# Selecting Electronic Document Delivery Options to Provide Quality Service

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**SUMMARY.** Providing electronic document delivery (EDD) services to off-campus students can be a challenge. Methods of delivery that work well for one group of users might not work at all for another group. Knowing and using the different EDD service options to accomplish the goal of providing quality service to students results in a win-win situation. Student expectations of timely delivery of material are met and the department develops a reputation of dependable quality service. Library users have raised expectations from the 24/7 services available through the World Wide Web. Providing EDD of information to the researcher's desktop helps the library meet these needs and expectations. However, the options for desktop delivery can also be overwhelming, so knowing how and why different software and delivery methods work enables the practitioner to control the outcome of the transaction. This control over the service also ensures that quality service expectations are met by the library since the practitioner has the ability to use a variety of delivery options to the user's desktop.

**KEYWORDS.** Library services, technology, distance learners

## *INTRODUCTION*

A variety of software like Ariel, Prospero, Odyssey, and Adobe Acrobat are widely used to deliver materials electronically through e-mail and HTTP. The

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proliferation of electronic means for delivering information to the desktop has empowered librarians by giving them choices about the best options available to deliver documents to students. E-mail and HTTP, or combinations of the two technologies, also offer a variety of means for delivery. While the library may implement one primary method of delivery, other methods are often employed to ensure quality service. Successfully meeting the document delivery needs of today's users requires knowledge of the many delivery options available through various technologies.

The goal of this paper is to clarify EDD options and illustrate the relative ease with which the various methods of delivery for off-campus users can be quickly implemented in small or large library settings. This paper will also discuss which methods of EDD have worked in different environments. These methods can be implemented by the interlibrary loan, document delivery, or access services department or they can be employed directly by the off-campus service department. A final purpose of the paper is to empower the reader with additional knowledge, a better understanding, and more confidence selecting and adjusting an electronic desktop delivery service.

## *SOFTWARE CHOICES*

The focus on streamlining the workflow of production based library operations like Interlibrary Loan has created an environment where numerous software packages are available for a variety of uses (Fuller, 2002, p. 20). In the past few years most of these software programs have developed a desktop delivery feature either as a stand alone product or as a piece of a larger product. Prospero, Ariel, Odyssey, and Adobe Acrobat are software programs that can be obtained and used independently of an ILL management system. Several of these programs were created to work in conjunction with, or independently of, one another, creating a variety of options for libraries implementing EDD services. The programs listed above enable the lending library's staff to scan materials and deliver them to another library or to a user's desktop, or alternatively, for a library to scan materials from their collections to be delivered to students located on or off-campus.

For example, Ariel was originally created so libraries could scan materials and deliver them via the Internet to other libraries with Ariel software in a .TIFF format. Since .TIFF viewers were not widely available or used by the academic population, the library's only choice for delivery was to print the documents out and provide the user with the research materials they requested. At the time, this was still a huge improvement over faxing materials for three reasons. First, the images and overall quality of the documents delivered

through Ariel were much better. Second, the Internet transmissions were free whereas the faxed materials required the cost of a telephone line and connection time. Third, the turnaround time for delivery was dramatically improved (Stabler, 2002, p. 64; Sellen, 1999, p. 71). Delivery between libraries was also improved when the software was engineered to increase the options available for transmission. Ariel allows for delivery from the lending library to the borrowing library through e-mail if the borrowing library is not equipped with the software. A simple configuration in the borrowing library's e-mail allows them to receive documents from libraries that prefer to scan and send using Ariel software (Lindsay, 2000, p. 82).

Prospero was created to work with the Ariel software so that incoming documents could be transformed from .TIFF files into .PDF files (Schnell, 1999, p. 95). The software has two options for delivery to the user which will be discussed in the "Methods of Delivery" section of this paper. Essentially, Prospero allowed for a way to eliminate the paper printing and mailing steps of each item for each individual and further reduced the overall delivery time of the documents from the library to the user (Weible & Robben, 2002, p. 80). Elimination of the printed document not only saves time, but also money spent on reams of paper (Weible & Robben, p. 82). Prospero also allows for delivery to only the user who had requested the material, which meant that libraries were still adhering to the fair use guidelines as listed in the copyright laws. Additionally, a copyright notice is inserted as the first page of each document delivered to the desktop and a purge program eliminates the digital images of the document after a reasonable time so the images are not saved or distributed to another user (Rodman, 2002, p. 69).

The next generation of the software versions for these products contains a scan, send, and EDD feature all contained in the same package. This means that Ariel, Prospero, Odyssey, and Adobe Acrobat can all function separately, without working in conjunction with other software, which has reduced the cost, training, and maintenance factors for libraries in addition to streamlining the workflow of the EDD process. Other software programs such as ILLiad, ILL Manager, VDX, and Clio also allow the library to work with incoming and outgoing documents by depending on the EDD features of Prospero, Ariel, Odyssey, or Adobe Acrobat. The borrowing library can electronically accept the incoming materials and then deliver them to the users' desktops. Libraries can now easily implement an EDD service due to the wide range of software available with a variety of options for workflow and delivery. From this availability and ease of creating an effective EDD service enables libraries to include their off-campus users in the delivery service.

Depending on the departmental and staff organization at the library, off-campus users can be served through traditional ILL services, separate units

dedicated to this unique population and their needs, or from a combination of the two (Casey & Grudzien, 2002, pp. 112-113). If traditional ILL services are involved in serving the off-campus population the staff will likely be aware of potential difficulties in delivery methods of EDD documents. However, if the off-campus population is served entirely by a separate unit, staff will need to become familiar with EDD delivery options and learn the advantages and disadvantages of each.

Along with the proliferation of EDD options, numerous articles have been written about the selection, implementation, and pilot project experiences of other institutions that are now successfully using some form of EDD. Regardless of whether or not the ILL department (or equivalent) is involved in the EDD process, the appropriate articles should be identified and the experiences of other institutions should be taken into account when evaluating EDD options.

## *METHODS OF DELIVERY*

There are two methods used to deliver documents to the users' desktops. Both methods require the user to have an e-mail account and both methods have their advantages and their disadvantages. The first way to deliver documents electronically is to simply send the item as a .PDF attachment to a user's e-mail account. The advantage to using this method is that users can instantly access the document from their e-mail message by clicking on the attachment and opening the file with Adobe Acrobat Reader. Another advantage of delivering the document in .PDF is the fact that this format can be read using different computer operating systems and the software is free and easy to use (Kriz, 2000, p. 27).

Although this method would seem straightforward and simple to use, sometimes it is just not possible to successfully deliver materials in this manner. The disadvantage in sending the document as a .PDF attachment is that once materials are scanned the file sizes can become quite large, especially if it is not a simple text document. Images and graphs can create large file sizes and if color scanning is required the files can become enormous. Difficulty arises in successfully delivering the material as a .PDF attachment to the user's e-mail account when the attached file size is larger than the e-mail account can handle. Additionally, if the user has requested more than one document, as is often the case to satisfy his or her research needs, the problem then increases since multiple items are now undeliverable if the e-mail account reaches quota.

The second way to deliver documents electronically is to post the document to a Web server and then send the user an e-mail that includes the URL for the

Web site where the documents can be accessed, instructions for accessing and using the file, and usernames and PINs as needed to open the documents that are for their use. The login process is simple and secure, but firewalls and the Web server need to be maintained by knowledgeable staff. The advantage to using this method is that the size of the e-mail received by the patron is usually quite small in size and it can contain as much or as little information about the process as needed, and as determined by the library in a standardized e-mail. One library noted that posting the file to the Web server "leaves the file more within our domain of control" (Sayed, Murray, & Wheeler, 2001, p. 67). This is beneficial for troubleshooting purposes since the library staff can easily re-access the article and print it out for paper delivery to the user when it cannot be obtained electronically.

The disadvantage of using this method is that instead of one click to open the file, multiple steps are now involved for the user to successfully complete the transaction. First, the library's Web server must be up and running so the user can open a Web browser and then correctly type in the URL to load the Web page. Next, the user must correctly type in a username and a PIN that has been assigned to them and submit the information to the Web server to see the documents that are available to them. At this point, the user can then click on a link that will open the document in Adobe Acrobat reader so it can be read, printed, saved, or deleted. Documents posted to a Web server are purged after a selected amount of time to comply with copyright restrictions. If the user has not accessed their document by the time these materials have reached the purge date, the documents are no longer available to the user and the process of ordering the material may need to be repeated. (See Table 1.)

Since both methods of delivery have their advantages and their disadvantages, libraries serving off-campus users must be able to use both methods to achieve the highest possible level of service. Users, regardless of location, may experience difficulty using one or both methods. This is why the library should have the option of using a different method of delivery if one method fails. For example, if an off-campus user cannot access materials posted to the

TABLE 1. Advantages and Disadvantages of EDD Delivery Methods

| | **E-mail attachment in .PDF** | **Post document to Web server** |
|---|---|---|
| **Advantages** | Instant access upon opening | Large files can be delivered |
| | No firewall involved | Secure login process |
| | No Web server involved | More control for the library |
| **Disadvantages** | Large files are undeliverable | Multiple step process for user |
| | Many requests fill up e-mail quota | Accidental deletion of file |

Web server, the library can attempt to send the documents as an e-mail attachment. If the user has a campus e-mail address, they should have enough space in their account to receive at least one document at a time into the account. Once the document is successfully received the user can clear the file from their account and then receive the next document after corresponding with the staff of the off-campus service department.

## *TESTING AND EXPERIMENTATION*

It is important to experiment with new installations before implementing them for production. Testing consists of sending documents to yourself, your colleagues, and a limited group of users who are willing to report back to you about their experience. A short period of testing helps identify any errors in the software setup, gives another opportunity to proofread Web pages and e-mail notices, and to fix these errors before they impact large groups of users.

Experimenting with the software and various methods of delivery will also help increase confidence when users call with troubleshooting questions that have resulted from technical glitches.

### *Tips for Testing and Experimentation Stage of Implementation*

- *Do* experiment with more than one method of delivery
- *Do* seek input from users who are willing to serve as testers
- *Do* be ready to spend time proofreading e-mail notifications and Web-based instructions
- *Don't* assume that testing will solve all problems ahead of time
- *Don't* make the delivery workflow too complicated
- *Don't* hesitate to implement as soon as possible

Although testing and experimentation is a valid step of the implementation process, caution should be taken to prevent technical difficulties from derailing the entire project. Users are generally willing to work with new systems especially when they can understand how it will benefit them.

## *TROUBLESHOOTING*

Unfortunately, after all the setup, testing, and experimentation there will be times when a user has difficulty and frustration using the desktop delivery system. At this point, some limited additional experimentation may be necessary.

Unless a user is pressed for time, most people will participate in the troubleshooting process and are grateful to have assistance to obtain their materials through EDD.

One of the most common mistakes is the accuracy of the e-mail account address. A simple typo in the e-mail address when entered into the EDD software will completely prevent the material from reaching the user. Also, users may try to access a different e-mail account than the one to which the document has been delivered. Many users have multiple e-mail accounts which are both campus approved and free or fee based services available from online sources. Free e-mail accounts often have a very limited space available for incoming messages and experience has shown that e-mail attachments of .PDF files are often too large to be delivered successfully. Another problem is that newer versions of Web browsers allow users to set their own profiles and preferences and now have more sophisticated protection to prevent the user from submitting personal information over the Web. This can cause problems when the user attempts to login to their account to retrieve their documents that have been posted to the Web. Recent upgrades to newer versions of Web browsers can create new problems for methods of electronic document delivery that were previously working under the older versions of the Web browsers.

In addition to Web browser versions creating problems for access to documents, home computer firewall programs have settings that prevent access to documents posted to the Web. Other settings to check include cookies, java script, and Adobe Acrobat Reader. Cookies and java script should be turned on for the user to access materials posted to the Web. And, for any user, Adobe Acrobat Reader should always be upgraded to the most recent version to remove any problems that are caused by older versions of the software.

Troubleshooting can be time consuming, but it is a necessary part of providing quality service. Keep track of any advanced troubleshooting efforts, any problems that seem specific to your campus, and the questions that are frequently asked by users so the information can be added to the tips, tricks, and FAQs of an online troubleshooting guide created to assist users (Weible, p. 80). Online troubleshooting guides for EDD services have become popular and are easily found by performing a few searches on the Internet (see the "Additional Resources" section at the end of this paper). Most institutions will allow their guide to be copied and tailored by another institution so the creation of this type of Web document is relatively quick and easy. Creating options for users to solve problems on their own is a helpful part of the troubleshooting process (Weible & Robben, p. 83). In spite of possible derailments from various versions and options in software programs and e-mail account settings, electronic document delivery can be quite successful and a beneficial service for the majority of users.

## *CONCLUSION*

Implementing an EDD service for the off-campus population is just one aspect of providing a complete program for this unique group of users and libraries have strategically included this main campus service as a part of their distance education programs (Bibb, 2003, p. 5). Although providing a quality EDD service means an investment and commitment of time, the fact remains that the options available to implement this kind of service are numerous and flexible. Library staff can easily implement and maintain just the basic of EDD services and reduce delivery time and increase patron satisfaction. Every library's situation is different and the software and methods chosen by each will vary with the factors involved in making the EDD service selection process. However, the variety of options available to libraries has created an environment where no library has a valid reason not to implement some form of an EDD service for at least some, if not all, of their off-campus users.

Despite the fact that most documents can be delivered directly to the off-campus users' desktops, there will occasionally be times when this service fails to live up to the expectations of the end user or the librarian. If the EDD service fails individual users on occasion it is important to remember that the information can still be delivered via private courier or the U.S. postal service. Although these methods of delivery are not as instant in the 24/7 world in which the library researchers live and work, the material will still reach the end user in a timely and (hopefully) acceptable manner. Testing, experimentation, and troubleshooting are all parts of the implementation and maintenance process. Support from fellow librarians at other institutions, discussion lists, and help desks all make the troubleshooting and maintenance issues easier to cope with as they arise. Providing quality service should be the goal of every unit that supports off-campus students and choosing an EDD service has never been easier. Make it your goal today to re-evaluate your current methods of document delivery and implement an EDD service for off-campus users as soon as possible.

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## ADDITIONAL RESOURCES

*Prospero*
Prospero home page: http://bones.med.ohio-state.edu/prospero/
Discussion group: http://lists.med.ohio-state.edu/mailman/listinfo/hslprospero

*Ariel*
Home page: http://www4.infotrieve.com/ariel/
Discussion group: http://www4.infotrieve.com/ariel/arie-l.html

*Odyssey*
http://216.54.31.120/Documentation.html
http://www.oclc.org/illiad/about/features/delivery/
Discussion group: http://www.oclc.org/illiad/about/features/delivery/

*Patron Delivery Using Ariel 3.01 by The University of Chicago*
http://www.lib.uchicago.edu/e/using/ill/ariel_config.html

*Adobe Acrobat Products*
Home page: http://www.adobe.com/products/acrobat/readstep2.html

*NLM's DocView, DocMorph, and MyMorph*
Home page: http://docmorph.nlm.nih.gov/docview/

*ILL Management Software Incorporating the EDD Function:*
*Clio* http://cliosoftware.com/
*ILLiad* http://www.oclc.org/illiad/
*RLG's ILL Manager* http://www.rlg.org/illman/index.html
*Fretwell-Downing's VDX* http://www.fdusa.com/products/vdx.html

*Electronic Document Delivery Troubleshooting Guides:*
*University of Illinois at Urbana-Champaign*
http://gateway.library.uiuc.edu/irrc/eddhelp.htm
*University of Michigan* http://docdel.lib.umich.edu/ddTroubleShootingGuide.html
*University of Massachusetts at Boston*
http://www.lib.umb.edu/prospero/troubleshooting.html