
Technical Procedure for the use of IBIS and NIBIN

1.0 Purpose – To outline the procedures for use of the Integrated Ballistics Identification System (IBIS) and the National Integrated Ballistic Information Network (NIBIN).

2.0 Scope – This procedure applies to NIBIN Users and cartridge cases and shotshells selected for entry into NIBIN.

3.0 Definitions

- **BRASSTRAX™ Acquisition Station** – the cartridge case and shotshell-imaging component of the IBIS system. The instrument digitally acquires images of the areas of interest from the head of a cartridge case or shotshell.
- **Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF)** – Federal agency responsible for administering the NIBIN network. The ATF also coordinates training and protocols for the use of NIBIN and its associated technology (IBIS).
- **Correlation** – An automatic process whereby two images are compared to determine their similarity.
- **Forensic Technology (FT)** – a division of Ultra Electronics who develops, manufactures, services, and provides training for the IBIS system.
- **Integrated Ballistics Identification System (IBIS)** – a system that enables the imaging of large quantities of fired cartridge cases/shotshells, populates a computerized database of those imaged items, and automates the analysis of that information to provide possible associations between crimes.
- **MATCHPOINT™** – the analysis component of the IBIS system designed to allow a user to view automatically-generated system results, and to provide tools to assist with determining potential leads from those results.
- **Minimum Required Operating Standards (MROS)** – the ATF-developed and implemented minimum operating requirements that sites accessing and utilizing NIBIN shall follow to ensure the quality and integrity of the data shared on the network.
- **National Integrated Ballistic Information Network (NIBIN)** – a national program managed by the ATF that is designed to utilize multiple IBIS systems across a group of interconnected sites in order to generate investigative leads in a timely manner.
- **NIBIN National Correlation and Training Center (NNCTC)** – a division of the ATF that provides NIBIN image analysis and correlation services to federal, state and local law enforcement.
- **NIBIN Program Administrator** – an individual the NIBIN Site has designated to communicate with all parties (i.e. submitting law enforcement agencies, ATF, etc.), involved in the NIBIN process, as well as to oversee operations of the site.
- **NIBIN User** – a technician and/or firearms examiner trained by ATF, Forensic Technology, and/or a NIBIN Authorized Trainer to perform acquisitions and/or correlation reviews of ballistic images on the national network.
- **Triage** – assessing cartridge cases and shotshells to determine the best representative sample from a group of cartridge cases or shotshells having similar firearm-produced markings for NIBIN entry.
- **Validation Tasks** – automatic, self-diagnostic tests and automatic adjustments performed by the IBIS BRASSTRAX system.

4.0 Equipment, Materials, and Reagents

- BRASSTRAX™
- MATCHPOINT™
- Stereomicroscope

- Comparison microscope
- NIST Standard Cartridge Case, Serial Number 166

5.0 Procedure

5.1 For the remainder of this procedure, the term “cartridge case” will be used to refer to both cartridge cases and shotshells.

5.2 Cartridge cases submitted for NIBIN-only cases are not required to be labeled on the cartridge case itself. The proximal container may be labeled instead.

5.3 Submission policies

5.3.1 All evidence shall be submitted in accordance with Laboratory policy.

5.3.2 Individual characteristic database samples (i.e., non-evidence test-fired cartridge cases created by a submitting agency) shall be submitted on the NIBIN Test-Fire Submission Form. All mandatory fields shall be completed. Multiple cases may be submitted on one NIBIN Test-Fire Submission Form.

5.3.3 A firearm submitted as an “NIBIN only” case that does not function and cannot be quickly repaired shall not be test fired for NIBIN entry.

5.4 Guidelines for Entry

5.4.1 All evidence and test fired cartridge cases shall be screened for damage to determine suitability for entry into NIBIN.

5.4.2 Evidence and test fired cartridge cases shall be triaged for entry into NIBIN.

5.4.2.1 For submissions containing multiple cartridge cases, the cartridge cases shall be grouped either by class or by both class and individual characteristics. If there is more than one cartridge case suitable for entry into NIBIN, the examiner shall select the one bearing the most pronounced or the clearest individual characteristics for entry. More than one may be selected for entry if different characteristics are found to be more pronounced on different items.

5.4.2.2 If an evidence cartridge case has been identified to a firearm for which a test fire shall be entered, the evidence cartridge case may also be entered into IBIS. This determination will be made by the forensic scientist based upon his/her training and experience.

5.4.2.3 Any information pertaining to the selection of particular cartridge cases for entry into NIBIN shall be documented in the case notes.

5.5 NIBIN entry and correlations

5.5.1 Only certified NIBIN users are permitted to operate the BRASSTRAX and MATCHPOINT systems.

5.5.2 NIBIN entries shall be made in accordance with the procedures and guidelines established through ATF-approved NIBIN User Training Programs, MROS, and the BRASSTRAX User Guide. Entries shall also be made in accordance with any NIBIN training performed within the Firearms Section of the North Carolina State Crime Laboratory (NCSCL). Copies of the BRASSTRAX User Guide are provided by FT on the BRASSTRAX system and MROS information is maintained on SharePoint.

5.5.2.1 Each item submitted on a NIBIN Test-Fire Submission Form is uniquely identified in NIBIN by the submitting agency identifier code, submitting agency case number, and the submitting agency item number.

5.5.2.2 Evidence items are uniquely identified in NIBIN by the NCSCL case number and the NCSCL designated item number.

5.5.3 Correlations

5.5.3.1 Cartridge case entries may be correlated outside the default correlation region upon request if there is an investigative lead that points to a specific location.

5.5.3.2 Correlations are performed for the NCSCL by the NIBIN National Correlation and Training Center (NNCTC).

5.5.3.3 Correlations may also be performed by NCSCL NIBIN users that have completed an ATF-approved correlation training program or have been authorized by the ATF to perform correlations. Correlations performed by NCSCL NIBIN users may be performed on an as-needed basis and shall be conducted in accordance with the ATF's MROS guidelines.

5.6 Notifications of Entry and NIBIN leads

5.6.1 Entry notifications to the submitting agency are accomplished in one of the following ways:

5.6.1.1 Via laboratory report.

5.6.1.2 Via NIBIN Entry Report.

5.6.1.3 By checking the "Entered Y/N" boxes on the NIBIN Test-Fire Submission Form.

5.6.1.3.1 Upon completion of entry, either the original or a copy of the NIBIN Test-Fire Submission Form is returned to the agency.

5.6.1.3.2 Either the original or a copy of the NIBIN Test-Fire Submission Form is filed in the IBIS room or maintained electronically.

5.6.2 For cases where the entry was correlated by the NNCTC, the NNCTC is responsible for submitting NIBIN lead notifications to the affected agencies. The NCSCL may also request a copy of the lead notification at the time of entry on a case-by-case basis.

5.6.3 Items correlated by NCSCL NIBIN users

5.6.3.1 For evidence items, notification of a NIBIN lead can be accomplished in one of the following ways:

5.6.3.1.1 If the correlation is completed prior to the initial publication of the case:

5.6.3.1.1.1 Via laboratory report.

5.6.3.1.1.2 Via NIBIN Entry Report.

5.6.3.1.2 If the correlation is not completed prior to the initial publication of the case:

5.6.3.1.2.1 By disseminating a copy of the lead notification via email to the contact associated with each case referenced in the notification.

5.6.3.1.2.1.1 Both the central IBIS email account and the NIBIN Program Administrator shall be attached to the lead notification email.

5.6.3.1.2.1.2 A copy of the IBIS system lead notification and email lead correspondence shall be imported into the FA case file of each case referenced in the notification and the case record republished.

5.6.3.2 For individual characteristics database samples (test fires), the lead notification shall be disseminated via email to the contact associated with each case referenced in the notification.

5.6.3.2.1 Both the central IBIS email account and the NIBIN Program Administrator shall be attached to the lead notification email.

5.6.4 Report wording

The suggested report wording listed below may be modified at the forensic scientist's or NIBIN user's discretion to reflect more accurately his/her conclusions. Any such modifications shall be reviewed and approved with the technical review.

For all reports where there has been an NIBIN entry, the following wording shall be included: "The Integrated Ballistics Identification System (IBIS) is the local entry point for the National Integrated Ballistic Information Network (NIBIN). NIBIN is a database that compares images of fired cartridge cases and shotshells from crime scenes and from firearms seized during criminal investigations for the purpose of discovering associations between crimes."

Unless otherwise requested, items entered into IBIS/NIBIN by this laboratory are automatically searched against other entries made in North Carolina, South Carolina, Virginia, Georgia, Tennessee, and Kentucky. Your agency will be notified by the NIBIN National Correlation and Training Center (NNCTC) if any forensic leads are developed.”

5.6.4.1 Items not entered into NIBIN

5.6.4.1.1 Test Fired Cartridge Cases Unsuitable for Entry

- “No test items were entered into NIBIN. Cartridge cases test fired in Item 1 were unsuitable for NIBIN entry.”

5.6.4.1.2 Evidence Cartridge Case Not Entered, Unsuitable

- “Item 2 was unsuitable for entry into NIBIN.”

5.6.4.1.3 Bullet submitted for entry

- “Item 1 was not examined. The IBIS system at this laboratory does not accept entry of fired bullets.”

5.6.4.2 Items Entered

5.6.4.2.1 Test Fired Cartridge Case Entered

- “A cartridge case test fired by the Item 1 revolver was entered into NIBIN.”

5.6.4.2.2 Evidence Cartridge Case Entered

- “Item 1 was entered into NIBIN.”

5.6.4.2.3 NIBIN lead developed by NCSCL personnel

- “Item 3 was entered into NIBIN.

Based on the acquisition and correlation review of digital images by the North Carolina State Crime Laboratory (NCSCL), a NIBIN investigative lead was developed. NIBIN has indicated a possible association between the following cases:

NCSCL case R201199999 (Sheriff’s Office Case 11-88888)
NCSCL case R201299999 (PD Case 12-88888)

THIS INFORMATION IS TO BE USED ONLY AS AN INVESTIGATIVE LEAD AS THIS POSSIBLE ASSOCIATION HAS NOT BEEN CONFIRMED. If confirmation is required for court proceedings the evidence in

these cases should be resubmitted under the original NCSCL case numbers for microscopic comparison.”

5.6.4.2.4 Correlation performed by NCSCL personnel with negative results

- “Item 1 was entered into NIBIN. At this time, no NIBIN investigative leads were developed. Your agency will be notified if any forensic lead are developed in the future.”

5.7 NIBIN Program Administrator

5.7.1 The NIBIN Program Administrator shall meet the following qualifications:

5.7.1.1 Be a full-time NCSCL employee. A full-time on-site contractor with employee privileges may also qualify.

5.7.1.2 Be a qualified NIBIN user that has completed acquisition training.

5.7.2 The NIBIN Program Administrator shall have the following responsibilities:

5.7.2.1 Have the authority to initiate, suspend, and resume NIBIN operations for the site or an individual.

5.7.2.2 Evaluate and document approval of all methods used by the site and to propose new or modified procedures as needed.

5.7.2.3 Review the training records for newly qualified NIBIN users and approve their qualifications prior to performing NIBIN acquisitions or correlations, and to document such review.

5.7.2.4 Coordinate with audit personnel for NIBIN site audits.

5.7.3 In the event that the NIBIN Program Administrator position of a site is vacated and there is no individual at the site who meets the requirements of this standard and can serve as a NIBIN Program Administrator, the site shall immediately contact the ATF and submit their contingency plan within 14 days to the ATF for its approval. Work in progress by the site may be completed during this 14-day period, but no new casework shall be started until the plan is approved by the ATF.

5.8 IBIS/NIBIN Quality Control

5.8.1 All equipment directly related to IBIS, including BRASSTRAX, must be operated according to requirements set forth by the ATF and FT. As outlined in the BRASSTRAX User Guide, the BRASSTRAX acquisition unit regularly executes validation tasks as part of its normal operation. The automatic validation tasks ensure proper maintenance of the hardware components of the acquisition unit, as well as to ensure the unit is obtaining high-quality images for entry.

5.8.2 Validation Task Critical Error or Warning Message Received

5.8.2.1 If a component of the BRASSTRAX system is not performing correctly and was not automatically adjusted during a validation task, a critical error message (X) or warning message (!) will appear.

5.8.2.2 If a NIBIN User receives a critical error or warning message, the user shall either:

- Follow steps outlined in the BRASSTRAX User Guide to perform the necessary tune-up or adjustment of that component until resolved,
- Notify a NIBIN Technician or NIBIN Program Administrator, who may resolve the message by performing a system adjustment manually, or
- Contact FT directly for assistance in resolving the error or warning message.

5.8.2.3 FT may be called at any time there is a system or component problem that a NIBIN User is unable or not authorized to resolve.

5.8.3 Record of System Validation Tasks

5.8.3.1 The record of validation tasks made by the BRASSTRAX system is maintained electronically on the BRASSTRAX system. The maintenance of records is performed automatically by the system. The history of validation tasks made to the BRASSTRAX unit cannot be modified or deleted from the system.

5.8.4 MROS Adherence

5.8.4.1 In the event the minimum required operating procedures are not met, corrective actions or improvements, if warranted, shall be conducted as provided in the Laboratory's Procedure for Corrective Action and Procedure for Risk Management.

5.8.4.1.1 Any corrective actions shall not be implemented without the documented approval of the NIBIN Program Administrator.

5.9 IBIS System Interruption Log

5.9.1 Should the BRASSTRAX system be down for a lengthy amount of time, the interruption shall be recorded using the IBIS System Interruption Log located on SharePoint.

5.10 IBIS Computer Security and Incident Response Procedures

5.10.1 All possible precautions shall be exercised to prevent any unauthorized access of the IBIS system and any damage to the system that could affect the network. Access to the Network is limited to individuals who have current IBIS Certification through the ATF.

5.10.2 The ATF and/or FT shall be notified of any security issues or problems. The NIBIN Program Administrator shall be responsible for following up with the ATF and/or FT regarding any security incidents.

5.11 Standards and Controls – N/A

5.12 Calibration – N/A

5.13 Maintenance – For NIST Standard Cartridge Case maintenance information, see the Firearms Section Technical Procedure for Instrument Calibration and Maintenance.

5.14 Sampling – N/A

5.15 Calculations – N/A

5.16 Uncertainty of Measurement – N/A

6.0 Limitations – N/A

7.0 Safety –

- Examinations performed in the Firearms Section are inherently dangerous. These procedures involve hazardous chemicals, firearms, and ammunition. All hazardous procedures shall be performed in compliance with the State Crime Laboratory Safety Manual.
- If the examination involves a biohazard, the Forensic Scientist shall use proper personal protective equipment, such as eye protection, a lab coat, and/or gloves.
- When firearms are test fired, the Forensic Scientist shall wear ballistic eye protection and hearing protection. All ventilation systems shall be activated.
- Lead is toxic.
- Refer to Appendix 1 for chemical hygiene and safety precautions for Extremely Hazardous and Particularly Hazardous Substances

8.0 References

Association of Firearm and Tool Mark Examiners. *Procedures Manual*. 2001.

NIBIN User Training Guide

BRASSTRAX User Guide

User Guide for NIST SRM 2461 Standard Cartridge Cases

9.0 Records

- FA Worksheets
- IBIS System Interruption Log
- NIBIN Test Fire Submission Form


10.0 Attachments

- **Appendix 1 –** Chemical Hygiene and Safety Precautions for Extremely Hazardous and Particularly Hazardous Substances

Revision History		
Effective Date	Version Number	Reason
06/25/2021	2	<p>Header and throughout – corrected to reflect organizational change.</p> <p>Throughout – changed IBIS to NIBIN unless specifically referring to the IBIS system.</p> <p>Throughout – changed BAFTE to ATF.</p> <p>Throughout – changed “IBIS Test Fire Submission Form” to “NIBIN Test Fire Submission Form”.</p> <p>Throughout changed “questioned” to “evidence”</p> <p>2.0 – added “and shotshells”.</p> <p>3.0 – added definitions for Bureau of Alcohol, Tobacco, Firearms, and Explosives; Forensic Technology; MROS, NIBIN National Correlation and Training Center; NIBIN Program Administrator; NIBIN User; Triage; and Validation Tasks; updated definitions for BRASSTRAX, MATCHPOINT, IBIS, and NIBIN; realphabetized.</p> <p>4.0 – removed “IBIS” from the first two bullet points.</p> <p>Added new 5.1 and 5.2.</p> <p>5.4 – changed to Guidelines for Entry.</p> <p>5.4.1 – added “for damage”.</p> <p>Removed old 5.2.1.1, 5.2.1.2, and 5.2.1.3, and related subsections.</p> <p>5.4.2 – new language.</p> <p>Moved old 5.3.3.2.1 to new 5.5.3.1.</p> <p>Removed old 5.3.3.2.2.</p> <p>5.5.1 – new language.</p> <p>5.5.2 – new language.</p> <p>5.5.2.2 – changed “assigned T/Q/K” to “designated item”.</p> <p>5.5.3.3 – new language.</p> <p>Reworded 5.6 and 5.6.1.</p> <p>Added new 5.6.1.2.</p> <p>5.6.2 – removed “/BAFTE” and reworded last sentence.</p> <p>Removed old 5.4.2.1 and 5.4.2.2.</p> <p>Reworded 5.6.3 and added new subsections.</p> <p>Removed old 5.4.3.1 and 5.4.3.2 and subsections.</p> <p>5.6.4 – added “and shotshells” to second paragraph; added third paragraph; and changed K and Q item designations to lab item numbers throughout.</p> <p>Removed old 5.4.4.1.2, 5.4.4.1.3, and 5.4.4.1.5.</p> <p>New 5.6.4.1.2 – changed “cartridge case” to “shotshell”.</p> <p>Added new 5.6.4.1.3.</p> <p>5.6.4.2.1 and 5.6.4.2.2 – removed last sentence of result statement.</p> <p>Added new 5.6.4.2.4.</p> <p>Added new 5.7 and subsections.</p> <p>Removed 5.8.1 (old 5.5.1) and add new subsections to 5.8.</p> <p>Removed old 5.6 and 5.6.1 and replaced with new 5.9 and 5.9.1.</p> <p>5.10.2 – added “and/or FT” twice; changed “IBIS Operator” to “NIBIN Program Administrator”.</p> <p>7.0 – added firearms statement, lead statement, Appendix 1 statement</p>

		<p>8.0 – changed “IBIS Training Guide” to “NIBIN User Training Guide”; removed third and fourth references; added BRASSTRAX User Guide.</p> <p>9.0 – removed second and third records; added IBIS System Interruption Log and NIBIN Test Fire Submission Form.</p> <p>New 10.0, Appendix 1</p>
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Appendix 1 – Chemical Hygiene and Safety Precautions for Extremely Hazardous and Particularly Hazardous Substances

Lead DANGER: PARTICULARLY HAZARDOUS SUBSTANCE	
	HEALTH 2
	FLAMMABILITY 0
	REACTIVITY 0
Detection of Release	Assume release during firing of firearms.
Signs/Symptoms of Exposure	<p>1) Short term (acute) overexposure. Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.</p> <p>(2) Long-term (chronic) overexposure. Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain.</p>
PEL	ACGIH TWA 0.05mg/m ³ of air
Associated Hazards	Carcinogenic. Reproductive toxin. Specific organ toxicity. Respiratory hazard.
Controls	Provide adequate general and local exhaust ventilation. Ensure good ventilation of the work station. Wear protective goggles, gloves. If appropriate, wear respiratory protection.
Safe handling, storage, disposal	Do not discharge waste into the drain. Observe strict hygiene. Carry out operations in the open/under local exhaust/ventilation or with respiratory protection. Do not breathe dust, fume. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit number of exposed workers. Wear PPE. Floors, walls, and other surfaces in the hazard area must be cleaned regularly. Launder clothing separately. Do not eat, drink, or smoke. Always wash hands after exposure.
Emergency Procedures	<p>Eye Contact: N/A. Rinse eyes with water as a precaution.</p> <p>Inhalation Exposure: remove to fresh air and keep comfortable for breathing. Call poison control/doctor if you feel unwell.</p> <p>Ingestion: N/A. Rinse mouth.</p> <p>Skin Contact: N/A. Wash with plenty of water.</p> <p>Spills: N/A</p>