Video/Imaging Technology and Analysis (VITAL) Subcommittee
Christina Malone, Executive Secretary
IAI Conference, San Antonio, TX
July 31, 2018
Overview

• Brief History
  • How did we get here?
  • What happened to the SWGs? (SWGIT, SWGDE)?
  • What is different about OSAC?
  • Where do I go for best practices and standards today?

• VITAL Updates
  • Current members
  • Document status
A Timeline of Change

- SWGDE
- NAS
- NCFS
- OSAC
- PCAST
- NCFS final meeting
SWGIT and SWGDE

• Committees
• Joint Meeting
• Collaboration Documents
“The efforts of these groups are laudable. However, . . . it is not clear how [they] interact or the extent to which they share requirements, standards, or policies. Thus, there is a need for more consistent and harmonized requirements.” (p.16)

• SWG Chairs Meetings to improve the process
• Several ideas presented to support and improve the SWGs
• Thought to have a “Mother SWG”
• Centralized entity for all forensic science information

- Established to enhance the practice and improve reliability of forensic science and promote scientific validity, reduce fragmentation, and improve federal coordination of forensic science

Image retrieved from: https://www.nist.gov/topics/forensic-science/national-commission-forensic-science
Change Continues: SWGs and OSAC

- SWGs support and funding cut
- Torch was passed to the OSAC
- Some SWGs continued with other funding mechanisms
OSAC building on work of the SWGs

- Formal standards
- More resources
- Coordination among disciplines
- Broader basis for input and review
- More powerful voice in making recommendations
- Better enforceability
OSAC Process

- OSAC more robust lengthy process
- Variety of input and comment points (public, legal, HF, QA, research, statistics) and distribution of membership
- Collaboration across disciplines
- Centered on strengthening Forensic Science
- Encouraged to go to Standards Development Organization (SDO)
- Benefit: Unified consensus-based standard for widespread adoption
What Does This Mean to You and Members of the IAI?

- Who do I follow for standards and best practices?
- They appear to operate in the same space? (Video Analysis, Imaging Analysis, Forensic Photography)
What standards and best practices should I follow?

- Follow agency specific needs and policies
- **SWGIT**
  - Use as a solid reference until they are retired.
- **SWGDE**
  - New documents pertaining to Photo/Video/Image Analysis and revisions of SWGIT guidelines (which will become SWGDE documents)
  - Narrow Focus practices - Can address changes in technology more quickly (white papers, etc)
  - Address *procedures* for forensic science discipline
- **OSAC**
  - More robust documents/standards- forensic community wide consensus based standards
  - Address *strengthening* forensic science discipline with recommended research.
  - Wide focus
- **ASTM** – vetted standard guides/practice for Digital and Multimedia
Update 2018
Video/Imaging Technology and Analysis (VITAL)
Subcommittee
The OSAC Subcommittee on Video/Imaging Technology and Analysis (VITAL) focuses on standards and guidelines related to the application of methods and technologies to analyze information related to forensic imagery from a variety of systems. This encompasses aspects of capture, storage, processing, archiving, quality assurance and training.
Video/Imaging Technology and Analysis (VITAL)

Major areas of interest include:

- **Photography** - forensic photographic acquisition and documentation
- **Image Analysis** - examine, evaluate, and render an opinion pertaining to an image and/or image-related data
- **Video Analysis** - the acquisition, examination and evaluation pertaining to a video and/or video-related data for rendering an opinion.
Imaging Technology is embedded across all forensic disciplines. Used for Documentation and Analysis.
OSAC VITAL Members and Guests
Subcommittee Leadership

• Chair
  • Julie Carnes

• Vice Chair
  • William Trenkle

• Executive Secretary
  • Christina Malone

• Photography Task Group
  • Keith Mancini, Chair

• Video Analysis Task Group
  • Jim Hoerricks, Chair

• Image Analysis Task Group
  • Christina Malone, Chair
<table>
<thead>
<tr>
<th>First Name</th>
<th>Last Name</th>
<th>Role</th>
<th>Organization</th>
<th>Task Group</th>
<th>Term End</th>
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<tbody>
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# VITAL Summary of Priority Actions

<table>
<thead>
<tr>
<th>Task Group</th>
<th>Working Title of Document</th>
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<tbody>
<tr>
<td>Photography</td>
<td>• Standard Guide for Latent Print Evidence Imaging Resolution</td>
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<td>• Training Guidelines for Video Analysis, Image Analysis and Photography</td>
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<td>• Guidelines for Video Analysis</td>
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VITAL Summary of Priority Collaborations

- OSAC Digital Evidence Subcommittee collaboration on Testing Tools
- OSAC Bloodstain Pattern Analysis Subcommittee collaboration on Photography
- OSAC Fire Debris and Explosives Subcommittee collaboration on imaging/photography
- OSAC Forensic Document Examination collaboration on image capture
- OSAC wide collaboration on Source Conclusions
- OSAC wide collaboration on Training/Education
- OSAC wide collaboration on ACE methodology
- SWGDE collaboration on joint projects – video, imaging, and photography
Standards/Guidelines Development Task Group Updates
Photography Task Group

1. Training Guidelines for Video Analysis, Image Analysis and Photography
3. Crime Scene Photography
Training Guidelines for Video Analysis, Image Analysis and Photography

• **Scope:**
  - This document recommends topics and guidelines for training within the disciplines of video analysis, image analysis and photography as a supplement to the "Standard Practice for Forensic Scientist Practitioner Training, Continuing Education and Professional Development Programs."

• **Objective/rationale:**
  - This document will provide guidelines and recommendations to assist organizations in **designing a training program** for forensic video analysts, image analysts, and photographers **to ensure competency in the completion of forensic tasks and analyses.**

**Task Group Name:** Photography  
**Task Group Chair Name:** Keith Mancini  
**Task Group Chair Contact Information:** kam8@westchestergov.com  
**Date of Last Task Group Meeting Update:** 18JUN18
Training Guidelines for Video Analysis, Image Analysis and Photography

Key Components of Standard:

• Job Categories
• Training Topics

Current Status:

• Revised based on feedback from Legal Resource Committee and Quality Infrastructure Committee
• Has been approved within VITAL, currently at DMSAC
Standard Guide for Latent Print Evidence Imaging Resolution

• Scope:
  o The scope of this document is to provide recommendations on the resolving power standards that enables recording of level 3 details of latent print evidence that are suitable for comparison purposes using a digital camera, a flatbed scanner, or other image capture device. These recommendations take into consideration the minimum resolution requirements for utilizing the photographs for comparison.

• Objective/rationale:
  o The purpose of this document is to describe a procedure to ensure that a digital imaging system (camera/scanner) can capture a latent print image at an achievable resolution that enables recording of level 3 details.

Task Group Name: Photography
Task Group Chair Name: Keith Mancini
Task Group Chair Contact Information: kam8@westchestergov.com
Date of Last Task Group Meeting Update: 18JUN18
Standard Guide for Latent Print Evidence Imaging Resolution

Key Components of Standard:

- Summary of Practice
- Significant and Use
- Recommended Photographic Equipment
- Recommended Protocol for Verifying the Resolving Power of Digital Cameras Used to Photograph Latent Print Evidence
- Recommended Protocol for Verifying the Resolving Power of Scanners Used to Scan Latent Print Evidence

Current Status:

- Revised based on feedback from Legal Resource Committee and Quality Infrastructure Committee
- Has been approved within VITAL, currently at DMSAC
Image Analysis Task Group

1. Guidelines for the Forensic Use of Photogrammetry
2. Standards for Image Authentication

http://www.forensicvideoservices.co.uk/
Guidelines for the Forensic Use of Photogrammetry

• Scope:
  o Photogrammetry involves the process of obtaining dimensional information as regards objects and people depicted in imagery.
  o For forensic purposes, photogrammetry provides information including, but not limited to, the heights of individuals, velocity of vehicles, and/or lengths of objects.

• Objective/rationale:
  o Document provides personnel with guidelines regarding appropriate practices when performing photogrammetric examinations for forensic purposes.

Task Group Name: Image Analysis
Task Group Chair Name: Christina Malone
Task Group Chair Contact Information: christina.a.malone.civ@mail.mil
Date of Last Task Group Meeting Update: 18JUN18
Guidelines for the Forensic Use of Photogrammetry

Key Components of Standard:

• Provide personnel with recommendations regarding appropriate practices when performing photogrammetric examinations as a part of forensic analysis.
• Provides basic information, including the evidentiary value of photogrammetric examinations, common questions asked of forensic photogrammetry, and ways to report results including the reporting of estimation of uncertainty and mitigation of same.
• Multiple methodologies for photogrammetric examinations, and thus, does not particularly espouse any one methodology.

Current Status:

• Received feedback from Legal Resource Committee and Quality Infrastructure Committee
• Revision in progress
Standard Guide for Image Authentication

• **Scope:**
  o Image Authentication is a subtask of Image Analysis. This document addresses issues specific to Image Authentication.
  o Questions involved in authentication include *issues of image manipulation, image creation, and consistency with prior knowledge about the circumstances depicted.*

• **Objective/rationale:**
  o This document will provide personnel with guidance regarding practices appropriate when performing image authentication as part of image analysis.

**Task Group Name:** Imaging Analysis  
**Task Group Chair Name:** Christina Malone  
**Task Group Chair Contact Information:** christina.a.malone.civ@mail.mil  
**Date of Last Task Group Meeting:** 18JUN18
Standard Guide for Image Authentication

Key Components of Standard:
• Provenance of the image
• Metadata Analysis
• Photo Response Non-Uniformity (PRNU)
• Detection of Manipulation
• Detection of Image Creation
• Detection of Staging
• Continuity Issues
• Image Processing

Current Status:
• Draft complete
• Will be sent to Legal Resource Committee, Quality Infrastructure Committee and Human Factors Committee
Video Analysis Task Group

1. Guidelines for Data Retrieval from Digital Video Recorders (DVR)
2. Guidelines for Video Analysis
Guidelines for Data Retrieval from Digital Video Recorders (DVR)

• **Scope:**
  - This document is intended to provide procedures for the **collection of data** from digital video recorders (DVRs) that ensure playback while maintaining **best evidence**.

• **Objective/rationale:**
  - This document will provide the **best methods for the retrieval** of video/audio data evidence and any associated metadata.
  - These best practices, guidelines and recommendations are intended to provide responding law enforcement personnel guidance in securing and collecting data from DCCTV systems.
  - This will ensure that best methods are utilized to retrieve the recorded data and maintain its integrity.

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**Task Group Name:** Video Analysis  
**Task Group Chair Name:** Jim Hoerricks  
**Task Group Chair Contact Information:** osac@hoerricks.com  
**Date of Last Task Group Action:** 18JUN18
Guidelines for Video Analysis

• **Scope:**
  - This document is intended to provide a structured workflow for practitioners processing and analyzing digital video evidence.

• **Objective/rationale:**
  - This document will provide the best methods for the **scientific examination or evaluation of video**.
  - These best practices, guidelines and recommendations are intended to provide analysts with procedures to work with video evidence.

**Task Group Name:** Video Analysis
**Task Group Chair Name:** Jim Hoerricks
**Task Group Chair Contact Information:** osac@hoerricks.com
**Date of Last Task Group Action:** 18JUN18
Guidelines for Video Analysis

Key Components of Standard:
- Categories of a Forensic Workflow
- Evidence Documentation
- Processing
- Restoration
- Image Clarification
- Output
- Reporting
- Archiving

Current Status:
- Revision within task group
How Can You Participate?

• The VITAL subcommittee invites participation on task group work
• Complete the OSAC membership application form found at: https://www.nist.gov/forensics/osac-application.cfm
• Please be sure to specify your interest in the Video & Imaging Technology and Analysis Subcommittee (VITAL)
• Subcommittee can reach out to activate applicant names to become affiliates on task group work
• Next in-person meeting:
  10-14 December, 2018 – Phoenix, AZ
Questions?