

## Is E-mail Sufficiently Secure for Scientific Journals?



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Is e-mail sufficiently secure to use for managing manuscripts submitted to a scientific journal for publication? The convenience and speed of e-mail make it attractive, but does this medium provide the confidentiality

many journal editors require for correspondence about, and peer review of, submitted manuscripts?

This Dialogue explores some aspects of using e-mail for peer review and other aspects of manuscript management in a scientific journal office. The 4 pieces that follow present various viewpoints and describe some factors that enter into a decision about using e-mail for confidential material. In addition, to help us gain perspective about the technical aspects of e-mail security, the Articles section contains an overview of the current technology in "A Case for Encryption" by computer scientist Charles Hodgson.

The stimulus for this focus on e-mail security for scientific journals was the description of an e-mail-based system used for the journal *TOPLAS* (*Transactions on Programming Languages and Systems*) (1). That system, described by Andrew Appel, professor in the Department of Computer Science at Princeton University and editor-in-chief of *TOPLAS*, has relieved the journal's editors of burdensome tracking tasks and greatly decreased the average time from submission to acceptance (see sidebar).

The *TOPLAS* system is an effective example of a well-organized process implemented in an environment where pilferage of unpublished material is not an issue. Appel's own experience as an author, associate editor, and now editor-in-chief has increased his sensitivity to the time burden imposed by manuscript reviewing and tracking on reviewers and editors. Indeed, those of you who are responsible for manuscript

management undoubtedly have, like I, noticed how most of our reviews are received after normal business hours. They come from specialists unpaid for their expert advice. Whatever we can do to facilitate thoughtful and timely responses from these volunteers will certainly increase the efficiency of the peer-review system. But is the risk of possible breached security too great to justify the increased efficiency?

The Dialogue begins with a follow-up article by Appel that presents his view on the risks and benefits of the e-mail system devised for *TOPLAS*. In short, he has little

or no anxiety for the security of manuscript confidentiality in his specific discipline. In contrast, in the next piece, I take a "con" position, detailing some reasons for my apprehension and concern about the potential availability of unpublished materials to unauthorized readers and the possible litigious consequences.

In the 3rd article, Fred N Sanders, editor-in-chief of the journal *CME* (*Continuing Medical Education*) and contributing editor to the *South African Medical Journal*, Cape Town, South Africa, describes the needs and unique obstacles to achieving his goals in his

### The TOPLAS System in Brief

The computer-science journal *TOPLAS* (*Transactions on Programming Languages and Systems*) is edited exclusively by e-mail, from submission of manuscripts through peer review to final revision.

The fundamental principles of the e-mail manuscript-review process include the following:

- Eliminate the need for the associate editors and referees to perform clerical or organizational tasks such as tracking outstanding reviews, soliciting late reviews, formatting e-mail messages, making copies, or printing papers.
- Designate 1 traffic manager instead of fragmenting the duties among the clerical staff of the various associate editors.
- Use e-mail in place of paper communication, and electronic databases in place of paper files.

The key participants in the editorial process at *TOPLAS* include the editor-in-chief, managing editor, traffic manager or editorial assistant, associate editors, referees, and authors, each with clearly defined responsibilities and requirements from handling routine correspondence to making final editorial decisions.

The system is managed by a highly competent, diplomatic traffic manager, in essence the editor-in-chief's editorial assistant. Each submitted manuscript and

associated correspondence is filed in a subfolder of the folder file in the e-mail filing system, which uses a mail reader. Each outgoing e-mail message contains a header on the retained copy that triggers the automated tracking system. For example, a header of "Action: query" to a recipient (an associate editor, reviewer, or author) triggers the system to search for "Action: answer" from that recipient. If no answer appears by a certain date, the system alerts the traffic manager to follow up. The tracking system, which Appel presents as a prototype, also can generate reports, including a summary of the status of all papers in the system, a quarterly report for the publisher (the Association for Computing Machinery), and a history of each reviewer's activity. The automated tracking system, a file of form messages, and a dedicated traffic manager have simplified the management of *TOPLAS* manuscripts and cut the time from submission to acceptance from 212 to 83 days.

Although the article provides specifics for a system that operates under UNIX, the principles of Appel's system could be adapted for use with Windows or Macintosh environments. For details about this system, please see "How to edit a journal by e-mail" by Andrew Appel (*Journal of Scholarly Publishing* 1996;27(2):82-99).

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particular environment and how e-mail plays a role. In the 4th article, the last word is given to Vicki Sullivan, director of scientific publishing for the American Heart Association. Sullivan asserts that fears of security are unwarranted, and believes the best approach to this topic is to "just do it."

We invite you to read these articles and consider your own needs and experience. Do the benefits of an e-mail system outweigh

the risks for you? If you now use e-mail for all or part of your manuscript management system, what has been your experience with security issues? What precautions do you recommend others consider if they are contemplating increased use of e-mail? You are invited to continue this dialogue. Responses (up to 500 words) received by the *CBE Views* editor will be considered for publication in a later issue of *CBE Views*. ●

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### Reference

1. Appel A. How to edit a journal by e-mail. *Journal of Scholarly Publishing* 1996; 27(2):82-99.