

# OSAC RESEARCH NEEDS ASSESSMENT FORM



**Title of research need:** Authentication of PDF Documents

**Describe the need:**

Image authentication is required to determine if an image/photographic file is what it purports to be, whether it has been altered since its creation, and if it provides a fair and accurate representation of information depicting actual objects, scenes, and/or events.

Many files are converted to the PDF file format while the original digital photographs, scans, or other documents are lost or destroyed. Digital photographs contain considerable metadata that assists in authentication, but once the file is embedded into a PDF such metadata may no longer be available, while other metadata may be created.

Image analysts need a better understanding of the PDF file format structure, what metadata it contains, how images can be embedded into them, how to determine the native resolutions and file formats of the embedded files, whether the PDF has been altered or resaved since its creation, etc.

**Keyword(s):** Authentication, Analysis, PDF, Questioned Documents, Photographic Analysis

**Submitting subcommittee(s):** VITAL and Footwear & Tire **Date Approved:** 06/16/2021

*(If SAC review identifies additional subcommittees, add them to the box above.)*

**Background Information:**

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

VITAL may pursue a standard regarding PDF authentication if we can get the research.

2. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

Yes, I believe that DARPA MediFor and SemaFor have done some work on this in conjunction with Purdue University.

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at <https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest>? Is your research need identified by NIJ?

No.

5. In what ways would the research results improve current laboratory capabilities?

It would enable a substantially more complete method for authenticating PDF files.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

This would add information of value for authentication, in general, and specifically with PDF documents to Digital Evidence, Forensic Documents, and VITAL.

7. In what ways would the research results improve services to the criminal justice system?

Many image-based and text-based documents are converted to PDF. This currently adds difficulty in authenticating those files. This research would enable analysts to better determine if a PDF file is what it purports to be.

8. Status assessment (I, II, III, or IV):

	Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted	I	III
Existing current research is being conducted	II	IV

*This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.*