

EXECUTIVE SUMMARY

BACKGROUND

The United States Patent and Trademark Office's (PTO's) information technology infrastructure is a heterogeneous collection of incompatible mainframes, minicomputers, and microcomputers with incompatible commercial-off-the-shelf software products. This information technology infrastructure is costly to operate, hard to maintain, difficult to infuse new technology, and parts are either wearing out or are becoming technologically obsolete. This infrastructure has been managed on a piecemeal basis and often tied to a specific application rather than managing the infrastructure separately and dictating a set of technical standards that will be used in the development of the application.

A key information technology objective is to transform the PTO information technology infrastructure into a standards-based open systems environment. An open systems environment will allow PTO to add new products or infrastructure components or replace existing ones as new technologies are introduced into the marketplace. A robust, scaleable, and interoperable infrastructure is absolutely essential if PTO is going to be successful in redesigning legacy systems and developing new systems to support the reengineering of the patent and trademark process.

PURPOSE

The purpose of the PTO Technical Reference Model is to identify a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of PTO automated information systems (AIS). The PTO Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. System Development Managers will select standards and products that conform to the Technical Reference Model in the development of Target AIS Technical Architecture. System Development Managers must adhere to approved standards and products unless it can be shown to be cost-effective over the life of the application.

GOALS

By transition of its information technology infrastructure into an open systems environment, PTO will support its overall goals to:

- Improve user productivity through consistent user interfaces, integrated applications, and data sharing.
- Promote vendor independence through the use of standards-based products and interchangeable components.
- Improve development efficiency across the PTO community through a common open systems environment, software reuse, and resource sharing.
- Improve interoperability across PTO applications and mission areas through common infrastructure components and services.
- Reduce life cycle hardware and software maintenance costs.
- Reduce information technology personnel training costs.
- Improve and comply with security requirements.

MODEL COMPONENTS

Basic Model Components

Two types of elements are used in the PTO Technical Reference Model. They are: (1) entities that consist of the application software, application platform, and external environment; and (2) interfaces that include the application program interface (API) and the external environment interface (EEI).

These elements lay the foundation upon which PTO will build its information technology standards and select its standards-based preferred products. PTO will use these standards and standards-based products as guidelines for development and operation of its information technology infrastructure.

Figure ES-1 depicts the model. This model is based upon the concept described in NIST Special Publication 500-230, Application Portability Profile, Version 3.0, dated February 1996. Figure ES-2 is a further breakdown of the model.

The model element illustrates a user-supplier relationship: the application software is the user of services and the application platform and entities are the suppliers. The API and EEI define the interfaces provided.

Principles

The PTO Technical Reference Model illustrates the following principles:

- Software services are independent of hardware.
- All services areas interact with the operating system.
- Network and System Management Services and Security Services are common to other services and pervade these common areas in one or more forms.

STANDARDS AND PRODUCTS

PTO information technology standards, interfaces, protocols, and products are built around the model elements described earlier. Specifically, standards and standards-based products have been identified for the following major components:

- Operating System Services
- Software Engineering Services
- Graphical User Interface Services
- Data Management Services

- Data Interchange Services
- Document Management Services
- Full-Text Search Services
- Graphics Services
- Output Services
- Network Services
- Security Services
- Network and System Management Services
- Distributed Computing Services

PTO Standard System Development Tools

The Chief Information Officer (CIO) has selected a standard suite of system development tools that support the system development life cycle. The standard tools will:

- Reduce maintenance costs.
- Make system development more predictable, and reduce dependence on original developers.
- Leverage the experience and skills of in-house staff, and reduce the costs of retraining on system development tools.
- Facilitate reuse of software components.

System Development Managers will use the PTO standard system development tools designated in the PTO Technical Reference Model and refrain from using other system development tools unless their use can be shown to be cost-effective over the life of the application.

Table ES-1 summarizes the PTO Standard System Development Tools for use across the system life cycle. The preferred products for each system life cycle phase are explicitly identified.

| Summary of Preferred System Development Tools | | |
|---|-------------------------------------|--|
| Life Cycle | Product | Function |
| Initiation | CoolGen 4 (by Sterling Software) | Create Charts & Diagram for Business Needs |
| | | |

| | | | |
|-------------------|--|---|---|
| | | CoolGen 4 (by Sterling Software) | Enterprise Activity Model & Data Modeling |
| | | Rochade (client v1.3, server v5.0) (by Viasoft) | Information Repository (metadata) |
| Concept | | CoolGen 4 (by Sterling Software) | High-level Data Model & Data Process |
| | | RTM v3.6 (by Marconi's Systems Technology) | Establish & Capture High-level Requirements |
| | | Rochade (client v1.3, server v5.0) (by Viasoft) | Information Repository (metadata) |
| | | Visual Basic v5.0 Visual C++ v5.0 (by Microsoft) | Rapid Prototyping |
| | | Project 95 (by Microsoft) | "What If" & Initial Baseline Planning |
| | | CAT v1.3 (by Robbins-Gioia) | Program Management Plan |
| | | PCMS (PC*client v2.2.1, server v4.4) (by SQL Software) | Configuration Management |
| | | No tool defined | Target AIS Infrastructure Development |
| Detailed Analysis | | CoolGen 4 (by Sterling Software) | Functional & Data Requirements Definition |
| | | CoolGen 4 (by Sterling Software) | Detailed Business Area Description |
| | | Rochade (client v1.3, server v5.0) (by Viasoft) | Information Repository (metadata) |
| | | Visual Basic v5.0, Visual C++ v5.0 (by Microsoft) | Rapid Prototyping |
| | | RTM v3.6 (By Marconi's Systems Technology) | Capture & Trace All Requirements |
| | | PCMS (PC*client v2.2.1, server v4.4) (by SQL Software) | Configuration Management |
| | | QDB/Analyze v3.1a QDB/Connect v3.1a (by Prism Solution) | Data Quality Analysis (define potential set of filters; test for relevance to users) |
| | | No tool defined | Target AIS infrastructure Development |
| Development | | CoolGen 4 (by Sterling Software) Visual Basic v5.0 (by Microsoft) Gentia v3.0 (Gentia Software) | Application Development Application Development Development Tool for Financial Modeling |
| | | Java v1.1 by Sun Microsystems Perl v5.0 by Larry Walls | Web Application Development Java (client), Perl (server) |
| | | WinRunner v4.01for NT by Mercury Interactive | Integration, Independent Acceptance or Regression Testing |
| | | Under testing and evaluation | Structure & Complexity Analysis |
| | | RTM v3.6 (by Marconi's Systems Technology) | Capture & Trace All Requirements |

| | | |
|------------|---|---|
| | PCMS (PC*client v2.2.1, server v4.4) (by SQL Software) | Configuration Management |
| | Visual C++ v5.0 and Visual Basic v5.0 (by Microsoft), C (compiler dependent) | Programming Languages |
| | Oracle 7 (by Oracle) | Larger Database Language |
| | Access (by Microsoft) | Simpler Database Development |
| | Rochade (client v1.3, server v5.0) (by Viasoft) | Information Repository (metadata) |
| | OPEN/image (by Eastman Software) | Capture, Index, Store, Retrieve, Annotate & Manipulate Image Data |
| | OPEN/workflow 3.0 (by Eastman Software) | Automatic Transfer, Routing and Managing the Information-based Tasks and Activities |
| | OPEN/workflow 3.0 (by Eastman Software) | Capture, Index, Store, Retrieve, Annotate & Manipulate Image Data |
| | FormFlow v2.0 (by Jet Forms) | Electronic Forms Automation |
| | No tool defined | Target AIS Infrastructure Development |
| | QDB/Analyze v3.1a QDB/Connect v3.1a (by Prism Solution) | Data Quality Analysis (Pilot project or baseline assessment; define set of filters on the data set) |
| | Crystal Reports v5.0 (by Seagate Software) | Report Generator |
| Deployment | Rochade (client v1.3, server v5.0) (by Viasoft) | Information Repository (metadata) |
| | PCMS PC*client v2.2.1, server v4.4 (by SQL Software) | Configuration Management |
| | RTM v3.6 (by Marconi's Systems Technology) | Review Requirements for Completeness & Consistency |
| | WinRunner v4.01 for NT by Mercury Interactive | Integration, Independent Acceptance or Regression Testing |
| | Tools under testing and evaluation | Structure & Complexity Analysis |
| | QDB/Analyze v3.1a QDB/Connect v3.1a (by Prism Solution) | Data Quality Analysis (Decide on the "Check" Schedule; Monitor the Quality ; Fix Problems As Defined) |
| | Crystal Reports v5.0 (by Seagate Software) | Report Generator |

Table ES-1. Preferred System Development Tools

Figure ES-3 depicts the PTO Standard System Development Tools for use across the system life cycle in graphical representation.



PTO Profile of Preferred Products

Figure ES-4 depicts the PTO Profile of Preferred Products. These are hardware, environmental software (e.g., products used to support network services, system and network management, and security services), and system development tools and products that have been identified for use by PTO. These PTO standard tools shall be used unless it can be shown to be cost-effective over the life of an application to use another product.



PTO Profile of Standards

Figure ES-5 depicts the PTO Profile of Standards. Standards relevant to PTO are detailed in this figure.



CHAPTER 1

INTRODUCTION



1. INTRODUCTION

1.1 OVERVIEW

1.1.1 Background

The United States Patent and Trademark Office's (PTO's) information technology infrastructure is a heterogeneous collection of incompatible mainframes, minicomputers, and microcomputers with incompatible commercial-off-the-shelf software products. The information technology infrastructure is costly to operate, hard to maintain, difficult to infuse new technology, and parts are wearing out or are becoming technologically obsolete. The infrastructure has been managed on a piecemeal basis and often tied to a specific application rather than managing the infrastructure separately and dictating a set

of technical standards that the application will use in their development.

A key information technology objective is to transform the PTO information technology infrastructure into a standards-based open systems environment. An open systems environment will allow PTO to add new products or infrastructure components or replace existing ones as new technologies are introduced into the marketplace. A robust, scalable, and interoperable infrastructure is absolutely essential if PTO is going to be successful in redesigning legacy systems and developing new systems to support the reengineering patent and trademark process.

1.1.2 Purpose

The purpose of the PTO Technical Reference Model is to identify a comprehensive set of information technology standards, services, protocols, and products that define the target technical environment for the acquisition, development, and support of PTO automated information systems (AIS). The PTO Technical Reference Model is based on the most recent version of the National Institute of Standards and Technology's Application Portability Profile. System Development Managers will select standards and products that conform to the Technical Reference Model in the development of Target AIS Technical Architecture. System Development Managers must adhere to approved standards and products unless it can be shown to be cost-effective over the life of the application.

1.1.3 Goals

By transition of its information infrastructure into an open systems environment, PTO will support its overall goals to:

- Improve user productivity through a consistent user interface, integrated applications, and data sharing.
- Promote vendor independence through the use of standards-based products and interchangeable components.
- Improve development efficiency across the PTO community through a common open systems environment, software reuse, and resource sharing.
- Improve interoperability across PTO applications and mission areas through common infrastructure components and services.
- Reduce life cycle hardware and software maintenance costs.
- Reduce information technology personnel training costs.

- Improve and comply with security requirements.

1.1.4 Intended Audience

The TRM is intended for use by PTO system development managers, technical and functional managers, developers, and their support contractors. The TRM will be used as a guideline for:

- Acquiring information technology products and services
- Developing and maintaining PTO automated information systems
- Designing PTO's information technology infrastructure

1.1.5 Approach

The basic concept and architecture contained in the TRM are based mainly on two documents: (1) Application Portability Profile (APP) by the National Institute of Standards and Technology (NIST)^{[1](#)} and (2) Technical Architecture Framework for Information Management (TAFIM) by the Department of Defense (DoD)^{[2](#)}

. The selected standards or specifications are mostly based on NIST's APP. Some of them are from national, international or federal standard organizations such as the American National Standards Institute (ANSI), International Organization for Standardization (ISO), Institute of Electronic and Electronic Engineers (IEEE), International Telecommunications Union (ITU), or Joint Technical Committee 1 (JTC1).

Standards-based products adopted into the TRM are technically mature, stable, and can be implemented; also they are ready and available in the public domain. The commercial-off-the-shelf (COTS) products that satisfy PTO business needs and that can be operated on PTO's information infrastructure are preferred over developing new application software. PTO unique requirements not provided by the COTS product will be satisfied through application program interfaces.

The PTO TRM is updated annually and released around December of each year.

1.2 Preferred Products and waiver

1.2.1 Preferred Products

1.2.1.1 Role of the System Architect

The Director, Office of System Architecture and Engineering, serves as the PTO System Architect. Appointed by the CIO, the System Architect performs the following tasks:

- Selects or approves products for PTO Information Technology Infrastructure components.
- Develops or approves the high-level design for all PTO AISs.
- Manages the evolution of PTO's Information Technology Infrastructure.
- Ensures the selected preferred products will support the development of PTO's AIS Information Technology Infrastructure properly.

1.2.1.2 Use of Preferred Products

Use of preferred products identified in the TRM for PTO AIS project developments is required. PTO AIS projects include the following four types³:

- **COTS Application Project**— Commercial-off-the-shelf (COTS) application projects involve the installation or upgrade of COTS software packages that support selected business functions such as word processing, electronic mail, presentation graphics, correspondence management, and network management. COTS products are discussed in greater detail in the LCM Manual.
- **Information Technology Infrastructure Project**— Information technology infrastructure projects involve the installation of new or replacement hardware or system software products such as the installation of high-speed switches or the upgrade of the network operating system. Information technology infrastructure supports the evolution and adaptation of the PTO Information Technology Infrastructure to support new systems and the increasing demands placed on it.
- **AIS Modification Project**— AIS modification projects involve significant changes to the AIS design specifications to ensure that new or changing business requirements are being met. A functional change may be needed to meet statutory requirements and the design change may involve a transition from a mainframe to a distributed client-server architecture.
- **New AIS Development Project**— New AIS development projects involve the

development and deployment of an AIS to support a new or changed business function, to replace an existing AIS which can no longer fulfill business needs, or to automate functions being done manually.

1.2.2 Waiver Procedure

1.2.2.1 Acceptance Criteria

The analysis submitted for a waiver must demonstrate that the target products:

1. Are cost-effective over the life of an application.
2. Can provide schedule savings.
3. Are operationally supportable.
4. Have been shipped non-beta for at least three months.

1.2.2.2 Waiver Approval

1.2.2.2.1. System Development Tools. The approval process for a system development tool waiver is as follows:

1. The system development tools are submitted to the Software Engineering Process Group (SEPG) for review.
2. The SEPG will recommend approval to the Technical Review Board (TRB) no later than the Logical Design Review phase of the project.
3. The approved product will be included in the next version of the TRM as a product in use at PTO.

1.2.2.2.2. Infrastructure Components and Hardware. The approval process for a waiver for infrastructure components and hardware is as follows:

1. The infrastructure components and hardware products will be submitted to the TRB for review.
2. The TRB will decide to accept or reject no later than the Logical Design Review phase of the project.
3. The approved product will be included in the next version of the TRM as a product in use at PTO.

1.3 GENERAL

1.3.1 Definition of Terms

Several terms used by this document are defined here for the convenience of the reader.

- **Preferred Product**— A commercial-off-the-shelf hardware or software product that PTO designates for use. It is either a formal or de facto standard-based product or tool that must be used for PTO Automated Information System projects. The designated *preferred product* will be used unless it can be shown that use of another product is more cost-effective over the life of an application. A waiver is required to use another product. See the Waiver section for further details.
- **Formal or de jure standard**— A standard that is designated by standards-setting or approving bodies such as American National Standards Institute (ANSI), International Standards Organization (ISO), Institute of Electrical and Electronics Engineers (IEEE), or NIST.
- **Informal or de facto standard**— A standard that has emerged from popular usage. A de facto standard usually has no formal accreditation and is developed by either major vendors or consortiums. De facto standards are products that have achieved such a high degree of acceptance that they are widely accepted within industry and have been implemented in numerous commercial products.
- **Federal Information Processing Standard (FIPS)**— FIPS includes standards, guidelines, and technical methods that are developed by National Institute of Standards and Technology (NIST). Some required standards or specifications have gone through rigid validation testing and accreditation. NIST frequently adopts standards that have been developed by national and international voluntary industry standards organizations. The use of voluntary industry standards enables the federal government to acquire commercially available off-the-shelf technology and to avoid the costs of developing its own standards. Most Technical Reference Model standards are adopted from FIPS.
- **International Organization for Standardization (ISO)**— ISO is an organization that sets international standards. It is a worldwide federation of national standards bodies from some 100 countries, one from each country. ISO is a non-governmental

organization established in 1947. Its mission is to promote the development of standardization and related activities in the world and to develop cooperation in the spheres of intellectual, scientific, technological, and economic activities. The scope of ISO is not limited to any particular branch; it covers all standardization fields except electrical and electronic engineering, which is the responsibility of IEC. The work in the field of information technology is carried out by a joint ISO/IEC technical committee (JTC1).

1.3.2 Document Organization

The PTO Technical Reference Model includes an executive summary, seven sections, appendices, and an index.

[Executive Summary](#) provides a document summary.

[Chapter 1](#) presents background, purpose, goals, intended audience, waiver procedure, definition of terms, and document organization.

[Chapter 2](#) identifies PTO Technical Reference Model components.

[Chapter 3](#) includes detailed description of Application Software Entity.

[Chapter 4](#) includes detailed description of Application Platform Entity.

[Chapter 5](#) includes detailed description of External Environment.

[Chapter 6](#) provides the PTO Profile of Standards and Preferred Products.

[Chapter 7](#) contains methods to access the TRM and points of contact.

[Appendix A](#) includes Software Product Managers, Infrastructure Components Managers, and Infrastructure Operations Managers.

[Appendix B](#) includes points of contact for PTO Major Automated Information Systems.

[Appendix C](#) contains the Technical Review Board Charter.

[Appendix D](#) defines acronyms used in this version of the TRM.

[References](#) includes publications used to develop the Model.

Index provides index entries for easy lookup.

Footnotes:

1. National Institute of Standards and Technology. *Application Portability Profile (APP), the U.S. Government's Open Systems Environment Profile*. Version 3.0. NIST Special Publication 500-230. February 1996.

2. Department of Defense. *Technical Architecture Framework for Information Management*, Version 3.0. April

1996.

3. U.S. Patent and Trademark Office. *Life Cycle Management for Automated Information Systems — Overview*. December 1996.

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[US_Patent_and_Trademark_Office]

CHAPTER 2

MODEL COMPONENTS

* This figure adopted from the DoD Generic Technical Reference Model

2. MODEL COMPONENTS

2.1 *Basic Components*

2.1.1 Entities

The Technical Reference Model includes three entities:

- Application Software Entity
- Application Platform Entity
- External Environment

2.1.2 Interfaces

The model interfaces are:

- Application Program Interface (API)
- External Environment Interface (EEI)

Figure 2-1 depicts the basic elements of the model. This figure is adapted from the generic DoD Technical Reference Model.^{[4](#)}

2.1.3 Principles

As discussed earlier, NIST's APP and DoD's TAFIM provided entry-level guidance and basic concepts to build the PTO Technical Reference Model. Figure 2-1 depicts the high-level model. Figure 2-2 depicts a breakdown at the next level from the basic components identified in Figure 2-1.

The model element illustrates a user-supplier relationship: the services contained in Application Platform are the suppliers that provide services and resources for applications in the Application Software Entity. The API and EEI define services that are provided.



*This figure was adapted from the DoD Generic Technical Reference Model.



Each service contains components around which PTO information technology standards, interfaces, protocols, and products are built. [Section 4.0](#) provides detailed descriptions of standards and standards-based preferred products that PTO will use to operate and develop its information technology infrastructure.

The model also illustrates the following principles:

- Software Services are independent of hardware.
- All services areas interact with the operating system.
- Security and Network and System Management Services are common to all services and they pervade these areas in one or more forms.

2.2 Component Descriptions

2.2.1 Entities

2.2.1.1 Application Software Entity

The application Software Entity includes:

- PTO Major Automated Information Systems
- PTO Supporting Applications

PTO Major Automated Information System are four major groups of systems used to accomplish PTO's mission. They are:

- Patent Systems
- Trademark Systems
- Information Dissemination Services
- Corporate Systems

PTO Supporting Applications are common applications that are standardized across multiple PTO business areas and are used to provide common office functions for day-to-day business operations. These applications include:

- Office automation service
- Electronic mail service

- Enterprise-wide facsimile transmission service

2.2.1.2 *Application Platform Entity*

Components of the application platform provide services or software resources for the application programs. They include:

- Operating System Services
- Software Engineering Services
- Graphical User Interface Services
- Data Management Services
- Data Interchange Services
- Document Management Services
- Full-Text Search Services
- Graphics Services
- Output Services
- Network Services
- Security Services
- Network and System Management Services
- Distributed Computing Services

Table 2-1 summarizes services included in the Application Platform Entity.

| SERVICES | COMPONENTS |
|----------|------------|
| | |

| | |
|-----------------------------------|--|
| Operating System Services | Kernel Operations API Shell and Utility Operating System Security Commands Operating System Management |
| Software Engineering Services | System Development Tools CASE Tools I-CASE Tools Programming Languages |
| Graphical User Interface Services | Window Management Dialogue Support Object Management Client/Server Operations |
| Data Management Services | Data and Records Management - Data Repository - Data Quality - Data Warehouse - Records Management Data Management - Relational Database Management Systems - Data Dictionary - Database Environment Remote Data Access |
| Data Interchange Services | World Intellectual Property Organization (WIPO) Standards Unicode Standard Document Interchange Electronic Data Interchange Graphics Data Interchange Image Compression Product Data Interchange |
| Document Management Services | Image Management Service Workflow Management Service |
| Full-Text Search Services | Full-Text and Image Database Management Full-Text Search and Image Retrieval Service |
| Graphics Services | Graphical Kernel System Graphical Object Management |
| Output Services | Facsimile Transmission Service Output Generation Service |

| | | |
|--------------------------------------|--|--|
| Network Services | PTOnet - Currently Information Technology Infrastructure - Future Information Technology Infrastructure - Integrated Network Services Web Services - Internet Service - Intranet Service - Web Browser - Web Server - Email Exchange Service - Web Authoring Tools - Web Development Languages Communication Protocols Directory Services Network Security Service | |
| Security Services | Data Encryption Digital Signature Certificate Authentication | |
| Network & System Management Services | System Administration Service Communication (Network) Management Service Capacity Management Service | |
| Distributed Services | On-line Transaction Processing Service On-line Analytical Processing Service | |

Table 2-1 Application Platform Services

2.2.1.3 External Environment

The external environment consists of those elements that are external to application software and the application platform. They include:

- Human Users
- Information Exchange Media such as diskettes, floppy disks, data cartridges
- Information Storage Media such as magnetic data storage device and disk array storage
- Communication Hardware Components such as fiber optics, unshielded twisted pairs, telephone lines

2.2.2 Interfaces

2.2.2.1 Application Program Interface (API)

The application program interface is the interface between the application software and the application platform across which all services are provided. Its primary function is to support portability of application software. There are four types of APIs:

- System Services API, including APIs for Software Engineering Services and Operating System Services
- User Interface Services API, including APIs for User Interface Services and Graphics Services
- Information Services API, including APIs for Data Management Services and Data Interchanges Services
- Communication Services API, including APIs for Network Services

2.2.2.2 External Environment Interface (EEI)

The external environment interface is the interface that supports transfer of information between the application platform and the external environment. EEIs include:

- Users Interface Services EEI such as CRT displays, keyboards, mice, and audio input/output devices and its format and syntax
- Information Services EEI including external data storage services
- Communication Services EEI including protocols, syntax, format, etc.

2.3 Summary of Model Components

Figure 2-3 summarizes model components.



Footnotes:

4. Figure 2-1 was adapted from the Department of Defense *Technical Architecture Framework for Information Management*, Version 3.0, 30 April 1996.

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CHAPTER 3

APPLICATION SOFTWARE ENTITY



3. APPLICATION SOFTWARE ENTITY

3.1 PTO Major Automated Information Systems

This section outlines the PTO Major Automated Information Systems and supporting applications that PTO uses to accomplish its mission of examining patent and trademark applications, issuing patents, registering trademarks, and disseminating patent and trademark information to the general public. For more detailed descriptions of each PTO major system, see *United States Patent and Trademark Office PTO Strategic Information Technology Plan for Fiscal Years 1997—2002*, [chapter 5](#) and [chapter 6](#).

3.1.1 Patent Systems

The primary functions of patent systems are to assist examination and tracking of the patent application process, support the issuance of high quality and timely patents, and ensure protection of individual innovation. PTO relies on the following major systems to accomplish its patent business function:

- **Automated Patent System (APS).** APS currently consists of four major automated information systems: Classified Search and Image Retrieval (CSIR), Classification Data System (CDS), Text Search, and Global Patent Information System and Non-Patent Literature.
 - **Classified Search and Image Retrieval (CSIR).** CSIR provides on-line image searching and retrieval of all U.S. patents and patent-related data stored in image format. CSIR is being converted to an open systems environment in multiple stages. The first stage will migrate patent data from optical storage to magnetic storage on EMC. The second stage will convert the data format from a proprietary CAS format to TIFF (Tagged Image File Format). The third stage will introduce an Oracle file directory and, also, eliminate all remaining CAS application code and data formats.
 - **Classification Data System (CDS).** CDS maintains classification data for all patent and application documents. CDS supports the U.S. patent classification, foreign patent classification, issued patent list, and patent file maintenance.
 - **Text Search System.** Text Search System allows patent examiners, classifiers, and public customers to search and retrieve patent text information. Both single-word and bound-phrase searches can be performed using the appropriate search index. The searched documents can be displayed in fixed and tailored formats. Through this system, customers can access databases such as U.S. patent text and Japanese patent abstracts.
 - **Global Patent Information System.** This system will make domestic and international patent information available on the examiner's desktop and from other authorized search locations. It will provide the capability for seamless search and retrieval of global patent information. This system is currently under development.
 - **Non-Patent Literature.** This system provides patent examiners with a non-patent literature electronic search and retrieval capability. It allows patent examiners to access external databases, bring external databases in-house, and capture literature provided as part of a patent application. Version 1.0 is finished and deployed.
- **Patent Image Capture System (PICS).** The patent process of the future requires electronic application processing, from acceptance of applications in electronic form to publication of a patent. As an interim measure, PICS will convert patent applications to digital images and deliver those images to PTO customers and support Licensing and Review, Certification, and Designs. The digital images will be converted to text via an OCR process and will be made available to patent examiners to perform interference searching.
- **Patent Application Location and Monitoring System (PALM).** PALM is the current legacy workflow tracking and status reporting system for patent application processing. PALM provides current application file location, status, title, legal representation, and other statistics about examiner production, docket information, and patent maintenance fee.
- **Foreign Patents Access System (FPAS).** FPAS provides automated access to current foreign patent publications from the major national patent offices and organizations. It is used as a document delivery system for foreign patent data.
- **Automated Biotechnology Sequence Search (ABSS) System.** ABSS provides computer services for data capture of DNA/RNA and polypeptide sequence

from patent applications and supports sequence searching conducted by PTO STIC (Scientific and Technical Information Center) personnel and authorized patent examiners for the ultimate purpose of granting biotechnology patents to applicants.

- **Examination Toolbox.** Examination Tools are software products that will assist patent examiners to use the Automated Patent System (APS) more effectively. Examination Tools will provide all patent examiners with access to patent images from their personal computers. The examination toolbox facilitates access to commercial databases, patent literature, non-patent literature, and classification data; various examiner help systems; and office automation tools for generating office actions and forms. This system is currently under development.

3.1.2 Trademark Systems

The primary mission of the Trademark organization is to examine trademark applications and register timely and high quality trademarks to ensure federal protection of words, symbols, and devices used by the business community to identify and distinguish goods and services offered to the public. PTO relies on the following systems to accomplish its trademark business functions:

- **Trademark Reporting and Monitoring (TRAM) System.** TRAM provides support to all facets of Trademark operations. TRAM supports Trademark operations from receipt of a new application in PTO to the publication of the *Trademark Gazette* and post-registration activities.
- **Trademark Search (X-Search) System.** X-Search is an automated search system that provides the necessary access mechanism to search the automated Trademark database. It lets users enter queries and presents the search results, including images, in display and print format.
- **Trademark Electronic Application System (TEAS).** TEAS will supplement and eventually replace paper applications and manual procedures with a system that will electronically process and maintain trademark data (text and image). The system is under development.
- **Trademark Work at Home (TWAH).** This pilot project is enabling trademark examiners to access all services and data available on their desktops from remote locations (i.e., allowing trademark examiners to work from home).

3.1.3 Information Dissemination Services

The primary mission of information dissemination is to develop, maintain, and disseminate a diversified portfolio of patent and trademark information to the public. The Office of Information Dissemination develops electronic information products and services; distributes patent and trademark information for U.S. technological and economic activities; and provides information dissemination support services to PTO customers. PTO makes patent and trademark information available to the public by providing the following capabilities:

- **Patent and Trademark Copy Sales (PTCS)/Order Entry and Management System (OEMS).** PTCS/OEMS is a stand-alone order entry and production system that enables the public and PTO staff to place orders for copies of patents and trademarks.
- **Automated Fee Collection System.** This system provides an automated method for fee collection in PTO's public search facilities. The system will use debit terminals to charge for printing from the automated systems and for time used on search systems.
- **The Voice Box System.** The trademark voice system allows callers to obtain the status of their trademark application via a rotary phone that currently allows up to ten callers at a time. The callers can obtain the publication date and notice of allowance date from this system.

- **Patent and Trademark Depository Libraries (PTDLs).** PTDLs are the external access program that provide for public access to PTO's automated data systems. Twenty-eight PTDLs currently have on-line remote access to the APS text search and retrieval capability. Two Partnership PTDLs located in Sunnyvale and Detroit also provide access to the patent image retrieval system.

3.1.4 Corporate Systems

The Corporate Systems provide general support across both patent and trademark business areas. PTO is involved in the development or enhancement of numerous systems to support offices throughout PTO. These Corporate Systems include:

- **The Revenue Accounting and Management System (RAM).** RAM is being developed to support the processing of receipts and deposit account transactions in the Receipt Accounting Division of the Office of Finance. RAM is used to record accurately the revenue receipts (cash, credit cards, and checks) that accompany applications and purchase of copies and deposit account activity (deposits and refunds). RAM replaces the existing Cash Receipts, Deposit Accounts (CRDA) system to process fee accounting transactions and will update the Federal Financial System (FFS) on a daily basis.
- **The Operations and Budget System (OPBudget).** OPBudget is Patents' budget planning and administration system. It provides automated support and controls to the Office of Patent Program Control (OPPC) in: (1) formulating estimated budgets for the Patent Office; (2) monitoring the Congressional approved budgets; and (3) projecting revenue of the Patent Office. The current system was developed in 1978 and is limited to four simultaneous users over the PTOnet. The OCIO will redevelop OPBudget with modern technology to make it easy to maintain, accessible to a wider range of users over PTOnet, and be fully integrated into the current automated PTO environment.
- **Appeals Case Tracking System (ACTS).** ACTS is an automated information system used by the staff at the Board of Patent Appeals and Interference (BPAI) to track patent-appealed cases. The redesigned and redeveloped ACTS2 will be easily maintained and accessible to users via the current Windows desktop environment. The redeveloped ACTS2 system will enhance the data entry facilities with Graphical User Interface forms. Additionally, the newly designed ACTS2 system will enhance the interface with PTO systems such as PALM, RAM, and T&A (Time and Attendance System) as well as systems outside PTO, such as the Federal Financial System (FFS) and Personnel. This system is currently under development.
- **Trademark Trial and Appeal Board Information System (TTABIS).** TTABIS will consist of four new software components with the acronyms BISX, BISM, BISE, and BISR. The TTABIS system will improve current TRAM processes significantly. BISX allows queries to be processed for TTAB information from personal computers. BISM will download TTAB data to a PC, where it will be merged into a word processing package that creates letters to be sent to the parties involved in adversary proceedings. BISE will be a PC-based data entry and data correction process that will greatly reduce the effort required to enter and modify TTAB data. BISR will enable TTAB users to obtain various statistical and management reports.
- **The Executive Document Management System (EDMS).** EDMS manages and tracks correspondence and other important documents at the office level. It uses automated tools to schedule, manage, and monitor the flow of information and documents among staff. It improves office-wide document tracking and simplifies and streamlines the executive document review, correction, and approval process.
- **Executive Information System (EIS).** EIS will enable executive, managerial, and analytical evaluation of PTO's critical operational information via electronic means. It provides an automated, centralized data repository for PTO internal data concerning finance, human resources, diversity, production, workload, contracts, and international operations.
- **Patent and Trademark Assignment System (PTAS).** PTAS supports automatic processing of patent and trademark assignment documents. It supports

processing of assignment documents through image capture, OCR text capture, automated workflow processing and generation of computer output microfilm of recorded documents from scanned images. Work-in-process text and image data of new assignments and documents submitted for correction are stored on the PTAS server databases until recordation. When deemed able to record, text data is transmitted to the A16 mainframe for permanent storage and image data is archived to microfilm and magnetic tape.

- **The Records Management Tracking System (RMTS).** RMTS provides automated support and controls for the transfer of inactive records from PTO to the Federal Records Center (FRC). RMTS will be used to track documents and folders through each step in the life cycle process, from file creation to destruction. It will be used initially to track the status, location, and disposition of PTO's inactive records. Future enhancements will provide for the tracking and control of active records. RMTS automates the following activities in the transfer process: requesting an accession number; creating boxes and folders; generating and printing labels for boxes and folders; generating and printing box inventory reports; and tracking the location of boxes and folders.

3.2 PTO Supporting Applications

3.2.1 Office Automation Applications

The office automation suites include applications that support day-to-day operations, such as word processing, spreadsheet, and graphics presentation. PTO uses Word, PowerPoint, Excel, FolioViews⁵, and other desktop software.

3.2.3 Enterprise Facsimile Transmission Services

For PTO, enterprise fax services enable PTO users to view and edit faxes on-line and route them throughout the enterprise. The standard product will include the FAXCOM product from Biscom, Inc. Refer to the section on Output Services for more information on the facsimile transmission service.

3.3 Summary of Application Software Entity

Figure 3-1 summarizes the application software entity.



Footnotes:

5. OCIO is currently investigating alternatives to FolioViews and its related products, such as Folio Infobase and Folio Infobase Web Server.

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CHAPTER 4

APPLICATION PLATFORM ENTITY



4. APPLICATION PLATFORM ENTITY

The components of the application platform provide services or resources for the application programs. The OCIO has selected a comprehensive set of standards and standards-based products for following services:

- Operating System Services
- Software Engineering Services
- Graphical User Interface Services
- Data Management Services

- Data Interchange Services
- Document Management Services
- Full-Text Search Services
- Graphics Services
- Output Services
- Network Services
- Security Services
- Network and System Management Services
- Distributed Computing Services

For each major service the following information is provided:

- Required Standard
- Standard Overview
- Products Used by PTO
- Preferred Products for PTO to Evolve to

4.1 Operating System Services

Operating system services include kernel operations, shell and utilities, system security, and system administration.

4.1.1 Kernel Operations API

Currently PTO's automated information systems have numerous mainframes, minicomputers, and microcomputers with incompatible operating systems. PTO requires a standard for operating systems that can build scaleable, portable, and interoperable automated information systems. The current POSIX-compliant operating systems can facilitate hardware and operating system independence and maximize source code portability.

Required Standard: FIPS 151-2, Portable Operating System Interface (POSIX) - System Application Program Interface [C Language] (also IEEE 1003.1:1990; and ISO/IEC 9945-1:1990 standards)

Standard Overview: Kernel operations provide low-level services necessary to create and manage processes,

execute programs, define and communicate signals, define and process system clock operations, manage files and directories, and control input-output processing to and from external devices.

Products Used by PTO:

| Vendor | Hardware Platform | Operating System |
|----------------------|-------------------|---|
| IBM | IBM 9021-860 | OS/390 v1.2 |
| IBM | Amdahl | MVA/ESA |
| IBM | RISC 6000 | AIX |
| Unisys | A-16 | Master Control Program (MCP as server) |
| Unisys | B-38 | Converging Technology Operating System (CTOS) |
| Sun Microsystems | SPARC Series 1000 | Solaris 1.x; Solaris 2.x; |
| | Sun 3/160 | SunOS 4.1.3 |
| AT&T | Sun 3/160 | Unix System V4.2 R3.2 |
| Santa Cruz Operation | Intel-based PCs | SCO Unix system Version |
| Microsoft | Intel-based PCs | MS-DOS 5 & 6, Windows 3.1 & 3.11, Windows for Work Groups (WFWG) 3.11, Windows NT 3.5.1 |
| Apple | | Macintosh System 6.08, 7.1 |

Preferred Products for PTO to Evolve to:

For server⁶:

| Vendor | Operating System |
|-------------------------|------------------------|
| Hewlett-Packard Company | HP-UX Server v10.20 |
| Microsoft | Windows NT Server v4.0 |

For desktop workstation:

| Vendor | Operating System |
|-----------|------------------|
| Microsoft | Windows NT v4.0 |

4.1.2 Operating System Shell and Utilities

Shell programming commands and utilities allow PTO system programmers or operators to write portable and easily created script files. The script files provide operators with mechanisms to combine functions that are usually performed by separate and individual utilities.

Required Standard: FIPS 189, Portable Operating System Interface (POSIX) Part 2, Shell and Utility (also IEEE 1003.2-1992 (POSIX.2); and ISO/IEC 9945-2:1993 standards)

Standard Overview: Commands and utilities include mechanisms for operations at the operator level. They include functions such as comparing, printing, and displaying file contents, editing files, pattern searching, evaluating expressions, logging messages, moving files between directories, sorting data, executing command scripts, scheduling signal execution processes, and accessing environment information. The shell programming language allows the creation of portable, easily created scripts to perform actions that combine the functions performed by the individual utilities.

The operating system commands and utilities standard defines a source-level interface to users, shell scripts, and common utilities for application programs that conform to the POSIX standard.

Products Used by PTO: Operating system commands and utilities functions come with the operating system. Therefore, they will not be separately identified.

Preferred Products for PTO to Evolve to: Bundled with operating systems implemented. If the HP-UX operating system is used, the shell command such as C, Born, or Korn Shell will be used.

4.1.3 Operating System Security API

This specification is needed for PTO operating systems to acquire secure kernel operations.

Required Standard: IEEE 1003.1e, POSIX - Security Extensions

Standard Overview: Security considerations are specified in terms of data encryption mechanisms, access control, reliability control, system logging, fault tolerance, and audit facilities. (The security interface does not specify a secure operating system, only its interface.) This specification defines those security capabilities necessary to secure kernel operations.

Products Used by PTO: The following table shows the security encryption products that are under evaluation by the PTO Information Technology Laboratory (ITL) for potential PTO application.

| Vendor | Product | Function | PTO Platform |
|----------------------|--|-----------------------------|-------------------------|
| Information Security | SpyProof | data encryption | to be provided |
| AT & T | Secret Agent 3.0 | RSA & DSA public keys | DOS, Windows, Mac, Unix |
| to be provided | Veil | data encryption | to be provided |
| Microsoft | Security Account Manager (Windows NT v4.0) | Security Account Management | Windows |

Preferred Products for PTO to Evolve to:

| Vendor | Product | Function | PTO Platform |
|-----------|--|-----------------------------|--------------|
| Microsoft | Security Account Manager (Windows NT v4.0) | Security Account Management | Windows |

4.1.4 Operating System Security Commands

This specification provides a mechanism for PTO users with the security interface to seek access to secure systems.

Required Standard: IEEE 1003.2c, POSIX - Security Extensions

Standard Overview: This specification defines the security interface for users and batch processing scripts that seek access to secure systems. IEEE 1003.2c is the complement of 1003.1e, which defines security capabilities at the kernel level.

Products Used by PTO: to be provided

Preferred Products for PTO to Evolve to: to be determined

4.1.5 Operating System Management

This standard supports PTO system administrator functions. It provides system administrators with system management functions such as software administration, user and group account management, and printing interfaces.

Required Standard: Standard for Information Technology - Portable Operating System Interface (POSIX) System Administration - Part 2: Software Administration, IEEE P1387.2; Part 3: User and Group Account Management, IEEE P1387.3; and Part 4: Printing Interfaces, IEEE P1387.4

Standard Overview: This set of specifications provides a complete detailed approach for packaging, distribution, installation, configuration, and removal of software in distributed systems; a complete detailed approach to adding, modifying, and deleting user and group accounts, as well as an interface to manage passwords associated with accounts; and a complete detailed printer interface specification.

Products Used by PTO:

| Vendor | Product | Function | PTO Platform |
|--------------------|----------------|---|----------------------|
| Cheyenne Software | ARCserve | Tape backup & restore software | Windows 3.1.1/Novell |
| Compaq | Netlingq | Compag Pagemarq printer control software | Windows 3.1.1/Novell |
| Knozzall Systems | NLM Auto | Automatic server unload & shutdown for backup | Windows 3.1.1/Novell |
| Motice Kern System | MKLS Toolkit | 8mm DAT tape write program | Windows 3.1.1/Novell |
| Norton | Norton Desktop | Automatic server unload & shutdown for backup | Windows 3.1.1 |

| | | | |
|---------------------|-------------|---|---|
| New Dimension | Control "M" | Job Scheduling package for JCL batch run jobs | MVS Mainframes |
| New Dimension | Control "R" | Job restart package | MVS Mainframes |
| New Dimension | Control "T" | Tape management package | MVS Mainframes |
| B&L Associates | BL/LIB | Tape Management Library System | A16 Unisys |
| Computer Associates | OPS/MVS | MVS Mainframes | Provides for the automation of repetitive process |

Preferred Products for PTO to Evolve to: to be determined

4.1.6 Operating System Security⁷

PTO needs operating system-level security mechanisms to ensure the integrity of the operating systems and to detect virus attacks.

Required Standard: FIPS 112, Password Usage

Standard Overview: This standard specifies basic security criteria for two different uses of passwords in an ADP system: (1) personal identity authentication and (2) data access authorization. A password used for personal identity authentication will be called a personal password; a password used for authorizing access will be called an access password. A personal password should not also be used as an access password. This standard does not require the use of passwords in an ADP system for either purpose, but establishes the basic criteria for the design, implementation, and use of a password system in those systems where passwords are used.

Some of the requirements of the standard may be satisfied either through management functions or through technical features. For example, if the Security Officer specifies that each personal password is to be changed at least every 6 months, the ADP manager can issue a directive to this effect or the ADP system can be programmed to change a password automatically 6 months after entry of its last change. This standard does not specify how the criteria shall be met, but only what criteria shall be met.

4.1.7 Summary of Operating System Standards

| | | |
|--|--|--|
| Summary of Operating System Standards | | |
| Kernel Operations API - FIPS 151-2 POSIX | | |
| Shell and Utilities - FIPS 189 | | |
| Operating System Security API - IEEE 1003.1e | | |
| Operating System Security Commands - IEEE 1003.2c | | |
| Operating System Management - IEEE P1387.2, IEEE P1387.3, and IEEE P1387.4 | | |
| Password Usage - FIPS 112 | | |

4.1.8 Summary of Operating System Preferred Products

| | | |
|--|---------------------------|----------|
| Summary of Operating System Preferred Products | | |
| Vendor | Operating System | Function |
| Hewlett-Packard Company | HP-UX v10.20 ⁸ | Server |

| | | |
|-----------|---|-----------------------------|
| Microsoft | Windows NT v4.0 ⁹ | Server |
| Microsoft | Windows NT v4.0 | Desktop Workstation |
| Microsoft | Windows NT v4.0 (Security Account Manager) | Security Account Management |

Table 4-1. Operating System Preferred Products

Footnotes:

6. The System Developer should work with the System Architect to determine the best application server operating system for the function supported.
7. For more information on security, please refer to Security Services.
8. The System Developer should work with the System Architect to determine the best application server operating system for the function supported.
9. Same as previous footnote.

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CHAPTER 6

PTO PROFILES OF STANDARDS AND PREFERRED PRODUCTS



6.0 PTO PROFILES OF STANDARDS AND PREFERRED PRODUCTS

6.1 Profile of Standards

6.1.1 Open Systems Standards

A key information technology management objective is to transform the PTO information technology infrastructure into a standards-based open systems environment. Through a survey of industry, national, and international standards organizations, PTO selected standards that are suitable and relevant for the PTO information technology infrastructure.

6.1.2 Profile of Standards

Figure 6-1 depicts the PTO Profile of Standards.

6.2 Profile of preferred products

6.2.1 Commercial-Off-The-Shelf Products

Commercial-off-the-shelf (COTS) application software products cover a broad spectrum of capabilities. These products can satisfy PTO business needs and can operate on PTO's information technology infrastructure. COTS software are preferred over developing new application software.

6.2.2 PTO Profile of Preferred Products

Figure 6-2 depicts the PTO Profile of Preferred Products. These are hardware, environmental software (e.g., products used to support network services, system and network management, and security services), and system development tools and products that have been identified for use by PTO. These are PTO standard tools and they will be used unless it can be shown that the use of another product would be more cost-effective over the life of an application.





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CHAPTER 7

ACCESS TO THE TRM

7.1 ACCESS TO THE TRM

The PTO Technical Reference Model can be obtained in hard copy, on diskette in MS Word, from PTOnet, or on the Intranet.

7.1.1 Paper or Diskette Distribution

This document can be obtained in paper copy or electronic diskette. Contact personnel listed in this section for a copy.

7.1.2 From Intranet

This is for PTO personnel only. Log on to the PTOnet is required. Follow the steps below:

1. Log on to the PTOnet.
2. Start the Netscape Browser.
3. Type in the URL:
 - <http://cioweb> [enter]
4. Click on the following links:
 - Tech Library
 - Chief Information Officer Documents
 - Technical Reference Model

7.1.3 From Internet

Log on to the Internet and use one of the three methods below:

First Method:

Type in URL:

- <http://www.uspto.gov/web/offices/cio/trm/TM-01.htm>

Second Method:

1. Type in URL:

- <http://www.uspto.gov/web/offices/cio/cio-docs.htm>

2. Click on the link:

- *Technical Reference Model*

Third Method:

1. From the authentication page, click on:

- *USPTO Home Page*

2. Click on the following links:

- *Info By Org*
- *Chief Information Officer*
- *CIO Documents*
- *Technical Reference Model*

7.2 POINTS OF CONTACT

To obtain a paper or electronic copy, please contact the following individuals:

| Name | Organization | Phone Number | Internet Email |
|---------------|--------------|--------------|-------------------------|
| Carol Shen | CIO/OSAE | 703-305-9292 | carol.shen@uspto.gov |
| Michele Sizer | CIO | 703-305-9510 | michele.sizer@uspto.gov |
| Rob Porter | CIO/OSAE | 703-305-9172 | rob.porter@uspto.gov |

If you have problem accessing this document by Internet or Intranet, please contact the following individuals:

| Name | Function | Organization | Phone Number | Internet Email Address |
|--------------|---------------------|--------------|--------------|------------------------|
| Carol Shen | Internet & Intranet | CIO/OSAE | 703-305-9292 | carol.shen@uspto.gov |
| Kent Craig | Intranet | CIO/OSDM | 703-308-7386 | kent.craig@uspto.gov |
| Richard Lowe | Internet | CIO/OSDM | 703-305-9219 | richard.lowe@uspto.gov |

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APPENDIX B.

AUTOMATED INFORMATION SYSTEM MANAGERS⁷¹

This list is to assist users in obtaining additional support relating to PTO major systems and the topics presented in this document.

For further information, consult the searchable [PTO Employee Locator](#) or [PTO Information Contacts](#)

| | |
|--|----------------|
| Chief Information Officer (consultation and decision making) | Dennis R. Shaw |
| Chairperson, Technical Review Board | Rob Porter |
| Chairperson, Software Engineering Process Group | Robert Rathbun |

B.1 PATENT BUSINESS AUTOMATED INFORMATION SYSTEMS

A) The following table identifies the production manager and system maintenance manager for operational automated information systems.

| OPERATIONAL AIS - Patent | | | | |
|--------------------------|--|--------------------|----------------------------|--|
| IT Plan Reference Number | Operational AIS | Production Manager | System Maintenance Manager | Comments |
| 6.1.2.1 | ActionWriter/PCT (WP Macros) | Zal Azmi | Dave Robell | To be replaced by Office Action Correspondence Subsystem (OACS) |
| 6.1.5.2 | Appeals Case Tracking System 2.0 (ACTS2) | Dale Shaw | Tam Ngo | ACTS2 in production |
| 6.1.2.2 | APS Text (Messenger) | Dorothy Raduazo | Montasham Mobarekeh | To be replaced by Computer Search System (CSS) |
| 6.1.2.6 | Automated Biotechnology Sequence Search System (ABSS) | Michael Moore | David Kemp | ABSS will be replaced by Mar 1999 |
| 6.1.2.7.1 | Classification Data System (CDS) 1.0 | Duane Davis | John MacIvor | CDS 1.1 under development will interface with current Oracle tables of CDS 1.0 |
| 5.1.3.4 | Classified Search & Image Retrieval (CSIR) Maintenance | Ted Parr | Dave Robell | CSIR Migration under development |
| 6.1.3.2 | Foreign Patent Access System (FPAS1) - LAN | Michael Moore | Monica Carter | To be replaced by FPAS 2 in Oct 1998 |

| | | | | |
|-----------|--|---|---------------------|--|
| 6.1.3.2 | Foreign Patent Access System (FPAS2) - PTOnet | Michael Moore | Tony Tran | To be replaced by FPAS Transition - Web Client |
| 6.1.3.1 | Global Patent Image Client (GPIC) v1.1 | Ed Wacyra | Greg Gabel | GPIC is Windows-based client to access US text, foreign abstract and bibliography image data. Next release GPIC will combine with Image Search and Retrieval and Test Search (IS&R) to be renamed as EAST (Examiner Automated Search Tool) |
| 6.1.2.3 | Image Search & Retrieval System Upgrade (IS&R) (NT Lite) | Zal Azmi | Mohtasham Mobarakeh | Original known as NT Lite, a Windows-based application to access Images only. IS&R and GPIC will be incorporated into Examiner Automated Search Tool (EAST) system. |
| 6.1.2.3 | Integrated Patent Search System (IPSS) | Zal Azmi | Mohtasham Mobarekeh | Web-based search tool for text and image. IPSS and GPI will be incorporated into Web Based Examiners Search Tool (WEST) System |
| 6.1.1.2.1 | Patent Application Capture and Entry II (PACE -II) | Mark Lachendro | Mark Lachendro | This system will evolve to PALM-Migration Pre-Exam System |
| 6.1.1.2.1 | Patent Application Locating and Monitoring (PALM) | Dave Talbott | Dave Feigenson | To be replaced by PALM Migration |
| 6.1.1.3 | Patent Image Capture System (PICS) | Kevin Little, (OIPE), Robert Fenwick (OPR), Donald Walsh (LARS) | Keith Tucker | |
| 6.1.3 | STIC Automated Library System | Katherine Arendt | Katherine Arendt | Also referred to as "Online Public Access Catalog (OPAC)". It allows users to track the availability of Non-Patent Literature references in the STIC. The search-only portion used by PTO examiners on PTOnet |

B) Following table identifies project managers and system development managers for automated information system which is either under development, modification or new.

| AIS DEVELOPMENT PROJECT - Patent | | | | |
|----------------------------------|---|-----------------|----------------------------|---|
| IT Plan Reference Number | AIS Project | Project Manager | System Development Manager | Comments |
| 6.1.1.4 | Application Capture and Review System (ACRS) | Trisha Michel | Keith Tucker | OCR image of patent application into machine-readable text for review & routing |
| 6.1.2.6 | Automated Biotechnology Sequence Search System (ABSS) Replacement | Michael Moore | Blaine Whitten | |
| 6.1.2.7.2 | Classification Data System (CDS) 1.1 | John Salotto | John MacIvor | Will interface with current Oracle tables of CDS 1.0 - approximate deployment date of January - February 1999 |

| | | | | |
|-----------|---|-----------------|-------------------------------|---|
| 6.1.2.7.3 | Classification Data System (CDS) 2.0 | John Salotto | John MacIvor | |
| 5.1.3.4 | Classified Search & Image Retrieval (CSIR) Migration | Rob Porter | Dave Marshall | |
| 6.1.2.4 | Computer Assisted Presearch (CAP) | Ted Parr | to be assigned by Brooks Hunt | |
| 6.1.2.2 | Computer Search Support | Dorothy Raduazo | Rich Donlavage | To replace Messenger Text Search |
| 6.1.2.3 | Examiner Automated Search Tool (EAST) | Zal Azmi | Mohtasham Mobarakeh | Includes IS&R (NT Lite) and GPIC - Windows-based. Will provide access to search full US and foreign text and image data. Use Image Search and Global Patents Information IT Plan Reference Numbers |
| 6.1.3.1 | | | | |
| 6.1.3.2 | Foreign Patent Electronic Delivery System (FPAS) Transition -Web Client | Michael Moore | Elaine Morris | |
| 6.1.2.9 | MPEP Data Repository/Intranet Browser Interface | John Salotto | David Forest | Conversion to SGML currently in progress by Bruce Cox. Development effort for publication to PTOnet, Intranet will be performed around June 1998 in subsequent phases. MPEP will be maintained using FrameMaker+SGML and Dataware II publishing tool for CD-ROM |
| 6.1.3.4 | Non-Patent Literature - Elsevier Scientific Electronic Journals | George Chadwick | Blaine Whitten | |
| 6.1.3.4 | Non-Patent Literature - IBM Technical Disclosure Bulletins | Dorothy Raduazo | Brian Schimmelbusch | |
| 6.1.2.1 | Office Action Correspondence Subsystem (OACS) | Zal Azmi | Dave Robell | This system will replace Action/Writer |
| 6.1.5.1 | Operations Planning & Budget (OPBudget) | Rich Rouch | Joanna Tsai | |
| 6.3.6.1 | Patent Application & Information Retrieval (PAIR) | Dave Talbott | Peter Kauslick | |
| 6.1.1.2.2 | Patent Application Locating and Monitoring (PALM) Migration | Dave Talbott | Deron Burba | |
| 6.1.4 | Patent Cooperation Treaty (PCT) Receiving Office | Bob Olszewski | Debbie Stevens | Automated function - Scan, SGML, Tag, Workflow, Form |
| 6.1.1.7 | Patent Electronic Filing System | Bob Olszewski | Joel Brown | |
| 6.1.1.3 | Patent Image Capture System (PICS) Enhancements | Keith Furman | Keith Tucker | |
| 6.1.1.6 | PatentIn- Web version | Michael Moore | Linda Ho | Electronic submission of Biotechnology patent application to create Sequence Listing information |
| 6.1.1.5 | Photocomposition, Publishing, Production (PPP) System | Jeff Cochran | to be assigned | |

| | | | | |
|--------------------|--|---------------|----------------|---|
| 6.1.1.3 | Reexamination Process System (REPS) Replacement | Keith Furman | Keith Tucker | Subsystem of PICS. Currently a prototype. It is scheduled to be released in production (for beta test) in August 1998. Use PICS IT Plan number |
| 6.1.1.1 | Tools for Electronic Application Management (TEAM) | Bob Olszewski | Debbie Stevens | |
| 6.1.2.3 6.1.3.1 | Web Based Examiners Search Tool (WEST) | Zal Azmi | Greg Gabel | Includes GPI web and IPSS. Will provide Web access to search the full US and foreign text and image data. Use Image Search and Global Patents Information IT Plan Reference Numbers |

B.2 TRADEMARK BUSINESS AUTOMATED INFORMATION SYSTEMS

A) The following table identifies the production manager and system maintenance manager for operational automated information systems.

| OPERATIONAL AIS - Trademark | | | | |
|-----------------------------|--|--------------------|----------------------------|---|
| IT Plan Reference Number | Operational AIS | Production Manager | System Maintenance Manager | Comments |
| 6.2.2.2 | Copending Applications (Part of TRAM on Workstation) | Betty Andrews | Joan Axilbund | Functionality incorporated into X-Search 1.1. Use X-Search replacement IT Plan Reference number |
| 6.2 | Fastener Quality Act | Gary Holiday | Glen Brown | |
| 6.2.1.1.3 | Labels - Bar Code Reader Replacement | Alan Lambert | Pat Heneberry | Replace Lot B devices with new bar code readers components to operate from desktop workstation. (Part of TRAM Enhancement on Workstation) |
| 6.2.1.1.1 | Trademark Data Entry & Update System (TRADEUPS) | Dewitt Howard | Tom Hedgpeth | |
| 6.2.1.1 | Trademark Reporting and Monitoring (TRAM) Maintenance (on A16) | Kathy Erskine | Mark Lord | To be replaced by TRAM Migration |
| 6.2.2.1 | Trademark Text Search System (X-Search) v1.0 | Betty Andrews | Pat Heneberry | |
| 6.2.8.1 | Trademark Trial and Appeal Board System Replacement (TTABIS) | Jean Brown | Herman Williams | |

B) The following table identifies project managers and system development managers for each automated information system which is either under development, modification or new.

| AIS DEVELOPMENT PROJECT - Trademark | | | | |
|-------------------------------------|-------------|-----------------|----------------------------|----------|
| IT Plan Reference Number | AIS Project | Project Manager | System Development Manager | Comments |

| | | | | |
|-----------|--|--------------------|--|----------------------------|
| 6.3.6.2 | Trademark Application and Registration Retrieval (TARR) | Lorraine Leithiser | Ernest Shaw | |
| 6.2.3 | Trademark Electronic Application Submission (TEAS) | Janice O'Lear | Steve Hu | |
| 6.2.4 | Trademark Image Capture & Retrieval System (TICRS) | Mary-Frances Bruce | Devi Singla | Same as Trademark Scanning |
| 6.2.6 | Trademark Information System (TIS) | Kathy Erskine | Gary Cannon | |
| 6.2.1.1.2 | Trademark Photocomposition (part of TRAM Enhancement) | Blake Peral | Luther Kennedy | |
| 6.2.1.2 | Trademark Reporting and Monitoring (TRAM) Replacement | Craig Morris | Lorraine Leithiser | |
| 6.2.8.1 | Trademark Trial and Appeal Board System Enhancement (TTABIS) | Jean Brown | Herman Williams | |
| 6.2.2.2 | X-Search Replacement | Betty Andrews | Tom Hickok (Server) Tyle Auduong (Client) | |

B.3 INFORMATION DISSEMINATION BUSINESS AUTOMATED INFORMATION SYSTEMS

A) The following table identifies the production manager and system maintenance manager for operational automated information systems.

| OPERATIONAL AIS - Information Dissemination | | | | |
|---|--|--------------------|----------------------------|--|
| IT Plan Reference Number | Operational AIS | Production Manager | System Maintenance Manager | Comments |
| 6.3.5.2 | Automated Fee Collection System | Cathy Hollan | Curtis Lutz | |
| 6.3.5 | Call Center Information System (CCIS) | Jeanne Oliver | Curtis Lutz | Will be replaced by Enterprise Call Center (ECC) |
| 6.3.3.3 | Certification Data Automated System (CDAS) on A-16 | Robert Fenwick | Jeffrey Lavikoff | Functionality being incorporated into the OEMS v2.0 |
| 6.3 | Electronic Order System (EOS) | Theresa Knight | Brenda Glover | New system. Currently not included in 12/97 IT Plan |
| 6.3 | Electronic Publishing Information Center (EPIC) | Bruce Cox | Larry Larson | On-Line Publishing (to Web); Optical Publishing (to CD-ROM); Technology Assessment & Forecast. Currently not included in 12/97 IT Plan |
| 6.3.3.2 | Order Entry Management System (OEMS) v1.2 | Theresa Knight | Ron Lyon | Will be replaced by OEMS v2.0 (Mar 1999) |
| 6.3.3.4 | Patent & Trademark Assignment System (PTAS) | Audrey Britt | Brenda Glover | |

| | | | | |
|---------|--|---------------|-----------|--|
| 6.3.3.1 | Patent and Trademark Copy Sale (PTCS) | Mary Turowski | Ron Lyon | Functionality being incorporated into the Order Entry Management System (OEMS v1.2) |
| 6.3 | Patent Data Dissemination System (PDDS) | Ed Johnson | Len Beech | Included two functions: the data capture and dissemination of patent images currently completed at Boyers, PA Facility; The creation and dissemination of Patent text is currently completed at Crystal City |
| 6.3 | Trademark Data Dissemination System (TDDS) | Kathy Erskine | Mark Lord | |

B) The following table identifies project managers and system development managers for each automated information system which is either under development, modification or new.

| AIS DEVELOPMENT PROJECT - Information Dissemination | | | | |
|---|--|-----------------|----------------------------|---|
| IT Plan Reference Number | AIS Project | Project Manager | System Development Manager | Comments |
| 6.3.5.2 | Automated Fee Collection System | Cathy Hollan | Curtis Lutz | |
| 6.3.5.5 | Enterprise Call Center (ECC) | Jeanne Oliver | Madan Singla | Will replace Call Center Information System (CCIS) |
| 6.3 | International Priority Document Exchange (IPDE) | Jeff Cochran | Orin Hamilton | Use GITS (encryption key mechanism research project) as base to develop this project. About 50% complete as of 2/9/98 |
| 6.3.3.2 | Order Entry Management System (OEMS) v2.0 | Mary Turowski | Jane Shiau | This system will include OEMS v1.2, PTCS v2.0 migration and CDAS |
| 6.3.3.4 | Patent & Trademark Assignment System (PTAS) Migration v4.3 | Audrey Britt | Susan Shifflett | |
| 6.3.3.1 | Patent and Trademark Copy Sale (PTCS) Migration v2.0 | Mary Turowski | Ron Lyon | Migration to OEMS v2.0 |
| 6.3 | Patent Fax System (PFS) | Curtis Lutz | Curtis Lutz | Currently not included in 12/97 IT Plan |
| 6.3 | Public Search Room Badging System | Cathy Hollan | Madan Singla | Currently not included in 12/97 IT Plan |

B.4 CORPORATE AUTOMATED INFORMATION SYSTEMS

A) The following table identifies the production manager and system maintenance manager for operational automated information systems.

| OPERATIONAL AIS - Corporate | | | | |
|-----------------------------|-----------------|--------------------|----------------------------|----------|
| IT Plan Reference Number | Operational AIS | Production Manager | System Maintenance Manager | Comments |

| | | | | |
|---------|---|-----------------|--------------|--|
| 5.1 | Computer Architectural Design System (CADS) | Harold Davidson | Bill Kelly | New office (campus) design. PTOnet deployment of Arris CAD drawing package |
| 6.4.1.1 | Executive Document Management System (EDMS) | Norma Rose | Bill Kelly | WWG3.1 on Novell platform. Will migrate to NT and UNIX around end of FY98 |
| 6.4.1.2 | Freedom of Information Act System (FOIA) | Nancy Slutter | Bill Kelly | |
| 6.4.2.4 | Office of Finance Image System (OFIS) | Laurie Taylor | Joseph Smith | |
| 6.4.3.3 | Resume Information System (RIS) | Vivian Clark | Thuy Nguyen | |
| 6.4.2.2 | Revenue Accounting and Management (RAM) System v1.0 | Sue Lazich | Susan Chu | Replaced the Cash Receipts and Deposit Accounts (CRDA) System |
| 6.4.2.7 | Travel Manager | Cathy Simpson | Ming Yu | Auto process & storage travel voucher |

B) The following table identifies project managers and system development managers for each automated information system which is either under development, modification or new.

| AIS DEVELOPMENT PROJECT - Corporate | | | | |
|-------------------------------------|---|-----------------|----------------------------|--|
| IT Plan Reference Number | AIS Project | Project Manager | System Development Manager | Comments |
| 6.4.4 | Acquisitions Management Library System (AML) | Heather Coleman | Angela Lewis | |
| 6.4.2.8 | Commerce Administration Management System (CAMS) | Dave Respass | to be assigned | |
| 6.4 | Equal Employment Opportunity Case Management and Reporting System | Joseph Jones | Thuy Nguyen | This system will replace EEOMAS. Currently not listed in 12/97 IT Plan |
| 6.4.1.1 | Executive Document Management System (EDMS) upgrade to NT | Norma Rose | Bill Kelly | This system will upgrade to Windows NT and UNIX platforms |
| 6.4.3.2 | Human Resource Information System (HRIS) | Rafael Landrau | Georgeanna Chan | |
| 6.4 | Internet Purchasing Application (IPA) | Mary Brown | Ana Mediana | |
| 6.4.3.1 | Job Application Rating System (JARS) | Mike Razavi | Amy Kim | |
| 6.4.1.3 | Office of Administrative Services Support (OASS) | Dawn Fields | Angela Lewis | This system will replace PTO-1464 |
| 6.1.5.3 | Office of Enrollment and Discipline Information System (OEDIS) | Karen Bovard | Noreen Ferrante | |
| 6.4.2.6 | Procurement Desktop (PD 2.0) | Sue Lazich | Susan Chu | This is an application developed by AMS |
| 6.4.2.3 | Program Office Desktop (POD) | Sue Lazich | Ming Yu | |
| 6.4 | PTO-Forms System | Dawn Fields | Angela Lewis | This system currently not listed in 12/97 IT Plan |
| 5.6.3 | Records Management Tracking System | Kathy Schultz | Narith Tith | This system currently not listed in 12/97 IT Plan |

B.5 INFRASTRUCTURE

A) The following table identifies the production manager and system maintenance manager for Operational automated information systems. Managers for Infrastructure Components such as infrastructure hardware and active network communication components, and Infrastructure Operations Managers for Network Management, Operating System Management, and Data Center Operations are listed under Appendix A.2 and A.3 respectively.

| OPERATIONAL AIS - Infrastructure | | | | |
|----------------------------------|--|--------------------|----------------------------|--|
| IT Plan Reference Number | Operational AIS | Production Manager | System Maintenance Manager | Comments |
| 5.5.8 | Automated Project Management System (APMS) | Steve Merritt | Sandy Zarkin | Control and Analysis Tool (CAT) |
| 5.1.3.1.2 | Data Storage System | Tom Kenton | Larry Cogut | EMC Data Storage |
| 5.1.3.3 | Engineering Test and Evaluation Support | Larry Cogut | Mark Nucker | |
| 5.5.4 | Enterprise Configuration Management System | David Smith | Dusty Barlow | Process Configuration Management System (PCMS) |
| 5.2.1.2 | Enterprise Messaging and Mail System | Tom Kenton | Eric Meister | |
| 5.5.5 | Enterprise Requirements Repository | David Smith | Ken Williams | Requirements and Traceability Management (RTM) |
| 5.6 | Enterprise System Analysis & Development Environment | Phong Ly | Kent Craig | This is COOL:Gen I-Case tool used for infrastructure system development |
| 5.1.4 | Executive Travel Management System | Rob Porter | James Napper | Provide access to PTO resources while on travel |
| 5.3.1 | Expert Advisor | Randy Bender | Roger Chin | Functionality to be incorporated in Enterprise Asset Management System Project |
| 5.3.1 | Info/Man | Randy Bender | Randy Bender | Functionality to be incorporated in Enterprise Asset Management System Project |
| 5.6 | Information Repository System | Holly Higgins | Emily Tzang | Rochade |
| 5.1.2 | LAN/WAN Performance Repository | Van Xydis | Lynn Black | Data Collection Netmetrix |
| 5.1 | Patent Cooperaton Treaty (PCT) connectivity | Rob Porter | James Napper | Move system in-house and provide connectivity |
| 5.1.4 | PTDL Access Via Internet | Jane Myer | James Napper | |
| 5.1 | PTO Wide Internet Access | Dave Przech | James Napper | |
| 5.1.2 | SAS Performance Repository | Van Xydis | Van Xydis | Data collection & reduction on performance measurement |
| 5.3.1 | Services, Technicians, and Asset Tracking System (STATS) | Randy Bender | Roger Chin | Functionality incorporated in Enterprise Asset Management System. Tracks inventory of PTO assets |
| 5.1.4 | Trademark Work At Home | Debbie Cohn | John Morton | |
| 5.1.2 | UNIX Disk Space Performance Repository | Van Xydis | Stanley Jordan | Disk Space Data Collection |
| 5.1.2 | Unix Performance Repository | Van Xydis | Nga Do | Data Collection Unix |

| | | | | |
|---------|---------------------------------|--------------|--------------|--|
| 5.2.1.2 | Windows NT Server | Eric Meister | Eric Meister | |
| 5.2.1.2 | Windows NT Workstation Facility | Mark Nucker | Eric Meister | |
| 5.2.4 | WWW Internet Web Server | Larry Larson | Dave Przech | |

B) The following table identifies project managers and system development managers for each information technology project which is either under development, modification or new. Managers for Infrastructure Components such as infrastructure hardware and active network communication components, and Infrastructure Operations Managers for Network Management, Operating System Management, and Data Center Operations are listed under Appendix A.2 and A.3 respectively.

| AIS DEVELOPMENT PROJECT - Infrastructure | | | | |
|--|---|-----------------|----------------------------|--|
| IT Plan Reference Number | Infrastructure AIS Under Development | Project Manager | System Development Manager | Comments |
| 5.1.3 | Alternate Fiber Path to North & South Tower | Wes Clark | Dung Huynh | Enhance connectivity between Trademark and PTOnet |
| 5.1.2 | ATM Performance Repository | Van Xydis | Lynn Black | Support ATM network Monitoring, validate data collection & reduction |
| 5.1.3.1 | ATM-Attached Servers | Wes Clark | Tim Murphy | Attach servers directly to the backbone through ATM connection |
| 5.1.3.1.1.2 | Electronic Mail Room | Rob Porter | James Napper | Provide on-line process for Patent & Trademark applications |
| 5.1.5 | Enterprise Asset Management System (EAMS) | Randy Bender | Tamra Goldstein | Provide enterprise-level information on distributed IT assets. Phase I will integrate Expert Advisor, STATS, and Info/Man |
| 5.1.3.1.1.1 | Enterprise Wide Log-in (EWL) | Rob Porter | Dave Page | Provide an enterprise wide log-in capability for all users requiring access to the PTOnet and application system within the PTOnet |
| 5.1.3.1 | Fax/Modem Services | John Morton | Roger Chin | |
| 5.1.3.1.2 | HP Unix Servers | Tom Kenton | Larry Cogut | HP Unix Server Upgrade |
| 5.1.4.1 | Integrated Network | Tom Kenton | Wes Clark | Implementation of ATM technology for PTOnet |
| 5.1.3.1 | Internal Mail Security (IMS) | Rob Porter | Dung Huynh | Enable MS Exchange "Advanced Security Option" function to exchange secure e-mail through mail by using Encryption and/or Digital Signature |
| 5.1.2 | NT Performance Repository | Van Xydis | Mojmir Mazur | Support NT application server monitor |
| 5.1.4.3 | Packet Engineer 2 | Tom Kenton | Dung Huynh | PTOnet PowerHub Upgrade |
| 5.1.2 | RAM Transaction Performance Repository | Van Xydis | Lynn Black | Read, examine, validate & collect data for development of monthly report |
| 5.1.4.4 | Secure PTOnet External Connections (SPEC) | Rob Porter | Marc Whitford | Remote access |
| 5.1.4.2 | Trilateral Internet Access | Bob Johnson | James Napper | Determine means to provide Trilateral partners access via Internet |

Footnote:

71. Information in Appendix B contributed by staff under OCIO, SIR, STIC, and OEIP.
"IT Plan Reference Number" is based on *PTO Strategic Infomration Technology Plan for Fiscal Years 1998-2003*.

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[US_Patent_and_Trademark_Office]

APPENDIX C.

TECHNICAL REVIEW BOARD CHARTER

1.0 PURPOSE

This Directive establishes the objectives and authority of the Technical Review Board (TRB) at the Patent and Trademark Office (PTO).

2.0 DEFINITIONS

2.1 Automated Information System (AIS)

A combination of functional users, information technology personnel, business processes and procedures, application software, system software, commercial off-the-shelf software, documentation, computer, networking, and other information technology resources that collect, record, process, store, communicate, retrieve, display, and disseminate information.

2.2 Configuration Management

Procedures that establish and maintain the integrity of the work products of an AIS project throughout the life cycle of the AIS.

2.3 Quality Assurance

Procedures that ensure the accuracy and integrity of AIS products and processes by validating: the correctness and completeness of the automation of business rules; the correctness of stored business data and its manipulation in accordance with the business rules; and the correctness, predictability, and visibility of the processes with which AISs are developed.

2.4 Work Product

An output of a process used to define, design, develop, deploy, operate, maintain, manage, or retire an AIS. Complete AISs, components of AISs, and intermediate products of the Concept, Detailed Analysis, and Development phases are included in the term work products.

3.0 BACKGROUND

The TRB evaluates the progress of each AIS project and assesses the quality of the products. It ensures that PTO's Life Cycle Management methodology is followed in a coordinated, common-sense manner for all AISs. Historically at PTO, acceptance testing, quality assurance, and configuration management were performed differently depending upon who the customers for an AIS were. The new methodology specifies a PTO standard for acceptance testing, quality assurance, and configuration management functions for hardware, software, and documentation.

The Software Engineering Process Group establishes standard processes for predefined technical reviews, acceptance testing, quality assurance, and configuration management for all PTO AIS projects.

4.0 SCOPE AND APPLICABILITY

This directive applies to all PTO employees, PTO contractors, consultants, and others providing AIS development and maintenance services in all business areas of the PTO. It applies to all activities relating to the initiation, definition, design, development, deployment, operation, maintenance, enhancement, and retirement or replacement of AISs.

5.0 OBJECTIVE

The objective of the TRB is to improve AIS quality by:

1. Ensuring consensus among stakeholders from user, developer, and infrastructure areas.
2. Monitoring work products and the processes that produce them.
3. Ensuring appropriate response to action items discovered during monitoring.
4. Ensuring the integrity of work products throughout the life cycle of an AIS.

6.0 COMPOSITION OF THE TRB

The Chief Information Officer (CIO) will appoint the chairperson from among the permanent Office of the Chief Information Officer (OCIO) members.

6.1 Permanent TRB Members

The permanent TRB members are:

- Administrator of the Center for Computer and Telecommunications Operations (CCTO)
- Director, Office of System Quality and Enhancement (OSQE)
- Director, Office of System Architecture and Engineering (OSAE)
- Director, Office of System Development and Maintenance (OSDM)

6.2 Associate TRB Members

The associate TRB members are all other OCIO office directors, the Information Systems Security Officer, and the Program Management coordinator.

The Project Manager, System Development Manager, Production Manager, System Maintenance Manager, and Operations Manager shall be represented on the TRB at all reviews affecting their AIS and each may bring as many supporting people as needed. Where practicable, end users shall be represented on the TRB.

7.0 AUTHORITY

The TRB chair can recommend a delay in the start of the next activity in an AIS's life cycle until issues raised at its current review event have been resolved; e.g., to delay acceptance testing until issues raised at Test Readiness Review 2 have been resolved.

The TRB chair has the authority to recommend to the CIO that an In-Process Review or other corrective action be taken during the Development phase based on the results of a TRB review.

The TRB has the authority to inspect software development files and other AIS project working documents to resolve review issues and to verify compliance with process and product standards.

8.0 RESPONSIBILITIES

8.1 TRB Responsibilities

The TRB will:

1. Make recommendations to the CIO.
2. Perform technical reviews on all AIS projects in accordance with the project quality assurance plan. The technical reviews include: Requirements Clarification Review, Functional and Data Requirements Review, Logical Design Review, Business System Design Review, Technical Design Review, Test Readiness Review 1, Test Readiness Review 2, Beta Readiness Review, and Production Readiness Review.
3. Participate in operational assessments of AISs in the operations phase of the AIS life cycle.
4. Review any AIS project that is behind schedule and provide guidance to the Project Manager.
5. Recommend establishment of functional, logical design, and product baselines.
6. Approve items of the developmental configuration, which are placed under formal configuration management control.
7. Perform technical reviews of significant change requests on work products under formal configuration management.
8. Approve the developmental configuration for acceptance testing.
9. Establish the operational baseline.
10. Recommend action on requests for changes to functional, logical design, and product baselines

for an AIS and to the infrastructure baseline of PTO.

11. Approve the System Development Infrastructure configuration.
12. Guide the process improvement effort within OCIO by setting SEPG priorities, approving SEPG initiatives and work plans, reviewing SEPG project status, reviewing and responding to SEPG recommendations, allocating resources, and generally overseeing all process improvement efforts within OCIO.

8.2 OCIO Infrastructure Support Organizations

OCIO infrastructure support organizations' responsibilities are as follows:

1. The Center for Computer and Telecommunications Operations will be responsible for reviewing the aspects of AIS projects that affect computer and network operations, user support services, system software, system performance and capacity, and AIS security.
2. The Office of System Quality and Enhancement will address system acceptance testing and integration, data administration, quality assurance, and configuration management aspects of AIS projects. In addition, OSQE will serve as the Executive Secretary of the TRB and provide administrative support.
3. The Office of System Architecture and Engineering will be responsible for reviewing the aspects of AIS projects that have to do with architecture, planned or required technological change, system resource utilization, data communications, and integration of hardware, software, and data management capabilities.
4. The Office of System Development and Acquisition will address development, procurement, and contract management aspects of AIS projects.
5. The Technical Plans, Policies, and Oversight Staff provides process improvement support for project management and schedules TRB baseline sessions.
6. The System Development Manager or the System Maintenance Manager, working in cooperation with the Project Manager or Production Manager, will be responsible to:
 - Keep the data on the project management control system up-to-date.
 - Provide documents for TRB review in advance of scheduled meetings.
 - Brief the TRB.
 - Address the action items noted by the TRB and report back to the TRB if appropriate.
 - Provide action plans to the TRB to correct "behind schedule" projects.
7. Associate members will receive copies of the meeting announcements, the agenda, the minutes, and other documents as appropriate. They will attend TRB meetings that address items within their scope of responsibility.
8. All TRB members and attendees will prepare for the meetings by reading the documents, developing constructive comments and suggestions, and reviewing the agenda to ensure adequate and appropriate participation. Members and attendees will come prepared and empowered to make decisions and offer assistance to programs and projects under review.

9.0 PROCEDURES

General TRB procedures are as follows:

1. The TRB will review, discuss, and reach decisions based on consensus agreement among the major stakeholders in the matter at hand. If there is not a consensus, the chair shall determine the action(s) needed to resolve the disagreement. If necessary, the TRB, as a group, may make recommendations to the CIO and seek resolution at that level. Complex issues may be discussed off-line to shorten the formal TRB meeting. The goal is to keep meetings concise.
2. Any item needing TRB review may be distributed for comment and concurrence without convening a TRB meeting. Majority concurrence or non-concurrence by TRB members during the coordination of any item will result in its approval or disapproval, as appropriate, without convening the TRB. If an agenda item is not resolved during the coordination process, the TRB will be convened to establish a consensus position.
3. TRB actions shall be recorded. In addition, CIO and Program Sponsor actions on TRB recommendations shall be recorded.
4. TRB events generally are those outlined in the Quality Assurance Technical Standard and Guideline. The chair may call special events.
5. TRB events will be scheduled with the TRB administrative support coordinator. The TRB agenda and schedule will be based on project milestones as maintained in the project management control system. Additional TRB reviews may be required for various reasons, including that a project is behind schedule.
6. Organizations will prepare for TRBs according to their responsibilities.
7. Organizations will send appropriate and authoritative representation to meetings. All members may give a proxy or send an alternate representative by informing the chair in advance.
8. Each TRB meeting produces a "Review Approval Form" signed by representatives of cognizant offices. If concurrence is conditional, the form will be annotated with "Additional Comments" which state the conditions. Conditional comments will be followed up as action items.
9. Approval forms and exhibits will be kept by TRB administrative support.
10. Generally life cycle TRB events will not be repeated. The goal is one event with concurrence, conditional, if necessary, to keep projects on schedule. However, the chair may require any event to be repeated.
11. The TRB will convene at least quarterly to review the status of SEPG projects. The SEPG Chair will provide monthly reports on the progress of SEPG projects, proposed work plans, and work group activities for TRB approval. The SEPG Chair will also receive TRB action items at this time.

Dennis R. Shaw
Chief Information Officer

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APPENDIX D. ACRONYMS

| | |
|--------|--|
| ABSS | Automated Biotechnology Sequence Search System |
| ACTS | Appeals Case Tracking System |
| API | Application Program Interface |
| APP | Application Portability Profile |
| APS | Automated Patent System |
| CAD | Computer-Aided Design |
| CAE | Computer-Aided Engineering |
| CAS | Chemical Abstract Society |
| CASE | Computer Aided Software Engineering |
| CAT | Control and Analysis Tool |
| CD-ROM | Compact Disk Read Only Memory |
| CDS | Classification Data System |
| CGM | Computer Graphics Metafile |
| COTS | Commercial-off-the-shelf |
| CSIR | Classified Search and Image Retrieval |
| CWU | Complex Work Unit |
| CXF | Chemical Exchange Format |
| DBAD | Detailed Business Area Description |
| DBMS | Database Management System |
| DSA | Digital Standard Algorithm |

| | |
|---------|---|
| DSS | Digital Signature Standard |
| DTD | Document Type Definition |
| EDI | Electronic Data Interchange |
| EDIFACT | EDI for Administration, Commerce, and Transport |
| EDMS | Executive Document Management System |
| EEI | External Environment Interface |
| EES | Employee Express System |
| EIS | Executive Information System |
| FDRD | Functional & Data Requirements Definition |
| FIPS | Federal Information Processing Standard |
| FPAS | Foreign Patent Access System |
| GOSIP | Government Open Systems Interconnection Profile |
| GPI | Global Patent Information System |
| GUI | Graphical User Interface |
| HTML | Hypertext Markup Language |
| I-CASE | Integrated Computer Aided Software Engineering |
| IEEE | Institute of Electrical and Electronics Engineers |
| IEF | Information Engineering Facility |
| IP | Internet Protocol |
| IRDS | Information Resource Dictionary System |
| ISDN | Integrated Services Digital Network |
| ISO | International Standards Organization |
| JPEG | Joint Photographic Experts Group |
| LAN | Local Area Network |

| | |
|----------|--|
| LCM | Life Cycle Management |
| MPEG | Motion Picture Experts Group |
| NIST | National Institute of Standards and Technology |
| NTIS | National Technical Information Service |
| OEMS | Order Entry Management System |
| OPBudget | Operations and Budget System |
| OSE | Open Systems Environment |
| PALM | Patent Application Location and Monitoring System |
| PAM | Patent Application Management System |
| PCMS | Process Configuration Management System |
| PDF | Portable Document format |
| PGCS | Pre-Grant Copy Sale |
| PICS | Patent Image Capture System |
| POSIX | Portable Operating System Interface for Computer Environment |
| PREP | Patent Reengineering Prototype |
| PTAS | Patent and Trademark Assignment System |
| PTCS | Patent and Trademark Copy Sales |
| PTDL | Patent and Trademark Depository Library |
| RAM | Revenue Accounting and Management |
| RISC | Reduced Instruction Set Computer |
| RTM | Requirement Traceability Management |
| SGML | Standard Generalized Markup Language |
| SITP | Strategic Information Technology Plan |
| SMTP | Simple Mail Transfer Protoco |

| | |
|--------|---|
| SNMP | Simple Network Management Protocol |
| SQL | Structured Query Language |
| SUS | Shared Use System |
| TCP | Transmission Control Protocol |
| TIS | Trademark Information System |
| TRAM | Trademark Reporting and Monitoring System |
| TTABIS | Trademark Trial and Appeal Board Information System |
| TWAH | Trademark Work at Home |
| WIPO | World Intellectual Property Organization |

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APPENDIX D. ACRONYMS

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| ABSS | Automated Biotechnology Sequence Search System |
| ACTS | Appeals Case Tracking System |
| API | Application Program Interface |
| APP | Application Portability Profile |
| APS | Automated Patent System |
| CAD | Computer-Aided Design |
| CAE | Computer-Aided Engineering |
| CAS | Chemical Abstract Society |
| CASE | Computer Aided Software Engineering |
| CAT | Control and Analysis Tool |
| CD-ROM | Compact Disk Read Only Memory |
| CDS | Classification Data System |
| CGM | Computer Graphics Metafile |
| COTS | Commercial-off-the-shelf |
| CSIR | Classified Search and Image Retrieval |
| CWU | Complex Work Unit |
| CXF | Chemical Exchange Format |
| DBAD | Detailed Business Area Description |
| DBMS | Database Management System |
| DSA | Digital Standard Algorithm |

| | |
|---------|---|
| DSS | Digital Signature Standard |
| DTD | Document Type Definition |
| EDI | Electronic Data Interchange |
| EDIFACT | EDI for Administration, Commerce, and Transport |
| EDMS | Executive Document Management System |
| EEI | External Environment Interface |
| EES | Employee Express System |
| EIS | Executive Information System |
| FDRD | Functional & Data Requirements Definition |
| FIPS | Federal Information Processing Standard |
| FPAS | Foreign Patent Access System |
| GOSIP | Government Open Systems Interconnection Profile |
| GPI | Global Patent Information System |
| GUI | Graphical User Interface |
| HTML | Hypertext Markup Language |
| I-CASE | Integrated Computer Aided Software Engineering |
| IEEE | Institute of Electrical and Electronics Engineers |
| IEF | Information Engineering Facility |
| IP | Internet Protocol |
| IRDS | Information Resource Dictionary System |
| ISDN | Integrated Services Digital Network |
| ISO | International Standards Organization |
| JPEG | Joint Photographic Experts Group |
| LAN | Local Area Network |

| | |
|----------|--|
| LCM | Life Cycle Management |
| MPEG | Motion Picture Experts Group |
| NIST | National Institute of Standards and Technology |
| NTIS | National Technical Information Service |
| OEMS | Order Entry Management System |
| OPBudget | Operations and Budget System |
| OSE | Open Systems Environment |
| PALM | Patent Application Location and Monitoring System |
| PAM | Patent Application Management System |
| PCMS | Process Configuration Management System |
| PDF | Portable Document format |
| PGCS | Pre-Grant Copy Sale |
| PICS | Patent Image Capture System |
| POSIX | Portable Operating System Interface for Computer Environment |
| PREP | Patent Reengineering Prototype |
| PTAS | Patent and Trademark Assignment System |
| PTCS | Patent and Trademark Copy Sales |
| PTDL | Patent and Trademark Depository Library |
| RAM | Revenue Accounting and Management |
| RISC | Reduced Instruction Set Computer |
| RTM | Requirement Traceability Management |
| SGML | Standard Generalized Markup Language |
| SITP | Strategic Information Technology Plan |
| SMTP | Simple Mail Transfer Protoco |

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|--------|---|
| SNMP | Simple Network Management Protocol |
| SQL | Structured Query Language |
| SUS | Shared Use System |
| TCP | Transmission Control Protocol |
| TIS | Trademark Information System |
| TRAM | Trademark Reporting and Monitoring System |
| TTABIS | Trademark Trial and Appeal Board Information System |
| TWAH | Trademark Work at Home |
| WIPO | World Intellectual Property Organization |

REFERENCES

Many references were identified in footnotes throughout the entire document.

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