

## Report of Findings

Submitted To  
United States Department of Justice

Submitted By  
Strategic Discovery, Inc.  
Adam S. Bendell

December 3, 2007

**STRATEGIC** discovery  
800 959 8001 | [www.strategicdiscovery.com](http://www.strategicdiscovery.com)  
San Francisco | Los Angeles | Washington DC | New York | Providence

**EXHIBIT 6**

## **I. Professional Qualifications**

See attachment A.

## **II. Materials Reviewed and Methodology**

My firm Strategic Discovery, Inc. was recently retained by the government to rebut the opinions and conclusions of Defendant's expert concerning the status of e-mail as read or unread. I reviewed several written materials in my preparation of this Report, including the Rule 16 Summary dated October 26, 2007 submitted by Defendant's expert Mr. Winston Krone, and online documentation published by Microsoft relating to the Messaging Application Programming Interface, the Outlook Object Model (the computer code that determines how user actions in Microsoft Outlook affect e-mail properties) and the underlying architecture of Microsoft Outlook and Exchange. On November 28, 2007, my firm took possession of two DVD's and one CD from the SafirRosetti firm containing numerous e-mail files reviewed by Defendant's expert. By the hearing date of December 17, 2007, SDI will have examined the 24 e-mails identified in the chart accompanying Defendant's November 7 letter using the same methodology used by Defendant's expert following the restoration of such e-mails from backup tape and their identification as belonging to Gary Swanson. Analysis of these e-mail files is continuing.

Defendant's expert has offered opinion testimony about the number of e-mails in Gary Swanson's mailbox between the date ranges of June 29, 2001 through June 15, 2002, and February 4, 2002 through July 1, 2003, that were "unread." These conclusions were based on the contents of a setting stored with all e-mails sent or received using the Microsoft Outlook e-mail program. According to the Rule 16 Summary, Defendant's expert examined e-mails within the above date range which were found in e-mail "mailbox" files apparently belonging to defendant Gary Swanson, using a third-party program named "Paraben E-mail Examiner." By totaling the number of recovered e-mails in which this setting had a specific value, the expert concludes that "During the period June 29, 2001 through July 1, 2003 Gary Swanson received and retained 23,557 e-mails in his inbox of which 10,612 were Unread items. This means that approximately 45% of the e-mails received by Mr. Swanson and identified on the PST files were Unread." From this percentage, Defendant's expert extrapolated the number of unread e-mails for the three month period from April 1, 2001 to June 28, 2001 for which none of Defendant's e-mail has been recovered. Based on this extrapolation, the witness concludes that "Mr. Swanson received 26,483 e-mails during the period April 1, 2001 through July 1, 2003 and 12,015 of those e-mails were unopened."

## **III. Technology Background**

Outlook 2000, the version of the Microsoft Outlook e-mail program which I am informed was the e-mail program in use by Defendant Gary Swanson at the time the e-mails in question were recovered, as well as all subsequent versions of Outlook, utilize a programming interface called "MAPI" (Messaging Application Programming Interface) to access individual e-mails in a mailbox and additional information ("metadata") stored along with each of them. An e-mail's current status as 'Read' or 'Unread' is stored in the MAPI MSGFLAG\_READ setting (or "flag"). A "flag" is a one-bit data structure that can store only a "one" or a "zero" value. In the case of the MSGFLAG\_READ flag, when the user takes an action, or the e-mail program executes an automated action, to mark an e-mail as 'Read' or 'Unread,' the value of the MSGFLAG\_READ flag is changed to one

(for read) or zero (for unread). The e-mail program makes changes in the way that specific e-mail is displayed (such as changing the shape of an icon and the font in which the message is displayed) to indicate this status to the user.

A significant limitation of this design is that an examination of an Outlook e-mail message at any point in time only reveals the current value of the MSGFLAG\_READ, not any prior values of that flag. Defendant's expert's opinion about whether particular e-mails of Defendant Gary Swanson were read or unread was based upon the value of the MSGFLAG\_READ flag (or its companion Outlook Object Model property, displayed as the 'Status' field in Paraben's E-mail Examiner) at the time the e-mail was acquired.

#### **IV. Findings**

##### **A. Reliability of Testimony Relating to the 'Read' or 'Unread' Status of E-mail**

The MSGFLAG\_READ flag is not a reliable indicator of whether an e-mail has actually been read by Gary Swanson. As Microsoft states in the MAPI reference guide: "Setting the MSGFLAG\_READ flag marks a message as having been read, which does not necessarily indicate that the intended recipient has actually read the message."<sup>1</sup> The converse is true as well: a MSGFLAG\_READ flag with a zero value does not necessarily mean the e-mail has not been read by the user. This is because there are multiple ways for the MSGFLAG\_READ flag to be changed during ordinary use of e-mail. For example:

1. The user can change the MSGFLAG\_READ flag of previously-read e-mail back to a zero (unread) value after the e-mail was opened.
2. It is possible to read a message in Outlook without ever changing the MSGFLAG\_READ flag. This may occur when a user views an e-mail's contents through the Reading Pane (or 'Preview Pane' in early versions of Microsoft Outlook).
3. The MSGFLAG\_READ flag may be changed if a message is read after the date it is acquired for examination.
4. The e-mail "server" (the program that runs on a computer server, in this case Microsoft Exchange) can change the value without any action by the user.

These scenarios are described in more detail below.

---

<sup>1</sup> <http://msdn2.microsoft.com/en-us/library/ms527993.aspx>

**1. Scenario 1: Users can manually set the 'Status' flag.**

Microsoft Outlook allows a user to change the MSGFLAG\_READ flag back to zero (unread) after a message has been read. This can be done conveniently and quickly for an entire mailbox, folder by folder, or for individual e-mail messages by highlighting the e-mails the user wants change and selecting "Mark as Unread" either from the Edit menu or from the context menu, as shown below:

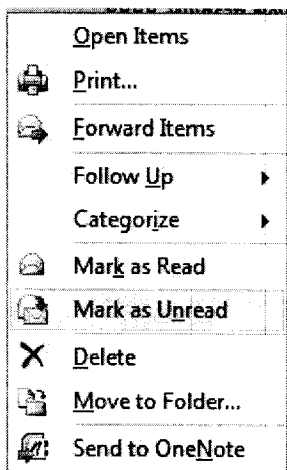


Figure 1. Right-click context menu from Microsoft Outlook showing "Mark as Unread" option.

An examination of the MSGFLAG\_READ flag cannot reveal any prior settings or whether the value has previously been changed in this manner. In my experience it is not unusual for users to manually change the MSGFLAG\_READ flag in this way. As a result, it is unreliable to conclude that an e-mail with a MSGFLAG\_READ flag set to zero (unread) was not read by the user.

## 2. Scenario 2: Microsoft Outlook allows e-mails to be read without updating the MSGFLAG\_READ flag.

Microsoft Outlook allows the user to preview the contents of an e-mail without changing the e-mail's MSGFLAG\_READ flag. In my experience, it is not unusual for users to view e-mails through the preview window without opening the e-mail (and thus changing the value of the MSGFLAG\_READ flag).

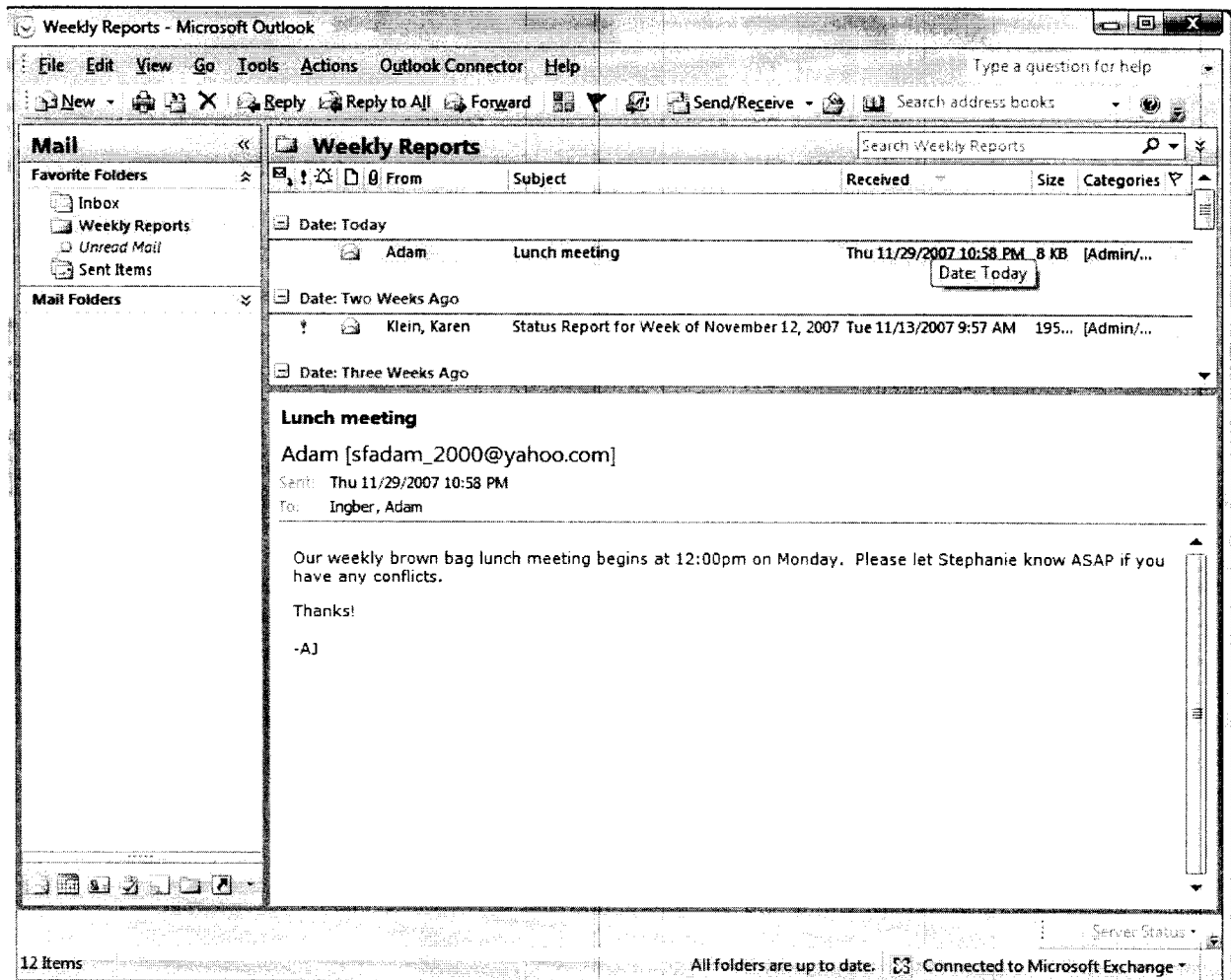


Figure 2. "Reading" or "Preview" Pane from Microsoft Outlook

Microsoft Outlook allows users to choose whether selecting a message and thus enabling it to be read in a "preview" window will change the MSGFLAG\_READ flag. This option is made available through the Reading Pane options in the Options menu, displayed in Figure 3, below.

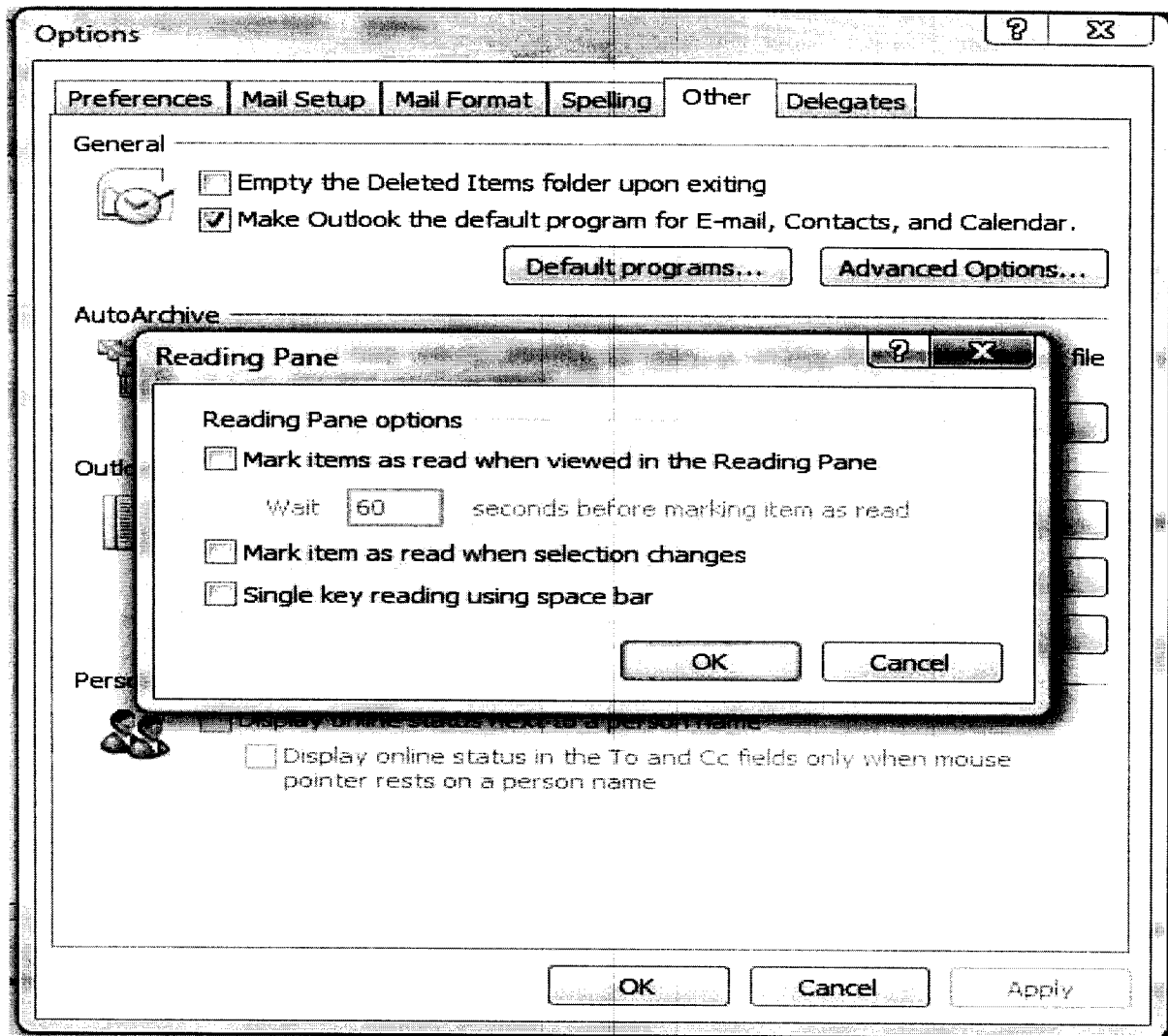


Figure 3. Reading Pane options menu.

Unselecting the 'Mark items as read when viewed in the Reading Pane' and 'Mark item as read when selection changes' options allows the user to view e-mails in the Reading Pane (or 'Preview Pane') without making changes to the MSGFLAG\_READ.

**3. Scenario 3. The MSGFLAG\_READ may be changed after the e-mail was acquired for examination.**

According to his report, Defendant's expert analyzed e-mail recovered from three Hynix backup tapes created on 5/2001, 6/2002 and 6/2003. A tape backup is created by copying the contents of stored data at a specific point in time to a tape device, usually for disaster recovery purposes. In the event data on the storage device is lost due to corruption, fire or other disaster, the data can be restored from the tape backup system. The tape backup is a snapshot in time of the data as it exists at the time the backup is acquired. Changes made to the data before or after the backup are not captured. As a result, there is no way to determine whether Defendant read any e-

mails before the backup, and then changed the values as above, or opened e-mails after the date the backup snapshot was acquired.

**4. Scenario 4. E-mail server changes the MSGFLAG\_READ value.**

The e-mail "server" (the program that runs on a computer server, in this case Microsoft Exchange) can change the value without any action by the user. This may occur inadvertently during data migration or installation of system-wide updates.<sup>2</sup>

**B. Reliability of Numerical Conclusion**

In my opinion, the investigation that Defendant's expert undertook was insufficient to reach any reliable conclusion about the number of e-mails actually unread or about whether a particular e-mail was or was not actually read by Defendant Gary Swanson. In addition to the problems with the reliability of the MSGFLAG\_READ flag, two additional factors should have been considered before reaching any conclusions about the number of messages Mr. Swanson received during a particular period and the number he "read" or "opened." Those are:

**1. Received e-mail may be deleted prior to examination.**

Defendant's expert's numerical calculations are based on the number of e-mails "received and retained" during a particular time period. But the final conclusion is that "Mr. Swanson **received** 26,485 e-mails during the period April 1, 2001 through July 1, 2003 and 12,015 of those e-mails were unopened." (emphasis added). This conclusion is unreliable, as Mr. Swanson may have received and deleted many e-mails during the relevant period before any "snapshots" of e-mails were recorded to backup tape.

**2. Determine whether the same e-mail is found in the recovered e-mail files more than once.**

It is not unusual to encounter duplicate e-mails, particularly when multiple versions of a mailbox are recovered from backup tapes taken at different points in time, as is the case here. Before reaching any conclusions about the number of unread e-mails, Defendant's expert should have determined the extent of duplication, including the number of 'unread' duplicates and the number of any duplicate e-mails with inconsistent MSGFLAG\_READ flags.

---

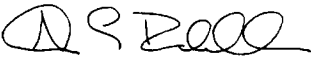
<sup>2</sup> For example, the message 'Read' or 'Unread' status for some messages may not have been preserved for users migrating to Microsoft Exchange Server 5.5 from Lotus Notes unless specific updates released by Microsoft to address this issue were installed on the Exchange server. (See "XCON: Message Read or Unread Status Lost When Migrating from Lotus cc:Mail", <http://support.microsoft.com/kb/280071>). I am informed by the Government that there was a migration from the Lotus Notes to Microsoft Exchange e-mail programs at Hynix in June 2001.

**V. The Problem of Threads**

E-mail users commonly reply to or forward an e-mail and include the prior e-mail under the new text. A collection of e-mails with common prior text is known as an e-mail "thread." A user might read in its entirety a later e-mail in a thread, but not individually open all the prior e-mails the text of which is contained in that later e-mail. In such a circumstance, the user would have read the contents of those prior e-mails even though the MSGFLAG\_READ value of the prior emails remains equal to zero.

**VI. Conclusion**

The methodology used by Defendant's expert does not reliably indicate whether a particular e-mail was actually read by Defendant Gary Swanson. An e-mail can be read without ever opening it; once opened, its status can easily be reset by the user to "unread"; and in various situations, the e-mail program can change the "unread" status without user action. It is not useful, and is potentially confusing, to say that an e-mail was "read" or "unread" based solely upon the value of the MSGFLAG\_READ flag at the time of examination, without taking into account these possibilities. Defendant's expert's numerical conclusions derived from this methodology about the number or percentage of e-mails which Defendant Gary Swanson did or did not read are therefore flawed, for these reasons and due to the failure to account for duplicate e-mails and the likelihood that some received e-mails were deleted prior to examination.

Submitted By:	Strategic Discovery, Inc.
Signature:	
Testifying Expert:	<hr/> Adam S. Bendell <hr/>
Title:	<hr/> President <hr/>
Address:	<hr/> 301 Howard St., Suite 1420 <hr/> San Francisco, CA 94105 <hr/>
Fax:	<hr/> (801) 904-8001 <hr/>



**Attachment A**  
**Professional Qualifications of Adam S. Bendell**

Adam S. Bendell is the president of Strategic Discovery, Inc., which provides discovery consulting to companies and law firms.

Mr. Bendell assists clients with the document and data discovery process in civil litigation and government investigations. This includes the collection, analysis, culling, processing, review and production of paper and electronic-source documents, as well as offensive electronic discovery and cost -shifting disputes. He has wide experience in the issues presented by large-scale electronic discovery, including cost control, evidence authentication and chain-of-custody, data conversion, archiving best practices, productions from large databases and web sites, online review and coordination with traditional paper-based discovery. He has designed approaches to paper and electronic document production and review which re-engineer traditional practices to take advantage of enabling technology.

He also provides records management consulting, helping companies update their approach to records retention for the electronic age. This includes the development of retention schedules that can be practically applied to electronic data, realistic document retention policies, litigation hold programs, and e-mail and electronic records management software strategy and selection.

Strategic Discovery was spun off in 2003 from SV Technology, Inc., which Mr. Bendell served as President. SV developed the *LawPort* intranet portal and provided knowledge management consulting to the legal industry. Prior to joining SV, Mr. Bendell was Chief Technology Counsel for Gibson, Dunn & Crutcher LLP. In his 12 years with Gibson Dunn, he practiced in the areas of large-case litigation and corporate transactions and established the firm's litigation support and knowledge management functions. He also served as Chair of the Technology Committee, responsible for the firm's overall technology strategy.

Mr. Bendell attended Cornell University and the London School of Economics before obtaining his law degree from the University of Chicago in 1986. He was a member and associate editor of the *University of Chicago Law Review*, and was a founder and executive editor of the *University of Chicago Legal Forum*. Mr. Bendell joined Gibson, Dunn & Crutcher LLP after a U.S. Federal District Court clerkship for Judge Martin Pence in the U.S. District Court for the District of Hawaii. He is a member of the California Bar, The Sedona Conference Working Group I, ARMA International (formerly the Association of Records Managers and Administrators) and AIIM (the Enterprise Content Management association).

Mr. Bendell has previously testified in matters including:

*PeopleSoft, Inc. v. Oracle Corp.*, Alameda County, California Superior Court (2003)

*OMA Corporation v. Hewlett-Packard Company*, District Court, City and County of Denver (2004)

*In re: HP Inkjet Printer Litigation*, U.S. District Court for the Northern District of California (2007)