U.S. DEPARTMENT OF COMMERCE
Office of Inspector General

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PATENT AND TRADEMARK OFFICE

PTO's Year 2000 Renovations and Test Program Are Effective but Agency Should Freeze Changes and Verify Inventory

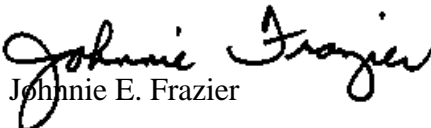*Inspection Report No. OSE-11693-01 / September 1999*

Office of Systems Evaluations

September 29, 1999

MEMORANDUM FOR: Q. Todd Dickinson
Acting Assistant Secretary of Commerce
    and Commissioner of Patents and Trademarks

FROM: Johnnie E. Frazier

SUBJECT: Final Inspection Report, *PTO's Year 2000 Renovations and Test Program Are Effective but Agency Should Freeze Changes and Verify Inventory* (OSE-11693-01)

The Office of Inspector General conducted a review of Patent and Trademark Office efforts to make its automated information systems year 2000 (Y2K) compliant. We reviewed PTO renovation and replacement activities for selected critical systems and found that they have been made Y2K compliant and adequately tested.

However, PTO plans to significantly modify two of its most critical and vulnerable systems and upgrade the operating system of the mainframe computer on which these systems reside. Modifications to the Trademark Reporting and Monitoring (TRAM) and Patent Application Location and Monitoring (PALM) systems and an operating system upgrade will be completed during September and October 1999, but PTO has no plans for comprehensive retesting to ensure the systems and computer remain Y2K compliant.

We also found that PTO's Y2K systems inventory may not be complete. Based on minimal response to an earlier survey of systems users and the recent identification of an important system that was not previously inventoried, there is some doubt that all PTO systems have been inventoried and evaluated for Y2K compliance. We recommend that PTO re-survey users to ensure that all critical systems are identified and evaluated for Y2K compliance. We also recommend that by late November 1999, PTO complete all system modifications, fully retest modified systems, and freeze system changes until at least a week after the new millennium.

PTO's Chief Information Officer responded to our August 26, 1999 draft inspection report and concurred with all recommendations except the recommendation to fully retest modified systems. Beginning on page 8, we have included a synopsis of PTO's general comments on OIG observations and conclusions, and beginning on page 9, a synopsis of PTO's response to each recommendation followed by an OIG discussion. The response in its entirety is included as Appendix A. We reaffirm our recommendation to fully retest modified systems.

We appreciate the cooperation of PTO staff during the review.

BACKGROUND

Patent and trademark processing was identified by the National Performance Review as being a "high impact" federal program based on the public's reliance on these functions. Many of the computer systems PTO uses to process patent and trademark applications were originally programmed using the last two digits of year dates (rather than all four digits). Two-digit year dates can cause inaccurate computations associated with the year 2000 because the computers cannot distinguish between the years 1900 and 2000.

Unless this problem is fixed, there is high risk that PTO's business operations will be disrupted because systems will not function properly. If systems are not Y2K compliant, then services crucial to intellectual property protection could be jeopardized. PTO's strategy for solving the Y2K problem has been to replace most mission critical systems and major components of the information technology infrastructure and to modify the remaining systems whose migrations to new systems could not be accomplished by December 31, 1999.

PTO employs 73 systems to process patents and trademarks and to perform related functions such as processing fees, classifying patent and trademark applications, corresponding with applicants, and disseminating information to the public. Thirty-five of the systems were classified for Y2K purposes by PTO as mission-critical (see Appendix B). PTO certified in June 1999 that all 35 systems are Y2K compliant after evaluating the systems for two-digit date sensitive fields, renovating or replacing the systems, and testing the systems.

PTO subjected most systems to unit, integration, and formal qualification testing.[1] An exception to this process was made for TRAM, one of PTO's critical systems. A PTO contractor reviewed the code to identify date fields prior to the renovation. TRAM code was then renovated, unit tested, and integration tested by PTO personnel.

PURPOSE AND SCOPE OF INSPECTION

The purpose of our review is to reduce the risk of critical system failure and business interruption due to the year 2000 century change by assessing actions by PTO and recommending practical risk mitigation activities. We reviewed a sample of PTO mission-critical systems including PALM, TRAM, Computer Search System (CSS), and Classified Search and Image Retrieval (CSIR). We also reviewed PTO's most critical infrastructure component, PTOnet, which connects more than

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[1] Formal qualification testing is acceptance testing of an information system that is performed independent of the developing organization. It is performed after unit testing of individual system components and integration testing of all system components working together are completed.

6,000 internal users to PTO systems (see Figure 1). These systems and PTOnet are relied on heavily to carry out PTO's business processes and are its highest priorities for Y2K readiness.

Figure 1. PTO Information Technology Architecture[2]
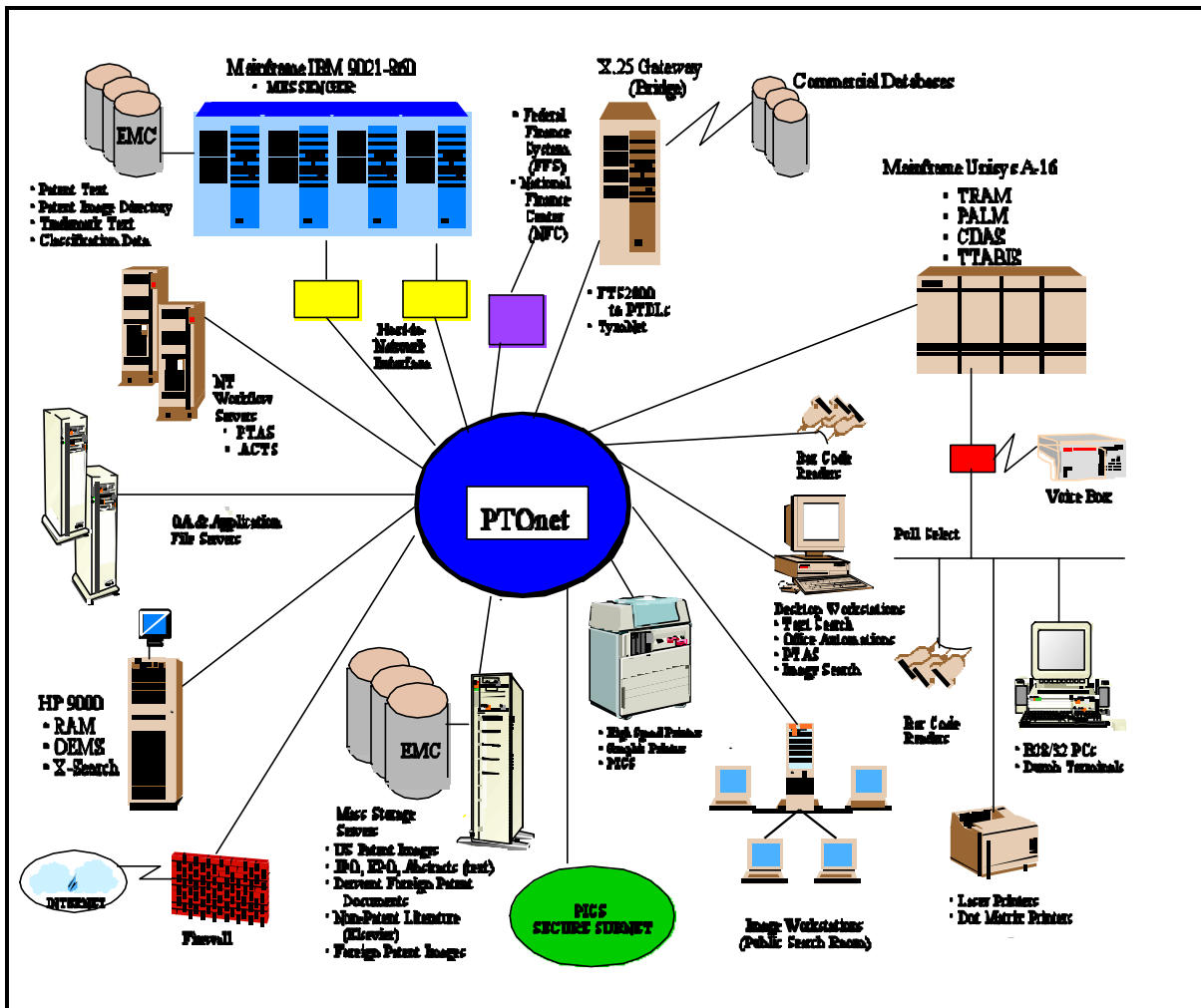
We evaluated the extent of system searches to find Y2K-sensitive date fields, the renovation methods employed, and the extent to which the systems were subjected to in-house and independent testing. We are continuing to evaluate systems testing as well as business continuity and contingency planning (BCCP). Our BCCP work includes initiation of planning, management

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[2] Based on PTO's Strategic Information Technology Plan, FY1999-FY2004, December 1998.

involvement in support of Y2K preparedness, business impact analyses, detailed contingency and disaster recovery planning, and business process testing. We will provide the results of our BCCP evaluation in a separate report.

Our methodology includes evaluating documentation; interviewing staff within PTO's Office of the Chief Information Officer, Office of Patents, and Office of Trademarks; and interviewing PTO contractors who performed software scanning for date fields and repaired and tested renovated code. Our evaluation criteria were derived from General Accounting Office (GAO) and Office of Management and Budget (OMB) guidelines written specifically for the Y2K computing crisis, research institutions, and best business practices.

Our work was performed in accordance with the Inspector General Act of 1978, as amended, and the *Quality Standards for Inspections*, March 1993, issued by the President's Council on Integrity and Efficiency.

OBSERVATIONS AND CONCLUSIONS

In general, PTO certified its critical systems as Y2K compliant after renovation or replacement and adequate testing. However, PTO plans to make systems changes to TRAM, PALM, and the UNISYS A-16 mainframe operating system without repeating a comprehensive test to verify that the components and interfaces remain Y2K compliant. Modifying systems that are already Y2K compliant can introduce new errors, and these systems are PTO's most critical and least stable. Also, there is uncertainty about the completeness of PTO's inventory of end-user systems that may need Y2K renovation or replacement. PTO should freeze system changes after needed modifications are made and thoroughly retest the systems to ensure continued compliance. In addition, business managers should resurvey end-user systems to ensure that they are evaluated for Y2K readiness.

I. PTO Systems Renovations and Replacements Have Been Completed

PTO certified its last critical system as Y2K compliant in June 1999. Most systems were replaced as part of PTO efforts to convert its infrastructure to a distributed client/server architecture in a standards-based open systems environment. PTO's two most critical systems, TRAM and PALM, could not be replaced in time for the year 2000 century change. The contractors used automated tools to locate two-digit date fields within these two systems. PALM software was then renovated and tested by contractors. TRAM software was renovated and tested by PTO staff.

After certifying TRAM and PALM as Y2K compliant, PTO successfully completed a "Day-One" test on May 15 and 16, 1999, to simulate systems operations in the next century. The two systems with their UNISYS A-16 host mainframe computer were included in the Day-One test. The systems were tested using production system workstations and network-connected personal computer workstations. The test was performed against a duplicate of the TRAM and PALM

production data to preclude any corruption of actual systems data. Based on the test results, PTO believes that TRAM and PALM will perform properly in the year 2000.

A more comprehensive Day-One test was conducted on July 24 and 25, 1999, to test more systems critical to PTO business processes. For this second and more comprehensive Day-One test, PTO tested 17 of the 35 critical systems (see Appendix B) with PTOnet, both individually and in combinations. The second test included internal interfaces between critical PTO systems including TRAM and PALM. These 17 systems were tested with simulated processing dates to assess their capability to work and interact in the year 2000. PTO discovered no Y2K problems with any of the systems or PTOnet during testing.

II. Critical Systems Should Be Frozen and Retested

PTO operates in a dynamic software development environment. Changes to patent or trademark business processes require software modifications to PTO systems. Significant TRAM software modifications are scheduled to occur by October 30, 1999, to comply with the provisions of the 1995 Trademark Law Treaty. These changes will be made to standardize international forms used to apply for trademark registration and simplify the establishment of electronic data interchange. The changes will add approximately 40 new transactions to the TRAM system application software and two new reports.

PTO relies heavily on the date-intensive legacy[3] PALM system to provide necessary workflow tracking, patent application status reporting, and examiner production and docket information on a daily basis. PALM will need system repairs before the end of the year to correct errors and may need enhancements to implement potential near-term changes in patent law, such as Pre-Grant Publication (publication of patent applications 18 months after they have been filed).

PALM and TRAM run under the UNISYS Master Control Program (MCP) operating system on a UNISYS A-16 mainframe computer. PTO is using MCP version 44.2, which is certified Y2K ready by the vendor. Although PTO plans to continue using MCP version 44.2 until January 2000, it recognizes that the system should be upgraded to the most current maintenance level for version 44.2, and has scheduled the change for October 1999.

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[3] PALM (and TRAM) are legacy systems. Legacy is the term applied to software applications and data that have been inherited from languages, platforms, and techniques earlier than current technology. Typically, it is a challenge to keep legacy systems running while migrating to new programming languages and operating systems that follow open or standard programming interfaces. Migrating to current technology will make it easier in the future to update software applications without having to rewrite them entirely and make them more compatible with other operating systems.

PTO is not planning end-to-end retesting of modified systems. PTO does not plan to repeat end-to-end tests[4] to ensure Y2K compliance after October 1999. Unit testing will be performed to determine subroutine and program compliance of the modified systems, but PTO considers the changes to be routine and does not plan to conduct critical integration and end-to-end testing on the modified software that would also test system interfaces.

PTO believes the unit testing will be sufficient to identify any Y2K anomalies introduced into its systems after the software modifications and operating system upgrade. However, we are concerned that the scope of unit testing is not broad enough to ensure that the modifications have not introduced changes that significantly increase the risk of Y2K failure after Day-One testing. Unit testing verifies that the smallest defined modules of software, such as programs or procedures, work as intended. Unit testing does not verify that combined units of software, such as applications, work together as intended. Nor does it verify that an application will function as intended as a system or with other systems with which it interfaces.

PTO's most vulnerable systems are at risk. Changes can introduce Y2K errors into systems that have been certified as Y2K compliant, especially in legacy systems such as PALM and TRAM. PALM and TRAM are not as stable as other PTO systems. These systems are very dependent on institutional knowledge to keep running properly. They use COBOL source programming code and include about 800 programs with a combined total of one million lines of programming code. However, it is difficult to find senior level COBOL programmers needed to maintain PALM and TRAM, and systems personnel to maintain the UNISYS mainframe computer that they reside on.

The systems were developed without structured coding techniques, and the software is complex and difficult to maintain. The systems are constantly undergoing change, and program code has been modified extensively over the years to correct software errors and to implement new requirements, increasing software maintenance difficulties. Also, changes to PALM and TRAM are placed immediately into production due to user demand, without the same level of documentation, testing, and control as other PTO systems.

PALM and TRAM require interfaces with other critical systems to accomplish patent and trademark processing. Interfaces include systems that support trademark data entry, application assignment, file searching, and order entry. Patent interfaces include patent image capture, office action correspondence, application assignment, and revenue accounting. According to PTO, a PALM or TRAM failure would have a major adverse business impact. PTO's Strategic Information Technology Plan indicates that this impact would be on its ability to process patents and meet current performance goals. Failure of the A-16 mainframe would simultaneously result

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[4] End-to-end tests are conducted to verify that interrelated systems supporting an organization's core business processes interoperate as intended. PTO's second Day-One test approximated an end-to-end test for 17 systems and PTOnet.

in degradation of PALM and TRAM performance, partial or total system failure, erroneous results, or possibly the inability to access data.

Guidance supports maintaining Y2K system compliance. The risk of modifying Y2K compliant systems and the need to thoroughly retest the modified systems are widely supported. OMB issued Memorandum M-99-17 dated May 14, 1999, *Minimizing Regulatory and Information Technology Requirements That Could Affect Progress Fixing the Year 2000 Problem.* The memorandum directs agencies not to modify systems unless absolutely necessary and to establish processes to ensure that the effect on Y2K readiness is considered prior to establishing new requirements or changes to automated systems. We recognize that changes are necessary to PTO systems due to the trademark legislation, the occurrence of errors, and vendor upgrades. However, comprehensive testing can ensure that modified compliant systems remain compliant.

Y2K information technology guidance from the General Services Administration (GSA), posted on the Department's Chief Information Officer year 2000 home page, recognizes that agencies are at higher than normal risk with legacy systems such as PALM and TRAM and that limited testing (such as unit testing) may not exercise the particular conditions that would expose a Y2K flaw. The guidance suggests that agencies be aggressive in performing more extensive advanced date testing across applications and organizational boundaries. While the boundaries of end-to-end testing are not fixed or predetermined, GAO's *Year 2000 Computing Crisis: A Testing Guide, November 1998*, supports the GSA guidance by encouraging agencies to dramatically increase the scope and complexity of testing when systems are modified to coincide with the difficulty of isolating, identifying, and correcting computing problems.

The business impact of Y2K induced system failures should drive organizational decisions about the nature and scope of end-to-end testing. Business impact is a function of both business priorities and the level of business risk that an organization is willing to assume by forgoing, or limiting, such testing. Considering that TRAM and PALM are PTO's most critical and highest priority systems because of their high impact on business processes, it is reasonable that the business process risk for these systems be reduced by repeating the end-to-end testing.

All hardware and software modifications, including those that materially change the performance of PALM, TRAM, and the UNISYS A-16 computer, including system upgrades, should be completely retested. Testing, at a minimum, should address all system components, (i.e., hardware, software, and interfaces) that are critical to the demonstration of Y2K compliance. Comprehensive testing is necessary not only because changes to system components may have unanticipated effects on the rest of the system, but also because of the unanticipated effect of changes in one system upon other systems. Repeating an end-to-end test, such as the July 24 and 25 Day-One test in late November 1999, would provide several weeks to correct any new Y2K errors found. The corrections could then be retested during the remainder of the year.

III. Systems Inventory Needs to be Verified

PTO's inventory of systems that could have Y2K risk may not be complete. PTO's configuration management program provides a means for tracking development and deployment of software systems. In an attempt to ensure that all applicable systems were inventoried for configuration management, PTO conducted a survey among users to identify systems not included in the inventory. There is some uncertainty about whether some smaller systems that were developed by users were included in the inventory because few responses were received and a significant system, Trademark Forms Paragraphs, was not identified by the survey. This system was discovered only recently and included in the second Day-One test because of its significance to trademark business processing.

PTO's business process managers should resurvey their areas of responsibility to ensure that all systems are identified. The sooner a system is identified, the more time will be available for completing Y2K repair or replacement and testing before January 2000.

PTO Comments on OIG Observations and Conclusions in Draft Report

We reported that PALM may need enhancements to implement potential near-term changes in patent law, such as Pre-Grant Publication. PTO responded that proposed legislation (H.R. 1907) that would require changes to PALM has not been enacted and these enhancements will not be required before January 1, 2000.

PTO also responded that it is not aware of errors in the PALM code that must be corrected, but acknowledged that PALM software errors occur during the normal course of business and are routinely fixed. The agency's December 1998 Strategic Information Technology Plan discusses making limited PALM enhancements to correct errors. A PALM formal qualification test report dated May 21, 1999 (after PALM was certified as Y2K compliant) identified over 40 new software errors that were discovered during Y2K testing.

We stated in our draft report that the PALM database will be significantly modified in September 1999 in preparation for PALM migration to an open systems architecture in late 2000. PTO responded that it is not planning to extensively modify the PALM database in September 1999. We deleted this statement in the final report.

Our report states that changes to PALM and TRAM are placed immediately into production due to user demand, without the same level of documentation, testing, and control as other PTO systems. PTO commented that it will institute for TRAM the same independent quality control review it currently performs for PALM changes before modified software is placed into production. We believe this additional procedure will help mitigate the risk that software changes will cause TRAM to be noncompliant.

RECOMMENDATIONS

To reduce the risk of system failures at the turn of the century, we recommend that the Acting Assistant Secretary of Commerce and Commissioner of Patents and Trademarks direct PTO staff to take the following actions:

1.   Develop a policy to freeze software changes to critical systems and retest the systems that are changed.

      a.   Freeze all critical systems as of November 30, 1999.

          Synopsis of PTO's Response

          PTO concurs with this recommendation and will freeze all but emergency changes after November 30, 1999.

          OIG Discussion

          PTO's action is responsive to the recommendation.

      b.   After November 30, conduct an end-to-end test of PALM, TRAM, the UNISYS A-16 mainframe computer, and critical interfaces.

          Synopsis of PTO's Response

          PTO does not agree with this recommendation. PTO's position is that PALM and TRAM have already been successfully tested in May and July 1999 and there are no significant changes planned for PALM. According to PTO, there will be changes incorporated in TRAM to implement the provisions of the Trademark Law Treaty. These changes will require PTO to add new data elements, change existing edits, add new edits, change print formats, and add new reports. There are no new date fields. PTO will add additional independent quality assurance validation to verify that the Trademark Law Treaty changes to TRAM will not introduce Year 2000 problems.

          OIG Discussion

          We agree that versions of PALM and TRAM have already been successfully tested during the July 24 and 25 Day-One test. We also agree with PTO plans not to change PALM (and other software) except in emergency situations. However, errors are discovered in PALM software almost daily. The process of correcting these errors changes the system. Each change to PALM will create a new, untested version of the system that may not be Y2K compliant.

In addition, PTO has not addressed the additional risk of introducing a maintenance upgrade to the UNISYS A-16 mainframe computer operating system. This upgrade, coupled with repairs to unplanned errors in PALM, and the TRAM enhancements to comply with the Trademark Law Treaty, introduce another level of risk that Y2K compliance will be jeopardized.

Freezing the systems on November 30 without testing to ensure compliance does not provide assurance that the systems will operate correctly in the next century. PTO's Year 2000 Program Manager recognized the effects of changing Y2K compliant systems in planning the agency's July 1999 Day-One test by stating, "results from the July 24 test will apply only to the specific software versions, specific system configurations, and specific systems included in the test." He also stated, "it is well recognized that there will be changes to these versions and systems before January 1, 2000. . . ."[5]

We reaffirm our position and recommendation.

c.   Keep all critical software and hardware configurations frozen until at least the second week in January 2000 to ensure that there are no Y2K operating difficulties.

Synopsis of PTO's Response

PTO concurs with this recommendation and will freeze all but emergency changes until January 15, 2000.

OIG Discussion

PTO's action is responsive to the recommendation.

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[5]Memorandum from Galaxy Scientific Corporation, *Minutes of the Meeting for Day One Testing,* June 29, 1999.

2.   Resurvey operational areas to identify end-user developed applications that are used in performing core business processes.

> *Synopsis of PTO's Response*
>
> PTO concurs with this recommendation and re-surveyed its users on September 7, 1999.
>
> *OIG Discussion*
>
> PTO's action is responsive to the recommendation.

PTO's full response is included as Appendix A.

UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
ASSISTANT SECRETARY AND COMMISSIONER
OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

September 16, 1999

MEMORANDUM FOR	Judith J. Gordon
	Assistant Inspector General for Systems Evaluation
	Office of Inspector General
FROM:	*Dennis R. Shaw*
	Dennis R. Shaw
	Chief Information Officer
SUBJECT:	PTO Response to Draft Inspection Report, *"PTO's Year 2000 Renovations and Test Programs Are Effective but Agency Should Freeze Changes and Verify Inventory"*

Thank you for the opportunity to review the draft inspection report on the PTO's Year 2000 readiness. The PTO is pleased that the IG found PTO's mission critical systems have been made Year 2000 compliant and have been adequately tested. The PTO also agrees with the IG recommendations to freeze system changes after November 30th through the second week of January 2000 and to re-survey users to ensure that all systems are identified and evaluated for Year 2000 compliance.

The PTO does not agree with the IG's recommendation to conduct a third end-to-end test for PALM, TRAM, and all the systems that they exchange data with. Instead, the PTO will add additional independent quality assurance validation to verify that the Trademark Law Treaty changes to TRAM will not introduce Year 2000 problems. PTO believes that these systems have been adequately tested and procedures are in place to ensure that new system changes will not introduce additional Year 2000 problems.

Responses to specific observations and recommendations are contained in the attachment.
Please call me on 703-305-9400 or Steve Merritt, PTO's Year 2000 Project Manager, on 703-305-9412.

Attachment

cc: Todd Dickinson
        Executive Committee
        Jim Lynch
        Roger Baker

Response to Recommendations
Draft Inspection Report
*"PTO's Year 2000 Renovations and Test
Programs Are Effective but Agency
Should Freeze Changes and Verify Inventory"*

IG Observations and Conclusions

Critical Systems Should Be Frozen and Retested

IG Observation: PALM will need system repairs before the end of the year to correct errors and may need enhancements to implement potential near-term changes in patent law such as Pre-Grant Publication (publication of patent applications 18 months after they have been filed). The data base will be significantly modified in September 1999 in preparation for PALM migration to an open systems architecture in late 2000.

PTO Comment: H.R. 1907, if enacted, will require PTO to extensively modify legacy PALM and the replacement PALM. However, there is no scenario that requires PTO to implement the changes before January 1, 2000. PTO is not aware of errors in the PALM code that must be corrected. Software errors do occur during the normal course of business and they are routinely fixed. Furthermore, PTO has no plans to extensively modify the PALM data base in September 1999. PTO will deploy an Oracle version of the PALM data base to support the incremental replacement of PALM. The Oracle data base will be kept in sync with the UNISYS A-16 PALM data base using technology that PTO has successfully deployed to support the Trademark Application and Registration Retrieval (TARR) system. There is no change associated with the PALM UNISYS A-16 data base to accomplish the synchronization.

IG Observation: The systems (PALM and TRAM) were developed without structured coding techniques, and the software is complex and difficult to maintain. The systems are constantly undergoing change and program code has been modified extensively over the years to correct software errors and to implement new requirements, increasing software maintenance difficulties. Also, changes to PALM and TRAM are placed immediately into production due to user demand, without the same level of documentation, testing, and control as other PTO systems.

PTO Comment: PTO performs an independent quality control review of PALM changes before the changes are placed into production. PTO will perform the same independent quality control review of TRAM changes to verify that the Trademark Law Treaty changes to TRAM will not introduce Year 2000 problems.

IG RECOMMENDATIONS

1. *Develop a policy to freeze software changes to critical systems and retest the systems that are changed.*

IG Recommendation:

   a) *Freeze all critical systems as of November 30, 1999.*

PTO Response: PTO concurs with this recommendation and will freeze all but emergency changes to PALM and TRAM after November 30, 1999.

IG Recommendation:

   b) *After November 30, conduct an end-to-end test of PALM, TRAM, the UNISYS A-16 mainframe computer, and critical interfaces.*

PTO Response: PTO does not agree with this recommendation. PALM and TRAM have been independently verified as Year 2000 compliant. In addition, PTO successfully conducted "Day One" end to end testing for all systems that inter-operate with PALM and TRAM during May 1999 and again in July 1999. PTO tested these systems, individually and in combination, in a simulated Year 2000 production environment. Knowledgeable business area staff participated in the tests to verify test results. There are no significant changes planned for PALM. There will be changes incorporated in TRAM to implement the provisions of the Trademark Law Treaty. These changes will require PTO to add new data elements, change existing edits, add new edits, change print formats, and add new reports. There are no new date fields. PTO will add additional independent quality assurance validation to verify that the Trademark Law Treaty changes to TRAM will not introduce Year 2000 problems.

IG Recommendation:

   c) *Keep all critical software and hardware configurations frozen until at least the second week in January 2000 to ensure that there are no Y2K operating difficulties.*

PTO Response: PTO concurs with this recommendation and will freeze all but emergency changes to PALM and TRAM until January 15, 2000.

IG Recommendation:

2. *Resurvey operational areas to identify end-user developed applications that are used in performing core business processes.*

PTO Response: PTO concurs with this recommendation and re-surveyed its users on September 13, 1999.

Appendix B
PTO's Year 2000 Critical Systems List

1	Patent Application Location & Monitoring System	PALM2K*
2	Trademark Reporting and Monitoring System	TRAM2K*
3	Trademark Search System	X-Search 1.1
4	Patent Image and Capture System	PICS
5	Office Action Creation Subsystem	OACS
6	Patent and Trademark Copy Sales	PTCS
7	Global Patent Image Client	GPIC
8	PatentIn	------
9	Tradeups	------
10	Revenue Accounting Management System	RAM
11	Computer Search and Image Retrieval	CSIR Migration*
12	Computer Search System (Including EAST and WEST)	CSS *
13	Automated Biotechnology Sequence Search System	ABSS
14	Bar Code Reader (for TRAM)	BCR
15	Classification Data System	CDS 1.0
16	Procurement Desktop	PD
17	Appeals Case Tracking System II	ACTS II
18	Trademarks Trial and Appeals Board Information System	TTABIS
19	Certification Data Automated System	------
20	Electronic Order System	EOS
21	Electronic Publishing Information Center	EPIC
22	Patent and Trademark Assignment System	PTAS
23	Order Entry Management System	OEMS
24	Services, Technicians, and Asset Tracking System	STATS
25	Fastener Quality Act	FQA
26	PALM Migration Infrastructure	-------
27	Trademark Data Dissemination System	TDSS
28	Automated Fee Collection System	AFCS
29	Enterprise Call Center	ECC
30	Patent Data Dissemination System	PDDS
31	Operations and Budget	OpBudget
32	Copending Applications	---------
33	Foreign Patent Access System II	FPAS2
34	Executive Document Management System	EDMS
35	Resume Information System	RIS

Asterisk – PTO critical systems included in our review. Our review also included PTOnet, PTO's highest priority infrastructure component for Y2K readiness.

Shaded – PTO critical systems included in Day-One test. The test also included Trademark Forms Paragraphs, Program Office Desktop, and Trademarks Image Capture and Retrieval System, although these systems are not included in this list.

Appendix C
Acronyms Used in This Report

ACTS   Appeals Case Tracking System

BCCP   Business Continuity and Contingency Planning

CDAS   Certification Data Automated System (replaced by OEMS)

CDS   Classification Data System

EAST   Examiner Automated Search Tool

EMC   EMC Symmetrix storage devices sold by EMC Corporation

EPO   European Patent Office

FPAS   Foreign Patent Access System

GAO   General Accounting Office

GSA   General Services Administration

JPO   Japanese Patent Office

MCP   Master Control Program

OA   Office Actions

OEMS   Order Entry Management System

OMB   Office of Management and Budget

PALM   Patent Application Location and Monitoring

PICS   Patent Image Capture System

PTAS   Patent and Trademark Assignment System

PTCS   Patent and Trademark Copy Sales

PTDL   Patent and Trademark Depository Library

PTO   Patent and Trademark Office

RAM   Revenue Accounting and Management

TRAM   Trademark Reporting and Monitoring System

TTABIS   Trademark Trial and Appeals Board Information System

WEST   Web Examiner Search Tool

Y2K   Year 2000