



Redaction Protection Profile

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 - Remove Unexpected Data
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- User Experience

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Secure Redaction

Policies and Procedures for Redaction of Information Prior to Public Release



Secure Redaction

What is Redaction?

- Process of selectively removing and replacing information within a document prior to release to an audience not intended to view the information that has been removed
- In the past, redaction meant printing a document, blacking out the necessary information and making a photocopy of the document



Secure Redaction

What is Redacted?

- Freedom of Information Act requests and other mandated declassification functions
- Redacted information is not limited to classified material; other examples include:
 - Privacy Data
 - Social Security Numbers
 - Signatures
 - Healthcare Information (HIPPA Compliance)
 - Proprietary Information
 - Trade Secrets
 - Legal Strategy



Secure Redaction

Redaction is Not

- Redaction does Not cover or encrypt Information within a document
 - Electronic Reading Rooms
- Redaction is not Sanitization
 - Leaves no indication that information was removed



Secure Redaction

Redaction Issues

- Redaction of Electronic Documents is Complex
- Electronic file formats can now include:
 - Images in a variety of image formats
 - Other Documents
 - Spreadsheets
 - Databases
 - Metadata
 - Proprietary Data
 - Other Logical Containers



Protection Profile

Program to Evaluate Secure Redaction Tools



Protection Profile

Why a Redaction Protection Profile?

- “DoD components require the capability to perform secure electronic redaction to efficiently process Freedom of Information Act requests and other mandated declassification functions.”
- “...make secure redaction a priority, establishing standards, developing testing procedures, and publishing a list of Commercial Off the Shelf products to perform secure redaction.”

MEMORANDUM FOR DIRECTOR, NATIONAL SECURITY AGENCY

Under Secretary of Defense Michael G. Vickers, August 2, 2013



Protection Profile

What is a Protection Profile?

- Implementation independent specification of information assurance requirements
- Document used as part of the certification process according to ISO/IEC 15408 and the Common Criteria (CC)
- Tailored set of baseline security function and security assurance requirements based on a specific technology
 - Common Criteria Recognition Arrangement (CCRA)



Protection Profile

Profile Development Partners

- National Information Assurance Partnership (NIAP)
 - National Institute of Standards and Technology (NIST)
 - National Security Agency
- NSA/CSS Commercial Solutions Center (NCSC)
- NIST Accredited Commercial Testing Labs
- Redaction Technical Community



Protection Profile

Redaction Technical Community

Adobe	ManTech
Appligent	MITRE
CACI	NSA/IAD
Carasoft	NIAP
Exelis	Oracle
Gossamer Security	PTFS
Leidos	The Payne Group



Protection Profile

Program Scope

- Limited to electronic documents
 - ISO/IEC-29500 (Microsoft Word, PowerPoint and Excel documents)
 - ISO/IEC-32000 (PDF)
 - Or the definitive standard for a format
- Applies to interactive tools requiring the user to selectively review and redact information one document at a time
- Software functionality of the redaction process



Protection Profile

Beyond Program Scope

- Mail guards, filters and batch redaction tools
- Administrative control over redaction settings
- Multi-person review prior to release
- How users should decide what to redact
- Redaction Policy issues
- Data execution risks inherent in some file formats assumes scanning prior to redaction process
- Functional data scripts containing strings or images not accessible to the redaction tool



Protection Profile

Threats

- Text or graphic to redact may contain clues to original data
- Document holds hidden process elements containing information
- Improper operation due to software flaws
- Inaccessible files – unable to open, modify or inspect metadata
- Data obscured by a proprietary process



Protection Profile

Threats (continued)

- User or application releases document with visible objects
- User or application releases document with hidden information
- Unintentional or accidental user error
- The tool fails to redact selected or hidden data elements



Protection Profile

Assumptions

- Tool is installed on a trustworthy computing system
- User is not willfully negligent or hostile
- Software administrator is not careless, willfully negligent or hostile
- Software adheres to Enterprise security policy
- User is knowledgeable and trained
- User follows redaction release policy
- Software preserves the layout of the document



Protection Profile

Redaction Tools Requirements



Redaction Tool Requirements

Sections

- Redaction tool requirements are spread across the following four categories:
 - Report Generation & Review
 - Validation Stage
 - Redaction Stage
 - User Experience



Redaction Tool Requirements

Report Generation & Review

- Must generate a report containing metadata about each element that was Redacted
 - Element Type
 - Location if it was Visible
 - User selected or removed automatically
- Must allow the user to access a report of the data that was redacted.



Redaction Tool Requirements

Validation Stage

- Must remove unrecognized data, unexpected data, and extraneous structural data.
 - Examples
 - PDF % comments
 - File header must start at first byte of file
- Must simplify or remove any element which cannot be completely interpreted



Redaction Tool Requirements

Redaction Stage

- Selected Redaction - Must simplify or remove any complex object, embedded object or graphic image which is selected for redaction
- Deep Inspection - for each element containing metadata, other elements or hidden data
 - Recurse through the element chain and apply the PP to each layer
 - Simplify the element
 - Redact the element



Redaction Tool Requirements

Redaction Stage (cont)

- Visible Space Replace - replace the visible space of redacted content in such a way that the visible space conveys no information about the previous contents.
 - Examples
 - If text is replaced with text, the replacement text must not indicate length of component words.
 - Blocks of color used to replace parts of images must not show variations in intensity that could convey information



Redaction Tool Requirements

Redaction Stage (cont)

- Removal of Redacted Data - All data that is either selected by the user for redaction or identified by the tool for redaction must be removed from the document
 - Selected content must be removed, not obscured by encryption, encoding, conversion to a proprietary format, or any other method.
- Redact content from every location in the file
- Must not introduce new hidden data that was not requested by the user without warning the user of the addition.



Redaction Tool Requirements

Redaction Stage (cont)

- Must remove all references and indicators in the structural data to objects that are completely redacted
 - Example: If an object in a PDF document, such as an image, is completely redacted then not only must the image data be removed, but references to it in a name dictionary as well as all structural references to the image must be removed
- Must automatically remove all remnant data, undo buffers, tracked changes buffers, multiple versions of the same object, and any buffer or cache type container of data



Redaction Tool Requirements

Redaction Stage (cont)

- Shall preserve a secure state when any failures occur
 - If the redaction fails for any reason, the redaction tool must not produce a partially redacted file



Redaction Tool Requirements

User Experience

- Must identify all hidden data in the document, except remnant data and undo or tracked change buffers, and allow the user to review and select each hidden data element individually for redaction
- Must identify all obscured data and must either:
 - Remove obscured data automatically
 - Allow the user to redact obscured data



Redaction Tool Requirements

User Experience (cont)

- Must identify images where the visible representation is reduced in size or resolution from the representation stored in the file format and must
 - replace the stored data with the visible representation automatically
 - allow the user to either
 - replace the stored data with the visible representation
 - leave the image unaltered



Redaction Tool Requirements

User Experience (cont)

- Must allow the user to review and select each element of visible data in whole or in part for redaction
- Must make the user aware when redaction fails for any reason



Redaction Tool Requirements

Key Points

- All Hidden Data Must be Redacted
 - Including Data Not Selected for Redaction
 - Clipped Images
 - Clipped Page Areas
 - Layered Objects must be Simplified
- User can individually select hidden elements
- Images must to be scaled to a visual representation
- Redaction Must Fail Safe



Protection Profile

Additional Information



Protection Profile

URLs & Contact Information

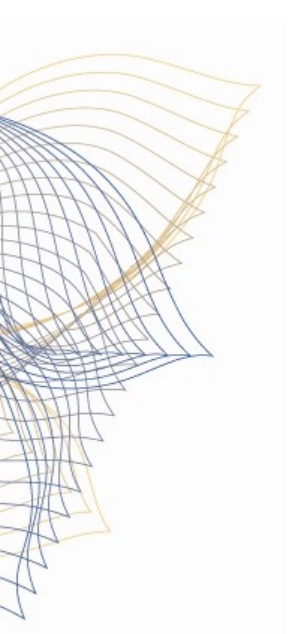
- **National Information Assurance Partnership (NIAP)**
 - <https://www.niap-ccevs.org>
- **Protection Profile for Redaction**
 - https://www.niap-ccevs.org/pp/PP_REDACTION_v1.0/
 - https://www.niap-ccevs.org/pp/pp_redaction_v1.0.pdf
- **Commercial Labs doing Common Criteria Evaluations**
 - https://www.niap-ccevs.org/Big_Picture/cctl.cfm
- **Questions on NIAP Process**
 - Mike Herrera NIAP Liaison Officer
 - 410-854-4458 meherre@nsa.gov



Protection Profile

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Building Better PDF