Summary

This detailed plan outlines the establishment and operations for a new digital forensics lab. This is made with a mid-sized police department in mind and created for a 3-year implementation period. In order to have this plan relevant and meet the International Standard ISO/IEC 17025, I will provide examples and address multiple production and maintenance qualifications that are in line with the ANSI National Accreditation Board (ANAB). The lab is to be used by law enforcement for criminal investigation that involves sensitive evidence; this lab will ensure the layout and equipment will be able to keep evidence integrity. There is provided information about facility design, equipment inventory, lab accreditation along with maintenance and staffing requirements. The laboratory will focus solely on computer forensics including mobile devices, network forensics and digital evidence analysis. There will be a physical laboratory layout to demonstrate the required equipment and placements of items with functionality and safety in mind. I will provide an easy to ready lab equipment table to ensure the lab is well equipped for digital forensics investigations and analysis. I will also include staffing information like staff needed and responsibilities they hold.

Accreditation Plan

To begin this accreditation plan, we will create this digital forensics lab focused on ISO/IEC 17025 standards and meet the specific requirements of a credible body like ANSI National Accreditation Board (ANAB). This accreditation demonstrates technical abilities and ensures that the lab meets international standards for forensics testing and analyzing. The following steps will be used to start the accreditation process:

Year one will focus on foundation and preparations:

- Purchase ISO/IEC 17025 standard and conduct gap analysis
- Develop quality management system documentation
- Implement policies and procedures
- Conduct internal audits and management reviews

Year two will focus on application and assessment:

- Submit application to ANAB with required documentation
- Complete ANAB site assessment checklist
- Prepare for and undergo initial assessment

- Address any non-conformities
    - Take corrective action

Year three will focus on accreditation and Maintenance

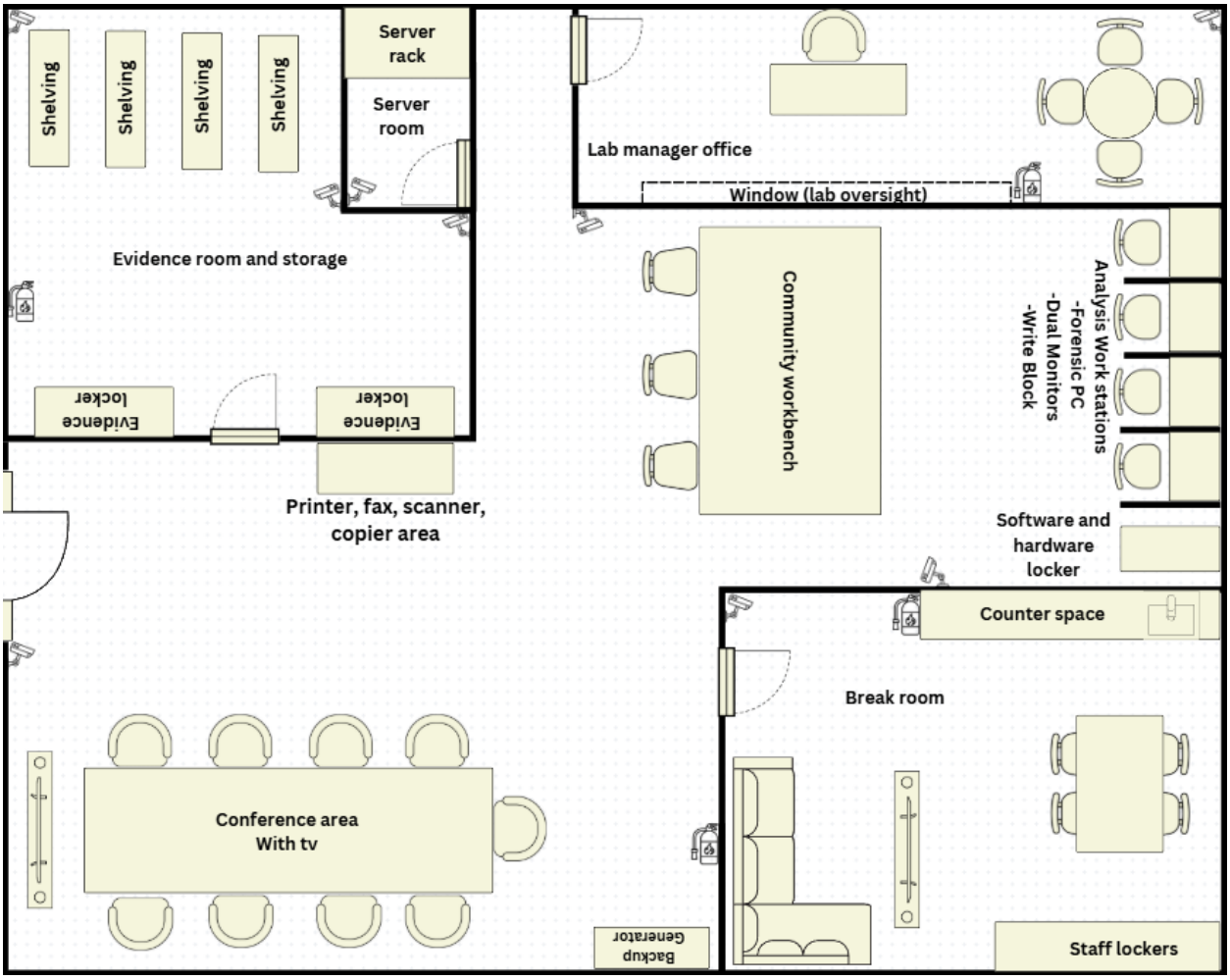
- Final assessment and accreditation decision
- Maintain accreditation through continuous compliance

Required Documentation and Submission

Policy Topic	Documents Required	Description
Scope of Accreditation	Laboratory scope statement	Define forensic testing capabilities and limitations
Quality Manual	Complete quality management system manual	Documentation of Quality Management Systems (QMS) and procedures
Organizational Chart	Reporting structure and responsibilities	Organizational order showing staff roles
Document Control	Document management procedures	System for controlling all quality documents and records
Corrective Action	Procedures for addressing non-conformities	Process for identifying and correcting quality issues
Preventative Action	Risk management procedures	Proactive measures to prevent possible problems
Internal Audit	Annual audit schedule and procedures	Self-assessment process for quality management
Management Review	Annual review process	Management evaluation of QMS

Facilities	Laboratory floor plan and environmental controls	Physical layout showing proper space and conditions
Test Methods	Standard Operating Procedures	Documented procedures for each examination type
Traceability	Evidence tracking procedures	Chain of custody and evidence handling protocols
Measurement Uncertainty	Uncertainty calculations (where applicable)	Statistical analysis of measurement reliability
Final Reports	Report templates and review process	Standardized reporting format (meets all requirements)

Forensic Laboratory Floor plan



Security Features:

- 24/7 CCTV (9 cameras total)
- Biometric access control at main entrance
- Separate key access for evidence storage
- Motion sensors in evidence storage area
- Fire extinguishers (4 total)
- Backup generator
- Climate controlled

Scope

This information applies to all equipment, hardware and software within the laboratory that affect the quality and reliability of digital evidence.

Inventory

Hardware

CCTV cameras
Biometric scanners
Badge scanner
Motion sensors
Fire extinguishers
Fire suppression systems
Generator
Evidence lockers
Shelving units
Climate control system
Backup server
Desks
Chairs
Dual monitors
File cabinets
Tvs
Couch
Forensic Pcs
Write Blockers
Investigatory equipment
Printer (fax, copier, scanner)

Software

Chain of custody database
Access logging system
Case management system
Network monitoring software
Backup software
Anti-virus
Microsoft Office 365
Office management software
Forensic Software

Equipment Security

All forensic equipment remains within the laboratory. No unauthorized adjustments permitted. Administrative passwords are required for system configuration changes. Documentation for all configuration changes.

Roles and responsibilities

Job Title	Job Description
Lab Manager	Oversees lab operations, ensures policies are followed, manages team
Senior Forensic Analyst	Handles complex cases, mentors junior staff
Digital Forensic Analyst	Recovers and analyzes digital evidence, writes detailed reports on their findings, provide expert testimonies in court, assist with field investigations and data collection
Evidence Custodian	Maintains a secure chain of custody for all evidence, handles the physical evidence with proper care and ensures proper storage
Security	Creates physical security for the lab and staff, does NOT have access to evidence rooms and workstations

Staff must have technical expertise in computer science and specific forensic software. They must have the ability to conduct detailed forensic investigations and provide analysis. Analytical skills include strong critical thinking, observation and problem-solving abilities. They must have legal understanding including knowledge of the legal system, court procedures and the admissibility of evidence. Certifications show professionalism, knowledge and probable experience.

Maintenance Plan

The laboratory maintenance plan ensures that all equipment, hardware and software remain accurate, reliable and able to carry out the needs of digital investigations.

Maintenance Practices

The laboratory manager will maintain a detailed equipment inventory for all equipment. The inventory must include: equipment identification number, manufacturer name and model, serial number, location in laboratory, date received and placed in service, current condition, maintenance history and the responsible technician.

Calibration Procedures

Laboratory equipment will undergo regular calibrations to keep up to date with current systems. There will be documented procedures specifying the calibration method and frequency. Follow the document provides the lab manager with steps to conduct these procedures.

Malfunctioning Equipment/ Corrective Maintenance

In the case a piece of equipment is not working as intended, please do the following:

1. Remove malfunctioning equipment from service
2. Create an “out of service” label and description
3. Document in the equipment maintenance log
4. Notify laboratory manager
5. Access impact on the case
    a. Review all cases that use the equipment
    b. Determine if findings were affected
    c. Re-examine evidence with proper functioning equipment
    d. Document corrective actions
6. Use corrective maintenance or replace

Preventative Maintenance

Preventative maintenance will be conducted according to a predetermined schedule set by the lab manager and manufacture recommendations. The purpose of preventative maintenance is to minimize equipment downtime, extend the lifespan and ensure reliability and accuracy for examinations. All maintenance is to be documented with the following information:

- Results
- Date
- Equipment ID
- Technician name

Technicians are required to document, communicate and complete these preventative measures on time and report issues properly.

Performative Checks

Write blockers must be checked before each use to ensure that no data is written to evidence media. The validation procedure includes:

- Connecting test media to the write blocker
- Attempting to write in the test file
- Verifying write operation fails
- Documenting
    - Results
    - Date
    - Equipment ID
    - Technician name

If the validation FAILS, immediately remove the write blocker and place it to “out of service”.

Other equipment will undergo annual checks using NIST Computer Forensic Tool Testing (CFTT) datasets and files to verify proper functionality and limitations.

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