



Fingerprint Scanning Do's and Don'ts

The Importance of Scanning Quality Prints

If you're familiar with the phrase, "Garbage in, garbage out," you should know that this same rule applies to fingerprint recognition technology. The accuracy of the recognition engine greatly depends on the quality of the initial fingerprints taken when enrolling a person for the first time and those taken for subsequent identification attempts. The initial prints are stored permanently in the database, and used for comparison each time a person places his/her finger on the sensor for identification. Consequently, if a poor quality image is taken during enrollment, the system may not recognize a person when attempting the identification process.

How to Enroll a Quality Print

- **Capture a FULL and CENTERED fingerprint image:** The M2SYS biometric matching algorithm works by locating identical minutiae points, which are unique to each individual. If the system does not locate a high enough volume of similar minutiae when comparing the scanned and database prints, it will return a "no match found" result. For this reason, it is critical that you capture as full and centered a fingerprint image as possible when first registering a person in the system, and during subsequent identifications. The fingerprint should evenly fill the scan window, and be roughly centered within it.
- **Capture the CORE of the fingerprint:** The core of the fingerprint is the center. If the core of the fingerprint is captured during enrollment, the system will extract unique minutiae points from this distinct area. Therefore, if the core is again captured during subsequent identification attempts, this greatly improves the accuracy of the identification process and limits the possibility of false rejection. The core of the print should ideally be captured during each and every fingerprint scan.
- **PRESS and HOLD the finger FIRMLY against the scanning surface:** The fingerprint scanner only captures the print after it detects the presence of a finger being pressed on the surface of the scanner. If the user does not hold their finger against the scanner until the scanner flashes bright red, the scanner may capture an incomplete print or may not capture anything at all. Pressing the finger firmly against the scanning surface helps to ensure both that the maximum surface area of the print is in contact with the scanner, and that the print has no "gaps" or "holes". Hand moisturizer can be used for problematic dry skin.
- **Use the MIDDLE finger:** Most people tend to associate fingerprint technology with the thumb or index finger, which we have found are actually the two worst prints to use. These fingers are more widely used for day-to-day activities and therefore are more prone to damage. Consequently, M2SYS recommends using the middle finger (or the ring finger) for enrollment and identification purposes because it typically produces (and retains) a much higher quality image.

The captured fingerprint image should look like the following:



What to Avoid

- **AVOID CAPTURING EITHER SIDE OF A FINGERPRINT OR JUST THE TIP.** Imagine during enrollment that you capture only the right side of a fingerprint. Then, during a subsequent identification attempt, the enrollee scans the left side of his/her fingerprint to be identified. The system will not find enough similar minutiae to accurately identify the person and will return a false rejection message.

The captured fingerprint image should NOT look like any of the following:

