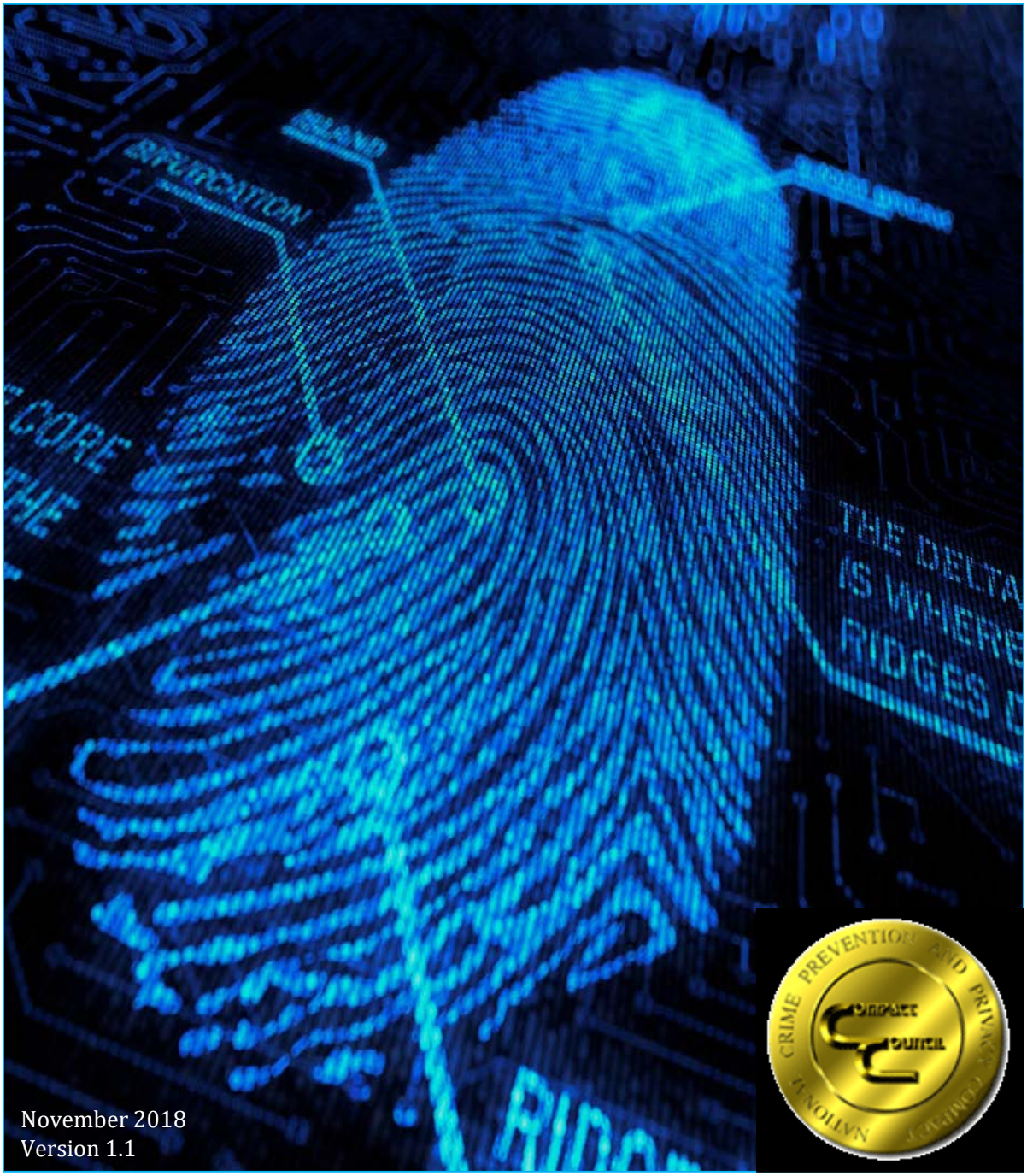

The National Crime Prevention and Privacy Compact Council's

Civil Fingerprint Image Quality Strategy Guide

Email address: compactoffice@leo.gov Website: www.fbi.gov/compactcouncil

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Introduction

The importance of capturing legible fingerprint images is often overlooked in today's busy world. However, failing to capture legible fingerprint images can lead to increasing administrative burden, lengthy waiting periods, and, in extreme cases, exposing vulnerable populations to unnecessary risk. Striving to improve the quality of fingerprint images is an important task that can save time and money while helping better ensure the safety of our nation's vulnerable populations.

The Civil Fingerprint Image Quality Strategy Guide (Guide) was developed by the National Crime Prevention and Privacy Compact Council (Council) in collaboration with the FBI Criminal Justice Information Services (CJIS) Division. The Guide was developed as a result of the Council's Civil Fingerprint Image Quality Pilot Program (Pilot) and leverages the lessons learned during the Pilot. The Guide is intended primarily as a resource to assist states in making high-level, programmatic decisions to help reduce civil fingerprint image quality reject rates, but also contains useful information for agencies.

Efforts to improve civil fingerprint image quality reject rates can often be classified under one of three topic areas: increasing electronic fingerprint capture, providing training, and other initiatives. The Guide addresses individual strategies in each of these topic areas and provides important considerations for each strategy. In addition, the Guide contains links to many resources that can be leveraged in improving civil fingerprint image quality reject rates.

Disclaimer: *The information contained in this Guide is intended only as a resource. Each state may have its own laws, regulations, policies, and procedures in place. Before implementing any strategy in this Guide, agencies should contact their State Identification Bureau (SIB).*

Increasing Electronic Fingerprint Capture

Electronic live scan fingerprinting technology allows for the capture of sharper, clearer fingerprint images with built-in quality controls that help to ensure the images captured are legible prior to submission, thus improving fingerprint image quality reject rates.

Seeking solutions using existing live scan devices

Most states own and operate live scan devices, whether for criminal purposes, civil purposes, or both. As a first step to increasing electronic fingerprint capture, states might evaluate how existing live scan devices are being used and determine if opportunities exist to leverage those devices to increase the number of fingerprints captured electronically. Many considerations should be made in determining if existing state-owned live scan devices can be more fully utilized, some of which are listed below.

Q1: Are there existing live scan devices in the state that are not being fully utilized?
Consider agencies which might own a live scan device, but whose fingerprinting volumes are seasonally influenced. Examples might include education related agencies which often capture large volumes of fingerprints prior to the start of the school year, with much smaller fingerprinting numbers in other months. In addition, it may be helpful to consider if there are any live scan devices currently being used for criminal purposes only, but which would be suitable for civil use.

Q2: Are these devices in a location that is accessible to the general public?
Some live scan devices are placed in facilities that require special access, have very limited hours of availability, or are otherwise inaccessible to the general public. If these conditions limit the potential sharing of a live scan device, can any changes be made?

Q3: Are there sufficient numbers of trained staff to accommodate additional live scan fingerprinting appointments at these locations?
In some instances, trained staff are constantly available to capture fingerprints. However, if staffing the live scan device proves to be a challenge, could members of the agency "sharing" use of the live scan device be trained to capture fingerprints?

Q4: Are the existing live scan devices pre-coded with agency specific information, such as the Originating Agency Identifier (ORI) or Reason Fingerprinted (RFP)?
Some companies may pre-code live scan devices at the time of purchase with the appropriate ORI, RFP, or other information for the purchasing agency. If this is the case, can changes be made to allow for more than one agency to use the live scan device?

Q5: What type of agreement is necessary between the owning agency and the agency which would be sharing use of the device?
The agreement between the owning and sharing agency will likely vary based upon the individual circumstances, but should be considered when attempting to implement a live scan sharing scenario.

Q6: How will billing arrangements be handled in a live scan sharing scenario?

Billing arrangements may be considered and handled during discussion of live scan device presets or through the agreement between the owning and sharing agencies.

Obtaining and placing additional live scan devices

Obtaining and placing additional live scan devices helps increase opportunities for individuals to be fingerprinted electronically. Funding assistance for the placement of additional live scan devices for criminal justice purposes *may* be obtainable through national grant funding programs. As previously noted, some live scan devices used for criminal justice purposes may also be suitable for use for civil purposes. Many considerations should be made when obtaining and placing live scan devices.

Q1: Where will the live scan device(s) be placed?

Careful deliberation is necessary when deciding where to place new live scan devices. Ideal locations are often in densely populated areas. However, placing a live scan device in a location that may not itself be highly populated, but is reasonably accessible to a large rural population, can be extremely effective. Additional considerations when placing a live scan device include whether the general public can easily gain access to the location. For example, a live scan device that is placed in the booking area of a police station will likely not be as accessible as if that same device was placed in the front-facing portion of the police station. Ideally, the live scan device should be placed to allow a greatest number of fingerprints currently being captured manually to be captured electronically. For instance, if a large agency is primarily fingerprinting manually with ink and paper, a huge benefit might be realized by placing the live scan device with that agency. Alternatively, if ink and paper fingerprinting is widespread, it may be preferable to place the live scan device in a central location accessible to applicants from all agencies. Lastly, placement of the live scan device will impact the available hours for fingerprinting. Will appointments for fingerprint capture be needed, or will the service be available on a walk-in basis?

Q1A: Should mobile live scan devices be considered?

If the state has a widely dispersed rural population that makes placing a live scan device in a central location difficult or impossible, mobile live scan devices may provide a possible solution. These devices are highly portable and could be taken to individual agencies or periodically relocated as needed. Mobile live scan devices carry with them the same considerations as a standard live scan device, many of which are discussed below.

Q2: Who will be responsible for capturing fingerprints on the live scan device(s)?

The answer to this question will depend in large part on where the live scan device is placed. If the device is placed within a particular agency, staff from that agency may be trained to capture fingerprints. The device might also be placed at a centralized location or criminal justice agency, in which case law enforcement or other personnel might be responsible for the fingerprint capture. It is important to establish a plan for who will capture fingerprints when deciding to place the live scan device, as a device without properly trained staff to operate it will be of limited use.

Q2A: How will those capturing fingerprints be trained?

Regardless of who will be capturing fingerprints, it is important that they receive proper training. Who will provide the training (e.g., SIB staff, the vendor that provides the live scan device)? Is there a certification program for fingerprint capture already in place, and if not, would there be value in implementing one? This is also important even if law enforcement personnel are capturing fingerprints; some modern day law enforcement training programs do not contain any information on fingerprint capture.

Q2B: Will periodic retraining be provided, and if so, on what basis?

Many factors contribute to a need for periodic retraining, with staff turnover chief among them. Some states choose to offer training on an annual basis, while others offer it on as-needed basis by monitoring image quality reject rate statistics and reaching out to agencies when reject rate abnormalities are seen. Offering retraining only by request is not an ideal strategy, but is sometimes seen as the only option due to resource or geographic limitations. The *Training* chapter, starting on page 9 of this Guide, may provide helpful alternatives when such limitations exist.

Q2C: Will the state monitor reject rate statistics, and provide assistance if abnormalities/problems are identified?

States with the lowest civil fingerprint image quality reject rates frequently cite continuous monitoring of reject rates as vital to their success. This allows states to identify problem areas and quickly work to resolve them. Some states track by agency, while others may track by individual live scan device, where possible. Placing new live scan devices is a great opportunity to consider monitoring reject rate statistics, if such efforts are not already in effect.

Q3: What type of quality control software is built into the live scan device(s)?

Various types of quality control software are available for live scan devices today. Many utilize intuitive front-end quality controls, designed to help the person capturing the fingerprints ensure that the fingerprint image quality is satisfactory during the fingerprinting process, rather than rejecting later in processing. These quality controls are extremely valuable in reducing image quality reject rates.

Q3A: Can the quality controls be manually overridden, and if so, at what point in the fingerprint capture process?

If the person capturing fingerprints is able to ignore the quality control software and send a poor quality fingerprint through without taking any extra steps, the quality controls may be of limited use. Quality controls that require extra steps for manual overrides may be preferable.

Q3B: Should the state issue guidance or policy outlining requirements for those instances that do require a manual override of live scan quality controls?

Policy or guidance which indicates the steps that should be taken prior to manually overriding the quality controls may be helpful in discouraging those taking fingerprints from overriding quality controls improperly. Some states have found success by requiring manual ink and paper fingerprinting of any individual whose fingerprints cannot pass live scan quality controls. This practice helps to discourage unnecessary overrides of the quality controls.

Q4: Who will be responsible for cleaning and routine maintenance of the live scan device(s)?

Live scan devices require some routine maintenance. Cleaning the sensor platen regularly is important to capturing legible fingerprint images and can typically be done by the individual capturing the fingerprints, when trained. More involved maintenance may occasionally be necessary. States should consider who will provide this maintenance. While states may service the device themselves, many contract with the vendor that provides the device for this service.

Q5: Will applicants be required to be fingerprinted electronically?

Policies requiring applicants to be fingerprinted electronically are highly effective when access to live scan devices is widespread, and will likely maximize the benefit of the new live scan devices. However, requiring electronic fingerprint capture may not be possible if live scan device access is regionally limited.

Q6: How will the availability of the live scan device(s) be communicated?

If electronic fingerprint capture is not required, marketing of the live scan device availability may be necessary to maximize its benefits. Developing a marketing plan for use of the live scan device(s)can make a significant impact, as it may ease the transition for those accustomed to manual fingerprinting and, particularly if new fees are involved, communicate the cost-benefit tradeoff of electronic fingerprint capture.

Contracting with private service provider(s) for electronic fingerprint capture

Numerous private vendors provide electronic fingerprint capture services today. Contracting with a private service provider for electronic fingerprint capture can be a highly effective option for improving civil fingerprint image quality reject rates. This option can be applied in many ways; a state may contract with a single or multiple vendors for electronic fingerprint capture, and individual agencies may also contract with private service providers for fingerprint capture. Legislative requirements, existing contracts for electronic fingerprint capture, and other individual needs may all drive decision-making regarding contracting with a private service provider for fingerprint capture, and there is no uniform solution. However, many factors may be useful when considering pursuing contracting with a private service provider for electronic fingerprint capture, some of which follow.

TIP: Strongly consider including quality control language within the contract.

Contractual quality control language, such as a "not-to-exceed" reject rate clause, helps hold a private fingerprint capture service provider accountable for capturing legible fingerprint images. States and agencies can use this type of clause to specify the repercussions if the private service provider exceeds a set reject rate percentage, up to and including termination of the contract. Language regarding equipment quality, maintenance schedules, or training requirements may also be included in a contract to increase image quality controls. This is an invaluable tool in keeping civil fingerprint image quality reject rates low, and should be strongly considered when entering into a contract for electronic fingerprint capture. Example language may be found in Appendix A of this document.

Q1: How will cost impact contracting with a vendor for electronic fingerprint capture?

Cost is often the first thing that comes to mind when considering contracting with a vendor for electronic fingerprint capture. Many questions should be answered regarding cost; two key questions are outlined below.

Q1A: Who will bear costs?

This is a complex issue with no universal solution, and will vary widely based on the affected applicant population and other factors. In most, but not all, cases, the vendor charges an additional fee above the state and FBI fees for each fingerprint submission, and recoups costs in that manner. The additional fee charged by the vendor may be influenced by the expected number of fingerprint submissions or other factors. Additional "start-up" costs may also apply in some instances. Costs may be borne by applicants, agencies, the state, or some combination thereof. Careful consideration of how to distribute costs is key to successful implementation of a contract for electronic fingerprint capture.

Q1B: How will state and FBI fees be collected and remitted?

Early negotiation of the logistics of billing helps ensure smooth implementation of a contract for electronic fingerprint capture. Agreements on how billing will be conducted are generally included within the contract.

Q2: Where will the live scan device(s) be placed?

Placement of live scan devices can impact the benefits realized from an electronic fingerprint capture contract. This is an equally important aspect of the contract regardless of its scope; ensuring applicants can easily access the live scan device is important whether the contract will service a single applicant population or all applicants statewide. Stipulating specifics about the location of the live scan device(s) in the contract can help ensure that they are widely available. Alternatively, if there is uncertainty about the best location, it may be possible to include language that allows for flexible placement that can be adjusted as needed.

Q3: How will results be provided back to the requesting agency?

The logistics of returning results to the requesting agency should be discussed during contract negotiations. Depending on contract size and scope, options for viewing results may range from simple standard methods to use of a secure web portal. Regardless of method, discussing how results will be returned early may help mitigate future problems.

Q4: Will applicants be required to be fingerprinted electronically?

Policies requiring applicants to be fingerprinted electronically are highly effective when access to live scan devices is widespread, and will likely maximize the benefit of the contract with the private service provider. However, requiring electronic fingerprint capture may not be possible if live scan device access is regionally limited.

Q4A: If applicants are required to be fingerprinted electronically by the private service provider, what procedures will be in place for out-of-state applicants?

States may conduct background checks on out-of-state applicants, often for licensing purposes. In such instances, where applicants may not be able to access any of the vendor's electronic fingerprint capture sites, alternative procedures must be in place. Some states accept inked and rolled fingerprints for out-of-state applicants, while others require these

applicants to be fingerprinted electronically and print out a hard copy of the electronically captured prints.

Q5: How will the availability of the electronic fingerprint capture service be communicated?

If electronic fingerprint capture is not required, marketing of the service may be necessary to maximize its benefits. Developing a marketing plan for use of the electronic fingerprint capture service can make a significant impact, as it may ease the transition for those accustomed to manual fingerprinting and, particularly if new fees are involved, communicate the cost-benefit tradeoff of electronic fingerprint capture.

Training

An individual's level of fingerprint capture training can make a sizable impact on fingerprint image quality. Ensuring that those capturing prints receive appropriate training is a key factor in improving civil fingerprint image quality reject rates.

Developing an approach to training

When it comes to fingerprint capture training, a proactive approach will typically generate better results than a reactive one. Actively establishing training priorities, identifying methods, and assessing available resources against training needs will lead to a much more comprehensive and successful training program. While the items discussed in this section are most applicable to SIBs, some aspects may also be of use to local agencies. Important questions to ask when developing an approach to training follow.

Q1: What types of training strategies will be employed?

Many different methods exist for ensuring that the appropriate individuals are trained in fingerprint capture. The appropriate methods will vary based on a number of factors, including who is responsible for fingerprint capture, available resources, and various other complexities. Some possible training strategies are discussed below. Each is a general guideline; best results are likely to be achieved by using a combination of the presented strategies.

Strategy 1: Implement a fingerprint capture certification program.

The fingerprint capture certification program is the most aggressive of the strategies and works especially well when only a few specific populations are capturing fingerprints. For instance, if the majority of civil fingerprints are captured by law enforcement personnel, it may be appropriate to build a fingerprint capture certification program into police academy curriculum, and require re-certification at set intervals. While this strategy may not be feasible in all instances, it provides a high degree of accountability to ensure that those capturing fingerprints are well-trained. Certification program details are subject to discretion, but would ideally include information on both electronic and ink-and-roll fingerprinting, as well as a hands-on/practical component.

Strategy 2: Require periodic retraining.

This strategy is a slightly more relaxed alternative to a fingerprint capture certification program. Individuals who are capturing fingerprints receive initial training without needing to be specifically certified. Retraining is performed at periodic intervals as dictated by the state. If there are large numbers of individuals capturing fingerprints and limited staffing resources at the state level to manage and administer a fingerprint capture certification program, this strategy may lead to similarly positive results with less administrative burden. The training program would ideally include information on both electronic and ink-and-roll fingerprinting, as well as a hands-on/practical component.

Strategy 3: Offer training at regular intervals.
Some states choose to offer training at set intervals throughout the year, with or without requiring initial training. The training offered is typically not mandatory and instead provided as a service to assist agencies with capturing legible fingerprints. This method is often selected when training staff resources are limited and there are large numbers of individuals capturing fingerprints. The exact intervals at which training is offered may vary, but would ideally be decided based on the number of students that can be accommodated in a single class and the number of individuals requiring fingerprint capture training. When this strategy is used, it is important to consider how availability of the training course will be marketed. In addition, states should have a plan for addressing training issues that may arise with agencies or individuals who do not take advantage of the offered training. The training program would ideally include information on both electronic and ink-and-roll fingerprinting, as well as a hands-on/practical component.

Strategy 4: Monitor reject rates and offer targeted training based on results.
Maintaining visibility of image quality reject rates by agency allows the state to identify problem areas and take steps to correct them (more information on monitoring reject rates can be found in the *Other Initiatives* section, starting on page 12 of this Guide). Offering training on an as-needed basis allows for tailoring of training to the specific needs of each agency when problems arise. While this strategy should be an invaluable part of any state's toolkit for improving civil fingerprint image quality reject rates, it is not ideal as the sole or primary training strategy due to its reactive nature. Ensuring that individuals capturing fingerprints are trained before a problem becomes apparent will save significant time and administrative burden.

Q2: What will comprise the content of the fingerprint capture training?

The content of a fingerprint capture training program will depend on a variety of factors, and each state must make its own decision on how best to structure its training program. Many decision points for consideration are discussed below.

Point 1: Will the training cover electronic fingerprinting, ink-and-roll fingerprinting, or both?
While some states today capture all civil fingerprints electronically, large volumes of civil fingerprints are still inked and rolled. As such, a training program that addresses both electronic and ink-and-roll fingerprint capture is usually best. However, states should tailor any training to their own unique needs.

Point 2: Will the training include a hands-on/practical component?
Both theoretical and practical knowledge are important to capturing legible fingerprints. Allowing students to practice fingerprinting hands-on can significantly increase the value of the training, as it encourages a level of familiarity with fingerprint capture and may spark important questions that would otherwise not be asked. However, hands-on training is not always practical, due to class sizes, lack of resources, or other limitations. Note that when targeted training is provided based on monitoring reject rates, every effort should be made to include hands-on training to maximize effectiveness.

Point 3: Will the training include a discussion on difficult-to-print individuals?
Even when an individual capturing fingerprints has a good grasp of the basics, he or she will occasionally encounter difficult-to-print individuals. Fingerprint ridge detail may be worn in certain individuals due to age, occupation, or other factors. While any training should cover fingerprint capture basics, a discussion of difficult-to-print individuals and the many tips and tricks for capturing such prints may provide significant benefit. Tips for capturing legible fingerprints for difficult-to-print individuals can be found in Appendix C of this document.

Point 4: Will the training provide general background on fingerprint patterns?
Many fingerprint capture programs include a component focused on fingerprint patterns. This background information can help individuals capturing fingerprints better understand why it is important to capture a clear image. While such background is helpful, this component should be cut if time is limited.

Point 5: Will the importance of experience and practice be emphasized?
Training on how to capture legible fingerprint images is extremely important, but will be less effective if individuals do not have an opportunity to practice what they have learned. It is not uncommon for several staff members in an agency to be trained, but only one staff member regularly captures fingerprints. Thus, if that one staff member is unavailable or leaves due to retirement, transfer, etc., the trained individuals may struggle to capture legible fingerprints due to lack of practice. Training should emphasize the paramount importance of experience and encourage students to leverage their newly learned skills whenever the opportunity arises.

Point 6: What types of take-away materials will be provided?
Once individuals receive training, it may be helpful for them to take away flyers, brochures, manuals, or guides to refer to when capturing fingerprints. Take-away materials can take many different forms, from detailed guides to simple flyers that might be appropriate for posting near a live scan station as a reminder on proper fingerprinting procedures. Ideally, take-away materials should also include contact information for fingerprint capture experts at the state level who can be contacted with questions or concerns.

Q3: Who will provide training?

As discussed in the *Increasing Electronic Fingerprint Capture* chapter, the question of who will provide training will depend in large part on who is capturing fingerprints in the state. Several scenarios to consider are listed below. Most states will use a combination of the training scenarios discussed.

Scenario 1: Training is provided by experienced staff from the SIB.
In nearly every state, some fingerprint capture training is provided by experienced staff from the SIB. The size of the training staff may range from a single individual to a small team, and may exist as a designated position or be assigned as a collateral duty. The size of the state, its resources, and the training strategies being utilized typically dictates the size and type of training staff. Generally, even when states use some of the other sources of training discussed below, SIB staff will still provide additional training.

Scenario 2: Training is provided by the manufacturer of the live scan device.
Many live scan device manufacturers provide initial training in the use of their devices to purchasers. Some manufacturers may also contract to provide periodic re-training. For best results, this type of training should supplement and not replace training from experienced SIB staff.

Scenario 3: Electronic fingerprint capture is performed by a private service provider; oversight of training may or may not be included in the contract.
When a private service provider is contracted to capture fingerprints electronically, the state or agency may or may not choose to stipulate oversight of training in the contract. Often, a "not-to-exceed" reject rate clause is considered a sufficient control and more detailed oversight of the private service provider's training program is not required; however, this decision is fully at the discretion of the state or agency.

Scenario 4: Training is provided by the FBI CJIS Division's Biometrics Training Team (BTT).
Particularly when state resources are limited, training by the FBI CJIS Division's BTT may be a viable solution. Please note that the BTT can only provide training to agencies with a valid CJIS ORI. The type, location, and availability of training will depend on class size, specific needs, and other requirements. To inquire about such training, you may contact biometric_training@leo.gov or call (304) 625-5279. Agencies should contact their SIB for direction prior to requesting training from the FBI CJIS Division.

Resources

There are many resources available that may be helpful when providing fingerprint capture training. Several of those resources, published by the FBI CJIS Division BTT, are provided in the *Recommended Online Reference Materials* section located on page 16 of this Guide and as Appendix B. Additional resources are available via the Internet and should be sought out and used as needed.

Other Initiatives

While increasing electronic fingerprint capture and training are the two most vital aspects of improving civil fingerprint image quality reject rates, there are numerous other measures that can be undertaken to maximize success.

State level reject programs

Many states reject fingerprint submissions for image quality prior to submitting the fingerprints to the FBI, which generally leads to lower NGI civil fingerprint image quality reject rates. There is no uniform solution for establishment of a state level reject program. Numerous variables exist, and the structure of the reject program will determine its impact on civil fingerprint image quality reject rates. Some of the variables to consider are discussed below.

Q1: Will the state level reject program be automated, manual, or some combination thereof?

Some states use an image quality threshold algorithm, built into the state's Automated Fingerprint Identification System (AFIS), to reject fingerprint submissions for image quality. In other states, fingerprint examiners at the state level examine prints prior to submission to the FBI and reject those they feel will fail to pass the FBI CJIS Division's NGI image quality threshold. Many states use a combination of these two methods; when a set of fingerprints is rejected by the AFIS, the prints are sent to a fingerprint examiner for a secondary review. Ultimately, the method chosen will depend on factors like availability of staff and AFIS capabilities. Any of these methods can be equally effective and the state should choose whichever best suits its needs.

Q2: How will the image quality threshold be determined?

Setting an image quality threshold – whether via AFIS algorithm or standards for fingerprint examiners – can have a sizable impact on the effectiveness of a state level reject program. If, for instance, the state's image quality threshold is substantially lower than the NGI's, this will limit the benefit on the civil fingerprint image quality reject rate. However, states may choose a lower image quality threshold for a variety of valid reasons. Some state level reject programs are designed specifically to ensure image quality in the state's AFIS, without consideration to the impact on the NGI. Particularly in these instances, image quality thresholds may be more permissive. While civil fingerprint image quality reject rates will be lower the more closely a state's image quality threshold mirrors the NGI's, any state level reject program for image quality will generally positively impact the state's reject rate.

Q3: How will implementation of a state level reject program impact the public?

The potential impact on agencies and individuals should be considered when implementing or changing a state level reject program. Public backlash may occur if a state suddenly implements a strict image quality reject program, particularly if a new state fee is required for each resubmission following a reject for image quality. These effects can be mitigated in a variety of ways; education on why image quality is important and offering free fingerprinting services after a set number of rejects may be helpful. It is important to note that public attitudes toward a state level reject program will not necessarily be negative, and that such a program may encourage agencies to seek out more training and investigate methods to increase electronic fingerprint capture. In any case, communication is key to smooth implementation of a state level reject program.

Monitoring reject rates

Active monitoring is one of the cheapest, easiest, and most effective tools for improving civil fingerprint image quality reject rates. By identifying agencies with unusually high image quality reject rates, a state can perform targeted training and assistance tailored to those that need it most. In many states, a handful of agencies account for more than half of the state's civil image quality rejects. Working one on one with such agencies to clear the barriers they face in capturing legible fingerprint images can have a huge impact on the state's overall civil fingerprint image quality reject rate, and save significant time and effort for the agency and its applicants. Note that while this activity is typically done at the state level, large agencies with numerous fingerprinting sites may also find monitoring reject rate statistics helpful. A discussion of methods for monitoring and acting upon reject rate statistics follows.

Q1: How will reject rate statistics be gathered and monitored?

If a state has its own reject program, reject rate statistics can usually be generated in-house at the state level. Some states also maintain their own statistics on reject rates from the FBI's NGI. In addition to in-house data, states may receive monthly statistics from the FBI CJIS Division's Statistical Trending, Analysis, and Reporting (STAR) Group which include detailed information on each rejected submission. States may also request a report that shows monthly civil fingerprint image quality reject rates broken down by Contributing Agency Identifier (CRI) by emailing compactoffice@leo.gov.

Q2: How often will reject rate statistics be reviewed?

As with anything, the decision on how often to review reject rate statistics will depend in large part on the individual needs and resources of the state. Some states monitor reject rates continuously and immediately reach out to an agency when a potential problem appears. Other states review statistics monthly or quarterly. Monthly or more frequent monitoring is ideal, as it allows for quicker intervention. Setting a time frame for review helps ensure the review is conducted and acted upon regularly.

Q3: When potential problem areas are identified, how will outreach be conducted?

Identifying problem areas is of limited use unless outreach to the affected agency follows. Having a documented process for reaching out to target agencies as they are identified can be useful. Discussing the possible causes of the increased reject rate with the target agency will inform next steps. Occasionally, a target agency may have simply seen a large population of difficult-to-print individuals or experienced some technical glitch that accounts for the increased reject rate, in which case intervention is typically not necessary. However, the problem can more often be traced to a training issue or lack of access to electronic fingerprint capture. States should work with the affected agency to identify a plan to help resolve these issues.

Ensuring live scan devices are appropriately maintained

Live scan devices generally capture legible fingerprint images when they are routinely cleaned and maintained per the manufacturer's instructions. Many arrangements for this cleaning and maintenance can be made; agency staff that are performing fingerprint capture may be responsible for these tasks, or the manufacturer may contract to perform these services. In addition, the age of live scan devices should be considered; dated software and hardware can impact image quality significantly, and maintenance costs often skyrocket as the device ages. Planning that allows for the replacement of old live scan devices can help avoid costly maintenance and image quality issues.

Educating the public on the importance of capturing legible fingerprints

Helping agencies understand the benefits of capturing legible fingerprint images can impact their willingness to explore electronic fingerprint capture or seek needed training. Education efforts might highlight the inconvenience of re-fingerprinting an individual, the delays in receiving fingerprint search results, potential issues related to enrollment in the NGI's Noncriminal Justice Rap Back Service, and even the possible risks when an individual is allowed access to vulnerable populations until he or she can be re-fingerprinted. When agencies understand the downsides of failing to capture legible fingerprint images, they are more likely to take steps to improve.

Recommended Online Reference Materials

- Fingerprints and Other Biometrics (General Information) – https://www.fbi.gov/services/cjis/fingerprints-and-other-biometrics

- Recording Friction Ridges (Computer-Based Training Module) - http://recording-friction-ridges.s3-website-us-gov-west-1.amazonaws.com

- Recording Legible Fingerprints – https://www.fbi.gov/services/cjis/fingerprints-and-other-biometrics/recording-legible-fingerprints

- Civil Fingerprint Image Quality Flyer https://www.fbi.gov/file-repository/civil-fingerprint-image-quality-flyer.pdf/view

- Certified Products List – https://www.fbibiospecs.cjis.gov/Certifications

- Electronic Biometric Transmission Specification (EBTS) – https://www.fbibiospecs.cjis.gov/EBTS/Approved

Appendices

Appendix

A **Example Contractual Quality Control Language**

B **Capturing Legible Fingerprints Poster**
Provided by the FBI CJIS Division's Biometrics Training Team

C **Tips and Tricks for Fingerprinting Difficult-to-Print Individuals**

Appendix A

Example Contractual Quality Control Language

Example 1

"Contractor is responsible for providing live scan equipment that meets the calibration requirements of the FBI. Contractor must provide State with this information if requested by the State to do so. State reserves the right to demand replacement of machines should the calibration not meet the FBI standard or if the resulting processing has a 2% or higher rejection rate percentage. The equipment used by the Contractor to capture the demographic information and fingerprint images must include edit checks for valid information, both size and content, as well as quality checking for fingerprint images to the State's satisfaction. All equipment must be acquired and meet all calibration standards no later than July 1, 2011."

Example 2

"Contractor will maintain a fingerprint rejection rate of less than (<) 3%. Rejection rates are available to every Contractor via [redacted]'s Site Administration web page. Termination of Contractor's Agreement with [redacted] is possible if Contractor cannot maintain a fingerprint rejection rate of less than (<) 3% or if State deems Contractor un-compliant for 3 consecutive months or more than 6 months in a year."

Example 3

"Contractor's fingerprint capture software will maintain a 92% or higher legibility rate."

Appendix B

Capturing Legible Fingerprints Poster

Provided by the FBI CJIS Division's Biometrics Training Team

U.S. Department of Justice
Federal Bureau of Investigation
Criminal Justice Information Services Division

Capturing Legible Fingerprints

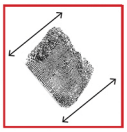
Proper Capture of Image within Fingerprint Block

INCORRECT
Image printed too low in block.

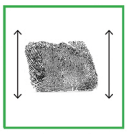
Image protrudes into neighboring fingerprint block.

CORRECT
Entire image printed in the center of the block.

Proper Orientation of Rolled Fingerprint Impressions



INCORRECT
Image captured at an angle.



CORRECT
Capture image in a vertical upright position.

Non-Discernable Images/Smudges

1. Do not apply excessive ink to the fingertip.
2. Do not apply excessive pressure to the fingertip.
3. During capture, turn subject's wrist and simply guide the finger being printed.

Quick Tips

All subjects' hands should be cleaned prior to printing:
- Soap and water are preferred.
- If soap and water are not available, rubbing alcohol may be substituted.

Moist hands:
- Wipe each finger with rubbing alcohol.

Hands with dry or flaky skin:
- Use a small amount of hand lotion and wipe off any residue.

Fine ridge detail:
- Apply a softening agent
- Use "Ridge Builder" – a commercial product often used instead of lotion
- Apply less ink or use less pressure

Instruct the subject to:
- Stand parallel to the work station
- Look away from the inking plate
- Try not to assist you
- Relax and let you do the work

Special Circumstances

Deformed or missing fingers:
If the finger is deformed, every attempt should be made to record the fingerprint in both the rolled and plain impression blocks. A postmortem kit, which is more commonly known as a spoon, can be utilized to assist in recording these images. If unable to record the image, simply place a notation in the fingerprint block (e.g., deformed, webbed) or electronically apply the Unable to Print (UP) code in data field 2.084.

Missing fingers are fingers physically present but cannot be recorded at the time of capture due to injury. Each missing finger should be designated via a notation in the fingerprint block (e.g., bandaged, injured, crippled, paralyzed) or electronically apply the UP code in data field 2.084.

Fully amputated fingers:
An amputated finger occurs when the finger's first joint is no longer physically present. Amputated fingers should be designated via a notation in the fingerprint block (e.g., amp, missing at birth, severed) or electronically apply the Amputated (XX) code in data field 2.084.

Tip-amputated fingers:
If a portion of the first joint is present, record the available fingerprint pattern area in both the rolled and plain impression blocks.

Extra fingers:
When fingerprinting an individual with an extra finger, record only the thumb and the next four fingers. Do not record the extra finger as either a rolled or plain impression.

Scarred fingers:
Record scarred fingers in both the rolled and plain impressions without a notation.

Worn fingerprints:
An individual, by the nature of their work or age, may have very thin or worn ridges in the pattern area. Apply light pressure and use very little ink to record these types of fingerprint impressions. A technique known as "milking the finger" can be used to raise the fingerprint ridges prior to printing. This technique involves applying pressure or rubbing the fingers in a downward motion from palm to fingertip.

White Lines/Cracks/Worn Ridges within Fingerprint Pattern Area

INCORRECT
Indicates dry, rough skin.

Fingerprint ridge detail not visible.

CORRECT
Worn ridge detail may be improved with the following:

1. Ridge Builder
2. Corn Huskers Lotion
3. Lotion with Aloe Vera
4. Massage finger to force blood to fingertips

Roll Fingerprints Nail to Nail*

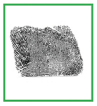
(*These instructions are not applicable if submitting flat impressions only.)

Loop — Whorl

INCORRECT
Deltas need to be present in both the Loop and Whorl patterns.

Delta: the point on a ridge at or nearest the point of divergence of two type lines, and located at or directly in front of the divergence.

Loop — Whorl



CORRECT

1. Roll finger in a smooth continuous motion from nail to nail.
2. Roll thumbs towards subject. Roll fingers away from the subject.
3. Ensure entire first joint of the finger is in constant contact with the card.

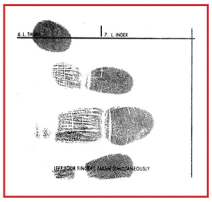
Complete Pattern Area Not Present in Rolled Impressions

INCORRECT

CORRECT

Proper Capture of Plain Fingerprint Impressions

INCORRECT
Image captured horizontally.



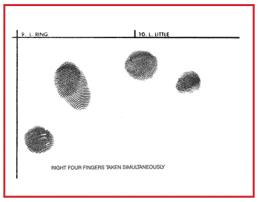
CORRECT
Image captured at an appropriate angle.

Multiple Images

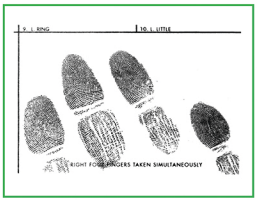
Do not record multiple fingerprint images in a single fingerprint block.

Complete Pattern Area Not Present in Plain Impressions

INCORRECT



CORRECT



Biometric Services Section Customer Service Group (304) 625-5590

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Appendix C

Tips and Tricks for Fingerprinting Difficult-to-Print Individuals

POSTMORTEM KIT

Consists of a “spoon,” “finger straightener,” and a “spatula.”

*Enables you to obtain a legible set of fingerprints from abnormal situations.

POSTMORTEM RECORD STRIP HOLDER

This no-smudge, postmortem record strip holder is designed to hold FC345 or FC543 card strips (see page 42) for successful fingerprinting of the deceased. Dimensions: 5 3/4" x 1 1/2" x 3/4". Weight: 2 oz. (57 g).

Leading Particulars
- Material: Cold-rolled steel
- Finish: Vinyl-clad aluminum black

No. PMNS60

POSTMORTEM INKING TOOLS

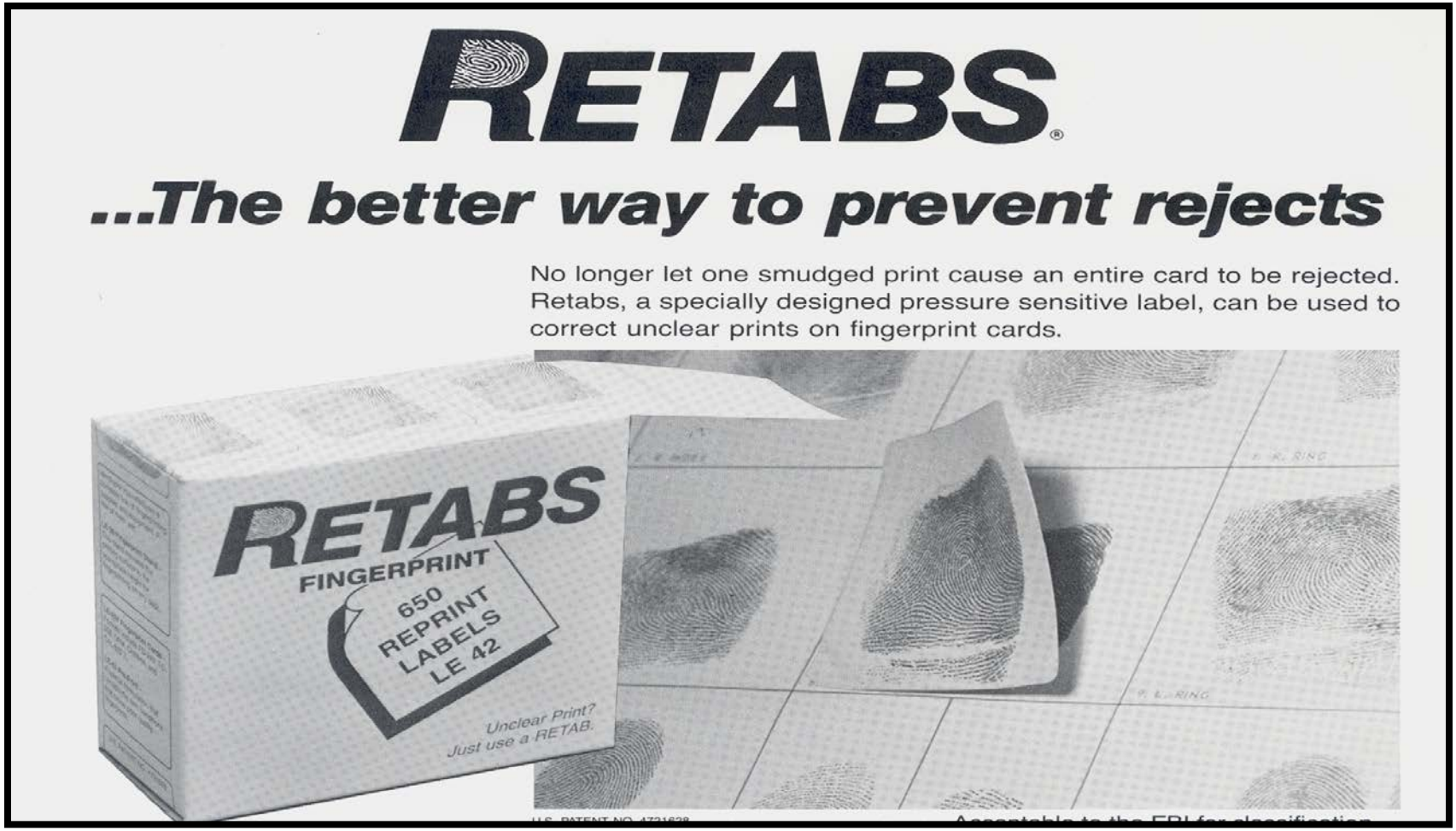
Designed specifically for taking fingerprints of the deceased, these finger-sized, pre-inked Porelon® pads greatly simplify the tas of inking immobilized fingers. They permit rapid, efficient and uniform finger inking. A rugged, anodized-aluminum case assure years of service. Pad elements are easily replaceable. Dimensions: 6" x 1 13/16" x 1/2". Weight: 2.8 oz. (80 g).

Leading Particulars
- Material: Brushed, nickel-plated steel
- Cover: Slide-on friction fit

No. PM283 with cover removed

An operator inks a finger with the No. PM283 Postmortem Inking Tool prior to recording print.

Using the ink and paper method, retabs may be used to reprint fingerprints (use up to two retabs per fingerprint block). For Live Scan, the image can be deleted and retaken.



SUGGESTIONS FOR TAKING LEGIBLE FINGERPRINTS

- Recommended height for fingerprinting is thirty-nine inches from the floor.

- Fingers must be clean and dry. Wiping the individual's fingers with an alcohol swab and then drying them should prevent perspiration from being a problem.

- Individual's occupation may have cause a wearing down or rough surface on the fingerprints. Use a softening agent or ridge builder to enhance the ridge detail.

COMMON PROBLEMS:

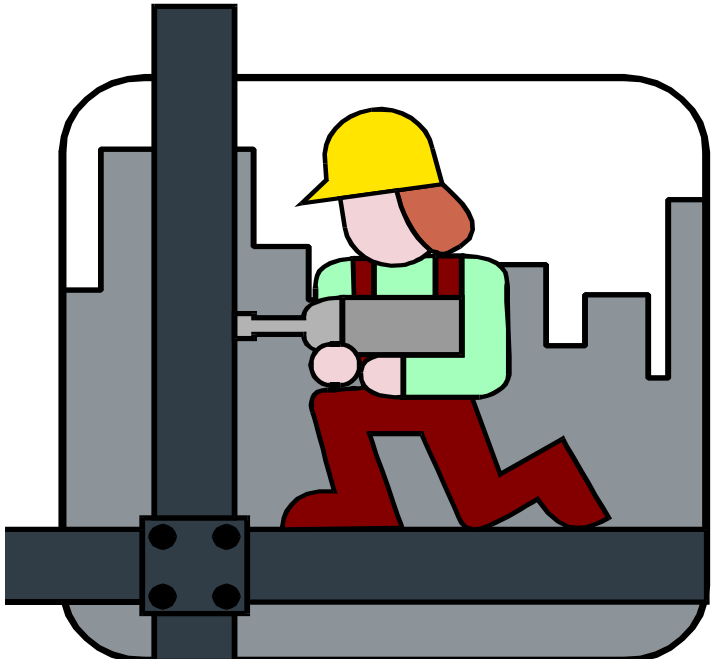
Sweaty Hands

SOLUTION:

Individually wipe each finger with alcohol.

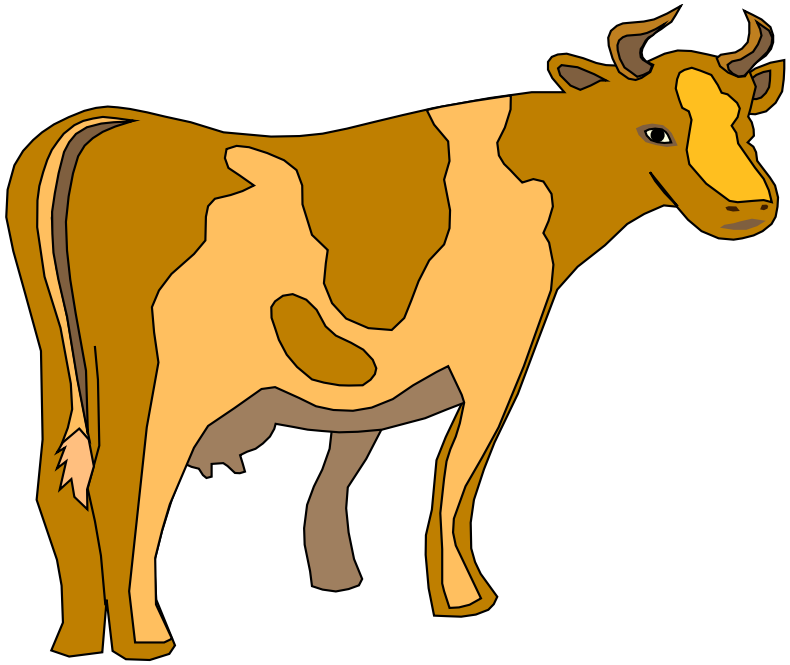
COMMON PROBLEMS:

Occupational Hands



SOLUTIONS:

- **Apply Less Pressure/ Ink**
- **Softening Agents**
- **Ridge Builder**
- **Milk the fingers**



FEDERAL BUREAU OF INVESTIGATION

CJIS DIVISION

RESOURCES MANAGEMENT SECTION

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