

# Product Bulletin

GEOSPATIAL  
7<sup>th</sup> November 2016

## CAMERA CALIBRATION CHECK PROCEDURE FOR SX10

### Reason

Even though the cameras of the Trimble SX10 scanning total station are temperature calibrated in the factory it is sometimes necessary to validate the calibration of the cameras to ensure the best quality data capture. The following calibration check procedure is useful for SX10 owners to verify the camera calibration status of the Instrument.

### Required Material

- Trimble SX10 Scanning Total Station
- Fully charged battery (PN:99511-30) for the SX10
- Trimble Tablet computer running Trimble Access™ 2016.10 or later
- Trimble Business Center v3.80 or later
- An object that has a clearly defined observation point
  - a. For example: Trimble Target for Calibration Check, 2PCS Black and White target (PN: 55001469)

### Steps for the calibration check

#### Instrument Procedures

1. Power on the instrument and connect with Trimble Access General Survey.
2. Perform the following instrument calibration routines. To do this, in General Survey navigate to Instrument / Adjust and then perform these calibrations:
  - Compensator
  - Telecamera collimation
3. Now that the instrument is calibrated, perform a Station setup in General Survey. For this calibration, check positions are all relative, therefore assumed coordinates are sufficient.
4. Find a nicely visible and highly contrasted object point at a distance of approximately 50m
  - Examples are:
    - a. Natural point with good contrast
    - b. Trimble Target for Calibration Check, 2PCS Black and White target (PN: 55001469)
    - c. Or, any other object that is clearly visible.

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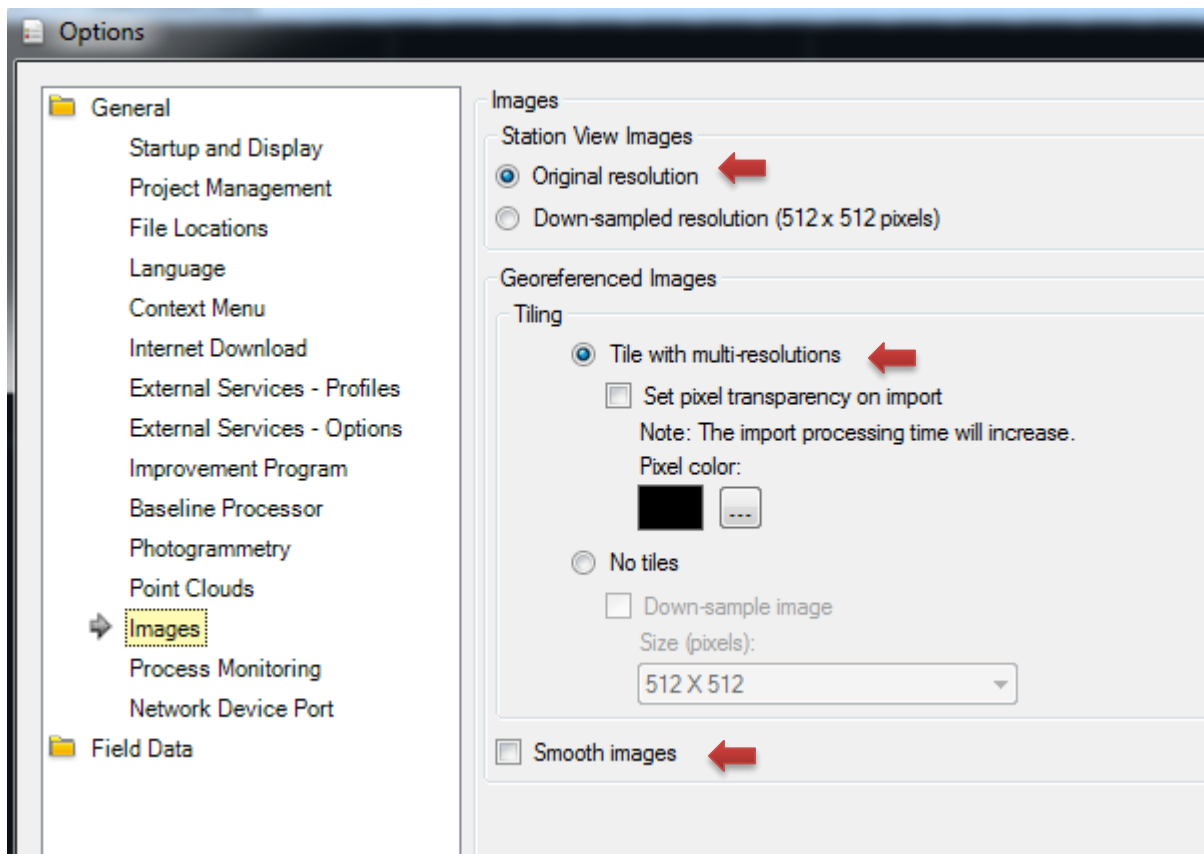
Revision A

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5. In the Measure Topo screen, aim the crosshair with the telecamera at desired target/point and take a 2 face measurement. In order to get the most accurate pointing use fine aiming with zoom level 6, 7 or 8.  
**Note:** Make sure to store the measurement as a topo point
6. Capture snapshot image with zoom level 5 (tele camera)
7. Capture snapshot image with zoom level 3 (primary camera)
8. Capture snapshot image with zoom level 1 (overview camera)
9. End the survey.
10. Export all the data to a folder for upload to Trimble Business Center. Be sure to include
  - .job file or .jxl file.
  - 'project Files' folder associated with this project. The project files folder contains all the necessary images for checking the calibration.

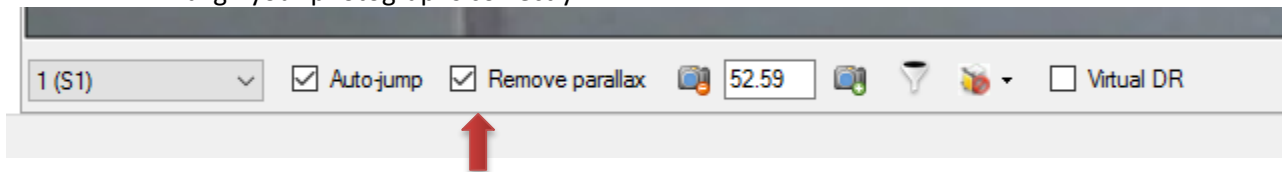
### Trimble Business Center

1. Transfer your project to Trimble Business Center by importing the .job or .jxl file from Trimble Access
2. Use the following settings to be able to see full image resolution and pixels in the Trimble Business Center station view.
  - a. "Smooth images" should be **not** ticked

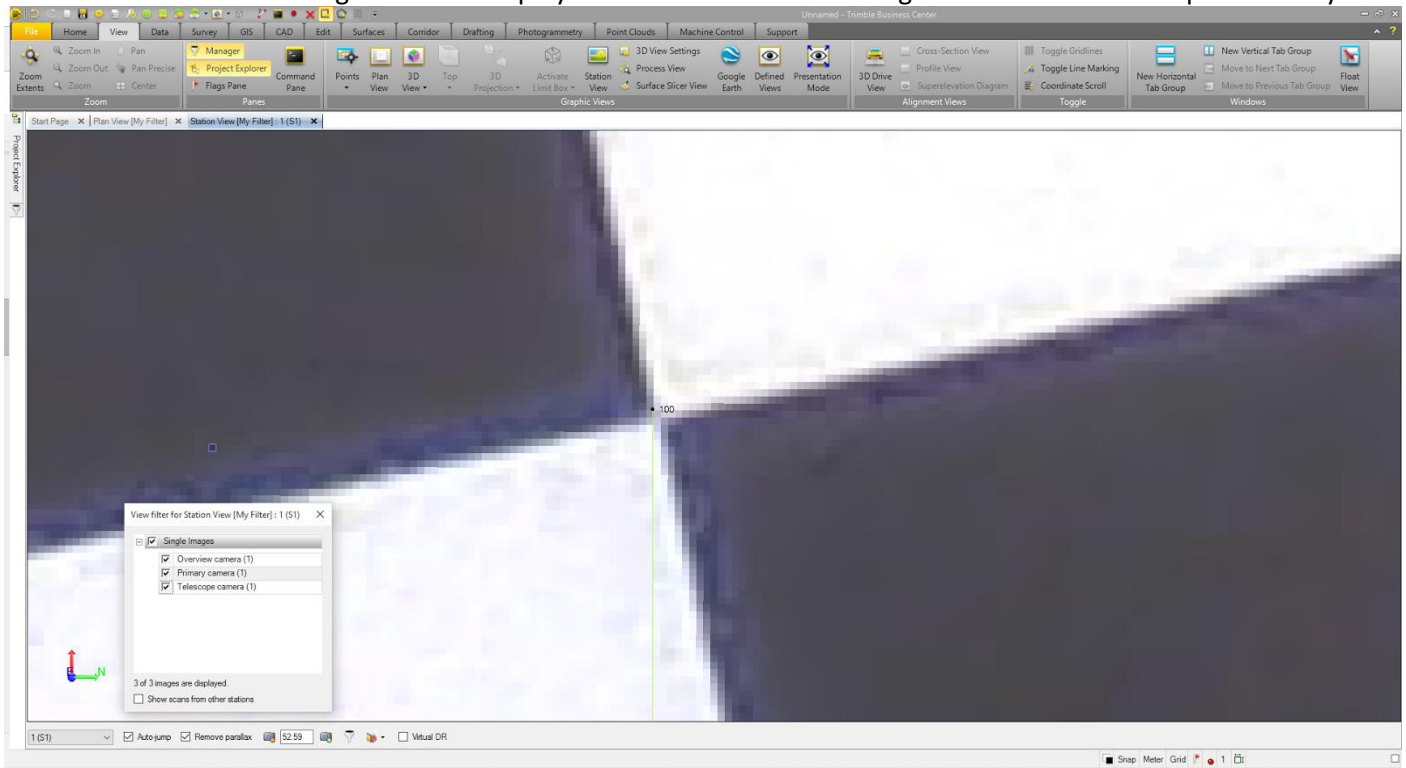


3. Open Station View for the station in your project. Below you can see station 1(S1) open.
4. Navigate to the stored point you observed in Step 5 of the instrument procedures above.

5. On the options panel at the bottom of the station view;
- a) Make sure that the “Remove parallax” box is checked;
  - b) Click in the box to the right which sets the distance to your point (shown below at 52.59).
  - c) Click on your check point to automatically enter this distance, or key in the distance if known. This will align your photographs correctly.

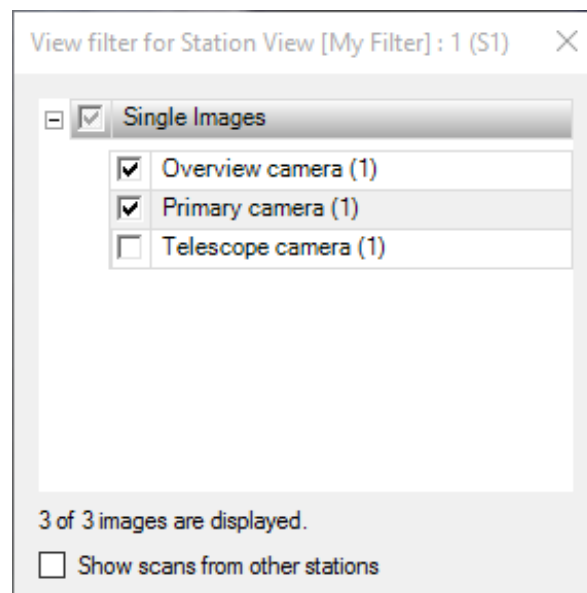


6. The telecamera image will be on top by default. Now zoom in enough to be able to see the pixels clearly.

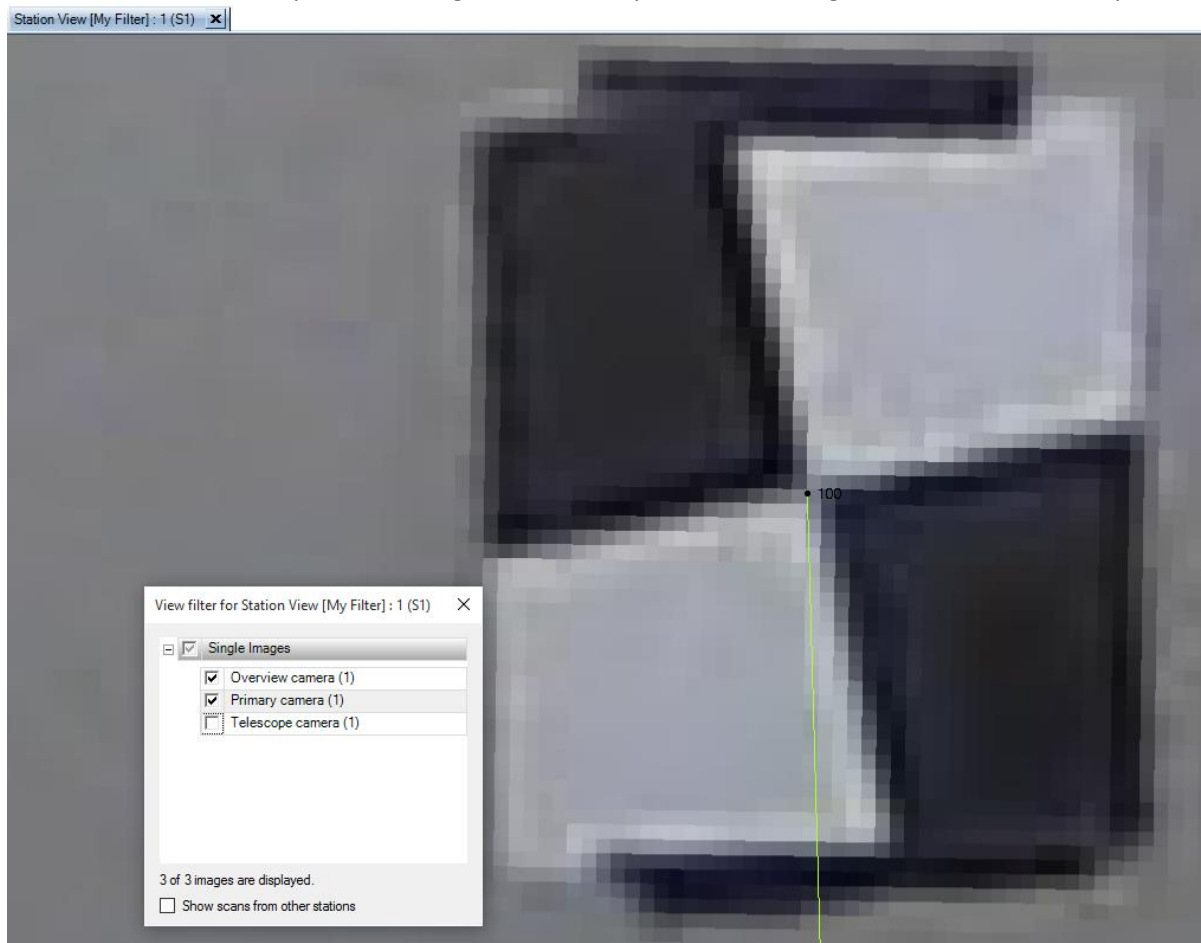




7. Check the deviation of the point to the object center, 2 pixels is OK. In this example the deviation is 1 – 2 pixels. OK!
8. Now, go to the Station View filter on the bottom of the menu and turn off the telecamera photo.

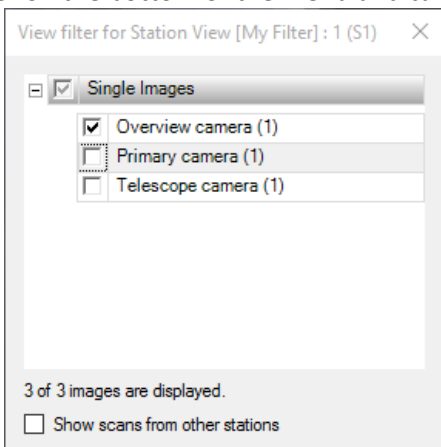


9. Now the Primary camera image will be on top. Zoom in enough to be able to see the pixels clearly.

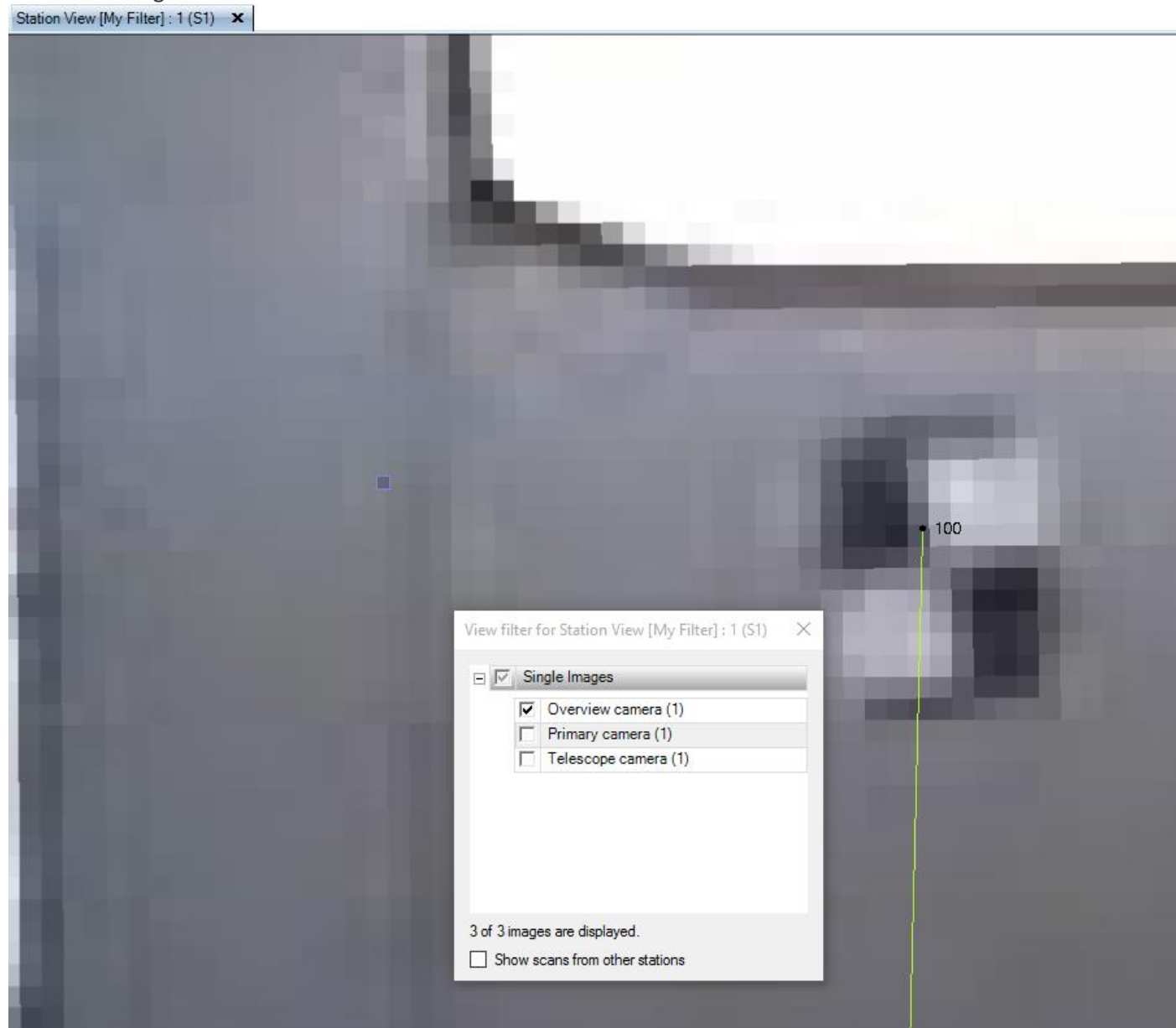


10. Check the deviation of the point to the object center, 2 pixels is OK. In the example here the deviation is <1 pix. OK!

11. Now, go to the Station View filter on the bottom of the menu and turn off the Primary Camera.



12. The overview snapshot image will now appear on top;. Zoom to a level where the pixels are clearly defined within the image as shown below.



13. Check the deviation of the point to the object center, 3 pixels is OK. Here the deviation is approximately 1.8 pix which is acceptable.

### For more information

For more information contact your local Trimble Distribution Partner.