

## Using the Sky Tour v.1.99 and later with TheSky6 and TheSkyX (7/14/2015)

### Minimum Computer System Requirements

See the Software Bisque website for minimum and recommended Windows hardware and operating system requirements.

Other operating systems such as Macintosh OS-X, Linux, UNIX etc. are not supported.

If you bought your computer since approximately the middle of 2004, it likely does not have a serial port. You will need to purchase a USB to Serial adapter. This is a common item in computer stores. The adapter will not work with any Windows version earlier than Windows 98SE because of those Windows versions' lack of USB support.

### Required Parts

1) TheSky software

See Software Bisque website: [www.bisque.com](http://www.bisque.com)

2) Telephone-style cable with a 4P4C plug on one end and an adapter at the other end that will plug into your computer: either a DB9 female (for RS232 COM port) or USB "A" (standard USB adapter).

Instructions for constructing a 4P4C plug to DB9 female plug cable is at the end of this document. For USB-only computers you need to buy a DB9 female to USB "A" adapter. See Amazon website for all these parts: <http://www.amazon.com>

## ONE TIME SETUP

### Checking the settings on the Sky Tour:

This setup should only be necessary the first time the Sky Tour is set up or if its settings have been changed from the defaults. The Sky Tour computer retains its settings in non-volatile memory even if the battery is removed for an extended period.

- 1) Turn the Sky Tour Computer ON. The Version Number displayed during the scroll must be at least 1.99 or the Sky Tour will not link to TheSky. At the end of the scroll, the display will read "ALIGN MARK". See the Sky Tour Operating Guide (Yellow Booklet) page 20 for the setup procedure.
- 2) Turn the Sky Tour computer OFF.

### Finding an unoccupied COM port on your computer and setting it up:

This should only need to be done before the first use of the Sky Tour and TheSky together, or after using the COM port with another device using different port settings, or after the use of certain utility programs that reset system devices back to default settings.

NOTE: If you are using a USB to RS-232 adapter, it may be necessary to verify which COM port number your computer's "Plug & Play" has assigned it each time you attach the device, or at least each of the first few times.

### Windows 95, 98, Me, NT 4.0, XP, 7

These directions are for Windows XP and 7. The other 32-bit Windows versions all have similar Control Panels and

should work similarly, although the exact sequence of clicks to reach the Ports (COM & LPT) box differ slightly from version to version.

**Older Computers Note:** on older hardware running Windows you might find the COM (RS-232 serial) port occupied by modems, mice, or printers.

### Windows 7

- 1) Click "Start" on the Taskbar. This will call up a popup List.
- 2) Find and click "Control Panel" on the right-hand pane. The "Control Panel" opens. Note the "view" setting on the upper-right of the "Control Panel". If it says "Category", switch it to one of the "icon" views.
- 3) From the list of options, click "Device Manager". Continue with **COM Port Setting** below.

### Windows XP

- 1) Click "Start" on the Taskbar. This will call up a popup List.
- 2) Move the pointer over "Settings". This will call up another popup list.
- 3) Click "Control Panel". This will call up a Window with a long list of devices and services on it.
- 4) Scroll down the list and Double Click on "System".
- 5) Click on the "Hardware" tab.
- 6) Click on the "Device Manager" Button. A directory-like list will appear. Continue with **COM Port Settings** below.

### COM Port Settings

- 1) Double Click on "Ports (COM & LPT)". You should see a listing for at least one COM port. COM ports with modems or mice attached may or may not show up here.
- 2) Double Click on the listing of the port you want to use. If you're using a Laptop, there probably is only one COM Port. Otherwise, you'll have to choose one. This will bring up a Dialog Box with several tabbed folders.
- 3) Click on the "General" tab. Make sure that Windows is reporting that "This Device is working properly" (and if present, the "Disable in this hardware profile" box is NOT checked).
- 4) Click on the "Port Settings" tab and make sure the settings are:

"Bits per second"	9600
"Data bits"	8
"Parity"	None
"Stop Bits"	1
"Flow Control"	None
- 5) Click on "Advanced". Click on the "Defaults" button.
- 6) Click "OK" buttons to close all dialogs and then exit "Control Panel"

Continue with **TheSky6** or **TheSkyX** setup below.

## TheSky6 Setup for Sky Tour Computer

- 1) Run TheSky. Click "Telescope" then click "Setup".
- 2) For "Control System" select "Sky Tour by Tele Vue".
- 3) For "Software Options" the default settings are generally OK and have more to do with user comfort or functions like motorized slewing which the Sky Tour doesn't support. See the TheSky manual for complete details.
- 4) For "Cross hair update period (ms)" enter 100 (=1/10 second) or a shorter interval if you have a fast computer.
- 5) Click "Settings" to reach the "Telescope/Encoder Settings" box. Confirm that values match those in **TheSky Common Settings** section below.
- 6) Click "OK" then click "Close".

## TheSkyX Setup for Sky Tour Computer

For an overall understanding of setting up TheSkyX to work with manual-push, optical-encoders, see "Telescopes with Optical Encoders (Push To)" and "Using Push To Telescope Systems" in the *TheSkyX Professional and Serious Astronomer Edition User Guide*.

- 1) Run TheSky. Click "Telescope" then click "Telescope Setup".
- 2) Double-click "Mount" in the left-hand column under "hardware". The "Mount" pop-up opens with a list of mount choices. Scroll down to "Tele Vue" and click the triangle to the left. The "Sky Tour" option appears. Double-click that to select and close the pop-up.
- 3) Click [Mount Setup] button and select "Settings" to pop up the SGT (Software Guided Telescope).
- 4) If the correct COM port does not show at the top, click the [Choose...] button and select the port. Modify the settings on this dialog to match those in **TheSky Common Settings** section below. In the Telescope Database section select "Tele Vue Genesis or Tele-Pod". Click [Configure Device] and [Close].

## TheSky Common Settings

SETTING	VALUE
COM Port:	The serial port you set up in the preceding section.
Baud Rate:	9600

### "Communication Box"

Point Decl. Degrees:	0
Tics/Rev (RA,Azm):	2160
Tics/Rev (Dec,Alt)	2160
	For Gibraltar or Tele-Pod
Azimuth Direction:	Counterclockwise
Altitude Direction:	Clockwise

The above settings are NOT the encoder settings. They are for communications between the Sky Tour and the computer.

### "Encoders":

Tics/Rev (RA, Azm):	2160
Tics/Rev (Dec, Alt):	2160

These are the encoder resolution settings. 2160 tics/rev. is correct for all standard Tele Vue supplied encoders on Tele Vue mounts. Other encoders or Tele Vue encoders on other mounts (especially if their attachment involves gears or pulleys) or encoders from other sources may require different Azimuth and Altitude Direction or **Encoder** Tics/Rev settings.

**"Telescope":** "Tele Vue Genesis or Tele-Pod"  
Gibraltar5 and Panoramic mount owners should also use the above setting.

## Physical Connection

See **Required Parts** in the first section for description of the 4P4C to 6P6C cable. Also supplied should be a telephone style cable with a phone plug on each end. One plug should be a little wider than the other. The wider plug (a 6P4C) will fit the jack in the adapter and the narrower one (a 4P4C) will fit the smaller jack on the Sky Tour. The larger jack on the Sky Tour is for the encoder yoke.

On a Windows PC, an RS-232 serial port will look like either a trapezoidal or "D"-shaped metal shell with 9 pins (DB9 Male to match the holes in the 6P6C to DB9 adapter mentioned above) or it will be a longer jack of similar shape and 25 pins. This is a DB25 male connector. If your computer has this kind of adapter, get a step-up adaptor with DB9 male connector on one end and DB25 female connector on the other. This was once a common adapter and probably can still be ordered online or computer store. Make sure you get the correct adaptor, as similar looking adaptors with other combinations of size and gender are available.

- 1) Attach the adapter to the port, the cable to the adapter, the Sky Tour to the cable and the encoders to the SkyTour. Turn both computers on.

**Note:** Neither RS-232 equipment of recent manufacture nor USB equipment will be harmed by being connected or disconnected "hot", i.e. while one or both devices are powered up.

**Warning:** If your computer has a telephone type jack for a modem, DO NOT plug the cable into it. It will not work, and there is a risk of damage to the Sky Tour or the modem.

## TheSky6 Communications Test

- 1) Run TheSky. Click on "Telescope" on the top menu, then click on "Options", then on "Communications Test".
- 2) Click on "Get Version". TheSky will tell you to turn the power on the Sky Tour off, then on. Do so. If the COM port was selected properly and configured properly, the version number of your Sky Tour will appear about halfway down the "Communications Test" dialogue box. Otherwise, the Sky Tour is on the wrong port or the port is configured incorrectly.

## NIGHT-TO-NIGHT USE

### Initializing the Sky Tour, Linking & Aligning it with TheSky.

- 1) Assemble everything and make sure you have TheSky running on your computer.
- 2) Turn the Sky Tour on. After the welcome message scrolls, the display will read "ALIGN MARK". The mark referred to is the split circle index mark on the top of the left fork of the yoke.
- 3) Align the halves of the split circle. The telescope tube should now be horizontal.
- 4) Press "ENTER" on the Sky Tour once. "STAR FIX" will appear on the Sky Tour.

**IMPORTANT NOTE:** The Sky Tour assumes that if it is still in "Align Mark" mode, the telescope is pointed at either the horizon or the celestial equator, depending on the type of mount it's being used with, and resets the Dec./Alt.

Encoder to zero several times per second. This WILL result in erratic behavior of the telescope cursor in TheSky when the telescope is slewed. The Sky Tour computer does not need to be "Star-Fixed" as it would in stand-alone mode because it is only reporting raw telescope positions to TheSky.

5) Leave the Sky Tour on and the telescope horizontal.

## TheSky Alignment

**Tip:** Choose Alignment stars as far from each other as possible. The further apart the stars are, the better TheSky can average out any positional errors. It is best to choose stars on opposite sides of the meridian and to use stars that are at significantly different Declinations as well as at different Right Ascensions.

**Tip:** TheSky will remember your guide star choices from one session to the next even if you do not save settings when you exit TheSky. To pre-select alternate guide stars, go through the procedure with the Sky Tour attached to your computer. Unlike an actual linking, the Sky Tour does not need to be attached to the encoders

Continue with **TheSky6** or **TheSkyX Alignment**. If you are using a USB to RS-232 adapter and linking in the next section fails, use the procedure outlined above in **Finding an Unoccupied COM Port**. . . to determine which COM port your computer currently thinks your Sky Tour is attached to.

### TheSky6 Alignment

- 1) To link to the Sky Tour, either click on the second "Green Telescope" Icon on the toolbar (the one without the little checklist) or click "Telescope", then click "Link", then click "Establish".
- 2) A dialog box will appear saying "Alignment Procedure" "Point Telescope at 0 Degrees Dec. or Alt." If the telescope wasn't nudged after being aligned on the mark, click "OK". Otherwise, return the telescope to horizontal and then do so.
- 3) A dialog box will appear saying "Alignment Procedure" "Point Telescope at Alignment Star #1". TheSky's default for Alignment Star #1 is Polaris. If this is not convenient, see below under "Choosing an Alternate Alignment Star."
- 4) Point the telescope at the first alignment star using a combination of the finder to find the star and the telescope itself with a moderate power eyepiece for precise alignment. When the guide star is centered, click "OK".
- 5) A dialog box will appear saying "Alignment Procedure" "Point Telescope at Alignment Star #2" TheSky's default for Alignment Star #2 is Capella. If this is not convenient, see below under "Choosing an Alternate Alignment Star."
- 6) Point the telescope at the second alignment star as with the first star in step 9. When the guide star is centered, click "OK".
- 7) A dialog box will appear saying "Angular Separation", "Encoders: xx.xxx", "Objects: yy.yyy", and "Difference: zz.zzz". This difference value is similar to the "Warp Factor" of the Sky Tour in stand-alone mode. A value of 1.0 or lower is acceptable. The smaller the difference, the better accuracy will be.

- 8) Click "Accept" if the difference is acceptable or "Reject" otherwise. Rejecting will leave TheSky ready to attempt linking again. If the difference is again unacceptably large, try linking using different alignment stars.
- 9) 14) Click "Accept". TheSky's display should now be mimicking the telescope's motion. The Sky Tour Computer should still read "STAR FIX".

### TheSky6: Choosing an Alternate Alignment Star

Steps 1 through 7 above should have been completed before doing this.

**Note:** The default stars for TheSky's telescope alignment procedure are Polaris and Capella. One or both of the default (or currently selected) stars may be poorly placed in the sky from your observing site at the time you want to start your session. To change both stars, the following procedure must be performed separately for each star.

- A. Click on the "Binoculars" button on the toolbar or click "Edit" then "Find" to access the "Find" dialogue box.
- B. Click on "Stellar" in the upper left part of the box. A list of options will appear. Click on "Common names".
- C. Scroll down and click on the star name of your choice and the "Find" button at the bottom of the box. The "Object Information" dialogue box will appear.
- D. Click on the "Telescope" tab. If "Telescope" tab is not visible, click on the "Double Down Arrow" button-- one button in from the right on the row at the bottom of the box.)
- E. Click on the "Align On" button in the "Start Up" section. TheSky should center on your chosen guide star.
- F. Click on the "Close" button, the rightmost of the row of buttons at the bottom of the "Object Information" box. RETURN to STEP 8 or 10 above.

### TheSkyX Alignment

- 1) From the "Telescope" menu select the "Connect" command. The "SGT Alignment" dialog appears. Click the [Start Alignment] button. "SGT Settings" dialog opens.
- 2) The dialog says "**Step1:** Point the telescope at **0.0°** altitude..." If the telescope wasn't nudged after being aligned on the mark, click [Next]. Otherwise, return the telescope to horizontal and then do so.
- 3) Steps "2" and "3" ask you to center a particular star. If you want to use a different star, select if from the "Point telescope at:" [button] at the bottom of the dialog. For an even greater selection of stars use Edit > Find in the main menu and enter a star name in the dialog box, then click [Find]. You'll note that the searched for star name now appears in the dialog. Center the star in the telescope before clicking [Next] for each alignment.
- 4) After the final alignment, the dialog displays some statistics on the alignment. The "angular difference" indicates how well the encoders are aligned with the sky chart. Click the [Reject Alignment] if this number is greater than 1°, else click [Accept Alignment]
- 5) When you move the telescope around the sky, the cursor on TheSky program should move to match this motion.

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