

3rd Attempt: 4 sec exposure; gain 85

Solved first step of the PA and then ran Plate Solve and transferred the position to Stellarium – position is close to Sigma Octans

The screenshot displays the SharpCap Pro software interface. At the top, a green status bar indicates a successful plate solve: "Plate solve succeeded, currently pointing at RA=23:09:33, Dec=-89:27:01S (J2000), field of view is 1.08x0.81 degrees, up is 303.1 degrees E of N." Below this, the Stellarium 0.20.4 window is open, showing detailed information for the star Polaris Australis (σ Oct - HIP 104382 - SAO 258857 - HD 177482 - HR 7228). The search window is active, showing the coordinate system set to Equatorial (J2000.0) with Right Ascension at 23h 9m 33.00s and Declination at -89° 27' 1.00".

Polar Alignment Introduction
SharpCap can help you quickly and accurately polar align your equatorial mount. You just need to work through the steps of this wizard taking images of the sky near the pole. SharpCap will calculate the polar alignment error and guide you through correcting it.

SharpCap Polar Alignment is inspired by the [PhotoPolarAlign](#) concept by Themis Tsikas, ideas used with his generous permission.

Skip this introduction in future.

Requirements:

- An Equatorial Mount!
- A camera/scope combination that provides a field of view of 1-2 degrees
- A 200mm focal length finder/guide + guide camera is ideal
- To be able to see at least 10-15 stars in the field of view of the sky
- Initial rough polar alignment - within 5 degrees of the pole.
- Your mount should start in the 'home' position with weights off

You Don't Need:

- To align your finderscope particularly accurately or correct cone error.
- A goto mount.
- Any other software or an Internet connection.

Previewing: 717 frames (0 dropped) in 0:28:32, 0.3 fps | Memory: 2 of 873 frames in use. | Frame: 1.1/2.9

Windows taskbar at the bottom shows the time as 7:51 PM on 8/08/2021, with a temperature of 17°C.

Ran PA gain; first step successful

SharpCap Pro (v3.2.6482) - ZWO ASI120MM Mini (via USB2) - C:\Users\Salty Dog\AppData\Local\Temp\tmp187B.tmp.png - D:\SharpCap Captures

File Cameras Options Capture Tools Scripting Help

Start Capture Quick Capture Stop Capture Pause Snapshot Live Stack Target Name: FX: None Zoom: Auto

Camera Control Panel

Capture Profiles

Capture Format and Area

Colour Space: MONO8

Capture Area: 1280x960

Binning: 1

Output Format: PNG files (*.png) Auto

Camera Controls

Exposure: 4.00 s LX Mode

Quick Picks: 4s Auto

Gain: Auto 82

Frame Rate Limit: Maximum

Flip: None

Turbo USB: Auto 85

Overclock: 0

High Speed Mode: Off

Discard Split Frames: Off

Temperature: 14.7

Image Controls

Misc Controls

Preprocessing

Display Histogram Stretch

Press the 'Next' button before rotating the RA Axis

15' 30' 45' 1"

Polar Align

Step 1 - Capture First Image

SharpCap is scanning each frame for stars and matching them against its own list of stars near the pole. SharpCap needs to find at least 10-15 stars. Detected stars are outlined in yellow or red. Start with a high gain value and an exposure of 1-2s, then adjust as required. When the status to the right shows that SharpCap has located a match, you can press Next to move to the next stage.

First Frame	Completed
Status:	Completed
Detected Stars:	59
Used Stars:	15
Field of View:	1.09x0.81°
Pixel Size:	3.05"
Centre RA:	00:17:37
Centre Dec:	89:25:36N
Solve Time:	5ms

Star Detection

Noise Reduction: 2.0

Minimum star width: 3 pixels

Maximum star width: 16 pixels

Black Level Threshold: 50

Digital Gain: Off Reset All

Location: 27.470S, 153.030E

Refraction correction: 1.9 minutes of arc

Auto Advance: Automatically advance to the next stage when the current stage is completed.

Plate Solving Status: Most Recent Frame: **Solved**

Restart Previous Next

Previewing: 738 frames (0 dropped) in 0:29:52, 0.3 fps Memory: 2 of 873 frames in use. Frame: 3.1/0.9

Windows Taskbar: Type here to search, 17°C, 7:53 PM, 8/08/2021

Rotated mount approx. 90 to the right

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File Cameras Options Capture Tools Scripting Help

Start Capture Quick Capture Stop Capture Pause Snapshot Live Stack Target Name: FX: None Zoom: Auto

Warning: The last 5 frames failed to solve. Check your star detection settings and camera exposure/gain

Now rotate the RA Axis

15° 30° 45°

Polar Align

Step 2 - Capture 2nd Image
 Now rotate your mount through about 90 degrees about the RA axis.
 Once the rotation is big enough SharpCap can work out the polar alignment error and you can press the Next button to move to the next stage.
 Plate Solving Status
 Most Recent Frame : **Could not solve**

First Frame	Second Frame	Results
Status : Completed Detected Stars : 59 Used Stars : 15 Field of View : 1.09x0.81° Pixel Size : 3.05" Centre RA : 00:18:06 Centre Dec : 89:25:35N Solve Time : 11ms	Status : Rotate Further... Detected Stars : 80 Used Stars : 15 Field of View : Pixel Size : Centre RA : Centre Dec : Solve Time : 178ms Rotation : -0.1°	Polar Align Error ?

Restart Previous Next

Previewing : 748 frames (0 dropped) in 0:30:26, 0.3 fps Memory: 2 of 873 frames in use. Frame: 0.9/3.1

17°C 7:53 PM 8/08/2021

Capture Profiles
 Load Save Save As... Manage...

Capture Format and Area
 Colour Space: MONO8
 Capture Area: 1280x960
 Binning: 1
 Output Format: PNG files (*.png) Auto

Camera Controls
 Exposure: 4.00 s LX Mode
 Quick Picks: 4s Auto
 Gain: Auto 82
 Frame Rate Limit: Maximum
 Flip: None
 Turbo USB: Auto 85
 Overclock: 0
 High Speed Mode: Off
 Discard Split Frames: Off
 Temperature: 15.5

Image Controls
 Misc Controls
 Preprocessing
 Display Histogram Stretch

Ran Plate Solve with the mount rotated by 90 to the right

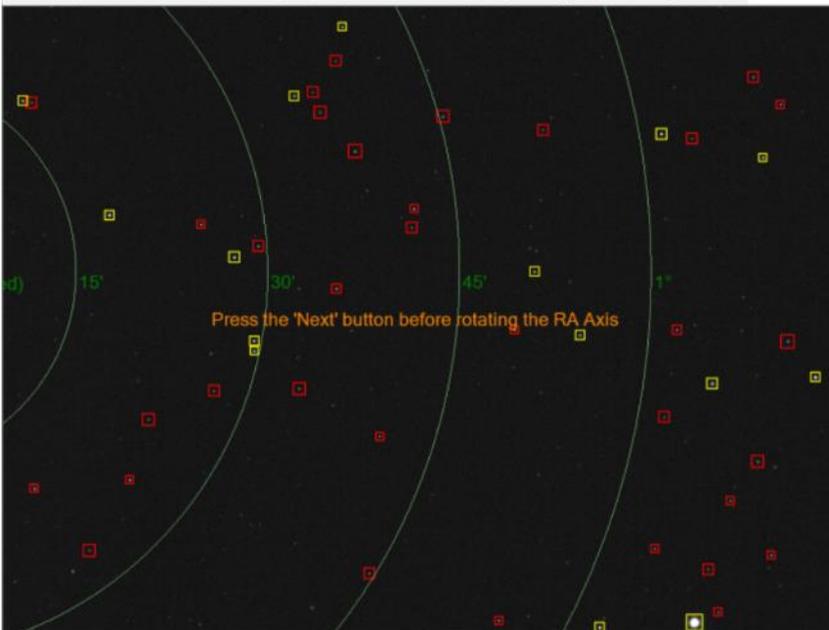
The screenshot displays the SharpCap Pro software interface. The main window shows a star field with a green status bar at the top indicating a successful plate solve: "Plate solve succeeded, currently pointing at RA=14:28:25, Dec=-80:20:10S (J2000), field of view is 1.09x0.81 degrees, up is 227.8 degrees E of N." The interface includes a menu bar (File, Cameras, Options, Capture, Tools, Scripting, Help) and a toolbar with buttons for Start Capture, Quick Capture, Stop Capture, Pause, Snapshot, Live Stack, and Target Name. The right-hand side features several control panels: Capture Profiles, Capture Format and Area (MONO8, 1280x960, Binning 1, PNG files), Camera Controls (Exposure 4.00 s, Quick Picks 4s, Gain 82, Turbo USB 85, Temperature 15.5), Image Controls, Misc Controls, Preprocessing, and Display Histogram Stretch. The bottom status bar shows "Finishing Capture : 818 frames (0 dropped) in 0:34:43, 0.3 fps" and "Memory: 2 of 873 frames in use." The Windows taskbar at the bottom indicates the time is 7:57 PM on 8/08/2021.

4th Attempt: 4 sec exposure; gain 85

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File Cameras Options Capture Tools Scripting Help

Start Capture Quick Capture Stop Capture Pause Snapshot Live Stack Target Name: FX: None Zoom: Auto



Camera Control Panel

Capture Profiles

Load Save Save As... Manage...

Capture Format and Area

Colour Space: MONO8

Capture Area: 1280x960

Binning: 1

Output Format: PNG files (*.png) Auto

Camera Controls

Exposure: 4.00 s LX Mode

Quick Picks: 4s Auto

Gain: Auto 82

Frame Rate Limit: Maximum

Flip: None

Turbo USB: Auto 85

Overclock: 0

High Speed Mode: Off

Discard Split Frames: Off

Temperature: 14.7

Image Controls

Misc Controls

Preprocessing

Display Histogram Stretch

Polar Align

Step 1 - Capture First Image

SharpCap is scanning each frame for stars and matching them against its own list of stars near the pole.

SharpCap needs to find at least 10-15 stars. Detected stars are outlined in yellow or red. Start with a high gain value and an exposure of 1-2s, then adjust as required.

When the status to the right shows that SharpCap has located a match, you can press Next to move to the next stage.

First Frame

Status: **Completed**

Detected Stars: 49

Used Stars: 15

Field of View: 1.08x0.81°

Pixel Size: 3.05"

Centre RA: -01:33:22

Centre Dec: 89:25:00N

Solve Time: 6ms

Advanced

Allow smaller rotation angles (may be less accurate)

Star Detection

Noise Reduction: 2.0

Minimum star width: 3 pixels

Maximum star width: 16 pixels

Black Level Threshold: 50

Digital Gain: Off Reset All

Location

27.470S, 153.030E

Refraction correction: 1.9 minutes of arc

Auto Advance

Automatically advance to the next stage when the current stage is completed.

Plate Solving Status

Most Recent Frame: **Solved**

Restart

Previous

Next

Previewing: 755 frames (0 dropped) in 0:30:53, 0.3 fps Memory: 2 of 873 frames in use.

Frame: 2.1/1.9

Windows taskbar: 17°C, 7:54 PM, 8/08/2021

Rotated mount approx. 90 to the left

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Start Capture Quick Capture Stop Capture Pause Snapshot Live Stack Target Name: FX: None Zoom: Auto

Warning: The last 5 frames failed to solve. Check your star detection settings and camera exposure/gain

Now rotate the RA Axis

Capture Profiles

Load Save Save As... Manage...

Capture Format and Area

Colour Space: MONO8
 Capture Area: 1280x960
 Binning: 1
 Output Format: PNG files (*.png) Auto

Camera Controls

Exposure: 4.00 s LX Mode
 Quick Picks: 4s Auto
 Gain: Auto 82
 Frame Rate Limit: Maximum
 Flip: None
 Turbo USB: Auto 85
 Overclock: 0
 High Speed Mode: Off
 Discard Split Frames: Off
 Temperature: 14.7

Image Controls

Misc Controls
 Preprocessing
 Display Histogram Stretch

Restart Previous Next

Frame: 2.2/1.8

Polar Align

Step 2 - Capture 2nd Image
 Now rotate your mount through about 90 degrees about the RA axis.
 Once the rotation is big enough SharpCap can work out the polar alignment error and you can press the Next button to move to the next stage.
 Plate Solving Status
 Most Recent Frame: **Could not solve**

First Frame	Second Frame	Results
Status: Completed Detected Stars: 51 Used Stars: 15 Field of View: 1.08x0.81° Pixel Size: 3.05" Centre RA: -01:33:01 Centre Dec: 89:25:01N Solve Time: 7ms	Status: Rotate Further... Detected Stars: 40 Used Stars: 15 Field of View: Pixel Size: Centre RA: Centre Dec: Solve Time: 133ms Rotation: 0.0°	Polar Align Error ?

Previewing: 765 frames (0 dropped) in 0:31:30, 0.3 fps | Memory: 2 of 873 frames in use.

Type here to search | 17°C | 7:54 PM 8/08/2021

Ran Plate Solve with the mount rotated by 90 to the left

