

Geospatial Modeling & Visualization

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Z+F Laser Control: Color Mapping

COLOR MAPPING PT 1



Z+F Laser Control Workflow for Color Mapping

1. Create a New Project.
2. Select all scans that you wish to import. If you forget a scan, do NOT Open File but instead Right Click (RC) on the project name in the table of contents (TOC) and choose Add Scan to Project.
3. Make sure the appropriate toolbars are enabled by going to File – Options. Select Plugins on the left and enable the Color and Filter toolbars.

Note: If the Color Plugin does not appear and you are using a floating license, be sure the License.dat file is copied to the local user's profile at the following location C:\Users\Users Name\AppData\Roaming\ZF. Locate this .dat file in the same location within the folder of another active user

4.  Double click (DC) on a scan to open it in 2D View. To view a scan in full 3D, RC in the 2D window and choose Full Scan to 3D (or selection if applicable). Next, open the 3D View by going to Window – 3d View or select the 3D View button.
5. If the images did not import automatically with the scans, RC on the Scan Name(s) in the Project Tab and choose Add Picture from scan –. Repeat for all scans; you can also add images by opening the scan (double clicking it in the Project Tab) > go to the Color Plugin Tab > Select add images. READ THE PROMPT and confirm that the correct images are being imported/applied to the correct scan. 28 images should appear below the scan in the Project Tab

COLOR MAPPING PT 2

6. Next check the camera calibration file by clicking on the  Camera Calibration button or by going to Plugins – Color – Camera Calibration menu. Select the MCAM file from the USB drive that accompanies the Z+F Imager (file extension ext.xml). The MCAM file stores the intrinsic calibration file for the Z+F MCAM camera. It is good to place a local copy of the MCAM file in your project file.
7. Next check the color Properties . Make sure that "Map Fast" and "Use Mask" are unchecked. On the left, choose the scans that you wish to apply color mapping to. Note that the associated Greycards and pictures should also be selected. For export format, choose what is appropriate for your desired end product. While deriving the extrinsic calibration confirm that the appropriate scan and images are selected (click 'Deselect all' below both the scans and the images, then select the scan for which you are calculating the calibration. Once the scan is selected, the correct images populate)

Export Formats:


JPG and TIFF: Will create a separate image file that will be referenced by the XYZ data. Possibly useful for color correcting the panoramic image file.



ZFS: Creates an XYZRGB data set – As a default use the ZFS file format

Next choose the Camera Calibration file and apply whitebalance correction if desired. Click OK.

COLOR MAPPING PT 3

8. Now we are going to calculate the extrinsic calibration for the camera and associated images. The extrinsic calibration file calculates the subtle differences that occur from putting the camera on the scanner. In other words, whenever you mount the camera to the scanner, its position is going to vary slightly – these are the camera extrinsics. Therefore once you calculate extrinsics for a single scan, the same extrinsic file can be applied across multiple scans that have been acquired with camera in the same position (in other words the camera CANNOT have been removed from the scanner).

9. Now open a scan file and the run the Extract and Match Feature Points command.  Click OK on the Automatic option to Calculate Extrinsics. The total resulting error should be less than 3 pixels, if it isn't see process below to manually add more points or attempt to Extract and Match Points on another scan within the project. DO NOT overwrite the original MCAM file, rename it. NOTE: If insufficient points are extracted with the Coarse setting, try the Fine setting. Depending on the nature of the scan data, these settings may give higher or lower error, and one setting may extract sufficient points when the other setting will not.

10. Now that we have the extrinsic file, we can Generate Color Scans  which actually uses the extrinsic camera calibration file to map the images onto the scan. Do this only for the scan that you used to calculate the feature points and then verify the color mapping quality. If you are satisfied with the color mapping quality, you can then run the Generate Color Scans  command for the entire project. If the color mapping results are not adequate, then complete the steps in the next two tabs to manually add more feature points for the color mapping process.

CONTINUE TO...

If you are satisfied with the automated color mapping quality and have generated your Color Scans, you can continue to [Z+F Laser Control: Filtering and Exporting Your Data](#)

If the color mapping results are not adequate, then continue to [Z+F Laser Control: Manually Identifying Feature Points](#) to manually add more feature points for the color mapping process.



You are reading the series: [Z+F Laser Control](#)
[Z+F Laser Control: Color Mapping](#)
[Z+F Laser Control: Manually Identifying Feature Points](#)
[Z+F Laser Control: Filtering and Exporting Your Data](#)

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