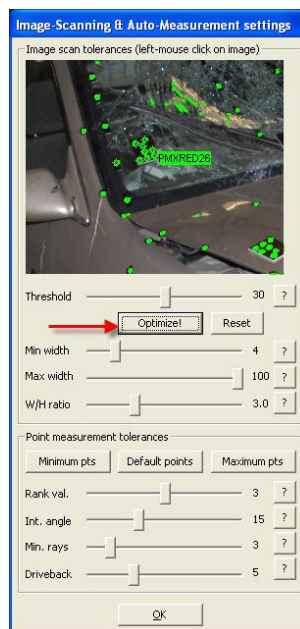


# iWitnessPRO Quick Reference Guide

- We strongly recommend a **Digital SLR camera** is used with iWitnessPRO. Two good example brands are Nikon & Canon.
- If possible, shoot in **Aperture Priority or Manual** with the lens stopped down a few f-stops. The goal is to underexpose the images slightly so the code and feature point target's red retro reflective material has high-contrast with the black target background. This is typically between F8 and F16; (try a few test shots in different lighting conditions as different cameras respond differently with the camera's flash intensity.) When shooting in Manual, try F-stop 18, and shutter speed 1/125<sup>th</sup> of a second, ISO 100 to 400.
- Always **shoot with the camera flash**.
- Ensure there **are at least 7 coded targets in every image**, as well as strong **image overlap throughout all of the codes** in the photogrammetric network. Ideally each image should "decode" 7 or more codes with good spatial separation. With the default of 4 "minimum rays", each code and red dot target must be triangulated from at least 4 camera positions. The "Min Rays" can be moved to 3, or 2, but we recommend the **default setting of 4**, with more images used (rather than less).
- Before running the project (R<sup>++</sup> key), **open one image and press the Q-key**. Click the "**Optimize!**" button.



After the R++ process, **if one or more thumbnails display a "yellow tick mark" instead of a "green tick mark", here is what you should do to orient the image...**

- iWitnessPRO retains all of the features of iWitness for the traditional "Referencing process". For example, if you use an image **that does not have the minimum "code coverage"**, iWitnessPRO scans the targets (some codes and targeted points might be orange, meaning they are referenced, but the image will not be **oriented**). There is still a way to **orient** the image within iWitnessPRO, as noted below.

As illustrated in Figure 1, there are insufficient codes for the *AutoReference* process in the image -- (code *PMXRED17* is the only code in the image, and it requires at a minimum, 5 codes for camera orientation). You can marquee drag (the cursor being in the (Select Mode - "White Arrow")) around all the "orange points". Right mouse click and select "**Unreference**". Note: that all of the **Orange Referenced** point IDs will now become **red squares**, as noted below. Select the **+R** tool and manually reference the red squares (targets) with one or more oriented images, which were successfully oriented from the **R++** AutoReference process.

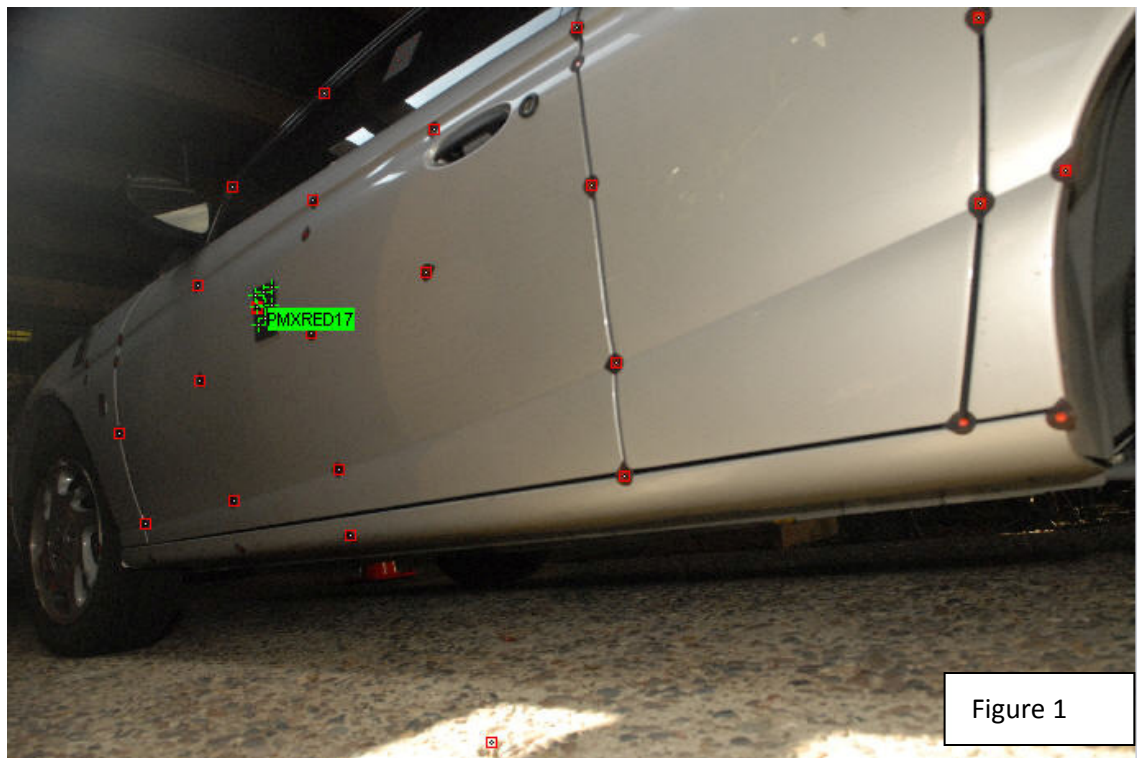


Figure 1

By referencing a quantity of 5 or so cross-referenced points with another oriented image, the above image will be oriented and the green "tick mark" visible in the thumbnail (in this example case, image 30: \_CEA3384.jpg. See the figure 2, illustration below.)

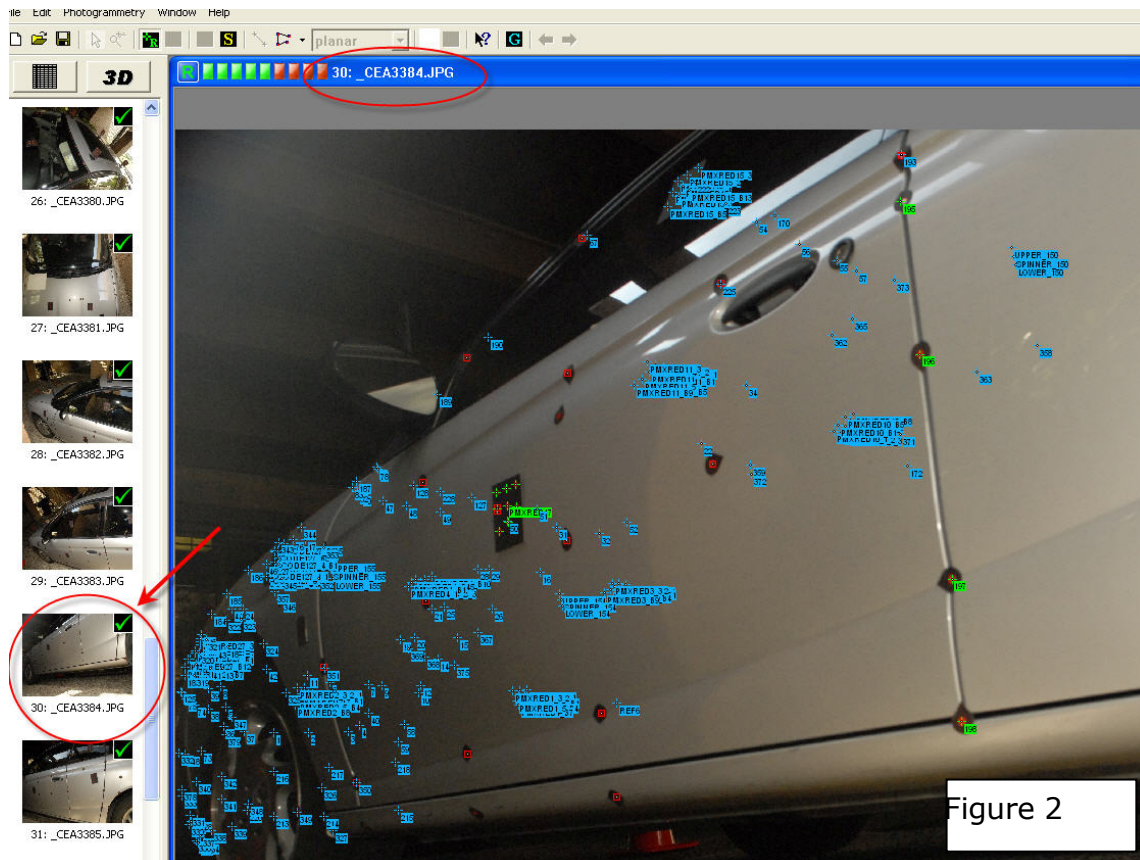


Figure 2

- It is also possible to select "Orient All Images" from the Photogrammetry menu, which will automatically orient any images with sufficient measured points. This can be done for a single image by right-clicking in the image and selecting Photogrammetry->Orient.
- It is always better to use **more codes than less in each image**. Codes should be spaced at least 6" apart (15cm) from each other. For the best results, consider augmenting the standard set of the 48 codes with 12 of the "spinner codes" - (rotated so that they're seen in as much as 360 degrees horizontally during the photography.) Contact DCS at [sales@iWitnessphoto.com](mailto:sales@iWitnessphoto.com) for information about the spinner code pricing and availability.
- **Always take plenty of images with roll diversity** (i.e. portrait and landscape shots for the self-calibration process.)
- This tip sheet is not a substitute for the **iWitnessPRO User Manual**, but covers some situations one will experience in using iWitnessPRO. This tip sheet should be used once the user is familiar with the manual and the main functions of iWitnessPRO.