

Audit

Report



YEAR 2000 COMPUTING ISSUES: DEFENSE LOGISTICS AGENCY
DISTRIBUTION STANDARD SYSTEM

Report No. 99-100

March 2, 1999

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Department of Defense

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Acronyms

AIS	Automated Information System
CIO	Chief Information Officer
DDC	Defense Distribution Center
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DMC	Defense Megacenter
DSDC	Defense Logistics Agency Systems Design Center
DSS	Distribution Standard System
GAO	General Accounting Office
Y2K	Year 2000



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March 2, 1999

MEMORANDUM FOR DIRECTOR, DEFENSE INFORMATION SYSTEMS
AGENCY
DIRECTOR, DEFENSE LOGISTICS AGENCY

SUBJECT: Audit Report on Year 2000 Computing Issues: Defense Logistics Agency
Distribution Standard System (Report No. 99-100)

We are providing this report for review and comment. This report is one of a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to identify progress made by DoD Components who are preparing information and technology systems for year 2000 compliance. We considered management comments on a draft of this report in preparing the final report.

DoD Directive 7650.3 requires that all recommendations and issues be resolved promptly. Therefore, we request that the Director, Defense Logistics Agency, provide additional comments on Recommendations 1.a., 1.b., 1.c., 1.d., and 2.a., by March 31, 1999.

We appreciate the courtesies extended to the audit staff. Questions on the audit should be directed to Ms. Kathryn Palmer at (703) 604-8840 (DSN 664-8840), email <kpalmer@dodig.osd.mil>, or Mr. Tilghman Schraden at (703) 604-9186 (DSN 664-9186), email <tschraden@dodig.osd.mil>. See Appendix D for the report distribution. The audit team members are listed inside the back cover.

A handwritten signature in cursive script, reading "Robert J. Lieberman", is positioned above the typed name.

Robert J. Lieberman
Assistant Inspector General
for Auditing

Office of the Inspector General, DoD

Report No. 99-100
(Project No. 8LD-9021)

March 2, 1999

Year 2000 Computing Issues: Defense Logistics Agency Distribution Standard System

Executive Summary

Introduction. This is one of a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the Chief Information Officer, DoD, to monitor DoD efforts to address the year 2000 computing challenge. For a complete listing of audit projects, see the year 2000 webpage on the IGnet at <http://www.ignet.gov>.

Objectives. The overall audit objective was to evaluate whether the Defense Logistics Agency (DLA) was adequately planning for and managing year 2000 risks to avoid undue disruption to its supply mission. This audit, the first in a series on the DLA supply mission, focused on the core DLA supply system, the Distribution Standard System.

Results. DLA recognized the importance of the year 2000 issue as it pertains to the Distribution Standard System and other automated systems, and had taken many positive actions in addressing the year 2000 problem. Those actions included the prioritization of mission-critical systems; the development of a DLA Year 2000 Management Plan; the development of a DLA Year 2000 Test and Evaluation Master Plan; and the development of contingency plans. However, the progress that DLA made in resolving the year 2000 computing issue was not complete. DLA did not have a depot-level checklist to assist consistent implementation of the DLA Year 2000 Management Plan at the depot level. DLA had not identified all Distribution Standard System interfaces, and the interface agreements lacked critical data. DLA had not developed all required test plans or testing milestone schedules. In addition, the Distribution Standard System megacenter test domain was not year 2000 compliant and explicit test agreements between the Defense Megacenters and DLA required by Secretary of Defense policy had not been signed. Actions to correct those deficiencies will help ensure that functions supported by the Distribution Standard System will not be impaired in the year 2000 and beyond. See the Finding section of the report for details of the audit results.

Summary of Recommendations. We recommend that the Director, DLA, develop a checklist to ensure that the DLA Year 2000 Management Plan is implemented consistently at the distribution depot level; identify all mission-critical Distribution Standard System interfaces and include all required data in interface agreements; and develop a detailed plan and schedule for all remaining tests. We recommend that the Director, Defense Information Systems Agency, in conjunction with the Director, DLA, take action to ensure that the hardware and executive software portion of the Distribution Standard System domain is year 2000 compliant prior to completion of the Distribution Standard System testing and certification and sign explicit test agreements for the Distribution Standard System as required by Secretary of Defense policy.

Management Comments. The Director, DLA, concurred or partially concurred with recommendations to develop a depot-level checklist; to complete the inventory of the Distribution Standard System interfaces; to develop a comprehensive test plan and schedule; to validate that year 2000 domain status reports are accurate; to obtain a waiver for a noncompliant compiler; and to initiate and sign explicit test agreements with the Defense Megacenters. DLA stated that a depot-level checklist existed and the inventory of Distribution Standard System interfaces had been completed. DLA also stated that the DLA test and certification process requires test plans for the operational assessment and time machine testing and that a waiver had been granted allowing the use of the COBOL compiler. Additionally, DLA stated that explicit test agreements had been signed with the Defense Information Systems Agency. DLA nonconcurred with the recommendation to include the complete inventory of interfaces in the follow-on interface testing, stating that the Distribution Standard System is a compliant production system and that all interfaces were simulated during the validation testing. DLA also nonconcurred with the recommendation to ensure that the Distribution Standard System test domain was Y2K compliant prior to certification. DLA stated that it had a waiver that allows the Distribution Standard System to be certified as compliant based on the existing testing. The Defense Information Systems Agency concurred with the finding and all recommendations, stating that the Distribution Standard System test domain would be compliant no later than January 31, 1999, and that quality control checks had been performed on the database to ensure its accuracy. In addition, the Defense Information Systems Agency indicated that it would assist DLA in obtaining a waiver for the compiler and that explicit test agreements were in place for major customers. See the Finding section of the report for a discussion of management comments and the Management Comments section of the report for the complete text of the comments.

Management Actions. The Distribution Standard System was certified year 2000 compliant by DLA on December 30, 1998. On January 5, 1999, the Office of the Secretary of Defense issued two waivers that allowed certification even though the Distribution Standard System test domain was not compliant. As of January 31, 1999, the Defense Information Systems Agency production and test domains for the Distribution Standard System were not fully compliant. DLA completed its contingency plan for the Distribution Standard System on November 24, 1998, and is refining the plan in preparation for end-to-end testing scheduled for March through June 1999.

Audit Response. DLA comments were not fully responsive. DLA still needs to develop a checklist for implementing year 2000 compliant hardware and software at the depot level. DLA needs to reconcile the disparity between the interface agreements provided to us and the final list of interfaces. DLA also needs to provide an explanation of work-arounds for noncompliant software. We also request a copy of the migration plan required by the waivers granted by the Office of the Secretary of Defense. The Defense Information Systems Agency comments were partially responsive. However, further comments from the Defense Information Systems Agency are not required because of other ongoing reviews by this office. We request that DLA provide additional comments to the final report by March 31, 1999.

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Background

Policies on Year 2000 Issues. Because of the potential failure of computers to run or function throughout the Government, the President issued Executive Order 13073, "Year 2000 Conversion," February 4, 1998, making it policy that Federal agencies ensure that no critical Federal program experiences disruption because of the year 2000 (Y2K) problem. The order requires that the head of each agency ensure that efforts to address the Y2K problem receive the highest priority attention in the agency.

A Secretary of Defense memorandum, "Year 2000 (Y2K) Compliance," August 7, 1998, stated that DoD was making insufficient progress in its effort to solve its Y2K computer problem. The memorandum directed more accountability and reporting requirements at the highest levels within DoD. The memorandum also stated that if Y2K progress is still lagging in November and December 1998, all further modifications to software, except those needed for Y2K remediation, would be prohibited after January 1, 1999.

A Deputy Secretary of Defense memorandum, "Year 2000 (Y2K) Verification of National Security Capabilities," August 24, 1998, stated that each of the directors of the Defense agencies must verify that all functions under his or her purview will continue unaffected by Y2K issues. The memorandum further required that the designated Principal Staff Assistant provide plans for Y2K-related end-to-end testing of each process within five functional areas, including logistics, to the Deputy Secretary of Defense by November 1, 1998. The principal staff assistant for logistics is the Under Secretary of Defense for Acquisition and Technology.

Distribution Standard System. The Distribution Standard System (DSS) is the core automated information system (AIS) that supports the Defense Logistics Agency (DLA) distribution depots' mission of receiving, storing, retrieving, packing, and shipping materiel from its 22 depots to worldwide DoD customers. DSS is ranked as the fifth most mission-critical DLA automated system needing Y2K remediation. DSS consists of 2,169 subprograms containing 13.5 million lines of code that must be Y2K compliant. The DLA management strategy for fixing Y2K problems calls for centralized management and decentralized implementation. The key position and organizations responsible for ensuring that DSS is Y2K compliant are as follows.

- The DLA Chief Information Officer (CIO) serves as the chief focal point for the planning, management, and execution of the DLA Year 2000 Program. The DLA Y2K Program Office provides the direct oversight of DLA Y2K efforts and reports to the DLA CIO.
- The Defense Distribution Center (DDC) is the command headquarters for the 22 DLA distribution depots that receive, store, retrieve, pack, and ship materiel to worldwide DoD customers. DDC is responsible for coordination and oversight of Y2K implementation at the 22 distribution depots.

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- The Defense Distribution Systems Center is the DSS program office (DSS Program Office). The purpose of the DSS Program Office is to develop, test, implement, and maintain a standard distribution system for the distribution depots.
 - The DLA Systems Design Center (DSDC) is the DLA central design activity responsible for addressing and resolving hardware and software related problems associated with Y2K compliance for DLA automated systems. DSDC has been tasked to lead the development of necessary automation support (for example, bridges, filters, and new programs) to make DSS hardware and software Y2K compliant.
 - The Defense Information Systems Agency (DISA) is the central manager for major portions of the Defense Information Infrastructure. DISA is responsible for planning, developing, and supporting Command, Control, Communications, Computers, and Intelligence operations functions. In that capacity, DISA provides support to the DoD CIO in executing Y2K initiatives, which includes maintenance of a list of tools to assist in resolving Y2K problems and a list of all commercial off-the-shelf products and their status as to Y2K compliance. DISA is also responsible for operating 16 computer processing activities referred to as megacenters.
 - The Defense Megacenters (DMCs) operate on a fee-for-service basis in providing mainframe computer processing service to functional users. DMCs are the primary providers of mainframe computer services to functional users in the Army, the Navy, the Air Force, the Marine Corps, and the Defense agencies (such as DLA). DMCs are responsible for the Y2K compliance of the computer hardware and the executive software.

Objectives

The overall audit objective was to evaluate whether DLA was adequately planning for and managing Y2K risks to avoid undue disruption to its supply mission. Specifically, we reviewed Y2K risk assessments, testing, and contingency plans for systems that support the mission and continuity of operations to perform the core supply mission. This audit, the first in a series on the DLA supply mission, focused on the core DLA supply system, DSS. We did not review the management control program related to the overall audit objective because DoD recognizes the Y2K issue as a material management control weakness area in the FY 1998 Annual Statement of Assurance. See Appendix A for a discussion of the audit scope and methodology and for a summary of prior coverage.

Status of the Distribution Standard System Year 2000 Program

DLA has taken many positive actions to identify and correct Y2K problems for DSS and other automated systems. In response to an August 1997 General Accounting Office (GAO) report,¹ DLA prioritized systems, inventoried unique applications at the depot level, and was in the process of completing contingency planning. However, additional DLA action is needed to minimize the potential adverse impact of Y2K date processing on DSS by:

- developing a comprehensive depot-level standard Y2K checklist;
- identifying all interfaces and properly preparing interface agreements;
- developing a plan and schedule for operational assessment and time machine testing; and
- executing required testing agreements with DMCs and ensuring test domain is Y2K compliant.

Actions Taken to Address the Year 2000 Problems

The August 1997 GAO report credited DLA with recognizing the potential impact of the Y2K problem and having taken action to identify systems, to assess the Y2K impact on its operations, and to develop and issue policies, guidelines, standards, and recommendations on Y2K corrections for the agency. GAO also noted that DLA had not completed several critical steps that included the identification of interface partners; the inventory of field-developed unique programs; the prioritization of systems; and contingency planning. DLA has made significant progress in correcting many Y2K management problems that impact the management of DSS as well as other DLA logistics systems. DLA management actions included:

- prioritized mission-critical systems (DSS ranked fifth out of 34);
- established DLA Y2K points of contact;
- developed DLA Y2K Management Plan;

¹GAO Report No. AIMD-97-106, "Defense Computers: Issues Confronting the Defense Logistics Agency in Addressing Year 2000 Problems," August 12, 1997.

-
- developed draft DLA Test and Evaluation Master Plan; and
 - inventoried, tracked, and reported Y2K compliance status on a monthly basis for depot-unique software and hardware platforms.

In addition, DLA made significant progress in developing a contingency plan for DSS.

Risk Management

The "DoD Year 2000 Management Plan, Version 2" (DoD Management Plan), December 1998, states that even Y2K compliant systems may experience various degrees of disruptions as a result of interface or user defined data problems or problems with infrastructure. Further, it states that DoD needs to identify all potential Y2K risks and threats to the continuity of its operations and take actions to mitigate those risks. DLA has taken many positive steps toward identifying risks and taking action to mitigate those risks in the management of DSS. However, additional action is needed in order to ensure that DSS performs the operational mission in the Y2K environment.

Consistent Y2K Program Implementation

The DLA approach to fixing Y2K problems mirrors the DoD approach, centralized management with decentralized execution. Overall, DDC was actively working with subordinate distribution depots as well as the DLA Y2K Program Office and the DSS Program Office to ensure that the depots were implementing the DLA Y2K program. However, the lack of a standardized depot-level process for all depots to follow in ensuring that Y2K problems were being addressed has the potential to result in overlooking Y2K problems.

Although DDC required monthly updates from each depot on Y2K status of all equipment and software, there was no standardized checklist or process that ensured each depot considered all hardware and software. For instance, as a result of the audit team's questions during our site visit to the Defense Distribution Depot, San Diego, the depot personnel found that a new software program (NS/ELITE PLUS, version 2.20) furnished by DLA was not listed as Y2K compliant on the vendor's Internet list of compliant software products. That software functioned as a software program manager much like the program manager function found in the Windows software suites. The automation officials in San Diego were unaware of the noncompliance because the site was one of the last DLA depots to convert to DSS. The software and most of the hardware platforms were new and might not have been reviewed as closely as older systems with known noncompliance issues. If the new software's noncompliance had remained undetected and uncorrected, approximately 500 personal computers could have experienced Y2K problems and the users could have had problems accessing DSS or other compliant application software to perform the operational mission. Defense Distribution Depot, San Diego, officials took immediate action

to obtain the compliant version of software from the vendor. In subsequent discussions, DLA indicated that the software vendor had incorrectly indicated that the NS/ELITE PLUS, version 2.20, was noncompliant. The vendor was to provide a statement to DLA that corrects the information posted on the Internet. As of November 20, 1998, DLA had not received the statement. However, the January 21, 1999, DLA response to the draft report stated the depot had downloaded the Y2K compliant 2.22 version from the contractor's web site and had upgraded the personal computers at no cost to the government.

Interfaces and Interface Agreements

The DSS Program Office had not completed inventorying mission-critical interfaces. DLA identified varying numbers of external and internal interface partners. Additionally, existing interface agreements did not contain all of the required information. Because DLA did not follow the guidance in the DoD Management Plan with respect to identifying all interfaces and developing interface agreements, DLA risks being unable to perform its operational mission in the Y2K environment.

Interface Definition. The DoD Management Plan defines an interface as "a boundary across which two systems communicate." In addition, the DoD Management Plan explains that "an interface might be a hardware connector used to link to other devices, or it might be a convention used to allow communication between two software systems." External interfaces are defined as interfaces that are outside of the Component. Internal interfaces are defined as interfaces that are within the Component.

Interface Strategy. The DLA strategy for external (non-DLA) interfaces consists of establishing interface agreements that focus on whether the current interfaces change date formats. If interfaces change date formats, the DLA strategy is to concentrate on building bridges to accommodate the modified interface and ensuring that Y2K trigger dates are transmitted through the interface. Y2K trigger dates are those dates that have been identified as having the potential to cause a computational error due to the representation of the year 2000. They include 01-01-00 and 02-29-00. If interface date formats do not change, the DLA strategy focuses on identification and testing of trigger dates. The DLA strategy for internal interfaces places the responsibility for any change in format of interfaces on the changing system. The changing systems will coordinate the change with other interface partners and document the requirement with a software change requirement.

Interface Identification. The DLA Y2K management documents did not consistently identify or categorize mission-critical interface partners. The DoD Management Plan requires that all external interfaces be identified during the assessment phase (Phase II) of the five management phases. The required completion date for the assessment phase was June 1997. Although the DSS Program Office provided us with interface agreements, testing plans, and certification strategy, we were unable to ascertain whether all interfaces had been identified. For instance, DSS Program Office personnel identified three DSS

external interfaces to the audit team on September 3, 1998. However, the DSS Program Office provided an email list of external interfaces on September 29, 1998, that contained not only those three interfaces but also an additional nine interfaces. An interface agreement was provided for each of those 12 interfaces. A list of seven internal interfaces was provided to the audit team on November 2, 1998. That list of internal interfaces was from a list labeled "CICS [Customer Information Control System] External Interfaces for DSS." In a November 12, 1998, meeting, DSS Program Office personnel stated that the correct number of interfaces was 13, regardless of whether they were internal or external interfaces. Although the DSS Program Office had provided only 12 interface agreements, DSS Program Office personnel stated that all 13 interfaces were covered by interface agreements. On November 13, 1998, the DSS Program Office provided us with documentation that included two additional interface agreements, bringing the total to 14, not 13 as had been discussed in the November 12, 1998, meeting. Our review of the interface agreements showed that none of the interface agreements were for internal interfaces.

Documents provided by the DSS Program Office November 13, 1998, are inconsistent in identifying DSS interfaces and further complicate the status of interface identification. One of those documents, the "Distribution Standard System (DSS) Year 2000 Follow On Interface Test Plan" (Follow On Interface Test Plan), November 13, 1998, lists 11 external interfaces and 3 internal interfaces that will be tested. Of those 11 external interfaces, 6 do not appear on the September 29, 1998, list of external interfaces. In addition, those six external interfaces do not have interface agreements. Another of the documents provided on November 13, 1998, the "Test and Certification Strategy for DSS Year 2000 Compliance" (DSS Test and Certification Strategy), October 1998, provides a list of DSS interfaces that is not consistent with the Follow On Interface Test Plan. In addition, the DSS Test and Certification Strategy document is not internally consistent. Appendix C of the DSS Test and Certification Strategy lists 13 interfaces that require an agreement. That list also contains eight Customer Information Control System external interfaces and six DSS applications. However, page 4 of the body of the DSS Test and Certification Strategy lists 12 interfaces that require an interface agreement instead of the 13 listed in the appendix. Additionally, neither of the lists in the DSS Test and Certification Strategy matches the September 29, 1998, list of external interfaces. A detailed comparison of the various interface lists provided to the audit team is in Appendix B.

Interface Agreements. External interface agreements, according to the DoD Management Plan, must contain the following minimum information:

- names of interfacing systems;
- description of interface (including data set and data file name);
- interface strategy for both sending and receiving systems (file expansion, procedural code, sliding window, or other specified strategy);

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- milestone dates for analyses, programming testing, joint testing, and implementation;
 - review and acceptance process;
 - point of contact for each interfacing system, to include organization, telephone, and email address; and
 - signature of point of contact for each interfacing system.

External Agreements. The DSS Program Office provided copies of interface agreements for 14 external systems; 12 of the interface agreements were provided in October 1998 and 2 additional agreements covering the Cargo Movement Operations System were provided on November 13, 1998.

A review of the 14 DSS interface agreements disclosed that 3 met the minimum requirements described in the DoD Management Plan. The following table indicates the required elements included in the interface agreements for the 14 external interfaces.

DSS Interface Agreements: Required Interface Elements

<u>System Name</u>	<u>Description</u>	<u>Strategy</u>	<u>Milestones</u>	<u>Review Process</u>	<u>Point of Contact</u>	<u>Signature</u>
AMCISS ¹	X	X			X	X
CMOS ²	X	X	X	X	X	X
CMOS/AMS ³	X	X	X	X	X	X
CFM ⁴	X	X	X	X	X	
CFM/SCDS ⁵	X	X	X	X	X	
CAIMS ⁶	X	X		X		X
DBMS ⁷	X	X	X	X	X	X
DQARES ⁸	X	X			X	X
SCDS (D035L) ⁹	X	X			X	X
SCDS (D035R) ¹⁰	X	X			X	X
SCDS (D035K) ¹¹	X	X			X	X
SCS ¹²						X
TC-AIMS II ¹³	X	X		X		X
UADPS ¹⁴	X	X				X

¹Army Materiel Command Installation Supply System

²Cargo Movement Operations System

³Cargo Movement Operations System/Automated Manifest System

⁴Continental United States Freight Management System

⁵Continental United States Freight Management System/Stock Control and Distribution System

⁶Conventional Ammunition Integrated Management System

⁷Defense Business Management System

⁸Distribution Quality Assurance Reporting and Evaluation System

⁹Stock Control and Distribution System/Inventory and Storage Process (D035L)

¹⁰Stock Control and Distribution System/Transportation Routing and Documentation (D035R)

¹¹Stock Control and Distribution System/Wholesale and Retail Shipping (D035K)

¹²Stock Control System

¹³Transportation Coordinators--Automated Information for Movement Systems II

¹⁴Uniform Automated Data Processing System--Stock Points

Internal Interfaces. Internal interfaces are those interfaces that exist between two DLA organizations. Internal interfaces are also vulnerable to Y2K problems that could introduce or propagate errors from one DLA system to another. As of November 12, 1998, DLA had identified seven internal DSS interfaces to the audit team. Documents provided by DLA on November 13, 1998, identified internal interfaces that did not match the seven internal interfaces previously identified (see Appendix B). Although the DoD Management Plan does not require interface agreements between internal interface partners, the evident

confusion over identifying those internal DSS interfaces increases the risk that internal interfaces may not be identified, tested, and certified as Y2K compliant. In response to the draft report, DLA stated that all interfaces were identified in the Follow On Interface Test Plan dated November 13, 1998. However, as of January 31, 1999, DLA had not explained the disparity between the interfaces listed in that document and the 14 interface agreements provided to us.

Importance of Interfaces. Accurate data exchanges with all interface partners are critical to the successful operation of DSS. AIS interface identification, along with properly prepared interface agreements, must be in place to ensure accurate data exchanges. Those agreements also facilitate the preparation of the plans for Y2K testing required by the Deputy Secretary of Defense memorandum, "Year 2000 (Y2K) Verification of National Security Capabilities." In addition, the DoD Management Plan requires that all interfaces be tested and certified prior to exit from the validation phase (Phase IV) of the five phases of Y2K management. According to the schedule in the DoD Management Plan, DSS as well as other mission-critical automated systems were to have completed the validation phase by September 30, 1998. In view of the deficiencies in the identification of key interface data, DLA risks being unable to perform its operational mission in the Y2K environment.

Testing

The overall DSS Y2K test and certification process followed by DLA and the Y2K management process followed by DISA did not provide adequate support for DLA to certify that DSS was Y2K compliant. Although DLA implemented a Y2K program for DSS and performed testing of Y2K critical dates, interrelated management conditions at DLA and DISA as of November 1998 could have prevented DLA from certifying that DSS was Y2K compliant by the target date of December 31, 1998. DLA met the December 31, 1998, target date, but the certification was based on the validation testing completed November 20, 1998. DLA did not conduct interface testing or an operational assessment in support of the certification.

Test Planning and Execution. DLA initiated testing of DSS for Y2K compliance and implemented a program to monitor the testing of hardware and software located at 18 depots.² As part of the DSS testing strategy, DLA included developmental testing, operational assessment, follow-on interface testing, and time machine testing. However, DLA did not document all of the testing schedules and test plans for DSS, as required in the DLA "Test and Certification Process for Year 2000 Compliance of Automated Information Systems," April 1998. In addition, the tests may not support the certification of DSS as Y2K compliant.

²DSS has been implemented at 18 distribution depots in the continental United States. Two distribution depots, located outside the continental United States, are scheduled for DSS implementation in FY 1999. Two additional depots located in the continental United States have been privatized and do not use DSS.

Developmental Testing. DLA prepared a developmental test plan that was executed by DSDC, Ogden. The developmental testing described in the plan was intended to verify that DSS accurately processes 10 of the dates identified by DoD as being critical for testing Y2K compliance. Interface testing was included in the plan. However, DSDC personnel stated that the interface testing was conducted using simulations that demonstrated that DSS properly processed Y2K dates. That simulated interface testing did not involve point-of-origin testing or actual use of the interface. Although the DoD Management Plan allows systems to rely on simulation testing when operational constraints preclude direct testing with interface partners, DLA did not identify any operational conditions that would preclude testing DSS directly with interface partners. The developmental testing, completed on November 20, 1998, was to be used as the basis for certifying that DSS is Y2K compliant. As a result of our concerns with the adequacy of the DSDC execution of interface testing for Y2K certification, DSDC developed the Follow On Interface Test Plan.

Operational Assessment. DLA might not have had time to adequately address operational issues not covered during the developmental testing of DSS to meet the December 31, 1998, deadline for completion of the implementation phase (Phase V) of all mission-critical DoD systems. DLA planned to conduct an operational assessment of DSS using the services of an independent contractor in order to verify that DSS can perform its operational mission in the Y2K environment. The scope of the operational assessment had not been determined or an operational assessment plan prepared as of November 13, 1998. DLA explained that an assessment plan would be developed after the data gathered during the developmental testing was analyzed to determine if additional testing would be required during the operational assessment. If additional testing was required, we believe that insufficient time remained to conduct the testing. In addition, test resources had not been identified. DLA should prepare an operational assessment plan that identifies the scope of the effort and any additional resources required.

Follow-On Interface Testing. We believe DLA did not have sufficient time to adequately test DSS interfaces in order to certify Y2K compliance by December 31, 1998. DLA had only begun discussions with its interface partners in November 1998. All interfaces had not been identified and documented in interface agreements as of November 1998. In addition, interface testing was not part of the DLA testing strategy that supports DSS Y2K certification. The DSS certification strategy called for using simulation testing conducted during developmental testing as the basis for certifying that DSS is Y2K compliant. In view of the deficiencies in the identification of interfaces and key interface data, the simulation testing would not provide an adequate basis for certifying that DSS is Y2K compliant and able to perform the operational mission for which it was intended.

Time Machine Testing. DLA had not defined the purpose or scope of time machine testing as of November 1998, and had planned on conducting that testing after the December 31, 1998, deadline for exit from the implementation phase (Phase V) of Y2K management. In the DSS Test and Certification Strategy document, the stated objective of the time machine testing is "to ensure that DISA can effectively support DSS core logistics business functions in a DISA certified

environment over the full range of Y2K problem dates.” The DoD Management Plan states that the final phase of the multi-phase testing and validation process is acceptance testing. During acceptance testing the entire information system--including data interfaces--is tested with operational data. Additionally, in order to exit the validation phase, the system must be tested on a compliant domain and in an operationally compliant environment. However, DLA indicated that time machine testing would not be conducted until March 1999 and as of November 1998 had only recently started discussions with DMC, Ogden, regarding the testing to be performed. As a result, DLA would not have time to perform the testing required to certify DSS as Y2K compliant prior to December 31, 1998. Again, DLA met the December 31, 1998, target date but did not conduct interface testing or an operational assessment in support of the certification.

DSS Test and Production Domains

The overall Y2K test and certification process followed by DLA and the Y2K management process followed by DISA did not provide adequate assurance or support for DLA to certify that DSS is Y2K compliant. DLA did not identify and use a DSS test domain³ that was Y2K compliant. The developmental testing completed November 20, 1998, was not conducted on a Y2K compliant domain. Further, the DSS production domain would require a waiver to be considered compliant. In addition, the DMC domain status reports were not a reliable source for determining Y2K status.

Role of Megacenters and Domains. DMCs are the primary providers of mainframe computer services to functional users in the Army, the Navy, the Air Force, the Marine Corps, and the Defense agencies. The systems that run on a mainframe computer operate in a logical partition called a “domain.” DMCs are responsible for the Y2K compliance of the computer hardware and the executive software. The Central Design Activities that are organizationally part of the Services and Defense agencies are responsible for developing and maintaining the application software and making the application software work within a domain running at the DMCs.

Test Domain. DLA did not perform the testing to be used as the basis for DSS Y2K certification in a Y2K compliant test domain. The test domain was not compliant because the executive software and a compiler for the DSS domains were not Y2K compliant. A domain includes the system application, its data, and the executive software. DMC, Ogden, has one DSS test and development domain and three production domains that support the distribution depots. As of January 31, 1999, none of the DSS domains were fully Y2K compliant. The DoD Management Plan requires that a system must be tested on a compliant domain and in an operationally compliant environment in order to exit the validation phase. Therefore, the developmental tests of DSS were not performed in a Y2K compliant domain, which would prevent DLA from certifying DSS as Y2K compliant.

³The logical partition that ran the DSS application during testing was the test domain. The logical partition that runs the DSS application on a day-to-day basis is the production domain.

Production Domain. Although DMC, Ogden, anticipated that the software on the production domains would be Y2K compliant by using patches and software upgrades, the DSS compiler cannot be made Y2K compliant. The DSS compiler uses COBOL programming language, which is also the DSS programming language. However, technical constraints preclude the compiler from being updated or modified to achieve Y2K compliance. DMC, Ogden, advised the audit team that a Y2K compliant compiler is available. However, using the compliant compiler is not a viable option because it would require a substantial rewrite of the DSS code to another programming language. In addition, there are technical deficiencies with the Y2K compliant compiler. DLA created a "work-around" for the compiler problem that uses a sliding window technique that will convert the compiler's two-digit date to the required DSS four-digit format. Because DLA implemented the work-around, DLA determined that the noncompliant compiler will not adversely affect DSS capability to process Y2K dates. DMC, Ogden, advised DSDC, Ogden, that DSS must have a waiver from the Secretary of Defense in order to keep the noncompliant compiler.

The Office of the Secretary of Defense granted a waiver to DLA on January 5, 1999, that stated "the DSS . . . may be considered compliant with the current workarounds and disabling of non-compliant applications on the same platform." That waiver also directed DLA to request that DISA expedite the installation of Y2K compliant products no later than the third quarter of calendar year 1999. In a separate waiver, also dated January 5, 1999, the Office of the Secretary of Defense granted DSS a waiver for use of noncompliant software. The COBOL compiler was specifically cited as part of the waiver. The software waiver directed that DLA develop a migration plan for movement off the COBOL compiler to a Y2K compliant product and provide a quarterly status report on the migration effort to the Office of the Secretary of Defense. The waiver required that all Y2K compliant products be tested and installed free of charge to the customer by the second quarter of calendar year 2000. Copies of the waivers are in Appendix C.

Reliability of Domain Y2K Status. The Y2K status of domains reported by DMC, Ogden, was unreliable due to errors in the spreadsheets compiled by DMC, Ogden. DMC, Ogden, maintains spreadsheets that identify the executive software attributable to each domain and uses those spreadsheets to monitor the Y2K status of software associated with a domain.

On November 19, 1998, DMC, Ogden, provided spreadsheets of the Y2K status of the executive software associated with the DSS domains located at that DMC. Upon receiving the spreadsheets, we contacted DMC, Ogden, personnel to confirm our understanding of the spreadsheets and to validate our conclusion that none of the DSS domains were Y2K compliant because each domain reported at least one type of noncompliant executive software. We provided a copy of the spreadsheets to the DLA point of contact that monitors the Y2K status of the software. DLA determined that the spreadsheets were inaccurate and notified DMC, Ogden, that the spreadsheets were inaccurate. In response to the reported inaccuracy, DMC, Ogden, personnel explained that they had erroneously attributed a type of executive software to DSS that is not applicable to the DSS domain. The executive software that was erroneously attributed to the DSS domain was reported on the spreadsheets as being Y2K noncompliant. Such

inaccurate reporting of the Y2K status of domains can be misleading in assessing the Y2K capability of DSS or other systems to perform their operational mission in the Y2K environment.

DISA Test Agreements

The test agreement between DISA and DLA did not meet the intent of the DoD policy.

Secretary of Defense Policy. The Secretary of Defense issued a memorandum on August 7, 1998, stating that DoD was making insufficient progress in its effort to solve its Y2K computer problems. To improve the accountability for corrective actions, the Secretary of Defense directed that several actions be taken. One of those actions required that the Military Departments, commanders in chief, and Defense agencies be responsible for ensuring that effective October 1, 1998, funds are not obligated for any domain user in a DISA megacenter if that domain user has failed to sign all associated explicit test agreements with DISA.

DSS Test Agreement. Although DISA and DLA signed a "Memorandum of Agreement for Defense Information Systems Agency Y2K Testing Support for the Defense Logistics Agency (DLA)," September 24, 1998, that agreement is not an explicit test agreement. The agreement is not specific to DSS or other DLA systems. It also does not identify test schedules, testing strategy, or resources required by system or test event. The agreement states that "DLA and DISA agree to coordinate Y2K testing strategies, schedules and, as needed, development of appropriate Y2K test procedures." The agreement appears to be a generic attempt to address all DLA systems. Other than state that DLA and DISA will coordinate, the agreement does not provide explicit information and therefore does not meet the intent of the Secretary of Defense policy. Without system-specific agreements between DLA and DISA, those agencies will not be able to effectively coordinate and plan the testing required to ensure that DSS and other systems are Y2K compliant.

Contingency Plans

DLA has taken positive steps to ensure that DSS Y2K risks are identified and managed in contingency planning for the materiel management mission. As of October 30, 1998, DDC had a draft contingency plan for DSS (called a business continuity plan) that contained the basic elements required for contingency planning outlined in the DoD Management Plan.

Definition of Contingency Plan. The DoD Management Plan provides the following definition of a contingency plan: "A plan for responding to the loss or unacceptable degradation of system use due to Y2K-related disruptions to the application software, database, operating system, network, infrastructure or environment."

Management Action. During the audit, DDC made significant progress in developing and refining the DSS business continuity plan. In September 1998, we reviewed an early draft of the DSS business continuity plan. We noted that the focus appeared to be on disaster recovery (flood, fire, and the like) rather than system failure due to the Y2K problem that would have the potential to also infect designated disaster backup sites. As a result of our discussion with the DDC command group and the additional DoD focus on contingency planning, contingency planning was added to the agenda at the DDC Commanders Conference held during the third week of October 1998. In addition, DDC conducted a workshop on business continuity requirements during the week of November 17, 1998. DDC also tasked the distribution depots to update the existing contingency plans and risk assessments in keeping with the most recent DoD and DLA guidance. The deadline for completion of the updated plan was November 30, 1998, with initial depot input required by October 30, 1998. Our review of the October 30, 1998, version of the updated draft contingency plan showed that the revised plan included risk assessments and provided the basic structure and requirements for contingency planning that are listed in the DoD Management Plan.

DLA has recognized the important linkage between developing contingency plans and continuity of operations, and has taken action to ensure that the focus for DSS, as well as other mission-critical systems, is on the development of functional plans that will ensure continued performance of the operational mission. DLA CIO memorandum, "CIO Letter 98-34, Year 2000 Business Continuity and Contingency Planning," August 6, 1998, states that "the objective of business continuity and contingency planning was to have plans in place to ensure the continuation of core business processes in the event of an information technology failure caused by Y2K problems in application software, systems software, embedded microcircuit code, and the like."

Definition of Continuity of Operations. The "Capstone Operational Assessment Plan for Logistics Systems Year 2000" (the Capstone Plan) was released October 21, 1998, by the Under Secretary of Defense by memorandum. The Capstone Plan defines a continuity of operations plan as:

a set of contingency plans, with a single plan for each mission-critical function. Continuity of operations plans focus on maintaining mission or function capability by alternate means including automated replacement, semi-automated replacement or manual replacement of primary automated systems. The alternate means are developed in response to impact analysis resulting from the failure of internal and external information systems or loss of infrastructure services, e.g. electrical services. Proving the viability of contingency plans or functional continuity of operations plan will be integrated with end-to-end assessments where possible. . . . Components will develop a Continuity of Operations plan for each function with a goal of maximizing the functionality and speed of resumption of operations, including defining triggers for activating the plan. The plan should provide a description of resources, staff roles, procedures, and timetables needed for implementation.

Continuity of Operations Plan for Materiel Management. DLA was developing a contingency plan for the materiel management functional area that might be more appropriately labeled a continuity of operations plan according to the definition of continuity of operations plans in the Capstone Plan. The materiel management functional area includes the functions performed by DSS in support of the distribution depots as part of the overall DLA logistics mission. The DSS contingency plan that DDC was refining as of November 13, 1998, was to be composed of contingency plans for each distribution depot and, taken together, would form one part of the overall materiel management plan.

The "Business Continuity and Contingency Plan, Year 2000," was approved by the DDC commander on November 24, 1998, meeting the November 30, 1998, milestone for completion of the business contingency plan.

Recommendations, Management Comments, and Audit Response

1. We recommend that the Director, Defense Logistics Agency:

a. Develop and implement a depot-level year 2000 checklist.

DLA Comments. DLA partially concurred, stating that the Defense Logistics Support Command and DDC provided adequate guidance for the depots. Supplemental guidance issued by DDC included a Y2K checklist to assist efforts at the depot level. Facility reporting and in-progress reviews are also held on all items being checked. The assessments and reporting process serves to verify information provided on the checklist.

Audit Response. The DLA comments are not fully responsive. The Y2K checklist issued by DDC was not a checklist but a form for inventorying equipment and software. A checklist should identify the hardware and suites of software that are compliant and noncompliant for depots to use as a reference for upgrading their equipment and software. Such a checklist would assist depots in implementing equipment and software that is Y2K compliant. Therefore, we request that DLA develop a checklist that will ensure consistent implementation at the depot level and provide us a copy in response to the final report.

b. Complete the inventory of all Distribution Standard System interfaces and prepare interface agreements that contain the required data elements for all mission-critical interfaces.

DLA Comments. DLA partially concurred, stating that the original inventory was completed in September 1998, but that in preparing for follow-on interface testing, three additional interfaces requiring memorandums of agreement were identified. All interfaces were identified in the Follow On Interface Test Plan.

Audit Response. The DLA comments are not fully responsive. As of November 13, 1998, DLA had provided us with copies of 14 interface

agreements. Those 14 agreements did not correspond to the interfaces listed in the Follow On Interface Test Plan. DLA did not provide an explanation for the disparity between the 14 interface agreements and the inventory of interfaces listed in the November 13, 1998, interface test plan. DLA needs to reconcile that disparity and provide us with copies of interface agreements not previously provided. Additionally, DLA did not address the lack of required data elements in the content of the 14 interface agreements. We request that DLA provide the additional information in response to this final report.

c. Include the complete inventory of interfaces in the follow-on interface testing prior to year 2000 certification.

DLA Comments. DLA nonconcurred, stating that DSS is a compliant production system. As part of the validation testing, examples of all interface transactions were simulated to DSS. Additional interface testing will be accomplished during the logistics end-to-end tests. DLA further stated that there was no missing interface inventory identified in the Follow On Interface Test Plan. The memorandum of agreement for the last interface was signed on December 22, 1998, and DSS was certified as Y2K compliant on December 30, 1998.

Audit Response. The DLA comments are not responsive because a sufficient explanation was not provided for the disparity between the 14 interface agreements we reviewed and the list of interfaces contained in the Follow On Interface Test Plan. We request that DLA provide us a list of the interfaces that were tested, the dates that they were tested, and how those tested interfaces relate to the 14 interface agreements provided to us as of November 13, 1998.

d. Develop a comprehensive test plan and schedule for the operational assessment and time machine testing.

DLA Comments. DLA concurred, stating that the DLA test and certification process requires test plans for systems. The Defense Distribution Systems Center provided status reports and a final Y2K certification package with a test plan. DLA also stated that it had requested a proposal from DISA for conducting time machine testing and logistics end-to-end testing during the March through June 1999 time frame in order to satisfy operational assessment and time machine testing.

Audit Response. The DLA comments are partially responsive. Test plans for the software acceptance test completed on November 20, 1998, have been provided. However, a comprehensive test plan for the operational assessment and time machine testing have not been provided. Because DISA is not the user of DSS, it has a secondary role in developing a test proposal or plan for the time machine testing or logistics end-to-end testing of DSS. Therefore, we request that DLA, as the user of DSS, develop and provide a test plan as well as schedule for the operational assessment and time machine testing for DSS.

2. We recommend that the Director, Defense Logistics Agency, in conjunction with the Director, Defense Information Systems Agency:

a. Ensure that the test domain is year 2000 compliant prior to the certification of the Distribution Standard System as year 2000 compliant.

DISA Comments. DISA concurred, indicating that the test domain would be compliant by January 31, 1999.

DLA Comments. DLA nonconcurred, stating that it had secured a waiver from the Office of the Secretary of Defense that allows DSS to be certified as Y2K compliant based on the testing already conducted. The noncompliant products in the test domain were products not used by DSS.

Audit Response. The DLA comments are partially responsive. The waiver granted to DLA by the Office of the Secretary of Defense on January 5, 1999, stated "the DSS... may be considered compliant with the current workarounds and disabling of non-compliant applications on the same platform." That waiver also directed DLA to request that DISA expedite the installation of Y2K compliant products no later than the third quarter of calendar year 1999. In a separate waiver, the Office of the Secretary of Defense directed that DLA develop a migration plan for movement off the COBOL compiler to a Y2K compliant product and provide a quarterly status report on the migration effort to the Office of the Secretary of Defense. In addition, DLA was directed to maintain a configuration control log that showed where the Y2K noncompliant products are installed and orchestrate their replacement. We request that DLA provide an explanation of the work-arounds or procedures to disable noncompliant software residing on the DSS domains. We also request that DLA provide a copy of the migration plan for movement off COBOL and a copy of the configuration control log required under the terms of both waivers.

b. Validate that the year 2000 status reported for the Defense Megacenter domains is accurate and that the status of software attributed to each domain is accurate.

DISA Comments. DISA concurred, explaining that it had teams examine and perform quality control checks on each copy of the database used by the megacenters to generate spreadsheets of the Y2K status of the executive software associated with each DSS domain located at a megacenter. In addition, DISA established a configuration management branch to administer stringent policies and procedures for access, population, and use of the database. Further, as of December 1998, DISA began submitting monthly Y2K compliant domain status reports to the Office of the Secretary of Defense.

Audit Response. The DISA comments are partially responsive. Subsequent to receiving the DISA comments to the draft report, we met with DISA on January 21, 1999, concerning the database. DISA explained that the domain status in the database did not match the status information contained in the monthly status reports provided to the Office of the Secretary of Defense because the database was not yet updated to provide an accurate account of the Y2K domain status. Also, DLA and other domain users did not have direct on-line

access to the database. In order to review domain status, the domain users must request status reports. We are pursuing issues related to the domain status reporting in other ongoing reviews by this office. No further DISA comments on this recommendation are required in support of this report.

DLA Comments. DLA concurred, stating that it had validated the accuracy of the Y2K status of software in each megacenter domain that runs DSS.

c. Obtain a waiver for the compiler associated with the Distribution Standard System test and production domains.

DISA Comments. DISA concurred, explaining that DLA is responsible for the COBOL compiler and is therefore the submitting organization for the waiver request to the Office of the Secretary of Defense.

DLA Comments. DLA concurred, stating that it secured a waiver from the Office of the Secretary of Defense that allows the use of the COBOL compiler for DSS.

d. Initiate and sign explicit Distribution Standard System test agreements between the Defense Information Systems Agency megacenters and the Defense Logistics Agency as required by Secretary of Defense policy of August 7, 1998.

DISA and DLA Comments. DISA concurred, stating that it had signed memorandums of agreement with its major customers that cover Y2K testing arrangements. DLA partially concurred, stating that DLA had signed an explicit test agreement with DISA in September 1998.

Audit Response. DISA and DLA comments were not responsive. DISA does not have an explicit test agreement between the DISA megacenters and DLA as required by the Secretary of Defense policy. The issue of compliance with the intent of the August 1998 guidance and of whether there are more advisable alternatives than individual written agreements is also being pursued separately by the Inspector General, DoD.

Appendix A. Audit Process

This is one of a series of reports being issued by the Inspector General, DoD, in accordance with an informal partnership with the DoD CIO to monitor DoD efforts to address the Y2K computing challenge. For a listing of audit projects addressing this issue, see the Y2K webpage on IGnet at <http://www.ignet.gov>.

Scope and Methodology

Work Performed. We reviewed and evaluated the status of the progress that DLA had made in resolving Y2K computing issues for DSS. We evaluated the Y2K efforts of DLA, compared those efforts described in the DoD Management Plan issued by the Assistant Secretary of Defense (Command, Control, Communications, and Intelligence) in April 1997, the draft DoD Management Plan issued in September 1998, and the DoD Management Plan, Version 2, December 1998. We obtained documentation on system inventory status, interface agreements, and contingency plans available as of November 13, 1998. We also interviewed personnel within the DLA CIO Y2K Program Office, DSS Program Office, DDC, DSDC, and four DLA distribution depots concerning Y2K. We used the information from the interviews and documents to assess efforts related to the multiple phases of managing the Y2K problem. In order to provide the most recent status of the DSS Y2K program, we also interviewed personnel within DISA, the DLA CIO Y2K Program Office, DDC, and DSDC during the period of December 15, 1998, through January 31, 1999.

Limitation of Audit Scope. Our review did not include nonstandard computer systems or applications that were developed outside the purview of the DLA. We did not test Y2K compliance of DLA AISs. Our review was limited to the Y2K management process for testing and contingency planning for DSS.

DoD-Wide Corporate Level Goals. In response to the Government Performance and Results Act, DoD has established 6 DoD-wide corporate-level performance objectives and 14 goals for meeting the objectives. This report pertains to achievement of the following objective and goal.

Objective: Prepare now for an uncertain future. **Goal:** Pursue a focused modernization effort that maintains U.S. qualitative superiority in key war fighting capabilities. (DoD-3)

DoD Functional Area Reform Goals. Most major DoD functional areas have also established performance improvement reform objectives and goals. This report pertains to achievement of the following functional area objectives and goals in the Information Technology Management Functional Area.

- **Objective:** Become a mission partner. **Goal:** Serve mission information users as customers. (ITM-1.2)

- **Objective:** Provide services that satisfy customer information needs. **Goal:** Modernize and integrate Defense information infrastructure. (ITM-2.2)

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- **Objective:** Provide services that satisfy customer information needs.
Goal: Upgrade technology base. (ITM-2.3)

High-Risk Area. In its identification of risk areas, the GAO has specifically designated risk in resolution of the Y2K problem as high. This report provides coverage of that problem and the overall Information Management and Technology high-risk area.

Use of Technical Assistance. A computer engineer from the Software Engineering Branch of the Technical Assessments Division, Inspector General, DoD, assisted in analyzing the DSS domain software for Y2K compliance.

Audit Type, Dates, and Standards. We performed this program audit from September 1998 through January 1999 in accordance with auditing standards issued by the Comptroller General of the United States, as implemented by the Inspector General, DoD. We did not use any computer-processed data for this audit.

Contacts During the Audit. We visited or contacted individuals and organizations within DoD. Further details are available on request.

Management Control Program. We did not review the management control program related to the overall audit objective because DoD recognized the Y2K issue as a material management control weakness area in the FY 1998 Annual Statement of Assurance.

Summary of Prior Coverage

The GAO and the Inspector General, DoD, have conducted multiple reviews related to Y2K issues. GAO reports can be accessed over the Internet at <http://www.gao.gov>. Inspector General, DoD, reports can be accessed over the Internet at <http://www.dodig.osd.mil>. The previous reports most relevant to the subject matter of this report are listed below.

General Accounting Office

GAO Report No. AIMD 97-106, "Defense Computers: Issues Confronting the Defense Logistics Agency in Addressing Year 2000 Problems," August 12, 1997.

Inspector General, DoD

Inspector General, DoD, Report No. 98-193, "Evaluation of the Defense Megacenters Year 2000 Program," August 25, 1998.

Appendix B. Distribution Standard System Interfaces

The following table compares DSS interface identification by the data source. On-hand interface agreements are those agreements that DLA had on hand as of November 13, 1998. The undocumented DLA list was a compilation of interface information provided by DLA to the audit team by email or verbally prior to November 12, 1998. Information shown in the table under "DLA Documented Interface Requirements" was taken from the DSS Test and Certification Strategy and the Follow On Interface Test Plan. Both of those documents were provided to the audit team by DLA on November 13, 1998. Internal interfaces do not require interface agreements.

Comparison of DSS Interfaces by Source

<u>System Name</u>	<u>On-hand Interface Agreement</u>	<u>Undocumented DLA List as of 11-12-98</u>	<u>DLA Documented Interface Requirements</u>	
			<u>DSS Test and Certification Strategy 10-98</u>	<u>Follow On Interface Test Plan 11-13-98</u>
Army Materiel Command Installation Supply System	Yes	External	Agreement required	External
Automated Weight and Offer Station	No	Internal	CICS External	Internal
Cargo Movement Operations System	Yes		Agreement required	
Cargo Movement Operations System/Automated Manifest System	Yes		Agreement required	
Continental United States Freight Management System	Yes	External	Agreement required	
Continental United States Freight Management System/Stock Control and Distribution	Yes	External	Agreement required	
Conventional Ammunition Integrated Management System	Yes	External	Agreement required	

Comparison of DSS Interfaces by Source (cont'd)

<u>System Name</u>	<u>On-hand Interface Agreement</u>	<u>Undocumented DLA List as of 11-12-98</u>	<u>DLA Documented Interface Requirements</u>	
			<u>DSS Test and Certification Strategy 10-98</u>	<u>Follow On Interface Test Plan 11-13-98</u>
Defense Automated Addressing System	No		Agreement Required	External
Defense Business Management System	Yes	External	Agreement Required	External
Defense Logistics Information System	No	Internal	CICS External	External
Dimension and Weight Station	No	Internal	CICS External	Internal
Distribution Quality Assurance Reporting and Evaluation System	Yes	External	Agreement required	
Electronic Data Exchange	No			External
Equipment Control System	No	Internal	DSS Application	Internal
Federal Express Power Ship	No			External
Internet (Web)	No	Internal	CICS External	External
Inter System Application Communication Service	No	Internal	CICS External	External
Standard Equipment Control System	No		CICS External	
Stock Control and Distribution System (SCDS)/Inventory and Storage Process	Yes	External	Agreement Required	

Comparison of DSS Interfaces by Source (cont'd)

<u>System Name</u>	<u>On-hand Interface Agreement</u>	<u>Undocumented DLA List as of 11-12-98</u>	<u>DLA Documented Interface Requirements</u>	
			<u>DSS Test and Certification Strategy 10-98</u>	<u>Follow On Interface Test Plan 11-13-98</u>
SCDS/Transportation Routing and Documentation	Yes	External	Agreement Required	
SCDS/Wholesale and Retail Shipping	Yes	External	Agreement Required	
Stock Control System	Yes	External		External
Transportation Coordinators--Automated Information for Movement Systems II	Yes	External	Agreement required	External
Uniform Automated Data Processing System--Stock Points	Yes	External	Agreement Required	External

Appendix C. Distribution Standard System Year 2000 Waivers



OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
6000 DEFENSE PENTAGON
WASHINGTON, DC 20301-6000

5 JAN 1999

MEMORANDUM FOR DIRECTOR, CHIEF INFORMATION OFFICER, DLA

SUBJECT: Granting of Waiver Request for DSS and JTAV

A waiver is granted for use of Y2K compliant software on platforms that may not be fully Y2K compliant for:

- The Distributed Standard System (DSS), and;
- The Joint Total Assess Visibility System (JTAV).

The Distributed Standard System (DSS) and JTAV may be considered compliant with the current workarounds and disabling of non-compliant applications on the same platforms. These waivers are granted under the following stipulations:

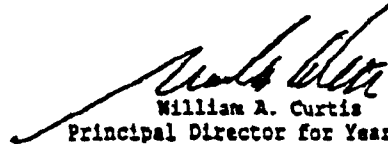
1. You will request that DISA expedite the replacement or elimination of all Y2K non-compliant products with Y2K compliant products, and the Y2K compliant products will be installed for every customer at no additional cost to the customer by the 3rd quarter of calendar year 1999.
2. JTAV and DSS have been tested and found Y2K compliant or have workarounds. As such JTAV and DSS may be considered Y2K compliant, with the workarounds and disabling of non-Y2k compliant applications.
3. A Y2K non-compliant product may reside on the same domain provided it has no interfaces with DSS or JTAV, or Y2K non-compliant applications have been disabled. It is acknowledged that DLA has no direct authority over the platform on which JTAV and DSS reside, therefore it is the responsibility of DISA to ensure that continued residence of non-Y2K applications do not interfere with DSS or JTAV.
4. All customers will be advised of the Y2K non-compliant products on the domains in question and their replacement schedules.



5. The DLA Y2K Office will maintain a configuration control log that shows where Y2K non-compliant products are installed and is responsible to orchestrate the replacement to ensure that it is completed within the time specified above.

Y2K compliance for DoD purposes includes compliance of all interfaces, even if a contractor will not agree that its product will be compliant at all interfaces.

With this waiver, the DLA may continue funding any affected contracts. For additional information you may contact Walter Benesch, 703-602-0983.



William A. Curtis
Principal Director for Year 2000



OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE
6000 DEFENSE PENTAGON
WASHINGTON, DC 20301-6000

5 JAN 1999

MEMORANDUM FOR DIRECTOR, CHIEF INFORMATION OFFICER, DLA

SUBJECT: Granting of Waiver Request for Continued Use of Non-Compliant Y2K COBOL OS/VS and COBOL II

A waiver is granted for use of non-Y2K compliant software for:

- The Standard Automated Material Management System (SAMMS);
- The Defense Integrated Subsistence Management System (DISMS);
- The Mechanization of Contract Administration Services (MOCAS);
- The Defense Fuels Automated Management System (DFAMS);
- Defense Reutilization and Marketing Automated Information System (DAISY);
- Headquarters Management Information Systems (HQMIS), and;
- The Distributed Standard System (DSS).

This waiver is granted under the following stipulations:

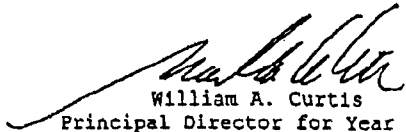
1. All Y2K non-compliant products will be replaced with Y2K compliant products, and the Y2K compliant products will be installed for every customer at no additional cost to the customer by the second quarter of Calendar Year 2000.
2. Y2K compliant replacement products will be installed and tested for each customer. It is required that a migration plan for movement off COBOL OS/VS and COBOL II be accelerated. A copy of the migration plan with schedule will be provided to this office.
3. A Y2K non-compliant product may be used or purchased if it is required for the implementation of a Y2K "fix" that is a temporary solution until such time as a permanent Y2K solution is implemented.
4. All customers will be advised that they are receiving a Y2K non-compliant product that will be replaced and tested at no additional cost to them.



5. The DLA Y2K Office will maintain a configuration control log that shows where Y2K non-compliant products are installed and is responsible to orchestrate the replacement to ensure that it is completed within the time specified above.
6. DLA will report to this office on the first week of every calendar quarter, the status of the transition from COBOL OS/VS to alternative compilers for the systems being granted this waiver.

Y2K compliance for DoD purposes includes compliance of all interfaces, even if a contractor will not agree that its product will be compliant at all interfaces.

With this waiver, the DLA may continue funding any affected contracts. For additional information you may contact Walter Weneach, 703-602-0983.


William A. Curtis
Principal Director for Year 2000

Appendix D. Report Distribution

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology
Deputy Under Secretary of Defense (Logistics)
Director, Defense Logistics Studies Information Exchange
Under Secretary of Defense (Comptroller)
Deputy Chief Financial Officer
Deputy Comptroller (Program/Budget)
Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)
Deputy Chief Information Officer and Deputy Assistant Secretary of Defense (Chief Information Officer Policy and Implementation)
Principal Deputy – Y2K
Assistant Secretary of Defense (Public Affairs)

Department of the Army

Auditor General, Department of the Army
Inspector General, Department of the Army

Department of the Navy

Assistant Secretary of the Navy (Financial Management and Comptroller)
Auditor General, Department of the Navy
Inspector General, Department of the Navy
Superintendent, Naval Postgraduate School
Deputy Naval Inspector General for Marine Corps Matters

Department of the Air Force

Assistant Secretary of the Air Force (Financial Management and Comptroller)
Auditor General, Department of the Air Force
Inspector General, Department of the Air Force

Other Defense Organizations

Director, Defense Contract Audit Agency
Chief Information Officer, Defense Contract Audit Agency
Director, Defense Information Systems Agency
Inspector General, Defense Information Systems Agency
Chief Information Officer, Defense Information Systems Agency
Director, Defense Logistics Agency
Director, National Security Agency
Inspector General, National Security Agency
Inspector General, Defense Intelligence Agency
Inspector General, National Imagery and Mapping Agency
Inspector General, National Reconnaissance Office

Non-Defense Federal Organizations and Individuals

Office of Management and Budget
Office of Information and Regulatory Affairs
National Security Division Special Projects Branch
Federal Chief Information Officers Council
General Accounting Office
National Security and International Affairs Division
Technical Information Center
Director, Defense Information and Financial Management Systems, Accounting and
Information Management Division
Inspector General, General Services Administration

Congressional Committees and Subcommittees, Chairman and Ranking Minority Member

Senate Committee on Appropriations
Senate Subcommittee on Defense, Committee on Appropriations
Senate Committee on Armed Services
Senate Committee on Governmental Affairs
Senate Special Committee on the Year 2000 Technology Problem
House Committee on Appropriations
House Subcommittee on Defense, Committee on Appropriations
House Committee on Armed Services
House Committee on Government Reform
House Subcommittee on Government Management, Information, and Technology,
Committee on Government Reform
House Subcommittee on National Security, Veterans Affairs, and International Relations,
Committee on Government Reform

Defense Information Systems Agency Comments



IN REPLY
REFER TO:

DEFENSE INFORMATION SYSTEMS AGENCY

701 S. COURTHOUSE ROAD
ARLINGTON, VIRGINIA 22204-2199

Inspector General

12 January 1999


MEMORANDUM FOR DEPARTMENT OF DEFENSE INSPECTOR GENERAL
ATTN: Kathryn Palmer, Readiness and
Logistics Support Directorate

SUBJECT: Agency Response to the Audit Report on Year
2000 Computing Issues: Defense Logistics
Agency Distribution Standard System (Project
No. 8LD-9021)

Reference: DODIG Draft Audit Report, subject as above,
8 December 1998

1. The Defense Information Systems Agency has reviewed the subject draft report and agrees with the findings and recommendations. Detailed comments are enclosed.
2. The Year 2000 (Y2K) problem continues to be the Director's top priority. The Director has maintained a high focus on the Defense Megacenters, and their approach to achieving Y2K compliance. During the weekly Y2K meetings, chaired by the Vice Director, the DMCs are highlighted to focus on the complexities involved in certifying all domains.
3. The WESTHEM POC for this action is Ms. Teresa White. She can be contacted at (703) 681-2260. The DISA OIG contact is Ms. Barbara Nichols. She can be reached on (703) 607-6607.

FOR THE DIRECTOR:



RICHARD T. RACE
Inspector General

1 Enclosure a/s

Quality Information for a Strong Defense

Response to the Draft DOD IG Audit Report Year 2000
Computing Issues: Defense Logistics Agency Distribution
Standard System Project No. 8LD-9021

Recommendation 2a: "Ensure that the test domain is Year 2000 compliant prior to the certification of the Distribution Standard System as Year 2000 compliant."

DISA Response: The DISA WESTHEM Area Command responsible for providing a test domain for DLA's DSS is Ogden. This test domain has been established and is referred to as the "MUL" domain. The executive software resident in that domain, along with its current Y2K status is attached. DLA has requested a waiver for its COBOL II compiler. Aside from that waiver being granted, DISA projects that the executive software resident in the MUL domain will be Y2K compliant by 31 Jan 99.

Recommendation 2b: "Validate that the Year 2000 status reported for the Defense Megacenters domains is accurate and that the status of software attributed to each domain is accurate."

DISA Response: DISA WESTHEM has established a comprehensive configuration management relational database called the Integrated Asset and Configuration Management System (IA & CMS). This relational database is an upgraded program from the earlier Aperture configuration management database and data that populated Aperture was carried over in to IA & CMS.

In order to ensure the integrity of the data populated in this database, DISA WESTHEM had teams examine and perform quality control checks on each copy of the database at each site. These site databases then feed up into the master copy of IA & CMS every 24 hours. Additionally DISA WESTHEM has an established Configuration Management program managed by the Configuration Management branch that administers stringent policies and procedures for access, use and population of the IA & CMS database.

Additionally, beginning with its December report, DISA has prepared and submitted a monthly Y2K compliant domain status report to OSD. This report reflects the close scrutiny that DISA gives to every domain every month. This report covers every domain that will NOT be compliant by 31 March 1999 - including the hardware, executive software and application status. This report also delineates the cause for domain compliance delay and the planned remediation. This report is staffed through DISA Headquarters before transmitted to OSD C3I.

Recommendation 2c: "Obtain a waiver for the compiler associated with the Distribution Standard System test and production domains."

Attachment
not included.

DISA Response: DLA is the responsible party for the COBOL II compiler used by DSS, and as such is the submitting organization for the waiver request to OSD. DISA WESTHEM and DLA are in close contact on the status of this waiver and DISA WESTHEM is willing to assist DLA in any manner that it can to assure this waiver is granted.

Recommendation 2d: "Initiate and sign explicit Distribution Standard System test agreements between the Defense Information Systems Agency megacenters and the Defense Logistics Agency as required by the Secretary of Defense policy of August 7, 1998."

DISA Response: DISA has signed Memorandums of Agreement with its major customers that cover the Y2K testing arrangements. These documents are available for review and have been provided to the DOD IG. DISA is also providing a cross-reference to associate each domain back to the major customer.

Defense Logistics Agency Comments



DEFENSE LOGISTICS AGENCY
HEADQUARTERS
8725 JOHN J. KINGMAN ROAD, SUITE 2533
FT. BELVOIR, VIRGINIA 22060-6221

JAN 21 1999

IN REPLY
REFER TO

DDAI

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR AUDITING,
DEPARTMENT OF DEFENSE

SUBJECT: DoD IG Draft Report, Year 2000 Computing Issues : DLA Distribution Standard
System, 8 Dec 98 (Project No.8LD-9021)

Enclosed are comments in response to your request of 8 January 1998. The action officer for
DDAI is Peggy Hayes 767-6262.

Enclosures

SHEILA P. RAINES
Team Leader, Liaison & Policy
Internal Review Office

cc:
CIO

Federal Recycling Program



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JAN 21 1999

**Draft Audit Report "Year 2000 Computing Issues: Defense Logistics Agency
Distribution Standard Systems" (Project No. 8LD-9021)**

1a. Develop and implement a depot-level year 2000 checklist.

Response: Partially concur. The Defense Logistics Support Command (DLSC) and Defense Distribution Center (DDC) have provided adequate guidance for the depots. DDC has established a comprehensive program and procedures to ensure depots are year 2000 (Y2K) compliant. In January 1998, the DDC issued its supplemental guidance to the DLA Y2K Management Plan, which included a Y2K checklist to assist efforts at the depot level. Facility reporting and in-process reviews are also held on all items being checked. The assessment and reporting process serves to verify information provided on the checklist. This recommendation was based on a finding in the report that identified a software program (NS/ELIT PLUS, version 2.20) which was not listed as Y2K compliant. This vendor erroneously identified version 2.20 as being noncompliant. The vendor has since stated that its version 2.20 is Y2K compliant. Notwithstanding, the depot has downloaded the version 2.22 from the vendor web site and has upgraded its personal computers at no cost to the government.

1b. Complete the inventory of all Distribution Standard System (DSS) interfaces and prepare interface agreements that contain the required data elements for all mission-critical interfaces.

Response: Partially concur. The original inventory was completed in September 1998, but in preparing for follow-on interface testing, three additional interfaces requiring Memoranda of Agreement (MOA) were identified. All interfaces were identified in the document entitled: "Distribution Standard System (DSS) Year 2000 Follow on Interface Test Plan" dated November 13, 1998. MOA for all seven external interfaces have been signed.

1c. Include the complete inventory of interfaces in the follow-on interface testing prior to year 2000 certification.

Response: Nonconcur. DSS is a compliant production system. DLA issued guidance on June 16, 1998 based on Director, Operational Test and Evaluation (OT&E) memorandum of April 25, 1997 which required DLA to verify Year 2000 compliance on systems that have already completed OT&E. DLA's guidance to the program managers and functional sponsors was to validate Y2K compliance on systems currently in production and provide status reports and a final Y2K certification to the Chief Information Officer. DSS validation testing included more than 200 scenarios and 2,200 test cases. Only three incidents in 14,500,000 lines of code test required a Y2K change. As part of the validation testing, examples were captured of all interface transactions and they were simulated to the DSS. Additional interface testing will be accomplished during the logistics end to end tests. There was no missing interface inventory identified in the document entitled: "Distribution Standard System (DSS) Year 2000 Follow on Interface

Test Plan" dated November 13, 1998. The MOA for the last interface was signed on December 22, 1998 and the system was certified on December 30, 1998.

1d. Develop a comprehensive test plan and schedule for the operational assessment and time machine testing.

Response: Concur. In accordance with existing test regulations, the DLA test and certification process requires test plans for systems. As a result of validation testing, the Defense Distribution Systems Center (DDSC) provided status reports, a final Y2K certification package with a test plan and test report. To satisfy operational assessments and time machine testing, DLA has requested a proposal from DISA for the conduct of time machine testing and Logistics Capstone end-to-end testing for DSS during the period March - June 1999. The DSS participation in time machine testing and logistics capstone testing is delineated in the DLA appendix to the OSD test plan.

2a. Ensure that the test domain is year 2000 compliant prior to the certification of the Distribution Standard System as year 2000 compliant.

Response: Nonconcur. DLA has secured a waiver from OSD that allows DSS to be certified as Y2K compliant based on the test conducted. The noncompliant products in the test domain were products not used by DSS and had no impact on the system.

2b. Validate that the year 2000 status reported for the Defense Megacenter domains is accurate and that the status of the software attributed to each domain is accurate.

Response: Concur. DLA has access to the DISA software database and has validated the accuracy of the software in each Defense Megacenter domain that runs DSS. This domain status is also reported to OSD. It is our understanding that the non-compliant products at DISA Area Command Ogden have been upgraded or removed by DISA as of December 20, 1998. The Mechanicsburg location will have its noncompliant products replaced or upgraded in January 1999.

2c. Obtain a waiver for the compiler associated with the Distribution Standard System test and production domains.

Response: Concur. DLA has secured a waiver from OSD that allows the use of the COBOL compiler for DSS.

2d. Initiate and sign explicit DSS test agreement between the DISA Megacenters and DLA as required by Secretary of Defense policy of August 7, 1998.

Response: Partially concur. DLA signed explicit test agreements with DISA in September 1998 with DMC Columbus as the sponsor for DLA for all DISA Megacenters. The specific systems are identified in attachment 2 of the DISA memorandum of agreement.

ACTION OFFICER: Clarence McNeill, CIO, 767-2181
PSE APPROVAL: Carla A. Von Bernewitz, CI, 15 Jan 99
COORDINATION: D. Stumpf, DDAI

DLA APPROVAL:

A handwritten signature in black ink, appearing to read "D. Stumpf", written over a horizontal line.

Audit Team Members

The Readiness and Logistics Support Directorate and the Audit Followup and Technical Support Directorate, Office of the Assistant Inspector General, DoD, prepared this report.

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Debra E. Alford
Robert M. Paluck

INTERNET DOCUMENT INFORMATION FORM

A . Report Title: Year 2000 Coomputing Issues: Defense Logistics Agency Distribution Standard System

B. DATE Report Downloaded From the Internet: 08/26/99

C. Report's Point of Contact: (Name, Organization, Address, Office Symbol, & Ph #): OAIG-AUD (ATTN: AFTS Audit Suggestions)
Inspector General, Department of Defense
400 Army Navy Drive (Room 801)
Arlington, VA 22202-2884

D. Currently Applicable Classification Level: Unclassified

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