Paperless Contract Folder's (PCF) DoD 5015.2 certification

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JOINT APPLIED PROJECT

Paperless Contract Folder’s (PCF)
DoD 5015.2 Certification

By: Kimberly C. Flynn,
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June 2010

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The objective of this project is to conduct an analysis of the CECOM Contracting Center’s Paperless Contracting Folder program in regards to maintaining its DoD 5015.2 certification. The desired outcomes will be the creation of a File Plan and User Guide to assist with DoD 5015.2 certification.

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PAPERLESS CONTRACT FOLDER’S (PCF) DOD 5015.2 CERTIFICATION

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from the

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ABSTRACT

The objective of this project is to conduct an analysis of the CECOM Contracting Center’s Paperless Contracting Folder program in regards to maintaining its DoD 5015.2 certification. The desired outcomes will be the creation of a File Plan and User Guide to assist with DoD 5015.2 certification.
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<th>Description</th>
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<td>AKO</td>
<td>Army Knowledge Online</td>
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<tr>
<td>AMC</td>
<td>Army Materiel Command</td>
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<tr>
<td>AMCOM</td>
<td>Aviation and Missile Command</td>
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<tr>
<td>ASSIST</td>
<td>Army Source Selection Interactive Support Tool</td>
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<tr>
<td>BRAC</td>
<td>Base Realignment and Closure</td>
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<tr>
<td>CAC</td>
<td>Common Access Card</td>
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<tr>
<td>CCC</td>
<td>CECOM Contracting Center</td>
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<td>CCSS</td>
<td>Commodity Command Supply System</td>
</tr>
<tr>
<td>CECOM</td>
<td>Communications Electronics Command</td>
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<tr>
<td>COOP</td>
<td>Continuity of Operations</td>
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<tr>
<td>DCMA</td>
<td>Defense Contract Management Agency</td>
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<tr>
<td>DFARS</td>
<td>Defense Federal Acquisition Regulation Supplement</td>
</tr>
<tr>
<td>DISA</td>
<td>Defense Information Systems Agency</td>
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<tr>
<td>DOD</td>
<td>Department of Defense</td>
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<tr>
<td>ERMS</td>
<td>Electronic Records Management System</td>
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<tr>
<td>FAR</td>
<td>Federal Acquisition Regulation</td>
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<tr>
<td>FOIA</td>
<td>Freedom of Information Act</td>
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<tr>
<td>FY</td>
<td>Fiscal Year</td>
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<tr>
<td>GAO</td>
<td>Government Accountability Office</td>
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<tr>
<td>GUI</td>
<td>Graphic User Interface</td>
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<td>IPT</td>
<td>Integrated Product Team</td>
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<tr>
<td>IT</td>
<td>Information Technology</td>
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<tr>
<td>J&amp;A</td>
<td>Justification and Approval</td>
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<tr>
<td>JITC</td>
<td>Joint Interoperability Test Command</td>
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<td>JRMS</td>
<td>Joint Records Management Services</td>
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<td>LCMC</td>
<td>Life Cycle Management Command</td>
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<td>LMP</td>
<td>Logistics Modernization Program</td>
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<td>MS</td>
<td>Microsoft</td>
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<td>MSC</td>
<td>Major Subordinate Command</td>
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<tr>
<td>NARA</td>
<td>National Archives and Records Administration</td>
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<tr>
<td>Abbreviation</td>
<td>Description</td>
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<td>--------------</td>
<td>------------------------------------------</td>
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<tr>
<td>NSN</td>
<td>National Stock Number</td>
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<tr>
<td>OCC</td>
<td>Office of Comptroller of the Currency</td>
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<td>PADDS</td>
<td>Procurement Automated Document and Data System</td>
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<td>PCF</td>
<td>Paperless Contract Files</td>
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<td>PR</td>
<td>Purchase Request</td>
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<td>PROC PT</td>
<td>Procurement Point</td>
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<td>Q&amp;A</td>
<td>Question &amp; Answer</td>
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<td>RMA</td>
<td>Records Management Applications</td>
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<td>SADBU</td>
<td>Small and Disadvantaged Business Utilization</td>
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<td>SSO</td>
<td>Single Sign-On</td>
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<td>VCE</td>
<td>Virtual Contracting Enterprise</td>
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This thesis is dedicated to our families and friends. We could not have completed this endeavor without their constant love and support.

We would also like to acknowledge with sincere gratitude the advice, support and encouragement we received from our two thesis advisors, Michael Doelling and Professor Douglas Brinkley. Without their continuous guidance and mentorship, this thesis would never reach the levels of quality that we have always sought in our lives.
I. INTRODUCTION

A. OVERVIEW OF PROJECT

In October of 1999, Paperless Contract Files (PCF) was released to the workforce of the CECOM Contracting Center (CCC). At that time, it was also recognized by management that attempts to adapt a commercial product to the specific needs of the acquisition community would not be an adequate long-term solution; since no commercial product was designed to meet the standards required by our business practices, plans were put in place to develop a ground up solution that took advantage of the newly formed open source environment.

The PCF Records Management Application (RMA) is scheduled to be fielded throughout all the Contracting Centers within the Army Contracting Command between Fiscal Years 2010 and 2012. This application not only stores and creates versions of contracting documents, but also routes them for review and approval. In addition, there is a concept plan in place to make the application a learning aid for the entire workforce. Through a series of questions, the “File Wizard” will construct folders for each document required by a particular acquisition. Interactive help features are available throughout the application, putting the necessary help text at the fingertips of the Contract Specialists/Contracting Officers. While users benefit from front-end improvements brought about through the flexibility that the Java platform provides, the Oracle backend will allow individuals in the Business Development Sector to easily generate reports based on information entered into the system, e.g. names of individuals working within a specific Processing Point, the cabinets created versus awards made using the contracting writing system, and specific contract award information, i.e., dollar value of award, option years remaining, etc.

The DoD 5015.2 standard is the Design Criteria Standard for Electronic Software RMA. It sets forth mandatory baseline functional requirements, and identifies non-mandatory features deemed desirable for RMA software. PCF is considered an RMA and is 5015.2 certified. The Department of Defense (DoD) Components use this standard in
the implementation of their records management programs. (Joint Interoperability n.d.). This standard also describes the minimum records management requirements that must be met by RMAs. 5015.2 compliance reviews are conducted every 2-3 years to verify that software updates have not interfered with an application’s previously approved records handling functionality and that it has evolved with advances in the Records Management community maintained by the Joint Interoperability Test Command (JITC). (Joint Interoperability, n.d.).

PCF was certified by JITC as 5015.2 compliant under the condition of an approved File Plan and User Guide in time for the next review. A File Plan includes information regarding the RMA, including but not limited to background, definitions, policy guidelines and capabilities. (Electronic Records, n.d.). The User Guide will provide screen by screen instructions and definitions. The CCC has been understaffed since BRAC was announced in 2005 and therefore have not yet created a File Plan or User Guide. As part of this project, we will create a File Plan and User Guide for PCF so that it is available for the recertification review.
II. BACKGROUND

A. RECORDS MANAGEMENT APPLICATIONS (RMA)

An RMA is a software system that performs electronic records management according to an accepted Electronic Records Management System (ERMS) standard. The U.S. Department of Defense, DoD 5015.2, Electronic Records Management Application Design Criteria Standard, serves as the required standard for DoD agencies, and versions 1 and 2 of the standard have been recommended by NARA as a standard for
other (non-DoD) agencies. (Joint Interoperability, n.d.). The latest version of the standard and a list of certified products are found at http://jitc.fhu.disa.mil/recmgt/index.html.

An RMA helps users file, store, retrieve, and manage the retention of their electronic records. These products work with a variety of common desktop applications such as e-mail software, digital imaging tools, electronic spreadsheet and presentation products, etc. RMAs have a variety of useful features, such as centralized filing and storage of electronic records, version control, robust search and retrieval, and automated disposition that is compliant with legal requirements.

As shown in the picture above, a records management system includes the following elements:

A **content analysis** that describes and categorizes content in the enterprise that may become records, provides source locations, and describes how the content will move to the records management application.

A **file plan** describing, for each type of record in the enterprise, where they should be retained as records, the policies that apply to them, how they need to be retained, how they should be disposed of, and who is responsible for managing them.

A **compliance requirements document** defining the rules that the organization's IT systems must adhere to in order to ensure compliance, along with the methods used to ensure the participation of enterprise team members.

A **method for collecting records that are no longer active** from all record sources, such as collaboration servers, file servers, and e-mail systems.

A **method for auditing records** while they are active.

A **method for capturing records' metadata** and audit histories and retaining them.

A **process for holding** records (suspending their disposition) when events such as litigations occur.
A system for monitoring and reporting on the handling of records to ensure that employees are filing, accessing, and managing them according to defined policies and processes.

Following are examples of how RMAs are used to facilitate electronic records management:

- Managing records from desktop applications where the electronic version of the record will be the recordkeeping copy;
- Maintaining electronic records in a format suitable for recordkeeping purposes;
- When automating a business process that necessitates the records to be collected, organized, and categorized to facilitate their retrieval, use, disposition, and preservation, including records generated in e-Government processes, if records management capabilities have not otherwise been built into the design of the system.

An RMA fills the business need for compliant electronic document and records management, and improves access to information in the system. From a records management perspective, the RMA:

- Manages bank examination-related records and assists with long-term access to electronic records;
- Automates the records management functions;
- Applies existing records retention and records management policies to electronically stored records;
- Assists with providing timely electronic records responses to discovery or Congressional inquiry;
- Allows the suspension of relevant documents and records;
• Systematically disposes of final records in compliance with the Office of Comptroller of the Currency (OCC) Comprehensive Records Retention Schedule; and

• Replaces paper-based recordkeeping systems.

(Electronic Records, n.d.)

The need for electronic records management policies and tools became apparent to the U.S Department of Defense in the early 1990s following Congress’ high-profile investigation into the Gulf War Syndrome, a debilitating illness affecting many soldiers who fought in the 1991 Persian Gulf War. Numerous investigations into the cause of the illness required DoD officials to produce millions of records from Operation Desert Storm. Congress concluded that the Defense Department did not do a good job of managing the records and as a result, many of the needed records had been destroyed or lost. Congress then ordered the Defense Department to improve its records management capabilities.

The DoD created a task force to begin the work of re-engineering its internal records management processes in 1993. In 1995, the task force published the “Functional Baseline Requirements and Data Elements for Records Management Application Software.” The report is the cornerstone for specifying functional requirements and data elements for electronic RMAs. The report was further developed into a testable and measurable design criteria standard by the Defense Information Systems Agency (DISA). DISA clarified the report’s requirements, added testable criteria and published version one of the “DoD 5015, Design Criteria Standard for Electronic Records Management Software Applications” in 1997. (Defense Information, n.d.).

Back then, there were only a handful of vendors who developed and marketed electronic recordkeeping systems. Today there are hundreds. Over the years, the one constant that distinguishes the effectiveness of electronic recordkeeping systems is the DoD 5015 certification.
B. PAPERLESS CONTRACT FILES (PCF)

PCF is an RMA that supports the Army Contracting Command’s “paperless” initiatives; in addition, it has been programmed as a learning aid for the entire acquisition workforce. The goal of this application is to eliminate paper files, enhance collaboration, improve security, protect the integrity of individual records, and increase accessibility to the documents. Moreover, PCF is a secure, web-based application that can be accessed anywhere there is connectivity to the internet. This makes support of contingency operations possible as well as the promotion of mobile workforce initiatives within/throughout the command.

The initial requirement for a contract management tool was to establish a web-based application that would allow the CECOM Contracting Center to store contractual documents electronically in a secure environment. The application would allow users to generate, review, and approve documents on-line. This environment would permit our customers as well as others involved in the acquisition process, i.e., the Legal Office, the Small & Disadvantaged Business Utilization (SADBU) Office, etc., to access acquisition documents from a central repository. The commercial product was required to have a “user friendly” environment with an easy to navigate graphic user interface (GUI). The change in business practices brought about by the introduction of this electronic tool resulted in an evolutionary transformation; that is, the overhaul of long-standing policy regarding how contract documentation was generated, administered, maintained, and stored.

1. Origin of the Requirement

The requirement originated from the John J, Hamre, Under Secretary of Defense memorandum, dated May 21, 1997, entitled "Management Reform Memorandum #2 - Moving to a Paper-free Contracting Process by January 1, 2000” (See Appendices A and B). This memorandum required those involved in the acquisition process to move from a paper environment to an electronic environment. The CECOM Contracting Center initiated a program to investigate commercially available software packages that could be
adapted to meet procurement specific requirements, particularly in the areas of the secure storage of documents and the electronic routing of files for approval.

To meet the challenge put forth by Secretary Hamre, the project lead selected a commercial product to meet the requirements of the acquisition community. In October of 1999, PCF was released to the workforce. It was soon recognized by leadership that a more robust alternative must be examined, since attempts to adapt a commercial (proprietary) product to the needs of the acquisition workforce would not be an adequate long-term solution.

2. Alternatives Proposed

In order to provide the workforce with a true records management system, two alternative approaches were examined. Each is described below:

Option One: Modify the existing commercial product to increase flexibility and ease of use. This might be a possible short-term solution but is not viable from a long-term perspective. The commercial software is costly to modify because it is not easily or quickly changed. As such, it is very difficult to program the adjustments necessary for future enhancements to the system, integration between applications is more cumbersome, and the incompatibility of the interfaces prevent storage of data within an enterprise-level database.

Option Two: Continue utilizing the current software for the present state and initialize the transformation to a Java-based final state. A Java application will provide the ability to store documents in an Oracle relational database, which results in overall smaller databases that can be more easily queried. Java also has an enterprise solution component; this makes it adaptable for use by all our electronic tools. Finally, Java will allow us to easily incorporate digitally signed, “artificially intelligent” Adobe HTML forms within the application and store the data in our Oracle tables.

CECOM Contracting Center senior leadership chose Option Two, since it represented the solution that not only addressed the center’s current needs but the long-term goals of the Electronic Initiatives Group; that is, to develop a records management
application for the storage of contractual documents capable of competing as the system of choice for all army procurement commands within the Army Materiel Command’s (AMC) Information Technology portfolio management approach to software development.

The Java PCF Records Management Application became AMC’s system of choice for the storage of the Army Contracting Command’s contracting records in 2009 and has since been fielded to six contracting centers (Rock Island Contracting Center, 410th Contracting Support Brigade, Communications and Electronics Command Contracting Center, Research, Development and Engineering Command Contracting Center, 408th Contract Support Brigade, and the Fort Eustis Contracting Center). This application will not only store and route documents for approval, it too will be a learning aid for the entire workforce. Through a series of questions, the File Wizard will construct folders for each required and/or supporting document of a particular acquisition. Interactive help features, such as mouseovers, are available throughout the application for all stages of the contracting process, putting the necessary information at the fingertips of the Contract Specialists/Contracting Officers. While users benefit from front-end improvements, the tool will provide individuals the ability to record metrics based on information stored within the system, thereby increasing the overall reporting capabilities of the organization and ACC Headquarters.

3. **Features**

The Java product will allow system development to keep pace with the dynamic acquisition environment. Listed below are some of the features of the Java version of PCF:

a. **Java Conversion**

It is anticipated that PCF will be fielded at the enterprise level; therefore, it was decided that the application would be programmed in Java, J2EE. Since J2EE is quite scalable, it will support the widest distribution of the application across the Army
and AMC community. In addition, Java is an open source language, so fielding can be accomplished at a minimal cost to the government from a maintenance/sustainment perspective.

b. **AMC Selection**

PCF was selected as the standard records management application by AMC for the storage and manipulation of contractual documents. It will be fielded in accordance with AMC approved distribution plan to Major Subordinate Commands (MSCs) within the ACC community. ACC Headquarters will host the application and be responsible for all version upgrades. Contracting Centers will provide Level One support (a Functional Technical Expert (FTE) trained by the PCF Project Office) locally. This individual will act as the PCF administrator providing workforce support and interfacing with developers who maintain/sustain the application.

c. **CE Selection**

PCF was also selected as part of the Army Contracting Command’s Virtual Contracting Enterprise (VCE). The VCE is an Army wide initiative with a suite of tools such as Reverse Auction and Army Source Selection Interactive Support Tool (ASSIST). PCF will be fielded as part of the VCE to all Army Contracting Centers.

d. **RMA Certification**

PCF has been programmed in compliance with DoD 5015. It has undergone the official approval process and was conditionally approved based on the completion of a File Plan and User guide. ACC will submit the application for recertification in FY11.

e. **Continuity of Operations (COOP) Plan**

A complete backup of all records is performed once per week and an interim backup is completed nightly from the production database to an offsite data storage facility. The complete backup saves data stored the previous week, while interim backups capture new data uploaded on a particular day. This provides the ability to
restore data in the event of a catastrophic network/application failure. In the event the system goes down, our “hot” COOP site in Fort Dix, NJ will come on-line to minimize application downtime.

**f. Search Capability**

PCF currently has a built-in search functionality that allows users to search at the file room level and the file cabinet level. Current plans project the incorporation of a Google Search Appliance within PCF in FY10. This will provide the ability to crawl through all files and return data related to a very specific set of search criteria, such as a National Stock Number (NSN). This will increase the robustness of the search feature and incorporate basic business intelligence at the user level within the application.

**g. Workflow-Electronic Review/Approval Feature**

PCF is the official records management repository for all contractual documentation; in addition, all reviews of documents and entire files are conducted on-line using the life-cycle management capabilities of the system. The review/approval functionality provides anyone (Contracting Officers, Sector/Group Chiefs, Legal Office, etc.) at any site (local or Headquarters level) reviewing a document, or the entire file, access to the required information in a secure, Common Access Card (CAC)/Single Sign-On (SSO) environment. An e-mail alerts the user when a contract file cabinet/folder has a document that requires reviewing. Simply double clicking the link takes the reviewer to the appropriate document. In addition, the Home Page Portal displays a message letting the user know that a document has either been sent by them for review/approval or to them for review/approval.

**h. Draft Version Controls**

Draft and versioning controls track the changes to the documents once they are saved. Draft numbers (0.1, 0.2, 0.3, etc) are assigned each time a document is opened, edited, and updated/saved. The Track Changes and Comments features included in word processing software can be utilized to identify each editor/reviewer’s
additions/subtractions or comments made to the document. When a document is approved (or signed), a version number is assigned by the system. In the event a document that has been approved needs to be changed, the version number (1.0, 2.0, 3.0, etc) will change to reflect that the document had been approved but then required rework.

\[\text{i. Electronic Routing of Purchase Request (Funding) Documents}\]

PCF has the ability to automatically route funding documents (Purchase Requests (PRs)) to individual teams. Contracting Officers can manage their teams and adjust individual workload through the PCF tool. This is accomplished by defining the members of the team under their individual Procurement Points (Proc Pts) thereby creating a group. PRs are stored by date and then by the Proc Pt. Specialists in that group have access to the electronic purchase requests for which that team is responsible. In addition, members of this group are then provided editor level access to all the contracts managed by the team or only specific actions as determined by the Contracting Officer.

PRs are delivered to the workforce electronically through a database-to-database link from the Logistics Modernization Program (LMP) to PCF. The PRs are securely stored in the PR Library section of PCF where Contracting Officers and Contract Specialists access the electronic documents and move them to the appropriate file cabinets within PCF, never having to remove the document from a secure environment.

The PCF RMA helps us meet the challenge of eliminating the need to use paper files, enhances collaboration between all parties (inside and outside the government), improves security capabilities in relation to the storage and maintenance of documents, protects the integrity of individual records, and increases the accessibility of the documents in support of contingent operations and mobile workforce initiatives.

\[\text{C. DoD 5015.2}\]

After being ordered by Congress to improve its records management capabilities, the Department of Defense (DoD) created a task force to begin the work of re-
engineering its internal records management processes in 1993. In 1995, the task force published the “Functional Baseline Requirements and Data Elements for Records Management Application Software.” The report is the cornerstone for specifying functional requirements and data elements for electronic RMAs. The report was further developed into a testable and measurable design criteria standard by the Defense Information Systems Agency (DISA). DISA clarified the report’s requirements, added testable criteria and published version one of the “DoD 5015.2, Design Criteria Standard for Electronic Records Management Software Applications” in 1997. Since then, two other versions have been released; one in 2002 and one in 2007. (Electronic Records, n.d.).

The DoD standard specifies hundreds of detailed requirements that electronic recordkeeping systems must meet. In order to achieve certification, systems must receive a passing mark in each and every mandatory requirement. This stringent test served to separate serious records management solutions from products that provided only a partial set of tools to manage records electronically.

The first two versions of the standard moved the electronic records management vendors to supply tools to automate the following records management functions:

- Organization records series
- Organizational file plans
- Organization disposition instructions
- Retention calculation
- Access controls
- Security classification markings
- Management of records stored in electronic formats
- Management of emails and attachments in electronic formats
- Linking of records to supporting materials
- Tools to aid the search and retrieval of records
• Records destruction in a manner that prevents recovery

Version 3 of the standard was published in 2007. It added the following requirements:

• Freedom of Information Act (FOIA)/Privacy Act workflow requirements
• Vital records review cycles
• Additional metadata, including e-mail, PDF, digital photographs, images and Web records
• Greater data security and integrity
• Capability to create alerts and notifications regarding changes in metadata fields
• More automatic linking requirements
• Capability to restrict metadata access based on the contents of fields
• Tools to support RMA-to-RMA interoperability
• Additional transfer requirements
• Data discovery requirements
• Interface and behavioral requirements for integration with electronic document management systems

Among the most important additions to version 3 of the standard are the requirements specified to support net-centric, information-sharing principles. The new requirements are intended to ensure that record management applications support DoD goals to make records:

• Visible by developing and registering standardized metadata
• Accessible through Web services with usable, standardized interfaces and
• Understandable through the availability and use of rich metadata describing the records and their context
Version 3 of the standard, as well as other emerging standards, such as the Joint Records Management Services (JRMS), are requiring the records management vendor community to migrate toward providing standards-compliant services to larger service oriented architectures to achieve broader information sharing. This is the direction that the industry is taking to achieve open and improved information sharing. (Electronic Records, n.d.).
III. FILE PLAN REQUIREMENTS

A file plan should describe each type of record in the enterprise:

• Where they should be retained as records
• Definitions of terms
• The policies that apply to them
• How they need to be retained
• How they should be disposed of
• Who is responsible for managing them

(Electronic Records, n.d.)
IV. USER GUIDE REQUIREMENTS

A user guide or manual is a technical communication document to provide assistance with a system, in this case PCF. User guides generally contain both written guidelines and associated images. In the case of a computer software system, screenshots are generally used. All of the screenshots are taken from Paperless Contract Files, https://pcf.army.mil.
V. CONCLUSION/OUTCOME

The objective of this project is to complete deliverables necessary for PCF to maintain its DoD 5015 certification. Creation of the PCF File Plan and User Guide is necessary because these are required components for the next compliance review to be conducted by the JITC. The Army Contracting Command (ACC) can use this documentation to present during that recertification review. This project has saved ACC leadership countless hours, as they will not be required to expend internal manpower resources to create them. As mentioned before, this is extremely important because BRAC has left the VCE project office understaffed. With the help of this project, PCF can continue as a DoD 5015 certified RMA for years to come.
INTRODUCTION

What is PCF?

This guidance defines the process and procedures for storing official contractual documentation in an electronic records management application known as Paperless Contract Files (PCF). This document will address areas such as the electronic handling of contract records in accordance with Federal Acquisition Regulation guidance for contractual records retention and disposition, the policy for hardcopy documents scanned and stored in the tool, and administration and helpdesk support for the system. In addition, the guidance will discuss the expansion of the application for the storage of non-contract related “housekeeping” records, provide guidelines for future upgrades/enhancements to include maintenance and sustainment of the tool, and define the workflow feature. Lastly, it will review the use of groups and roles in the application and the method for conducting data back-ups. The proposed plan will be completed prior to 5015.2 recertification.

This application supports the Army Contracting Command’s electronic initiatives by providing a web-based application for the storage of Army contracting documents; also, it functions as a learning aid for the entire acquisition workforce. System back-ups are facilitated in two stages: first by weekly replication of the entire production database and, second, by performing interim backups nightly. Both sets of backup data are stored at an offsite location. PCF is also part of the automatic system back up at the Continuation of Operation Plan (COOP) site at Fort Dix, NJ; this will allow user access to records in case of a disaster such as Hurricane Katrina at the primary storage location.
The goal of this electronic records management application is to eliminate paper files, enhance collaboration, improve security, protect the integrity of individual records, and increase the accessibility of those documents to required users (Contracting Center personnel and the agencies/offices that support them). PCF is a secure, web-based tool; therefore, it can be accessed via a web browser whether users are in the office or at a temporary duty station, such as the employee’s home when teleworking.

BACKGROUND

The PCF application grew out of the requirement to establish a commercial, web-based tool that would allow a Contracting Center to store contractual documents electronically in a secure environment. The application was to allow users to generate, review, and approve documents on-line. It was envisioned as an environment that would permit our customers as well as others involved in the acquisition process, i.e., the Legal Office and the Small & Disadvantaged Business Utilization (SADBU) Office, access to the acquisition documents from a central repository. The commercial product was required to have a “user friendly” environment with an easy to navigate graphic user interface (GUI).

Origin of the Requirement

The requirement originated from the John J, Hamre, Under Secretary of Defense memorandum, dated May 21, 1997, entitled “Management Reform Memorandum #2 - Moving to a Paper-free Contracting Process by January 1, 2000” (See Attachment A). This memorandum required those involved in the acquisition process to move from a paper environment to an electronic environment. The CECOM Contracting Center initiated a program to investigate commercially available software packages that could be adapted to meet procurement specific requirements, particularly in the areas of the secure storage of documents and the electronic routing files for review/approval.

To meet the challenge put forth by Secretary Hamre, the project lead selected a Lotus Notes product, Domino.doc, for tailoring to the needs of the acquisition community. In October of 1999, Project/Contract Folders (PCF) was released to the workforce. At that time, it was also recognized by management that attempts to adapt a commercial product to the specific needs of the acquisition community would not be an
adequate long-term solution; since no commercial product was designed to meet the standards required by business practices, plans were put in place to develop a ground up solution that took advantage of the newly formed open source environment.

The PCF Records Management Application (RMA) is scheduled to be fielded throughout all the Contracting Centers within the Army Contracting Command between Fiscal Years 2010 and 2012. This application will not only stores and versions contracting documents, but also routes them for review and approval. In addition, there is a concept plan in place to make the application a learning aid for the entire workforce. Through a series of questions, the “File Wizard” will construct folders for each document required by a particular acquisition. Interactive help features are available throughout the application, putting the necessary help text at the fingertips of the Contract Specialists/Contracting Officers. While users benefit from front-end improvements brought about through the flexibility that the Java platform provides, the Oracle backend will allow individuals in the Business Development Sector to easily generate reports based on information entered into the system, e.g. names of individuals working within a specific Processing Point, the cabinets created versus awards made using the contracting writing system, and specific contract award information, i.e., dollar value of award, option years remaining, etc.

**Definitions**

**Favorites/Recent** - Contains the cabinets the user has visited recently. Also contains cabinets stored under user created categories. This enables users to return quickly to frequently used cabinets.

**File Cabinet** - An individual storage area segregated by solicitation/contract number, for example W15P7T-06-R-B412 or W15P7T-06-C-T908. The naming convention is stated at DFARS 204.7003 (See Attachment B). This feature provides a list of cabinets to which the user has access. Selecting any cabinet will display that cabinet's contents on the right side of the screen.
**File Wizard** - A process of creating folders within one’s specific file cabinet. Through a series of questions, folders are created that represent the requirements for each individual acquisition. This feature is in development and will be fielded in a subsequent version of the application.

**Folder** - An individually named storage area for required documents.

**Library** - The main storage area within PCF. It is segregated first by organization and then by fiscal year and contains a directory of all of the file cabinets to which one has access.

**Main Page** - The entrance into the application that then provides access to the specific areas of the tool. Specialized features are available immediately upon entering the site.

**PR Library** - This feature provides local Administrators and Contracting professionals with the ability to manage Purchase Requests (funding documents related to a specific purchase/contract).

**Processing Point (Proc Pt)** - A three-character locater (e.g. P1S) used for the identification of the teams led by Contracting Officers within the organization. Tracking of Proc Pt groups allows administrators to accurately track the work being completed.

**Procurement Automated Document and Data System (PADDS)** - An electronic tool used to create actual solicitation/contract documents and any amendments/modifications to those files. A .pdf file is output by the application and stored in PCF. Users have the ability to upload documents as attachments or exhibits or to save the content of those files directly into PADDS.

**Record** - Any information, regardless of medium, that details business transactions. This includes all contractual documents, e-mail, worksheets, papers, maps, photographs, machine-readable materials, and other documentary materials, regardless of physical form or characteristics. Records are made or received by an Agency of the United States Government under Federal law or in connection with the transaction of public business. Records are preserved the Agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government.
**Records Management** - The activities involved in the life cycle management of information, which include the creation, maintenance (use, storage, retrieval), and disposal of media. Record management procedures are used to achieve proper documentation of Federal transactions as well as the effective and economical management of Agency operations.

**Records Management Application (RMA)** – This is any application of software used by an organization to manage its electronic records. An RMA’s primary management functions are categorizing, locating, and identifying specific records. RMA software also stores, retrieves, and disposes of the electronic records that are archived in its repository.

**Schema** – Each contracting center has its own location in the Oracle database to prevent files from unintentionally being accessed by organizations. These locations or tables are known as schemas.

**Security** – There are two main levels of security in PCF. First, a user needs to have access to the application before they may log-in using either an AKO Password or their Common Access Card and Personal Identification Number (PIN). Second, once in the application, they must be added to the individual cabinets that they will be accessing. The three categories of cabinet level access below define user rights and determine: 1) who can access a particular File Cabinet; and, 2) what action one can take once in a File Cabinet. Security protects the integrity of the data and guides the workflow within the system.

**Reader** - This user can only read documents in a File Cabinet, and cannot modify, delete, or create new documents. (Typical Readers – auditors and GAO reviewers)

**Editor** - This user can create a new document, and can edit other documents, but cannot delete a document unless the user is also the initial author of the document. (Typical Editors - Specialists and Supervisors)

**Manager** - This user can create a new document, edit documents, delete documents, and add or remove individuals from access to the file cabinet. (Typical Managers - Contracting Officers)
**View My Workflow** - When the application is first launched, the 'View My Workflow' screen is displayed by default. This is the user’s main home page. It will provide the user with a snapshot of all documents/cabinets that were sent for review or approval and any documents/cabinets awaiting review or approval. This view includes document names, current reviewer or approvers, due dates, and status. The user may return to this view anytime while navigating throughout the application by selecting 'View My Workflow' from the menu bar.

**POLICY GUIDELINES**

**Electronic Handling of Contract Records in Accordance with FAR 4.805**

The PCF application is designed to accommodate records specific to Acquisition in the Federal Government. The handling of these records is prescribed for contracting organizations in the Federal Acquisition Regulations (FAR) at Part 4.805 - Storage, Handling, and Disposal of Contract Files (See Attachment C).

The records contained in the application are broken down into categories upon creation of the File Cabinet (the primary storage unit in the tool) depending on the types of contracting actions performed at a specific site. Examples of these categories are: Solicitation, Contract, Contract Modification, Delivery/Task Order, or Delivery/Task Order Modification. Dates are electronically tracked based on the creation of each of these contractual actions. When the contract is complete and all payments are made, the instrument is “closed out” and moved to the Closed File Room. This action is triggered by the user selecting Closeout Cabinet from the Cabinet Actions dropdown menu and then uploading of the Contract Completion Statement, DD1594. The completion of this procedure is the last step required in the contract closeout process. The date the form is uploaded into the application is tracked and used to calculate the retention period, which is mandated at FAR 4.805. The user will be asked if all closeout actions have been taken/documents have been loaded into the application. If yes is chosen, the user may proceed; if no is selected, she/he will be prompted to add the supporting closeout documents and then return to the Closeout Cabinet menu item.

As this expiration date (the end of the retention period) approaches, the system Administrator at the location where the application is fielded is alerted that a record is
about to expire. The Administrator can either allow the record to expire and thereby be destroyed (Any instance of the record in the database is deleted.) or specify an additional amount of time (Two days, seven days, 14 days or 30 days are the preprogrammed extension periods.) that the record is to remain available in the closed file room. The electronic process has been designed to mirror the current process being used for hardcopy contract files from the storage, handling, and disposal perspective.

The capability to track the dates the documents are uploaded into the application provides the ability to program retention and disposition dates for individual records. For instance, the date a signed solicitation (approved within the Procurement Automated Document and Data System (PADDS) and electronically sent to PCF) is received by PCF becomes the tracking date for retention for the five year FAR mandated period. If no additional action is taken, i.e., award never made, then the solicitation and all supporting documents may be destroyed at the end of the five year retention period. Similarly, awarded contracts may be destroyed six years and three months after the date the contract is closed in PCF.

In addition to capturing dates, the application also identifies the type of action (supplies, services, construction, etc.) and the dollar value. This allows business rules to be defined, which the system adheres to when determining the disposal of a cabinet. For instance, construction contracts above $2,000.00 will be maintained for six years and three months after the date the contract is closed in PCF; conversely, construction contracts below $2,000.00 will be maintained for three years after the closeout date.

The application handles each scenario presented in FAR 4.805 in a similar manner using the programmed logic. In this way, records are stored, handled, and disposed of in a timely manner and controlled in much the same way as paper records currently are. In supplementing the paper world, the electronic environment has automated processes while adhering to federally mandated rules.

As the official records management application all contractual documentation, all reviews of documents/files will be conducted on-line using the life-cycle management capabilities of the system. The review/approve functionality will provide anyone (Contracting Officers, Sector/Group Chiefs, Legal Office, Contract Auditors, etc.)
reviewing a document/file access to review, provide comments, and/or approve the document in the virtual environment. The application will send e-mail messages alerting reviewers/approvers of a document awaiting action; in addition, the Main Page will display when a document/cabinet is sent for review. Simply double clicking the link will take the reviewer to the appropriate document.

**Hardcopy Documents Scanned and Stored in PCF**

It is necessary at times to create an image of a document by digitally scanning it and sending it temporarily to a shared network drive. These may be images of files with original signatures, correspondence sent through a mail service (U.S. Post Office, UPS, Federal Express, etc.), contractual documents awarded prior to the implementation of an electronic storage system, documents not digitally signed, etc. These files are scanned, sent to the network drive, and then retrieved by the user and transferred into the proper folder in PCF. Items scanned reside on the network drive for seven days and are then permanently deleted. In this regard, there is only one permanent copy of the record, which is the file electronically stored in the file cabinet within PCF.

While scanned documents can be stored in the application, the scanning of large documents is inefficient, monopolizes available bandwidth, and ties up scanners unnecessarily; therefore, the scanning of documents shall be limited to signature pages only, where practicable. Scanned documents become pictures of the actual file; therefore, their content is not searchable by any available program. Contract Specialists and Contracting Officers shall upload the document and its corresponding signature page(s). Using the Justification & Approval document as an example, the original document in Word format shall be named J&A.doc. The page(s) containing only the signatures shall be named J&A(Signed).pdf. For files such as the Acquisition Plans, which contain signatures in two locations within the document, the naming convention will be as follows: AcqPlan.doc, AcqPlan(Signed1).pdf, and AcqPlan(Signed2).pdf, etc. The examples above can be applied to all scanned files to minimize the strain on the network infrastructure. These guidelines will remain in effect until Army Contracting Command guidance on the use of digital signatures is identified and implemented.
The PCF application treats scanned documents the same manner as a document initially created in an electronic environment. They can be uploaded, accessed by users with rights to that file cabinet, and put through a review/approval process (if necessary). The only limitations imposed on the handling of this type of file are those that result from the fact that the file is only a .pdf image and not an editable copy of the document. This prohibits users from making changes directly on the document. To compensate for this deficiency, the PCF application has a “Comments” field that allows users to input remarks related to the document while it is in a review/approval cycle. This facilitates communication without impeding the workflow process. (These “comments” are not considered part of the document and are deleted at the point the document becomes a version, when loaded initially as a draft or after the document has successful completed the approval process.)

**System Administration and Local Helpdesk Support**

Overall administration of the PCF application will be achieved using a pyramidal structure. Four levels of System Administrative support have been identified: On-Site Application Administrators, PCF Support Center Administrators, System Software Developer, and the PCF Project Leader.

At the base of the pyramid, an On-Site Application Administrator will be located at each organization utilizing the application. On-Site Application Administrators handle the day-to-day operations of the application at the site where the tool is fielded. They can add users; create user groups and edit those groups; modify the template used to create the folders for document storage; approve the automated move from one organization’s schema to another; retrieve closed records if needed; and, allow the final disposition of closed records at their designated time. Administrators have no reach-back into the application source code or back-end database. At the organization level, these individuals track comments and suggest improvements relating to the application. These individuals and possibly their supervisors will make up the IPT members who gather to discuss system upgrades on a quarterly basis. If there is an action that cannot be resolved at this level, the On-Site Application Administrators will contact the PCF Support Center Administrators.
The PCF Support Center is currently comprised of individuals who are trained in information technology and provide user help on PCF as well as Microsoft applications. Their well rounded background provides unique insight into the challenges that arise and affords the perspective necessary to creatively solve problems and suggest system improvements. These individuals will interface with the system administrators located at each organization; moreover, they will be the points of contact with the System Software Development Administrators when challenges arise that are not solvable at either their level or the previous level. PCF Support Center Administrators have the all the rights of the On-Site Application Administrators mentioned above; however, those rights extend across the various commands where the application is fielded. They provide helpdesk type support for the On-Site Application Administrators when those individuals are unable to solve the issue at hand. They track comments and suggested improvements provided by the On-Site Application Administrators relating to the application. The PCF Support Center Administrators have no access to the software code that controls the application’s front end nor can they directly access the data on the backend in the Oracle database.

Next, in line are the System Software Developers. These individuals have taken the government’s specifications and constructed the PCF application. Using their knowledge of Java, Java Script, Apache, Tomcat, etc, they have built a complex web-application capable of storing, as official records, all documents related to the contract award process. The System Software Developers have complete access to the software code that controls the application’s front end as well as direct access to the data on the backend in the Oracle database. Incidentally, they have all taken specific Information Technology (IT) classes to include the Security Plus training mandated by Federal IT regulations. Direct access to the source code as well as the database is necessary because this team will be responsible for completing all the programmatic changes to the application based on the input from the IPT meetings. They will also resolve any issues that cannot be solved at the PCF Support Center Administrative level. Lastly, they will provide input on the timeframes for requested changes so that the PCF Project Leader can develop an upgrade schedule.
At the top of this model is the PCF Project Leader. This individual is responsible for the management of the development team and all business decisions related to the project’s administration. The access rights associated with this role are similar to those of the PCF Support Center Administrators, since this individual will need to review issues and make decisions that affect multiple organizations. No access to the software code or the Oracle database is provided. This person’s duties also include leading the Integrated Product Team (IPT) meetings, prioritizing (with System Software Developers) the system upgrades, and interfacing with managers at the various user organizations. In addition, the individual provides presentations of the application to high ranking DoD personnel and leaders within the Federal Government. Lastly, he/she serves as the Contracting Officer’s Representative and is pivotal in day-to-contracting decisions to include budgeting for the maintenance and sustainment of the application, travel costs, additional hardware requirements, and reporting on system readiness to headquarters.

Storage of Contract and Non-contract Related “Housekeeping” Records

PCF went on-line in Dec 2001 as a pilot project to determine the feasibility of an electronic records management application. The intent of the project was to meet the department of Defense’s Paperless Contracting Initiatives while increasing accessibility to contractual documents. The successful outcome of the effort resulted in the release of a more robust, commercially available application five years later. At that time, it was mandated that PCF be used as the primary storage point for contractual data. The release of a 5015.2 certified application in an enterprise level (Java – Java Script) environment will bring about the release of the final policy stating that the electronic copy of the contract and all supporting data is the official, certified copy of record (See Attachment D).

While the PCF application was specifically designed to accommodate the storage of contractual documentation, this fact does not preclude the use of the database for storage of non-contract related “housekeeping” files. The system has been architected so that each organization will have its own Library. Within that organization’s Library, the creation of several Sub-Libraries is possible; therefore, it is possible to have an “Organization A.” Library that has Sub-Libraries that include electronic storage
compartments for its Acquisition Center documents as well as Sub-Libraries for its other users, e.g., the Small Business Office, Legal Office, Technical Industrial Liaison Office, etc. To further expand this scenario, a Sub-Library for Personnel Records or Training Documentation, for example, can be created with file cabinets for specific categories under the “Organization A.” umbrella. Access would be controlled at the file cabinet level with organizations registering and obtaining access via the application’s registration function. The file cabinets can be named for the individual whose records are stored in that file cabinet, i.e., in the Personnel Records Sub-Library a file cabinet for SMITH, MARY J could be created, which could contain, for example, Leave Slips, SF 50 actions, etc. for Mary Smith.

This is just an example of one way in which the PCF application could be expanded to accommodate the storage of non-contract files. The capability is currently operational within the application; however, more investigation into the business practices of each organization would be necessary prior to enabling this feature for non-contract files. Moreover, the Army has purchased commercially available RMAs (SharePoint, FileNet, etc) to perform functions such as those mentioned above, so inclusion of this capability within PCF currently appears to be redundant from the functional as well as cost perspectives.

**Future System Upgrades/Enhancements to Include Maintenance and Sustainment**

System maintenance and sustainment will be conducted by a team of government and contractor provided support personnel. This team will hold quarterly IPT meetings to identify future system upgrades and to ensure maintenance and sustainment activities continue on set schedule. The IPTs will be attended by the administrators of the PCF application at its various locations (when fielded) as well as the software developers and the PCF Project Lead. These meetings will be a forum to facilitate the advancement of the application in a way that is fair to all users. Meetings will be held at various locations to ensure maximum participation; in addition, video teleconferencing capabilities will be utilized to reduce long-term travel costs.
It is recognized that there will be changes required that arise between the IPT gatherings. In those instances, a telephone call or e-mail from the local PCF administrator to the PCF Support Center can be initiated and a “Change Request” submitted. Guidance for this process along with contact information will be included within the Help section of the application. All requests will be logged into the tracking system (Helpdesk Central®), prioritized, and incorporated into the application sustainment plan. Once a change (or series of changes) is completed and the production server updated, an e-mail will sent to all system administrators alerting them to the areas of the application that have been revised.

Any upgrades/changes/patches will be applied to the server at 0700 EST/EDT so as to bring about minimal disruption to the user community. Any major server builds/rebuilds will be conducted on a Saturday morning when possible and the functionality tested prior to the application being brought back on-line. In addition, all administrators will be notified via e-mail when the system is down due to an unscheduled outage.

**Document Workflow/Electronic Reviewing/Versioning of Documents**

The PCF application has the ability to process documents through review and approval cycles while allowing them to remain in the application; however, there are no preprogrammed workflows. This was attempted, but it was found to be too rigid an environment within which the dynamic review/approval process could not be fit. The current process is open and allows the initiator to “flow” the document to the necessary individual. After uploading a document as a “draft,” the initiator has the ability to send the document to any individual registered with the application. This can be done either in a serial or parallel manner. Reviewers will receive an e-mail alerting them that a document is awaiting their review and be granted access to the entire file cabinet (This provides reviewers the rights to view any supporting documents stored in the file cabinet.). They may then go into the application, download the document, make the necessary revisions, and reload it to the PCF file cabinet. The initiator may repeat this process as often as necessary until the document enters the approval phase. Each time a
new document is changed by the initiator and re-uploaded into the application the draft revision number changes (0.1 to 0.2 to 0.3, etc.).

In the approval process, the initiator sends the document out to one individual at a time. The approver receives an e-mail just as in the review process and is given access to the entire file cabinet. When the approver goes into the application, she/he is given access to a “read-only” copy of the document. This is because at this point in the process, there should not be a need for the document to be changed. This process is then repeated and the document sent to each individual in the approval chain. Once the process is completed and all approvers have given the document the “green light,” the initiator accepts the approved document and it is given a version number – 1.0. At this time all drafts are automatically deleted from the application. Should the requirement change and the approved document need to be revised, a user with manager rights to the file cabinet may check out a copy of the “approved” document and make the necessary changes. If this is done, the versioning control will automatically renumber the document, Draft 1.1 (1.2, 1.3, and so on, if necessary). Once this new draft document is approved, the versioning control will automatically renumber the document, Version 2.0 and the application will delete any drafts. Even though Version 2.0 would become the new document of record, the database retains prior approved versions aka “documents of record” (e.g. Version 1.0).

**Use of Groups and Roles within PCF**

PCF uses groups within each file cabinet to control access. For example, the members of a particular Processing Point (i.e., P1S) would be members of the group P1S Users. This group is given access to any cabinet processed by the group. Other groups, such as an Auditor Group, is created and added to a cabinet for access on a temporary basis during a review by a contract review agency – GAO, DCMA, etc. The cabinet creator can provide access to groups (either manager, editor or reader access) by selecting them in the security tab on the cabinet creation panel. Using groups instead of adding individual user names to the cabinet provides a more easily maintainable environment for both the user and the administrator. If a user moves to a different group, the change is made in one place - the global group membership list - rather than by going into each
cabinet the user had access to and removing that person’s name on an individual basis. The application was architected so that the organizational administrator can maintain the groups for that organization.

The application uses several roles to permit the proper access within the organization. Roles consist of User, Admin and App_Admin. The User is any individual who creates cabinets and upload documents. The Admin role is used for the administrator from each organization. The App_Admin role consists of members of the PCF Support Center to include the contractor provided support. The App_Admin role provides these individuals with the proper access to enable them to support the User role and the Admin role.

**Data Back-ups**

Maintaining the integrity of the information stored in the database is of paramount importance. To insure that no loss occurs, the data is incrementally backed-up nightly to an offsite storage device. Weekly, full backups are saved offsite to this server as well. Lastly, a transfer of all data from the various applications managed by the Army Contracting Command to Continuity of Operations (COOP) site in Fort Dix, NJ completed on a daily basis. This redundant storage of data will prevent a catastrophic loss of information and allow the retrieval of data in the event the primary site goes offline.

**SUMMARY**

Both government and commercial industries are increasing the amount of business they conduct in an electronic environment; consequently, the digital storage of Army Contracting Command contractual data must be accomplished and regulated in accordance with the prescribed policies and procedures. Threats posed by our enemies in the world around us as well as environmental disasters make moving in the paperless direction a paramount concern in the 21st century. The PCF application will help us meet those challenges by eliminating the need to use paper files, enhancing collaboration between all parties, improving security capabilities in relation to the storage and maintenance of documents, protecting the integrity of individual records, ensuring
business continuity (i.e., disaster recovery), and increasing the accessibility of the documents in support of world-wide contingent operations.

The procedure guidance put forth in this document described the electronic handling of contract records in accordance with Federal Acquisition Regulation guidance for contractual records retention, provided disposition instructions for those records, and laid-out the policy for hardcopy documents scanned and stored in the tool. Furthermore, this guidance discussed the possible expansion of the application for the storage of non-contract related “housekeeping” records, provided guidelines of future upgrades/enhancements to the tool, defined the workflow feature, and reviewed the use of groups in the application. With this guidance in place, the system’s introduction meets DoD’s goal of contracting in a paperless environment and the Army Contracting Command leadership’s challenge to create a learning aid for the entire acquisition workforce.
A. ATTACHMENT. MANAGEMENT REFORM MEMORANDUM #2 – MOVING TO A PAPER-FREE CONTRACTING PROCESS BY JANUARY 1, 2000

UNDER SECRETARY OF DEFENSE
1100 DEFENSE PENTAGON
WASHINGTON, D.C. 20301-1100

May 21, 1997

MEMORANDUM FOR UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
DIRECTOR, OPERATIONAL TEST AND EVALUATION
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

SUBJECT: Management Reform Memorandum #2–Moving to a Paper-free Contracting Process by January 1, 2000

The Secretary of Defense has directed that we undertake a revolution in business practices in conjunction with the Quadrennial Defense Review. He has specifically cited the need to simplify and modernize our acquisition process in the area of contract writing, administration, finance, and auditing.

In order to determine the feasibility of sweeping changes in this area, I am requesting the Under Secretary of Defense (A&T) to develop, by July 1, the blueprint of a plan to move to a totally paper-free contract writing, administration, finance, and auditing process. This plan should be coordinated with all of the organizations that participate in the integrated process. The Plan should incorporate the Department's ongoing initiatives for use of purchase cards, electronic catalogues, electronic commerce and imaging.

I request your full cooperation in developing this blueprint.

In approximately two weeks from the date of this memorandum, I will have my secretary arrange for a meeting with the USD(A&T) to obtain a status on how this effort is proceeding.

\S\ John J. Hamre
MEMORANDUM FOR UNDER SECRETARIES OF DEFENSE
DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
ASSISTANT SECRETARIES OF DEFENSE
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
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ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTOR, ADMINISTRATION AND MANAGEMENT
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

INFO COPY: SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF

SUBJECT: Addendum to Management Reform Memorandum #2--Moving to a Paper-free Contracting Process by January 1, 2000

Management Reform Memorandum #2 cited the need to simplify and modernize our acquisition process in the area of contract writing, administration, finance and auditing.

After further review, it has been determined that in order to achieve successful implementation in this area, the logistics community needs to be included in this effort. Therefore, through this addendum, I am now asking that a plan be developed to move to a totally paper-free acquisition process.

The paper-free acquisition process coincides with the Department's corporate goal of digital operations for acquisition management and life cycle integrated information. The paper-free plan will define a process whereby electronic information can be managed, accessed, and shared by all users.

\S\\
John J. Hamre
B. ATTACHMENT. FILE NAMING GUIDANCE – DFARS 204.7003

(a) Elements of a number. The number consists of 13 alpha-numeric characters grouped to convey certain information.

(1) **Positions 1 through 6.** The first six positions identify the department/agency and office issuing the instrument. Use the DoD Activity Address Code (DoDAAC) assigned to the issuing office. DoDAACs can be found at [https://day2k1.daas.dla.mil/daasing/](https://day2k1.daas.dla.mil/daasing/).

(2) **Positions 7 through 8.** The seventh and eighth positions are the last two digits of the fiscal year in which the PII number was assigned.

(3) **Position 9.** Indicate the type of instrument by entering one of the following upper case letters in position nine—

(i) Blanket purchase agreements A

(ii) Invitations for bids B

(iii) Contracts of all types except indefinite delivery contracts, facilities contracts, sales contracts, and contracts placed with or through other Government departments or agencies or against contracts placed by such departments or agencies outside the DoD C

(iv) Indefinite delivery contracts D

(v) Facilities contracts E

(vi) Contracting actions placed with or through other Government departments or agencies or against contracts placed by such departments or agencies outside the DoD (including actions with the National Industries for the Blind (NIB), the National Industries for the Severely Handicapped (NISH), and the Federal Prison Industries (UNICOR)) F

(vii) Basic ordering agreements G

(viii) Agreements, including basic agreements and loan agreements, but excluding blanket purchase agreements, basic ordering agreements, and leases H

(ix) Do not use I

(x) Reserved J

(xi) Short form research contract K

(xii) Lease agreement L

(xiii) Purchase orders—manual (assign W when numbering capacity of M is exhausted during the fiscal year) M
(xiv) Notice of intent to purchase
(xv) Do not use
(xvi) Purchase order--automated (assign V when numbering capacity of P is exhausted during a fiscal year)
(xvii) Request for quotation--manual
(xviii) Request for proposal
(xix) Sales contract
(xx) Request for quotation--automated (assign U when numbering capacity of T is exhausted during a fiscal year)
(xxi) See T
(xxii) See P
(xxiii) See M
(xxiv) Reserved for departmental use
(xxv) Imprest fund
(xxvi) Reserved for departmental use

(4) **Position 10 through 13.** Enter the serial number of the instrument in these positions. A separate series of serial numbers may be used for any type of instrument listed in paragraph (a)(3) of this section. Activities shall assign such series of PII numbers sequentially. An activity may reserve blocks of numbers or alpha-numeric numbers for use by its various components.

(b) **Illustration of PII number.** The following illustrates a properly configured PII number—

<table>
<thead>
<tr>
<th>Position</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-6</td>
<td>Identification of department/agency office</td>
</tr>
<tr>
<td>7-8</td>
<td>Last two digits of the fiscal year in which the PII number is assigned</td>
</tr>
<tr>
<td>9</td>
<td>Type of instrument</td>
</tr>
<tr>
<td>10-13</td>
<td>Four position serial number</td>
</tr>
</tbody>
</table>
C. ATTACHMENT. FEDERAL ACQUISITION REGULATION – PART 4.805 – STORAGE, HANDLING, AND DISPOSAL OF CONTRACT FILES

(a) Agencies must prescribe procedures for the handling, storing, and disposing of contract files. These procedures must take into account documents held in all types of media, including microfilm and various electronic media. Agencies may change the original medium to facilitate storage as long as the requirements of Part 4, law, and other regulations are satisfied. The process used to create and store records must record and reproduce the original document, including signatures and other written and graphic images completely, accurately, and clearly. Data transfer, storage, and retrieval procedures must protect the original data from alteration. Unless law or other regulations require signed originals to be kept, they may be destroyed after the responsible agency official verifies that record copies on alternate media and copies reproduced from the record copy are accurate, complete, and clear representations of the originals. Agency procedures for contract file disposal must include provisions that the documents specified in paragraph (b) of this section may not be destroyed before the times indicated, and may be retained longer if the responsible agency official determines that the files have future value to the Government. When original documents have been converted to alternate media for storage, the requirements in paragraph (b) of this section also apply to the record copies in the alternate media.

(b) If administrative records are mixed with program records and cannot be economically segregated, the entire file should be kept for the period of time approved for the program records. Similarly, if documents described in the following table are part of a subject or case file that documents activities that are not described in the table, they should be treated in the same manner as the files of which they are a part. The retention periods for acquisitions at or below the simplified acquisition threshold also apply to acquisitions conducted prior to July 3, 1995, that used small purchase procedures. The retention periods for acquisitions above the simplified acquisition threshold also apply to acquisitions conducted prior to July 3, 1995, that used other than small purchase procedures.

<table>
<thead>
<tr>
<th>Document</th>
<th>Retention Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Records pertaining to Contract Disputes Act actions.</td>
<td>6 years and 3 months after final action or decision for files created prior to October 1, 1979. 1 year after final action or decision for files created on or after October 1, 1979.</td>
</tr>
<tr>
<td>(2) Contracts (and related records or documents, including successful proposals) exceeding the simplified acquisition threshold for other than construction.</td>
<td>6 years and 3 months after final payment.</td>
</tr>
<tr>
<td>(3) Contracts (and related records or documents, including successful proposals) at or below the simplified acquisition threshold for other than construction.</td>
<td>3 years after final payment.</td>
</tr>
<tr>
<td>(4) Construction contracts:</td>
<td></td>
</tr>
</tbody>
</table>

43
| (i) Above $2,000. | 6 years and 3 months after final payment. |
| (ii) $2,000 or less. | 3 years after final payment. |
| (iii) Related records or documents, including successful proposals, except for contractor's payrolls (see (b)(4)(iv)). | Same as contract file. |
| (iv) Contractor's payrolls submitted in accordance with Department of Labor regulations, with related certifications, anti-kickback affidavits, and other related papers. | 3 years after contract completion unless contract performance is the subject of an enforcement action on that date. |
| (5) Solicited and unsolicited unsuccessful offers, quotations, bids, and proposals: | |
| (i) Relating to contracts above the simplified acquisition threshold. | If filed separately from contract file, until contract is completed. Otherwise, the same as related contract file. |
| (ii) Relating to contracts at or below the simplified acquisition threshold. | 1 year after date of award or until final payment, whichever is later. |
| (6) Files for canceled solicitations. | 5 years after cancellation. |
| (7) Other copies of procurement file records used by component elements of a contracting office for administrative purposes. | Upon termination or completion. |
| (8) Documents pertaining generally to the contractor as described at 4.801(c)(3). | Until superseded or obsolete. |
| (9) Data submitted to the Federal Procurement Data System (FPDS). Electronic data file maintained by fiscal year, containing unclassified records of all procurements other than simplified acquisitions, and information required under 4.601. | 5 years after submittal to FPDS. |
| (10) Investigations, cases pending or in litigation (including protests), or similar matters. | Until final clearance or settlement, or, if related to a document identified in (b)(1) - (9), for the retention period specified for the related document, whichever is later. |
D. ATTACHMENT. ACC POLICY ALERT XX-XX

1) **Purpose:** The purpose of this Policy Alert is to update ACC's "paperless" contracting procedures to reflect recent changes.

2) **Applicability:** The procedures described herein apply to the entire Army Contracting Command, to include its remote locations.

3) **Implementation:** This Policy directs all contracting personnel of the availability of Paperless Contract Files (PCF). This alert provides additional guidance, and will be in effect until further notice.

   a. **Any and All** contracting actions **shall** be filed in the PCF Portal, regardless of dollar value to included, but not limited to:

      (1) **All** new solicitations/contracts (and associated documentation), both competitive and noncompetitive, to include, UCAs, BAAs, BPAs, SBIRs, Other Transactions, Cooperative Agreements and Grants.

      (2) **Any and all** other actions, pre or post-award (to include any and all modifications to existing/older contracts NOT done in PCF). It should be noted that contracts in existence prior to implementation of PCF need not be put in PCF, but it is required that **any and all** actions associated with these "NON PCF" contracts be in PCF.

   b. The only pre-approved exceptions to this rule are for acquisitions using IMPAC cards and for Special Access Programs. All other exceptions to the use of PCF require a waiver from the PARC.

   c. From this point forward, the electronic copy of the record stored in the file cabinet within PCF will be considered the official copy of record.

4. The POC for this action is Eric Boorom, (732) 532-1418 or email to: Eric.Boorom@us.army.mil.
Figure 2. Paperless Contract Files (PCF)
PCF is a virtual contracting office. Contracting Professionals store, edit, send for review and approval, and archive as official records the contractual files that they work with everyday. It is a secure, Web-based application that can be accessed using AKO’s CAC/SSO process and is available via an internet connection. This allows it to be used while on TDY, to support contingency operations, or mobile workforce/telecommuting.
initiatives. It is organized like an electronic library with File Rooms based on Fiscal Year (FY), File Cabinets arranged by contract number, folders by document name, and files at the lowest tier of the categorization.

PCF is connected to both DoD and command applications – CCCS, LMP, ACC COR Tool, PADDR, etc.

The application automates a number of previously paper-based processes such as the review and approval processes.
Paperless Contract Files (PCF) Main Page

The main page provides all the information that a user needs to navigate in and around the tool. In the panel on the left, a list of contracts is displayed sorted by fiscal year. In addition to the contract number, a Keyword is listed to aid in cabinet identification. The remaining screen real estate provides Situational Awareness for users by showing documents in the workflow process - Documents Awaiting Review/Approval and Documents Sent for Review/Approval as well as any cabinets awaiting PEER/Cabinet Reviews.

Figure 4. Paperless Contract Files (PCF) Main Page
File Rooms – are divided by fiscal year. Since we award our contracts by fiscal year, this is a natural breaking point at which to electronically store documents.

File Cabinets – are individual storage areas segregated by solicitation/contract number, for example W15P7T-06-R-B412 or W15P7T-06-C-T908. The naming convention is stated at DFARS 204.7003. The listing on the left hand side of the screen shows the cabinets to which the user has access. Selecting any cabinet will display that cabinet's contents on the right side of the screen replacing the workflow view shown above. To the immediate right of the file cabinet are the Key Words entered at the time the cabinet was created.

Workflow View – provides situation awareness of the user’s workload. Displayed here on the main page is a listing of documents that you have sent out for review/approval and a listing of documents that are awaiting your review/approval. The application displays whose review is pending and a Due Date. Also, it lists any documents that are awaiting review or approval by the current user with “dates due.” So, right at your fingertips, you have access to links to these specific documents without having to go anywhere else. The View My Workflow tab takes users back to this screen regardless of where users are in the application.

Help – is totally electronic. We did not print any help manuals. One interesting feature within the Help section is the use of on-line tutorials. Using Captivate® software, we have recorded short videos explaining the common features users need to understand to be successful PCF operators.
Favorite/Recent Cabinets

Figure 5. Favorite/Recent Cabinets

Favorite Cabinets – are custom folders can be created by users to allow sorting of file cabinets by areas such as Contract Type, Contractor, Close Outs, etc.

Recent Cabinets – works like your browser and stores the most recent file cabinets visited by the user.
PR Library – designed to eliminate the need for the printing and subsequent scanning of hard copy PR (funding) documents prior to posting into the PCF database. A data feed is received from LMP (CCSS for our users at the Army Sustainment Command) that permits posting of the electronic versions of the documents. Electronic PRs are located in the PR Library first by date and second by Procurement Point (Proc. Pt.)/Group. For those working on more than one Proc. Pt., the ability to add yourself to both your primary and secondary Proc. Pts has been included. In addition, should you erroneously receive a PR in your Proc. Pt., you will have the ability to Re-Route the document to the correct Proc. Pt. (when known) or back to the PCF Admin team (when unknown). Lastly, users can route the PR directly to the contract to which the funding document applies or to the individual who owns the document (rather than merely to their Proc Pt.).
Menu Tabs - Library Actions

Select Library – allows users to choose between the Contract Library and the Retention Library. As we drill down into the application, this area will change depending on the specific actions that users can perform in that area.

Search Library – permits users to search through the entire file room for specific documents. A search feature is also included at the file cabinet level allowing easy locating of documents.
Create Cabinet – takes the user to the wizard questions (This feature will be implemented in a future version.) or to the template where the type of buy is chosen.

Administrator Functions – PCF is designed to be customizable by the organizations utilizing the application. These drop-down items (Wizard Editor, Cabinet Administration, User/Group Administration, and Organizational Approval) facilitate this customization at an organization, as opposed to an individual, level.
Create Cabinet

Figure 8. Create Cabinet

Create Cabinet

File Cabinet Information – basic information on the file cabinet.

Buy Type – Used to properly order cabinets for display purposes and to enable/disable subsequent fields.

Solicitation/Contract/Delivery-Task Order/Modification Number

Multi-Award – System accommodates multiple award scenarios.
Keyword – Descriptor for cabinet identification.

Comments – Used like a Post-It® in a hardcopy folder.

A choice of how the creator of the cabinet wishes to establish the folders within the cabinet is also displayed on this screen. The two methods are:

**Q&A Wizard** – This function works like Turbo Tax® and asks a series of questions to provide the user with the contract folders required. These folders store the documents that must be completed prior to award. (This feature will be implemented in a future version.)

**Selection List** – This is a list of all the possible folders available, basically a contract file index. Next to each item is a check box. Users merely select the folders they need and create those. When “Editing the Cabinet Profile,” users are taken to this list and can adjust the contents of the file cabinet – add/remove folders – at any time throughout the life of the cabinet.
File Cabinet Security – access to PCF is controlled via three possible roles of users:

- **Readers** – can only read the data (e.g. auditors);
- **Editors** – can read and change data and upload and download files; and
- **Managers** – can read, edit, and also grant others access to the cabinet.
Folder Creation via the Wizard

Figure 10. Folder Creation via the Wizard

The next few slides show some sample questions and question styles, if the user chooses to create folders using the Q&A Wizard Method (This feature will be implemented in a future version.). There is also a Selection List Method discussed in further detail later in the document.
**Radial buttons**

Note the lower case “i” in the balloon in the upper right hand corner of the pop-up window. This is an Informational Icon that contains policy guidance for users that relates to the individual question being asked. A process bar shows how far along the user is in the wizard process.
Folder Creation via the Wizard Cont’d

Figure 12. Folder Creation via the Wizard Cont’d

Selection Boxes
Folder Creation via the Wizard Cont’d

Figure 13. Folder Creation via the Wizard Cont’d

Selection Boxes
The Wizard asks a series of questions. Once all the questions have been answered, the user is taken to the Selection List view. All the folders created by how the user answered the questions are checked. The user can select additional folders or deselect those that may not be needed. Users can come back to this screen at any time throughout the life of the contract to select additional folders using the “Edit Cabinet Profile” feature from the Cabinet Actions dropdown selection.
Folder Creation via the Selection List

Had the user chosen the Selection List option in order to create the folders for the cabinet, she/he would be taken to this screen instead of the Q&A Wizard screen. Some folders will be pre-checked because they are needed for every cabinet (Funding Documentation), but most will be empty until a user begins checking the folders required in the file cabinet.
Some post award folders are checked based on a user’s responses to the questions in the wizard, but most are not. The informational icons on the folder names in the Contract Section state that to have access to these folders, a user must enter a contract number. This security measure ensures that the pre-award and post-award documentation stays tied together in the same file cabinet.
After all the questions are answered or selections made using the Selection List, the application calculates the folders required. The output is a list of folders named for the documents that will be completed prior to award of the action.
Cabinet Actions

Figure 18. Cabinet Actions

Cabinet Actions

**Edit Cabinet Profile** – changes the profile info associated with this cabinet to include addition of the contract number at award, keyword and comment data, security access list, and folders in the cabinet.

**Upload Documents** – saves documents to a folder selected by the user from a drop down list.
**View All Documents** – displays all the documents in a file cabinet.

**Manage Favorites** – places a link to this file cabinet into the “Favorites/Recent Cabinets” section.

**Name LOGCAP Sites** – provides a LOGCAP Contract specific function. LOGCAP is a large, multiple award contract managed by the Rock Island Contracting Center.

**Submit for Peer/Contract Review** – allows the entire cabinet (Solicitation or Contract) to be sent to an individual or group at any time during the lifecycle of the effort.

**Cancel Peer/Contract Review** – ends the Peer/Contract Review.

**Complete Peer/Contract Review** – marks the Peer/Contract Review finished and ends the workflow associated with this action.
The “Upload Document” selection under “Cabinet Actions” launches the “File Upload Manager.” This applet allows users to add documents to folders. It supports the ability to upload single or multiple files by dragging and dropping or browsing your hard drive. It also has the ability to pull in attachments from MS Outlook e-mail messages without the need to have saved those attachments to the user’s local hard drive first. When launched from the Cabinet Actions menu, the File Upload Manager lets users choose the folder into which they want to place documents.
To upload a file, simply select “Browse” and select the file you wish to upload.
Files can be uploaded in various states, “Draft” or “Final”. Draft documents are those files that will be put through the workflow process and approved by center leadership. Final documents can be those that require no approval (e-mail in the Correspondence folder) or those that have been approved and signed off-line (a digitally scanned, signed contract).
To ensure that the file was successfully uploaded, simply view the “Progress” bar.
Clicking on the folder opens it and displays the contents. Here is a folder with a document. Notice that a document has been uploaded and the folder icon has changed to yellow.
Selecting the “View All Documents” menu item will display a list of every document in the cabinet. Users may click on the document name to open the file. This launches a read-only copy. This feature is especially useful for auditors because they can quickly locate the document they need. The display also provides the location of the file and will display the exact path to that document.
Folder Actions

Add Folder – allows the user to create a folder under a system delivered folder, see small circle above.

Upload Documents – saves a document to a single folder highlighted prior to selecting Folder Actions and Upload Document.

Delete Folder – provides the ability for a user to remove a folder he/she created.
Move Documents – allows the movement of documents between folders and/or file cabinets.

Rename Folder – gives a user the right to change the name of a folder he/she created.
Document Actions

**Update Selected Document** – allows a document to be removed from the application, reworked, and uploaded. When used, the system is able to track any comments made upon upload and re-version (e.g. 0.1 to 0.2) the document.

**Move Document** – gives the user the capability to move documents between folders and/or file cabinets.
Delete Document – provides the ability for a user to remove a document he/she uploaded.

Rework Document – affords the means to update a document that was sent for review, but rejected by the reviewer. In this instance, the documents version number increments to show changes from the rejected document to the one being reworked.

Finalize Document – grants the user the ability to mark a document final thereby converting a draft to a version and incrementing the number to 1.0.

View Revision History – stores previous draft. This is purged when the final version is saved.

Submit for Review – allows users to securely transfer documents between reviewers without the need for the document to come out of the system.

Submit for Approval – allows users to securely transfer documents between approvers without the need for the document to come out of the system.

NOTE: When opened, the document is launched within the application it was created, e.g., Word, EXCEL, Adobe (.pdf), etc.
The “Document Review” and “Document Approval” features work in similar ways. Before we continue, let’s discuss the differences between the review and approval cycles. A “Review” allows the initiator to send the file to a reviewer for that individual to edit the document directly. Through the use of the “Track Changes” and “Comments” features of the MS software, reviewers can edit and suggest revisions directly onto the electronic document. When complete, the reviewer can end the review and send the document back to the initiator or send it on for further review. This is a serial review process but allows for the routing of documents in an “ad hoc” format. The “Approval” feature works in a similar manner; however, approvers open a “read-only” copy of the
document. Their job during the approval phase is to ensure that their previous changes/comments were addressed and then grant their approval. It is in this cycle that a digital signature can be applied, i.e., once the approval is completed the approver can add a digital signature, which is authenticated against the CAC credentials, thereby creating a true digital signature. When “Submit for Review” or “Submit for Approval” is selected, an applet opens that provides several opportunities for the user.
First, users decide the type of review that they are going to submit:

**Review (Standard)** – sends documents serially from a one person to another. The individual receives an e-mail with a hyperlink in it that takes them to the PCF Workflow/Main page.

**Group Review** – creates a review that sends a notification to a group inbox as well as the Chief/Leader of that group, i.e., Legal, Policy, etc.

**Cancel** – cancels the review process and returns the document to the initiator.
Second, they choose the individual or group to whom they wish to send the document. This screen capture represents a review sent to an individual.
This screen shot represents a document sent for Legal Review. The members of the Legal group are displayed in the center box. The name of the Division/Sector/Branch chief of the Legal group is shown in the box on the right. A link will be sent to the chief and to a previously established group e-mail box (set up by the NEC/DOIM at the user’s site). In the event that the chief is not available to assign a new job coming to his/her office, the individual “acting” for the chief may assign the work. In the event that an attorney has previously been assigned, the Contracting Office/Specialist can send the document for review directly to that person. The link in the e-mail takes the reviewer to the PCF Workflow/Main page.
Third, a Comments box is provided so that a customized message may be written to the reviewer/approver.
Fourth and final, a due date may be entered.
Other actions under the Review/Approval Actions menu:

**Mark Document Reviewed** – allows a reviewer to finish a review and return the document to the initiator. This completes the review process for this document by this individual.

**ReRoute Document w/o Reviewing** – provides an option for a user who was sent a document by mistake. This individual can send it along to the correct person for review or return it to the initiator.
Mark Document Approved - permits an individual the ability to finish an approval and return the document to the initiator. This completes the approval process for this document by this individual.

Sign and Approve Document – establishes a process for applying a digital signature to a document. During approval the document is in a locked, .pdf format. Sign and Approve converts the document to Word format, which allows a digital signature to be applied. Once completed, the document is finalized and stored as a locked, .pdf file.

Reject Document – gives the right to a reviewer or approver to return the document to the initiator without performing any action.

ReRoute Document w/o Approving – provides an option for a user who was sent a document by mistake. This individual can send it along to the correct person for approval or return it to the initiator.
Activity Logs

The Activity Logs within the application track all comments users make at both the cabinet and document level. At any time throughout the life of the solicitation or contract file, an individual with access to the cabinet may go in and comment on the file as a whole or on separate documents.
The Activity Logs — Document Log — tracks the previous versions of documents along with any user comments. Versions of all previous documents are stored until time of award when they are converted to final and previous revisions are deleted.
The Activity Logs — Cabinet Log — tracks the comments an individual makes both during a formal Peer/Cabinet Review and at any time a user with access enters the cabinet to review its contents. Comments stored until time of award and then deleted.
Document Preview becomes active when a document is highlighted. This will enable users to view a read-only copy of the document. In addition, once the document is clicked on, information relating to that file is presented in the right panel.
The View My Workflow menu item returns the user to the main page of PCF where a view of the actions assigned to them or by them is presented.
PCF features on-line help by topic. Help is accessible anywhere there is an internet connection just like PCF. There is no need for a hardcopy user manual. The menu options allow users to open the PCF User Guide, view the PCF Folder Structure (standardized across ACC), and for PCF Organization Administrative personnel, access User Workflow in order to troubleshoot issues he/she is having sending a document for review/approval.
The Records Management menu item is seen only by PCF administrators. These items are necessary in order to remain in compliance with the DoD Standard 5015.

Reactivate Cabinet – allows admins to move a closed cabinet to the active library in the event that there is ongoing litigation or additional documents must be loaded that were not saved prior to closeout.

Cancel Solicitation – deletes a solicitation that was begun, but where the requirement was cancelled.
Litigate/Freeze Cabinet – makes it impossible to close out the cabinet thereby locking it in the active library until ongoing court action is complete.

Cabinet Records Management Log – depicts all actions that have transpired related to a particular cabinet.
Conclusion

This concludes the description of the Army Contracting Command’s Paperless Contract Files (PCF) – Virtual Contracting Office. (https://pcf.army.mil).

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LIST OF REFERENCES


INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
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