Using a Macintosh with StarBand
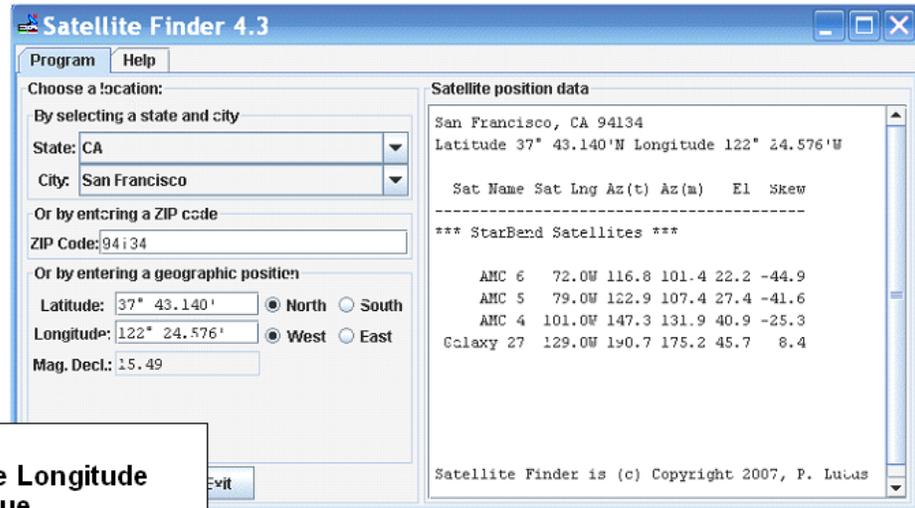
September 15, 2013

Getting Your Pointing Parameters with Satellite Finder

MobileInternetSatellite.com

Satellite Finder 4.3

| Program | Help |

Choose a location:

By selecting a state and city

State: CA

City: San Francisco

Or by entering a ZIP code

ZIP Code: 94134

Or by entering a geographic position

Latitude: 37° 43.140'   ◉ North ○ South

Longitude: 122° 24.576'   ◉ West ○ East

Mag. Decl.: 15.49

Exit

Satellite position data

```
San Francisco, CA 94134
Latitude 37° 43.140'N Longitude 122° 24.576'W

  Sat Name Sat Lng Az(t) Az(m)   El  Skew
------------------------------------------
*** StarBend Satellites ***

    AMC 6   72.0W 116.8 101.4 22.2 -44.9
    AMC 5   79.0W 122.9 107.4 27.4 -41.6
    AMC 4  101.0W 147.3 131.9 40.9 -25.3
  Galaxy 27 129.0W 190.7 175.2 45.7   8.4




Satellite Finder is (c) Copyright 2007, P. Lutus
```

Legend
- **Sat Lng: Satellite Longitude**
- **Az(t): Azimuth true**
- **Az(m): Azimuth magnetic**
- **El: Elevation**
- **Skew: polarization angle**
- **All angles are in degrees.**

Mobile Satellite Internet and the Macintosh

This document is intended for users of tripod-mounted portable satellite Internet systems, who use Apple Macintosh computers.

Satellite Finder for the Macintosh - Determining Azimuth, Elevation & Skew

Satellite Finder is a Java program that locates the relative positions of geostationary satellites for provided positions on Earth. It will give you the azimuth, elevation, and skew values that you need to know, so you can set up your satellite dish. Make sure you have a copy of Satellite Finder (SatFinder.jar) on your computer's hard drive.

Satellite Finder is available as a free download at:

http://vps.arachnoid.com/satfinder/index.html

Note Satellite Finder requires a Java 1.4 or newer runtime engine, which must already be installed.

Customizing Satellite Finder

Just double-click Satellite Finder (SatFinder.jar) to run it. When you do this the first time, the program will create a set of data files, which will speed up the computation of satellite positions based on US states/cities and ZIP codes. It will also create a configuration file that lists the satellites of interest and their orbital positions.This data file creation task only happens once, so subsequent program starts are much faster than the first.

You can search for and edit the text file called **.SatFinder\satlist.txt**, to only include those satellites of interest. By default, it will show all known satellites. In the example shown above, the file has been edited to only show the satellites used by StarBand.

Getting Your Pointing Parameters

After double-clicking SatFinder to execute it, you can enter your current position in one of three ways:

- US state and city - Select a state, then a city, from the popup menus. These selections will produce a list of satellite positions for the chosen city in the right-hand window.

- US ZIP code - Type in a ZIP code in the ZIP code entry pane and press **Enter**. This also will create a list of satellite position data.

- A geographical position - Type in a geographical position (latitude and longitude), in decimal degrees, and press **Enter**. This is the required method for non-US locations.

Once a position has been entered, Satellite Finder produces a list of satellites and their azimuth, elevation, and skew or polarization angles for the entered position. Both true and magnetic azimuth are computed for each satellite in the list.

The satellite data list can be copied onto the system clipboard for use elsewhere. Just point your mouse at the list, press the right mouse button, and choose **Copy**.

Translating the Calculated Skew Value - An Example

Note that in the graphic on the previous page, the results shown are for San Francisco, CA, zip code 94134. When setting up a HughesNet dish, the values are used directly as provided by Satellite Finder.

However, to use the provided skew (polarization) value for StarBand, a simple arithmetic translation must be made: Just subtract the supplied skew value from 90. Anytime you are east of the assigned satellite, the skew value provided will be a positive number. If you are west of the assigned satellite, the skew value provided will be negative. For G27/129, you will always be east of the satellite in the continental US. For E9/121, you will almost always be east. Exceptions occur along the west coast.

Two examples are shown below, which use the AMC4/101 and G27/129 values shown in the graphic (skew = -25.3, for 101, and 8.4, for 129):
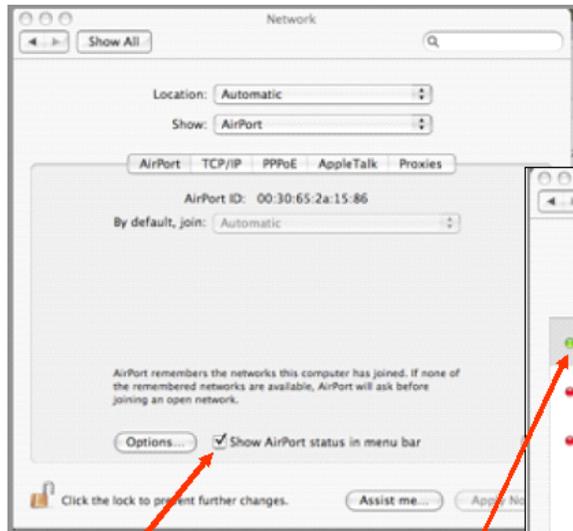
```
AMC4/101 => 90 – Skew = 90 – (–25.3) = 90 + 25.3 = 115.3
G27 /129 => 90 – Skew = 90 – 8.4 = 81.6
```

Therefore, on a HughesNet dish in San Francisco, with a satellite assignment of AMC4, you would set the skew to -25.3. However, on a StarBand® dish in the same location, you would set it to 115.3.

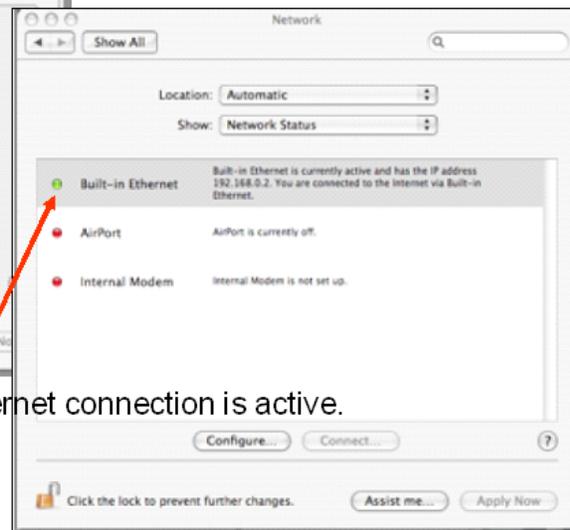For a G27 assignment, you would set it to 8.4 for HughesNet, but 81.6 for StarBand.

Networking with the Macintosh

Airport Details

Networking Preferences

Check to put the Airport icon in the "menu extras" menu.

The Ethernet connection is active.

Miscellaneous Macintosh Networking Functions

This section contains information about Macintosh networking functions, including the following:

- Checking the active LAN connection

- Using your Macintosh Powerbook as a wireless access point (AP)

- Putting the Apple Airport icon in the Menus Extras

- Turning off the Apple Airport

Checking the Active LAN Connection

To view the **Network Preferences**, click the **Apple** icon and select **System Preferences** from the drop-down menu. Click the **Network** icon. To see the available connections, set the **Location** pull-down menu to **Automatic** and the **Show** pull-down menu to **Network Status**.

What you want is a **green** indicator for the connection you are using (Ethernet or AirPort) and a **red** indicator for everything else. You will see a screen similar to that shown above, on the right. Note that the Ethernet connection shows a green light, which means it is active.

Using Your Macintosh Powerbook as an Access Point

You can use your powerbook to share the Internet connection with other wireless computers. Here are the steps to accomplish this:

Step 1 Plug your powerbook into the modem via Ethernet

Step 2 From the Apple menu, select **System Preferences...**

Step 3 Select the **Sharing** screen, under the **Internet & Network** heading.

Step 4 You should see three tabs/buttons called **Services**, **Firewall**, and **Internet**. Select **Internet**.

Step 5 Under **Share your connection from:** pick **Built-in Ethernet.**

Step 6 Under **To computers using:** select **Airport**.

You may wish to also click the **AirPort Options...** button and create a WEP or WPA password for the wireless network you are creating.

Step 7 When you have finished these settings, click the **Start** button.

Putting the Apple Airport Icon in the Menu Extras

If the Airport icon doesn't appear in the menu extras list, here is how to add it:

Step 1 Go to the **Network Preferences** (**Apple Menu -> System Preferences -> Network**). It will look something like the screen shown at the right of the graphic on the previous page. The actual list of potential network connections will vary, depending on what is installed on your computer and what you have used previously.

Step 2 In **Network Preferences**, ensure **Location** is set for **Automatic** and **Show** is set for **Network Status**. Resist the temptation to change to anything else.

Step 3 Double-click on **Airport**, next to the red or green dot (status indicator).

Step 4 Near the bottom, click to select **Show Airport status in menu bar**. This will add the Airport menu icon to your Menu Extras bar. This can save a lot of time and frustration. This is shown on the left, in the graphic on the previous page.

Turning off the Apple Airport

Here is how to turn off the Apple Airport:

Step 1 There should be a little "*piece-of-pie*" shaped icon in your menu bar (a *menu extra*), at the top right of your desktop screen, along with the **Q** (Spotlight), date & time, power status, and perhaps other menu extra icons.

If it doesn't appear, follow the steps in the previous topic.

Step 2 Click on it and select **Turn Airport Off**.

Setting Up a Macintosh to Use Dynamic IP Addressing

Here are the steps for configuring your Macintosh to use dynamic IP addressing:

- Set the **Location** pull-down menu to **Automatic** and the **Show** pull-down menu to the connection you want to use (Built-in Ethernet or AirPort).

- Click the **PPPoE** tab and verify the **Connect Using PPPoE** box is unchecked.

- Click the **TCP/IP** tab and select **Using DHCP** from the **Configure:** drop-down menu.

- The DHCP **Client ID:** box should remain blank. If any data is there, delete it.

- In the DNS Servers window, you can enter the DNS Addresses provided by StarBand® or HughesNet, or you can let that also be assigned dynamically.

- Click **Apply Now** and then close the window.

Setting Up a Macintosh to Use Static IP Addressing

Here are the steps for configuring your Macintosh to use static IP addressing:

- Set the **Location** pull-down menu to **Automatic** and the **Show** pull-down menu to the connection you want to use (Built-in Ethernet or AirPort).

- Click the **PPPoE** tab and verify the **Connect Using PPPoE** box is unchecked.

- Click the **TCP/IP** tab and select **Manually** from the **Configure:** drop-down menu.

- In the **IP Address:** field enter the static IP Address provided by StarBand® or HughesNet. If you need to connect to your StarBand® Nova modem when it is offline, use the IP address: **192.168.1.2**.In the **Subnet Mask:** field enter the Subnet Mask provided by StarBand® or HughesNet. If you need to connect to your StarBand® Nova modem when it is offline, use the subnet mask: **255.255.255.0**.

- In the **Router:** field enter the Default Gateway IP address provided by StarBand® or HughesNet. If you need to connect to your Nova modem when it is offline, skip this step.

- In the **DNS Servers** window enter the two DNS addresses provided by StarBand® or HughesNet. If you need to connect to your Nova modem when it is offline, skip this step.

- Finally, click **Apply Now** and then close the window.

Note   If you configure your Macintosh to connect to your Nova modem when it is offline, be sure you set the IP addressing back to automatic (DHCP) when you are back online. Otherwise, you will not be able to browse the web. In most case, even when you have an assigned static IP address, you can still use dynamic IP addressing without problems.