

Office of the Inspector General

September 27, 1999

John R. Dyer  
Principal Deputy Commissioner  
of Social Security

Acting Inspector General

Management Advisory Report – Identifying and Validating Non-Mission Critical Commercial Software for Year 2000 Compliance (A-14-99-11003)

Attached is a copy of our subject final management advisory report. The objective of this review was to determine whether the Social Security Administration's non-mission critical commercial software had been identified and validated for Year 2000 compliance.

You may wish to comment on any further action taken or contemplated on our recommendations. If you choose to comment, please provide your comments within the next 60 days. If you wish to discuss the final report, please call me or have your staff contact Daniel R. Devlin, Acting Assistant Inspector General for Audit, at (410) 965-9700.

James G. Huse, Jr.

Attachment

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**OFFICE OF  
THE INSPECTOR GENERAL**

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**SOCIAL SECURITY ADMINISTRATION**

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**IDENTIFYING AND VALIDATING  
NON-MISSION CRITICAL  
SOFTWARE FOR  
YEAR 2000 COMPLIANCE**

**September 1999                    A-14-99-11003**

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**MANAGEMENT  
ADVISORY REPORT**

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Office of the Inspector General

John R. Dyer  
Principal Deputy Commissioner  
of Social Security

Acting Inspector General

**Management Advisory Report – Identifying and Validating Non-Mission Critical  
Commercial Software for Year 2000 Compliance**

This final management advisory report presents the results of the subject review. We conducted this review to determine whether the Social Security Administration's (SSA) non-mission critical software had been identified and validated for Year 2000 (Y2K) compliance. We met with SSA management on several occasions to discuss this review, and, while management has developed plans to address some of our concerns, we believe there are still issues that warrant management's attention.

The Office of Management and Budget (OMB) Circular A-130, *Management of Federal Information Resources*, February 8, 1996, states that agencies should establish oversight mechanisms that ensure each information system meets agency mission requirements. The General Accounting Office Guide, *Year 2000 Computing Crisis: An Assessment Guide* (GAO/AIMD-10.1.14), September 1997, states that an enterprise-wide inventory of information systems for each business area should be conducted to provide the necessary foundation for Y2K program planning. The Guide also states that agencies must determine which systems: (1) are mission critical, (2) support important functions, and (3) support marginal functions.

SSA's heavy reliance on automated systems to accomplish its mission has presented it with the enormous challenge of reviewing and converting all of its computer software for Y2K compliance. SSA's Chief Information Officer has overall responsibility for the Agency's Y2K program; however, the Office of Systems (OS) has the day-to-day responsibility of ensuring that changes are made to systems that support SSA's core business processes. SSA defined mission critical systems as those systems that support core business processes. OS is also coordinating with other SSA components to ensure that changes are made to less critical systems, many of which are kept on SSA servers and personal computers. SSA estimates that it is supported by at least 2,825 local area network servers with 59,095 workstations.

We focused our review on Y2K readiness of the non-mission critical commercial software maintained on SSA servers. We limited our review to non-mission critical commercial software on SSA servers because: (1) both GAO and an independent contractor reviewed SSA's mission critical software; (2) we wanted to expeditiously alert SSA about any of our concerns; and (3) software on servers is shared by multiple users and would, therefore, be more important to SSA components than software on personal computers.

We judgmentally selected servers used by the Offices of Disability Operations, Hearings and Appeals, and Quality Assurance as well as the Atlanta and Kansas City program service centers, teleservice centers, field offices, and regional offices. We selected these offices because they represented a cross section of SSA's components. Because our sample of servers was not randomly selected, the results of our review cannot be projected.

With the assistance of the Office of Systems, Year 2000 Project Office, we obtained inventories of all non-mission critical commercial software and analyzed these inventories by region/component. We then compared the regional/component inventories to the inventory SSA submitted to OMB. We used the Check 2000 Client Server software (Check 2000)<sup>1</sup> to scan SSA servers to identify commercial software applications not included in SSA's inventory of non-mission critical commercial software. Similarly, we scanned SSA servers to identify data base and spreadsheet files containing two-digit dates. We selected data base and spreadsheet files for testing because those files were more likely to contain dates that were used in calculations and formulas. However, word processing files could also be at risk, specifically if they use embedded functions such as macros.<sup>2</sup>

Our review identified two areas of concern that we believe management should address to ensure Y2K compliance of SSA's non-mission critical commercial software. These areas are discussed below.

### ***Non-Mission Critical Software Inventory Was Incomplete***

SSA's Y2K inventory of non-mission critical software was incomplete. We tested 57 (approximately 2 percent) of SSA's estimated 2,825 servers. We identified 216 copies of 22 commercial software applications that did not appear on SSA's Y2K inventory of non-mission critical software. Of the 57 servers tested, 52 (91 percent) contained at least 1 copy of the 22 software applications. Three of the 22 were on 49 SSA servers. The 22 software applications represented a variety of software applications. These applications included communications, word processing, and developmental software. For example, three were developmental applications used to develop in-house software. Appendix A shows by component/region the number, software vendor, and function of the 22 software applications identified by component.

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<sup>1</sup> This is a Y2K testing tool for networked personal computers licensed by Greenwich Mean Time.

<sup>2</sup> Macros are a series of keyboard and mouse actions recorded to a single key, symbol, or name.

Without a complete Y2K inventory of non-mission critical software maintained on SSA's servers, SSA cannot ensure that all of its commercial software is Y2K compliant. Also, an incomplete inventory affects the validity of SSA's periodic reporting to OMB on the status of its Y2K progress—especially SSA's May 1999 assertion that its non-mission critical systems inventory and Y2K validation are complete.<sup>3</sup>

We identified certain conditions that we believe are the fundamental causes of the incomplete Y2K inventory. The instructions to complete the non-mission critical software inventory were mostly verbal. We believe verbal instructions could easily be degraded and changed especially with turnover of personnel and the communication through the lines of authority below the SSA Y2K representatives, referred to as Deputy Commissioner Coordinators (DCC). The DCCs were responsible for identifying the software applications used by their respective components and reporting the inventories to OS. Our review determined that the DCCs did not use automated inventory tools to complete the Y2K inventory. Instead, they manually prepared the Y2K inventories of commercial software.

As a result, there was no consistency in the approach used to complete the Y2K inventory, and the inventory was prone to human errors and omissions. For example, our analysis of regional/component inventories revealed that the Seattle Region did not report its entire inventory until we questioned why it reported such a limited number of software applications. Also, the inventory for the Commissioner's Office continues to show no non-mission critical commercial software.

The Y2K inventory of software and validation of its Y2K compliance should be completed for all non-mission critical software, especially since there may be a risk that a noncompliant software application important to SSA operations will not be operational in the year 2000.

#### ***Data Bases and Spreadsheets Contain Two-Digits***

Our tests of 167 data base and spreadsheet files used on 18 servers identified 54 files (about 32 percent) with two-digit dates. Thirty of the files were data bases and 24 were spreadsheets. Appendix B shows the number of files identified with two-digit dates by SSA component. Although our test was useful in that we identified files with two-digit dates, we did not analyze the files to determine how the two-digit dates were used or assess the importance of the data files containing two-digit dates.

We believe the next step in ensuring Y2K compliance is an evaluation of these files to determine the true consequences of two-digit dates and the importance of the data files. This can only be determined after the context of the dates' use is understood. For example, some data files may use the date as the report heading, while other files may use the date in significant calculations. In addition, the way an application interprets a two-digit date may be different than the user intended and may differ between

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<sup>3</sup> SSA reports the status of its year 2000 progress to OMB each quarter.

applications. Microsoft reports this risk for its products. For example, for Excel 97, an application that SSA uses at its offices nationwide, Microsoft reports: "If a date is pasted from one application to another using only the last two digits of the year, Microsoft Excel might parse the date differently than the originating application calculated it."

Parsing relates to an application's interpretation of a two-digit date. For example, Microsoft Excel 97 interprets 1/1/00 through 12/31/29 as 1/1/2000 through 12/31/2029. Similarly, it interprets 1/1/30 through 12/31/99 as 1/1/1930 through 12/31/1999. This example suggests that users who continue to use two-digit dates in their data files must know how an application interprets that date.

Files with two-digit dates could disrupt SSA's non-mission critical operations with system failures or corrupt the information in the file. A file is corrupt when it continues operating but produces unpredictable results. The result may be degradation of reporting or unexplainable system behavior. For example, one of the most visible problems can be a file sort on two-digit year fields. Storing 1999 as 99 and 2000 as 00 will cause 00 date fields to sort before the 99 date fields. Therefore, reports generated from the sort will be wrong.

Some of the data files identified with two-digit dates may have been reviewed before our briefings with SSA on the results of our review. However, SSA's response did not indicate they had been previously reviewed.

### ***Conclusion, Management Response, and Suggested Actions***

We presented the results of our review to SSA. Although not formal, we recommended that SSA: (1) evaluate the risk that commercial applications have not been identified and inventoried by each component, (2) provide components access to Y2K software tools to ensure the Y2K inventory is complete, (3) validate Y2K compliance of any additional software identified, and (4) identify important data files needed for continued operations and determine whether those files contain two-digit dates and correct those dates where needed.

SSA took an aggressive approach in evaluating the results of our review. SSA provided explanations for 13 of the 22 applications that were not on the Y2K inventory of non-mission critical commercial software. (For example, 4 of the 22 applications were on an OS list of nationally distributed software, but they were not on the official Y2K inventory.) SSA is still evaluating the remaining nine applications. After evaluating the 54 data files containing two-digit dates, SSA reported that the files were Y2K compliant and not problematic. We believe similar evaluations are needed to determine the importance and the potential impact of other data files containing two-digit dates.

In response to our recommendations, OS determined whether all non-mission critical commercial software had been inventoried. As a result, OS determined that no further

action is needed for SSA field operations because users are unable to add commercial software to the servers without the assistance of OS. With respect to Headquarters components, OS has requested that each component interrogate local servers at least twice before January 1, 2000, to ensure the non-mission critical Y2K inventory is complete. OS will also make automated Y2K software tools available to all components. SSA did not indicate that any actions were planned to review data files.

While SSA deserves credit for its leadership in addressing the concerns identified during our review, SSA remains at risk that not all of its non-mission critical commercial applications and related data files will be corrected before January 1, 2000. At particular risk are commercial applications that have not yet been identified in its non-mission critical Y2K inventory and important data files containing two-digit dates. SSA should ensure that: (1) all commercial applications are inventoried and validated for Y2K compliance, (2) important data files containing two-digit dates are corrected where needed, and (3) components are advised of any risks inherent with using two-digit dates for each of the commercial applications supported by SSA.

## **AGENCY COMMENTS AND OFFICE OF THE INSPECTOR GENERAL RESPONSE**

In response to our draft management advisory report, SSA has either agreed to take action or has taken action to address the concerns we raised. SSA also provided additional information to clarify its efforts in addressing Y2K preparedness issues. Specifically, SSA has purchased and is using two software packages to assist in identifying files with two-digit dates. In addition, the Agency has instructed certain components to review reports generated from these utilities to investigate and take action on potential Y2K problems. The full text of the Agency's comments are included in Appendix C.

There are two additional issues that we wish to clarify. In its response to our first recommendation, SSA stated the DCC tracking report was not intended to be the complete inventory of all applications and commercial products used by SSA components. We used the DCC tracking report because it served as the basis for the Commissioner's certification to OMB that SSA's non-mission critical software was Y2K compliant.

Second, the Agency took exception to our statement that we found no evidence SSA provided information about the risks of using two-digit dates or directed components to inventory and evaluate data files and correct them where needed. We acknowledge that the corrective measures the Agency took to address potential Y2K problems indicate an awareness of the risks of using two-digit dates. As such, we have revised our report to more accurately reflect the action taken by the Agency.

# **APPENDICES**

## Commercial Software Inventory

We scanned 57 Social Security Administration (SSA) servers for software and identified 216 copies of 22 software applications not inventoried by SSA for Year 2000 (Y2K) compliance. Fifty-two of the 57 servers had at least 1 copy of the applications. Also, 3 of the applications were on 49 of the 57 servers.

<b>No.</b>	<b>Application</b>	<b>Vendor</b>	<b>Function</b>	<b>Component/Region<sup>1</sup></b>						<b>Total</b>
				<b>OQA</b>	<b>ODO</b>	<b>OHA</b>	<b>KCR</b>	<b>ATR</b>		
1	ACT! Registry Backup	Symantec	Contact Tracking						2	2
2	Bank Interest Calculator	Sage	Interest Calculator		1	1				2
3	Bounds Views <sup>2</sup>	Folio	Information Retrieval			10				10
4	B'Trieve <sup>3</sup>	Compsoft	Unknown	1						1
5	Codewright Editor	Premea	Development						1	1
6	DisplayWrite	IBM	Word Processing						1	1
7	Exchange Client for 95 <sup>4</sup>	Microsoft	Communications	7	8	8	13	13	49	
8	Exchange Server <sup>4</sup>	Microsoft	Communications						1	1
9	Folio Bound Views <sup>2</sup>	Folio	Information Retrieval	3		11				14
10	Hyper Access 5	Hilgraeve	File Transfer	2		1	2	1		6
11	Jetform <sup>5</sup>	Jetform	Form Design		1				1	2
12	Memory Master <sup>3</sup>	InSoft	Memory Utility			1				1
13	NetRemote <sup>3</sup>	Brightwork	Medical Record Management			10				10
14	Outlook <sup>4</sup>	Microsoft	Electronic Mail	7	8	8	13	13	49	
15	Pathworks	DEC	Server Software						2	2
16	PCFocus <sup>6</sup>	Information Builders	Unknown	1						1
17	PERL for NT <sup>4</sup>	Activeware	Development						1	1
18	Personal REXX	Mansfield Software	Development						1	1
19	Print to a File <sup>3</sup>	Unknown	Print Utility			10				10
20	SQZ!	Symantec	Unknown			1				1
21	Textware	Unknown	Unknown		1				1	2
22	Twain Thunker <sup>7</sup>	Hewlett Packard	Graphics Utility	7	8	8	13	13	49	
<b>Number of Servers Tested</b>				7	8	11	15	16	<b>57</b>	
<b>Number of Copies of Applications on Servers Tested</b>				28	27	69	41	51	<b>216</b>	
<b>Number of Servers With Applications</b>				7	8	11	13	13	<b>52</b>	

See explanation of footnotes on next page.

**<sup>1</sup> Component/Region**

OQA – Office of Quality Assurance and Performance Assessment

ODO – Office of Disability Operations

OHA – Office of Hearings and Appeals

KCR – Kansas City Region

ATR – Atlanta Region

**Applications Omitted From Y2K inventory**

<sup>2</sup> Application included with other applications when installed.

<sup>3</sup> Application reportedly not used by component.

<sup>4</sup> Application on an Office of Systems list of nationally distributed software.

<sup>5</sup> Application on inventory under a new product name, Form Flow. However, the vendor indicated Form Flow is different product.

**Applications Not Omitted From Y2K inventory**

<sup>6</sup> Application recorded on inventory with a different name, Focus PC.

<sup>7</sup> Software not in itself a separate application, but a graphics utility.

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## Data Base and Spreadsheet Files With Two-Digit Dates

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We tested 18 servers to identify data base and spreadsheet user files with two-digit dates. Fifty-four files containing two-digit dates were identified, of which, 30 were data bases and 24 were spreadsheets. These files were identified on 16 of the 18 servers tested.

<b>Component</b>	<b>No. of Files Tested</b>	<b>Total Files That Failed<sup>1</sup></b>		<b>Data Bases Tested</b>	<b>Failed DB<sup>2</sup> Files</b>		<b>Spread Sheets Tested</b>	<b>Failed SS<sup>3</sup> Files</b>	
		<b>No.</b>	<b>%</b>		<b>No.</b>	<b>%</b>		<b>No.</b>	<b>%</b>
Office of Disability Operations	31	6	19	4	1	25	27	5	19
Office of Hearings and Appeals	42	18	43	36	14	39	6	4	67
Office of Quality Assurance	28	12	43	18	5	28	10	7	70
Atlanta/ Birmingham Region	24	6	25	10	4	40	14	2	14
Kansas City Region	42	12	29	28	6	21	14	6	43
<b>Total</b>	<b>167</b>	<b>54</b>	<b>32</b>	<b>96</b>	<b>30</b>	<b>32</b>	<b>71</b>	<b>24</b>	<b>34</b>

<sup>1</sup> Files containing two-digit date

<sup>2</sup> Data base

<sup>3</sup> Spreadsheet

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**APPENDIX C**

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**AGENCY COMMENTS**

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## APPENDIX D

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# MAJOR CONTRIBUTORS TO THIS REPORT

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**APPENDIX E**

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**SSA ORGANIZATIONAL CHART**

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