

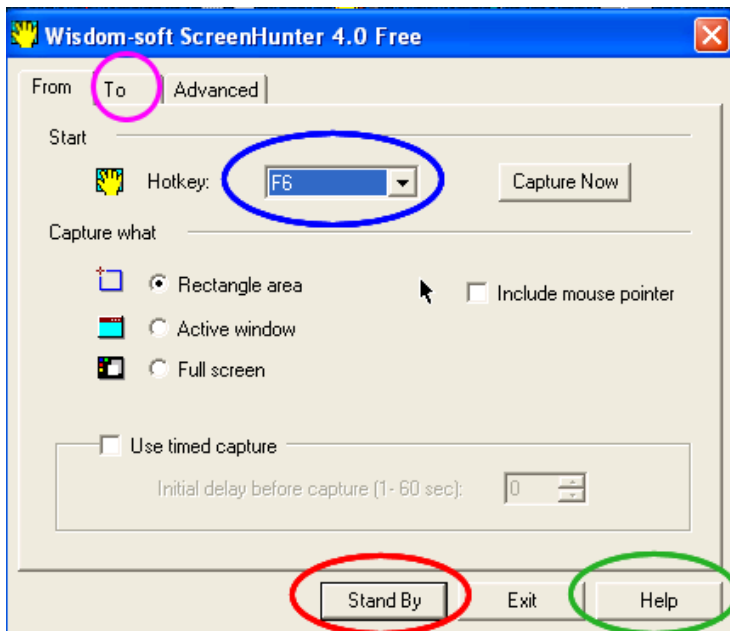
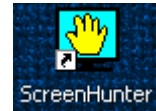
A TUTORIAL Preparing BMP graphics for the TerraVue Gauge

Screen Hunter

Included with the TerraVue.zip archive is a file named **ScnHunterSetup.exe**. This is an excellent screen capture program from www.wisdom-soft.com. They have made it available for general use and distribution without restrictions. The software is handy for capturing any area of the computer screen defined by you and normally sits idle in your tray awaiting activation.

In this tutorial, Screen Hunter will be the tool used to transform any document you wish, such as a typed checklist into a BMP file. This graphic format is necessary so that MS Flight Simulator can load it for displaying in the TerraVue gauge.

To install this software, double click the **ScnHunterSetup.exe** icon, and then follow the instructions shown on your screen. Place the icon shown at right on your desktop so the program can be launched as needed.



The illustration at left shows the Screen Hunter interface that is activated each time the program is started from the desktop. The **Stand By** button (red) is then clicked to minimize the dialog box to icon size and place it in your tray. It sits there in standby mode awaiting a press of the **Hotkey**.

The **Hotkey** is shown in the area circled in blue. The default is the **F6** key but others can be defined. Then, whenever a screen capture is needed, a press of the Hotkey will activate Screen Hunter and begin the capturing process. More about that later.

The button circled in green contains the **Help** documentation. A read-through

will instruct you about the options and operations of this simple program.

For making the graphics for TerraVue, the **Rectangle area** radio button is selected. That will allow us to define the exact area we wish to capture. Inside the **To** tab, circled in magenta, choose the option to send all captures to the Clipboard. From there, these images can be pasted into any graphics program capable of saving in the BMP format. If you use a PC, then you already have Microsoft Paint which can save into a **256-color BMP** format, perfect for FS graphics.

TerraVue screen

Shown at right is TerraVue. It has two modes of operation; Map and Information. The Info mode will be the topic under discussion since that is the mode that uses custom-made BMP graphics. As you can tell from this picture, TerraVue is in the Info mode because it is displaying across its entire screen a sectional chart that is on Page 1. Even though the chart is much larger than the TerraVue screen, it shows only within those borders. Using the scroll buttons on the gauge, the entire chart can be moved about as needed.



Charts

Any type of chart can be used in TerraVue. Perhaps the most common for flight simulation are the sectional charts or strip charts. These are a handy navigational and planning tool. Whether you fly low and navigate by map reading or fly high, sectional charts are a great reference. How to place these on a TerraVue page will be the example illustrated in this tutorial. The same techniques would apply to WAC charts, Approach Plates, Airport Diagrams, and other materials used for simulated flight.

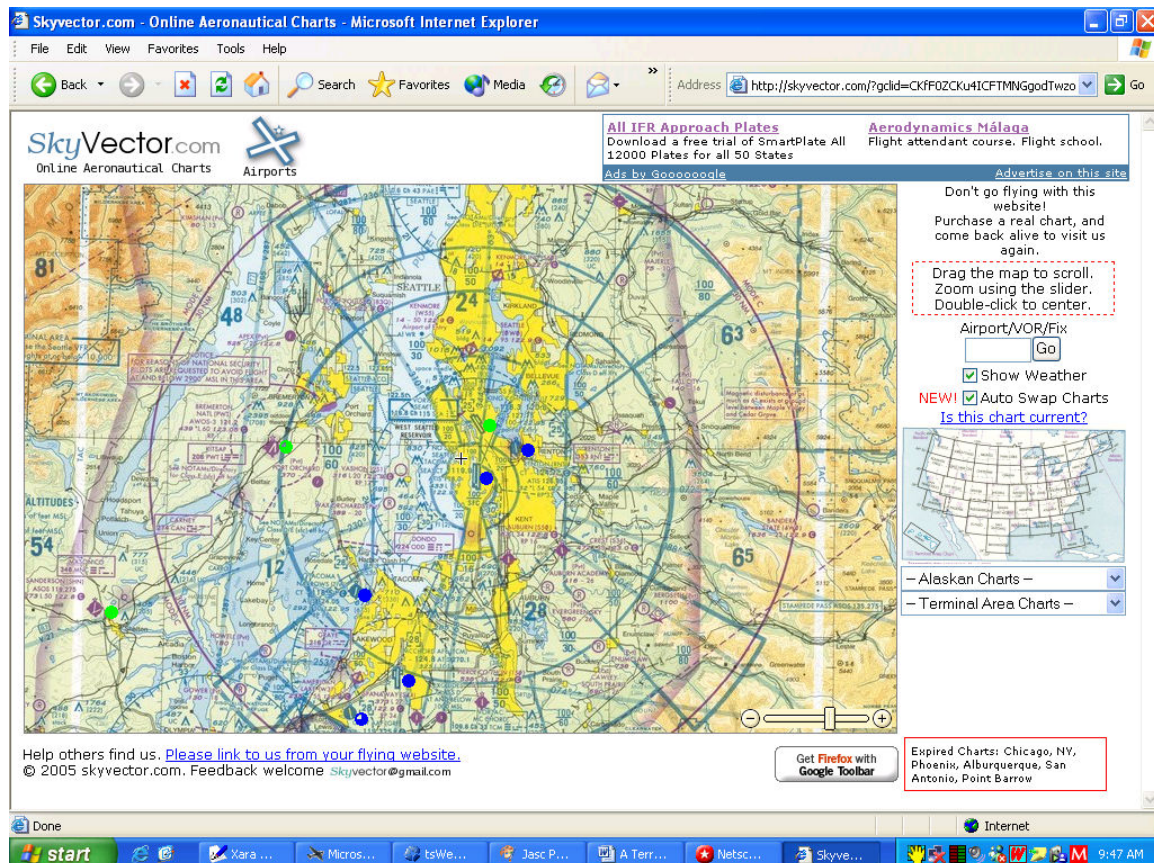
Sectional charts can be purchased at locations in major cities, local airports, or ordered from suppliers on the Internet. You may already own a stack, some probably coming apart at the fold. Since these are on paper, they first have to be scanned in order to get them into your computer so that they can be saved into the graphic format. This is a cumbersome method and will not be covered here. Sectional charts can also be had for free from the Internet. This is the method discussed next.

A few resources for free charts and other data (mostly for the U.S.A.)

- ➔ www.aeroplanner.com (Out of date strip charts for sim use)
- ➔ www.skyvector.com (strip charts and airport data)
- ➔ www.airnav.com (airport data and diagrams)
- ➔ www.naco.faa.gov/index.asp?xml=naco/online/d_tpp (STAR, airport diagrams)

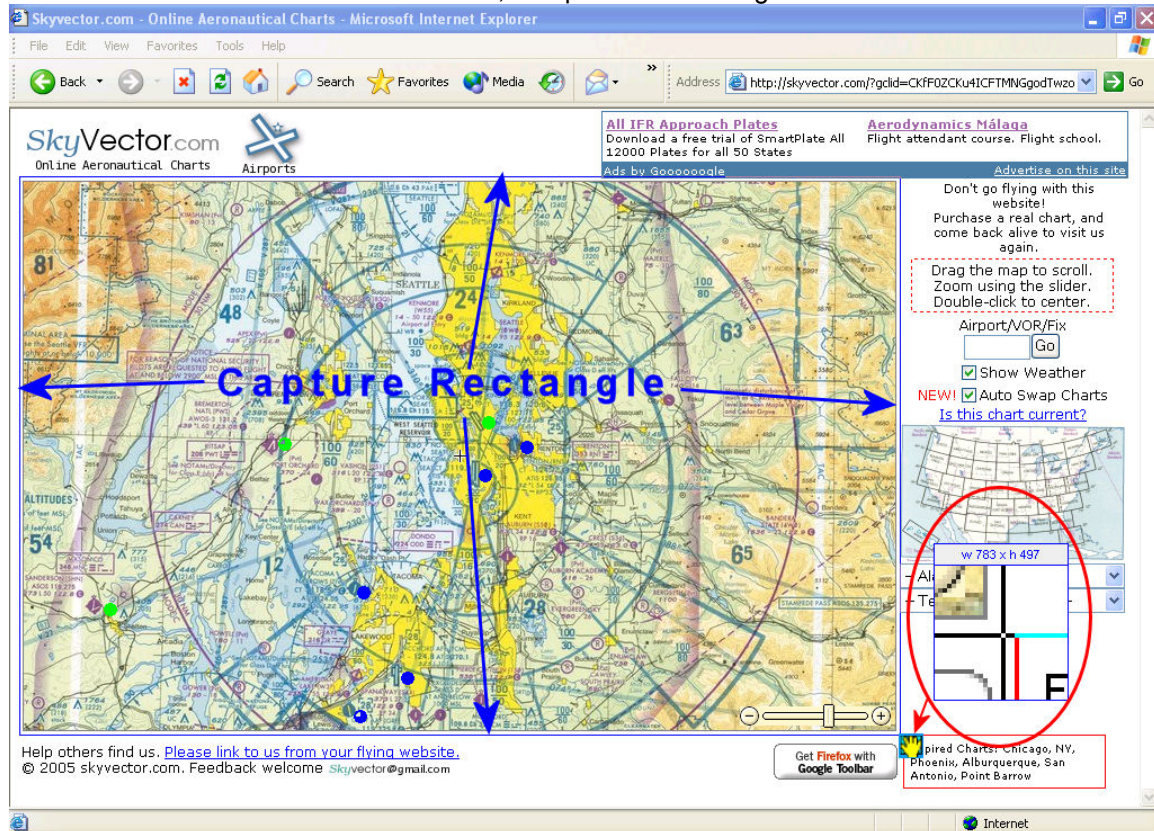
To understand how Screen Hunter can capture a graphic off the web, let's launch Screen Hunter, place it in standby, then go online and get a strip chart. We will then paste it into MS Paint, and then save it into a useable format for display on one of the TerraVue pages.

For this exercise we will go to skyvector.com and get a sectional chart of the Seattle, Washington area. That is the default chart that is first loaded when you enter their site. It is shown in the next illustration. Other sectionals could be displayed by clicking the little map at the right side of the page. We will capture the map as shown but it could be zoomed smaller or larger.



Capturing an image

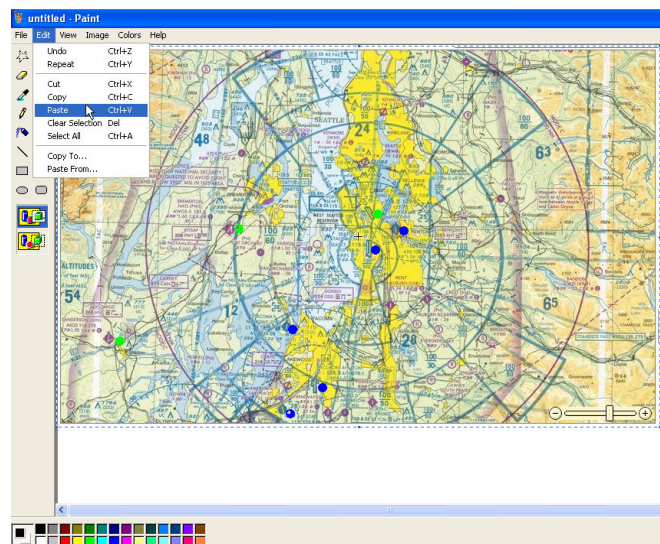
To capture the Seattle chart, press the **F6** key. Doing so will cause a small **+** shaped cursor to appear on the computer screen. Position this cursor just outside one corner of the chart, click and hold down the left mouse button, and pull out a rectangle that surrounds the chart.



Above, the Screen Hunter cursor was positioned at the upper, left corner of the chart, and the selection rectangle was stretched to the lower, right corner. The instant you release the mouse button, all pixels within this rectangle will be stored on the clipboard. If you look closely, you can see a blue line around the chart. This line is visible as you move the mouse and shows exactly what area will be captured.

Inside the red oval, an enlarged view of the pixels surrounding the Screen Hunter cursor is shown along with its x, y coordinates. When desired, this magnified area allows the cursor to be position on an individual pixel although such precision is not necessary for TerraVue graphics. The red arrow is pointing to the final position of the cursor where the mouse button was released.

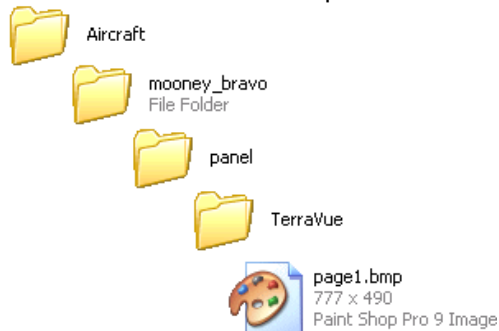
With the chart data now in the computer's memory, it can be transferred to your graphics program. The illustration at right shows the chart image after pasting the contents from the clipboard into MS Paint.



Saving the captured image

All that remains now is to save the chart into the correct format, with the proper name, and in the appropriate location. As discussed, all images for TerraVue will be in the 256-color BMP format. Any popular graphic applications will have the ability to do that.

The name for these saved images will be **page1.bmp**, **page2.bmp**, **page3.bmp**, or **page4.bmp** depending on which page you wish to have the captured information. For simplicity, these names contain no capital letters or spaces.



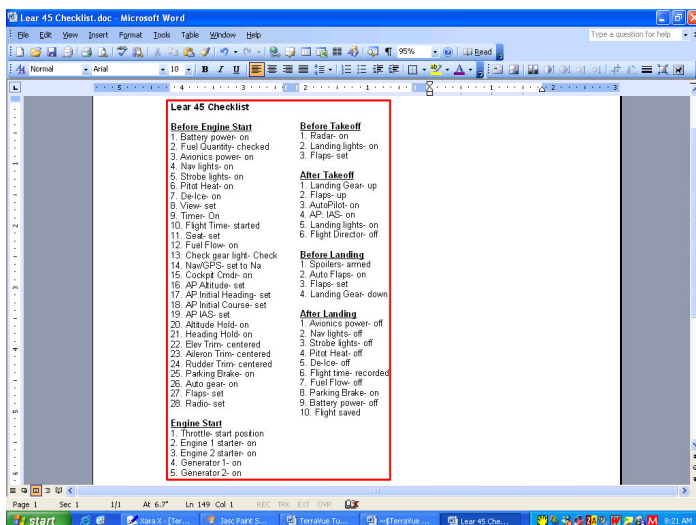
The graphics must be saved in an exact location so that they are made available to FS for loading into the TerraVue gauge. You will save the graphics into the TerraVue folder of every aircraft in which you want the image to appear. They will reside alongside the other BMPs and xml files used to makeup the TerraVue gauge components.

For example, the illustration at left shows the gauge properly installed in the Mooney Bravo. The page1.bmp is the strip chart of Seattle which we just made. The Lear jet could also have a TerraVue folder containing a page1.bmp. But that image could be a checklist for the Lear. Every page1.bmp does not have to contain the same image if placed in different TerraVue folders in separate aircraft.

From txt to bmp

Capturing a graphic from the Internet and saving it into a BMP is a fairly simple process. But how do you go from something like a checklist typed in Notepad or WordPad and get it into TerraVue? Doing that will be the next example.

Most of us modify panels at one time or another. We may move gauges around to better suit our tastes or install new instruments so that cockpit life is more relaxed or informed. After all, flight simulation is about much more than flying. But all these changes eventually mean that the checklists given in MSFS do not cover the steps we actually employ. Having a page feature in TerraVue allows us to customize a checklist to meet our exact needs and display it on command. Plus, since no one sees these lists except ourselves, they don't have to be aviation-lingo perfect, such as, "Dummy, don't forget to put the gear up!"



At left, MS Word was used to write out the steps used for various phases of a customized Lear checklist. For lists needing multiple columns, Word is hard to beat. Plus, the area to be "paged" can be displayed in Full Screen resolution allowing the entire checklist to be seen before starting the capture.

Begin the screen capture by pressing the **F6** key. Using Screen Hunter's cursor, draw a capture rectangle around the typed words of the checklist. That area is shown here outlined in red. Any area captured outside these words is wasted memory. After releasing the

mouse button, the data is sent to the clipboard. From there, it is pasted into your graphics software and saved as pageX.bmp in 256 colors.

Because TerraVue pages are scrollable and each page holds the last scrolled position, checklist such as this can instantly be accessed when needed as the various stages of flight proceed.

Font size

The size of font used to type data pages affect how readable the final graphic will be. However, font size is a value that can vary. It depends upon how large you make TerraVue when it is installed into a panel. Larger size gauges produce larger screens on the TerraVue gauge. This in turn allows the typed words to appear larger and more decipherable.

The example Lear checklist was made with the Arial font, size 10 for bold text and size 11 for normal text. The gauge was installed using the default sizes of 143,143. The gauge at right is about the actual size.

You can see how readable the words are with the

gauge in operation. This will give you some idea how to approach the font size for your graphics.



Graphic size



Graphics can be made larger than the TerraVue screen. At left, the screen capture made earlier of the area around Seattle is quite a bit bigger than the screen on this gauge. The portion of the chart tinted in green and lying beyond the TerraVue screen will not show on the installed gauge. The only portion seen will be the rectangle representing the screen that lies totally within the boundaries of the gauge. Because page graphics can be made rather large, the gauge was given the ability to scroll. Based on my installation of TerraVue using the default gauge size of 143, 143, graphics as large as

X=840 pixels, Y=780 pixels can be viewed in their entirety.

Scrolling

Because graphics for pages can vary in size, there is not a way to have them centered when first loaded; therefore, the upper, left corner of all graphics will be aligned with the corresponding upper, left corner on the TerraVue screen. Should you lose your page orientation after moving it about, the image can be re-positioned to its default location by pressing the reset (R) area in the center of the scroll buttons.

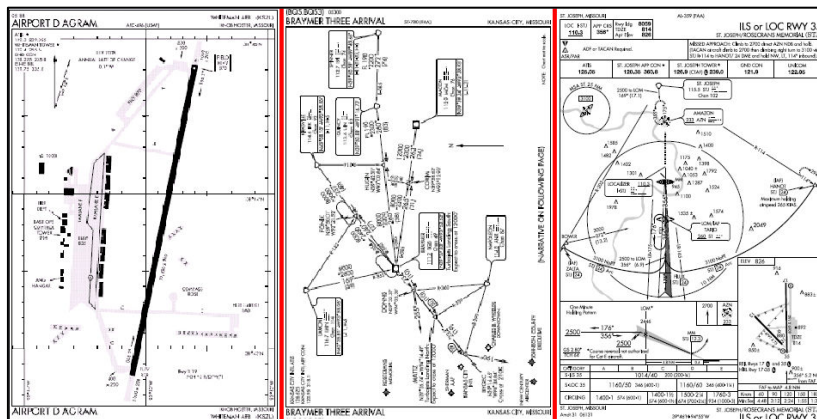
Other graphics

As mentioned, a graphic containing any type of data can be displayed in the pages of TerraVue. Here are examples of other helpful flight info captured freely off the Internet. Each

capture used the identical steps covered earlier.

The center graphic is in a vertical orientation. To make it easier to read, it should be turned 90-degrees using the rotate feature of your graphics software prior to saving it in the BMP format.

This ends the tutorial.



Airport Diagram

STARS (arrival)

IAP (approach)