



MNPD Crime Laboratory

Latent Print Technical Procedures Manual



Metropolitan Government of Nashville & Davidson County

Police Department



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1 Administrative Processing and Storage of Latent Evidence

1.1 Scope

Describes the latent evidence workflows as received, administratively processed, and stored by the Latent Print Unit (LPU).

1.2 New Latent Evidence

Latent Print Unit personnel retrieve latent evidence from the Crime Lab Evidence Receiving Unit (ERU) upon notification from the ERU that new evidence has been received into the Lab. (Evidence that was received prior to November 2014 was routed directly to the Latent Print Unit and did not receive an Evidence Storage Section (now Division) barcode).

Latent evidence in the form of lifts is typically received in a sealed MNPD Latent Evidence submission envelope. However, there are instances such as when known standards are submitted as evidence that the Latent Evidence submission envelope is not utilized. The preferred manner for receipt of these items are sealed packaging from the ERU. The seals of evidence received are initially checked by ERU personnel at the time of submission and again by the LPU personnel upon receipt.

Evidence in the form of checks or other documents such as collected knowns (postmortem, major case prints, etc.) may be hand-delivered in some instances. If LPU personnel are not available to take custody of the evidence, laboratory personnel will advise the detective/investigator to return at a later date when LPU personnel are available or to submit through the Evidence Receiving Unit. Hand-delivered evidence in these forms may be received in an unpackaged condition and will be entered into the Laboratory Information Management System (LIMS), barcoded, scanned to the Digital Evidence Management Software (DEMS), and a note will be made in the electronic casefile to initiate the chain of custody record using the Evidence Transfer Log ERU form. The Evidence Transfer Log will indicate the incident number, date, and description of the evidence. A notation of the condition it was received will be placed in the LIMS "Evidence" tab "Notes" section by LPU personnel. All items are maintained in the Latent Print Unit vault after completion of examination unless otherwise requested by the detective/investigator.

Digital evidence collected by CSI field units or the Evidence Processing Unit (EPU) is submitted to the Latent Print Unit via the Digital Evidence Management Software (DEMS), typically by email notification to the Latent Print Unit at CrimeLabLPU@nashville.gov. The email received will be maintained within unit email folders and uploaded to LIMS (along with the EPU report if attached in the communication).

Upon receipt, and thereafter, all latent evidence submissions shall be administratively processed to include documentation of chain-of-custody transfers.



The chain of custody for submitted digital evidence from CSI and the EPU is tracked and maintained in DEMS/Foray. The images will be itemized in LIMS for reporting purposes, initiating a transfer first from the DEMS storage location to the LPU personnel creating the Administrative Processing Request to allow for itemization. The intended disposition will be DEMS for the evidence, and it will be "Returned" to this storage location at the completion of the initial administrative processing. All subsequent examinations and COC transfers by other LPU personnel will be documented in DEMS for this evidence type and will not require a COC record in LIMS.

Copies of known standards for comparison requests may also be received by the LPU through email communication. If the fingerprint or palm record(s) will be used in comparisons and originates from a source other than databases available to the LPU (MNPd archives, federal, and TN state repositories), the record(s) shall be acquired in DEMS and it will be administratively processed as evidence in the same manner as EPU submissions. The email communication will be uploaded to the electronic case file in LIMS.

The latent evidence submissions must bear a unique case identifier. Administrative processing of physical latent evidence **shall include:**

- Numbering the submission envelope to correspond with LIMS – 000 format
 - Initialing and dating the submission envelope
 - Itemizing and barcoding of all lift cards (preferably on the back-information side), photographs or known standards inside the submission envelope. In instances where media is submitted as evidence (such as a thumb drive or disc), barcoding is not required.
 - Digital evidence is not received in a submission envelope and is not barcoded but itemized in LIMS.
- Numbering lift cards/items (preferably on the front) contained in the submission envelope
- Scan envelope and all lift cards to DEMS-[See Appendix A DEMS and Photoshop Instructions](#)
- See [APPENDIX E ADMIN PROCESSING](#) for further Admin Processing instructions

Evidence items received by the Latent Print Unit with notable discrepancies (e.g. latent lift cards missing proper documentation of the investigator's name or initials, incident number, date, and/or surface on which the latent was developed, total number of items listed does not match contents) will be recorded upon intake during administrative and/or latent print request processing. The condition in which it was initially received shall be documented in the case file using images and/or notes. Notable discrepancies may be described in the asset Notes section of DEMS for the submission envelope or item after scanning. Communications with customers to clarify discrepancies will be uploaded to the electronic case file in LIMS.



At the conclusion of administrative processing, latent submissions receive a preliminary assessment of workability. See: [Determining Workability](#). Following a preliminary assessment determination of No Value or Workable Not AFIS Quality, or at the completion of any preliminary database searches for Workable AFIS Quality assessments, latent lift submissions are transferred and stored in the Latent Print Unit evidence vault in a sealed condition.

When physical latent evidence is removed from the vault during any step in the examination or review process, a chain of custody transfer will be initiated. The evidence may remain in the custody of the technician or scientist during the examination process. Evidence should be in custody no longer than 90 days unless circumstances warrant otherwise (which shall be documented in the case notes). Evidence shall be locked in the secured Personal Storage Location of the technician or scientist, or the Latent Print Unit evidence vault at the end of the workday.

At the conclusion of the examination and review process, the evidence will be returned to the vault in a sealed condition. If there are numerous submissions, the examiner will ensure the evidence is in the appropriate submission envelope prior to sealing. The chain of custody is maintained through internal transfers.

Note: Examinations of digital copies of latent lift cards and latent photographs may constitute the start of the examination process, with the COC being documented in DEMS/Foray for the assets. The LIMS COC record will begin only when the physical evidence is removed from the vault.

Note: Transfers of evidence to and from the LPU vault location will occur inside the vault area utilizing the computer located in the LPU vault.

Evidence may remain unsealed for up to 12 months if the case is currently in process of examination/analysis or reviews. These instances may be stored unsealed or with a temporary/convenience seal for up to one year if considered in process; however, at the conclusion of the review process, the evidence will be resealed at that time. If sealed evidence is removed from the vault for additional examinations, it will be re-sealed at the conclusion of the examination and review process prior to returning to vault storage.

Latent evidence may be moved to secure off-site storage 60 months following receipt. Latent evidence submissions from agencies other than MNPDP are received in sealed MNPDP Latent Evidence envelopes and the chain of custody is documented in the same manner as MNPDP submissions.

Known standards retrieved from MNPDP files or requested from the federal or state databases for comparison purposes are considered exam records and bear a unique identifying number (such as OCA – Originating Case Agency or FBI number, or SID- State Identification Number).

Known standards from sources other than available database files are considered evidence.

1.3 Old Latent Evidence



Old latent evidence which does not bear an ESD (Evidence Storage Division) barcode will be processed in the same manner as new latent evidence, with the following additional steps:

- File>New Case>select Agency (Apply to generate the Lab Case Number)
- Add Evidence of the Submission/envelope
- Initiate internal Chain of Custody transfer (vault to examiner)
- Apply submission/envelope barcode

Submissions received prior to 2015 which are sealed and marked as no value will be processed in LIMS and DEMS for the submission envelope only.

1.4 Transfers of evidence out of the Latent Print Unit

Latent evidence collected by MNPDP may be released to the assigned MNPDP investigator, the submitting Officer, and/or the courts, as circumstances require. If a latent evidence submission will be temporarily or permanently removed from the Latent Print Unit vault (example: admitted as evidence in court), transfers of custody shall be recorded as follows:

- Record the transfer in LIMS, including explanation in the Transfer Notes
- Complete an Evidence Transfer Log form, including signature and transfer information
- Complete the LIMS transaction (without barcode) using the location (example: Court Storage) and time from the log
- Upload completed Evidence Transfer Log to LIMS Attachments

1.5 Release of Latent Evidence

Latent evidence collected by MNPDP may be released to another law enforcement agency only upon written authorization from the assigned MNPDP investigator. The transfer of custody shall be recorded in the case file in the same manner as described above.

2 Determining Workability

2.1 Scope

Describes the process for determining latent evidence workability (commonly referred to as suitability), the standard by which workability is determined, and how workability is documented including any subsequent reviews and changes.

2.2 Procedure- General

Workability of latent evidence is determined using ACE-V methodology in a qualitative/quantitative assessment of Level 1, Level 2, and Level 3 details. The Analysis phase, which determines if the impression is suitable for comparison, is defined in [SWGFAST Document #10, Standards for Examining Friction Ridge](#)



[Impressions and Resulting Conclusions](#). Additional analysis and ACE-V procedural information can be found in the [Workable Submissions section](#) of this TPM.

2.2 Procedure- Preliminary Workability

Upon initial receipt of evidence in the Latent Print Unit, authorized personnel make a preliminary “Workability” determination for each submission during the Administrative Processing of latent evidence. Preliminary workability and triage of incoming latent evidence is the primary function of Latent Print Unit Forensic Technicians but also may be performed by LPU scientists.

For this process, a submission is assessed as “workable” if at least one impression in the submission is determined to be of value for comparison.

Note: There may be instances where there are impressions that are determined by authorized LPU personnel to belong to that of the lifting officer, due to their location (e.g. tape edge) and quality and contrast to lifted area. In those instances, if no other impressions of value exist within the latent lift, the submission will be marked No Value. Regardless, a note should be made for the DEMs image when these observations are made for future review of administrative processing. A consultation or a technical review may be requested at the discretion of the technician/scientist performing the workability assessment.

The preliminary assessment will also determine if the submission contains any AFIS/database quality impressions. If the submission contains AFIS quality impressions, the AFIS Processing procedure will be followed.

NOTE Workability assessments are a format of agency approved simplified reporting and are posted for each submission on the Department’s website (PDWEB>Quick Links>Reports) link for Preliminary Latent Status.

NOTE: Upon case assignment following a 282, the preliminary status determination may change based on the opinion of the reporting examiner.

2.3 Documenting Workability

When documenting preliminary workability of submissions and impressions:

- Observed data of at least one (1) impression shall be marked using the Brush tool in the Photoshop application as follows:
 - Blue markings = observed confident detail
 - Yellow markings = observed cautious detail
 - Red markings = observed agreement in latent and known impressions
 - Other markings/tracings for notable details observed may be added, but should be described in the asset notes so that a reviewing examiner may interpret



Note: The first step in annotating impressions in Photoshop should be adding a Layer (and naming it per the task being completed, e.g. "Analysis" or "Comparison") so that the markings do not go on the background of the image, unable to be removed without erasing the image background (The original image acquired is always saved in DEMS and will not be saved over).

- Impression numbers and other labels for the asset such as UIDs/names should be in red text
- Document impression anatomical area and orientation electronically in red, using anatomical area/orientations listed below
- If Workable-AFIS Quality, label above finger impression: A- (or subsequent alpha designator)
- If Workable-Not AFIS Quality, label above finger impression: A (or subsequent alpha designator)

Note: Palm impressions are typically named below the impression; joints are typically named adjacent to the bracket.

- No Value determinations for overall evidence shall be notated in the DEMS description for the item
- In all cases, orientation and alpha designators shall be marked in a location as near as possible to the impression without obscuring any details of surrounding impressions. However, since markings are made on a copy of the latent evidence for new cases, the original evidence will be readily viewable for future examinations. *Cases prior to 2024 will have a scanned copy of the original evidence as received.*
- Anatomical area and orientation:
 - Fingerprints – half-moon/arc above top of finger
 - Palm prints – bracket to indicate the base of the palm
 - Joints – parallel lines, with half-moon or arrow indicating top of finger direction if known
 - Impression with unknown anatomical location or orientation – encircled
 - If anatomical location/orientation is determined to be most likely a certain way but ultimately uncertain, a dashed bracket or dashed arc may be used for primary orientation. A note should be made in the casefile as to what other orientations were searched in the database or compared (using the AFIS Activity Worksheet, the Latent Exam Worksheet, or DEMS notes)
- Update LIMS data extension field in the Evidence Tab for the submission envelope for workability status of overall submission

2.4 Workability/ Value Guidelines

2.4.1 No Value



For purposes of preliminary analysis, a submission will be determined “No Value” (not workable/not suitable for comparison) when the latent impressions submitted have fewer than 5 minutiae marked in confidence (blue) and lack a focal/anchor point.

- An anchor/focal point may include a delta, core, major crease, or distinctive ridge flow (such as a funnel area in the hypothenar of the palm) from which a clear and accurate ridge count or spatial relationship can be determined in respect to target group(s).

2.4.2 Workable, Not AFIS Quality

A submission may be determined “Workable, Not AFIS Quality” when latent impressions submitted have an anchor/focal point and at least (3) minutiae in proximity to observe relationships between the characteristics. Or, if the submission has only non-database quality “Workable” impression(s) (proximal and medial joints and high tips are not typically entered and searched in the databases and are left to the discretion of the technician/scientist).

2.4.3 Workable, AFIS Quality

At a minimum, a latent impression will be determined to be “Workable, AFIS Quality,” suitable for AFIS entry and search, if it contains at least eight (8) discernable Level Two minutiae in unit relationship. Quantity, as applied in this section, is the number of ridge endings, bifurcations, and dots (minutiae) in contiguous ridges, determined without any reference to known impressions. All minutiae are considered here including indistinct minutiae for which type or exact location cannot be established. Overall quantity of all features in the impression is not part of this measure.

NOTE: The number of minutiae as applied in this section is to assist in the preliminary analysis and triage of latent evidence submitted to the Latent Print Unit. This practice should not be considered as suggesting or endorsing the use of minutia counts as the sole criteria for a decision threshold. Minutia counts remain, however, as a discrete, measurable aspect of all prints and their enumeration is a part of the systematic, formal consideration of quantity.

2.5 Secondary Analysis of Latent Evidence- Forensic Scientist

As cases are assigned following 282 requests for official examination and reporting, the case examiner (authorized scientist) shall conduct a second independent analysis of all requested evidence to determine suitability for comparison and database search. Latent impressions will be annotated as described above in “Documenting Workability.” Any changes to preliminary workability shall be documented, with clear indication of the examiner making the change and may be supplemented with the Notes section in DEMS or in the Latent Exam Worksheet. The case examiner is also responsible for updating any change(s) to the LIMS data extension field for the Evidence, which will update



the Preliminary Latent Status link.

3 AFIS Processing

3.1 Scope

Describes how latent impressions are processed in the various Automated Fingerprint Identification Systems (AFIS) available to the MNPDP Latent Print Unit, which includes MNPDP's local / Davidson county NEC MBIS (Multi-Biometric Identification System), the state database (Idemia MBIS) controlled by the Tennessee Bureau of Investigation, and the FBI NGI (Next Generation Identification) Criminal Justice Information Services (CJIS) databases.

3.2 Procedure- General

Latent Print Unit personnel routinely search newly received evidence or evidence requested for updated database searches in available AFIS databases without the requirement of a 282 Forensic Services Request.

Only authorized personnel may use the AFIS systems. Instructions for use are available in the online Help file of the NEC and Idemia software, as well as [Appendix C Idemia MBIS](#) and [Appendix D ULW](#) Instructions of this manual. The AFIS is considered a reference tool. Viewing the candidate list does not constitute a complete comparison.

AFIS candidate lists provide the unique identifying number (UID) in the form of an OCA (Originating Case Agency), a SID (State Identification Number), or an FBI number for each candidate depending on the database the search is conducted in. Prior to making any identification, a copy of a candidate's known exemplar(s) must be retrieved and used for comparisons. If an image request for exemplar(s) is needed (IRQ or other circumstance), the exemplar should be of sufficient quality for comparisons. On screen side by side AFIS images shall not be used to make final conclusions of identity.

AFIS database performance checks which are performed in the local MNPDP AFIS with impressions where ground truth or an expected result from previously reviewed casework is known are conducted monthly and documented in Quality Management System with the Workflow: LP AFIS Performance Log.

3.3 AFIS Performance Check Instructions

The performance (accuracy and reliability) of the local NEC Automated Fingerprint Identification System shall be checked monthly and documented as



follows:

- A test case AFIS search and resulting identifications will be established for a latent finger impression and a latent palm impression.
- Searches will request no more than ten (10) candidates.
- Search information and candidate lists for test case data are maintained in Quality Management System, uploading with the Workflow: LP AFIS Performance Log.
- The performance check when administered should utilize similar parameters and different operators for each occurrence.
- A Passing result will place the expected test case subject within the list of candidates, but not necessarily at the same rank or score.
- Any Failing result shall be researched for cause and documented in the Quality Management System LP AFIS Performance Log.
- A satisfactory explanation for a Failing result would include a rolled print substitution subsequent to the test case search.
- If there is no satisfactory explanation for a Failing result, the affected workstation(s) will be taken out of service and clearly marked with signage, and the problem reported to the AFIS vendor via NECMBIS@necam.com.
- Only when the workstation is shown by performance check to operate correctly can it be returned to service.

3.4 AFIS Search and Registration

Impressions which are identifiable are typically considered AFIS quality, with the exception of proximal and medial joints and high tips. Consideration should be given to multiple search parameters as needed.

Database searches are documented as follows:

- In the LIMS Evidence Data Extension Field (for incoming new evidence)
- On the AFIS Activity worksheet, which is maintained in the electronic case file
- AFIS Hit or No-Hit Reports (Latent Verify, Match, or however named by system), which are also maintained in the electronic case file
- Print Screen or screen snip to include latent encoding applied by LPU personnel
- For Hits-Side by side with known candidate (either print screen from database software or documented in DEMS)
-

Based on workload and staffing, the supervisor may determine that incoming new evidence receives limited AFIS searches. The extent of this routine (incoming) processing will be communicated to staff and posted in the AFIS Workroom. Examples of levels of processing include:

- Enter only the most probative and/or best evidence
- Enter all AFIS quality impressions
- Enter until a hit is obtained
- Entry level based on crime types being processed



Exam notes shall clearly indicate the extent of AFIS processing in a case by utilizing the AFIS Activity Worksheet.

- The minutiae marked at AFIS entry is considered to be a documented analysis of features observed when determining workability. See Determining Workability procedure.

Unidentified latent impressions determined to be AFIS quality and searched shall be registered in the respective AFIS database(s) unless circumstances warrant otherwise. For impressions that are searched but not registered, or not searched in an available database, reasoning should be notated on the AFIS Activity worksheet and/or the Latent Exam Worksheet. An example of circumstance may be the poor quality/lack of information in the impression searched. For the NGI database, impressions may be searched at multiple orientations but should be registered only in the most likely orientation(s). The AFIS Activity Worksheet shall reflect all entries and their search results.

3.5 Reverse Searches

The local and state databases are checked on a weekly basis for reverse search potential hits via TLI (Ten Print to Latent Inquiry) and RVQ-Reverse Verification Queue responses.

3.5.1 Local AFIS TLI Searches

In the NEC application, filter jobs as follows:

- Dates: Remove all dates
- Package Type: Tenprint
- Phases: TLI, TLIP
- Processes: Verify
- Status: Wait
- Apply

Reverse hits from any database shall be processed in the same manner as forward search hits, with the following exceptions:

- If impression has been previously identified, remove registrations from all applicable databases.
- LPU personnel clearing the Reverse or TLI queues shall notify the original examiner of any potential reverse hits to be reviewed. Completion of reverse hit documentation may be assigned to a different LPU staff member than the individual who launched the initial search depending on circumstances (i.e. urgency, staffing, or if the original examiner is no longer with the unit). If the LPU personnel is no longer employed, the reverse hit will be reassigned for review.
- Bring to the attention of a supervisor any pending LIMS Latent Print Requests in the same case. Also notify the analyst if the pending



- LIMS request is in assignment.
If the impression is from a case in which it is known that the statute of limitations has passed, it may be determined that the notification is not needed. Documentation of the potential hit will be retained in LIMS if the case has already been created in the system, or a shared file location such as the L:Drive. If uncertain about statute, LPU personnel may inquire with investigator and/or departmental contact and retain the communication in LIMS or a shared file location if determined it is in fact past statute or if investigative leads are not being pursued.

Reverse hit verify/match reports shall be saved in LIMS or an electronic shared folder prior to disposition for reference and retrieval to prevent loss of hit documentation.

Note: Reports from databases are not needed in instances of No Hit in a reverse queue. No additional documentation is required.

3.6 ULW/ NGI Searches

Searches of the FBI's NGI database are determined on a case-by-case basis, with consideration given to the following: results of other database searches and comparisons, offense, location and quality of latent, and/or other pertinent information received from the Requestor. It is considered a reference tool with comparison and result guidelines as with the local and state databases.

NGI submissions may be submitted via the Universal Latent Workstation (ULW) software, by submitting a Latent Friction Ridge Image Search (LFFS) in the state database, or by a remote Latent Inquiry (LI) via the local/state databases. If utilizing the ULW software / terminal, see [Appendix D ULW Instructions](#) for creating and reviewing an FBI compliant ULW file.

NGI submissions shall be documented in the case file in the same manner as local and state AFIS searches.

To comply with ULW requirements, all impression images searched using ULW software shall be of either 500ppi or 1000ppi resolution. There is a conversion option when submitting the search to meet this requirement if the original latent file is of a different resolution.

ULW search and response files are routed through the ULW Transaction Manager as entries and searches are conducted. Unsolved Latent Match Response (ULM), or reverse hits, should be checked on a weekly or monthly basis by each user in Transaction Manager, and shall be checked at least monthly using the ADMIN login for overall review of any remaining ULM responses not yet dispositioned in the ULW Software.



ULW software updates are coordinated with the Crime Lab IT Manager.

4 AFIS Notifications

4.1 Scope

Describes the processing of initial and updated AFIS searches and resulting Notifications.

4.2 Procedure- General

As a result of preliminary database searches on incoming evidence, AFIS hits may occur prior to the submission of any 282 request. AFIS Notifications may also be released when a reverse hit in one of the databases occurs, or when updated database searches are requested.

AFIS Notifications include reports of database hits and no hits that have been reviewed by an authorized examiner or supervisor. Such Notifications shall clearly indicate that a complete examination has not been conducted if comparable impressions remain, and that additional examinations and official reports are available upon request.

An AFIS Notification with a hit reported as an “association” indicates that a documented verification review process was not conducted as it applies to marking identification decisions (see [Identifications – Documentation and Notifications](#)). Reporting an association also indicates that a technician who is not authorized to report identifications may be one of two LPU staff members involved in releasing an AFIS Notification with that language.

Note: Association is the decision that sufficient agreement was found during comparisons to disposition the candidate with a hit result, and a standard is included as a potential source for the latent impression.

4.3 AFIS Notification Instructions for Hits

Following one or more searched impressions resulting in a hit:

- The Technician or Scientist will create and add a new AFIS Processing Request type to the LIMS case. **All** evidence items from the submission(s) received and processed will be related to that request for the incident. The assigned analyst field will remain blank/unassigned (if not proceeding as the reporting scientist, see below).
 - Request Date is the date the request is created. Exam start date is the date examinations began for the reporting examiner (date



- reporting examiner began analysis or began review of evidence for accuracy of scanned evidence vs. physical evidence).
 - Agency representative selected for the Attention on the Notification will be based on the crime type (refer to Departmental Contacts reference document in QMS).
 - The AFIS processing request will remain unassigned (unless proceeding as the reporting scientist) so in the event that a notification of a hit involving digital images is missed, checking the unassigned AFIS processing requests in LIMS regularly (utilizing the ANALYSIS tab) will ensure AFIS hits ready for scientist examination are not overlooked.
 - Upload documentation in the appropriate LIMS Request folder for the AFIS Processing Request, which shall include AFIS Activity Worksheet(s), Workability Worksheet or Latent Exam Worksheet, print screens of encodings, Hit Report(s), and include No Hit Report(s) if applicable, for all searches conducted. The database reports should be combined into one PDF document for ease in the review process and for case file uploading.
 - Update CC list in LIMS to include lifting officer and any additional applicable Departmental Contacts for reporting purposes.
 - Update the Evidence Data Extension Field (DEF) for the Evidence to reflect the AFIS search results (this updates the Preliminary Latent Status).
 - Update the DEF for the AFIS Processing Request.
 - **AFIS Processing Request DEF shall be utilized for total testing metrics collection; no longer utilizing Admin Processing requests for AFIS quality submissions in testing (intake for scanning and itemizing each submission will still utilize an Admin Processing request).**
 - Initial and date the submission envelope and initial the lift card(s).
 - Upload associated known(s) from hit candidate(s) to DEMS.
 - Follow the Documenting Latent Analysis and Comparison instructions in Appendix A DEMS and Photoshop Instructions for a side-by-side comparison mark-up.
 - A side by side of the latent and hit candidate to include the technician or scientist corresponding markings applied may be generated and a screenshot may be created using the relevant AFIS database software and uploaded to LIMS in lieu of a side-by-side image created in photoshop and uploaded into DEMS.
- Note: This is an option for the technician or scientist conducting the initial search only to document the association. These markings must be manually applied, not database generated. The reporting scientist will still have to conduct a side by side in DEMS between the latent and known exemplar.*
- Scan the back of the lift card(s) for all related evidence in the hit



submission(s) to DEMS for subsequent review process if not scanned in during initial administrative processing.

Note: Additional submissions under the same incident that did not receive initial scanning of the backs of lift cards prior to November 2025 will be related to the report as evidence received by the LPU, but do not need to be pulled from the vault files to have the backs of the lift cards scanned.

- Return all evidence to the vault. The latent lift submissions shall be filed into a bin in the vault intended for AFIS hits ready for reporting (if not the reporting scientist).
- For cases involving digital image submissions resulting in hits, the Crime Lab LPU email communication used to initiate the administrative processing will be moved to the appropriate folder in the inbox, and an email may also be sent to authorized scientists to notify that it is ready for examination.

4.4 Reporting Scientist Instructions for AFIS Hits

Note: The reporting scientist may be the same individual above if the scientist conducted the preliminary AFIS entry and continues to the reporting phase.

- The reporting scientist will pull the lifts from the vault or access the digital images in DEMS and review all evidence for suitability, documenting impressions of value for comparison on the Latent Exam Worksheet and marking of value impressions in accordance with the TPM.
 - Each item in DEMS for the incident should be analyzed and digital markings shall be created as described in [Documenting Workability](#) and [APPENDIX A DEMS and Photoshop Instructions](#).
 - **For Reverse Hits or Updated Database Searches:** Only the hit impression will be analyzed and compared, with an LEW created for only the hit impression(s). The remaining evidence does not need to be reviewed for suitability by documenting impressions of value for comparison on the Latent Exam Worksheet and marking of value impressions.

Note: An exception to this is if the hit occurs in an incident where a Latent Exam Worksheet has already been completed for a full analysis of the submission (or a complete analysis with mark-up of the evidence was conducted in DEMS) during administrative/AFIS processing and not yet reported.

- The physical lifts will be initialed, and the exterior of the envelope will be dated and initialed. This will indicate that the examiner has reviewed the images scanned into DEMS and acknowledges that they are a fair and accurate representation of the physical evidence, and that all lifts are scanned in at least at 1000dpi (front).
 - The physical lifts can be filed back in the vault as soon as the initial review is complete. They do not need to remain in the



examiner's custody for the duration of the examination. It is acceptable and expected that all examinations will be completed on the digital copy from this point.

- The reporting scientist will review all AFIS hits. They shall enter any additional AFIS quality impressions if needed.
 - **For Reverse Hits or Updated Database Searches:** No additional AFIS searches of AFIS quality impressions will be conducted at the time of processing the reverse hit or in instances of updating database searches for previously registered impressions.
- The reporting scientist shall perform comparison and evaluation for each hit utilizing their analysis image created. They shall generate side by side comparison images for each identification. Identifications will be documented as described in [Identifications – Documentation and Notifications](#).

Note: No manual comparisons will be conducted for the reporting of AFIS Processing requests for impressions that did not hit in the database(s).

- Drafting the Report: Refer to the AutoText for LIMS reference document in the Quality Management System (QMS) regarding AFIS Notifications reporting for drafting the notification and the unit Reporting Guide reference document located on SharePoint if needed.
 - The AFIS Notification will clearly indicate what related submissions were not examined and reviewed at the time of the AFIS notification.
- The reporting scientist will upload their Latent Exam Worksheet to LIMS and set the Draft Complete milestone to indicate that the case is ready for review. For this workflow, this may be accomplished by also assigning Technical Review in LIMS.
- Return all evidence to the vault in a sealed condition.

Prior to issuing an AFIS Notification, a series of reviews shall occur.

4.5 Verification/ Technical/ Administrative Reviewer Instructions- AFIS Notifications for Hits

The verifying scientist will also be the technical and administrative reviewer for AFIS Notifications involving hits.

- Initiate the AFIS Notification Review Checklist and complete the review of workability (suitability) and identifications per the written procedure for documenting [Verification](#) and [Identifications](#).
 - **For Reverse Hits or Updated Database Searches:** The review form should include a note that it is a reverse hit or an updated database search, so workability of remaining evidence was not reviewed (if applicable).
- Once all corrections have been remediated and tracked (if applicable) and the LIMS AFIS Processing request has been reviewed for accuracy for the drafted AFIS Notification(s) and supporting documentation in the appropriate request folder in LIMS, sign and date the completed AFIS



Notification Review Checklist

- Update any applicable DEF fields and set the Tech and Admin Review milestones in LIMS, releasing the report
- Verify storage in the electronic case file, or scan into the electronic case file:
 - Signed review form(s)
 - AFIS Notification Review Checklist
 - AFIS Activity Worksheet
 - AFIS Hit Report and No-Hit Reports, if applicable
 - Latent Exam Worksheet
 - Workability Worksheet
 - Any additional file contents

4.6 AFIS Notification Instructions for No Hits

Following one or more searched impressions resulting in a no-hit scenario for submissions received in an incident during initial administrative processing:

- The Technician or Scientist will create and add a new AFIS Processing Request type to the LIMS case. **All** evidence items from the submission(s) received and processed will be related to that request for the incident. If not proceeding as the reporting staff member, the assigned analyst field will remain blank/unassigned. *The staff member conducting AFIS searches in no hit scenarios for the incident **should be** the reporting staff member, unless circumstances do not allow or are redirected by the unit supervisor (staffing, workload, etc.).
 - Request Date is the date the request is created. Exam start date is the date examinations began for the reporting staff member (date analysis began).
 - Agency representative selected for the Attention on the Notification will be based on the crime type (refer to Departmental Contacts reference document in QMS).
- Upload documentation in the appropriate LIMS Request folder for the AFIS Processing Request, which shall include:
 - AFIS Activity Worksheet(s)
 - Latent Exam Worksheets or Workability Worksheet
 - Print screens of encodings
 - No Hit Report(s), for all searches conducted (It is recommended that the database reports be combined into one PDF document for ease in the review process and for case file uploading to LIMS).
- Update CC list in LIMS to include lifting officer and/or agency representative for the submission and any additional applicable Departmental Contacts for reporting purposes.
- Update the Evidence Data Extension Field (DEF) for the Evidence to reflect the AFIS search results (this updates the Preliminary Latent Status).
- Update the DEF for the AFIS Processing Request.
 - **AFIS Processing Request DEF shall be utilized for total testing metrics collection; no longer utilizing Admin Processing requests for AFIS quality submissions in testing (intake for scanning and**



itemizing each submission will still utilize an Admin Processing request).

- Initial and date the No-Hit submission envelope and initial all lift card(s).
- Scan the back of the lift card(s) for all related evidence received in the no-hit submission(s) to DEMS for subsequent review process if not scanned in during initial administrative processing.
- Return all evidence to the vault in a sealed condition (if reporting).

4.7 Reporting Staff Member Instructions for No Hits

The reporting staff member should be the same individual above if the staff member conducts the preliminary AFIS entry.

- If a different staff member is reporting, then they will pull the lifts from the vault or access the digital submission images from CSI/EPU in DEMS and review all evidence for suitability, documenting impressions of value for comparison on the Latent Exam Worksheet or Workability Worksheet and marking of value impressions in accordance with the TPM.
 - **For Updated Database Searches:** In instances of updating database searches of previously registered impressions, it is not required to review all evidence for suitability, since this is not initial processing. Evidence does not have to be pulled if previously reviewed after initial administrative processing (scanning and itemization of evidence).
- Each item in DEMS for the incident should be analyzed and digital markings shall be created as described in [Documenting Workability](#) and [APPENDIX A DEMS and Photoshop Instructions](#).
 - **For Updated Database Searches:** Only impressions that are searched will be analyzed.
- The physical lifts will be initialed, and the exterior of the envelope will be dated and initialed. This will indicate that the staff member has reviewed the images scanned into DEMS and acknowledge that they are a fair and accurate representation of the physical evidence, and that all lifts are scanned in at least at 1000dpi (front).
 - The physical lifts can be filed back in the vault as soon as the initial review is complete. They do not need to remain in the examiner's custody for the duration of the examination. It is acceptable and expected that all examinations will be completed on the digital copy from this point.
 - **For Updated Database Searches:** Physical lifts/envelope do not need to be initialed and dated if previously reviewed after initial administrative processing (see above).
- Drafting the Report: Refer to the AutoText for LIMS reference document in Quality Management System (QMS) regarding AFIS Notifications and Reporting Guide reference document on SharePoint if needed.
- The reporting staff member will upload their Latent Exam Worksheet or Workability Worksheet to LIMS and set the Draft Complete milestone to indicate that the case is ready for review. For this workflow, this may be accomplished by also assigning Technical Review in LIMS.

Prior to issuing an AFIS Notification, a series of reviews shall occur.



4.8 Verification / Technical /Administrative Reviewer Instructions – AFIS Notifications for No Hits

The verifying scientist will also be the technical and administrative reviewer for AFIS Notifications involving no hits.

- Initiate the AFIS Notification Review Checklist and complete the review of workability (suitability) and database entry.
 - Check DEMS images to verify that all W-AQ impressions in the no-hit submission have been included in database searches (based on the unit's posted level of searching for incoming new evidence) and that the extent of searches is properly described/selected on the AFIS Activity Worksheet.
 - **For Updated Database Searches:** The review form should include a note that it is an updated database search, so workability of remaining evidence was not reviewed (if applicable).
 - For review of impressions entered and searched in the database(s): The reviewer will review the AFIS packet(s) of searched impression(s) that has been uploaded to LIMS to review search parameters (e.g. minutia placement, core/axis, anatomical area selected).
 - If the reviewer determines the original AFIS entry contains an error that would potentially affect the returned search or outcome of the search, return it to the original technician or scientist for removal of registration and re-entry. (Examples: core and/or
AXIS placement is off where it could affect the accuracy of search results;
orientation of
impression is incorrect; anatomical area selected is incorrect).
 - The reviewer may enter any additional AFIS quality impressions (or additional database inquiries of impressions searched) at their discretion OR return to reporting staff member for additional entry directed upon review. If adding searches, the reviewer will add notes to the original AFIS Activity Worksheet and update with review and additional entry OR add an additional AFIS Activity Worksheet. The updated or new worksheet will be uploaded into the LIMS electronic case file for the related request and appropriately named.
- Note: If a hit results due to additional database searches, the AFIS Notification Instructions for Hits procedure will be followed.*
- Once all corrections have been remediated and tracked (if applicable) and the LIMS AFIS Processing request has been reviewed for accuracy for the drafted AFIS Notification and supporting documentation in the appropriate request folder in LIMS, sign and date the completed AFIS Notification Review Form.
 - Verify documentation storage in the electronic case file (LIMS):
 - Signed review form(s)
 - AFIS Notification Review Checklist
 - AFIS Activity Worksheet
 - AFIS No-Hit Reports
 - Latent Exam Worksheet or Workability Worksheet



- Any NV impressions will be circled by the verifying examiner on their LEW or WW to indicate agreement with the NV determination and the worksheet with verification markings shall be uploaded to LIMS as well.
- Any additional file contents
- Update and review any applicable DEF fields and set the Tech and Admin Review milestones in LIMS, releasing the report.

5 Request for Service

5.1 Scope

Describes how requests for service are received and prioritized in the Latent Print Unit.

5.2 Procedure

Requests for Latent Print Unit services are as follows:

5.2.1 MNPD form 110 (Property/ Evidence Report)

Communicates requests for the MNPD Evidence Storage Division (ESD) to transport latent evidence items to the MNPD-CL Evidence Receiving Unit.

- Evidence is subsequently transferred to the Latent Print Unit
- All new submissions receive Administrative Processing, which includes a preliminary assessment of workability.
- Workability information is posted on the Department's website link for Preliminary Latent Status.
- All new submissions determined to be workable, AFIS quality receive AFIS Processing, which includes multiple levels of database entry and search available for AFIS quality impressions.
 - Note: For workability assessment and AFIS entry of digital evidence submitted via the Digital Evidence Management Software (DEMS), an email is sent to the Latent Print Unit at CrimeLabLPU@nashville.gov

5.2.2 MNPD Form 282 (Forensic Services Request)

Typically communicates requests to compare specific known exemplars to latent evidence and are initially submitted to the MNPD-CL Evidence Receiving Unit (ERU).

- The ERU processes and enters 282 requests for Latent Print examinations into LIMS. All Latent Print requests should be supported by a corresponding Form 282 in the LIMS Attachments and on the Crime Lab secure server, with the exception of LIMS requests generated by LPU personnel. For example, LPU personnel may enter a LIMS request to report comparisons of deceased prints or AFIS Notifications, or as a result of an additional request with supporting communication



- between the LPU and investigator
- Only those requests which include a named suspect(s) or other related individuals, however named, require an Official Latent Examination Report, and requests which are submitted without a direct comparison request are considered as requests for AFIS processing.
- The inclusion of victim's names on the 282 request is considered for information purposes only unless the Special Notes section describes the need to conduct comparisons of victim standards. The Official Latent Examination Report will clearly indicate which related individuals were compared.

5.2.3 Request from CSI/EPU

Requests for the CSI Evidence Processing Unit (EPU) to process items for latent prints are initially submitted to the MNPd-CL Evidence Receiving Unit via Form 282.

- The Latent Print Unit receives notification of any new requests that result from EPU processing as Latent Print requests are entered by ERU into the LIMS.

Note: A secondary 282 request must be submitted after evidence is processed by EPU for Crime Laboratory testing to occur.

- All Latent Print requests should be supported by a corresponding Form 282 in the LIMS Attachments and on the Crime Lab secure server.
-

On occasion, and as the result of a 282, the Latent Print Unit may request that the ERU facilitate the submission of additional test items other than latent evidence for comparison, such as checks and known exemplars from other agencies.

5.2.4 Request From Tenprint Unit

There may be instances in which LPU personnel are requested by the Tenprint Unit to assist in database searches only, as needed. At no time in these instances will the Latent Print Unit member be involved with the actual processing and direct comparison of the tenprints. The database search results (Hit or No-Hit Reports, along with an AFIS Activity Worksheet) will be uploaded to DEMS and the Tenprint Unit notified via email that the searches have been completed. If a hit results, it will be provided as an association that the Tenprint Unit will confirm (knowns will also be uploaded if needed).

5.2.5 Unknown Deceased/ Identity Confirmation

Requests for identification of deceased individuals from the Medical Examiner's Office are frequently submitted to the Forensic Services Division for an identity confirmation



(comparison to a presumed identity) or database searches if there is no presumed identity. These requests are initiated by an email from the Medical Examiner's Office to the Tenprint Unit. Submission of postmortem impressions that are determined to be of poor quality, often due to decomposition, may require assistance from a latent examiner and will be forwarded to the Latent Print Unit for further testing and reporting.

A Latent Print Unknown Deceased request is initiated in LIMS for reporting purposes and an examiner is assigned to the case when these instances are forwarded from the Tenprint Unit. These cases are expedited to facilitate the requesting Medical Examiner's ability to release a body from its custody.

The postmortem impressions are acquired into DEMS (Foray) by a member of the Latent Print Unit (if not already acquired by a member of the Tenprint Unit) where they are stored as evidence and available for the examiner to conduct an examination and complete the request. A copy of the email initiating the request will be obtained from the Tenprint Unit and scanned into the LIMS case images folder. The postmortem impressions are compared with the known impressions if there is a presumed identity and evaluated for positive identification. The comparison is then verified by a second qualified examiner. If the postmortem impressions are determined to be no value for comparison, they will be reviewed by a second qualified examiner and the submitting agency will be notified. See Workable Submissions-Examinations, Methodology and Conclusions in this manual.

If an identification is determined, the examiner will clearly label the postmortem impressions with the following minimum information:

- The "ident" symbol ø adjacent to each identified postmortem impression (labeled PM1, PM2, PM3, etc.)
- The fingerprint number (or hand/foot area) of the known exemplar
- The OCA number (or other unique identifying number) of the known exemplar
- The initials of the examiner
- The date of the identification

The known impressions will also be labeled with the following:

- The "ident" symbol ø adjacent to each identified known impression
- The postmortem impression (i.e., PM1) identified adjacent to each identified known impression
- The initials of the examiner
- The date of the identification

Appendix A DEMS and Photoshop Instructions for Documenting latent analysis and comparison will be utilized when an identification is determined for postmortem impressions.

In the event the comparison results in an exclusion, or there is no presumed identity, database searches are conducted. If the database search generates a



“hit”, the same comparison, evaluation, and verification steps will be performed. This request type does not require blind verification.

When postmortem impressions are forwarded to the Latent Print Unit, the chain of custody will be documented first by the email chain and continued in the DEMS (Foray) Chain of Custody of the acquired postmortem impressions, as well as LIMS if barcodes are created for a printout of the postmortem impression for documentation in the examination process. Copies of the printout with markings if utilized will be retained in DEMS (Foray) and/or LIMS upon completion of the examination.

A copy of the reported results from LIMS will be sent to the Medical Examiner’s office in an encrypted email.

5.2.6 Record Consolidation and Manual Confirmations

Additional instances involving assistance to the Tenprint Unit would include record consolidations and manual confirmations of poor-quality record (known) impressions. These instances will be initiated with an email from the Tenprint Unit requesting the comparison of records already uploaded in DEMS. An examiner from the LPU will be assigned. Analysis and comparison of these records will be documented in DEMS by the assigned examiner and results reported back to the Tenprint Unit supervisor via email communication following a verification review by another qualified examiner.

5.2.7 Requests for Updated Database Searches

There may be instances in which members of the MNPd, especially those in the Cold Case / Missing Persons Unit, request updated database searches only and not direct comparisons. These types of requests do not require a 282 may be fulfilled and documented through email correspondence with the Latent Print Unit that will be uploaded to LIMS case attachments. A new Admin Processing Request and/or AFIS Processing Request shall be created to document the work conducted and for the purposes of metric collection. Any associated work product (AFIS Activity Worksheet(s), Hit/No-Hit Report(s)) will be added to the Requests folder for the incident in LIMS. If no LIMS case exists yet for the incident, then the case will be created in LIMS for the storage of documentation and reporting.

Note: Updated database searches may also be determined necessary by the LPU following database upgrades and/or migrations and will be communicated to the customer. Refer to Section 4 AFIS Notifications for the reporting of updated database searches.

6 Request for Service from Non-MNPd Agencies

6.1 Scope

Describes requirements for examining latent evidence for other agencies.



6.2 General

The analysis and comparison of latent evidence from non-MNPD agencies is allowed as described in the [Crime Lab Quality Manual](#) (7.1 Review of requests, tenders, and contracts).

6.3 Database Search Requests

On occasion, non-MNPD agencies may request database searches to expand search parameters from the databases available to the requesting agency, especially if it is believed that the suspect was previously arrested in MNPD jurisdiction.

For database search requests the evidence is generally received digitally via secure email and/or link to shared filed software due to size and/or image quality.

Note: A request for an MNPD incident number will need to be approved and facilitated by the Laboratory Director or FSD Director in these instances. Once approved, an MNPD Officer/Investigator will be identified as the liaison and will follow the same process as MNPD requests for MNPD-CL services.



7 Workable Submissions- Examinations, Methodology, and Conclusion

7.1 Scope

Describes methodology for conducting examinations and acceptable conclusions.

7.2 Procedure- General

Friction ridge impression examinations are conducted using the Analysis, Comparison, Evaluation, and Verification (ACE-V) methodology, utilizing a qualitative and quantitative assessment of Level 1, Level 2, and Level 3 details.

The examination of friction ridge impressions and the resulting conclusions are based on ridge flow and ridge paths; the location, direction, and spatial relationships of minutiae; creases or wrinkles, and scars; and ridge structure (shape, texture, and morphology).

Application of ACE-V includes observations, measurements, assessments, decision making, and documentation, which are enabled by the education, training, skill, and experience of the examiner.

APPENDIX A DEMS and Photoshop Instructions will be utilized to preserve documentation digitally in conjunction with the Latent Exam Worksheet for the ACE-V methodology as described in this section.

ACE-V is not generally applied as a strictly linear process because it may include a return to any previous phase.

Numerous factors affect the qualitative and quantitative aspects of friction ridge impressions. An examiner shall be mindful of these factors while conducting examinations and that they influence friction ridge impression reproducibility. These factors may cause an apparent dissimilarity between impressions from the same source. Failure to properly assess the occurrence and influence of these factors could result in misinterpretation.

7.2.1 Analysis

Analysis is the qualitative/quantitative assessment of an impression to determine its value based on the observed presence and location of friction ridge features in regard to Level 1, 2, and 3 details.

Level 1 detail refers to the overall ridge flow. Level 2 detail refers to individual friction ridge paths, friction ridge events (e.g., bifurcations, ending ridges, dots, and continuous ridges), and their relative arrangements. Level 3 detail refers to ridge structures (edge shapes and pores), and their relative arrangements. Creases or wrinkles, scars, warts, incipient ridges, and other features may be reflected in all three levels of details.



The assessment evaluates the quality of features (clarity of the observed features), the quantity of features (number of observed features and area), the specificity of features, and their relationships.

Quality is the assessment of the clarity of ridge features. Generally, as quality increases so does the discernibility and reliability of the ridge features. It is recognized that quality is not necessarily constant throughout an impression. The level of quality determines the degree of tolerances or allowances for variation in appearance and spatial relationships of ridge features that will be used during the comparison process.

Preliminary ACE-examinations conducted by Forensic Technicians of the Latent Print Unit will follow the Workability / Value Guidelines in the Preliminary Workability section of this manual.

For 282 Forensic Services Requests, assigned case examiners may utilize the chart provided in [SWGFAST Document #10, Standards for Examining Friction Ridge Impressions and Resulting Conclusions](#) as a guide for determining the level of quality/quantity of information in a latent impression, which is described as follows:

- High: Level 1 is distinct; Level 2 details are distinct; there are abundant distinct Level 3 details.
- Medium: Level 1 is distinct; few to most of the Level 2 details are distinct; there are minimal distinct Level 3 details.
- Low: Level 1 may not be distinct; Most of the Level 2 details are indistinct; there are no distinct Level 3 details.
-

The quality/quantity of information is recorded in the Latent Exam Worksheet at the time of analysis, as well as the designation of anatomical region and orientation resulting from the interpretation of the impression.

If the impression is of value for comparison, the analysis further indicates the features and their tolerances to be used in the comparison.

If the impression does not support reliable features to proceed to the comparison phase of the examination process the examination will stop at the analysis phase and will be reported as no value for comparison.

The analysis may also provide possible anatomical information to prioritize the potential corresponding areas and limit unnecessary comparisons.

If a latent impression is determined to be suitable for comparison, at a minimum the observed data supporting the analysis decision will be documented including the presence and location of features.

The observable data in the latent impression is analyzed and should be documented by the examiner prior to comparison with an exemplar friction ridge impression.



7.2.2 Comparison

Comparison is the direct or side-by-side observation of friction ridge detail to determine whether the details in two impressions are in agreement or disagreement based upon similarity or dissimilarity, sequence and spatial relationship, and within the tolerances of clarity and distortion.

If the Analysis phase provides indicators as to the probable anatomical area, a side-by-side comparison with the appropriate area of the known print is initially conducted. In the absence of indicators, all areas of available known impressions must be compared.

Comparison of features should account for all of the features interpreted during analysis.

A source conclusion is the opinion stated by an examiner after interpretation of observed data.

Features assessed as corresponding should be documented for comparisons which will be evaluated for a source conclusion. Features assessed in disagreement should be documented.

If an identification is documented with a majority of blue marks that lack feature correspondence in the known, explanation should be given in case notes (Latent Exam Worksheet or DEMS Notes related to the comparison).

7.2.3 Evaluation

Evaluation is the formulation of a conclusion based upon analysis and comparison of friction ridge impressions.

Once the examination progresses from the Comparison phase into the Evaluation phase, a determination is made as to whether the information is sufficient to form one of several conclusions or return to the Analysis phase and reassess value for comparison.

In the Evaluation phase, the examiner will ultimately decide whether the unknown impression is from a different source or the same source as the compared impression, or if the evaluation is inconclusive. Exam records shall include legible digital copies of all known standards used in a comparison. Acceptable conclusions are defined below.

7.2.3.1 Identification

Identification is the decision by an examiner that there are sufficient features in agreement to conclude that two areas of friction ridge impressions originated from the same source.



Identification of an impression to one source is the decision that the likelihood the impression was made by another (different) source is so remote that it is considered as a practical impossibility.

7.2.3.2 Exclusion

Exclusion is the decision by an examiner that there are sufficient features in disagreement to conclude that two areas of friction ridge impressions did not originate from the same source.

Exclusion of a subject can only be reached if all relevant comparable anatomical areas are represented and legible in the known exemplars. Additionally, the criteria listed below shall be met to reach an exclusion decision.

- At least one target group of second level characteristics in the friction ridge impression must be present in analysis and used in a comparison. Target groups can be defined as two or more distinct ridge characteristics in proximity to observe relationships between the characteristics. The examiner must attempt to define additional target groups if the corresponding area in the known exemplar is unclear.
- The impression must include the presence of an anchor/focal point. An anchor/focal point may include a delta, core, major crease, or distinctive ridge flow (such as a funnel area in the hypothenar of the palm) from which a clear and accurate ridge count or spatial relationship can be determined in respect to the target group(s).

7.2.3.3 Inconclusive

Inconclusive is the decision by an examiner that an unknown impression of comparison value cannot be excluded or identified. The reason for each inconclusive conclusion must be documented in the Latent Exam Worksheet and reported. For example, exam notes on the Latent Exam Worksheet and/or in the DEMS images should clearly and specifically indicate the deficiencies of a known standard if findings are inconclusive due to inadequate subject exemplars. Inconclusive conclusions do not apply to impressions determined to be of no value for comparison. Reasons for inconclusive may be:

Inconclusive – Need Control (or Better Control) Standards

Results when a decision of identification or exclusion cannot be reached, due to an absence of complete and legible known prints (e.g., poor quality fingerprints and lack of comparable areas). In such an instance, the inconclusive conclusion means that the impression needs to be re-examined and compared using clearly and completely recorded known impressions.



- Example Reporting language: *Inconclusive for this impression; need additional standards from this subject.*

Inconclusive – Unable to Reliably Determine Anatomical Location or Orientation OR Due to the Limited Quality and Quantity of Information (data) Observed in the Latent Impression.

Results when a decision of identification or exclusion cannot be reached, due to the lack of sufficient quality/quantity to reliably determine anatomical location or proper orientation. Exam notes should clearly indicate which locations and/or orientation were considered. OR, when additional knowns would not aid future comparisons.

- Example Reporting language: *Inconclusive for this impression; comparisons conducted without certainty of anatomical source and/or orientation.*
- Example Reporting language: *Inconclusive for this impression due to the limited quality and quantity of information observed in the latent.*

Inconclusive – Partial Agreement or Disagreement Observed, Insufficient for Determination

Results when corresponding features are observed but are insufficient to identify, or (in the same instance) dissimilar features may be observed but insufficient to exclude; the examiner is unable to explain whether a specific ridge event or sequence of events constitutes a discrepancy or dissimilarity. An Inconclusive conclusion with partial agreement or disagreement shall not be construed as a statement of probability.

- Example Reporting language: *Inconclusive for this impression; unable to identify or exclude due to insufficient reliable friction ridge features observed between the latent and known exemplar.*

7.2.4 Verification

Verification is the independent application of the ACE process by a subsequent fully authorized examiner, to either support or refute the conclusions of the original examiner. Verification shall be conducted on 100% of casework related to 282 Requests that are reported in the Official Latent Examination Report as well as identification and workability decisions reported in AFIS Notifications. Verification review includes analysis (suitability / workability determinations to include no value) and the comparison conclusions of the original examiner. At minimum, the case file submitted for verification review shall include:

- All Latent Exam Worksheet(s) (Note: No Value submissions do not require an



LEW)

- All latent evidence
- All known exemplars
- All annotated images documenting the ACE methodology

The verifying examiner shall indicate verification of all suitability (No Value items), identification, exclusion, and/or inconclusive decisions by circling, initialing, and dating the conclusion on the Latent Exam Worksheet (either by hand in permanent ink on a hardcopy, or electronically).

Note: The exception to this is for NV submissions, which do not require a Latent Exam Worksheet.

Verifying examiners are not required to verify exclusion or inconclusive decisions for impressions which were subsequently identified by the reporting examiner. In these instances, verifying the identification is sufficient if the verifying examiner agrees with the identification decision.

The verifying examiner shall further document verifications of identification decisions on the digital copies of the latent evidence and the known exemplars (one set of initials/date adjacent to the identified latent or known is sufficient in a merged comparison image).

Any discrepancies are noted on the Verification Worksheet by the reviewing examiner, recording the responses and signatures (physical or electronic) of the reporting examiner if needed and the signature of the reviewer. The verifying examiner is responsible for uploading the completed Verification Worksheet to the related LIMS Requests folder prior to technical review.

If release of results are called for and needed prior to Technical Review and Administrative Reviews, the Verification Review shall be completed with a signed review form, and any identified impression shall be initialed and dated by the verifying examiner as well as the original examiner. Verbal release of results will follow the guidelines outlined in the Crime Lab Quality Manual.

Following Verification, the completed case file (electronic or hardcopy) submitted for Technical Review shall include:

- All required Latent Exam Worksheet(s)
- A completed and signed Verification Worksheet
- All latent evidence
- All known exemplars
- All annotated images documenting the ACE-V methodology
- Draft LIMS report
- All 282 Requests for Service (if applicable)



8 Documentation and Exam Records

8.1 Procedure- General

Exam records shall be recorded and maintained using unique case identifiers. The Crime Lab (CL) case number is considered the primary case number, however the MNPDP Incident Number is frequently used in referencing a case.

Known standards maintained by the Forensic Services Division are considered exam records and bear a unique identifying number (OCA – Originating Case Agency). Likewise known standards generated from database searches are considered exam records.

Examination records shall include:

- Start and finish dates
- Each examination activity conducted and sequence
- The results of the examination activities
- Initials, or electronic equivalent, of persons making a change on any record

Examiners' documentation shall be such that another qualified examiner can determine what was done and interpret the data. Documentation shall be made at the time of the examination and may be in the form of annotated latent lift cards and/or latent submission envelopes (evidence received prior to 2024), annotated images, narratives, worksheets, annotated legible copies, sketches, Automated Fingerprint Identification System (AFIS) reports or electronic records, or any combination of these methods. This documentation will be a part of the case record.

A case record consists of the administrative and technical records, whether hard copy or electronic, pertaining to a particular case. The case record may include digital or physical files of latent lifts, printed photographs, chain of custody records, exemplars, case notes, requests, and reports.

Exam notes shall indicate which impressions were analyzed, compared, evaluated and conclusions reached. Notes and reports will also acknowledge the existence and disposition of any impressions that are not analyzed, compared, or evaluated.

Analysis documentation of a latent print of value shall be completed prior to comparison. The quality and quantity of the information present in the latent print will dictate the extent of the documentation. At a minimum, the following shall be documented in the case record:

- Anatomical source (e.g., fingerprint, palmprint)
- Anatomical orientation (e.g., distal direction)
- Presence of level 1 detail



- Presence of level 2 detail
- Presence of level 3 detail

The substrate, development medium, or preservation method can have a significant impact on the appearance of a latent print. If the latent print or legible copy is part of the case record and contains this information, it may be considered documented.

The analysis of latent prints may also include documentation of additional factors such as:

- Deposition pressure
- Superimposed impressions (e.g., double taps)
- Slippage, including lateral and rotational movement
- Non-contiguous ridge detail
- Substrate distortion
- Matrix distortion
- Development medium (incomplete ridge development)
- Indistinct minutiae
- Tonal reversal

Observations made during the Analysis phase will be documented in the DEMS and on the Latent Exam Worksheet when applicable (if all impressions examined in a submission are no value, the use of Latent Exam Worksheet for that submission is not required).

Observations made during the Comparison and Evaluation phases will also be documented in the DEMS and on the Latent Exam Worksheet when applicable.

The no value lift card(s) should be listed on the Latent Exam Worksheet. The location of the no value lift card is not required on this worksheet.

During the Comparison phase, examiners must also:

- Conduct analysis of the known exemplars, noting any deficiencies (e.g. if additional knowns are needed due to poor quality or if anatomical areas needed for comparison are missing from the exemplars)
- Acquire known standards into the DEMS
 - The DEMS records the electronic signature of the scanning examiner
 - The reporting examiner must include handwritten initials and date (or secure electronic equivalent of initials or signature) on all known standards considered in comparisons (this does not include instances where the verifying examiner adds records considered to DEMS to complete their review)
 - A unique case identifier (incident number) should be added (handwritten or electronic) to the known to account for instances in which the record may be printed (e.g. discovery requests). Note- DEMS displays the incident number for each asset detail maintained in the electronic case file.
- Document observations of agreement and/or disagreement in



latent and known exemplars, as required or requested by a reviewing examiner

- Document explanations for any significant discrepancies in Analysis and Comparison observations

When an identification decision results in the Evaluation phase, documentation in the form of comparison images shall result and be stored in the DEMS case file. All significant features should be marked on the comparison images (known and unknown) in an appropriate manner to allow another examiner to clearly distinguish the features relied upon during comparison. Any significant differences in features observed during analysis and those relied upon during comparison and providing the basis for a conclusion shall be noted and discussed in the Latent Exam Worksheet and/or DEMS notes for the image(s).

Note: Significant here is a subjective determination by the examiner documenting the features to demonstrate support for the identification decision.

Complex Examinations

On occasion, latent examinations will involve uncommon circumstances such as the existence of significant distortion aspects, low quality or quantity, the possibility of simultaneity, and other characteristics which cause these to be considered as complex latent print examinations.

Extensive documentation by the examiner is required in these instances, utilizing the DEMS and/or Latent Exam Worksheet during the analysis and subsequent comparison phase of the examination process to establish a foundation for conclusions. Analysis of a complex latent print may be documented using images, in conjunction with annotations, notations on a worksheet, or narrative description. Analytical factors provide the basis for interpretation of distortion and understanding of variation in appearance.

Reference [SWGFAST Standard for the Documentation of Analysis, Comparison, Evaluation, and Verification](#), 7.2 for additional information concerning factors involved in complex impressions.

Reference [Appendix A – DEMS and Photoshop Instructions](#), for Exclusion Documentation

At the completion of all examinations, DRAFT reports should be created in LIMS and all records shall be initialed and dated, either electronically or hard copy. The completed case file is then submitted for verification.

In addition to these items, case files shall include any other applicable exam records. Such as:

- Limited Examination Approval Form
- AFIS Candidate list(s)



- AFIS Activity Worksheets
- AFIS entry mark-ups (Print screen of encoding for how the latent was searched)
- Emails related to case
- Copies of any LCM reports (exams reported prior to LIMS)

No value cases require only the submission of draft LIMS reports, Form 282, latent evidence, and copies of any LCM reports and emails related to the case, if applicable.

8.2 DEMS Exam Records

The Digital Evidence Management Software (DEMS) / Adams Web provided by Foray is the primary repository of exam notes made on copies of the original latent evidence for the Latent Print Unit. These exam records are created and retained in the DEMS as evidence is received and examined, and include:

- ACE-V observations
 - Workability of submission – Preliminary analysis of workable impression (s)
 - Analysis documentation for all comparable impressions resulting from official lab requests (282s)
 - Comparison mark-ups
 - Verification markings
- Digital Evidence submissions
- Known exemplars used in comparisons

Physical latent lift cards acquired for documentation and initial analysis shall be captured at no less than 1000dpi (dots per inch). The quality of an impression or database entry may require capture at higher resolutions.

For digital image submissions, it is recommended that the image be captured at a minimum 1000ppi (pixels per inch) resolution after recalibrating the image to scale. Justification of less than 1000ppi shall be documented on a case-by-case basis (e.g., the only available image was captured at less than 1000ppi, or no agency control over inadvertently photographed detail).

Note: While DPI is about printing and PPI is about display, the underlying concept of resolution is the same and may be used interchangeably in this manual. DPI is a setting within the flatbed scanner for scanning physical lift cards, and PPI is describing a digital image resolution.

If images of inadvertently photographed friction ridge detail, such as images containing ridge detail from social media, are received, they shall be assessed on a case-by-case basis for suitability of use. Due to no set controls over the capture of these images, they may often fall below the recommended 1000ppi resolution after being recalibrated to scale. A critical assessment of each submitted image will be made regarding the quality and quantity of reliable ridge detail observable, and its suitability for comparison. As such, no specific



minimum resolution requirements will be enforced for this type of digital evidence.

Latent images captured and submitted to the Latent Print Unit as evidence other than with a scanner set 1:1 should include a scale in the image. Associated case information should be able to be ascertained from the digital file (to include who took the image, case number, date, etc.) if not contained within the image. If a scale is not included, it may be determined to not be searchable in the available databases or comparable, unless an object with a known dimension is captured within the same image. If no scale or object is available, or if there are image quality issues, then written circumstances and/or communication shall be added to the case notes for items not tested.

Note: Known exemplars received must be of comparable quality. The image size may be resampled for the purpose of comparison mark-ups.

Note: Ridge detail may be considered as an object in the image with known dimensions due to ridge count calculators or based on available information for average hand sizes.

Captured impressions and submitted evidence shall be saved to the DEMS prior to being subjected to any enhancement techniques. Any enhancements to the original image will be saved as a new file. The Foray software performs this function automatically.

The DEMS records all processing steps in Adobe Photoshop, including calibrations and enhancement applications, to the extent that the final image may be reproduced from the original. See [Appendix A: DEMS and Photoshop Instructions](#)

NOTE Historical exam records may have been stored electronically in the local AFIS archives (Integra ID Archive-Document Management tab) and as hard copies in secure off-site archives facilities.

9 Identifications- Documentation and Notifications

9.1 Scope

Describes additional documentation and notification requirements associated with findings of identity.

9.2 Procedure

All identifications on new incoming evidence shall be initialed and dated on copies of the submitted evidence. All markings shall be made with Photoshop tool annotations.



A legible reproduction of the identified known exemplar shall be retained as part of the case record.

Proper documentation on the latent exemplar includes:

- The “ident” symbol ø adjacent to each identified latent
- The fingerprint number (or hand/foot area) of the known exemplar
- The UID number of the known exemplar; if MNPDP Employee, the OCA number and/or employee number will be omitted.
- The initials of the examiner
- The date of the identification

Proper documentation on the known exemplar includes:

- The “ident” ø symbol adjacent to each identified known
- The latent impression (alphanumeric designator) adjacent to each identified known if not contained in a merged comparison image
- The initials of the examiner
- The date of the identification
 - Note: One “ident” symbol adjacent to the identified latent or known is sufficient if in a merged comparison image, as well as one set of initials/date, as long as clearly marked/understandable for a reviewing examiner.
- The incident number associated with the known exemplar (if uploading hardcopy known to LIMS)

Prior to any written or verbal notifications of identity, a second examiner/supervisor shall verify, initial, and date the identification.

Verifications of identifications shall be documented with examiner initials and date on a copy of the latent evidence and known (one set of initials/date adjacent to the identified latent or known is sufficient if in a merged comparison image as described above) in DEMS as well as the Latent Exam Worksheet.

10 Limited Examinations

10.1 Scope

Defines circumstances for limited examinations of latent evidence and required documentation.

10.2 Procedure

Unless otherwise specified, the Latent Print Unit will select the most appropriate method for processing requests, in accordance with technical procedures and supervisor instructions. The MNPDP-CL, and in turn the Latent Print Unit, retain



the right to limit or expand the final scope of analysis and comparison, to include which items are tested and which are not.

Limited Examinations for 282 Requests (Outside of backlog reduction procedures when in place and outlined/communicated to the department):

To achieve efficient and effective processing of a case after consideration of submitted evidence (substrate, specified probative evidence from the investigator, etc.), limited examinations may be conducted on latent evidence with prior written supervisory approval. See: [Limited Examination Approval Form](#).

Limited Manual Examinations of 282 Subjects-Backlog Reduction Procedure:

Limited manual examinations include examining the most probative items for and/or concluding examinations once each named subject has been identified to an item of latent evidence. These limited exams will be conducted at the direction of the supervisor of the Latent Print Unit and do not require the Limited Examination Approval Form if backlog reduction measures that have been communicated with the customer are in effect. For each case, "backlog reduction" will be notated in the case documentation, and specifically on the Latent Exam Worksheet.

For 282 requests, database searching of remaining unidentified impressions may be limited due to identification(s) to the name subject(s).

Limited exams may also be conducted on the designated probative items. Supervisory approval and direction for designated probative items will be documented on the Limited Examination Approval Form and maintained in the case file.

Appropriate instances for this form may include when examinations of probative items cease prior to each name subject being identified, due to the volume of evidence and/or comparable impressions in a given case.

During backlog reduction, examiners may communicate with investigators/customers if all requested probative items are determined to be of no value, allowing for additional selections of remaining evidence items for testing. This communication will be documented in the case file.

If backlog reduction is not currently in place, the Limited Examination Approval Form will be used in all instances listed above.

The extent of limited examinations will be reported accurately, clearly, unambiguously, and objectively in a written Examination Report.

In all instances, reporting of results for all items received by the Latent Print Unit will include statements for items on which no testing was performed. See Guide



for Summary Reporting and Limited Examinations.

At the written request of relevant customers (i.e. investigating officer/ legal counsel), full examinations may be conducted on any case that originally received limited examinations.

As subpoenas are received on cases that include limited examinations, the reporting examiner should contact the subpoenaing attorney and determine if full examinations are requested. Additional examinations may be conducted, if given adequate notice prior to trial.

Note: The preference to be communicated to customer is a 45 day notice but may be dependent on case composition/complexity.

11 Blind Verification

11.1 Scope

Describes circumstances in which a Blind Verification (BV) may occur and the procedure for that process.

11.2 General

Blind verification is the independent examination of one or more friction ridge impressions by another competent examiner (hereafter referred to as the blind verifier). The blind verifier is provided with no, or limited, contextual information, and has no expectation or knowledge of the determinations or conclusions of the original examiner. Blind verification can be used at any step of the Analysis, Comparison, Evaluation, and Verification (ACE-V) process and at the discretion of the scientist or technician performing the methodology in any LPU workflow.

The aim of incorporating a blind verification process into a QA system is to test the reproducibility of the determinations or conclusions made at any step during Analysis, Comparison, Evaluation, and Verification (ACE-V). This is accomplished by performing another examination in an environment that minimizes the influences of any context information that might lead to invalid results.

Blind verification may be performed in instances such as:

- Single exclusion or inconclusive decisions to a subject
- Complex impressions and/or comparisons
- Circumstances with strong contextual bias
- Examinations related to probative evidence
- Other circumstances deemed necessary by the Supervisor/Technical Lead.

NOTE When conducting examinations of 282 requests for testing, for reporting of a single identification to a subject, blind verification shall be



utilized by the examiner for impressions that are determined to have “Low” overall quality/quantity of information during the analysis stage. See the procedure for Workable Submissions, Analysis.

11.3 Procedure

All Blind Verification materials are considered as part of the case file. If a Blind Verification process is called for, the examiner shall notify the Supervisor/TL, or designee, providing in the communication information on what step of ACE-V the BV is being requested for (including the conclusion of the requesting examiner) and prepare an electronic BV folder (for example, Case A) on the shared L:Drive with the following materials:

- Scanned latent lift card or copy of digital image (no case number or examiner identifiers, no markings of identity or workability).
- For comparison verifications, the known exemplar(s) if the latent impression is determined to have comparable value during the BV examination.

The Supervisor/TL will initiate blind review(s) of the involved evidence via an email communication with the selected BV examiner(s) (multiple if going for consensus based resolution-see [Resolving Differences in Findings](#) procedure), requesting an analysis and workability determination first on the latent impression, and then if determined to be of value for comparison, the known exemplar will be added to be compared and evaluated (if requested in the Comparison, Evaluation, or Verification step). The BV examiner shall indicate their conclusion in the email communication and any supporting narrative (notes) in the email and/or in DEMS for the image. Inconclusive findings require that the reason for inconclusive is noted. Regardless of findings, the Blind Verifier shall prepare an image to store in DEMS as documentation of their observations. All images created will be uploaded to DEMS in the incident folder once work is complete. . The Supervisor/TL will advise the requesting examiner once the review is complete via email, which will document the response for the decision, and this email will be uploaded to the related LIMS request folder for documentation of the review by the BV examiner.

If the Blind Verifier reaches an identification decision, they shall add the standard identification markings for both the evidence and the exemplar, as described in the procedure for proper documentation for identifications (see [Identifications – Documentation and Notifications](#)).

A BV verification will be the only required verification for the impression(s) involved in the BV process, and the BV examiner shall indicate verification of any identification, exclusion, and/or inconclusive decisions by circling,



initialing, and dating the conclusion on the Latent Exam Worksheet (either by hand in permanent ink on a hardcopy, or electronically).

Note: The BV examiner may be different from the verifying examiner for any remaining conclusions in the case. The verifying examiner will notate on the Verification Review form what impressions were not verified due to a BV process.

Examiners shall not discuss findings while a case is in the BV process.

If there is a difference in findings between the original examiner and the BV examiner, the Resolving Differences in Findings procedure will be followed.

12 Consultations

12.1 Scope

Defines circumstances which are considered as consultations for reporting examiners and related requirements for documentation.

12.2 Procedure

A consultation is a significant interaction between examiners regarding one or more impressions in question. An interaction is considered significant when the opinion of one or more involved examiners results in a change of the original examiner's conclusion.

Consultations are supported as a positive part of the scientific process and may occur at any stage of analysis, comparison, evaluation, and verification (ACE-V), both before and after decisions are made during the examination.

Consultations may result in recognition of differences of determinations or conclusions and are also used as part of the process to address such differences.

Significant interactions rising to the level of a consultation include discussions concerning:

- Value determinations in analysis
- Decisions at the Evaluation stage of ACE-V
- Presence of significant distortions impacting the analysis or comparison
- Presence of specific features during the analysis or comparison
- Simultaneity of impressions
- Whether an examination is complex or non-complex

Interactions that are discussions, not rising to the level of consultation include:

- Suitability for automation fingerprint identification system (AFIS) entry



- AFIS parameters
- Anatomical origin of the impression(s)
- Orientation of the impression(s)

There may be situations where a discussion rises to the threshold of a consultation because it has a significant impact on the case. If there is doubt whether a discussion has risen to the level of a consultation, it shall be treated as a consultation.

The purpose of documenting a consultation is to record information or guidance obtained as a result of the consultation.

Consultations must be documented in the case record and must include the following:

- Specific friction ridge impression(s) reviewed
- The nature and result of the consultation
- Initials, signature, or equivalent (e.g., unique identifier for the examiners involved)
- Date of the consultation
- The stage of the ACE-V process in which the consultation took place

Depending on the nature and extent of the consultation, the consultant examiner may satisfy the above minimum documentation requirements by initialing and dating the information within the notes of the initial analyst.

If the consultant creates any separate notes, annotations, or images, these shall be included in the case record with clear indication that they are the work product of a consultation.

An examiner who acts as a consultant during the comparison or evaluation of an impression shall not be the verifying examiner (including blind verification) for that impression.

An examiner who acts as a consultant during the analysis phase can be assigned as the verifying examiner for that impression.

13 Resolving Differences in Findings

13.1 Scope

Describes how differing findings are resolved for reporting.

13.2 Procedure

The verification and review process may result in occasional differing opinions between examiners on a suitability decision or comparison decision. Resolution of these differences will maintain quality standards, with the opinions of each examiner recorded in case files.



If during the verification process the original conclusion is not verified, the Supervisor/TL will be notified. Prior to notifying the Supervisor/TL, a peer-to-peer consultation should be attempted documenting both the disagreement and the resolution or attempted resolution. If the difference in findings cannot be resolved through this consultation between the original examiner and verifying examiner, then a subsequent mediation between the examiner, verifier, and Supervisor/TL will occur.

The peer-to-peer consultation should attempt to resolve the conflicting suitability decisions or comparison decision via substantive discussion with an attempt to arrive at a mutually agreed upon decision or conclusion that is best supported by the observed data. If agreement is achieved, the conflict resolution process concludes and will be documented in the case file. If agreement is not achieved, the disagreements shall be noted in the case record, and the conflict resolution process shall proceed to the Supervisor/TL to determine and utilize the most appropriate option(s) to resolve the conflict. No examiner shall be forced or coerced into agreeing with or writing a technical report in support of any conclusion or opinion with which they do not agree.

If the differences are attributable to examiner tolerances for impression variations upon review of the data and documented disagreement, the Supervisor/TL will assign and gather evidence in the form of an additional examination (blind verification) by a third examiner or consensus data. A recommendation based on the outcome of the additional examination(s) will be provided by the Supervisor/TL.

For resolution using blind verification, a third examiner will examine the friction ridge impressions in question and document their decision and conclusion in the case record. In blind verification, the third examiner will be shielded from the decisions, conclusions and documented data of the other two examiners and from any other task-irrelevant information (information that is not needed to interpret the impressions). The three decisions or conclusions (original examiner, second examiner, and third examiner) will be reviewed to determine if two agree and how the case should proceed. If the third examiner wishes to confer with either the original or second examiner, they will have their decisions or conclusion documented first and that interaction shall be recorded in the case file.

- If the third examiner agrees with the suitability decision or comparison decision of the original examiner, the original examiner will retain the case and the third examiner will become the verifying examiner for that impression. The original examiner can report as they normally would.
- If the third examiner (blind verifier) agrees with the suitability decision or comparison decision of the original verifier, the original examiner will have the opportunity to reconsider the conclusion to be reported with the additional data collected. The original examiner will have the option to report the resolution result as follows: "This result was achieved in accordance with conflict resolution measures."



- If the third examiner agrees with the suitability decision or comparison decision of the original verifier, and the original examiner does not agree with reporting as such, the relevant examination will be transferred to the original verifier, and this transfer will be documented in the case record. A supplemental report will result if transferred. The original examiner will report out any non-conflicting results and the original verifier will write a supplemental report regarding conflicting results, with the third examiner being assigned as their verifier. A statement will be added to this supplemental report indicating that the report is the result of conflict resolution measures.

For resolution using a consensus review panel, the review panel will consist of the Supervisor/TL and (4) scientists. A majority decision of (3) or more (not including the Supervisor/TL) is needed for a consensus decision. The Supervisor/TL will advise if a majority decision is not reached. The consensus review panel (with the exception of the Supervisor/TL) will not know the decisions rendered by the original examiner or the original verifier and will not have access to any supporting casefile documentation until after their decision has been independently rendered.

- If the consensus review panel agrees with the original examiner, one member from the panel in agreement with the decision will become the new verifier and document as required. The original examiner can report as they normally would.
- If the consensus review panel agrees with the original verifier, the original examiner will have the opportunity to reconsider the conclusion to be reported with the additional data collected. The original examiner will also have the option to report the consensus result as follows: "This result was achieved through consensus in accordance with conflict resolution measures."
- If the original examiner does not agree with the majority decision or reporting as such, the original verifier will take ownership of the decision related to that conclusion with an agreeing member of the consensus review panel being assigned as their verifier. A supplemental report will result. The original examiner will report out any non-conflicting results and the original verifier will write a supplemental report regarding conflicting results. A statement will be added to this supplemental report indicating that the report is the result of consensus-based conflict resolution measures.
- In the event of a split decision (2 and 2), or non-consensus result, the Supervisor/TL will help advise as to the best practice decision to make for the latent/comparison. One option is to report that a consensus-based conclusion as a result of conflict resolution measures could not be reached.

All examiners involved in the resolution shall clearly document their decisions at each stage of the resolution process in the case file. Initials and dates will be electronically captured in DEMS, and notes pertaining to any consultation



(including dates and outcomes) will be added as appropriate, either in the DEMS notes field, email communication, Verification Worksheet, and/or Latent Exam Worksheet.

Images of each examiner's documented analysis, comparison, and evaluation involved in the resolution process will be included in the case file. This includes both original mark-ups and those generated as a result of the conflict resolution process, which should be distinguishable.

If a case is reassigned (e.g. only one impression of comparable value to report), the date the case was reassigned, the reason the case was reassigned, to whom it was reassigned, and the original examiner's notes will be included in documentation.

If the differences are attributable to what appears to be examiner error (e.g. identification vs. exclusion), the Supervisor/TL will initiate a case review process to determine the extent of any nonconforming work.

The Supervisor/TL will personally track the causes and frequency of conflicts between LPU examiners and evaluate on an annual basis to determine if any additional training or procedural changes are needed.



14 Reporting

14.1 Procedure

Interpretations and opinions that result from MNPD Form 282 Forensic Services Request are reported in the Official Latent Examination Report.

The results shall be reported accurately, clearly, unambiguously and objectively, and as described in the [Workable Submissions](#) section of this TPM.

Analytical findings and conclusions shall be reported for each specific item of evidence that was examined as the result of a submitted 282 request, unless a limited examination is approved and documented. See the [Limited Examinations](#) section of this TPM.

All comparable impressions observed will be itemized within the Results section of the report.

When comparative examinations result in the elimination of an individual, the report shall clearly communicate the elimination.

When no definitive conclusions can be reached, the report shall clearly communicate the reason(s).

The Supplemental Information section of Official Latent Examination Reports shall include applicable information concerning the extent of database searches and registrations, any limited examinations, any items not tested, and if comparable impressions remain at the conclusion of all exams related to a 282 Request.

For consistency in reporting, the Latent Print Unit reference documents AutoText for LIMS, Guide for Summary Reporting and Limited Examinations, and the Reporting Guide located in SharePoint should be utilized in creating LIMS reports.

At the conclusion of all examinations, the reporting examiner shall draft, proofread and electronically sign all reports, ensuring completeness and accuracy.

Release of test results are made at the conclusion of Verification, Technical and Administrative Reviews and according to the [Crime Lab Quality Manual](#).

If a case is adjudicated before the work or report is completed or if a customer cancels a request before work is completed or similar situation, a report of the analytical work is not required.

Documentation in the case file shall record the reason test results were not reported. LIMS Requests should be cancelled with a noted explanation added rather than deleted.



15 Quality Program- Latent Prints

15.1 Scope

Describes Unit procedures for assuring the quality of test results. Defines non-conforming work encountered in analyzing and comparing latent evidence, and responsibilities for documenting and correcting errors.

15.2 Procedure

In addition to the quality assurance measures of the MNPd Crime Laboratory, the Latent Print Unit employs several measures to assure the quality of test results.

15.3 Reviews of Preliminary Processing

In all cases, the reporting examiner is responsible for reviewing the preliminary test results of technicians and for making any necessary corrections. Reviews and corrections include, but are not limited to:

- Workability assessments and status in LIMS
- LIMS descriptions of evidence
- Documentation of technicians' preliminary testing in the electronic case file
- AFIS entries
 - If the reporting examiner determines that additional searches may prove beneficial (opinion of details/orientation) the search shall be documented on the AFIS Activity Worksheet and in AFIS as an additional search.
 - If the reporting examiner determines that AFIS searches are incorrect, that examiner is responsible for conducting corrected AFIS searches/registrations and necessary deletions from the AFIS database. The correction and explanation shall be documented on the AFIS Activity Worksheet.

15.4 Reviews of AFIS Notifications

AFIS Notifications are reviewed for accuracy as follows:

- Authorized scientists conduct a technical review of identification decisions reported in the AFIS Notification, as well as a review of the reported workability decisions.
- Authorized LPU personnel review AFIS Notification drafts for clerical and grammatical accuracy prior to setting the admin review milestone and releasing the Notification.

15.5 Reviews of Comparisons and Official Reports

Official Latent Examination Reports are reviewed for accuracy as follows:



- Verification of conclusions
 - An authorized Forensic Scientist or Supervisor will verify all conclusions and decisions regarding workability.
- Technical Review
 - The technical reviewer is responsible for determining that all decisions are properly documented on exam records and that all procedures and directives in place were followed.
 - The technical reviewer is responsible for setting the Technical Review milestone in LIMS.
- Administrative Review
 - Authorized LPU personnel review Official Reports for clerical and grammatical accuracy.
 - The administrative reviewer is responsible for setting the Administrative Review milestone in LIMS.

15.6 Quality System Notifications

Information concerning incidents, procedures, issues, or equipment that may impact the quality of test results is recorded using the Quality Management System Workflow titled Quality System Notification and in accordance with the [Crime Lab Quality Manual](#). The Latent Print Unit tracks casework errors in the LIMS data extension fields as well as detailed review forms, and this information may be used to support a reported quality incident.

15.7 Errors in General

- Errors may be discovered as examiners review the preliminary work of technicians or during verification/technical/administrative reviews of examinations.
- An error discovered at technical review is considered as the work of the reporting examiner, who is responsible for reviewing and correcting the preliminary work of technicians.
- Verified erroneous conclusions are considered as errors on the part of the examiner and the verifier.
- Clerical errors are not considered erroneous conclusions if other case records document the correct conclusion.
- There may be circumstances in which examiners' differences in opinions are variances in tolerance or interpretation of impression data and are not considered as non-conforming work/errors. For example, an inconclusive finding in which similarities are documented is different from another examiner's identification decision on the same comparison but is not necessarily considered as an error if determined to be due to examiner tolerances.
- For the purpose of tracking any trends, errors discovered in the verification, technical and administrative review processes should be



recorded in the data extension fields of the LIMS request by the reviewing examiner.

16 Technical and Administrative Review

16.1 Scope

Describes the responsibilities of Technical and Administrative Review and how reviews are documented.

16.2 Procedure

Technical Review shall be conducted on a minimum of 10% of the initial no value and not AFIS quality decisions for incoming submissions made during administrative processing. These reviews are documented using the LIMS Admin Processing Tech Review request, as per the Admin Processing Technical Review Guidelines.

Technical and Administrative Reviews shall be conducted on 100% of AFIS association decisions resulting in identifications, and in AFIS searches conducted with negative results (no-hits) reported in the AFIS Notification. These reviews are described in the AFIS Notifications section of these procedures and are documented on the AFIS Notification Review Checklist(s).

Technical and Administrative Reviews shall be conducted on 100% of casework related to 282 Requests that are reported in the Official Latent Examination Report. Reviews shall be conducted in accordance with the MNPD Crime Lab Quality Manual and are documented on the Latent Print Unit forms Technical Review Checklist and Administrative Review Checklist.

Any discrepancies are noted on these checklists by the reviewing examiner, recording the responses and signatures (physical or electronic) of the reporting examiner if needed and the signature of all reviewers.

When all discrepancies are noted and corrected, the Technical Reviewer shall sign and date the Technical Review Checklist (physically or by digital signature), upload the completed form to the related Requests folder in LIMS, and set the "Tech Review" LIMS milestone.

Upon determining that all exam records are uniquely identified in case documentation, Administrative Review shall ensure that the unique identifier of a Social Security number is not reported in LIMS/Crime Lab Portal.

When all discrepancies are noted and corrected, the Administrative Reviewer shall sign and date the Administrative Review Checklist (physically or by digital signature), upload the completed form to the related Requests folder in LIMS, and set the "Admin Review" LIMS milestone.



If corrections to the Latent Exam Worksheet are required as the result of the case review process, the reporting examiner shall update the most recent electronic worksheet and save in the electronic case file while clearly indicating the updated file (i.e. V1, V2, V3, etc.). All original and corrected worksheets shall be maintained in the electronic case file in the related Requests folder in LIMS.

At the conclusion of Technical and Administrative Reviews, the reporting examiner shall review the case file to verify that all exam records are completely and accurately preserved in the electronic case file. This review shall be documented by completing and adding the Case Review Checklist to the related Requests folder in LIMS.

17 Discovery Requests/ Meetings/ Court Presentations

17.1 Preparing for Discovery Requests

Refer to the Crime Lab Quality Manual under 4.2.4, in addition:

- Associated work product, exemplars and the court order should be copied to the appropriate Latent folder on the L: Drive. The requested items in this folder will then be reproduced on the requestor's media source (one may be provided by the lab as needed).
- The Administrative Unit may coordinate delivery and pick-up of the media as well as maintaining copies of any court order requiring the release of materials.

17.2 Meetings with Attorneys

Meetings and all communications with attorneys pertaining to details of the case shall be documented in the electronic case file.

17.3 Court Presentations

All charts or presentations that will be used in presenting testimony should be reviewed by a Unit supervisor prior to pre-trial meetings and/or testimony.



Appendix A DEMS and Photoshop Instructions

Acquiring

- All lift cards and all known standards must be acquired into DEMS for completion of the electronic case file
- Flatbed Scanner Instructions:
 - Settings: Use Professional mode – reflective – document table - photo – 1000dpi minimum resolution for lift cards (TIFF); backs of lift cards and other documents may be scanned at a lower resolution such as 300dpi, and saved as other file types (JPEG, PDF, etc.)
 - Check File Save Settings for Image Format Options
 - Uncheck all Adjustments (such as Unsharp mask)
 - Check File Save Settings and Browse to confirm scan is saved to designated folder
 - PREVIEW - place/adjust box around item to scan – SCAN
 - Select Scan Again if doing multiple acquisitions – otherwise, select Complete
- Open ADAMS Web/Foray (DEMS) and select Add Folder option
- Enter the incident #
- Select Crime type (use of “unknown” as a crime category is acceptable)
- Date of Crime (optional)
- Select files to be acquired
- Start upload

At completion of acquisition

- Go to incident folder view
- Select individual asset
- Update the Description field for each asset by selecting the EDIT option
 - Descriptions shall be unique, such as 001-02, FPs of 12345, PPs of 12345 and appropriately describe the asset
 - Descriptions should also indicate the purpose of the image, such as Prep Analysis, Analysis, Comparison, Consult or Verification (or BV), etc.
 - The impression number, UID number, finger or palm source, conclusion and initials should be listed in the description field of the DEMS image for comparison images.
 - The image may be labeled in the Exhibit No. field as well to assist with review.
- Save changes to asset by selecting OK
- Refresh page to see changes

Documenting Latent Analysis and Comparison

Move items to Photoshop processing

- Select item(s) for Photoshop processing
- Choose PROCESS option and make appropriate selection, for



example, Process in Photoshop as TIF
Annotations of Latent Impressions

Refer to [Documenting Workability](#) section of this manual.

Suggested Photoshop Tools for Processing images in the Latent Print Unit

- Brightness/Contrast
- Levels
- Curves
- Black & White
- Channel Mixer
- Invert
- Dodge
- Burn
- Shadows/Highlights
- Crop & Zoom

NOTE The Spot Healing Brush and the Clone Stamp tools shall not be utilized under any circumstance for processing images in the Latent Print Unit.

Document comparison with two separate images

- Mark impression details as described above
- Save each image separately and close

Document comparison with one image/ side-by-side impressions

- Bring both images into Photoshop, calibrate as needed, and crop them. If needing to change the image resolution for charting, be sure “Resample” is checked and update the resolution value to match the image that will be merged.
 - For example: Open Known exemplar: Go to Image>Image Size, check “Resample” and update the ppi to be the same of the latent.
- Highlight (select) one of the images on tool bar
- Go to Window-Arrange-Tile
 - Bottom left of image make images similar size
- Choose Move tool
- Drag image to approximate same area on image
- Close image that was moved - Do not save changes
- There will be two layers; rename layers by appropriately and delete/hide previous text layers as needed
- Rename images as latent or known.
- Go to Image-Canvas- Adjust canvas size appropriately in inches
- Click on specific layer (known or latent) to adjust images side by side
- Crop two images together



- Mark comparison as described above using a layer to chart both images
- Save as a single image and close

When all documentation is completed, closing images returns to DEMS.

In DEMS Assets View

- Add a Description to the new images using EDIT
- *Note: The PROCESSED folder will now contain all images that were modified in an incident

Folder Tags

Tags can help organize a large case but are not required.

- If using Tags, go to Edit - Enter description for Tag field
- Suggested Tag folders:
 - Analysis
 - Idents
 - Knowns
 - Verification

Exclusion Documentation Instructions

When documenting an exclusion is called for, including instances of complexity in the comparison, examiners may use separate layers in Photoshop or multiple images. In either case (layers or multiple images) the examiner should create a latent exclusion image and corresponding known exclusion image(s).

Creating a Latent Exclusion Image

- Mark target groups in the latent impression
 - Target groups can be defined as 2 or more minutiae
 - Use original analysis images
 - Minutiae used should be of high confidence
 - Attempt to define two separate target areas with circling
 - Circle target groups using different colors
- Mark areas of distortion (red or contrasting shading, with appropriate opacity)
- Indicate orientation (using proper markings described in [Documenting Workability](#) section)
- Mark Anchor/Focal Points
 - Anchor points are deltas, cores, major crease, or distinctive ridge flow (such as a funnel area in the hypothenar of the palm) from which clear and accurate ridges count or spatial relationship can be determined in respect to the target group(s).

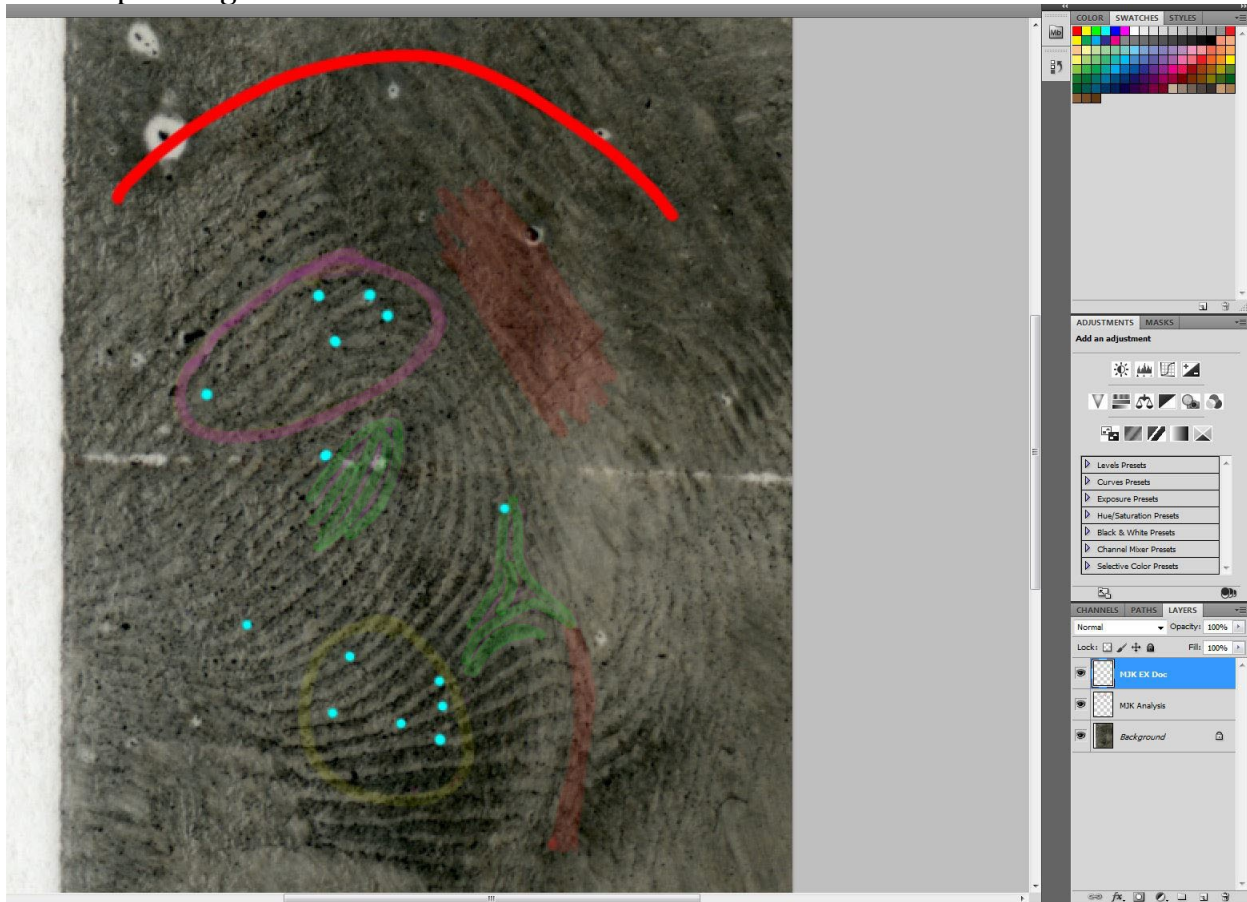


- Trace the anchor areas for comparison using a low opacity

Creating a Known Exclusion Image(s)

- Documentation must clearly indicate what areas were compared in the knowns.
- Circle or shade the area compared using the same corresponding color as the circled target group(s) in the latent (where you would expect your target group to be in the known).
- The known should be marked in an appropriate manner to allow another examiner to clearly distinguish the significant differences in features relied upon during comparison.

The detailed analysis of the latent impression may be documented similarly to the sample image below:



Using Photoshop layers:

1st LAYER: Analysis Mark-up: Create new layer called “Analysis.” Use **BLUE**



marks for high confidence detail, and when applicable, **YELLOW** for cautious detail. **RED** shading may be used for any cautious areas of distortion (use also in no value analysis markups). Also indicate orientation in this layer using proper markings described in the [Documenting Workability](#) section.

2nd LAYER: Prints of value for identification—Marking Target Group(s) and Anchor/Focal Points: Anchor points are deltas, cores, major crease, or distinctive ridge flow (such as a funnel area in the hypothenar of the palm) from which a clear and accurate ridge count or spatial relationship can be determined in respect to the target group(s). Create an additional layer and title “EX Doc” (exclusion documentation) and **TRACE** the anchor areas for comparison using a low opacity % (8-12%) in **GREEN**. **CIRCLE** two (2) target group(s)* of second level characteristics from original Analysis markup in TWO (2) different colors of choice.

*Target groups can be defined as two or more minutiae or an anchor point with clear minutiae. Minutiae used should be of high confidence. Attempt to define two separate target areas with circling.



Appendix B Submission and Processing of Latent Digital Images

SUBMISSION REQUIREMENTS

Digital image submissions should meet the following minimum requirements:

- Be received as evidence for analysis and acquired in Adams Foray for LPU processing
- Include a description of the item of evidence processed in the DEMS Description field (provided by CSI member or investigator)
- Include a scale in the image to be analyzed (if no scale is provided, an object within the image if dimensions are known may be used, including the use of ridge count calculators in database software or average hand sizes)
- Be in 60 MB or less in size and photographed in a lossless image format

Digital evidence collected by CSI field units or the Evidence Processing Unit (EPU) is submitted to the Latent Print Unit via the Digital Evidence Management Software (DEMS), typically by email notification to the Latent Print Unit at CrimeLabLPU@nashville.gov. The email received will be maintained within unit email folders and uploaded to LIMS (along with the EPU report if attached in the communication). The chain of custody for the submitted images is first initiated in LIMS and further tracked in DEMS.

Note: Cases involving digital image submissions prior to August 2024 will have an asset detail report generated by DEMS and provided by the EPU instead, which was previously treated as an item of evidence and submitted via MNPd form 110 in a Latent Submission Envelope. It is no longer required to transfer the stored envelope with asset detail report for case processing and examination. All future testing will be conducted from the DEMS casefile and tracked with the DEMS COC.

ADMIN PROCESSING

The Latent Print Unit will administratively process the digital submission as follows:

- Conduct Quality Assurance (QA) of submission:
 - Check that all images include a description of the evidence item
 - Check that images in DEMS are 60 MB or less
 - Document communication for discrepancies addressed and/or excessive file size and upload to LIMS Case Attachments once resolved

LIMS

An Admin Processing Request shall be created in LIMS, itemizing the evidence as follows:



- Number the digital evidence submission (000)
 - Itemize and assign a LIMS number to each asset
 - Assets numbers shall begin with 01
- The LIMS Description field shall be completed as: "Digital image of latent impression marked as from:" with description of what the print was developed on

DEMS

All Digital submissions will be further documented in the DEMS as follows:

- Update information for each asset as:
 - Description field: Include LIMS item number for each itemized asset
- Calibrate the images using the DEMS calibration tool (if a scale is present).

Documentation of Submission Workability:

- Choose an asset to use for documenting Workability
 - Process the image for Workability in Adobe Photoshop application
 - Mark Level 2 details used to determine workability, adding any necessary notes to the Notes section
 - Annotate the image with the LIMS item number and impression letter
 - Save the image as new and update description

AFIS

- Export AFIS quality impressions to an electronic folder or media device, or access DEMS at the AFIS terminal, and import images from folder and search in AFIS after making any necessary resolution or calibration adjustments within the database software system.



Appendix C IDEMIA MBIS Instructions

Scope

This procedure outlines the steps for entering latent prints into the state of Tennessee's Automated Fingerprint Identification System (AFIS), specifically for the addition of the Idemia MBIS Latent Expert Workstation to the MNPd-CL Latent Print Unit's available databases. The state database is maintained by the Tennessee Bureau of Investigation (TBI).

Instruments/ Equipment

Idemia MBIS Latent Expert Workstation (LEW) / Idemia MBIS Review Software

Evidence

AFIS quality latent fingerprints and/or latent palm prints that have not been previously identified may be searched against the state AFIS database. Impressions from unknown deceased individuals may also be searched against the state AFIS database.

Only authorized personnel may use the state AFIS. Instructions for use are available in the online Help guides of the Idemia software.

The AFIS is considered a reference tool. Viewing of the candidate list does not constitute a complete comparison.

Procedure

Forward Search

1. Enter latent print(s) into the state database and/or the Next Generation Identification (NGI) database as per Idemia MBIS Latent Expert Help guide (Press F1 for a Help file in any MBIS application).
2. Assign each Latent Case ID as an alphanumeric case identification number using the following format: (MNPd incident number) (3 letter initials of examiner). Example: "20250000000MJK." NOTE-If 14 characters are not reached with this combination, the addition of zeros between the incident year and incident number may be added if needed.
 - a. Rename Evidence ID to match the MNPd submission number(XXX)and card number (XX). Example: If it is submission 012 and card 5, evidence would be renamed: "01205".
 - b. Rename Latent ID to match alpha letter assigned. Example: If it is impression B on the card, the latent would be renamed "B."
 - c. Case Descriptors: Include date of incident, location (Davidson County); Crime Type; and select Violent or Non-Violent to help filter cases for future deletion based on statute of limitations.



3. Review the list(s) of respondents to determine any possible state AFIS/ NGI hit(s).
 - a. Documentation of a searches will include the following:
 - i. AFIS Activity Worksheet indicating the date of the search and the initials of the technician or scientist who performed the search, which is maintained in the electronic case file.
 - ii. All Match Reports generated ("IDENT" and/or "NONIDENT"), which are also maintained in the electronic case file.
 - iii. A Print Screen to include the latent minutiae mark-up (demonstrating the latent minutiae that was searched). May be named "AFIS Entry Markup"
4. If the state AFIS or NGI search yields no hits, the latent(s) will be registered in the respective systems unless noted otherwise, and additional searches will be conducted as new known impressions are entered into the database.
5. An association or identification will not be made solely with the comparison on the screen; a qualified technician or examiner will make an association or identification by comparing the latent print with the known impressions. Another qualified examiner will review the association or verify the identification.

Reverse Searches

1. Known impressions that are submitted to the Tennessee Bureau of Investigation, not as evidence, are searched against the unsolved latent file (ULF).
2. A list of respondents is returned in a reverse queue based on a system generated score. The respondent list will include scores higher than the threshold score predetermined by the TBI Latent Print Unit. The list is then reviewed by an LPU scientist or technician to determine any possible AFIS hit(s).
3. LPU personnel clearing the TLI queue should notify the original examiner of any potential reverse hits to be reviewed. If the LPU personnel is no longer employed, the reverse hit will be assigned for review.
4. An association or identification will not be made solely with the comparison on the screen; a qualified technician or examiner will make an association or identification by comparing the latent print with the known impressions. Another qualified examiner will review the association or verify the identification.

Deletions

1. Once a latent print has been identified, its image will be deleted from the state AFIS database per the User Agreement.
2. Deletion records are kept within the Idemia software and can be accessed if needed.



NOTE: The TBI reserves the right to delete latents from agency queues if necessary. The MNPD will be notified of any action the TBI Latent Print Unit takes to perform queue maintenance.



Appendix D ULW Instructions

Next Generation Identification (NGI)/ Universal Latent Workstation (ULW) Instructions (ULW Terminal)

Additional information can be found in the ULW instruction manual and electronic help file within the ULW software.

Click on ULW Transaction Manager Icon:



Log into the Transaction Manager using your user name and password if needed.

A screenshot of the ULW Transaction Manager login window. The window has a light blue background and a dark blue border. At the top, a text box contains the instruction: "If you would like to use your Windows Credentials for logging in, please select Windows Credentials. Otherwise, please select Custom Credentials, or create a new user." Below this, there are two radio buttons: "Windows Credentials" (selected) and "Custom Credentials". Under "Windows Credentials", there are input fields for "User Name" (containing "rehooper") and "Password". There is also a checkbox for "Stay Signed In". At the bottom, there are three buttons: "Login", "Exit", and "Help". Below these buttons, there is a link that says "New to ULW? Create a new user account" and a button that says "Create New User >>".A screenshot of an email configuration window. The window has a light blue background and a dark blue border. At the top, a text box contains the instruction: "Please specify your email address, username and password for sending and receiving transactions via email. This information is not stored and will only be used for the duration of your login to Transaction Manager." Below this, there are three input fields: "Email Address:", "Email Login ID:", and "Password:". At the bottom, there are two buttons: "OK" and "Cancel".



Input the agency specific login ID and password.

You are now ready to submit searches in the Next Generation Identification (NGI) Database.

Images must be 500 ppi or 1000 ppi and in Grayscale for submission per the NGI software.

Best image types are Bitmaps (BMP) or TIF but ULW will import most RAW, JPG, PNG and GIF files. It will **NOT** import JP2 files.

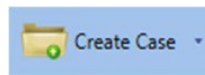
If Photoshop enhancement of your latent impression(s) is needed:

- Scan/capture latent impressions/images as a bitmap (BMP) or TIF file at 500 ppi or 1000 ppi. Enhance with Photoshop and save file. Go to ULW Transaction Manager.

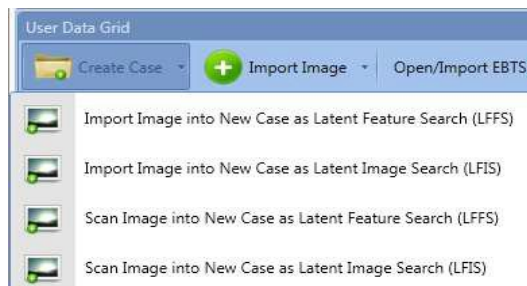
If enhancement is not needed go straight into ULW Transaction Manager.

Create a new case in Transaction Manager for each impression for which you want to submit searches.

Click the Create Case button



Choose between LFFS or LFIS. *See [Helpful Hints](#) or page 19 in ULW training manual.*



Either import the enhanced image or choose the scan option and scan image directly into Transaction Manager. This box will pop up. Enter the required information.



Case Prefix: User initials

Case ID: Case/incident number. (Format Ex: 20160123456-00101a) *Note:
Includes impression searched for each entry

Priority: 1 - Homicide, Rape, and Special Circumstances (unless otherwise told)

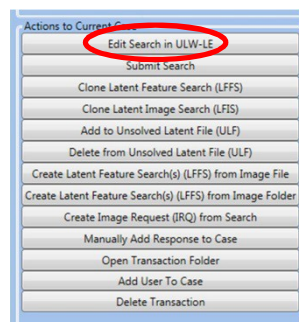
- Originating ORI: TNTBIO900
- Destination ORI: WVIAFISoZ (eighth character is zero)
- Controlling Agency Identifier: TNO193900

Case Prefix, Originating ORI, Destination ORI, and Controlling Agency Identifier should be automatically filled in after first time set up/use.

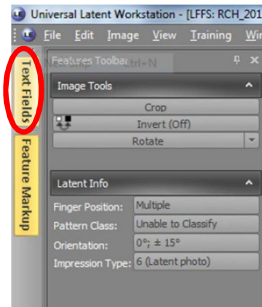
Use the Create Case option for each new impression so each transaction has the unique impression identifier included in the case number.

To edit images or mark minutia/orientation for a case:

- Highlight the case in your Data Grid.
- Click Edit Search in ULW-LE in the Actions to Current Case Menu.

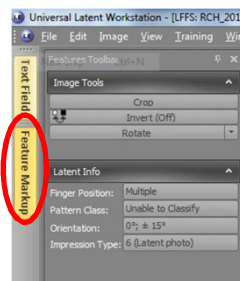


This will take you into ULW Latent Editor and automatically import your image. Click Text Field button in upper left hand corner of latent editor screen.



- Fill in required text fields if needed (depending on settings should be automatically filled in):
- Destination ORI: WVIAFISoZ (eighth character is zero)
- Originating ORI: TNTBIO900
- Prefix: User Initials or ADMIN
- Identifier: Incident number / impression number-what was entered at the “Case ID” step
- Contributor Case ID Extension (for when entering multiple images for single case)
- Priority: 1 - Homicide, Rape, and Special Circumstances (unless otherwise told)
- Source Agency/ORI: TNTBIO900
- Controlling Agency Identifier: TN193900

Click the Feature markup button to edit your image:



For a LFIS:

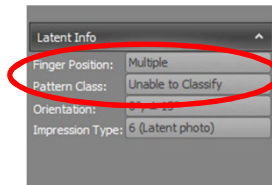
- Crop/Rotate if needed.
- Save LFIS file
 - NOTE: (This will be done automatically if you close the Latent Editor box using the red 'X' in the top right corner. If going to File options, do NOT choose the 'Save As' option. Choose the Save option with predetermined file name).
- Close Latent Editor.
- Return to Transaction Manager.

For LFFS:

- Rotate, crop, etc. if desired using image toolbars.
- Crop to the area with distinct ridges and minimal background noise



- Latent Info



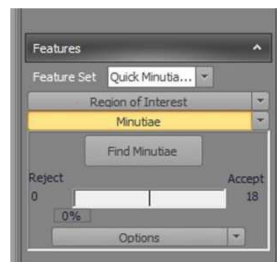
*“It is recommended that finger position and pattern class **NOT** be designated in latent editor. It will be done before submitting the search.”*

All LFFS require a Region Of Interest (ROI).

Mark region of interest.

- Adjust as necessary to meet system limitations:
 - Minimum size for region of interest:
 - 384 x 384 for 1000 ppi
 - 192 x 192 for 500 ppi
 - Maximum size for FINGERPRINT searches:
 - 1200 x 1200 for 1000 ppi
 - 600 x 600 for 500 ppi
 - Maximum size for PALMPRINT searches:
 - 4800 x 4800 for 1000ppi
 - 2400 x 2400 for 500 ppi

For LFFS transaction, you may choose between LFFS-Minimal Mark Up Search or LFFS Quick Minutia Search



LFFS-Minimal Markup

To be used when you want to zone out parts of an impression or other impressions within

the same image, but

No manual markup of minutia needed. Save transaction after cropping/rotating if needed and marking ROI.



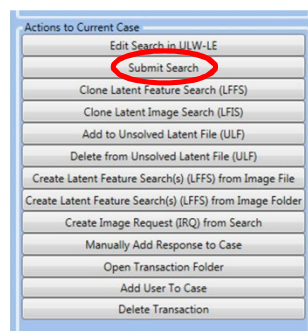
LFFS- Quick Minutia

- Mark ROI.
- Mark minutia points, core, and delta(s).
- Minutia can be done manually or using Find Minutia feature.
- Refer to ULW manual pages 28-29 for best practices on marking images and page 63 for additional tips on core and delta placements.
- Save file
 - NOTE: (This will be done automatically if you close the Latent Editor box using the red 'X' in the top right corner. If going to File options, do NOT choose the 'Save As' option. Choose the Save option with predetermined file name).

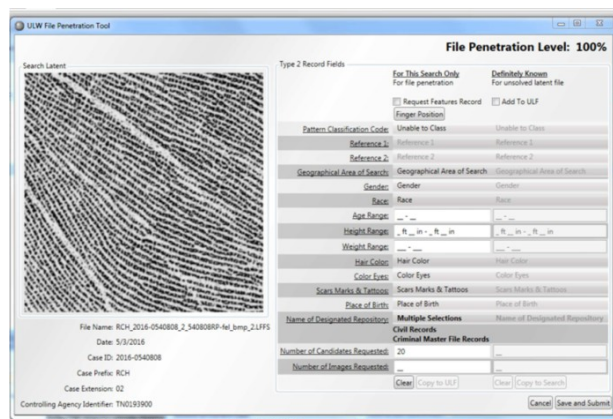
Close out of Latent Editor and return to Transaction manager.

For BOTH LFFS and LFIS cases:

Highlight appropriate transaction and hit the Submit Search button.



This will bring up the File Penetration Tool.



Recommended level for file penetration is 50% or less for fingerprints. Penetration



will remain at 100% for palm prints.

Complete relevant information in order to reduce the file penetration level.

- Pattern Classification codes for fingers
- Finger or Palm position if known. Within the File Penetration tool you can also edit the number of candidates requested and select which repositories to search. See training manual for more information on repositories.

Request Features Record and Add to ULF boxes may be automatically checked. Make sure Request Features Record and Add to ULF boxes are not checked unless this is your intent.

Click Finger Position button and mark selections.



DO NOT use Unknown friction skin. Use unknown finger or unknown palm options under the "Finger Position" button if necessary or submit multiple searches for possible Finger Positions. Fill out pattern classification code and any necessary references. **DO NOT** select any options under Finger Segment or Off-Center Fingerprint Position. **DO NOT** use palm code 29 or above as it will automatically change to code 00 (unknown distal) when registering, which will affect quality of reverse searches. See image below for example:



Save and submit when you finish selecting options. This submits your file to the NGI database for searches

Cloning a Transaction

You can use the Clone feature to easily duplicate a transaction. See Page 36 in manual for additional information.

Examples of when this may be helpful:

- Convert a LFIS that did not hit to an LFFS that can then be manually encoded.
- Search additional friction skin (fingerprint search followed by a palm search).
- Encode different clusters of minutia.

Select the appropriate transaction

- Clone Latent Feature Search (LFFS)
- Clone Latent Image Search (LFIS)

The new transaction will have the same Latent # but a new Ext (CIX)



- LFFS → LFFS
- LFFS → LFIS
- LFIS → LFIS
- LFIS → LFFS

Reviewing Responses

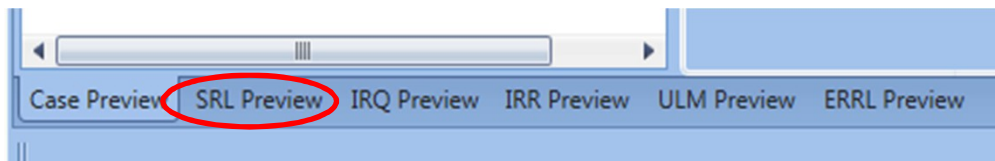
When response returns:

- File is automatically sent to transaction manager with the log in of either the original user or ADMIN.
- Date responded column in data grid should be filled out when response is in transaction manager.

Date Modified	Date Created	Date Submitted	Date Responded	Date Compared
5/3/2016 8:40:33 AM	5/3/2016 7:33:15 AM	5/3/2016 7:38:09 AM	5/3/2016 8:40:33 AM	5/3/2016 8:43:46 AM
5/2/2016 4:27:05 PM	5/2/2016 3:25:03 PM	5/2/2016 3:37:56 PM	5/2/2016 4:27:05 PM	5/3/2016 6:25:48 AM
5/2/2016 4:25:35 PM	5/2/2016 2:25:59 PM	5/2/2016 2:37:12 PM	5/2/2016 4:25:35 PM	5/3/2016 6:24:28 AM
5/2/2016 1:36:32 PM	5/2/2016 1:36:32 PM			
5/3/2016 8:41:30 AM	5/3/2016 7:33:26 AM	5/3/2016 7:43:42 AM	5/3/2016 8:41:30 AM	5/3/2016 9:35:15 AM
5/2/2016 4:28:40 PM	5/2/2016 3:38:12 PM	5/2/2016 3:46:11 PM	5/2/2016 4:28:40 PM	5/3/2016 6:36:10 AM

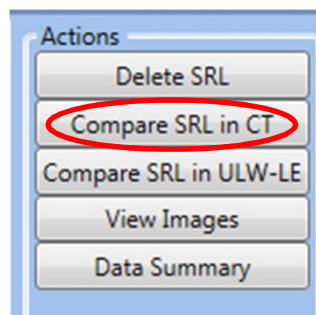
To view/compare response:

- Highlight appropriate transaction
- Go to SRL Preview tab in bottom left hand corner of data grid screen.



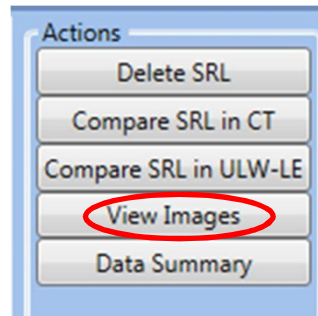
There are multiple ways to view the candidate responses:

1. Select Compare SRL in CT





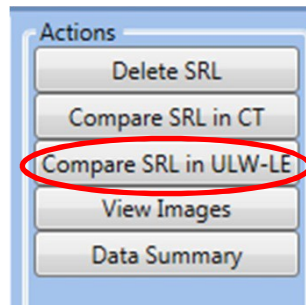
This will take you to the ULW Comparison Tool where you can compare your candidates and make comparison markups on the latent and the knowns.



2. Select View Images.

This will bring up the search print and the response knowns in a side by side box. Use the Previous/Next images buttons to navigate between response images.

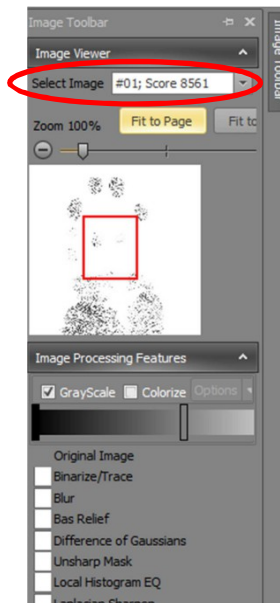




3. Select Compare SRL in ULW-LE

This will take you the ULW Latent Editor. Here you can see the minutia points you marked on your search image.

To navigate through candidate list in Latent Editor, click the down arrow next to



Select Image in the image toolbar on the known image side of your screen.

Documentation

Document any ULW searches on [AFIS Activity worksheet](#) to be maintained in case file. Make clear on worksheet that search was made using the NGI ("federal"). May choose to add note that the NGI search was conducted using the ULW software (vs. remote searching through the NEC or Idemia software).

For HITS

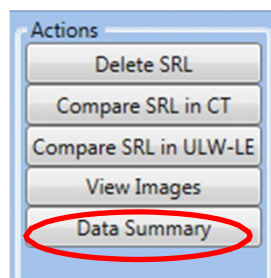
Print the candidate list and a side by side of latent known print (showing the candidate's identifying information) to be maintained in case file and request an



IRQ for comparisons. Prior to making any identification, a copy of the exemplar(s) of a candidate must be retrieved and used for comparisons. The copy should clearly display the name and FBI unique identifier. In instances where this is not clearly captured on the IRQ received, the name/unique identifier will be added to the record either by hand or by electronic means for documentation purposes. The NGI images shall not be used to make final conclusions of identity.

To Print the candidate list:

- Go into Transaction manager
- Go to the SRL Preview tab.
- Click on the Data Summary button. This will give you a list of the candidates, their FBI numbers and scores.

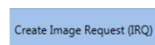


IRQs

There are several ways to request an IRQ (Image Request)

First Method (IRQ not necessarily associated with a case):

- Click Create IRQ button



IRQ box will open. Fill in

the UCN box with the FBI# of the record

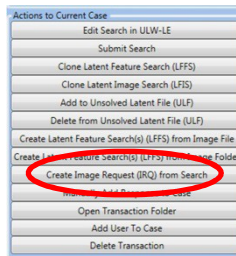
you are requesting.

Click Create IRQ and Submit button. An IRQ transaction will appear in your Transaction Manager data grid. **Second Method** (IRQ associated with a



case):

Highlight specific transaction Request (IRQ) from search Case menu.



and click the Create Image button in Actions to Current

IRQ box will open. Fill in the UCN box with the FBI# of the record you are requesting.

Please enter the subject's UCN, finger number (if less than a full set is desired), and BSI (if imagery from a specific event is desired)

UCN can be alphanumeric but must be no more than 9 characters long

UCN:

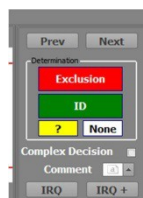
Finger Number:

BSI:

Click Create IRQ and Submit button.

Third Method (requesting IRQ for any candidate in a response in the Comparison Tool):

- Within the Comparison Tool for a response,
- Highlight the candidate for which you would like to request an IRQ.
- Choose either IRQ or IRQ+ depending on circumstances.



IRQ –Automatically creates an Image Request for the master/composite associated with the highlighted candidate. These may not be the images returned in the response. If the UCN appears multiple times in the SRL multiple sets of prints will be requested.

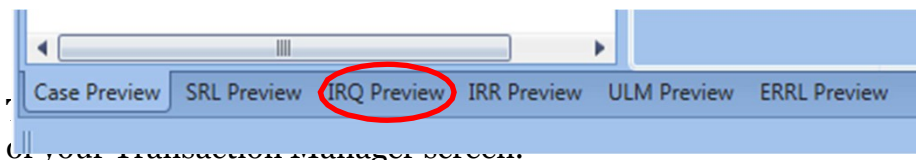


IRQ+ - Generates the IRQ pop-up where the UCN and BSI (Biometric Set Identifier) are prepopulated. Keeping the BSI populated will return a response associated with a specific event.

Remove the BSI and the response will be the master/composite record.

The IRQ Column in your Transaction Manager data grid will now have the number of IRQs requested for that transaction.

Archived	Prefix	Case ID	Ext (CD)	Latent#	Search	Edited	Submitted	In ULF	SRL	IRQ	IRR	ULM	ERRL	Notes
☐			0		IRQ	☒	☒	☐	0	0	0	0	0	
☒	RCH	2016-0540808	1	1	LFPS	☒	☒	☐	1	1	0	0	0	



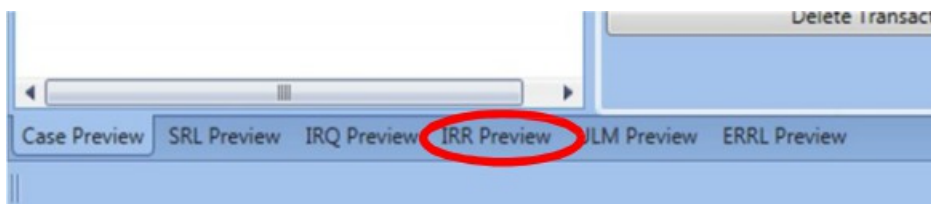
left hand corner

The NGI sends two responses for successful IRQs: an Image Summary Response (ISR) and an Image Request Response (IRR).

- The ISR is an automated response without images that confirms the IRQ was received.
- The IRR is the response from NGI with the fingerprint/palm images of requested individual(s).

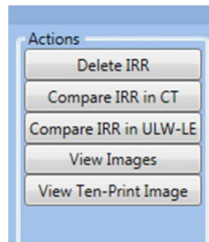
Note: Requests for palms can also be acquired via Palm_Prints@fbi.gov. For general FBI latent support, email latentsupport@leo.gov.

To View the IRR, click on the IRR Preview tab in the lower left hand corner of your Transaction Manager data grid.





Select the appropriate option under the Actions Menu.



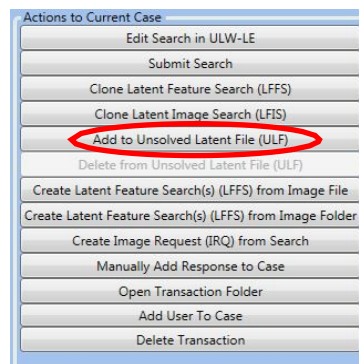
View Tenprints in either a comparison method or use the View Ten-Print Image. Palms must be viewed using one of the comparison methods.

If you use “View Ten-Print Image” you will be able to save to electronic case file or print the exemplar record.

Delete transactions that resulted in a hit from the Data Grid after saving necessary case information in the case file.

For Non Hits

Register to the ULF by clicking on the “Add to Unsolved Latent File (ULF)” which is under the Actions to Current Case column while the appropriate transaction is highlighted.



If multiple transactions have the same image (i.e. clone) only submit ONE of the transactions

When the File Penetration Tool pops up, check the Add to ULW box.

Click Save and Submit button.

A SRL will return, confirming the image was added to the ULF successfully.

Unsolved Latent Match Response (ULM)



If a potential match is generated for an image registered in the ULW's Unsolved Latent File (ULF), an Unsolved Latent Match Response (ULM) will be generated and returned to the corresponding search transaction (if available) in the ULW Transaction Manager Datagrid. A numeral will appear in the ULM column in the Transaction Manager Datagrid indicating how many ULM responses have been received for that specific transaction. The generated ULM(s) should show up in the Transaction Manager Datagrid of the user that originally submitted the search transaction if that original search transaction is still available in the ULW. In the event a ULM is generated, and the original search transaction is unavailable, the ULM response should appear in the ADMIN user profile's Transaction Manager Datagrid.

ULMs shall be routinely checked for under the ADMIN user profile because:

1. If the original search transaction is unavailable, any ULMs returned for that registered impression will only be visible under the ADMIN user profile.
2. If the user that originally sent the search transaction is no longer available to check for ULMs under their own user profile, those ULMs should be available for review under the ADMIN user profile.

To review a ULM, select the ULM preview tab at the bottom of the Transaction Manager Screen while a specific transaction is selected. Then select the "Compare ULM in CT" option.

*See page 61 in the Instruction Manual provided by FBI (dated July 2017)
for more information*

After the review of any ULMs, document as appropriate for Hit results, to include a print screen of the candidate response from the ULW.

If an identification is made to an impression during the review of a ULM, an Unsolved Latent Delete (ULD) request shall be sent for that transaction/impression so the identified impression may be deleted from the ULW's ULF.

To send an Unsolved Latent Delete (ULD) request, Select the appropriate transaction and then click the Delete from Unsolved Latent File (ULF) button under the Actions to Current Case column.

If you do not receive confirmation that the FBI received the ULD, it may be appropriate to send a follow up email to Latentsupport@leo.gov

After ULM has been reviewed and documented as appropriate and you have received confirmation that any identified impressions have been removed from the ULF as needed, delete the ULM transaction(s).



To Delete a ULM transaction, select the appropriate transaction in the Transaction Manager Datagrid. Click on the ULM Preview tab at the bottom of the Transaction Manager datagrid Home screen. Select the appropriate ULM Filename and click the “Delete ULM” button in the “Actions” box under the ULM preview tab.

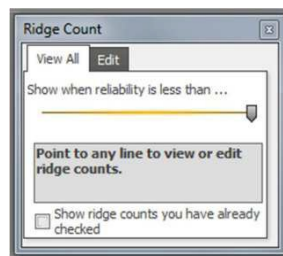


NGI HELPFUL HINTS

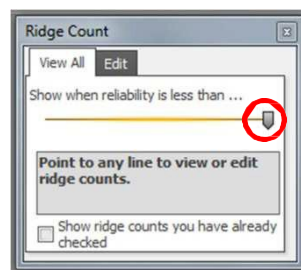
- The ULW workbook has additional information.
- LFIS vs LFFS
 - LFIS (Latent Friction Ridge Image Search) – used with latent images with good ridge and feature quality. Minimal background noise is preferred. NGI encodes the print.
 - LFFS (Latent Friction Ridge Feature Search)
 - Minimal Markup LFFS search – NGI encodes the print. Useful when there are additional friction ridges that are not being searched but could be helpful when making a decision. Examiner only needs to rotate if necessary and mark the ROI (mandatory).
 - Quick Minutia LFFS search – Used when images have a lot of background noise, poor ridge detail, double taps, overlaid ridges, etc. Examiner encodes the print; crop and rotate is needed; mark ROI; minutia; clear cores and deltas.
- Use the spacebar to toggle minutia points/ROI on and off.
- Hover over a minutia point, when it turns yellow click to delete.
- Hover over a minutia point, when it turns yellow right click to mark uncertainty radius for point.
- Use the same ULW terminal to send file and receive the response.

Ridge Counting in Latent Editor Tips:

- When you click the Ridge Count button, the following box will pop up:

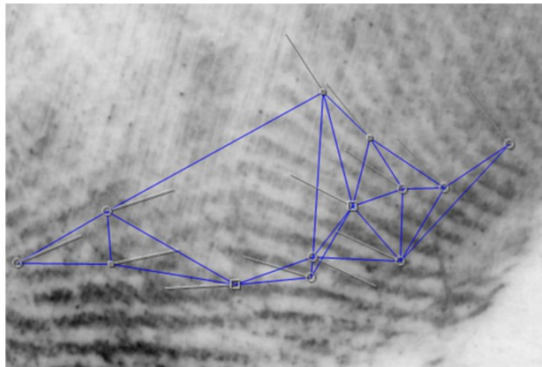


The slider allows you to display the ridge counts based on reliability of that ridge count. If you move the slider all the way to the right, a ridge counting matrix will appear on your print displaying all ridge counts. (*See the example below.)

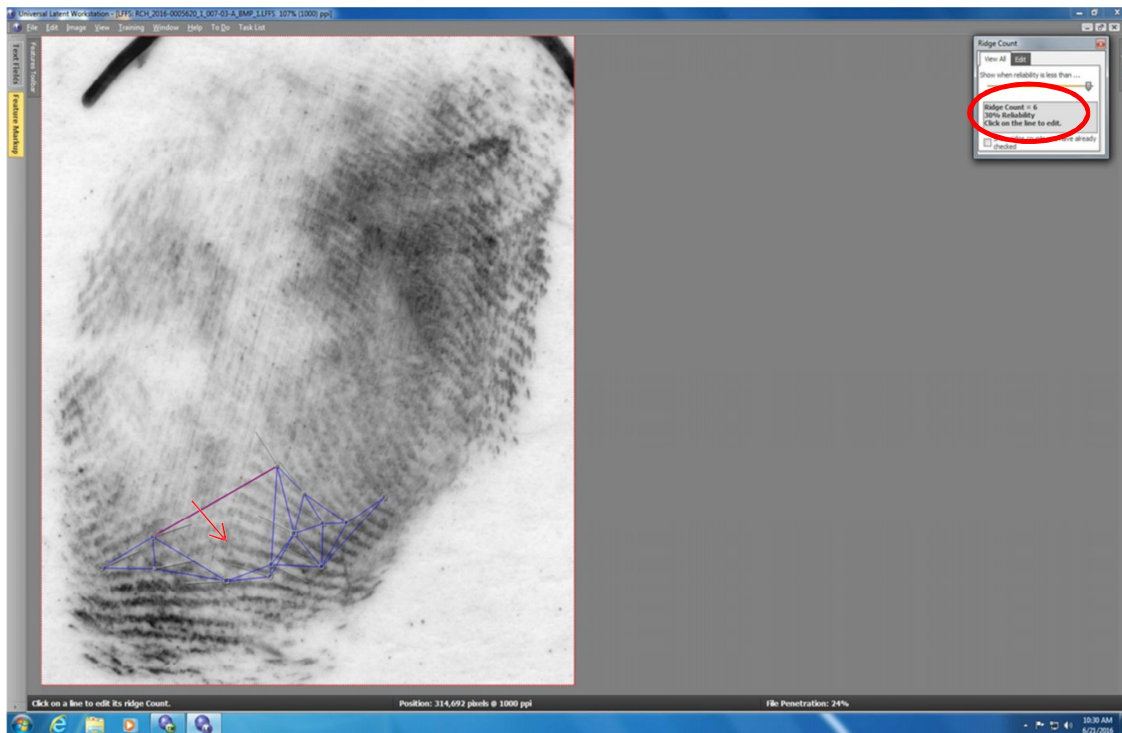




*Example of ridge counting matrix displaying all ridge counts:



If you hover over one of the lines until it turns red, the ridge counting box will display the current ridge count between those ridges and the reliability of that count.



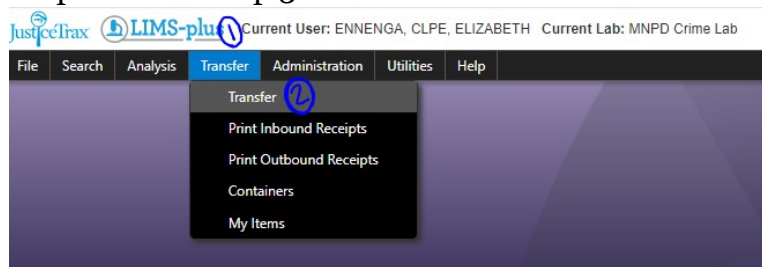
You can then click on that highlighted line to edit that specific ridge count.



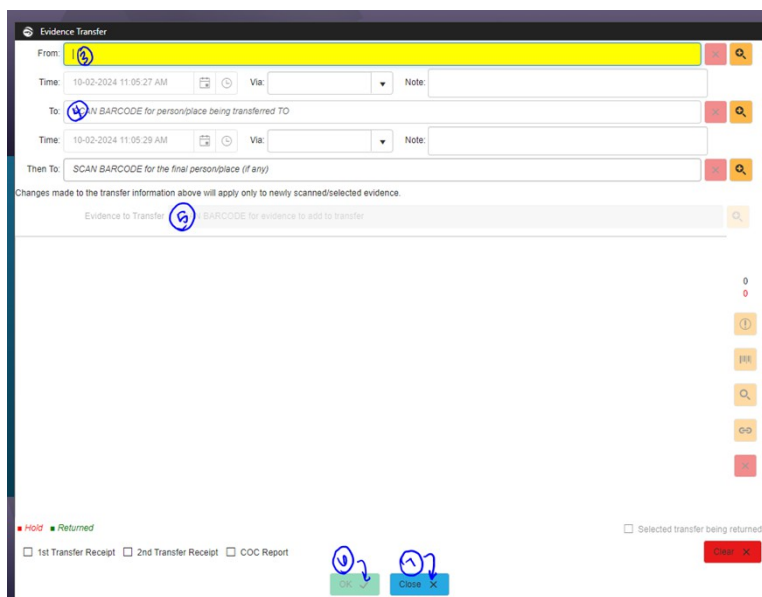
Appendix E Admin Processing

Admin Processing/Intake

1. After ERU sends a notification that the latent print envelopes are ready, an LPU staff member will pick-up from the ERU counter. A member of the ERU will put the envelopes into the LPU staff member's custody (will need barcode or scan without barcode and pin number). Verify that the number of envelopes transferred is the number received and that the evidence is properly sealed upon accepting into custody.
2. Once back in LPU, transfer all envelopes from LPU staff member to the LPU Vault using the computer located in vault (if not beginning admin processing) and place the envelopes in the 'Admin Processing' bin in the LPU Vault or proceed to step 3.



3. Transfer evidence to staff member for Admin Processing. Open the latent envelope and check that the information on the card(s) matches the information present on the envelope.
 - a. If the incident numbers don't match, email officer and confirm the correct number (upload that email correspondence chain into the casefile in LIMS under the admin processing request). If the





officer's name or similar is missing, make a note in DEMS. If lift surface is not listed or unclear, attempt to clarify discrepancies with lifting officer in email correspondence to be uploaded to LIMS request folder.

4. Date and initial the exterior of the envelope and number the lift card(s) in the upper right corner with red ink. Write the submission number on the exterior of the envelope in red ink.
5. Scan front of envelope and all lift cards using the Epson Scanner at 1000 dpi in .TIFF file format into designated folder.
 - a. Optional to change the name of the scan to the item number (i.e 001-01) prior to uploading them to DEMS
6. Open DEMS and add a folder
7. Fill in incident number, crime type (unknown is normal), and date of offense

The screenshot shows a web browser window with the URL <https://pdvmdmpr01.metrodpd.org/adamsweb/Default.aspx>. The page title is 'Adams Web'. A 'New Folder' dialog box is open, prompting for the following information:

- Folder ID required:** Incident # [text input]
- Confirm Incident #:** [text input]
- Crime required:** Select... [dropdown menu]
- Date of Crime optional:** mm/dd/yyyy [calendar icon]

The background interface shows a 'Folders' section with a table:

Type	Number
Incident	20240633207
Incident	20240631031
Incident	20240633170

At the bottom, there is a 'Disposal Review Fol' section.

8. Select Assets and drag over scans
9. Select Asset Owner (drop down), Latent envelope, submission (subm) number in description. click NO to the popup
10. Highlight the lift card image and select edit
 - a. Change category to latent lift card and label
11. Open LIMS and search for case using either barcode or lab number
12. Select the correct request in the Requests tab at the top (entered by ERU), right-click select itemize
13. Fill in description (shortcut LLC F3: description on back of envelope as it appears), select evidence type – latent lift card
14. Print small barcode and place it on the back of the lift card, information side (do not cover any writing or info)
15. Navigate back to the Requests tab, select the correct related request for submission, right-click and select 'edit' and assign to self.



16. Select the three dots in the lower right corner where stats are entered. Enter the number of items and the number of lift cards into this DEF.

Digital Image Submissions

17. Open email from EPU in the Crime Lab LPU folder
18. Open incident number in LIMS
19. Create new item in the Evidence tab

The screenshot shows the LIMS system interface. At the top, there are tabs for File, Search, Analysis, Transfer, Administration, Utilities, and Help. Below these is a header bar with 'Case CL-25-002743 (20250323004) - RESULTS TO REQUESTING REP ONLY!'. The main area has tabs for Case Info, Agency, Offense, Individuals, Evidence, Requests, and Attachments. The 'Evidence' tab is selected. Below the tabs, there are buttons for 'Add', 'Add with KR', and 'PR'. The 'Add' button is highlighted with a blue circle and an arrow. Below the buttons is a list of evidence items, each with a unique ID and a description.

20. On the next screen fill in all required information (highlighted) and click the pen button at the bottom right of the screen.

The screenshot shows the 'Add' form in the LIMS system. The form contains several fields, some of which are highlighted in yellow. These fields include: Agency (Metro Nashville Police Department), Rep (661312), Source (BELCHER, DOUGLAS A), Inherited COC, Container, Evidence No (019), Intended Disposition (Digital Evidence Management Software (DEMSForay)), Other ID, and Origin (Electronic File). There are also checkboxes for 'Hold at Lab' and 'Request Barcode'. At the bottom right of the form, there is a blue circle with a pen icon, which is highlighted with a blue arrow. Below the form is a table with columns for Req #, Service, Due Date, and Reason. The table contains one row with Req # 0001 and Service Admin Processing. At the bottom of the form, there are buttons for 'Save', 'Cancel', and 'Lock Apply'.

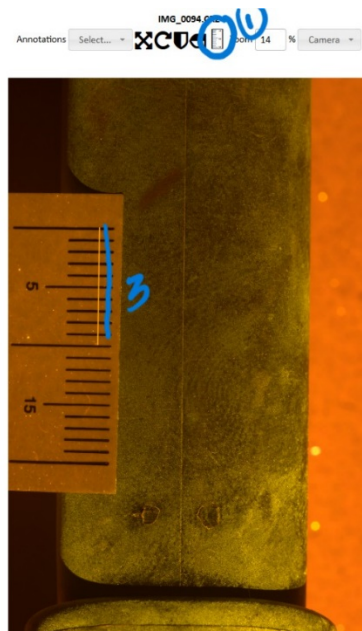


21. On the next screen fill out transfer information.

22. Follow instructions above to itemize each of the photos using LDIG auto text just as you would a latent lift.

23. In DEMS:

- Edit each image. Fill in Exhibit number (item number) and add item number to the description
- Click on open square to the left to open each image individually. To calibrate, click on the ruler at the top of the page then select manual, drag the ruler across and select appropriate unit (e.g. 1cm on the scale in the photo then enter 1 into the distance box). When back in the main screen with all the images in tile format there should be a yellow ruler in the upper right corner of each image that has been calibrated.





24. Transfer evidence back to DEMS (should turn the item green in LIMS) after workability determination.



Determine Workability

25. If there is of value ridge detail move to photoshop
26. Select latent lift in DEMS and click 'Process', drop down to 'Process in Photoshop as TIF'
27. In photoshop add a layer and rename it with name of latent (i.e. 001-01-A) and 'Prep Analysis' with initials
 - a. Only one latent needs to have analysis markup to show workability
28. With pen or brush tool, mark minutiae
 - a. Blue indicates confident detail
 - b. Yellow indicates cautious detail
29. Arc or bracket impression and letter add a (-) for AFIS quality
 - a. *here is where you can crop, hide layer and save to F:// drive for remote database entry*
30. Add the name of the impression, 'Prep Analysis', your initials and date in red text
31. Save changes and label the new asset in DEMS as 'Prep Analysis'
 - a. *If doing step 27a make sure to make your layer visible before saving to DEMS*
32. In LIMS go under the evidence tab and right-click on the submission. Click the data extension field (...) and update workability.
33. In LIMS go to the Request tab and right-click on the Admin Processing Request, select Edit Findings. Click on envelope and right click, choose Add Result. Select Completed result type and Save and Close.
34. Move to AFIS databases for entry or transfer the envelope and lift cards into the Vault custody. Place the Workable – AFIS quality envelopes into the correct bin in the Vault, seal and file the no value and workable – not AFIS quality envelopes by incident number in the rotating file cabinet.

Note: If Workability and AFIS entry are not completed by the same person, a separate Admin Processing Service Request must be entered for AFIS entries.