

Alaska Scientific Crime Detection Laboratory

Latent Print Processing Work Instructions

Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

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ARCHIVED 9/15/2015

Introduction

This document provides work instructions for latent print processing, latent databases, and DNA sampling. Abbreviations used in this manual and their meanings are listed in the Latent Print Discipline Manual.

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PROCESSING WORK INSTRUCTIONS

This appendix describes the use and safety for the different processing techniques used in the Latent Print Discipline.

Instructions for preparing chemicals made at the laboratory are found in the Chemical Inventory file on the laboratory network. Exact measurements and proportions when preparing chemical solutions are desirable for consistent quality, but successful results in developing latent fingerprints are not dependent upon unequivocal accuracy. There is considerable latitude in preparing chemical solutions for latent fingerprint techniques without adversely affecting the successful development of latent prints.

For latent print evidence processing, chemicals are decanted into "day use" containers. These "day use" containers are emptied at the end of each day.

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9/15/2015

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Version: LPWI 2014 R0
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AMIDO BLACK

Description of Process

Amido Black, also known as naphthol blue-black, is used to develop or enhance latent prints that have been left in blood. Amido Black stains the proteins in the blood turning the print a dark blue or black color. This is not the only blood print development technique available.

Amido Black may destroy blood for serology/DNA testing. Have evidentiary blood samples chemically tested and preserved by appropriate personnel prior to processing. It will not develop prints in perspiration, fats and oils, or salts. The background of a porous item may also stain, causing weak bloody prints to not be detected.

Cyanoacrylate ester fuming may be detrimental to this process.

Sequence

Amido Black is typically utilized instead of other processes (cyanoacrylate ester fuming, powders, etc.). Although a light application of cyanoacrylate ester fuming may be applied previous to Amido Black application to preserve latent prints not in apparent blood.

Process for Use

Amido Black is typically prepared in the laboratory and not purchased as a working solution. Shelf life is indefinite for Amido Black and Rinse Solution.

1. Preserve any suitable visible prints present on evidence prior to applying Amido Black solutions.
2. Apply the Amido Black base solution by dipping, spraying, or using a squirt bottle to dried prints in apparent blood. Apply until the entire print has turned from a reddish-brown color to a blue-black color. Background staining may occur.
3. If necessary, the base solution can be re-applied before the final rinse to achieve sufficient clarity.
4. Rinse off excess base solution with the rinse solution (use additional rinses as necessary to achieve sufficient clarity).
5. Let dry.
6. Examine the item for latent prints and indicate the latent with suitable markings as appropriate to be preserved by digital imaging/photography.

Note: Developed latent prints on some dark-colored surfaces may be viewed with a light source for increased contrast.

Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

AMIDO BLACK

ControlTesting

Reactionary substance: synthetic blood (Sirchie catalog No. SYN8) on glass slide

Positive results – purple, blue, black color change

Negative results – no color change

Safety

Mix only in a vent hood.

When mixing or using, must wear gloves and eye protection.

Chemicals are flammable and skin irritant.

Caution should always be exercised around a bloody crime scene or handling items which contain blood.

Excess is disposed of as any flammable liquid.

Protective lab coats, footwear, eyewear, and latex gloves should be worn.

Since Amido Black is mixed with methanol which is highly flammable extreme caution should be taken when used at a crime scene.

ARCHIVED 9/15/2015

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Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

CYANOACRYLATE

Description of Process

The super glue process was first used for latent print development by the Japanese police in the late 1970s. A glue containing cyanoacrylate is placed in an airtight chamber with the evidence. As the glue dries, the fumes from the drying glue circulate throughout the chamber adhering to the latent print residue left on the evidence. The process will develop fresh as well as old prints.

Sequence

Cyanoacrylate Ester Fuming is typically utilized after a visual examination and before the utilization and application of other processes (ex: Powder Processing and/or Fluorescent Dye Staining). Cyanoacrylate Ester Fuming may interfere with DNA analysis and latent print blood enhancement techniques (such as Amido Black processing).

Process for Use

Cyanoacrylate is purchased as a working solution. Shelf life is indefinite for this purchased product.

1. Place aluminum dish on a heating device and pour approximately one (1) teaspoon of glue in the dish. May use more or less glue depending on evidence being processed.
2. May add accelerator (ex: water), if required. Manufacturer recommends optimum humidity of 30-60%.
3. Place evidence into fuming chamber either by suspending or standing so all areas are exposed.
4. Seal fuming chamber.
5. Turn on heating device. Manufacturer recommends operation at 60°-85° F (16°-29° C) and not to heat above 250° F (120° C).
6. After latent print(s) are developed (usually 8 to 30 minutes), turn the heater off and exhaust the fumes from chamber before opening. May process item longer with superglue, as needed, for adequate clarity of results.
7. Vent chamber (usually 10 or more minutes).
8. Remove evidence and view for developed latent prints. Oblique and/or intense light may be utilized to better visualize developed latent prints.
9. If suitable latent prints are developed, the examiner may indicate the latent print with suitable markings as appropriate to be preserved by digital imaging/photography.
10. Depending on type of evidence, additional processing techniques for development of latent prints may be used (ex: Powder Processing and/or Fluorescent Dye Staining).

Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

CYANOACRYLATE

ControlTesting

Reactionary substance: latent print on glass slide or clear plastic

Positive results – white/off-white film

Negative results – lack white/off-white film

Safety

Precautions should be taken as to not get the glue on your skin. Wear eye protection and latex gloves. If you do get glue on your skin and get attached to something, do not try to pull apart. Use water or acetone and then rub apart to release. Use in a vent hood or use an exhaust system to remove fumes from the chamber prior to opening the fuming chamber and removing the evidence. Cyanoacrylate ester fuming may be a respiratory and eye irritant.

ARCHIVED 9/15/2015

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Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

DFO (1, 8 – DIAZAFLUOREN – 9 – ONE)

Description of Process

DFO is used to develop latent prints on porous surfaces. DFO is a Ninhydrin analogue and reacts to the amino acids present in perspiration. The prints will appear a pinkish-orange color; however, when viewed under various lasers and alternate light sources the prints will fluoresce brightly and are much more visible, especially on a dark colored surface that might hide prints that have been developed with Ninhydrin alone.

Sequence

If other processes are to be used on the same piece of evidence, DFO should be used after IND (1,2-Indanedione) and before Ninhydrin or Physical Developer.

Process for Use

DFO crystals are purchased and the DFO Stock solution and DFO Working Solution are prepared in the laboratory.

1. Apply or dip the item in the DFO working solution for approximately ten (10) seconds, allow drying for approximately three (3) minutes.
2. Repeat the process.
3. Heat is then applied to the dried specimen by placing it in an oven that contains no humidity or use an iron with no steam. Heat for ten (10) minutes at 100 C (212 F).
4. View under a laser or other alternate light source as the developed prints may be invisible to the naked eye.
5. Examine item for latent prints and indicate the latent with suitable markings as appropriate to be preserved by digital imaging/photography.

Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

DFO (1, 8 – DIAZAFLUOREN – 9 – ONE)

Control Testing

Reactionary substance: synthetic blood (Sirchie catalog No. SYN8) on porous white paper

Positive results – (visual; optional) pinkish-orange, pink, orange; (ALS/Lasers) fluorescence (orange, red-orange due to filters)

Negative results – (visual) no color change; (ALS/Lasers) no fluorescence

Safety

Reagent is flammable. It is a sensitizer and causes staining of the skin. Mixing must be performed in a vent hood wearing lab coat, gloves, and eye protection. DFO is mixed with carriers that are highly flammable and irritant. Wear gloves, a lab coat, safety eyewear and use in a lab fume hood. Must be disposed of like any other flammable chemical.

ARCHIVED 9/15/2015

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Issued: 03/10/2014
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IND (1,2-INDANEDIONE)

Description of Process

1,2-Indanedione is a fluorescent amino acid reagent applied for developing latent prints on porous surfaces such as paper and cardboard. There is no discoloration or background staining evident on the 1,2-Indanedione processed samples that consistently appears when processing with DFO. 1,2-Indanedione may be used in place of DFO.

Sequence

If other processes are to be used on the same piece of evidence, IND should be used prior to DFO, Ninhydrin and Physical Developer.

Process for Use

IND crystals are purchased and a working solution is prepared in the laboratory.

1. Apply the IND solution to an item by spraying, dipping or brushing.
2. Allow to dry for approximately three minutes.
3. After the IND has dried, place the processed item in a humidity chamber to accelerate the development process.
4. 10 minutes at 100 C and 60% relative humidity.
5. The best results obtained for the thermal paper samples were achieved by not accelerating the development and allowing them to develop naturally in the laboratory environment from 4 to 12 hours.
6. Developed prints are observed through an orange/amber viewing filter using a light source.
7. Examine the item for latent prints and indicate the latent with suitable markings as appropriate to be preserved by photography.
8. The results can also be seen on some samples with white light and develop as a light pale pink color.

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Status:Archived

IND (1,2-INDANEDIONE)

Control Testing

Reactionary substance: synthetic blood (Sirchie catalog No. SYNB8) on porous white paper

Positive results – (visual; optional) light/pale pink color; (ALS/lasers) fluorescence (orange due to filters)

Negative results – (visual) no color change; (ALS/Lasers) no fluorescence

Safety

Chemicals used in preparation and process are flammable and irritant. Avoid contact with skin and eyes. Wear proper protective equipment when preparing and processing items: lab coat, gloves, and safety glasses (goggles). Wear amber protective eye wear when viewing results under laser light.

ARCHIVED 9/15/2015

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NINHYDRIN

Description of Process

Ninhydrin is a chemical method for developing latent prints on porous surfaces and absorbent materials such as paper, cardboard, and smooth raw wood. This method is based on the reaction of Ninhydrin and amino acids that are present in latent print residue. The first known use of Ninhydrin for latent print processing was in the early 1950s. It is sensitive to old prints as well as fresh prints.

Ninhydrin can be mixed using two carriers: acetone or petroleum ether.

Sequence

Evidence that may have potential DNA evidentiary value may be processed for latent prints with Ninhydrin previous to DNA sample collection.

Ninhydrin can be utilized by itself or in conjunction with other processes if used in the following order:

1. IND; 2. DFO; 3. Ninhydrin; 4. Physical Developer

Process for Use

Ninhydrin crystals are purchased, but a working solution is typically prepared in the laboratory. Shelf life is approximately six months for a working solution.

1. Select the appropriate Ninhydrin base solution dependent upon the other substances on the surface. Acetone will cause certain inks to dissolve, therefore, handwriting analysis should be performed before processing for latent prints begins.
2. Apply Ninhydrin solution to an item by spraying, dipping, or brushing.
3. After the Ninhydrin has dried, place the processed item in humidity chamber or steam the item with an iron to accelerate the development process.
4. Examine the item for latent prints and indicate the latent with suitable markings as appropriate to be preserved by digital imaging/photography or scanning.

Note: Developed latents on some dark-colored surfaces may be viewed with a light source for increased contrast. Development of latent prints may vary with exposure time to Ninhydrin.

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Effective: 03/13/2014

Version: LPWI 2014 R0
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Ninhydrin

Control Testing

Reactionary substance: synthetic blood (Sirchie catalog No. SYN8) on porous white paper

Positive results – purple, pink, black color change

Negative results – no color change

Safety

Ninhydrin should be used in a laboratory fume hood, a well-ventilated area, or outside.

Gloves, lab coat, and safety eyewear must be worn when using.

Ninhydrin is mixed with a carrier such as methanol, acetone, or petroleum ether (which is highly flammable).

Excess is disposed of as any flammable liquid.

ARCHIVED 9/15/2015

POWDERS - PLAIN

Description of Process

Black powder is one of the oldest and most basic methods of developing latent prints on non-porous surfaces. Powder is applied to a surface by lightly dusting over the surface with a soft bristly brush or duster. Once prints are developed they should be preserved for later comparison by either photography and/or lifted with lifting tape and placed on a lift card. Black powder is not the only color available, however, it is the most commonly used type of powder (even on dark colored surfaces). In addition, there are fluorescent powders that may be used, which require the use of an alternate light source and appropriate filters.

Sequence

Powder Processing can be used at the Forensic Scientist or Technician's discretion. It should not be used on porous items such as checks, cardboard, paper sacks, etc. A chemical process would be best suited for these types of evidence; however, if the paper or cardboard has a shiny or slick surface (such as magazine covers or matchbook covers) it could be used.

Safety

Powder can easily be inhaled. Wear a facemask to filter out loose powder in the air or dust in a fume hood. Wearing gloves will prevent you from getting your hands dirty; however once lifting tape is placed over the developed latent; gloves make it difficult to rub out air bubbles.

ARCHIVED 9/15/2015

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Status:Archived

POWDERS – PLAIN **Process for Use**

All powder is purchased and not prepared in the laboratory.

1. Prior to applying the powder to the surface that is to be processed, view the item for prints that are visible to the eye; such as prints in blood, grease, or any foreign residue. If there are visible latent, patent, or plastic prints:
 - a) *Do not handle the evidence excessively since the item has not yet been processed.*
 - b) *Consider alternative processing techniques for prints in blood, grease, or any foreign residue.*
2. Take the jar of powder and tap the jar into the palm of the hand several times to break up clogs of powder and loosen the powder that has settled.
3. Pour a small amount of powder (two to three tablespoons) into a container.
4. Choose a type of brush to apply powder.
 - a) *Fiberglass or nylon – to be used on small or large objects.*
 - b) *Feather duster – for larger objects.*
 - c) *Short bristle brush – for small objects and also used for cleaning up latents by lightly brushing in the direction of ridge flow.*
5. Hold fiberglass brush, nylon brush, or feather duster between palms of your hands, rub hands back and forth several times to loosen and fluff out bristles or feathers.
 - a) *Dip the brush into the container of powder lightly to pick the powder up.*
 - b) *Tap the brush several times with your index finger over container to release excess powder.*
6. Apply the powder to the surface by lightly dusting over the surface (only the tips of bristles or feathers should touch the surface).
 - a) *Twirling motion – fiberglass brush*
 - b) *Back and forth motion – fiberglass, feather duster, or short bristle brush*
 - c) *Figure eight type motion – feather duster*
 - d) *Once a latent is visible, view the latent and then apply a few more strokes of powder. If the latent starts to lighten up or starts looking spotty – stop processing. The latent is at its maximum contrast. Additional processing will destroy or deteriorate the latent.*
7. Remove the excess powder from the processed item.
 - a) *Tap item lightly on counter.*
 - b) *Use short bristle brush (brushing with the flow of ridges).*
 - c) *Make multiple lifts of the same print.*
8. Preserve the latent print for later comparison by either digital imaging/photography or a lifting technique appropriate to the evidence.

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POWDERS – MAGNETIC

Description of Process

With magnetic powder, there is no brush with fibers or bristles to hold the powder. The powder is actually made up of finely ground metal shavings with colored powder. The powder is applied with a metal rod or wand that has a magnet inside that attracts the powder-like whiskers. This method was developed in the early 1960's. It is not used for every piece of evidence; it is just another tool available in the latent processing field.

Sequence

Magnetic Powder can be used at the Forensic Scientist or Technician's discretion, usually after cyanoacrylate fuming. Magnetic Powder Processing is not suited for processing metal objects or porous items such as checks, raw cardboard, or paper sacks; however, it can be used on shiny slick surfaces such as magazine covers, match book covers, etc.

PROCESS FOR USE

All powder is purchased and not prepared in the laboratory.

1. Prior to applying the powder to the surface that is to be processed, view the item for prints that are visible to the eye; such as prints in blood, grease, or any foreign residue. If there are visible latent, patent, or plastic prints:
 - a) *Do not handle the evidence excessively, since the item has not yet been processed.*
 - b) *Consider alternative processing techniques for prints in blood, grease, or any foreign residue.*
2. Take the jar of powder and tap the jar into the palm of the hand several times to break up clogs of powder and loosen powder that has settled.
3. Stick large bulb end of wand into the jar to pick up metal shavings. Pull the rod out of the wand to release metal shavings.
4. Go over the surface using a back and forth motion with only the metal shavings coming in to contact with the surface. CAUTION: If the metal bulb end comes in to contact with the surface, it could scratch or destroy a latent print.
5. Remove excess powder from the item processed.
 - a) *Tap the item lightly on the counter.*
 - b) *Use a short bristle brush (brushing with the flow of ridges).*
 - c) *Make multiple lifts of the same print as necessary.*
6. Preserve the latent print for later comparison by either photography or a lifting technique appropriate to the evidence.

Safety

There are no known safety hazards. Magnetic Powder Processing is not as messy as Powder Processing. Any overspill can be picked up with the wand and released back into the container.

PHYSICAL DEVELOPER

Description of Process

The Physical Developer process is used for processing porous surfaces, especially on porous surfaces that have been wet, and on U.S. currency. It reacts with the fats, oils, and waxes present in the fingerprint residue. Until the introduction of a two-solution pre-mixed kit, Physical Developer had to be mixed from seven different chemicals following a complicated mixing routine.

Sequence

Physical Developer can be used in conjunction with other processes but normally after IND, DFO, and Ninhydrin.

Process for Use

Physical Developer is typically purchased as a working solution and not prepared in the laboratory.

1. Lay out three (3) glass trays
 - a) *Maleic acid prewash* If not used the Physical Developer will cause the paper to turn dark and obliterate any latent prints.
 - b) *Physical Developer working solution*
 - c) *Water rinse*
2. Immerse the item(s) in the prewash until the bubbles stop (do NOT use metal tongs).
3. Transfer the item(s) to the working solution. The tray with the working solution should be placed on an orbital shaker or manually rocked back and forth by hand. Leave the item(s) in the working solution for 5 to 15 minutes or until latents are developed.
4. Remove the item(s) and place them in a water rinse to remove excess solution.
5. Remove the item(s) from the water rinse and let dry.
6. Examine the item for latent prints and indicate the latent with suitable markings as appropriate to be preserved by photography.
7. If latents are hidden by a dark background color the background can be lightened up by placing the item(s) in a 50% household bleach – 50% tap water solution.
8. The prints will appear grayish-brown in color.

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Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

PHYSICAL DEVELOPER

ControlTesting

Reactionary substance: latent print on porous white paper

Positive results – grey/black color change

Negative results – no color change

Safety

The Physical Developer process can be carried out with no known health hazard, provided a few precautions are carried out, such as wearing lab coats, latex gloves, and safety eye wear. The reagents in the working solutions are corrosive and toxic and will cause black staining on skin and clothing. Maleic acid is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Mix in a fume hood while wearing gloves, lab coat and eye protection.

ARCHIVED 9/15/2015

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Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

RHODAMINE 6G FLUORESCENT DYE PROCESSING

Description of Process

Rhodamine 6G is to be used only on non-porous items and after the item has been treated with cyanoacrylate fuming. Rhodamine 6G is a fluorescent dye used to make cyanoacrylate developed latent prints more visible on various colored surfaces. Lasers or alternate light sources are used in conjunction with this process. Rhodamine 6G enhanced latent prints will have to be photographed under a light source. Different carriers for the working solution can be utilized to decrease processing times, preserve inked markings on evidence, or for use on special surfaces.

Sequence

Rhodamine 6G is to be applied only after a non-porous item has been exposed to cyanoacrylate fuming. Powder application may be utilized before or after use of Rhodamine 6G.

Process for Use

Rhodamine 6G crystals or powder is purchased and working and stock solutions are prepared in the laboratory.

1. After the evidence has been processed by cyanoacrylate ester fuming, apply the appropriate Rhodamine 6G working solution by either dipping, or using a spray device or squirt bottle.
2. Place the evidence under a fume hood to dry.
3. Examine the evidence under the laser and view using an orange filter. The power setting (beam intensity) may be adjusted as needed.
4. If the dye appears to be in excess, it may be rinsed with an application of distilled water or methanol over the evidence to reduce its thickness. A second application of dye stain may be necessary after the rinse.
5. Examine the item for latent prints and indicate the latent with suitable markings as appropriate to be preserved by photography.

Control Testing

Reactionary substance: cyanoacrylate print on glass slide or clear plastic

Positive results – fluorescence (orange due to filters)

Negative results – no fluorescence

Safety

Rhodamine 6G working solution and stock solutions are extremely flammable and caution should be used. This reagent should be mixed and applied to evidence under a fume hood so it is not inhaled. Gloves, a lab coat, and eye protection should be used.

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Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

WETWOP/WET POWDER

Description of Process

Wetwop and other sticky side powder equivalents are used to develop latent prints on the adhesive sides of tapes, decals, and other items.

Sequence

Wetwop/Wet Powder and other sticky side powder equivalents are typically used instead of other processes (cyanoacrylate ester fuming, Rhodmine 6G, etc.) on the adhesive side of items. The non-adhesive side may be processed as normal before applying Wetwop/Wet Powder and other sticky side powder equivalents. Adhesive surface processing may interfere with DNA analysis.

Process for Use

Wetwop and Wet Powder are typically purchased as a working solution. Shelf life is indefinite for purchased Wetwop and Wet Powder.

1. Shake container before use.
2. Pour small working amount of Wetwop, Wet Powder, or other sticky side powder equivalent into appropriately sized container.
3. Using latent print/fingerprint brush, apply solution onto the adhesive side of tape or other adhesive surface.
4. Leave on for 10-15 seconds.
5. Rinse off under slow running, cool water.
6. Let dry.
7. Examine the item for latent prints and indicate the latent with suitable detail as appropriate to be preserved by digital imaging/photography.

Safety

No known safety hazards. Although manufacturer caution states "Wet Powder is a highly stainable product. Use proper clothing."

Issued: 03/10/2014
Effective: 03/13/2014

Version: LPWI 2014 R0
Status:Archived

RUVIS (Reflected Ultra Violet Imaging System)

Reference:

SceneScope Advance SC-VIEWER-AD Ruvis User's Guide – Manual Part Number 81058 – Rev. 3 August 2007)

Safety (Excerpt from User's Guide Page 7)

Safety first!

• Long-sleeve lab-coats, gloves and safety glasses or other appropriate eye and skin protection such as UV protective glasses or a UV protective full-face shield must be worn at all times. The SceneScope is delivered with several standard accessories to protect the users:

- UV protective pair of goggles
- Full-face headgear protection with UV protective window.
- Screw-on shield with panel mounted captive screws, to be fixed on the front lens.

This safety equipment must be used at all time!

WARNING

UV exposures are not immediately felt.
User may not realize hazard until it is too late and damage is done.

Equipment:



- RUVIS Imager (Shown)
- SceneScope Advance SC-VIEWER-AD Ruvis User's Guide
- High Resolution Digital Camera and camera mount
- 254nm (Ultraviolet) Lamp
- (Optional Equipment: Video attachment for large screen display.)

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Concepts, Mechanism and Functionality (Excerpt from User's Guide Page 10)

A RUVIS instrument consists of the imaging viewer, a powerful yet portable UV lamp, all necessary UV protection equipment, and the adapter ring for 35mm SLR cameras or digital cameras. The RUVIS device uses the viewer and lamp in conjunction with one another to produce a reflection off smooth, non-porous surfaces. As the UV light is shown across a surface, the material left behind, in this case a fingerprint, causes the UV light to "scatter". The viewer sees the scatter off the ridges and allows the technician to see the latent print on the surface. By changing the angle of light, you change the contrast of the print and increase its visibility, thus allowing you to visualize and photograph the latent print without any treatment or contact.

Sequence (Excerpt from User's Guide Page 17)

The SceneScope Advance may be used on smooth NON porous surfaces prior to any treatments. It will give even better results after Cyanoacrylate Fuming on most non-porous surfaces. It shall be used in the two steps preceding FLS use (prior to any treatment and after fuming but prior to dye staining).

Examples of excellent results:

On Tape, for the sticky side use no fuming. For the non-sticky side, best results are after fuming.

(FLS refers to a FORENSIC LIGHT SOURCE)

Best Practices

Refer to pages 16 through 18 of the User's Guide.

Training and User Orientation

All users must read the RUVIS User's Manual:

- *SceneScope Advance Scene VIEWER-AD Ruvis User's Guide – Manual Part Number 81058 – Rev. 3 August 2007)*

All users must complete Supervised Operation of the RUVIS Imager, UV Lamp and Image Capture to include:

- Powering the units on/off
- Complete Observance of Safety Precautions and Equipment
- Demonstrate Proper Focusing, Visualization and Capture of friction ridge detail.

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WIN/AAFIS, IAFIS

COMPUTER DATABASES

WIN/AAFIS is the Western Identification Network/Alaska Automated Fingerprint Identification System. It is a ten print record database jointly shared by Alaska, Oregon, Idaho, Utah, Nevada, Montana, Washington, BICE (Bureau of Immigration and Customs Enforcement) and Wyoming. California and several other individual agencies are interface members of the network.

IAFIS is the Integrated Automated Fingerprint Identification System. It is the system and database maintained by the FBI.

The Latent Print Training Manual includes a section on the use of WIN. The procedures used can be found in the WIN AFIS21 Global Workstation GWS-L User Guide and Print Quest AFIS Manual.

IAFIS is not frequently utilized. Latent Examiners can be trained by a designated WIN Trainer. The procedures for IAFIS are outlined in the WIN AFIS21 Global Workstation GWS-L User Guide, Appendix B.

SEARCHING

All latent prints that are of sufficient quality and have not been identified with known finger or palm prints can be entered into WIN/AAFIS, AFIS, or IAFIS if requested on the Request for Lab Services Form or if confirmed with the requesting agency/officer.

Latents are searched at the discretion of the examiner signing the report for the case.

INDIVIDUAL CHARACTERISTIC DATABASE SAMPLES

The individual characteristic database sample files for the Latent Print Discipline contain known palm, major case prints, ten print cards and sole impressions from suspect and elimination persons. These impressions are reference samples.

The reference samples are stored in a locked room. Latent Discipline employees have access to the room. The files for each individual are stored in manila envelopes and arranged alphabetically by last name. The samples are uniquely identified by name and laboratory case number.

DNA SAMPLING

Analysts in the Latent Print Discipline may be responsible for collecting contact DNA from evidence items.

The analyst should rely on the DNA Section to determine if any of their processing substances may interfere with subsequent DNA analysis. The analyst may use their discretion to determine the processing order, including at what stage the DNA sample is taken. This decision is based upon training and experience and is dependent upon the nature and the condition of the evidence.

Due to the possibility of DNA transfer which can occur with the re-use of fingerprint powder brushes, it is recommended that DNA be collected before the application of fingerprint powders.

Isolating DNA Samples

1. Standard casework precautions should be observed to prevent sample contamination, such as clean work table, evidence on fresh sheet of paper, new gloves, mask and new and/or cleaned sampling materials.
2. A sample may be isolated by swabbing or cutting it.
3. Let the DNA analysts know about any chemicals or processing that was performed in this section on the sample area prior to sample collection. This information may be noted in JTrax case activities and should appear in bench notes. It may also be noted on the sample packaging.

Swabbing Method

1. Take two swabs of each sample area (eg. Mouth area of can/bottle, textured areas on firearm). The first swab applied to the stain should be moistened, followed by a dry swab. These swabs should be packaged together as one sample.
2. Water used to moisten the swab should be prepared by the DNA section. The date opened is recorded on the bottle. This date and the lot number of the water should be in the analyst's case notes.
3. Swabs should be air-dried before packaging.

Packaging DNA Samples

1. Each **sampld area** should be given a unique number. For example, if there are two separate samples from item 41, then they should be labeled as 41-1 and 41-2 using hyphens to separate the item number from the sample number.
2. Each sample should be **isolated** separately and labeled.

Examples of swab labels:

Isolated sample 41-1 from the mouth of the bottle (Item 41).

Isolated sample 41-2 from the handle of the bottle (item 41).
--

3. Samples collected from an item can be packaged together in a manila envelope and should be labeled for preservation purposes as a single item.

Example:

Item #41TW: Swabs 41-1 and 41-2 from the bottle from item 41.
--

4. The created item should be added as evidence in LIMS and the DNA pending assignment in JTRAX is assigned to the DNA Discipline Supervisor to alert the DNA Discipline that contact DNA sampling has been completed.

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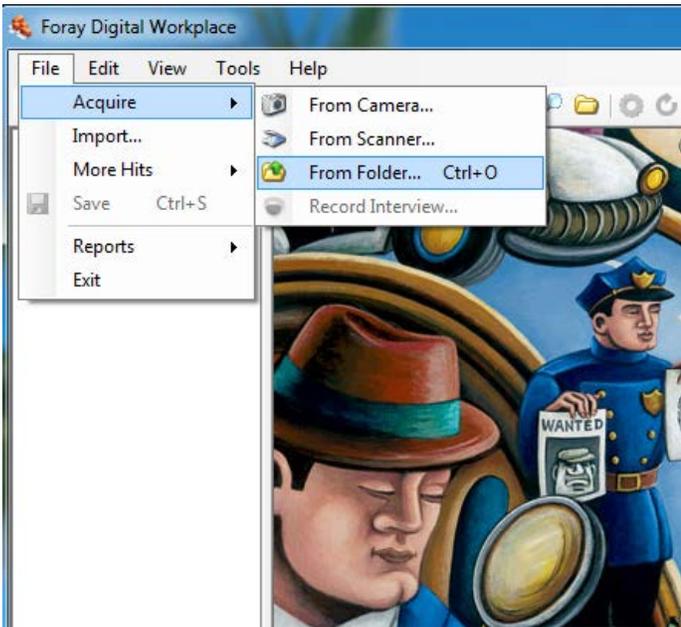
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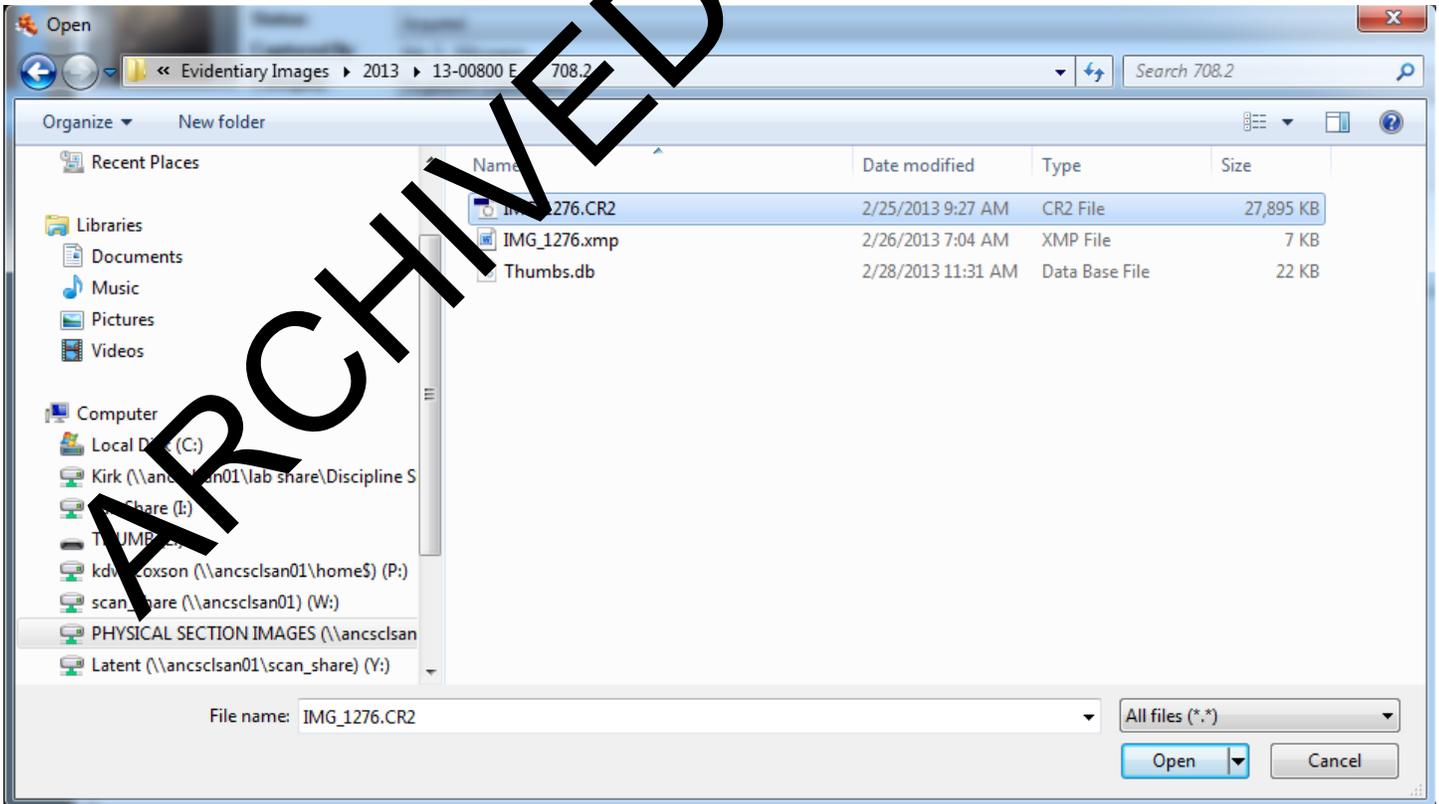
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Image Acquisition – Choose the source of the image(s).



Choose the Assets original location (Note: multiple assets from the same case can be selected.)



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Fill out Asset Information (information entered will be applied to all images acquired in this set)

Acquisition Info

Please enter the information associated with the evidence being acquired.

Case: 12-00001

Contributing Agency ID: Alaska Scientific Crime Detection Lab

Acquired By: Kirk D. Wilcoxson

Captured By: Kirk D. Wilcoxson

Crime: Dangerous Drugs

Date of Crime: []

Captured On: Wednesday, May 01, 2013

Category: Fingerprint (Latent print)

Location: Item 1

Description: Item 1 - Bottle of R&R Whiskey

Delete source assets after acquisition

OK Cancel

Provide as much of the following as possible;

- Lab Case Number
- Acquired by
- Crime Type
- Date of Crime (optional)
- Category of Image
- Location (Item # or physical location)
- Description

Add the latent designation here so that the asset name displays the following format:

Asset Name: 90a.1 IMG 1547

Asset View after Acquisition:

Asset Name: IMG_1547.CR2

Captured On: 5/1/2013

Status: Acquired

Captured By: Kirk D. Wilcoxson

Category: Other

Location: P12011090

Description: 90a.1 (ziploc bag)

Notes Camera Data Processing File Info Chain of Custody State Changes

This information can be entered previously during acquisition or entered during this phase.

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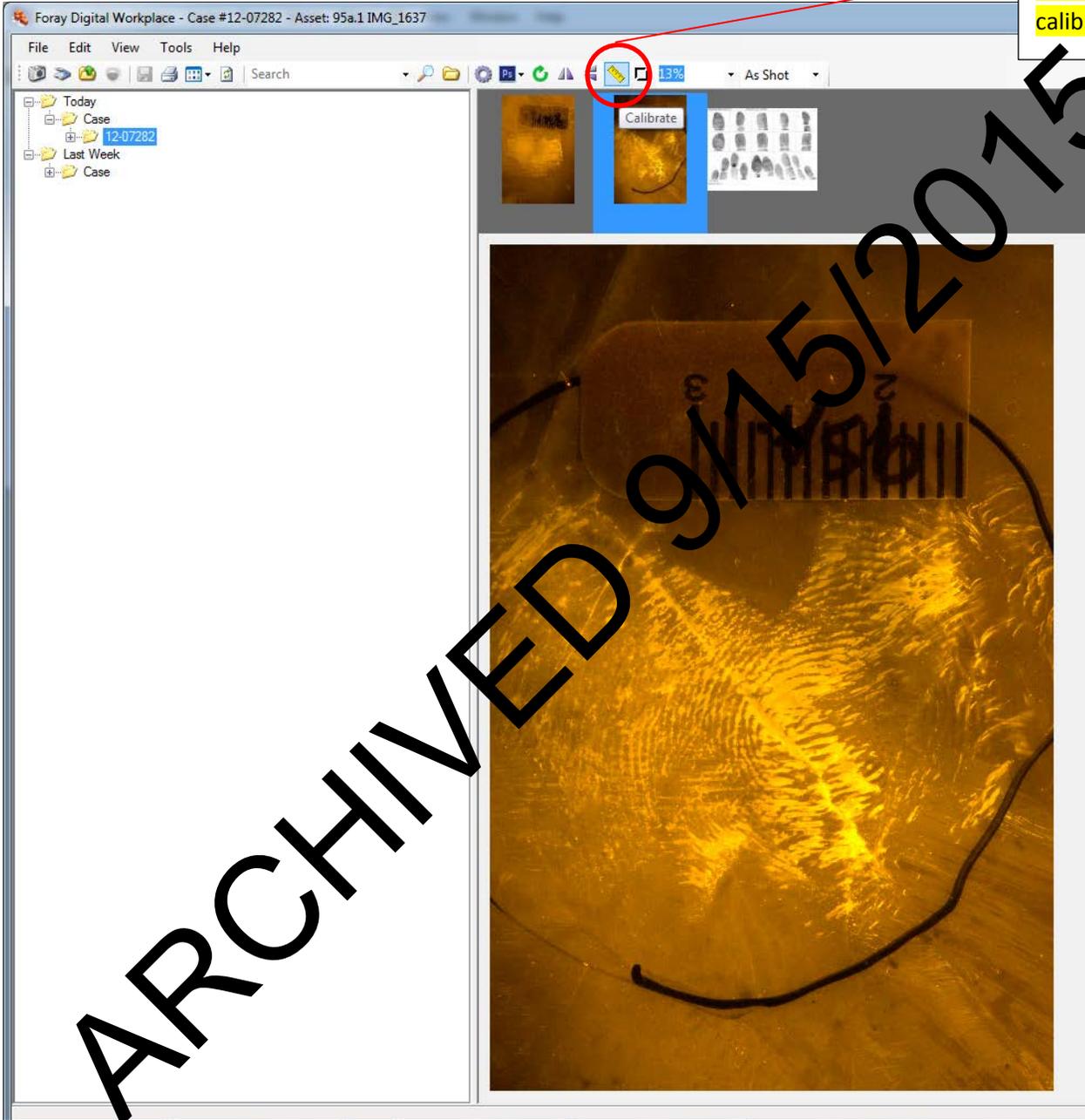
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ASSET CALIBRATION

Double click on the image you wish to calibrate (this will switch the image to FULL View)

Select the Ruler
Icon to launch the
calibration tool.

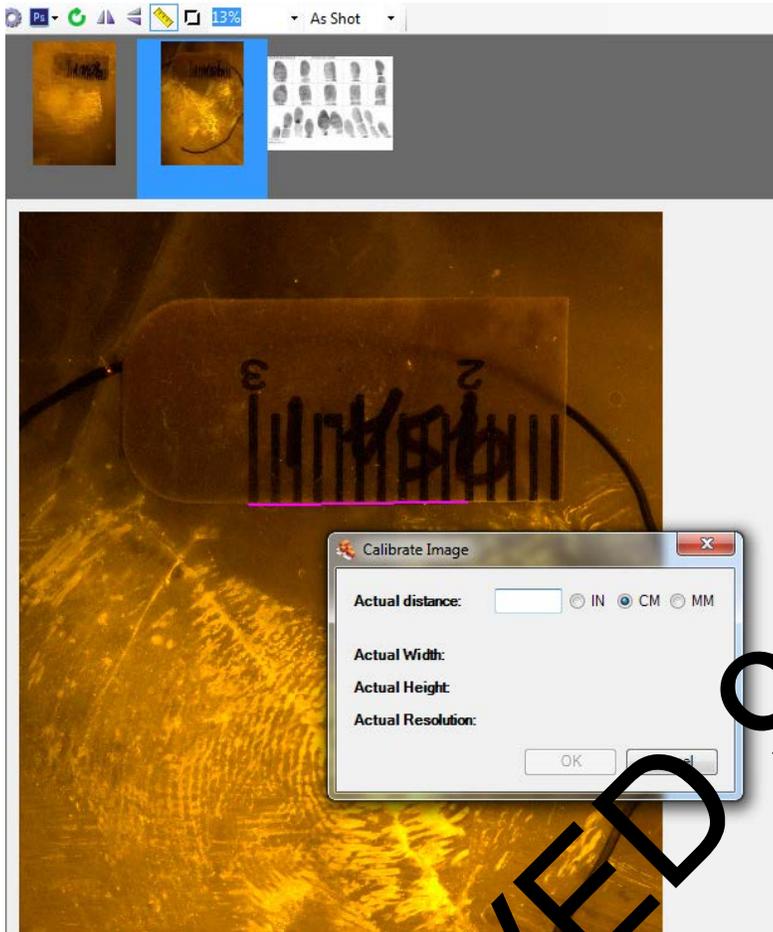


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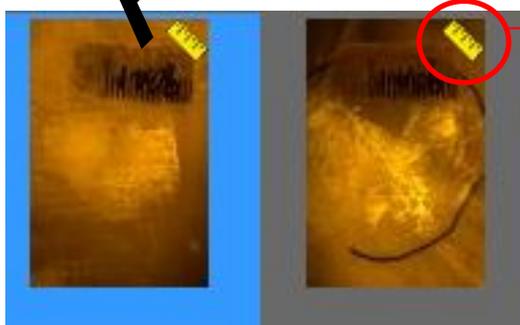
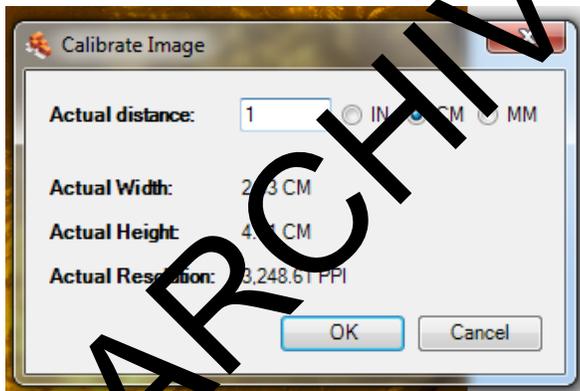
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Using the cursor draw a line measuring one unit of measurement on the scale in the image. Enter the value and unit of measurement.



Calibrated Assets will have a ruler icon in the upper right corner.

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Enhancing the Image with Photoshop

Once Calibrated an asset may be processed (enhanced) with Photoshop, by selecting the Photoshop Icon and choosing either;

“Process as TIF” for images TIF Format (usually scanned image assets)

“Process as RAW” for Raw format (images from Camera captured assets)

Note: If original asset is JPG format, “process as TIF” must be used.



Select Photoshop Icon to process the image asset.

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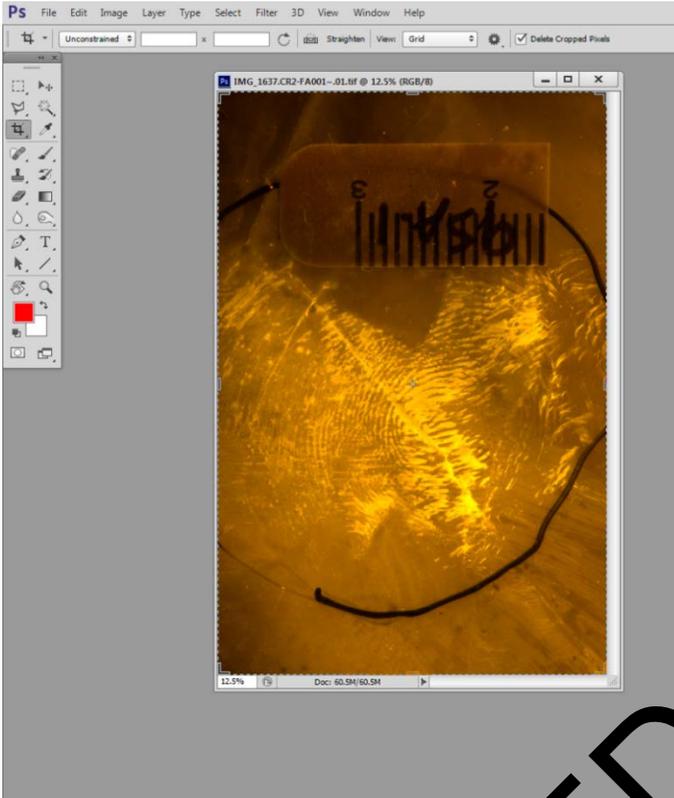
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Original Asset



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Process and enhance the image in Photoshop using standard and approved methods to achieve high contrast ridge detail or to determine suitability for identification purposes.

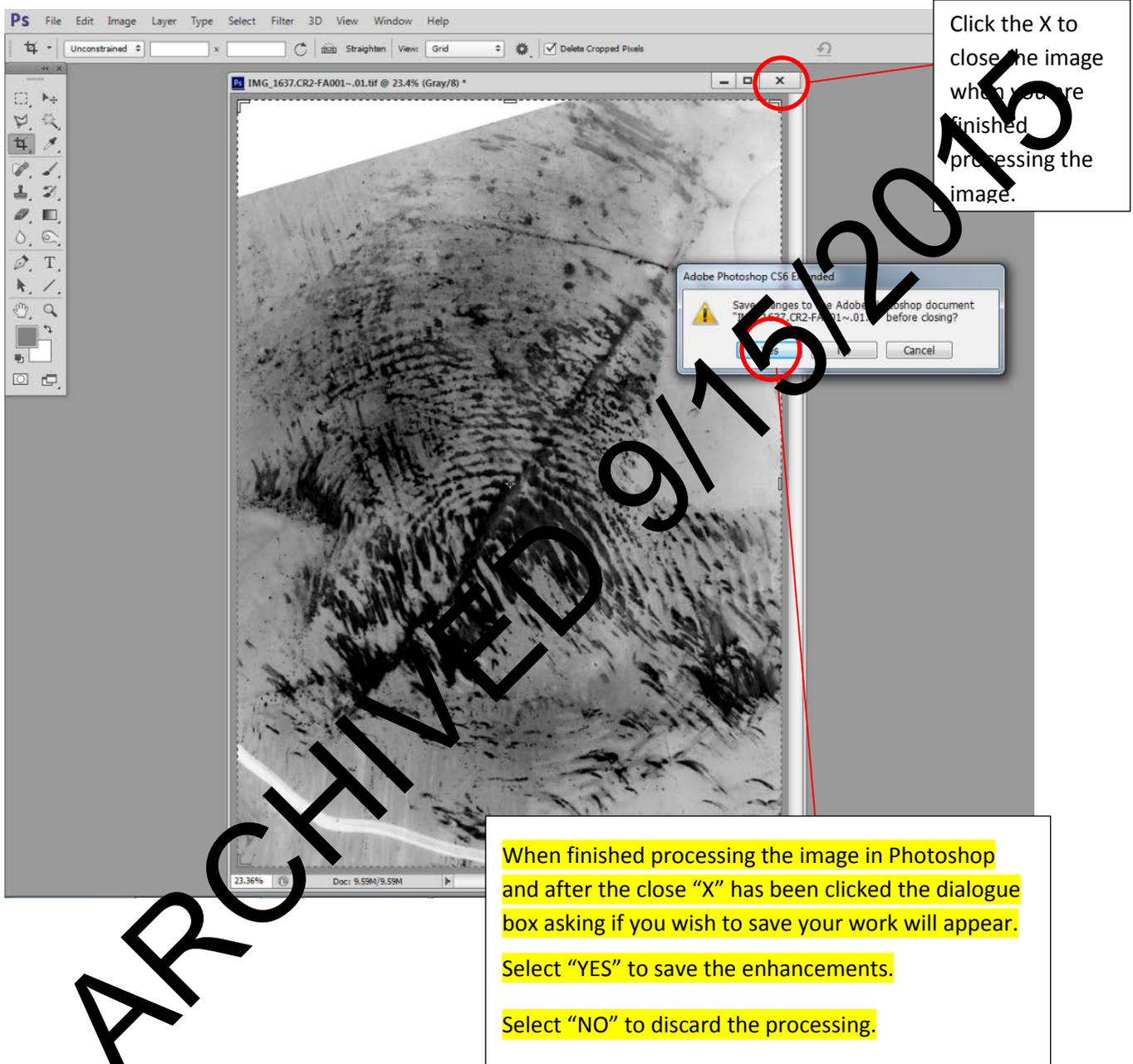
Asset after Photoshop processing techniques applied



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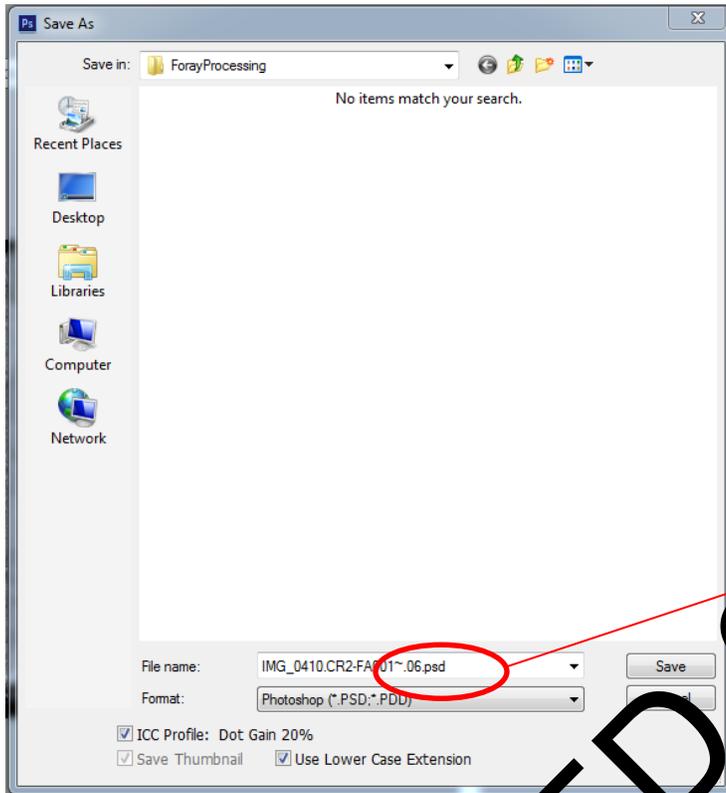
If working with TIFF images, the image asset will close. If working with RAW files additional steps are required to complete the acquisition of the processed image back into Digital Workplace.

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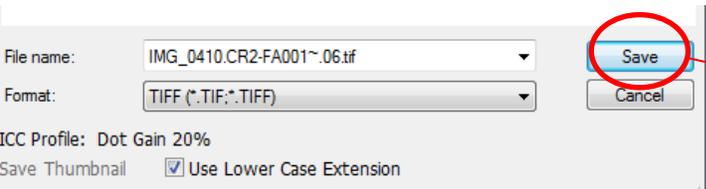
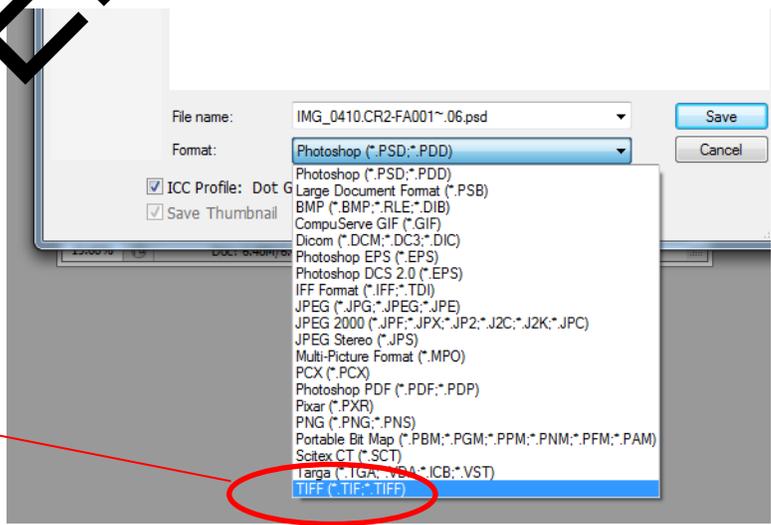
RAW IMAGES – Extra “Save As” Step



If working with RAW images, Photoshop will prompt you to save the asset. Change the **FORMAT** from PSD (default) to **TIFF**.

IMPORTANT:
Do not change the ASSET name.

Select **TIFF** from the Drop down menu next to **FORMAT**.



Select **Save** and the image will close.
Return to Digital Workplace

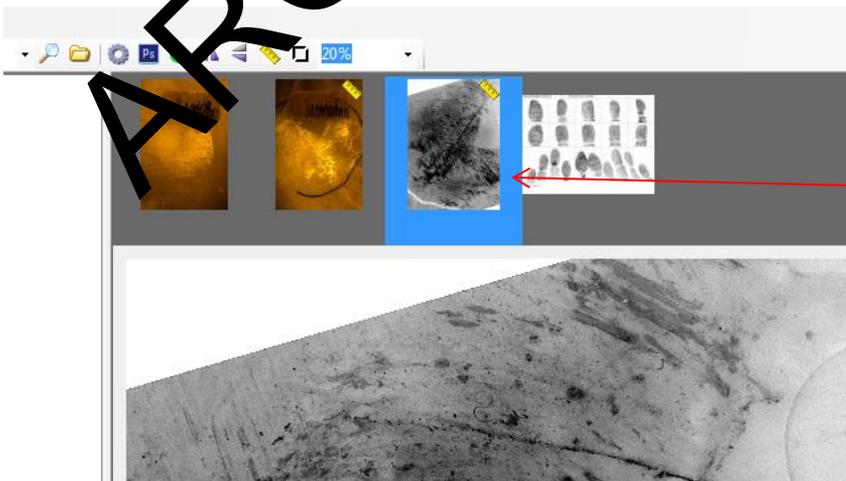
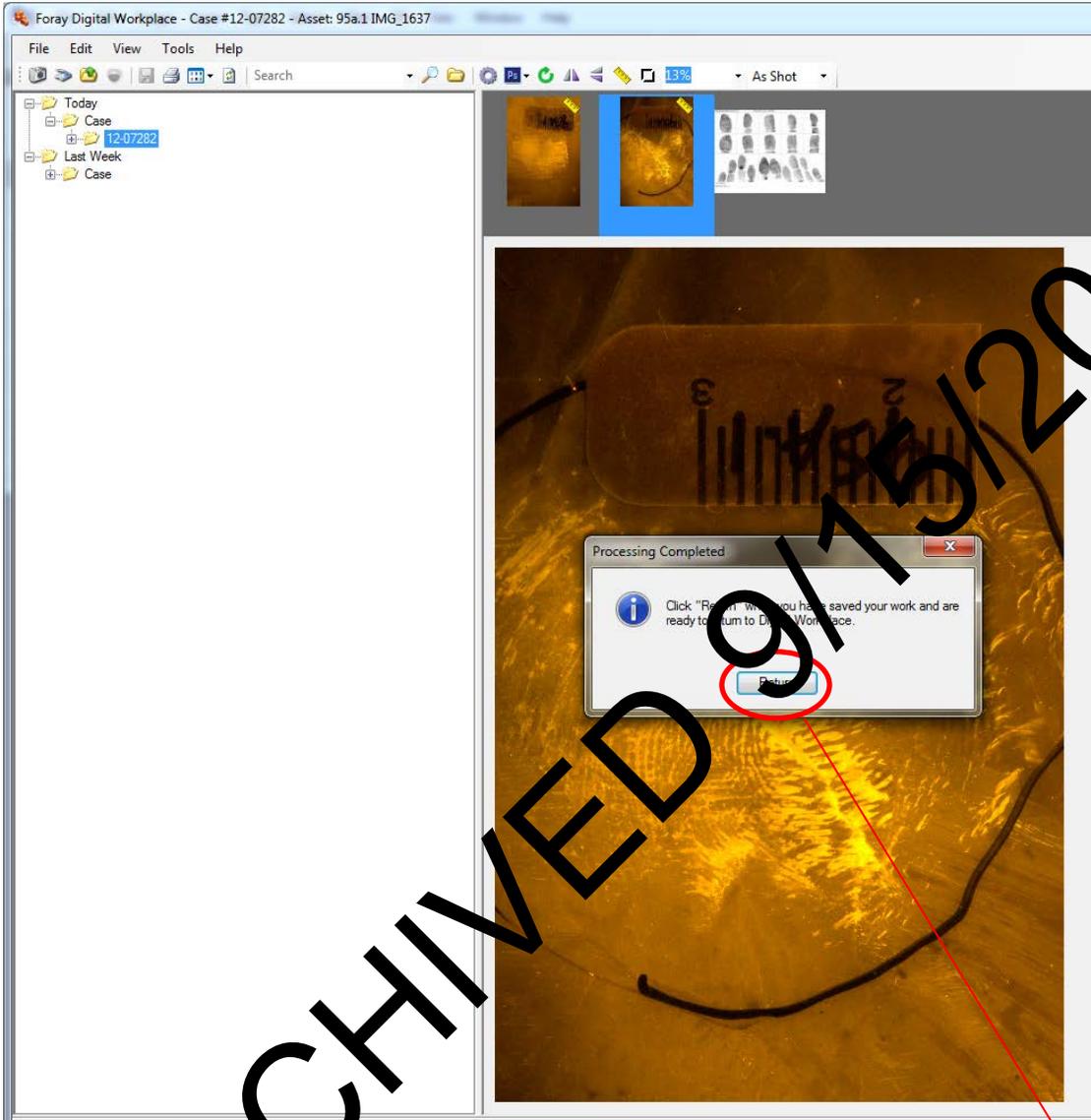
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After the dialogue box is finished you will return to Digital Workplace



In Workplace click return to Save the digital processing of the asset. A new Enhanced version of the Asset with the same name will appear next to it in the Asset View.

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Working with Latent print Composites, Identifications and Verification Assets

Digital side by side latent print and known print composite images are created by the Case Examiner for purposes of Comparison, Identification and Verification mark up.

The following format is preferred; ten inch wide by eight inch high with a resolution of 300 Pixels per inch. Information should include case number, created by and date, Latent Print Composite as the title, latent print identifier and known print finger number, roll or flat impression, person identifiers (name and identification number), card number (TCN or Item number). The composite should also be initialed by the Case Examiner.

Example of a Latent print COMPOSITE

Lab Number: 11-09999
Created by: T. Wortman
Date: 11-02-2011 **TW**

LATENT PRINT COMPOSITE



Latent Print #1.1

AP SIN #AK06806592
Thomas WORTMAN
Finger #7/Left Index (rolled)
Card A

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Latent print composites in DIGITAL WORKPLACE

Latent print composites should be named in the following manner:

“Latent Print Designation” LP COMP.tif - for comparison composites .

For Example “30A.1 LP COMP.tif”

“Latent Print Designation” LP ID “Identifying Examiners Initials”.tif - for **Identification** composites.

For Example “30A.1 LP ID KDW.tif”

“Latent Print Designation” LP VER “Verifying Examiners Initials”.tif - for Identification composites.

For Example “30A.1 LP VER TMW.tif”

As shown in Digital WorkPlace

The screenshot displays the Digital Workplace interface for a latent print composite. The main window shows the file '30A.1 LP COMP.tif' with a thumbnail and a larger view. The metadata panel on the right provides the following information:

Asset Name:	30A.1 LP COMP.tif
Captured On:	7/ 2/2013
Status:	Acquired
Captured By:	Kirk D. Wilcoxson
Category:	LP Composite
Location:	Not Set

Below the metadata, there are tabs for Notes, History, Camera Data, Processing, File Info, Chain of Custody, and State Changes. A table below these tabs lists various items and their values:

Item	Value
Acquired By	Kirk D. Wilcoxson (kdwilcoxson)
Asset Type	Image
Exhibit Name	
File Name	30A.1 LP COMP.tif
Image Size (W x H)	10.00 x 8.00 Inches
Pixel Dimensions (W x ...)	3000 x 2400 Pixels
Resolution	300 ppi
Set	5
Size	29 MB
Unique ID	KZAU-V2M9-GZFK

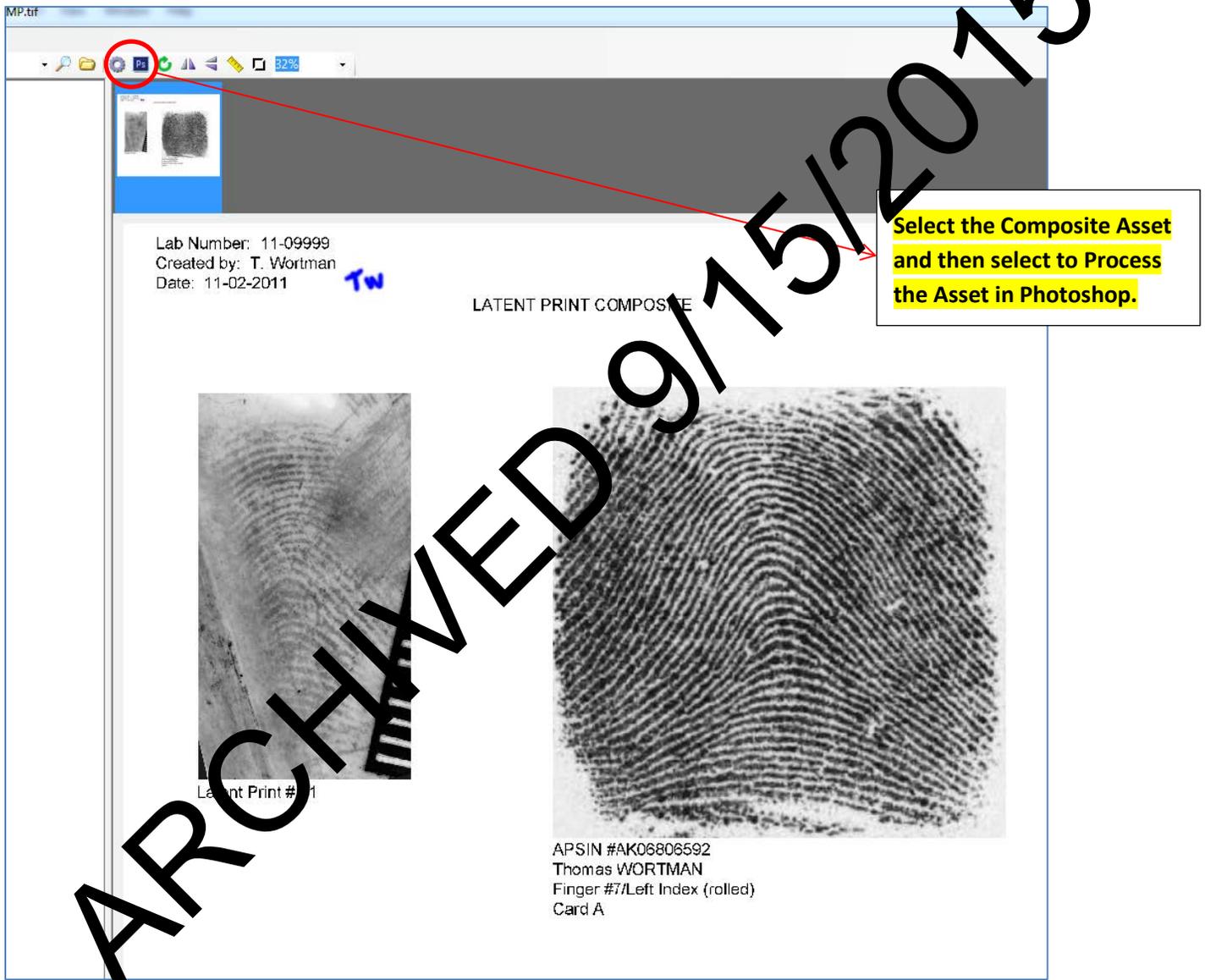
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Creating identification and Verification Composites

Latent print Comparison Composites should be created in Photoshop and acquired by the Case Examiner. Latent Print Identifications and Verifications Composites can be created from the Comparison Composite in the following manner;



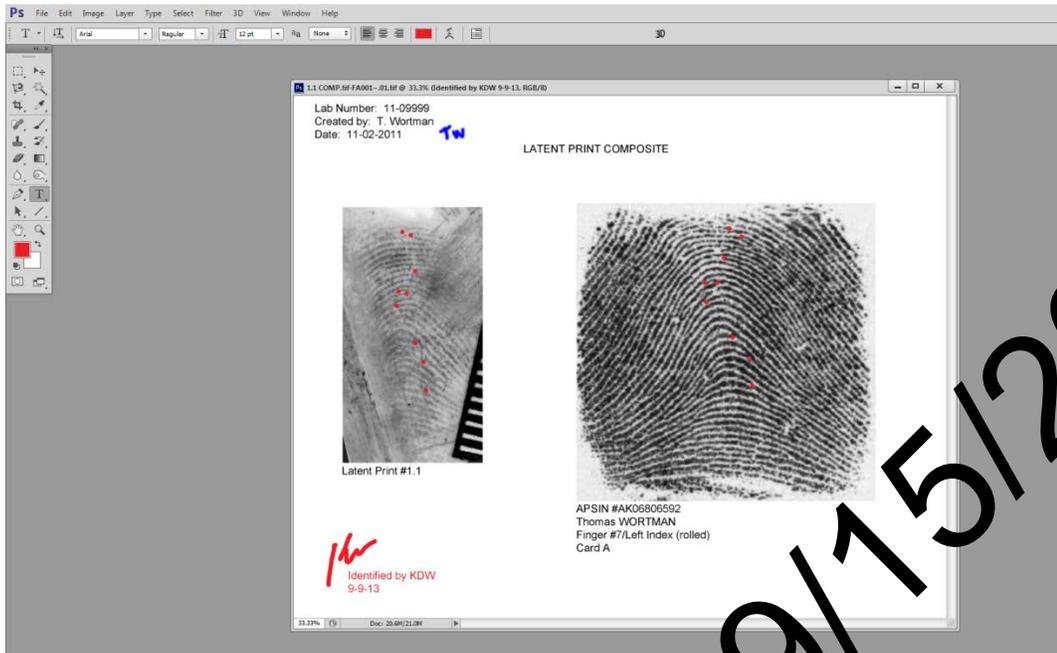
By selecting the original comparison composite and selecting the Photoshop processing button the Composite will open in Photoshop automatically.

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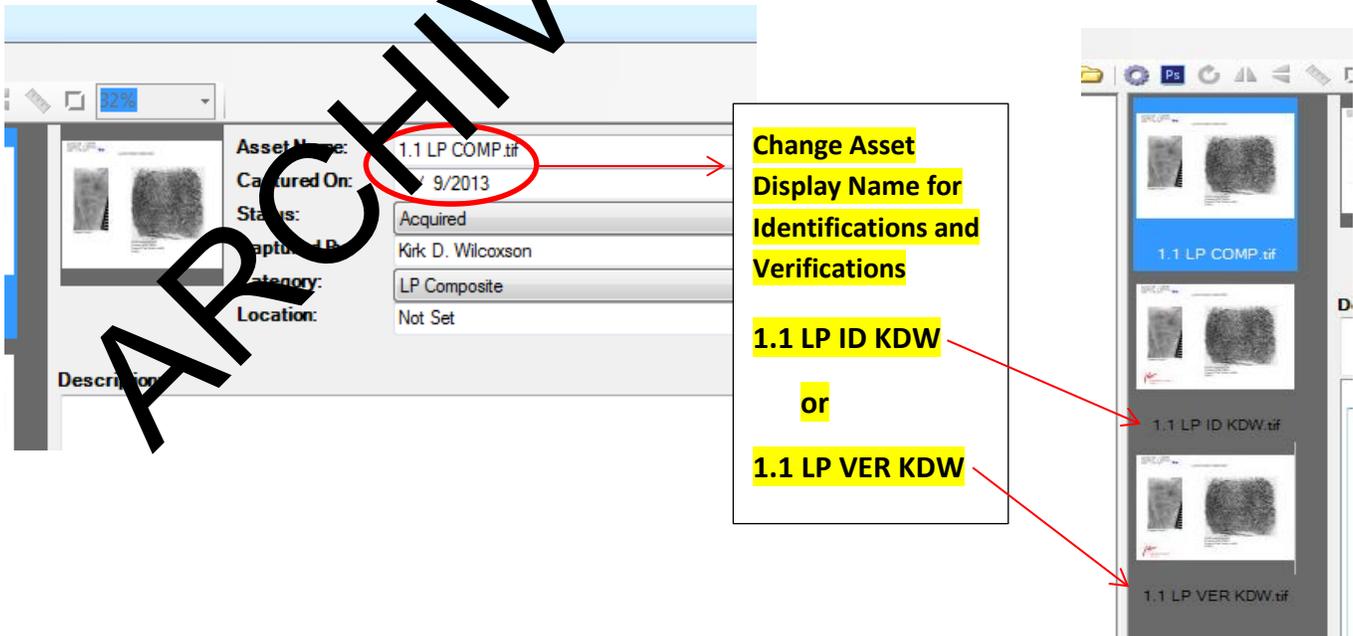
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For Identifications or Verifications the original composite can be marked up and initialed by an examiner.



When completed simply close the window and select to save the changes and the newly marked asset will be save and returned to Digital WorkPlace.

The name of the new assets will need to be changed to reflect the purpose of the markings (identification or verification) and the examiners initials.



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REVISION HISTORY

Changes from LPWI 2013 R0 to LPWI 2014 R0	
LPWI 2013 R0	LPWI 2014 R0 Change effective xx/xx/2014
Processing Work Instructions	Changed 'JTRAX" to "Chemical Inventory file on the laboratory network"
Amido Black	"extreme caution should be taken when at a crime scene to make sure." Changed to "extreme caution should be taken when used at a crime scene"
Cyanoacrylate	Removed "The prints may then be dusted and lifted or preserved through photography and/or digital imaging."
No RUVIS information	Added RUVIS information
DNA Sampling	Updated DNA sampling information

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