



N2N Challenge Goal

The goal of the N2N Fingerprint Challenge is to improve live and forensic biometric fingerprint recognition via improved fingerprint capture technologies.

This will be accomplished by testing an N2N live fingerprint capture device that does not require a human operator, is capable of biometric recognition as good or better as the existing standard, and does so in the same or less time as the existing approaches.



Fingerprint Capture Terminology (1)

- + **Live Capture** — Representations of the fingerprint captured directly from the fingerprint
 - Can include both ‘Live Scan’ (Electronic) or Ink on Paper
- + **Forensic / Latent Capture** — The capture of impressions or remnants of fingerprints left behind on other objects



Images of specific vendors technologies is not an endorsement of those technologies, and shown for informational purposes



Fingerprint Capture Terminology (2)

- + **Plain or Flat (Slap) Capture** — Captures a portion of a fingerprint (typically the bottom)
 - This is typically accomplished by presenting one or more fingerprint(s) against a flat surface. It may also be accomplished using non-contact techniques

- + **N2N (Nail to Nail) (Rolled) Capture** — Captures the entire fingerprint friction ridge surface from one nail bed to the other
 - Typically accomplished by ‘rolling’ the fingerprint across a flat surface
 - Includes the bottom (palmar surface of the distal phalange), sides, and tip of the fingerprint



Slap Print



N2N 'Rolled' Print



Fingerprint Capture Terminology (3)

- + **Contact Capture** — Requires physical contact between the fingerprint and a surface
- + **Contactless Capture** — Creates a fingerprint image without physical contact between the fingerprint and sensor (i.e., air is between them)
 - Air gap may be as little as $\frac{1}{4}$ of an inch, or over hundreds of meters
- + **Standoff Capture** — Specifically refers to capturing fingerprints at a distance
 - For our purposes here we'll define this as over 5 feet



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Subject Interaction Terminology (1)

- + **Cooperative** — Subject actively assists and participates in collection process
 - This is the typical live fingerprint capture scenario
- + **Semi Cooperative** — Subject neither actively assists nor actively opposes capture
 - This is common for a surveillance situation and some standoff applications
- + **Non Cooperative** — Subjects are actively resisting capture (subversive)



Capture Facilitation

- + **Operator Facilitated** — A human being who physically assists with capturing the fingerprint sample
 - In the case of N2N rolled fingerprint this is a person who physically holds the subjects finger and rolls it over a surface
- + **Observer Facilitated** — A person who observes, and may give verbal instructions/advice, but does not physically interact with the subject who is having their fingerprints captured
- + **Non Facilitated** — A fingerprint capture scenario that is entirely autonomous.
 - The system may itself give instructions/prompts to the subject but does so without any human being helping the subject

