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## Section 1 – Documentation

**Laboratory Information Management System (LIMS):** This system houses the latent print workflow, chain of custody, case assignment and reporting. The current LIMS manual is located: [JusticeTrax LIMS-Plus 3.8 Manual.docx](#)

**Older State of Alaska Latent Case Records:** Stored in laboratory room 2225. Access to this room is limited to laboratory personnel. These case records are uniquely identified by a laboratory number. The following procedure is for cold case retrieval and digitization once the case is retrieved:

- Check LIMS for any existing barcodes, if no entry found, create a new barcode.
- Scan all paper documents and upload them into the case file in LIMS. All physical evidence will be digitized/scanned and uploaded into ADAMS.
- Return all evidence to originating agency.

**Proficiency Testing:** Each analyst fully trained in Latent Print Processing and Latent Print Examination will participate in yearly proficiency testing.

**Monitoring Performance:** In addition to yearly external proficiency testing in latent print processing and latent print examination, once per accreditation cycle each competent forensic scientist in the discipline will undergo additional performance monitoring activities from the following:

- Direct observation or internal latent print processing proficiency test (Enhancement)
- Internal latent print examination proficiency test (Individual Characteristic Database)

Direct observations will be documented as a case activity in LIMS. If a forensic scientist successfully completes the Latent Print Examination IAI Certification test in an accreditation cycle, this will be taken in lieu of an additional internal latent print processing and examination proficiency tests.

**Reviews:** All Technical and Administrative reviews will be documented within LIMS. All original and corrected version(s) of the analysts' original observations are stored in LIMS. Any changes to be made by the original analyst will be noted along with the rejection severity code in the "Reject Findings" reviewer box. Rejected data is retained in the technical record through LIMS Audit Trail or the attachments.

- Rejection severity coding:
  - Level 1: Virtually no effect on reported results. Example: Minor grammatical errors
  - Level 2: Low effect on reported results. Example: Wrong chemical lot number listed
  - Level 3: Moderate effect on report results. Example: Incorrect APSIN number or name reported.
  - Level 4: Major effect on reported results. Incorrect, loss or destructive of critical evidence. Examples: Out of sequence processing or erroneous identifications.
    - All level 4 reject reasons will be brought to the technical lead and the appropriate supervisor for further review.

The case Analyst will make the necessary corrections, and then the Reviewer will ensure all corrections have been documented appropriately before completing the case in LIMS.

**Technical Records:** Technical records relating to the Latent Print (Friction Ridge) discipline are stored at the laboratory either in the LIMS, or in the Authenticated Digital Asset Management System (ADAMS). Testing activity dates for Latent Print processing are captured in LIMS, while dates for Analysis, Comparison, Evaluation and Verification are captured in ADAMS via the Asset Audit Trail and on composite images.

**Meetings:** Physical section meetings will be held as needed or via electronic communication updates.

**References:** Most references can be found on the [SharePoint document library](#).

## Section 2 – Software

### **Authenticated Digital Asset Management System (ADAMS)**

ADAMS is a digital asset software program made by FORAY Technologies. ADAMS serves as the repository for digital images taken during casework for the Physical Discipline (including Latent Prints, Crime Scene, Firearms and Footwear). Access to ADAMS and the Digital Assets are limited to staff members who work in the Physical Discipline.

ADAMS Web can be accessed here: <https://adams.dps.alaska.gov/AdamsWeb/>

Overall packaging and contents for all items of evidence received will be photographed, uploaded in LIMS, and acquired to ADAMS. Overalls should be taken in JPEG (cameras) or TIFF (scanners) file format. The DLSR cameras mounted on the copy stands near the Alternate Light Source (ex: Lasers) and RUVIS stations are not meant for overall photography. Care should be taken to maintain the settings for casework imaging.

All casework imaging for examination purposes should be captured in RAW file format (digital photography) or in the TIFF file format (scanning). These images will be acquired to the ADAMS repository as the permanent record and are referred to as Assets. The Assets once acquired contain an electronic audit-trail. All digital images received as evidence items (CD/DVD, thumb drive, etc.) must be acquired to ADAMS to maintain the audit trail prior to examination.

ADAMS Digital Workplace provides a calibration utility tool which allows images to be sized at a 1:1 ratio.

The minimum resolution in Pixels Per Inch (PPI) for capturing the following types of evidence is listed below:

Type of evidence	Captured (scanned) at a minimum of:
Latent Impression	1000 PPI
Known Cards	500 PPI
Documentation	300 PPI

If there is a pre-existing unique identifier on the scale/tag or image file name, that identifier should be maintained by the Analyst, and reflected in the Asset name displayed in ADAMS.

If known inked exemplars are generated in the laboratory by properly trained Analysts, they will be given a unique identifier and entered into LIMS as an item of evidence. The exemplars will be digitally preserved and stored in ADAMS and the originals will be destroyed once the digital record is complete. The chain of custody will reflect the "Digital Imaging Server" as the storage location in LIMS.

### **Adobe Photoshop**

The Physical Discipline utilizes Adobe Photoshop for digital image enhancement. From ADAMS, an original image can be opened in Photoshop for digital processing. The goal of digital processing with regard to latent print imaging is to improve the contrast and remove unnecessary color or substrate patterns from the image. All Photoshop installations used for digital processing must have the History function enabled within the application. This feature records all enhancements made to the image. ADAMS, when used with Adobe Photoshop provides a secure and traceable means of digital image storage and processing.

See Appendix A for [ADAMS](#) and Adobe [Photoshop](#) Working Instructions.

## Section 3 – Equipment

**Keys:** Additional sets of keys for the evidence storage lockers within the latent print laboratory are locked in a key box within the latent case file archive room. Access to this room is limited to Latent Print Discipline Analysts, and the Physical Discipline Supervisor. The key box can only be opened by the Physical Discipline supervisor or designee who can then transfer possession of the key to an Analyst. If an evidence locker key is lost, the Physical Discipline Supervisor must be notified immediately.

**Records:** Equipment records should include the identity of the equipment, location, manufacturer's instructions, performance checks, calibration certificates, adjustments, date of next calibration as applicable, maintenance performed, a [maintenance plan](#), and repair records. These records will be stored electronically in SharePoint. If hard copy records exist, they will be retained by the Physical Discipline Supervisor.

Equipment records and manuals are located: [Physical](#)

Balances used for chemical preparation in the Latent Print Discipline are checked and calibrated yearly by an approved outside vendor. Normal maintenance includes keeping the balance clean and level.

### **Equipment:**

- Digital Scale
  - Mettler-Toledo
- Scanner
  - Epson Perfection V600, V700
- Cyanoacrylate Fuming Chambers
  - Misonix CA-3000, Misonix CA-6000, Misonix CA-9000
  - Foster & Freeman MVC/5000
  - Ultrasonic Humidifier
- Humidity Chamber
  - Misonix Incubator Model FE-8000
- Laser
  - Coherent TracER Compact
  - Foster and Freeman Crime-Lite Laser
- Digital Cameras
  - Canon EOS-5D Mark II/III/IV, Canon PowerShot
- Reflected Ultraviolet Imaging System (RUVIS)
  - SceneScope Advance SC-VIEWER-AD
  - SC-Digital-RUVIS 16MP
  - Digital camera and camera mount
  - 254nm (Ultraviolet) Lamp, video attachment and large screen display
- Coaxial Light Guide
- Optimizer PCR Workstation/ Mystaire Clean Prep Station
- RECOVER LFT (Latent Fingerprint Technology)

Performance checks and validation records are located: [Friction Ridge Validation Reports](#)

**Performance checks:** Will be done on all equipment (with the exception of: digital cameras, the coaxial light guide, scanners, and flashlights) after maintenance has been performed. If a piece of equipment is taken out of service, the Physical Discipline Supervisor will be notified, and a sign will be placed on the equipment stating it is out of service, the date, and the Analyst's initials. Once the equipment has been repaired but prior to use in casework, the Analyst is responsible for checking the [maintenance logs](#) to verify the equipment was fixed and that a new performance check was completed.



## Section 4 – Processes

Procedures for physical evidence processing are usually divided into two categories: porous and non-porous surfaces. Processing methods used are left to the Analyst's discretion.

Analysts trained in Latent Print Processing may triage casework by selecting and processing a portion of the evidence that has the best chance of recovering latent prints and after consulting with an Analyst trained in Latent Print Examination in an attempt to identify the listed individual(s) in the case. If the latent print Analyst identifies the listed individual(s) of interest on an item, processing and comparison can cease. When sample selection is performed the Analyst will document what was selected in their notes.

- ❖ APD Latent Print staff may triage item processing and/or examination only with agency representative communication approval and this will be documented as a Case Activity.

In addition, trained Analysts can perform Touch/Contact DNA collection from items of evidence prior to latent print processing (See NIBIN information for exceptions).

The following are approved methods for Latent Print Processing. See [Appendix A](#) for working instructions.

### **Processes:**

- Cyanoacrylate
- Reflected Ultraviolet Imaging System (RUVIS)
- Rhodamine (R6G)
- 1,2-Indanedione (IND)
- Ninhydrin
- Amido Black
- Powders
- Liquid Powder Suspension
- Small Particle Reagent (SPR)
- RECOVER LFT

Chemical reagent preparation for latent print processing is not dependent upon exact measurements. All reagents in the latent print discipline are non-critical reagents and are not critical consumables. There are no instrumental analyses and measurement of uncertainty does not apply to the Latent Print Discipline.

A quality control is performed at the time the new reagent lot is prepared and again with each use during casework. The control results are recorded in LIMS. During processing, reagents are poured into properly labeled secondary "day use" containers which should be emptied at the end of each day.

**Batch Processing:** To minimize the risk, appropriate care and documentation will be used to confirm the item identity prior to repackaging as determined by the Friction Ridge analyst.

- If an item swap occurrence is discovered the analyst will then be required to reduce their batch size to no more than three 'like items' and will include photographic documentation prior to re-sealing for three months.
- If a second occurrence related to a specific analyst occurs, the analyst will not be allowed to batch 'like items' for a period of three months.
- If a third occurrence is noted a performance improvement plan or other measures will be implemented at the discretion of the appropriate supervisor.

If any new methods/techniques are to be tested, the Technical Lead will consult with the Physical Section Supervisor. A validation will be performed and if successful, approved by the Technical Lead. Each Analyst will complete a training module prior to use in casework.

All prepared chemicals will be documented using the [Chemical Reagent Template](#). Each generated lot/batch will be saved as a PDF file named with the lot number and saved to [SharePoint document library](#).

The Latent Print Physical Section Laboratory will be cleaned at least once a year. The Physical Discipline Supervisor or designee may determine if more is needed. The general laboratory cleaning areas are located: [Physical Lab Cleaning Records](#)

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**Multi-disciplinary Testing of Items:**

Latent print requests will be pended by the Physical case managers (or designee) upon receipt and normally released to be worked upon communication of completion by the other disciplines.

- **30 Day Time Limits:**
  - Permission to Consume requests from other disciplines (Forensic Biology or Controlled Substances) will be reviewed by the Physical case managers or latent print case Analyst. Further communication to the submitting officer may be necessary prior to cancelling the Latent Print request for the appropriate item requiring consumption.
- **Latent Print / Controlled Substances requests:**
  - Routine Latent print testing will occur after Controlled Substance testing has been performed. Items which have been tested by the Chemistry discipline will be tested for Latent Prints.
    - Items that were not worked by Chemistry or where “no controlled substances were found” will not be processed for latent prints. Communication to the submitting officer will be made by the Latent Print case manager and documented in LIMS.
  - If an item requires a “Permission to Consume” request, routine latent print processing will not proceed until permission has been received and Controlled Substance testing is completed.
    - Alternatively, visual only or non-destructive processing method such as RUVIS may be employed depending on the case circumstance and will require case activity communications to be logged in to LIMS by the Latent Print Tech Lead, APD Forensic Supervisor or the Physical Supervisor.
  - Under special circumstances, the Physical Section Supervisor or APD Forensic Supervisor may request that certain items (relating to major case offense types) that were not tested by controlled substances to be repackaged to allow for preservation and integrity of the unknown substance while the packaging materials be made available for latent print processing.
    - These requests will be logged as a Case Activities in LIMS and should be communicated as soon as possible to the Chemistry Supervisor or to the Assigned Controlled Substances Analyst. It is considered best practice that these items be repackaged by a trained Forensic Scientist in the Chemistry laboratory spaces due to the inherent danger of the unknown substances present.
- **Latent Print / Biology requests:**
  - Item contact swabbing may be done by either the Latent Print Section or Biology, depending on normal case flow and availability. Any question or consultation with Biology will be logged under Case Management Case Activities in LIMS.
  - Latent Print requests with Forensic Biology that require screening for possible blood will be pended in LIMS by the Physical Section Supervisor or APD Forensic Supervisor to allow Biology to go first.

**LP-NIBIN Processing (APD Only):**

- Person crimes
  - Fully process all firearm related items with all available and applicable methods.
    - Including contact DNA swabbing if necessary and ammunition if submitted.
- Non-Persons crimes
  - All firearms related items will be processed excluding ammunition.
    - Ammunition should be accounted for, photographed in item overall images, and re-packaged into a laboratory plastic bag contained within the original item packaging.
    - Additional processing may occur at the analyst’s discretion.
- **Swabbing Red/Brown Stains:** Red-brown stains may be swabbed in addition to Touch/Contact swabs for LP-NIBIN Processing cases only. All swabs will follow the protocol for Touch/contact DNA collection.
  - The swab will be designated “item number-R1” to differentiate from a contact swab.
  - The location of the red-brown stain that was swabbed will be documented under the LP Processing, “observation” field.

Additional requests for Latent Print Examination and/or DNA swabs created during a LP-NIBIN processing can be sent to [dps.LPNIBIN.Request@alaska.gov](mailto:dps.LPNIBIN.Request@alaska.gov) referencing the associated Laboratory Case Number. This email group will be monitored by APD Latent Print Staff. In cases where further DNA analysis is requested, a known sample for comparison purposes will need to be submitted separately with an RLS.

## Section 5 - Analysis, Comparison, Evaluation, and Verification (ACE-V)

This methodology consists of four parts and is a structured and systematic guide for comparing friction ridge detail. A latent print is defined as friction ridge detail from an unknown individual. A known print is defined as friction ridge detail recorded in a controlled manner from a known individual.

An Analyst may consult with a secondary Analyst at any time. This consult will be documented in LIMS to include at minimum: the Analyst who was consulted, the information discussed, and the outcome. When possible, the consulted Analyst should not be the assigned Reviewer for that case.

The basis upon which opinions and interpretations are made is documented in the Identification and/or Verification composites stored in ADAMS Web and in the Analysts notes in LIMS.

### **Analysis:**

Before a latent print may be used for comparison, the suitability of the ridge detail must be determined. This is done by analyzing the quality and quantity of the three different levels of detail:

- Level 1 Detail (ridge flow)
  - General ridge flow, pattern configuration, core and delta location, distinction of finger versus palm, and other information enabling orientation.
- Level 2 Detail (characteristics within the individual ridge path)
  - Ridge endings, bifurcations, dots, or combinations thereof.
- Level 3 Detail (ridge shape)
  - Ridge width and shape, pores, edge contour, incipient ridges, breaks, creases, scars, etc.

If the Analyst determines that a latent print does not contain sufficient characteristics, it is determined to be not suitable for comparison and identification purposes, and analysis is complete.

If the Analyst determines that a latent print contains sufficient characteristics, the latent print is determined to be suitable for comparison and identification purposes and moves on to the next step, Comparison.

### **Comparison:**

The first step in the comparison process is to determine if there are individual(s) to compare. All associated individual(s) in a case will be documented in LIMS. A comparison will be performed if any known prints are available.

Comparisons are made between the latent print and the available known prints to determine if the ridge detail present is in agreement or not. Comparisons can also be performed between two latent prints or two known prints to determine if the prints came from the same source.

If the available known prints for an individual are of low quality or not completely recorded, additional known prints will be requested from the submitting agency for the affected individual(s).

If known prints are not available for an individual the Analyst should move to the automated database search process if the latent print is a reliable search candidate. If the latent print remains unidentified, known prints will be requested from the submitting agency for further comparisons to be made.

**Evaluation:**

One of the following conclusions will be reported for all latent print comparisons.

**Match or Identification:** There are sufficient features in agreement to conclude that the latent print is identified to a known print of an individual. Source Identification is the strongest degree of association between two friction ridge impressions. It is the examiner's opinion that the observations provide extremely strong support for the proposition that the impressions originated from the same source and extremely weak support for the proposition that the impressions originated from different sources. Source Identification is reached when the friction ridge impressions have corresponding ridge detail, and the examiner would not expect to see the same arrangement of details repeated in an impression that came from a different source. Each identification is documented by the case analyst using a digital composite consisting of the latent print and the known print. Ridge detail observed in agreement is then marked on this composite and saved as the identification composite. Both unmarked and marked composites for each latent identified are stored in the "Work Product" folder on the internal network drive and an additional request is created in LIMS for verification.

**No Match:** There are sufficient features in disagreement to conclude that the latent print was not made by the recorded known areas of friction ridge skin available to the Analyst at the time of the comparison. A No Match conclusion does not refer to the exclusion of the individual. The Analyst will acquire the known fingerprint cards to ADAMS Web prior to sending for review.

**Inconclusive:** No conclusion could be reached regarding the latent print and the available known prints because portions of the known prints are of low quality or not completely recorded. The Analyst will request appropriate known prints for the individual(s) from the submitting agency to complete the comparison and evaluation steps. All inconclusive results will be qualified in the report summary and the Analysts observations. The following wording should be used in the report; Latent print XX was compared to "Person A" with inconclusive results.

- If a re-analysis occurs where the latent print is determined to be of no value for identification, an inconclusive result can be reported.

**Exclusion:** There are sufficient details in disagreement between the latent print and the friction ridge skin from an individual to conclude that the latent print did not originate from that known source or to the available known records according to examiner discretion. In order to reach an Exclusion conclusion, the following criteria shall be met:

- An "anchor point" must be present and is defined as follows; Delta, Core, or Palmar Major Crease or distinctive ridge flow (Ex: vestige).
- There must be clear indication of anatomical location of the latent print allowing for orientation to be established.
- Clear/suitable known prints from an individual that recorded applicable ridge detail including the "anchor point" present in the latent print. Exclusion of an individual can only be reached if all relevant comparable anatomical areas are represented and legible in the known print records. All available known prints used to arrive at an exclusion of an individual must be included in ADAMS and a part of the technical record.

If an exclusion conclusion is reached, the following wording may be used in the report; "Latent print XX was excluded to the available X record from "Person A". An additional request will be created in LIMS for verification and all exclusion conclusions must be verified by a second Analyst.

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**Verification:**

All identified latent prints will be verified by a secondary Analyst using the unmarked digital composite created by the original case Analyst, marking the friction ridge detail observed in agreement on this composite and saving it back as the verification composite. The verifier will confirm the documented finger number, name, APSIN/SID number are correct on the composites during verification. The verifier will acquire all of the composites to ADAMS after the verification has been completed. All verifications will be documented in LIMS and the verifier will specify the designated latent print numbers for all verifications made.

**Disagreement:** In the event that the verifying Analyst disagrees with the original Analysts conclusions, the disagreement will be noted in one of two ways. (Note: Additional reviews are performed until an agreement is reached and all original and corrected note version(s) are stored in LIMS.)

1. The Analyst's notes will be corrected and the disagreement will be noted in the Analysts notes in LIMS. The following wording should be used: "Consulted with Latent Print Examiner XX on the comparison and evaluation of latent print XX. A consensus was reached and (include outcome)."
2. If an agreement cannot be reached between the verifier and original Analyst, the disagreement will be documented in LIMS and then sent to the Physical Discipline Supervisor or Latent Print Technical Lead for resolution. The following wording should be used: "Consulted with Latent Print Examiner XX on the comparison and evaluation of latent print XX. A consensus was not reached, was forwarded to the Physical Section Supervisor or Latent Print Technical Lead for evaluation."
  - If the Physical Discipline Supervisor (or Latent Print Technical Lead) agrees with the original Analyst, a second verification request will be created and completed in LIMS.
  - If the Physical Discipline Supervisor (or Latent Print Technical Lead) agrees with the initial verifier, a second request will be created, and the latent will be re-worked by the original verifier. The original Analyst's notes and request will also be completed in LIMS.

**Exclusions:** The verifying Analyst will confirm all exclusion criteria has been met and using the known prints provided by the original Analyst, determine if they agree with the original Analysts presented conclusion.

1. If the verifying Analyst does not agree with the original Analysts conclusion, then the disagreement steps outlined above will be followed and another Analyst may be designated to review the latent print in question.

**CODIS Cards:** Analysts may be requested to verify fingerprints and information (including Name and APSIN number for that individual) present on CODIS cards. (A request may also be received from the DPS Records and Identification unit on physical cards or duplicate records.)

The Analyst should use the APSIN interface to determine if a fingerprint record is on file for the named individual and that the APSIN number present on the card corresponds to that individual.

- If a fingerprint record is on file, the record will be viewed through the ABIS (ARCHIVE or BROWSE) and proper visual comparison techniques will be used to establish a positive or negative verification conclusion.
  - a. If a positive conclusion is reached, the Analyst will initial and date the CODIS card next to the fingerprint used for verification and by the documented APSIN number confirming it is correct for that individual.
  - b. If a negative conclusion is reached, the Analyst will strike through the documented APSIN number and the fingerprint(s) will be entered and searched through the automated database search process.
    1. If the search results in an identification, the APSIN, SID, or UCN number will be denoted on the CODIS card along with the initials and date of the Analyst.

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2. If the search is negative, the Analyst will write "No record located" and initial and date by each fingerprint search. The analyst will then return the card.
- If no fingerprint record is on file for the APSIN number provided and a name search of the demographic information in APSIN is also negative, then the fingerprint(s) will be entered and searched through the automated database search process and the results will follow the documentation steps 1 or 2 above.

### Digitized CODIS Cards in LIMS:

If an Analyst receives a request from Forensic Biology, the digitized CODIS Cards will be found in LIMS under the laboratory case number. The Analyst will download a copy of the card and use photoshop to apply the markings as written in the procedure as listed below for hard copy cards. The verified card will be added to the LIMS Case attachments, and the previous uploaded card should be renamed to include "Original".

An email will then be sent to: [DPS.Fingerprints@alaska.gov](mailto:DPS.Fingerprints@alaska.gov) containing the following information:

*Subject: DNA Identification*

*I have performed a comparison on the following DNA card:*

*Name on Card:*

*LIMS #:*

*Date Identified:*

*Technician Initials:*

*APSIN ID:*

*Please process this through the e-submissions database as this card has been completed.*

**Digital Submissions of Latent Print Evidence:** A Request for Lab Services form (RLS) should be submitted by the officer to: [dps.latent.fp@alaska.gov](mailto:dps.latent.fp@alaska.gov). The evidence 'Item number' should be unique to the case, as with any physical evidence submission, and the description should state "Digital Images of fingerprints recovered from XX". Then the evidential digital images should be submitted to the laboratory via the State of Alaska's 'ZendTo' website located: (<https://drop.state.ak.us/drop/>).

Upon receipt of the digital submission, the analyst will enter the case, evidence, and latent print request in LIMS. The chain of custody should include the submitting officer's name, via 'ZendTo', to the receiving analyst's name with Digital Imaging Server as the final location.

Anchorage Police Department cases that only contain digital images of impression evidence and that do not already have a laboratory case number will require a new Request for Lab Service (RLS) be submitted to the laboratory.

- The digital images evidence 'Item number' should be unique to the case and the description should state "Digital Images of fingerprints recovered from XX". The analyst will enter the case information, the digital evidence item with a proper chain of custody, and latent print request in LIMS. The chain of custody should reflect the images originating from the APD-Digital Imaging Server, via the source, to the Analyst with Digital Imaging Server as the final location.



## Section 6 – Database Search Process

All latent prints that are of sufficient quality and have not been identified with known finger or palm prints can be entered into the automated search process. The latent prints are searched at the discretion of the examiner.

**TLI Guidance:** If a latent print is registered in the Unknown Latent Database (ULD) for additional searches as the databases records are updated, the original analyst should routinely check the Tenprint to Latent Inquiry (TLI) queue to check for updated search results. If the TLI search results in an identification of the registered latent print, the case analyst should confirm the status of the case in LIMS for previously released identification reporting and confirm the offense statute of limitations. If applicable, a new Latent Print Request in LIMS will be created, and the results of the search will be reported along with any additional comparisons conducted relating to the case to the appropriate submitting agency representative.

**Case and Database Maintenance:** The ABIS/WIN system automatically closes and purges latent print cases where the statute of limitations has expired. If an analyst comes across a case with an expired statute of limitations that has been adjudicated or has been completed where there are no remaining unidentified latent prints then the case can be closed manually. (Closing a case in ABIS/WIN will remove any registered latent prints from active searching, the case can re-opened if additional searches or activities become necessary.

The user guides for the following software are externally controlled and stored on the internal network drive.

- Integra ID Archive - A secure web-based user interface that provides access to a repository of person and event records. It is a record database jointly shared by Alaska, Oregon, Idaho, Utah, Nevada, Montana, Washington, and Wyoming. California and other individual agencies are interface members of the network.
- Integrated Biometric Workstation (IBW) – An advanced matching system designed to assist in the identification of individuals based on their biometric information.
- Automated Biometric Identification System/Western Identification Network (ABIS/WIN) – A computer database utilizing Integrated Biometric Workstation (IBW).
- Next Generation Identification (NGI) – An FBI electronic repository of biometric and criminal history information providing the ability to search latent fingerprints and palm prints left at crime scenes or recovered from physical evidence against a national biometric repository with improved accuracy and access to event-based criminal, civil, and unsolved latent biometrics.
- Universal Latent Workstation (ULW) – Interactive software for latent print examiners. The software improves the exchange and search of latent friction ridge images involving various ABIS Systems and the FBI's NGI system with a single encoding.

Latent Print Analysts using the WIN/ABIS system can refer to the current WIN/ABIS - NEC Integra-Identified IBW Latent Users Guide as a reference for best practices.

Database performance monitoring will include a ground truth sample to be entered and searched in the database. Passing will be the analyst reporting the expected result obtained.

At the end of each month, all prints submitted and searched will be logged on the ABIS WIN Monthly Report controlled document. The document will be uploaded into the following locked location on the [internal network drive](#).

## Appendix A – Working Instructions



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**Contact DNA**

In addition to latent print processing and recovery, Physical Discipline Analysts can perform Touch/ Contact DNA collection from items of evidence submitted to the laboratory.

**Limitations:**

Contact DNA collection will only be performed by Physical Discipline Analysts on items of evidence that request both Latent Print Processing and Contact DNA on the Request for Laboratory Services form (RLS) or per officer communication (if documented in LIMS).

- Items of evidence that only require DNA Analysis or involve non-contact DNA collection (Ex: visible stains, blood etc.) will be worked by the Forensic Biology section.

**Safety Consideration:**

When dealing with biological samples, suitable protective clothing, mask, and gloves should always be worn. Ultraviolet (UV) light, even when reflected or diffuse, can result in serious, and sometimes irreversible, eye and skin injuries. Do not operate the Optimizer PCR Workstation (UV-Workstation) unless the protective shield is in place. Avoid contact with skin and eyes when using cleaning products.

- Avoid sample contamination by replacing gloves and bench paper before handling each new item of evidence.

**Procedure:**

1. Wipe down the UV-Workstation with a 10% bleach solution (or equivalent) and let dry.
2. Place a clean piece of paper inside the workstation.
3. Examine the item to determine the best areas for latent print recovery and contact DNA collection.
4. Place one to two drops of sterile water onto the tip of the swab. Record the sterile water Lot Number and Expiration date in the notes within LIMS.
5. Swab the area(s) of interest (those likely to have the most contact with skin) and let dry.
6. This swab is then packaged and designated as (XX-S1, from XX) in order of collection.
7. If additional items of evidence from the same case are to be swabbed for contact DNA, repeat steps 2 through 6 above.
8. Once all swabbing is complete, remove all remaining paper from the UV-Workstation and wipe down with a 10% bleach solution (or equivalent).
9. Activate the UV setting and set the timer on the side of the Workstation for a minimum of approximately 30 minutes.

**LIMS Entry:**

Each swab created above will be packaged and retained separately.

1. In LIMS, select the item swabbed and right click to itemize. Un-containerize and add the item description (refer to step 6 above). Choose "LP Swab" as the evidence type and "Retained at lab" as the intended disposition. Select SAVE. Print a barcode for the swab and attach it to the outer swab package. This new item barcode will be scanned to document all transfers for that item. Refer to the current LIMS manual for this procedure.
- All swabs will be returned to the designated location in the evidence room.

In the event the UV-Workstation is out of service, the Bio-Hood may be used to perform contact DNA collection. The same procedure (steps 1-8) above should be followed when using the Bio-Hood and the Analysts notes will designate "Latent print Bio-Hood" as equipment used.

**Cyanoacrylate (Superglue)**

Version: 8.0

Effective Date: 4/15/2024

Superglue fuming is used for the development or enhancement of latent print evidence on non-porous and semi-porous items. Superglue is placed onto a hotplate in an airtight chamber containing evidence. Humidity is added to the chamber until 80% relative humidity is reached. As the superglue heats, the fumes from the glue circulate throughout the chamber, adhering to the latent print residue on the evidence. Superglue is typically used after a visual examination and before application of other processes. Superglue can interfere with DNA analysis.

- Superglue is purchased and not prepared in the Laboratory.

### **Safety Consideration:**

Suitable protective clothing and gloves should always be worn. Avoid contact with skin and eyes. Use an exhaust system to remove fumes from the area if needed. Heating superglue may generate cyanide fumes.

### **Procedure:**

1. Label and digitally preserve any ridge detail of potential value prior to processing.
2. Place evidence and control into chamber so all surface areas are exposed.
3. Place an aluminum dish containing approximately 20-30 drops (if using Misonix CA-3000) or 60-80 drops (if using Misonix-9000) of superglue onto the hot plate.
4. Verify menu settings of chamber (example: Fuming Time).
5. Seal chamber and start cycle.
6. Once cycle is complete, purge the chamber.
7. Observe the control to determine if sufficient development has occurred. Note: Additional fume cycle may be needed.
8. Remove the control and evidence items.
9. Use intense light to better visualize any developed areas of ridge detail.
10. Label and digitally preserve ridge detail of potential value.

It is dependent upon the Analyst to determine if sufficient development has occurred. Depending on the type of evidence, additional processing techniques for enhancement of latent prints may be used (ex: RUVIS, R6G, Powder).

Approximately 0.05 grams is equivalent to one drop of Cyanoacrylate.

### **Quality Control:**

The Master Control is a sufficiently developed control using the recommended fume time for each chamber. The Master Control consists of an impression (made either from a natural residue fingerprint or the sebaceous control pads) placed on a glass slide or a black lift card and fumed. This control represents the expected result for a properly functioning superglue chamber. The humidity, fuming time, date the control was created, and Analyst's initials will be recorded on the Master Control and kept on the front of the chamber for comparison to each control produced in the chamber during casework. A new Master Control is performed with every performance check. The Master control is not considered a reference standard.

Positive Control – Development/Enhancement of ridge detail, white film similar to the Master Control

Negative Control – No development, lack of white film

Controls for casework are made in the same manner as the Master Control. A control will be performed with each use, compared to the Master Control on the front of the chamber to ensure it is comparable in development, and the results will be recorded in the bench notes as a "positive control"

**Filter Maintenance:** If maximum number of cycles are reached and "filter life exceeded" is displayed on the screen; place the chamber out of service, update the maintenance log, and contact maintenance staff for filter change.

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**Reflected Ultraviolet Imaging System (RUVIS)**

RUVIS utilizes reflected Ultraviolet (UV) light to visualize and photograph latent print ridge detail on non-porous and semi-porous items. By changing the angle of the light, the Analyst can change the contrast of the print and increase its visibility for subsequent photography.

RUVIS can be used prior to other processes, although it may provide better results after superglue fuming. RUVIS can degrade DNA evidence.

**Safety Consideration:**

UV light, even when reflected or diffuse, can result in serious, and sometimes irreversible, eye and skin injuries. Always wear suitable protective clothing, gloves, and UV safety goggles when using RUVIS.

**Quality Control:**

A control consists of a plain or superglued impression made with a fingerprint placed on a glass slide or a black lift card. A control will be performed with each use and the results will be recorded in the bench notes.

Positive Control – Ridge detail observed

Negative Control – No ridge detail observed

**Procedure for lab RUVIS 1 and 2:**

1. Connect the RUVIS imager to the camera mount and turn on the UV lamp.
2. Visualize and record the control results and any visible areas of ridge detail.
3. Label and digitally preserve ridge detail of potential value.

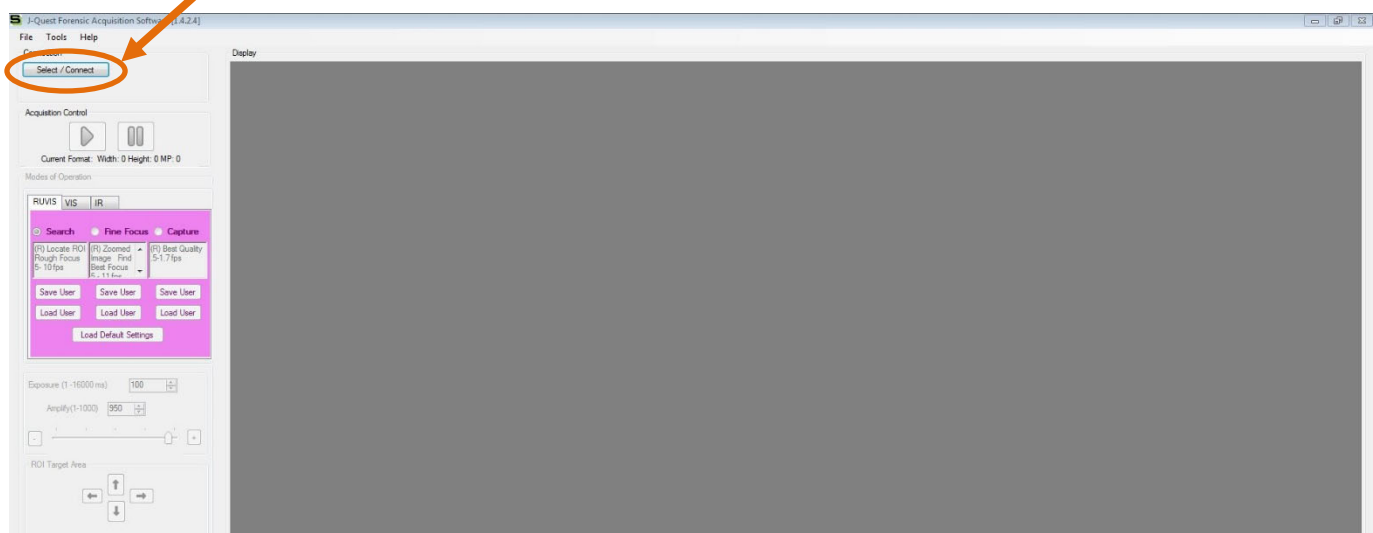
**Procedure for lab RUVIS 3 through 5:**

The following is a guide to operate the SceneScope SC-DIGITAL-29MP RUVIS with J-Quest software:

1. Open J-Quest



2. Press the "Select/Connect" button to begin

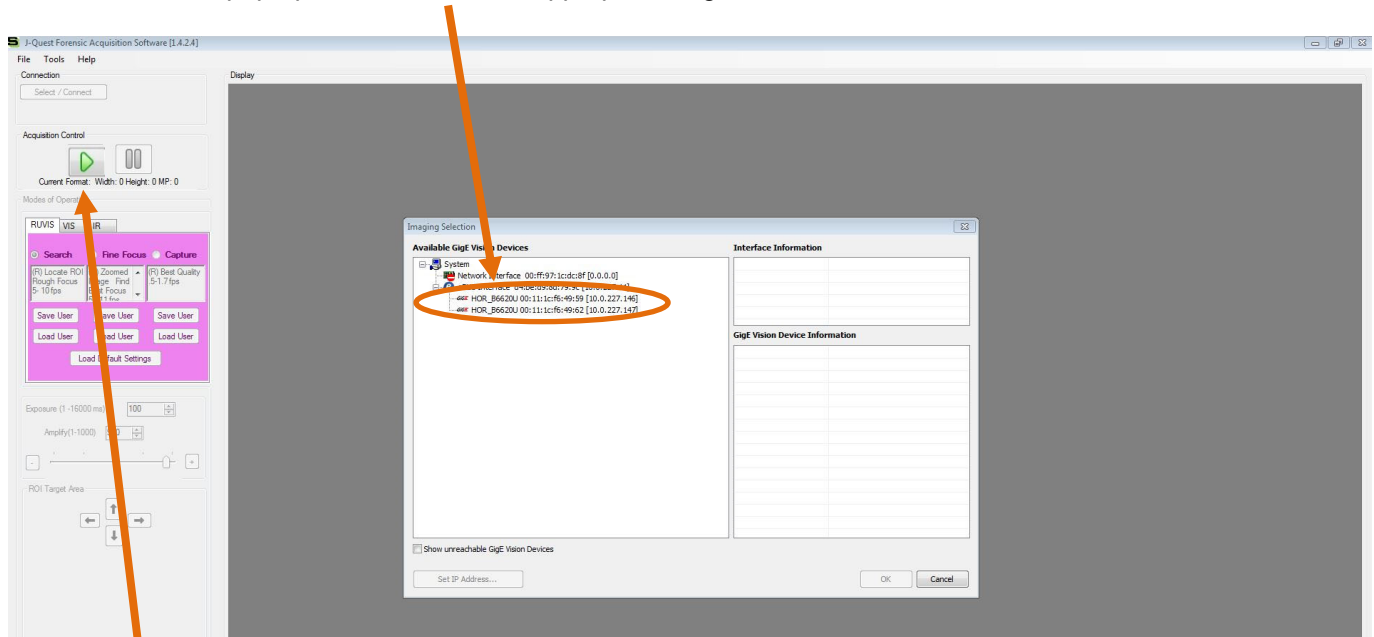


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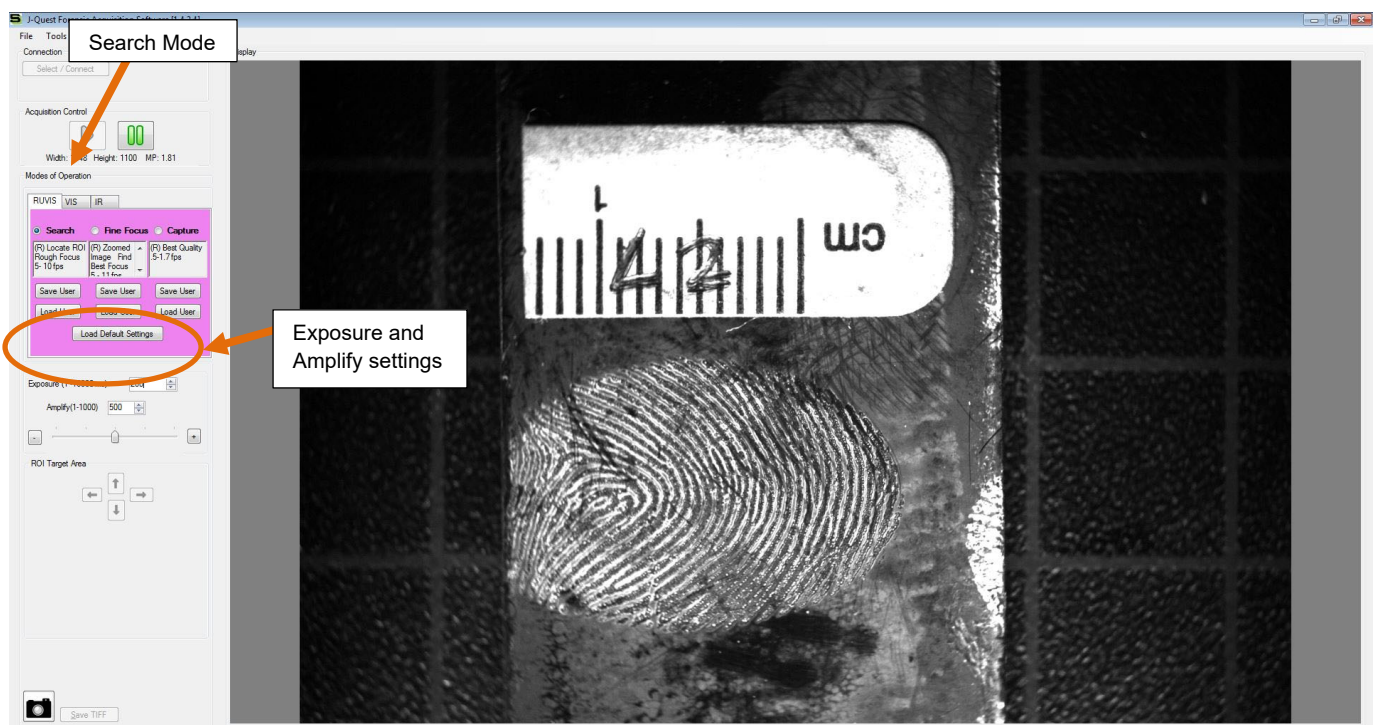
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3. In the pop-up screen, select the appropriate GigE camera under the eBUS Interface then "OK"



4. Press Green arrow to activate camera
  - a. Aperture on lens should be f/3.8 (largest opening)
5. Select "Search" under the RUVIS tab and adjust the focus:
  - a. Adjust the exposure and amplify as needed
    - i. Exposure: 100-200 ms and Amplify: 500 ms is a good starting point



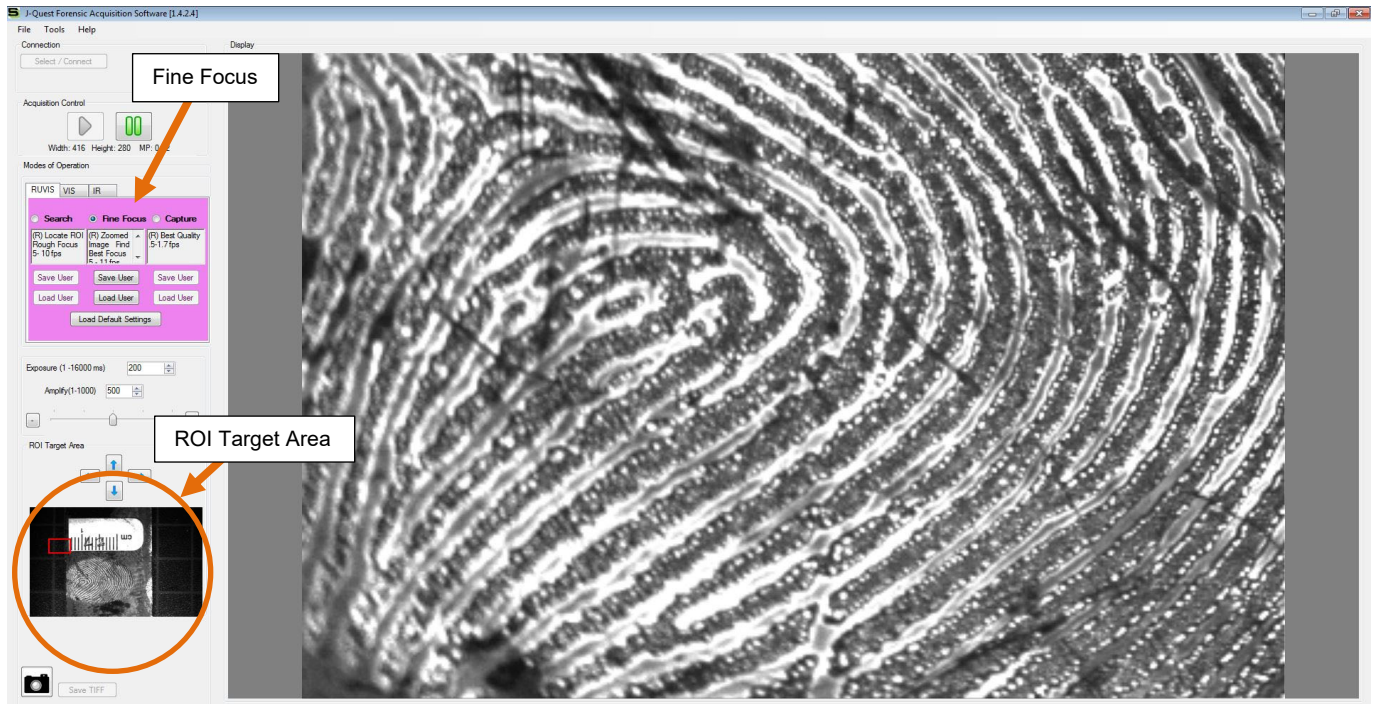


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6. Select "Fine Focus" under the RUVIS tab
  - a. Use the Region of Interest (ROI) target area arrows or image box to move the displayed image to a focus area.
  - b. For best image quality adjust the lens aperture of f/5.6 to f/16, allowing for a greater depth of field. Exposure and Amplify will need to be adjusted accordingly.



7. Select "Capture" under the RUVIS tab
  - a. Make any final exposure and amplification settings needed



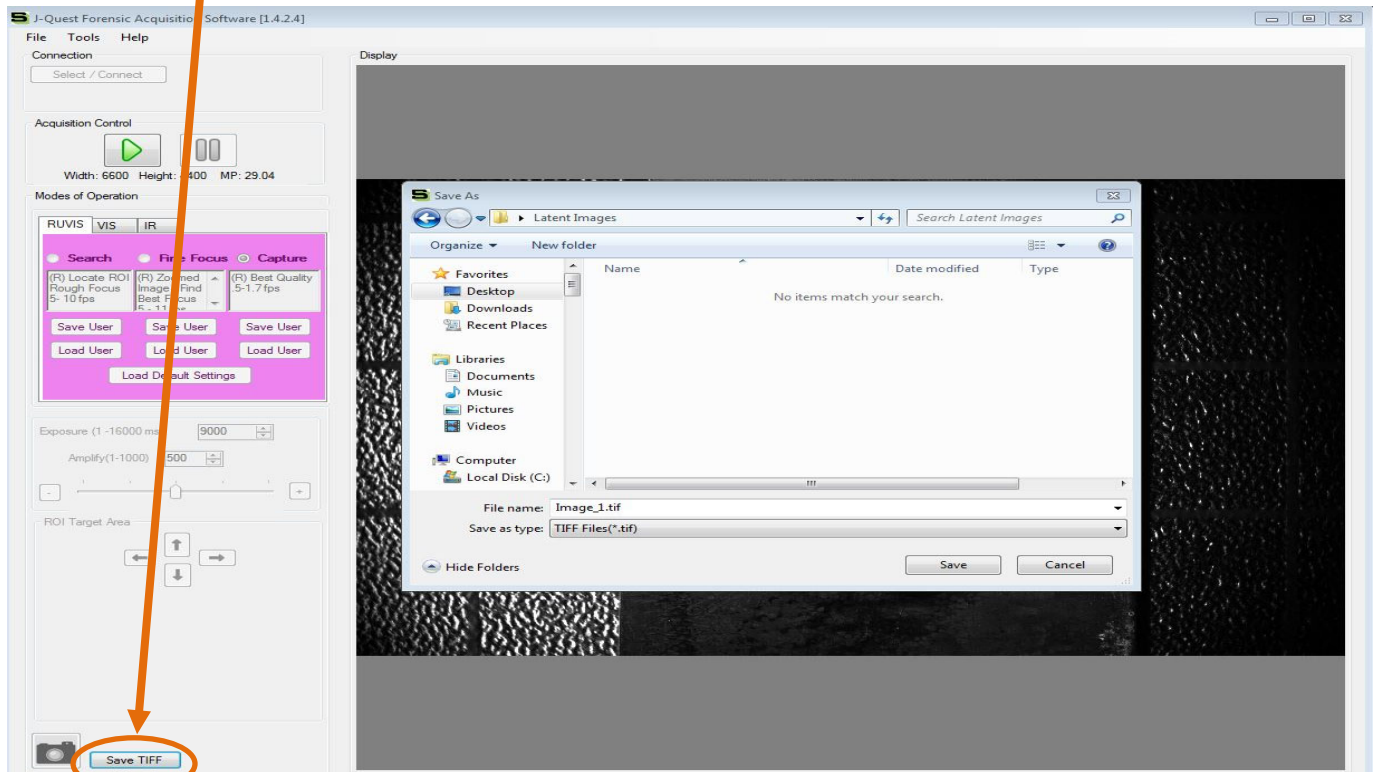
8. Press the camera icon to capture the image

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9. Select "Save Tiff" and choose a destination folder for the image



10. To capture a new area, select the green arrow and start from step 4 above.



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**Rhodamine (R6G)**

Rhodamine 6G is a fluorescent dye stain used on non-porous and semi-porous items that enhances ridge detail previously developed with superglue. The prints are visualized using an alternate light source with an appropriate filter. If other processes are to be used on the same piece of evidence, R6G should be used last (with the exception of powder which is always last).

- Rhodamine is purchased. Stock and working solutions are prepared in the laboratory.

**Safety Consideration:**

Suitable protective clothing and gloves should always be worn. Avoid contact with skin and eyes. Utilize fume hood when handling chemicals. Wear appropriate goggles when using the Alternate Light Sources.

**Procedure:**

R6G Stock Solution – Makes 100 mL Batch

Rhodamine .....0.10 g

Methanol.....100 mL

Combine the ingredients in the order listed above and mix until Rhodamine is dissolved. The stock solution alone is not used during testing. Store in a dark container. Shelf life is approximately 1 year.

R6G Working Solution – Makes 4000 mL Batch

R6G Stock Solution.....12 mL

Acetone .....60 mL

Acetonitrile.....40 mL

Methanol.....60 mL

Isopropyl Alcohol.....128 mL

Petroleum Ether.....3700 mL

Combine the ingredients in the order listed above and mix. Store in a dark container. Shelf life is approximately 1 year. A positive control will be performed with each new lot before use in casework.

**Application:**

1. Apply the R6G working solution to the control and evidence by dipping, spraying, or using a squirt bottle.
2. Allow items to dry in a fume hood for approximately three minutes.
3. Use an Alternate Light Source with appropriate goggles and lens filter to observe the control results and visualize and record any developed areas of ridge detail.
4. Label and digitally preserve ridge detail of potential value using an orange filter on camera lens.

**Quality Control:**

The Master Control consists of a cyanoacrylate fumed impression on a glass slide or a black lift card that has had R6G working solution applied to it. This control represents the expected result for properly prepared R6G reagent. At a minimum, R6G lot number used and Analyst's initials will be recorded on the Master Control and kept in both camera rooms for comparison to each control produced during casework. A new Master Control will be performed with each prepared lot. The Master control is not considered a reference standard.

Controls for casework are made in the same manner as the Master Control. A control will be performed with each use, compared to the Master Control to ensure it is comparable in development, and the results will be recorded in the bench notes as a "positive control".

Positive Control–Development/Enhancement of ridge detail, fluorescence using ALS and appropriate filter

Negative Control–No development, No fluorescence using ALS and appropriate filter



Version: 8.0

Effective Date: 4/15/2024

**1,2-Indanedione (IND)**

1,2-Indanedione is a fluorescent amino acid reagent used for the development and enhancement of latent print evidence on porous items. The items are visualized using an alternate light source with an appropriate filter. If other processes are to be used on the same piece of evidence, IND should be used prior to Ninhydrin and R6G.

- IND is purchased. Stock and working solutions are prepared in the laboratory.

**Safety Consideration:**

Suitable protective clothing and gloves should always be worn. Avoid contact with skin and eyes. Utilize fume hood when handling chemicals. Wear appropriate goggles when using the Alternate Light Sources.

**Procedure:**

IND Stock Solution – Makes 520 mL Batch

1,2-Indanedione .....2.4 g  
Ethyl Acetate.....499 mL  
Glacial Acetic Acid.....21 mL

Combine the ingredients in the order listed above and mix until IND is dissolved. The stock solution alone is not used during testing. Store in a dark container. Shelf life is approximately 3 months.

Zinc Chloride Stock Solution – Makes 100 mL Batch

Zinc Chloride.....4 g  
Ethyl Alcohol.....100 mL

Combine the ingredients in the order listed above and mix until Zinc Chloride is dissolved. The stock solution alone is not used during testing. Store in a dark container. Shelf life is approximately 6 months.

IND Working Solution – Makes 4016 mL Batch

IND Stock Solution.....520 mL  
Petroleum Ether.....3480 mL  
Zinc Chloride Stock.....16 mL

Combine the ingredients in the order listed and mix. Store in a dark container. Shelf life is approximately 6 months. A positive control check will be performed with each new lot number before use in casework.

**Application:**

1. Apply the working solution to the control and evidence by dipping, spraying, or using a squirt bottle and allow to dry in a fume hood for approximately three minutes.
2. Place the control and evidence items in the humidity chamber for 60-90 minutes at 50° C and 60% relative humidity.
3. Remove the control and evidence items from the chamber.
4. Use an Alternate Light Source with appropriate goggles and lens filter to observe the control results and visualize and record any developed areas of ridge detail.
5. Label and digitally preserve ridge detail of potential value using an orange filter on camera lens.

Some porous substrates may develop visual areas of ridge detail as a light pale pink color. It may be necessary to wait an additional 8-12 hours to re-examine the evidence for further development.

**Quality Control:**

The control will consist of an impression made with either natural fingerprint residue or the Amino Acid test pad on a piece of white paper that has had IND applied to it and has been placed in a humidity chamber using the appropriate settings. A control will be performed with each use and the results will be recorded in the bench notes.

Positive Control–Development/Enhancement of ridge detail, fluorescence using ALS and appropriate filter  
Negative Control–No development, No fluorescence using ALS and appropriate filter

Version: 8.0

Effective Date: 4/15/2024

**Ninhydrin**

Ninhydrin reacts with the amino acids in latent print residue and is used for the development or enhancement of latent print evidence on porous and semi-porous items. IND should be used prior to Ninhydrin.

- Ninhydrin is purchased. A working solution is prepared in the laboratory.

**Safety Consideration:**

Suitable protective clothing and gloves should always be worn. Utilize fume hood when handling chemicals. Avoid contact with skin and eyes.

**Procedure:**

Ninhydrin Working Solution – Makes 4000 mL Batch

Ninhydrin.....20 g  
Methanol.....120 mL  
Isopropyl Alcohol.....160 mL  
Petroleum Ether.....3720 mL

Combine the ingredients in the order listed above and mix until Ninhydrin is dissolved. Store in a dark container. Shelf life is approximately 1 year. A positive control check will be performed with each new lot number before use in casework.

**Application:**

1. Apply the working solution to the control and evidence by dipping, spraying, or using a squirt bottle.
2. Allow to dry in a fume hood for approximately three minutes.
3. Place the control and evidence items in the humidity chamber for 60-90 minutes at approximately 26.6° C with 60-80% relative humidity.
4. Remove the control and evidence items from the chamber.
5. Use intense light to visualize and record the control results and any developed areas of ridge detail.
6. Label and digitally preserve ridge detail of potential value.

It may be necessary to wait an additional 1-7 days to re-examine the evidence for further/additional developed areas of ridge detail.

**Quality Control:**

The control will consist of an impression made with either natural fingerprint residue or the Amino Acid test pad on a piece of white paper that has had Ninhydrin applied to it and has been placed in a humidity chamber using the appropriate settings. A control will be performed with each use and the results will be recorded in the bench notes.

Positive Control – Development/Enhancement of ridge detail, a purple color

Negative Control – No development

Version: 8.0

Effective Date: 4/15/2024

**Amido Black**

Amido Black, also known as naphthol blue-black, is a protein stain used for the development or enhancement of latent print evidence in suspected blood. Amido Black stains the proteins in blood turning the print a dark blue or black color. The background of porous items may also stain.

Amido Black may degrade blood for DNA testing. It is recommended that evidentiary blood samples be preserved by appropriate personnel prior to processing with Amido Black. A light application of superglue fuming may be applied prior to Amido Black application to preserve latent prints not in apparent blood.

- Amido Black is purchased. Developer and Rinse solutions are prepared in the laboratory.

**Safety Consideration:**

When dealing with biological samples and chemical reagents suitable protective clothing and gloves should always be worn. Utilize fume hood when handling chemicals. Avoid contact with skin and eyes.

**Procedure:**

Amido Black methanol-based consists of two solutions, a developer and a rinse, with a final rinse using distilled water, as needed.

**Developer Solution** – Makes 500 mL Batch

Amido Black.....1 g  
Glacial Acetic Acid.....50 mL  
Methanol.....450 mL

Combine the ingredients in the order listed above and mix until dissolved. Store in a dark container. Shelf life is approximately 1 year. A positive control will be performed with each new lot number before use in casework.

**Rinse Solution** – Makes 1000 mL Batch

Glacial Acetic Acid.....100 mL  
Methanol.....900 mL

Combine the ingredients in the order listed above and mix. Shelf life is approximately 1 year. Store in a dark container. A positive control check will be performed with each new lot number before use in casework.

**Application:**

1. Label and digitally preserve any ridge detail of potential value prior to processing.
2. Apply the Developer by dipping, spraying, or using a squirt bottle to the control and let sit for approximately 1 minute, rinse, and record the results.
3. Apply the Developer to the area containing potential ridge detail in possible blood and let sit for approximately 1 minute.
  - If necessary, the Developer can be re-applied before the final rinse to achieve sufficient clarity.
4. Apply the Rinse by dipping, spraying, or using a squirt bottle and let dry in fume hood. Use additional rinses if necessary.
5. Label and digitally preserve ridge detail of potential value.

**Quality Control:**

The control will consist of an impression made with synthetic blood on a non-porous surface such as a piece of tile. A control will be performed with each use and the results will be recorded in the bench notes.

Positive Control – Development/Enhancement of ridge detail, a blue-black color (within 60 seconds)

Negative Control – No Development

## **Powders**

Powder is used for developing ridge detail on various surfaces. There are multiple types of powders in a variety of colors, magnetic powders, as well as fluorescent powders that may require the use of an alternate light source (ALS) with appropriate filters for visualization. Powder processing can be used at the Forensic Scientists' discretion. If other processes are to be used on the same piece of evidence, powder should be applied last.

- Powders are purchased and not prepared in the laboratory.
- No control is required for powder application.

### **Safety Consideration:**

Suitable protective clothing, mask, and gloves should always be worn. Apply powder in a fume hood when possible. Avoid contact with skin and eyes.

### **Application:**

1. Label and digitally preserve any ridge detail of potential value prior to processing.
2. Choose a type of powder and appropriate brush
  - a. Plain/Fluorescent powder – Fiberglass or Nylon, Feather Duster, Short Bristle Brush
  - b. Magnetic Powder – Magnetic Wand
3. Apply the powder by lightly dusting over the surface. Only the tips of the brush (or metal shavings for magnetic powder) should come in contact with the surface.
4. Use oblique light or intense light to better visualize developed ridge detail.
5. Label and digitally preserve any ridge detail of potential value. There are circumstances where lifting the ridge detail of potential value would be beneficial, however, it is not routinely performed.

Latent prints lifted using fluorescent powders can be very faint and easily overlooked. It is recommended that the lift card/gel lift be examined utilizing the ALS with the appropriate filter.

Version: 8.0

Effective Date: 4/15/2024

**Liquid Powder Suspension (WetWop)**

WetWop and other sticky side powder suspensions are used to develop latent prints on adhesive substrates and latex/nitrile gloves. There are two basic colors: black and white. The adhesive should be protected from other processes by placing on clean acetate or plastic. Other processes should be used on the evidence items prior to applying WetWop (with the exception of R6G which should be used after WetWop). Protect the adhesive side from additional processes when possible. Processing with WetWop may interfere with DNA analysis.

- Liquid Powder Suspension (WetWop) is purchased and not prepared in the laboratory.
- No control is required for Liquid Powder Suspension (WetWop) application.

**Safety Consideration:**

Suitable protective clothing and gloves should always be worn. Avoid contact with skin and eyes.

**Recommended sequential processing:**

1. Label and photograph any visible ridge detail using light and/or RUVIS prior to processing.
2. Process the item as received using Cyanoacrylate Fuming (CA, exposed non-adhesive side).
3. Label and photograph any visible ridge detail using light and RUVIS.
4. Remove tape from the item.
  - a. If areas of non-adhesive side were not exposed to CA fuming. Repeat CA fuming. It may be necessary to place the tape on clear acetate to protect the adhesive side and repeat CA fuming.
5. Follow the application for liquid powder suspension below.
6. Label and photograph any visible ridge detail, then place on clear acetate for further processing.
7. Apply R6G to the non-adhesive side.
8. Label and photograph any visible ridge detail

**Application:**

1. Shake container before use.
2. Choose a contrasting color based on the adhesive surface to be processed.
3. Using a brush, apply the Liquid Powder Suspension (WetWop) onto the adhesive surface and let sit for approximately 10-15 seconds.
4. Rinse off under slow running water.
5. Let dry.
6. Label and digitally preserve ridge detail of potential value.

Version: 8.0

Effective Date: 4/15/2024

**Small Particle Reagent (SPR)**

Small Particle Reagent is a liquid suspension powder in water with detergent used for the development and enhancement of latent print evidence on non-porous and semi-porous surfaces that have previously been wet. The powder particles adhere to the oily or fatty components of fingerprint residues. There are two basic colors: black and white.

- Small Particle Reagent is purchased and not prepared in the laboratory.
- No control is required for SPR application.

**Safety Consideration:**

Suitable protective clothing, mask, and gloves should always be worn. Avoid contact with skin and eyes.

**Procedure:**

1. Label and photograph any visible ridge detail prior to application.
2. Choose a contrasting color depending on the surface of the item or area to be processed.
3. Shake vigorously before each use.
4. DIP (Preferred Method):
  - a. Submerge the item in SPR for a minimum of 2 minutes. A longer processing time may be necessary. Continuously agitate the liquid.
  - b. Dip the item of evidence in clear tap water. Repeat if necessary.
  - c. Allow to dry at room temperature.
  - d. Label and photograph any ridge detail of potential value.

OR

**SPRAY:**

- a. Spray the SPR solution on the item from the top and work towards the bottom.
- b. If development occurs, continue spraying the area until maximum contrast is achieved.
- c. Spray the item with tap water.
- d. Allow to dry at room temperature
- e. Label and photograph any ridge detail of potential value.

It may be necessary to repeat treatment if the development of ridge detail is faint. There are circumstances where lifting the ridge detail of potential value would be beneficial using a gel lift of contrasting background but is not routinely performed.

Version: 8.0

Effective Date: 4/15/2024

**RECOVER Latent Fingerprint Technology (LFT)**

The RECOVER LFT System is used for the development of latent print evidence on a variety of metal surfaces (Ex: Discharged cartridge casings). There are two main metal processing categories: Copper based and Silver colored metals. Uncoated metals are best as the surface metal needs to corrode from the latent print residue.

The developed ridge detail can be visualized using white light, RUVIS, or with Coaxial Illumination. If other processes are to be used on the same piece of evidence, RECOVER should be used last. Currently, the RECOVER procedure is only approved for use with fired and unfired ammunition.

- The pre-weighed DEVELOP charges are purchased.

**Safety Consideration:**

Suitable protective clothing and gloves should always be worn, and the RECOVER chamber should operate within a fume hood. Avoid contact with skin and eyes. Wear appropriate protective goggles when using RUVIS for visualization.

**Procedure:**

1. All items will be searched visually for latent print evidence using white light and RUVIS prior to using the RECOVER LFT System.
  - a. If the item(s) appear to be previously processed, it is recommended to wash with soap and water prior to utilizing RECOVER. Note: All item(s) must be dried prior to placing in the RECOVER chamber.
2. Touch the screen of the main unit to activate the system and select the "Play" icon.
3. Select the Metal (based on evidence type in the chamber): Copper based/Silver colored.
  - a. \*\*Do not mix metal types during processing. Over/Under development will occur.
4. Select the appropriate chamber size being used: Small/Large
5. The required DEVELOP vial will be displayed based on metal type and chamber size selected:
  - a. Pre-weighed DEVELOP R1/2/3/4.
6. Remove the cap from the DEVELOP vial and place it in position in the chamber base.
7. Apply a fine layer of chalk to the upper and lower rim surfaces of the glass chamber and place on the base of the main unit, lining it up with the seal.
8. Add items to be processed and a control into the chamber utilizing the evidence rack.
  - a. \*\*Be sure the rack is not touching the walls of the glass chamber.
9. Fully lower the chamber lid using the touchscreen scroll bar and select the "Play" icon to start the initializing and conditioning processes. During this time, monitor the system for any errors.
10. Once the main unit displays "Ready to Fume", select the "Play" icon to begin the fuming process.
11. Allow the fuming to continue until the desired development has been achieved then select "End Fuming" on the main unit and "Yes" to confirm
  - a. \*\*This can last several minutes to hours. (Metal type will be a determining factor). The elapsed fuming time will be displayed on the main unit in minutes.
  - b. Analyst will document the total fume time as displayed on the main unit in the processing notes.
12. The chamber will purge and the lid will raise automatically once complete with the message "Remove evidence" displayed on the main unit.
13. Remove the lid, glass chamber, evidence rack, and the DEVELOP vial from the well and discard in appropriate waste containers.
14. Clean the lid, glass chamber, metal base and evidence rack with alcohol wipes to remove any residue. Select "Home" on the main unit to return to the menu screen.
15. Use white light, RUVIS, or Coaxial Illumination to visualize the items. Label and digitally preserve ridge detail of potential value.

Note: It may be necessary to wait an additional 24-72 hours to re-examine the evidence for any further development.

**Quality Control:**

The control will consist of an impression made on one side of a piece of metal of similar color to the evidence being processed (silver colored or copper based) and placed into the RECOVER chamber along with the evidence to be processed. A control will be performed with each use and the results will be recorded in the notes. Positive Control—Development of ridge detail



Version: 8.0  
Negative Control—No development

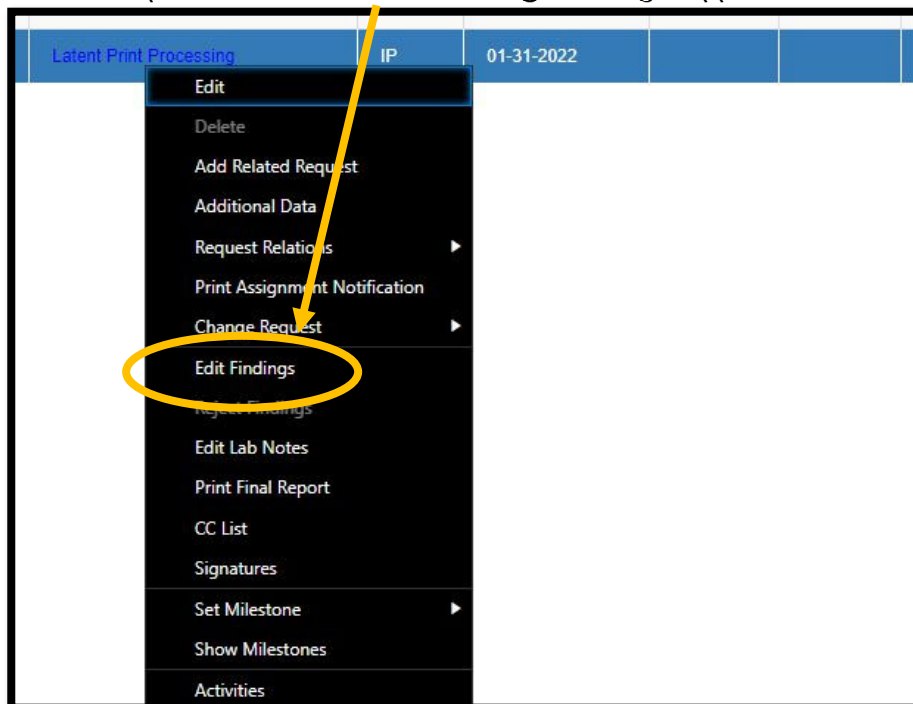
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## LIMS LP Workflow

Is an automated Latent Print Workflow inside the JusticeTrax LIMS environment. The workflow employs time saving features such as picklists and pre-filled drop-down selection versus traditional manual entry. With customized Crystal Reports, Séance will auto-generate and format the reporting summary and Analysts notes including laboratory observations recorded into the workflows data entry fields.

### Workflow:

1. Open the JusticeTrax LIMS environment and the laboratory case to be worked.
2. In the “Requests” tab, confirm that the appropriate request type is displayed **before** continuing to data entry. (Latent Print Processing vs Latent Print Examination)
3. Right click on the request and select “**Edit Findings**” to begin application of test result types.



### Latent Print Processing:

The “LP Processing” Results type is applied to **each** Item at the **Item Level**.



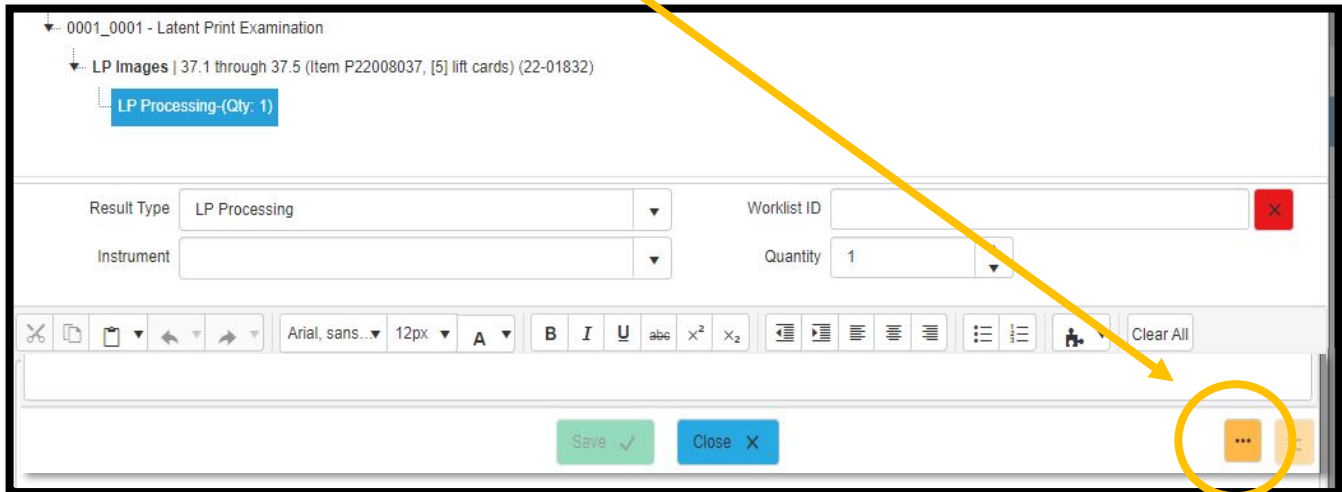
1. Right click the item of evidence and select “**Add Result**”
2. From the “Result Type” drop down select “**LP Processing**”
3. Select **SAVE** at the bottom

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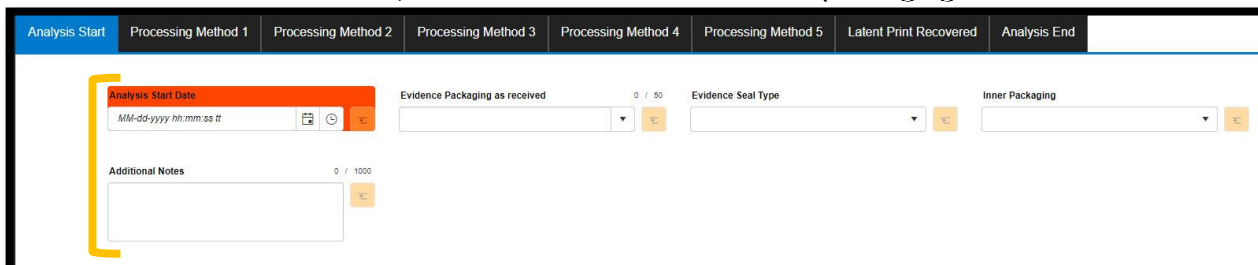
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4. Select the ellipses button (three dots) on the bottom right of the screen to open the workflow interface for the selected result type.

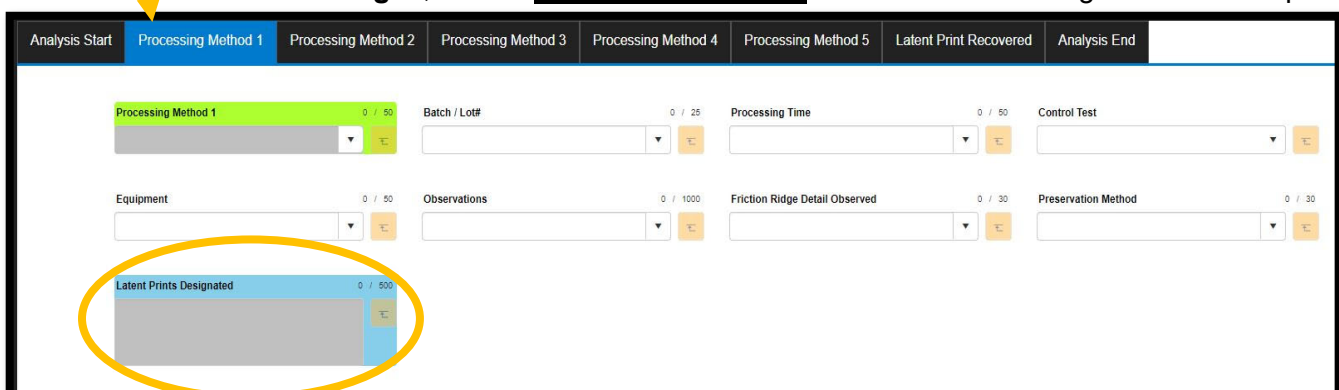


These “processing methods” tabs are meant to represent the sequential order of the processing that is applied to each item in the laboratory.

5. For the selected item, fill in “Start Date” and evidence packaging information as received.



6. Move to “Processing Method 1” tab to begin laboratory sequential processing order.
  - a. Fill in all processing information including chemical lot information where applicable.
  - b. Denote any latent prints recovered within the “latent prints designated” box.
    - i. Latent prints recovered should contain leading zeros to sort correctly in the workflow. Example: 1.01, 1.02...through 1.10
  - c. For **LP Images**, select “**Digital Images Only**” from the “Processing Method 1” drop-down.



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7. Continue moving to the next “Processing Method” tab until all laboratory processing has been fully documented.
8. Type all designated areas of ridge detail in the “Latent Print Recovered” tab.
  - a. This is limited to 10 areas per processing result. If more areas are recovered, add a second LP Processing result type to this item and **only** enter additional areas in the latent print recovered tab.

The screenshot shows a software interface with a tabbed menu at the top. The tabs are: Analysis Start, Processing Method 1, Processing Method 2, Processing Method 3, Processing Method 4, Processing Method 5, Latent Print Recovered (highlighted in blue), and Analysis End. Below the tabs, there are several input fields for 'Latent Print Recovered'. Each field has a blue header with the text 'Latent Print Recovered' and a counter '0 / 15'. The fields are arranged in a grid. Yellow arrows point from the 'Latent Print Recovered' tab to the first three input fields in the top row.

9. From the “Analysis End” tab, fill in the processing “End Date” and note any repackaging of the item, if applicable.

The screenshot shows the 'Analysis End' tab selected. Below the tab, there are three main input areas: 'Analysis End Date' (with a date/time picker and a yellow circle around it), 'Repackaging' (with a dropdown menu and a '0 / 30' counter), and 'Item Triage (Push to Report)' (with a dropdown menu and a '0 / 1000' counter).

10. Repeat all previous steps for EACH separate item to be processed.

## Latent Print Processing - Triage:

If an analyst does not process all related Items (usually with supervisor approval) on the Latent print service as requested, a separate field is available in the LP Processing result type, “Analysis End” tab for documentation of the Items triaged and the reason.

This screenshot is similar to the previous one, showing the 'Analysis End' tab. In this instance, the 'Item Triage (Push to Report)' field is circled in yellow, while the 'Analysis End Date' field is not.

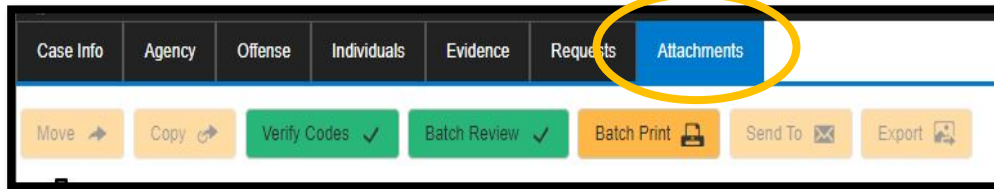
# LATENT PRINT PROCEDURE MANUAL

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## Adding Evidence Images into LIMS:

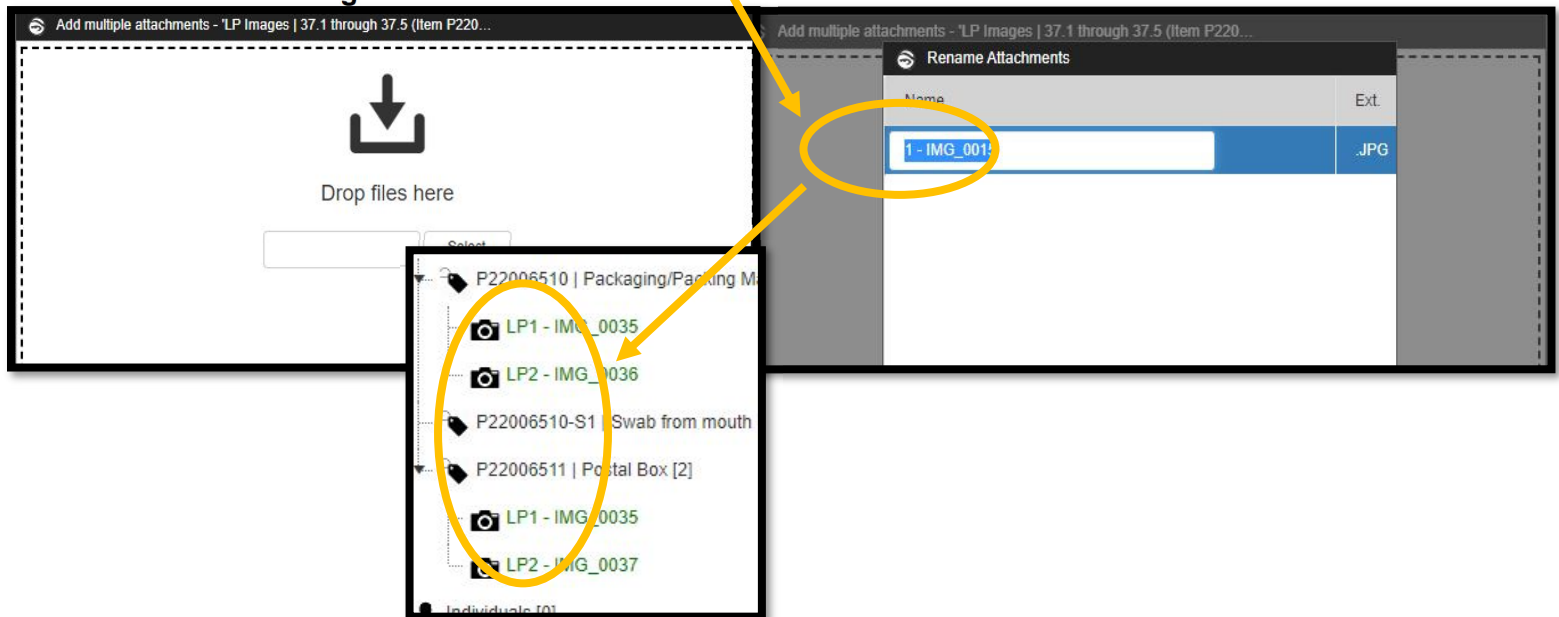
1. Select the "Attachments" tab from the case in LIMS



2. Under the listed evidence, right click the "item" you want to attach images for and select "Add New Attachment" or "Add Multiple Attachments" depending on the number of images.
  - a. The images should be small format JPGs. Large image files are not recommended.



3. Drag and drop or select the image files to be uploaded.
4. Select SAVE at the bottom
  - a. The Images must be renamed sequentially in the order they should appear on the Analysis Details (bench notes) with "LP" as prefix. Example: "LP1 – image file name" , "LP2 – image file name"



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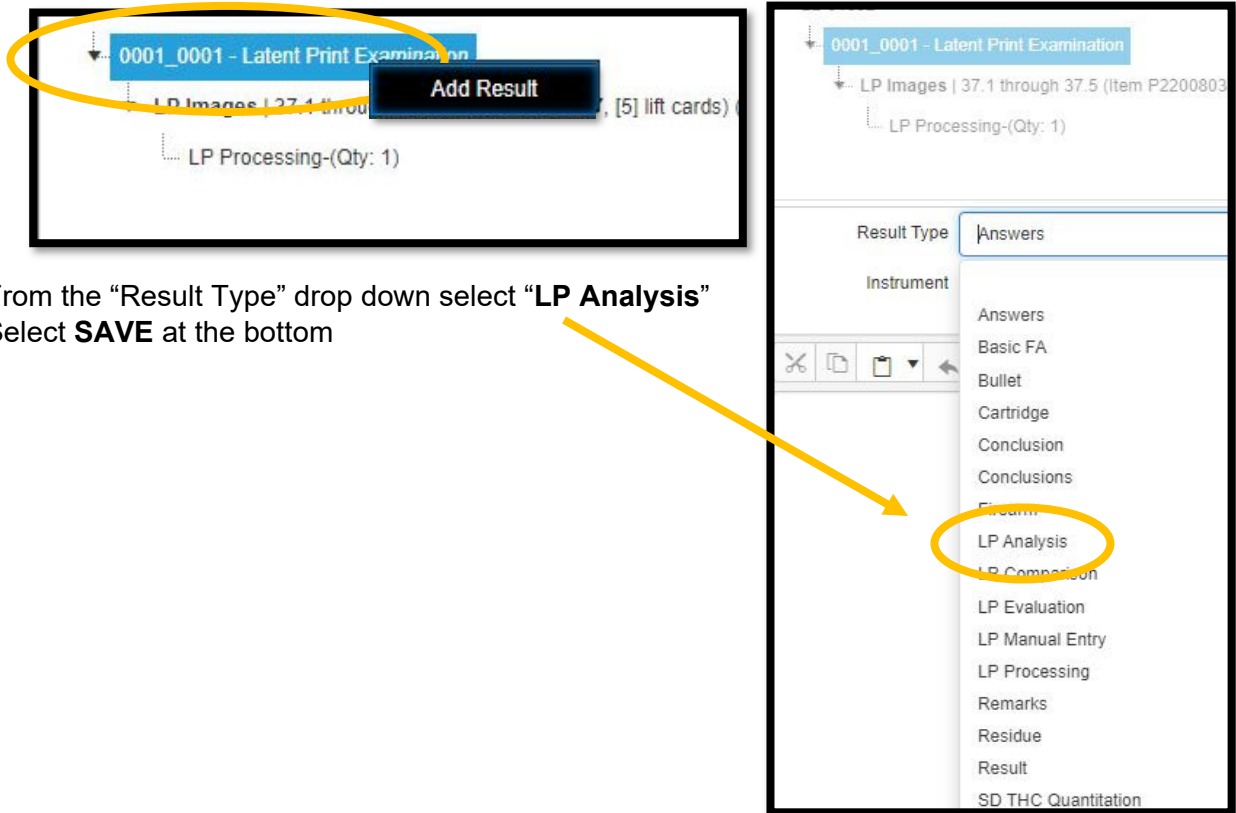
Effective Date: 4/15/2024

## Latent Print Examination:

The “**LP Analysis**”, “**LP Comparison**” and “**LP Evaluation**” result types are applied at the **Request Level**.

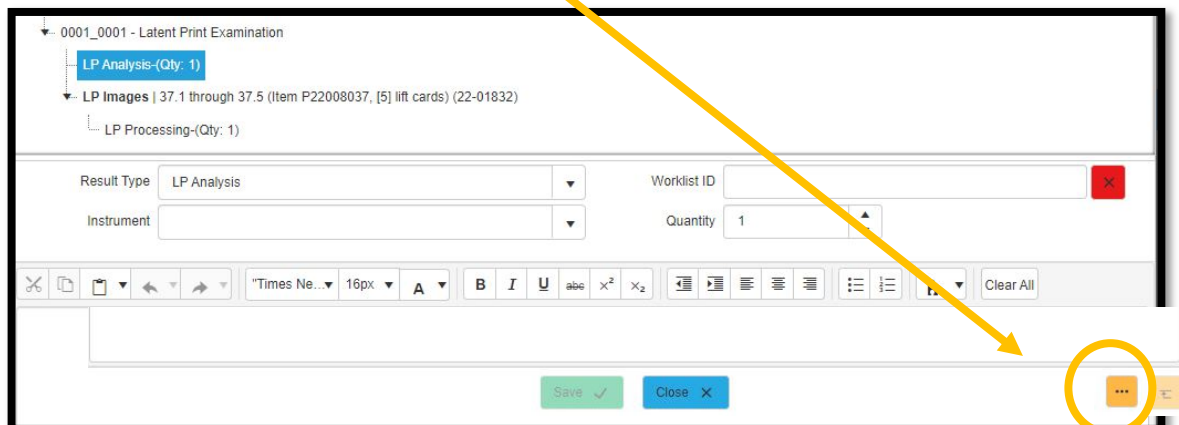
### LP Analysis:

1. Right click the Latent Print Examination request and select “**Add Result**”



2. From the “Result Type” drop down select “**LP Analysis**”
3. Select **SAVE** at the bottom

4. Select the ellipses button (three dots) on the bottom right of the screen to open the workflow interface for the selected result type

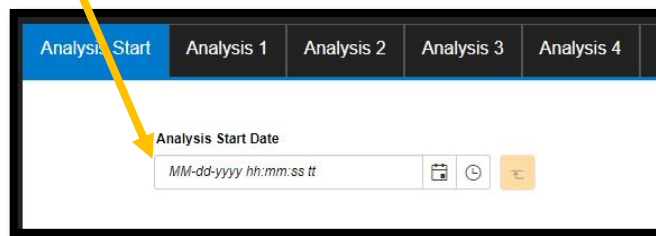


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## 5. Fill in the Analysis “Start Date”



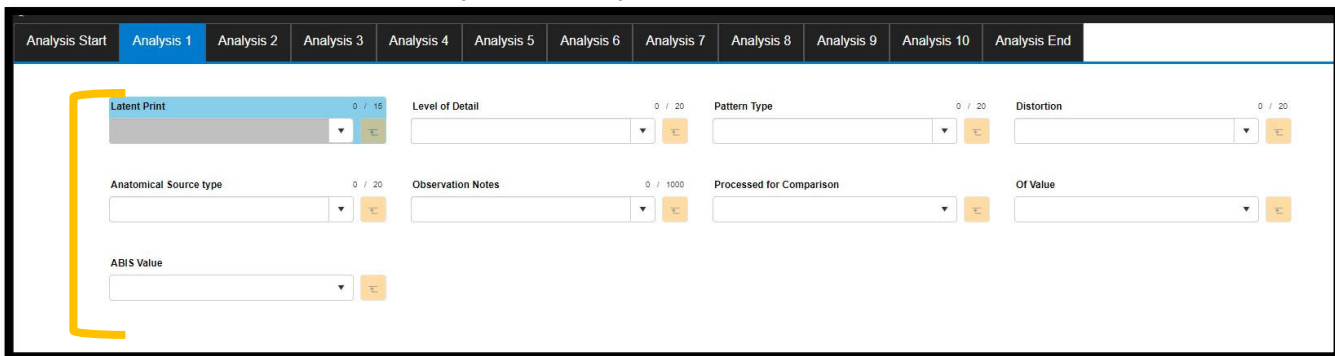
Analysis Start

Analysis Start Date

MM-dd-yyyy hh:mm:ss tt

## 6. Move to “Analysis 1” tab to begin documentation for the recovered latent prints

- All fields contain drop down options to choose from and most are editable combo-boxes for anything specific you want to add in additional to the available options.
- This only allows for up to 10 areas of recovered ridge detail. If more are needed, than a second “LP Analysis” result type will need to be applied.



Analysis Start

Analysis 1

Analysis 2

Analysis 3

Analysis 4

Analysis 5

Analysis 6

Analysis 7

Analysis 8

Analysis 9

Analysis 10

Analysis End

Latent Print

0 / 15

Level of Detail

0 / 20

Pattern Type

0 / 20

Distortion

0 / 20

Anatomical Source type

0 / 20

Observation Notes

0 / 1000

Processed for Comparison

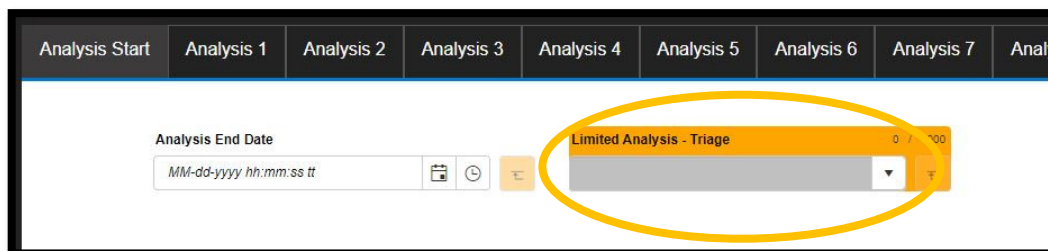
Of Value

ABIS Value

## 7. Continue to move to the next analysis tabs until all recovered areas being analyzed have been documented.

## 8. From the “Analysis End” tab, fill in the Analysis “End Date” and note any triage language, if applicable.

- The Triage box contains drop down options to choose from and is also an editable combo-boxes for anything specific you want to add which will populate directly to the report.



Analysis Start

Analysis 1

Analysis 2

Analysis 3

Analysis 4

Analysis 5

Analysis 6

Analysis 7

Analysis 8

Analysis 9

Analysis 10

Analysis End

Analysis End Date

MM-dd-yyyy hh:mm:ss tt

Limited Analysis - Triage

0 / 100

## 9. Select “OK” at the bottom to close this result type.



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**LP Comparison:**

1. Right click the Latent Print Examination request and select **"Add Result"**
2. From the "Result Type" drop down select **"LP Comparison"**
3. Select **SAVE** at the bottom
4. Select the ellipses button (three dots) on the bottom right of the screen to open the workflow interface for the selected result type
5. Document whether there are any individuals submitted for comparison in the case
  - a. Check if "Yes" and leave blank if "No"
  - b. If no individuals are listed for comparison, leave blank and select "OK" at the bottom.
    - i. A "No Comparison" summary statement is automated with this left blank.

6. Move to the "Individual 1" tab to begin documenting individual demographics, if applicable
  - a. Select an individual from the drop-down list, then document the record type and source
    - i. The information in the drop down will appear as it is entered in the overall LIMS Individuals tab.
      - If corrections are needed to any of the information listed, select "OK" to close the comparison box and update necessary information from the LIMS Individuals tab before re-opening the comparison result type.
    - ii. This result type only allows for up to 5 individuals. If more are needed, than a second "LP Comparison" result type will need to be applied.

7. Continue to move to the next individual tabs until all associated individuals have been documented.
8. Select "OK" at the bottom to close this result type.



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## LP Evaluation:

1. Right click the Latent Print Examination request and select **"Add Result"**
2. From the "Result Type" drop down select **"LP Evaluation"**
3. Select **SAVE** at the bottom
4. Select the ellipses button (three dots) on the bottom right of the screen to open the workflow interface for the selected result type
5. Fill in the Evaluation "Start Date"

6. Move to "Eval1" tab to begin documentation
  - a. The available latent prints in the drop-down will filter from the Analysis result previously entered.
  - b. The individual source will filter and pre-populate only individuals with known exemplars available from the comparison result previously entered.
  - c. The decision drop-down contains a "No Match All" value which will push a no match statement to the report for all individuals with available exemplars.
    - i. "Identified", "Exclusion", and "Inconclusive" all require singular decisions for all individuals compared.

7. Manual, ABIS and Post ABIS can be used in sequential order in one Eval Result type.
  - a. Check boxes are used for denoting if the evaluation was ABIS or Post-ABIS.
    - i. Example: If a latent does not match all the manual compared individuals, then the latent print is re-entered on another Eval tab with ABIS entry checkbox marked, the databases searched, and decision indicated.
      - If the ABIS searched latent print was identified, the name of the individual will have to be manually entered and the remaining unidentified latent print are then entered on new Eval tabs with the POST ABIS checkbox marked.

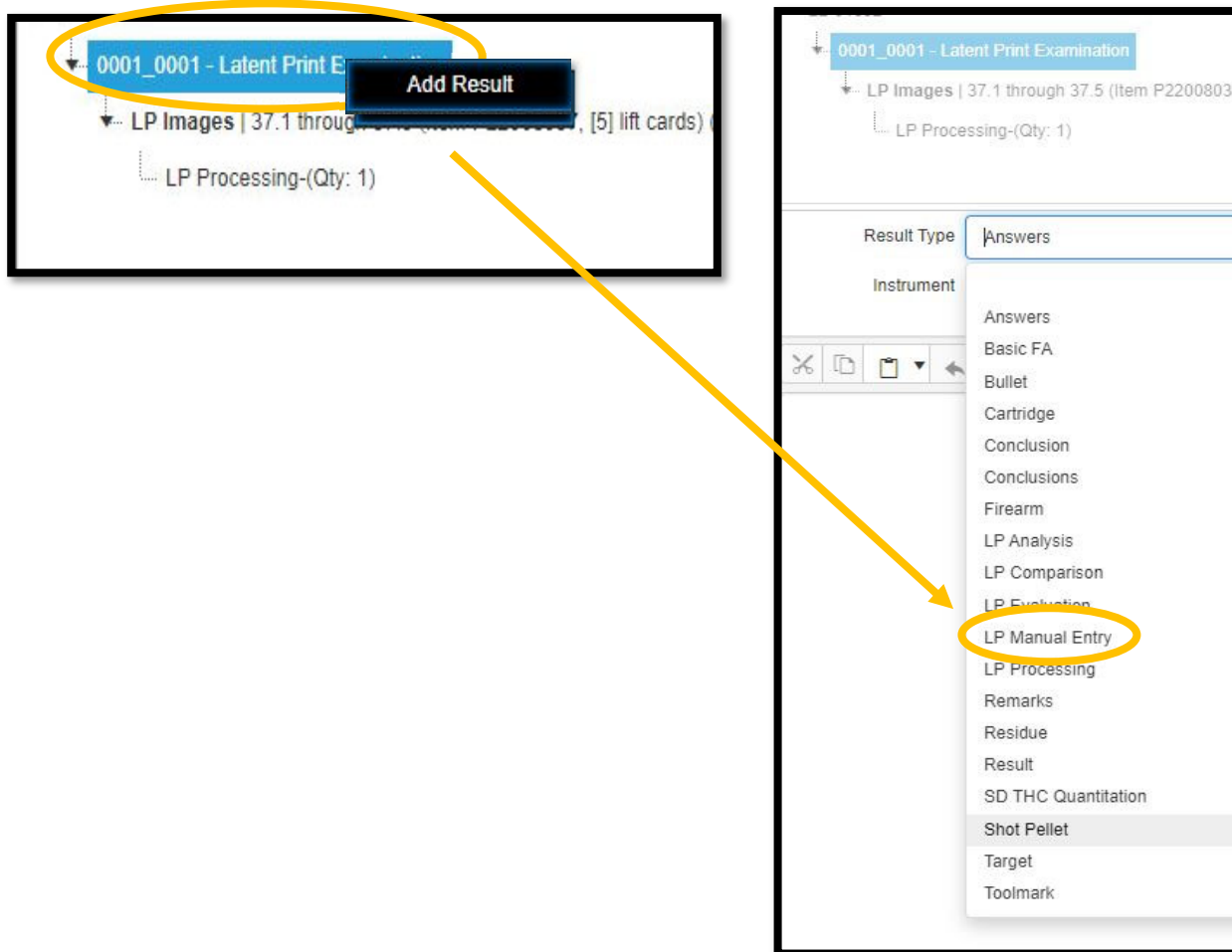
## LATENT PRINT PROCEDURE MANUAL

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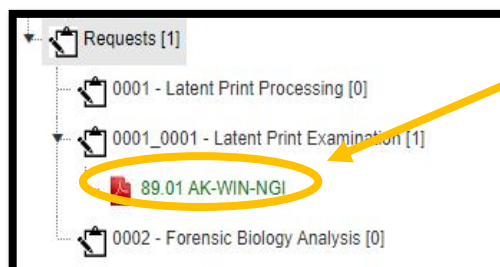
Effective Date: 4/15/2024

### Manual Report Entry:

If an auto-generated report summary is wrong and the correction cannot be made by re-entry of the data, a manual entry method has been built in for this purpose. The result type “**LP Manual Entry**” can be applied at the request level to overwrite the automation with manual entered text. A simple method to use this feature is to print the final report while in “findings entered” status, copy the automated summary, create the “LP Manual Entry” result type, and then paste the report in and then adjust for corrections.



**ABIS documentation** will be added as an attachment under the appropriate request and combined by each latent searched. The title of the document must be labeled with the latent designation followed by the databases searched.



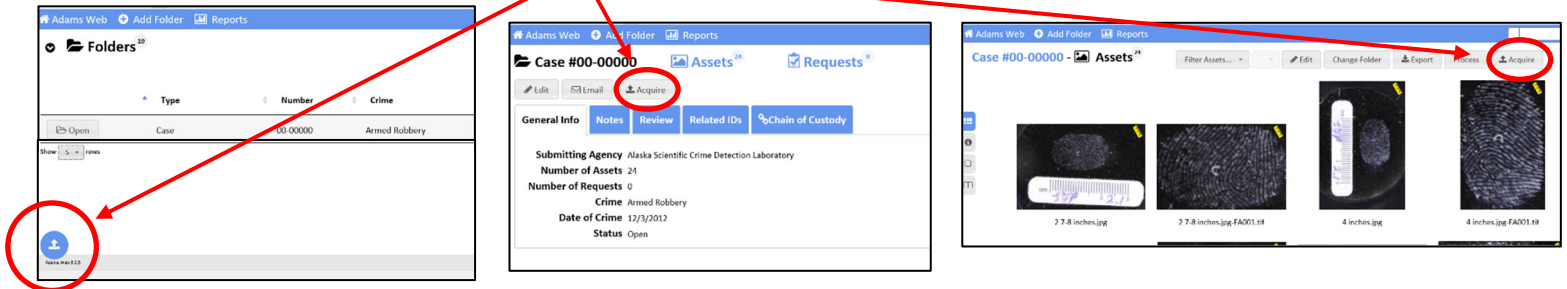
Version: 8.0

Effective Date: 4/15/2024

## **Authenticated Digital Asset Management System (ADAMS)**

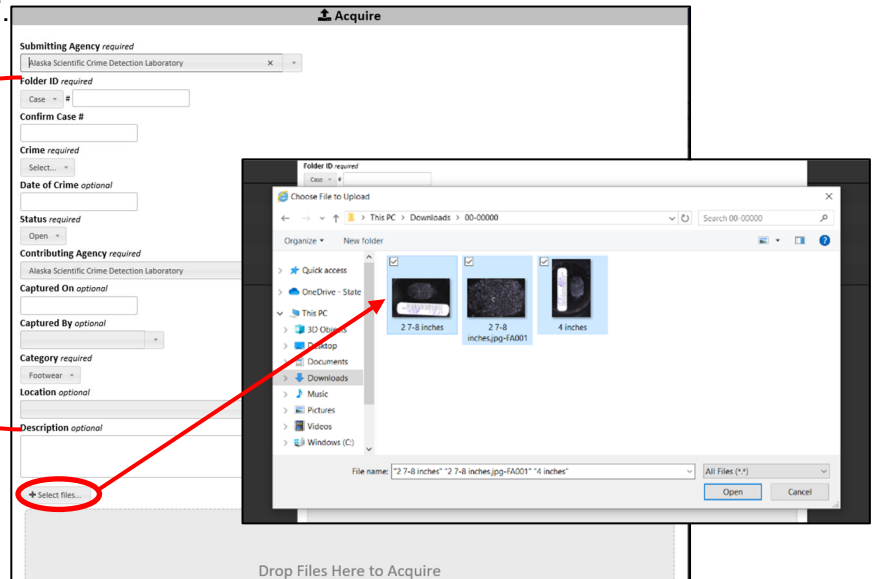
### **DIGITAL ASSET ACQUISITION:**

1. Open Adams Web
2. Acquisition can occur from one of three places. The main home page, inside the case page, or from the Asset tab inside a case.

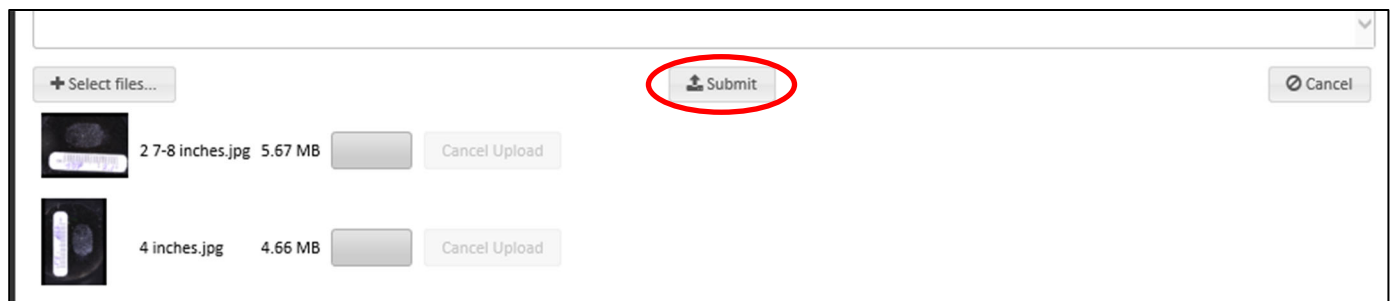


3. Fill out the Asset case information and click “Select files”. Choose the images to be acquired in this case and select “Open”. Multiple images from the same case can be selected at once.
  - a. Note: Prior to acquisition, insert the designated latent number in front of the File Name to display as: 90A.1 IMG\_1547.

- Lab Case Number
- Crime Type
- Date of Crime (optional)
- Captured on (optional)
- Captured by (optional)
- Category of Image
- Location (optional)- Item number/location



4. Wait for the images to finish uploading. Then select “Submit”



# LATENT PRINT PROCEDURE MANUAL

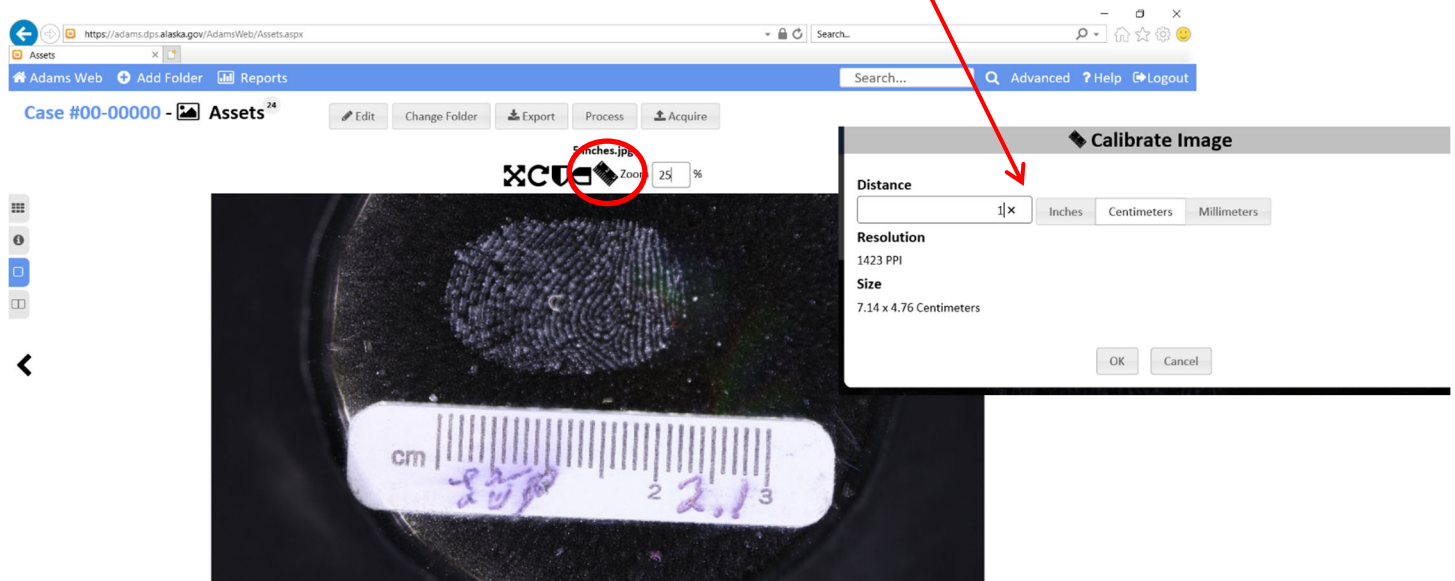
Version: 8.0

Effective Date: 4/15/2024

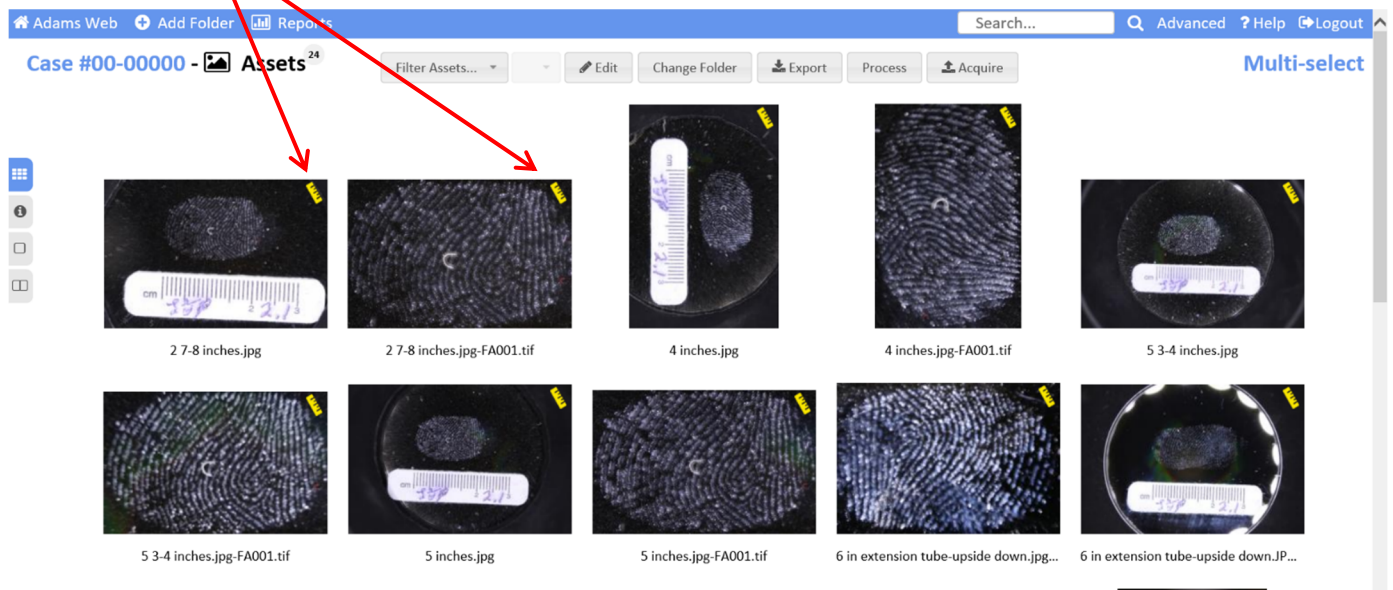
## ASSET CALIBRATION:

Scales are necessary for accurate calibration and 1:1 printing.

1. Double click on the Asset you wish to calibrate which will switch the image to full view.
2. Select the ruler icon and using the cursor, draw a line measuring one unit of measurement on the scale in the image. Enter the value and unit of measurement.



3. "F5" will refresh the page and all calibrated Assets will show a ruler icon in the upper corner of the image.





# LATENT PRINT PROCEDURE MANUAL

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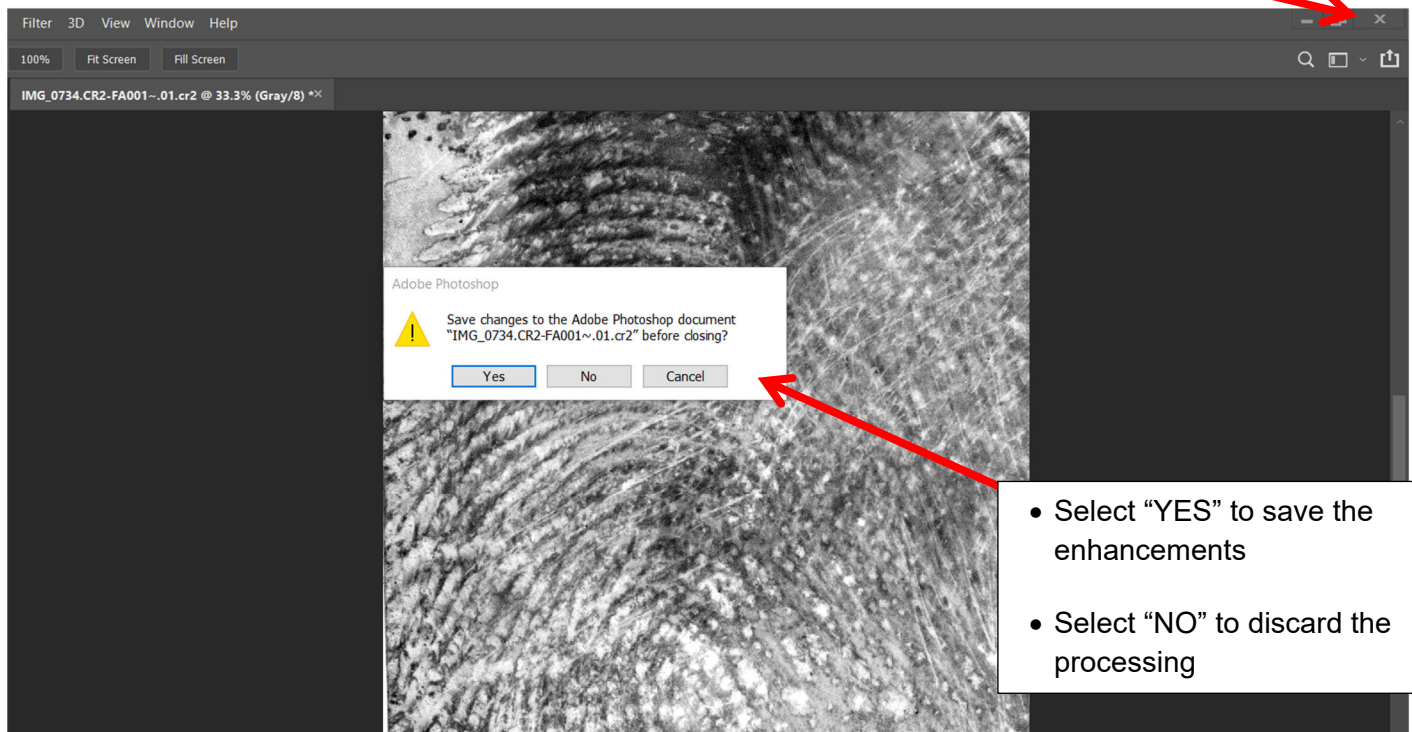
Effective Date: 4/15/2024

## PROCESSING THE IMAGE WITH PHOTOSHOP:

1. Once calibrated, an Asset may be processed. Select the Asset to be processed so it is highlighted orange. Select "Process" and choose "Process in Photoshop as As-is". This will launch the Photoshop application.



2. When image processing is complete in Photoshop, close the image and choose whether to save/discard processing enhancements.

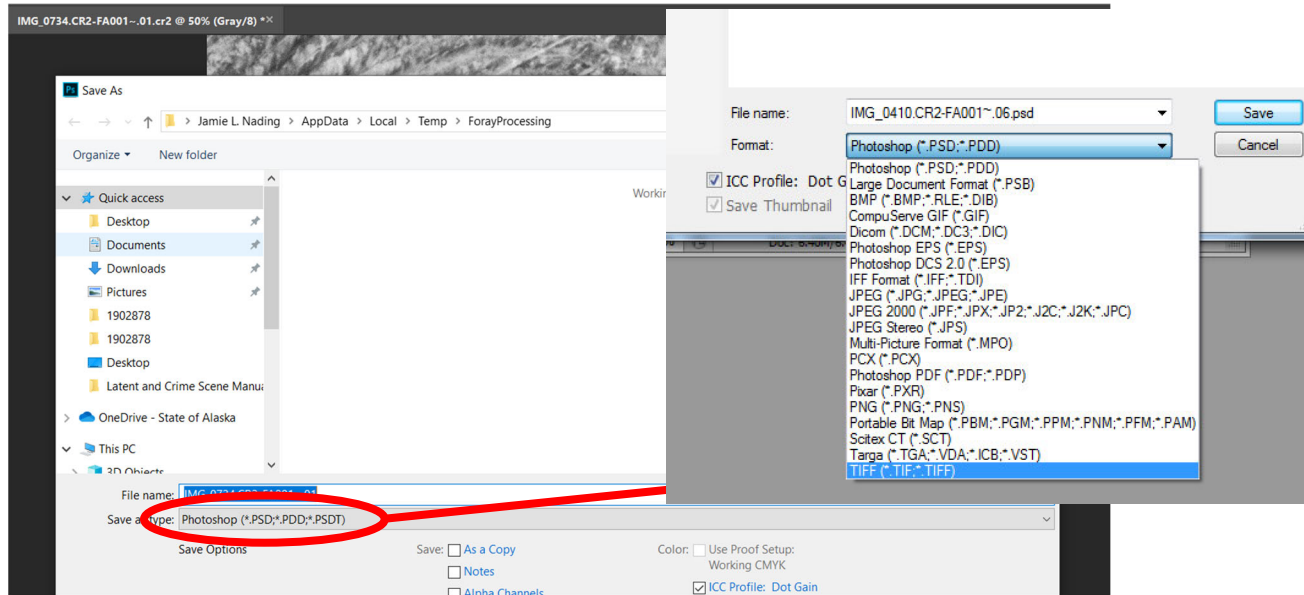


# LATENT PRINT PROCEDURE MANUAL

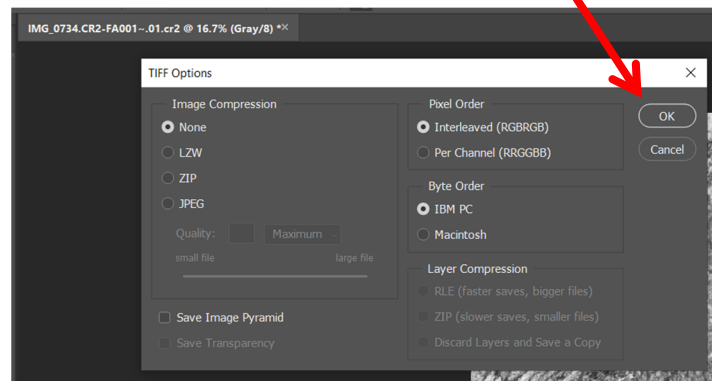
Version: 8.0

Effective Date: 4/15/2024

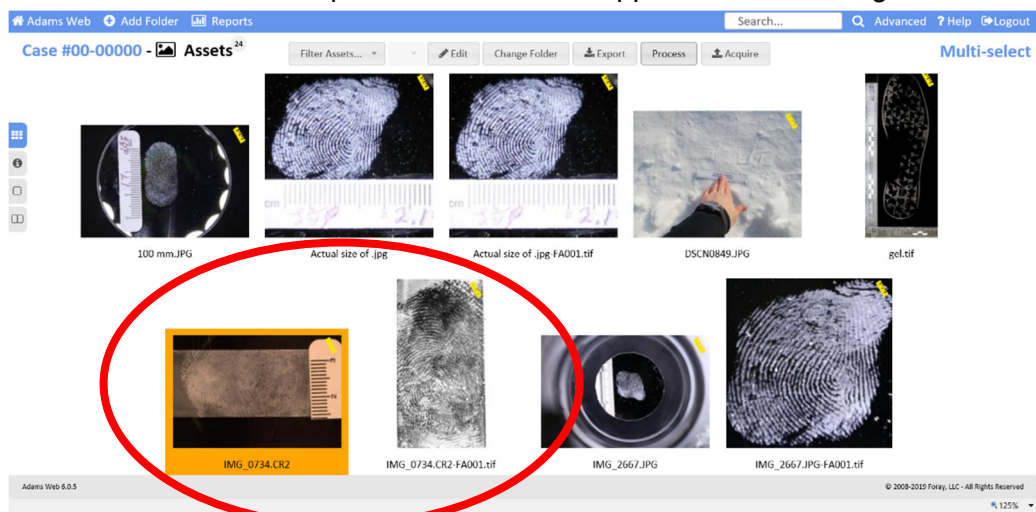
3. If working with TIFF images, the image Asset will close. If working with RAW images, Photoshop will prompt you to save the Asset. Change the file format from PSD (default) to TIFF file format.



4. Select SAVE and the TIFF Options box will open, Select OK.



5. Return to Adams Web and the processed Asset will appear next to the original Asset once accepted.



# LATENT PRINT PROCEDURE MANUAL

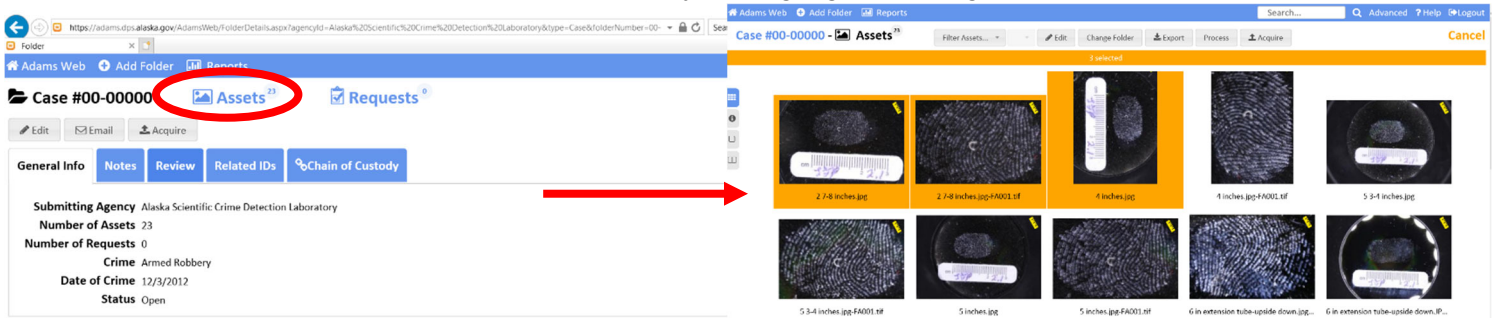
Version: 8.0

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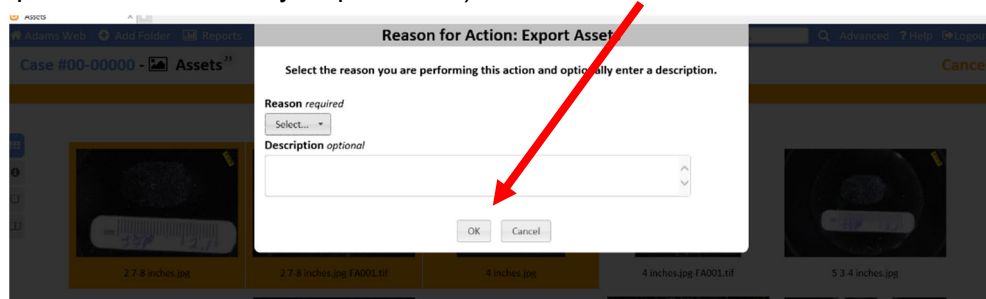
## **EXPORTING DIGITAL ASSETS:**

### **Single or Multiple Assets:**

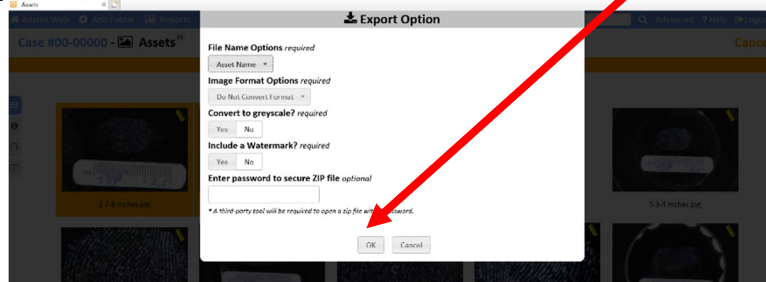
1. Open the Case Number and click Assets.
2. Select the assets to be exported so they are highlighted orange.



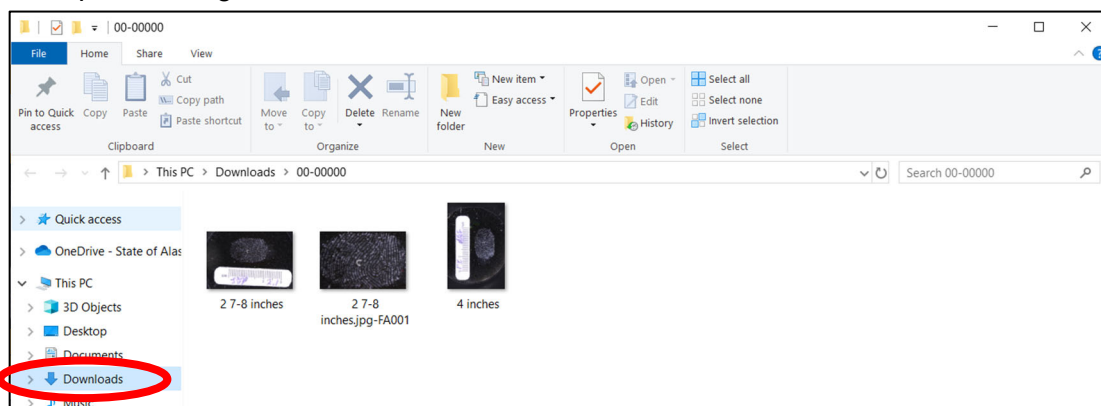
3. Click "Export" at the top of the page and fill out the dialogue box with the reason for exporting. (Example: Notes, Discovery request, etc.) Select "OK"



4. A second "Export Options" dialogue box will pop up, Select OK



5. The exported images can be located inside the PC "Downloads" folder.





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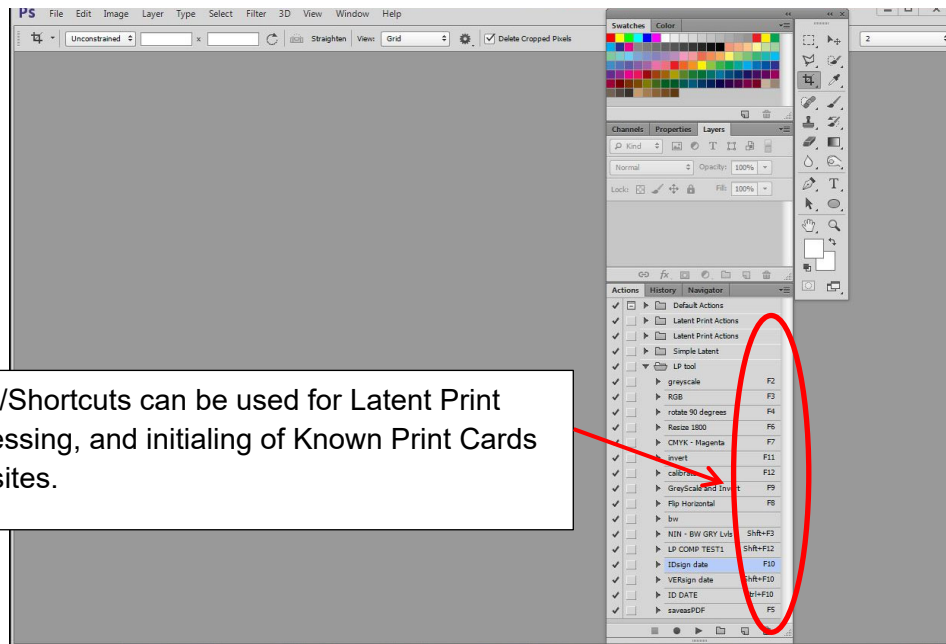
Effective Date: 4/15/2024

## Adobe Photoshop

### ACTIONS: Latent Print Tools and Shortcuts

The current list of tools are located on the internal network drive:

I:\Discipline Shares→Latent\_Share→- WORK PRODUCT -→Tools

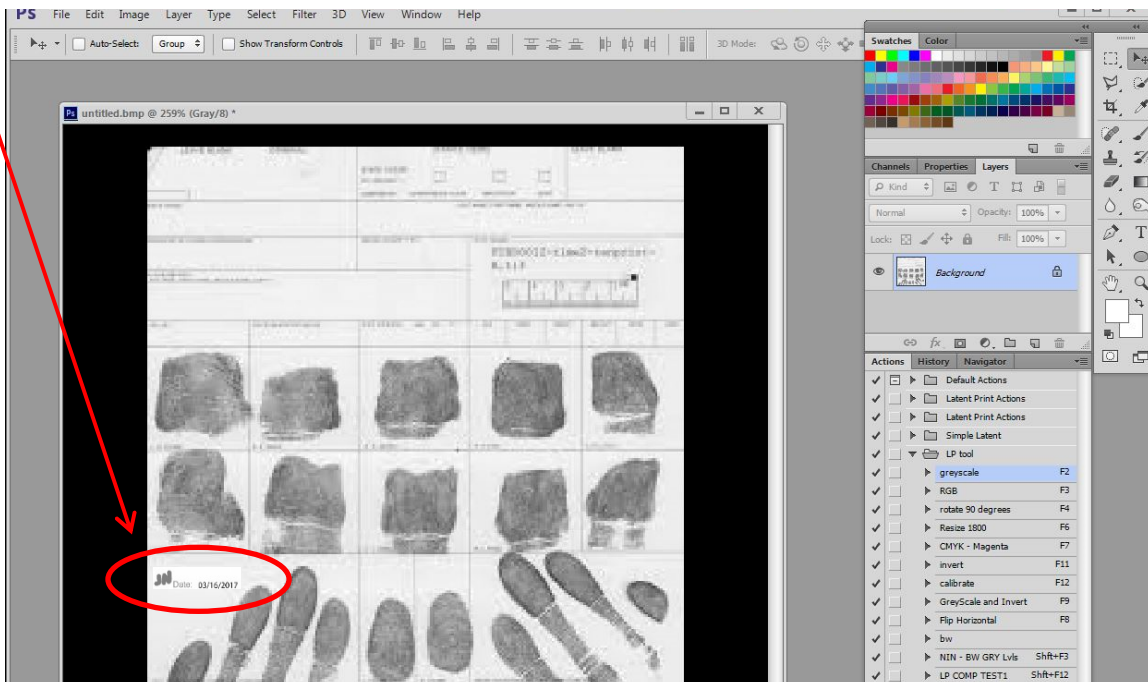


- These Tools/Shortcuts can be used for Latent Print Image Processing, and initialing of Known Print Cards and Composites.

### KNOWN FINGERPRINT CARDS:

The cards will contain the date and examiner initials, and be saved in a TIFF file format.

All images of known prints used will contain the information listed above and be acquired to ADAMS Web.



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## **DIGITAL COMPOSITE IMAGES:**

Contain a side-by-side latent print and known print and are created by the original case Analyst for purposes of Comparison, Identification and Verification mark-up.

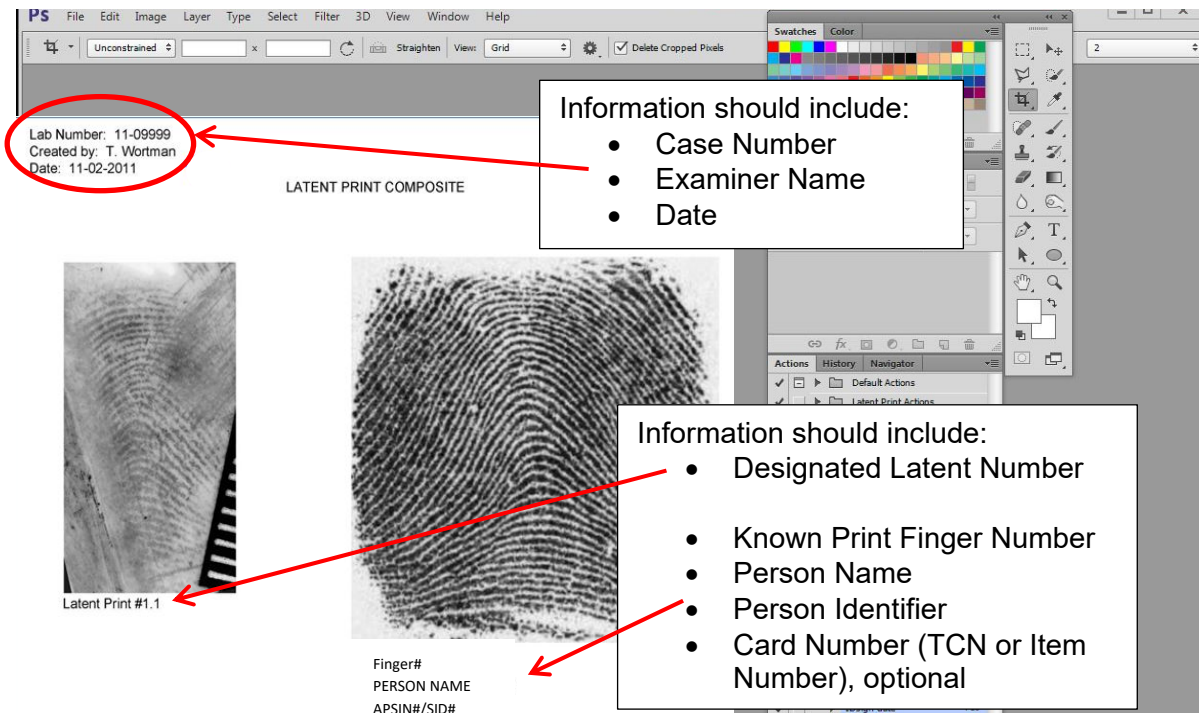
The latent print composites will be named in the following manner:

Comparison Composite: "Latent Print Designation Number" LP COMP.tif

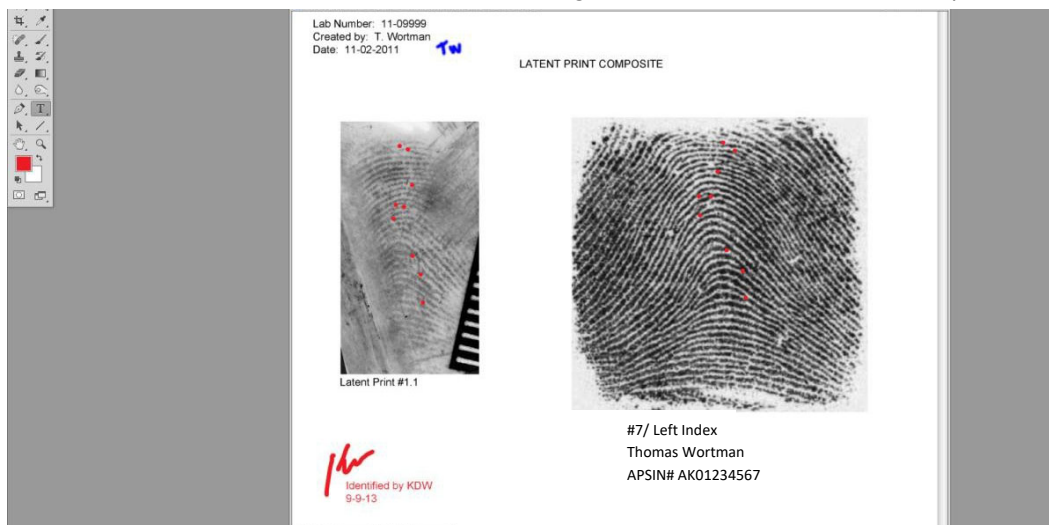
Identification Composite: "Latent Print Designation Number" LP ID "Examiners Initials".tif

Verification Composite: "Latent Print Designation Number" LP VER "Verifier's Initials".tif

- Examples: 9.1 LP COMP, 9.1 LP ID JLN, 9.1 LP VER KDW



The Comparison Composite will be marked-up by the original case Analyst and dated/initialed.  
(Note: The verifier will repeat the same process using the Comparison Composite)



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## Appendix B - Abbreviations

Abbreviation	Description
#	Number
AK	Alaska
ABRin	Amido Black Rinse
ABDev	Amido Black Developer
ADAMS	Authenticated Digital Asset Management System
ACE-V	Analysis, Comparison, Evaluation, Verification
ABIS	Automated Biometric Identification System
ALS	Alternate Light Source
APSiN	Alaska Public Safety Information Network
ASCDL	Alaska Scientific Crime Detection Laboratory
CA	Cyanoacrylate (Superglue)
COMP	Composite
DOB	Date of Birth
DL	Driver's License
DSLR	Digital Single Lens Reflex Camera
FBI	Federal Bureau of Investigation
ID	Identification
IND	1,2 Indanedione
JFI	Journal of Forensic Identification
LIMS	Laboratory Information Management System
LP	Latent Print
N/A	Not Applicable
Nin	Ninhydrin
NGI	Next Generation Identification
R6G	Rhodamine 6G
RLS	Request for Laboratory Services
RUVIS	Reflected Ultraviolet Imaging System
S/N, SN	Serial Number
SID	State Identification Number
SSN	Social Security Number
SW	Sterile Water
TCN	Transaction Control Number
TLI	Tenprint to Latent Inquiry
UCN	Universal Control Number
ULD	Unknown Latent Database
ULW	Universal Latent Workstation
UV	Ultraviolet Light
VER	Verified/Verification
WIN	Western Identification Network

### FINGER ABBREVIATION CHART

Finger #	Abbreviation	Description of Finger
1	RT	Right Thumb
2	RI	Right Index
3	RM	Right Middle
4	RR	Right Ring
5	RL	Right Little
6	LT	Left Thumb
7	LI	Left Index
8	LM	Left Middle
9	LR	Left Ring
10	LL	Left Little

**Appendix C – Technical and Administrative Review Criteria**

The following will serve as a guide for technical and administrative reviews:

Technical Review:

- Evidence and packaging is described and includes current item numbers.
- Item descriptions are consistent with overall evidence images present.
- Start and end dates are documented appropriately.
- Processing and preservation techniques are appropriate to the substrates analyzed.
- Reagents used are documented along with appropriate lot numbers and control results.
- Results/Conclusions are given for each item tested.
- All images are acquired to the digital imaging server under the lab case number and are appropriately labeled.
- Items numbers listed in the report match the number(s) listed on the RLS.
- LP Image evidence items are created in LIMS for positive cases.
- Technical Reviewer concurs with conclusions presented.
- Verification request completed and composites acquired to the digital imaging server.
- ABIS documents are labeled and added under the attachments in LIMS

Administrative Review:

- Pages are numbered correctly and contain lab case number, date, and analyst.
- Submitting agency on the report matches the information listed in the RLS.
- Agency number on the report matches the information listed in the RLS.
- Requesting officer on the report matches information listed in the RLS.
- Item numbers listed on the report matches information listed in the RLS.
- Report item descriptions accurately reflect the items worked.
- Source of individuals for comparison are documented (RLS or Case activities)
- Individuals identified in the ABIS search process are added to LIMS.
- Chain of custody for all items tested are complete and can be tracked through LIMS.
- Dates and spelling checked for errors.
- Examination requests are created in LIMS.

**Appendix D – Revision History**

Revision History	
Location	Revision Made
ALL	Updated grammar and spelling throughout
Section 5	<b>Added</b> to Match/Identification paragraph: Source Identification is the strongest degree of association between two friction ridge impressions. It is the examiner's opinion that the observations provide extremely strong support for the proposition that the impressions originated from the same source and extremely weak support for the proposition that the impressions originated from different sources. Source Identification is reached when the friction ridge impressions have corresponding ridge detail, and the examiner would not expect to see the same arrangement of details repeated in an impression that came from a different source.