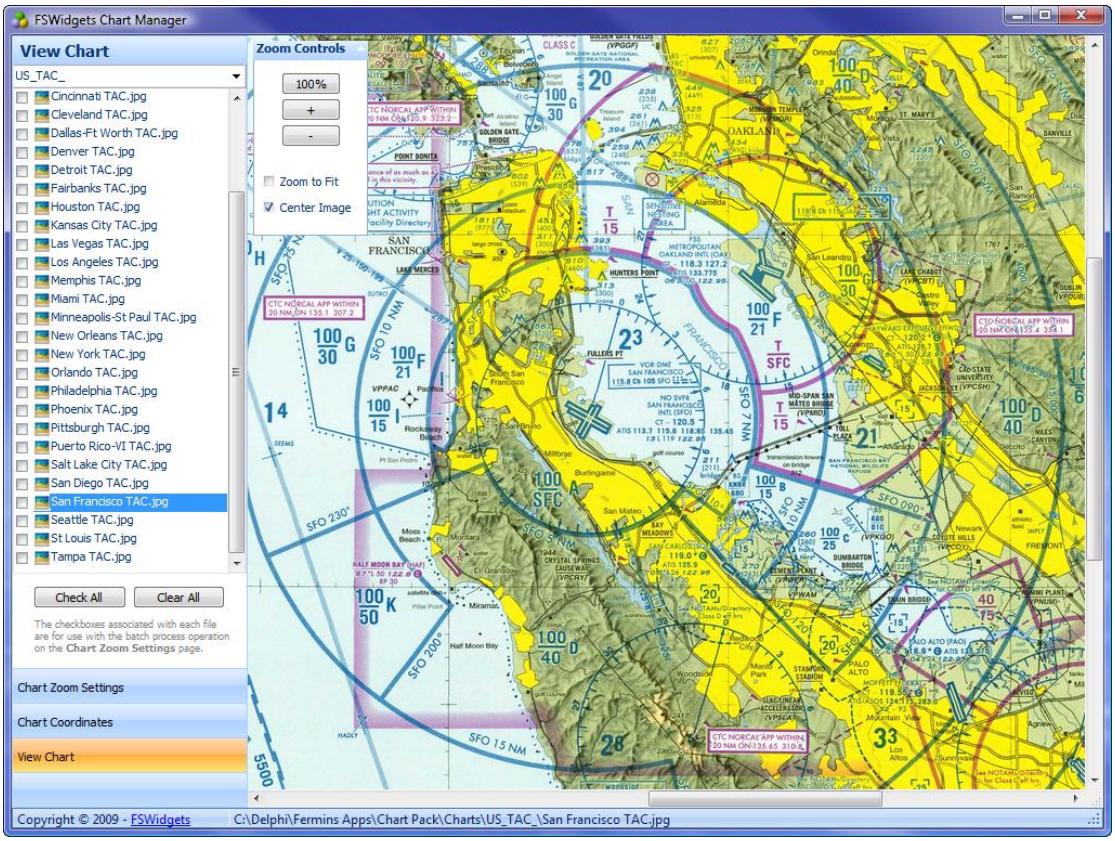
Entry	Description
[ChartMetaData]	The main section is entitled **ChartMetaData** and is required to identify the following listed values.
type	Identifies type of chart, sets appropriate zoom level when loading. Accepted values are **SEC** (Sectionals - default) and **TAC** (Terminal Area Charts). TAC zooms in one extra level due to the different scale of this type of chart. The chart does not need to be an actual Sectional or TAC, the setting simply zooms to slightly different levels, so just select the one that works best for the chart.
customzoom	Optional **custom zoom level** for finer control. Each chart can have a custom zoom level, depending of what looks best with the size and resolution of the JPG. If not present GMap uses the **type** setting listed above. The **customzoom** setting over-rides the **type** setting. Range is 0-19 with zero being fully zoomed out (whole world view).
xmin*	The **longitude** for the **left** (west) edge of the chart image.
xmax*	The **longitude** for the **right** (east) edge of the chart image.
ymin*	The **latitude** for the **bottom** (south) edge of the chart image.
ymax*	The **latitude** for the **top** (north) edge of the chart image.
clat*	The **latitude** for the **center point** of the chart. You may also specify a value that is not the actual center of the chart, such as the position of the main airport or VOR shown on the chart.
clon*	The **longitude** for the **center** of the chart (see above comment).

* *All latitude/longitude values must be decimal degree format (with 6 decimal places).*

CHART MANAGER

The **Chart Manager** utility is designed to view the installed chart image data and edit the charts DAT file (*i.e.* Lat/Lon info and custom zoom setting).

The **FSWChartManager.exe** must be placed in the main **charts_gmap** folder, or whatever folder name you have chosen as a custom chart folder. In all cases this folder is one level above the chart sub-directories. If you are using the FSWidgets **Chart Pack** download products for GMap, a copy of this utility will be automatically placed in the **charts_gmap** folder for you, with an optional link on the desktop and another shortcut in the FSWidgets Chart Pack Program Group menu.



The **Chart Manager** is a fairly straight-forward utility and has embedded comments in the GUI so an exhaustive manual is not required. However, a separate **GMap Chart Tutorial** PDF has been included in the ZIP file with step-by-step instructions and tips on how to create your own calibrated charts with this utility.

MEMORY OPTIMIZATION

Displaying large, hi-res charts requires a substantial amount of memory. As with all FSWidgets products, even free ones, minimal impact on Flight Simulator is one of our major goals. In view of the taxing nature of the chart display system this new edition of GMap has an automatic memory optimization function that tracks and trims down RAM usage in the GMap process.

The Memory Optimization is turned on by default and the settings are as follows:

GMap Release	Optimization	Memory Limit	Check Interval
EFB Edition	On	50 MB	5 Seconds
Browser Edition	On	75 MB*	5 Seconds
Garmin Edition	On	50 MB	5 Seconds
iPhone Edition	On	50 MB	5 Seconds

* *Assigned a higher RAM limit due to the larger window.*

Complete control of the Memory Optimization can be had by creating a text file called **FSWidgetsGMap.ini** and adding a **[MemControl]** section (see image on the right).

```
1  [MemControl]
2  memctrl=0
3  memlimit=100
4  meminterval=10
5
```

This table gives a complete description of the values:

[MemControl] Key	Format	Notes
memctrl	Boolean	0 = Off, 1 = On. Turned on by default (1). If you want no memory optimization set to zero (0).
memlimit	Integer	The maximum memory usage allowed. Whole number of Megabytes above which the memory optimization kicks in (*e.g.* 50). Above this GMap will attempt to trim down its memory usage.
meminterval	Integer	Interval in whole seconds (*e.g.* 5 or 10) between each check for the memory limit.

Depending on the feedback/acceptance by the X-Plane community we may be adding to or enhancing this chart format in subsequent releases. If you have any suggestions or request feel free to contact FSWidgets:

Forum: http://fswidgets.com/forum
Email: support@fswidgets.com