ievo Guidance: How to Scan a Finger

Whether registering a user's fingerprint for the first time, or using an active **ievo** system, scanning a finger follows the same general principles. The same principles can be applied to any of **ievo** Ltd's fingerprint devices.

To start the process place your finger on an active fingerprint scanners sensor plate. Ensure that your finger covers the whole surface area of the sensor plate to prevent any unnecessary light flooding the sensor (see fig.1) Keep your finger still as the sensor scans the fingerprint (indicated by a white light emitting from the sensor) and remove your finger once the sensor scan has finished.

fig.1: Ensure finger covers the sensor plate

ievo ultimate™ finger placement

ievo micro™ finger placement

It is vital that you keep your finger still during the scanning process to ensure there is no distortion in the image, which could lead to recognition issues. The better quality the scan, the faster the process for gaining access. Whenever scanning a finger, always ensure the finger is straight and flat against the sensor, do not use a finger tip or bend the finger (see fig.2) as this can disrupt or distort the scanned image used to generate data for fast and reliable identification matching.

fig.2: Scan with a flat, straight finger

Keep your finger straight

Do not use your finger tip

Do not bend your finger tip

TROUBLE SCANNING/REGISTERING A FINGER?

Are you registered?
Ensure that you have been registered as a user and had your fingerprint registered correctly.

Are you using the registered finger?
Ensure you are using the same finger that you registered with, the most common finger used is the 'index' finger, unless advised otherwise.

Keep your finger still while scanning.
In order to get the best scan possible, it is vital you keep your finger still while the sensor is scanning. Do not remove your finger until the sensor has finished its scan, the scanning process is indicated by a white light. Once complete remove your finger and wait for access.

Have you damaged your fingerprint?
If you have a cut, abrasion or damage on your finger this could affect your fingerprint as damaged skin may impair a previously recorded image. Please re-register your finger, or register an alternative finger to use until the original is healed. Once healed you may be required to re-register your fingerprint as scar tissue may be present which can alter your fingerprint.

Are you placing your finger correctly?
Ensure you are placing your finger correctly; face down and flat, unless you have been instructed otherwise. Please refer to the finger placement guides within this document.

Is there excessive dirt or debris on your finger?
Although **ievo** readers can scan through levels of dirt and debris, having a 'clean' finger will always increase the effectiveness of any reader.

Ensure that you are not pressing too heavily on the reader during a scan. Pressing heavily on the reader can squash your fingerprint meaning that the key reference points are spread differently from the original scan.

'PROBLEM FINGERPRINTS'

What is a 'problem fingerprint'?
While the vast majority of fingerprints can be used with **ievo** fingerprint readers there are a few occasions where some fingerprints can be tricky to capture. These instances usually occur when a finger has been heavily damaged causing permanent surface and subsurface skin abrasions. While it is uncommon, studies have shown that one out of two hundred fingerprints can be problematic when using biometric readers.

I have a problem fingerprint, can I still use biometrics?
Yes, even though it may seem like the technology is against you, there are methods that can be attempted to combat some problem fingerprints.

What can I do?
When registering a known problem finger, or if problems persist with a registered fingerprint, try registering all of the user's fingers, including the thumbs. This will help give the user a number of options when trying to gain access.

To register multiple images of the same fingerprint access the 'Manage Fingerprint' section of the **ievo** registration software. If using an alternative registration software package, please refer to your user manual or ask your software provider for assistance.

You can also try scanning the side of a finger, however, if doing this you will need to use the same side of the finger each time you use the reader to ensure the scans will match.

Another method is to register multiple images of the same fingerprint from different rotational angles. Start with scanning the left side of the finger, and then registering multiple images of the finger as you roll the finger to the right. This can build up a full image of the finger from different degree angles that may help with enabling the user to use the system. Keep scanning different angles until the system states a good image has been captured.

It must be noted however that this method is not recommended for a large number of users, as it creates multiple templates which will effect matching speeds during the identification process.

ACQUIRING BIOMETRIC DATA

How is data collected?
ievo systems acquire biometric data by scanning a fingerprint and measuring and collecting unique reference points from a finger (see the process diagram fig.3). This data is extracted, transferred and via an advanced algorithm, stored as a template on a separate **ievo** control board.

No fingerprint images are kept or recorded.

When a person uses the system for access, again the reader will scan the fingerprint, transfer the data to an **ievo** control board where it will be cross-referenced with the stored templates, if the data matches a registered template, then positive identification can be made and access granted by the access control system.

fig.3

Image depicting what an **ievo** reader scans

Image depicting an example of key minutiae feature points identified by an **ievo** control board
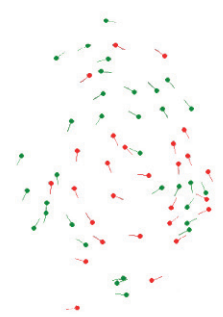
Image depicting the key feature data extracted from a fingerprint, which is converted and stored as a template on the separate **ievo** control board