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Equal Access: What does the digital revolution mean for library web sites?

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Equal Access: What does the digital revolution mean for library web sites?

Librarians have stood for open, equal access of all materials in all formats since the formalized beginning of the profession. The American Library Association has codified this professional commitment into the Library Bill of Rights. (ALA 1948, 1996) The library Bill of Rights states

Books and other library resources should be provided for the interest, information, and enlightenment of all people of the community the library serves. Materials should not be excluded because of the origin, background, or views of those contributing to their creation. (ALA 1948, 1996)

For years, the ALA Library Bill of Rights has reinforced the ideal of open access in the face of racism, sexism, ageism, elitism, and the many other –isms that haunt our society. This has ensured that libraries have stayed focused on providing service to our patrons.

In the past ten years, science and technology libraries have experienced a massive change in the patrons who use our libraries. In point of fact, the majority of our patrons now no longer physically enter the libraries. (Breznay 2005, Moyo 2002) This change in the pattern of usage has elicited many reactions, from increasing funding for digital resources, to developing new technologies to assist patrons, to many grumbles and pained looks on the faces of librarians who recognize what patrons are missing by avoiding the trek to the library. In light of the changes in our patrons, and in the changes that libraries and librarians have made in response, have we treated our virtual patrons with the same quality service that our in-library patrons receive? Is it possible, given the current level of technology to treat all of our patrons, regardless of physical location, equitably?

So, who are our (physical and virtual) patrons?

The fates guide those who go willingly; those who do not, they drag.
- Seneca

Welcome to the science and technology libraries of the 21st century. Gate counts are dropping; Google is getting into the library business; engineering students have frequently been known to go four years without stepping a foot in the door of a library; and librarians are shaking their heads and wondering what to do about it all. During the last 5 years, or perhaps more, librarians have all been seeing and commenting on the increasing preference of students for digital information. (Thompson 2003; Davis 2003; Shill 2003) At the same time, use statistics in most libraries are showing less use and presence in the physical spaces from the same group of students (Carlson 2001). “College students have been at the forefront of social change since the end of World War II.” (Jones, 2002) The greatest social change affecting libraries in the last twenty years is the advent of the Internet and the rising number of digital resources.

We are in the midst of a paradigm shift. The freshmen entering into college have always had access to both computers and the Internet. In fact, computers are an automatic part of life; they aren't even new technology. (Oblinger 2003) The Beloit College Mindset List for the Class of 2009 also recognizes other ways that freshmen are indoctrinated into an electronic world.

- 2. They don't remember when "cut and paste" involved scissors.
- 20. They may have fallen asleep playing with their Gameboys in the crib.
- 30. Pixar has always existed.
- 49. Libraries have always been the best centers for computer technology and access to good software.
- 61. Digital cameras have always existed. ("Beloit College Mindset List: Class of 2009", 2005)

After reading through the list and potentially feeling old, one begins wondering if the omnipresence of the web has really invaded their life to the point that they can reasonably expect everything in electronic format. The simple answer is "yes."

The Pew Internet and American Life Project ran a number of surveys and studies a few years ago, focused mainly on teenagers, that population which now comprises the early undergraduate classes at universities. Some startling numbers came from those surveys. 78% of all teenagers between 12 and 17 years old use the Internet, and of those students 94% of them use the Internet for school research and 71% of them use primarily the Internet for the same research. (Levin & Arafeh, 2002) In an update to this study published in 2005, researchers found that now 87% of all youth from 12-17 years old use the Internet, and 78% of them gain access at school. The increase represents an approximately 45% increase in internet use at school since 2000. (Hitlin & Rainie, 2005) Not only are students getting online more frequently, but an OCLC study found that college students are confident they can find what they need and want for their coursework online, and their first-choice web resource is search engines. (OCLC, 2002) Henry Petroski states that "unless specifically constrained against doing so, students assigned to write a research paper will begin and end their research on the Internet. (Petroski, 2005)

The Pew study also looked specifically at college students and found that most students did not know how to find or had not been shown how to use the online resources the library has to offer. Lack of knowledge of the library resources coupled with the OCLC findings of student confidence in using the web for research indicate that students both believe that they are proficient in searching and are not learning to use library sources. So what is the next step that college and university libraries must take if we're going to break into the online awareness of students and successfully promote the electronic resources we do have and those we continue to build or purchase?

Not only do we have technologically indoctrinated patrons, but we are now dealing with patrons for whom technology such as computers are basic tools of daily life. (Oblinger 2003) Of surveyed college students in 2002 it was found that 85% of them own their own computers and 66% of them use at least two email addresses. (Levin & Arafah, 2002) While the numbers haven't been published to confirm this, general thought is that the student body in science and technology would have higher percentages in both categories, probably close to 100% for owning computers.

A Purdue University study of incoming freshman (Class of 2009) showed that 35.5 % own desktop computers, 53.4% own laptop computers, and 5.9 % own and use both a desktop and laptop. Only 5.1% did not own a computer. (Campbell et al. 2005) Clearly we are dealing with patrons who no longer need to use a computer lab or library computer bank on a daily basis.

We are currently in a situation where, far from having to consider distance education students as a separate patron type, we are dealing with students who relate to the library on a day to day basis as a patron impeded by distance (Moyo 2004). Distance education students are now our predominant patron type.

In many ways, we are no longer dealing with residential students. Even if the patrons are on campus, they would rather use an inferior source online, than come to the library to get a better print source. "Much of the research that was once done in libraries can now be done in computer labs and dorm rooms." (Davis 2003) These local patrons look at the library as a destination, a place that they are forced to travel to on occasion. The students choose their primary resources by the proximity of those resources. A useful term for describing these, our primary patrons, is "distanced local patron". A distanced local patron is a local patron whose understanding of proximity places the library out of reach. Research has shown what so many of us see in our libraries daily; a student may be having difficulties finding the materials or information appropriate to their need, and yet still views the Internet as more convenient than using the library. (Harris, 2005, p. 29) Undergraduate students are the primary user group of the college or university library web site. In fact, the library web site *is* the library for many undergraduates (Behr 2004).

A situation at Purdue University Libraries highlights the student preference for online materials, particularly books in the computer field. In June 2005, we subscribed to Safari Tech Books and prior to creating or distributing any publicity about the new resource to the user population, they were already using the resource. Within days the users were consistently unable to access the text of the books due to a maximum number of users already being logged in. This happened prior to widespread publicity about the availability of the e-books. The librarians were receiving complaints about the service's non-availability, despite the fact that this was during the summer session, when our user population is considerably smaller than the regular semester.

This anecdote points both to student's desire for electronic resources and to the reaction that problems with library electronic sources can cause. Millennials have grown up as consumers in an economy that caters to them. (Manuel 2002) They have an expectation of service that has been formed throughout their lives. This can negatively impact Millennials' reactions to library resources. Some reasons that patrons give for not using library resources more consistently, including those that are online, are difficulty searching and navigating within the library and its website and a lack of customer orientation that they have come to expect as consumers. It is irrelevant to the students if the barriers are real or perceived; to them the message is 'access denied'. (OCLC, 2002)

The OCLC study results could come directly from usability studies of websites and supports previous findings that poor web design can permanently turn a user away from a site. (Nielsen & Norman, 2000) Few Millennials 'surf' the web in an unstructured fashion; instead they are focused on specific searches and the needed content. (Harris Interactive and Teenage Research Unlimited, 2003) Library pages that are not designed for efficient use and discovery of information will be a barrier to the search methodologies already used by these media saturated users, and they will go elsewhere for what they need. At the same time, "Millennials seek efficient online search, and better ways to verify the credibility of what they find." (Harris Interactive and Teenage Research Unlimited, 2003, p. 17)

What is the current state of access for virtual and in-house patrons?

Although librarians have been aware of the change in outlook that a digitally indoctrinated patron class brings with it for a while, libraries have shown a tendency to focus on print sources and in-library resources. For the past years, this has been understandable. A small (but growing) percentage of resources are available electronically. The library spends a fortune in money and staff time developing a mediated collection of excellent scholarly materials in print, fiche, and other media. The library faculty and staff are trained primarily in print sources. For librarians who know the value of the printed resources in the library, the idea of down-grading the print resource's role may seem frustrating and disappointing. (While we librarians know their value, a distanced local patron won't place the same value on the resources because of the distance between themselves and the resources' location.) All of these factors lead to a web design for libraries that still focuses on print sources and the physical library. The catalog receives prime real estate "above the fold" or on the first screen. The library physical layout has its own link on the first screen. Librarians' addresses are prominently displayed along with email addresses on the Staff page. All of these hearken back to the day when users came to the library to access print resources. However, "site architecture should reflect user's needs and not the organizational structure of the library". (Wilson 2004 p. 22)

In light of the paradigm shift in the user, web design choices of the past may not produce the most useful, effective library web site for the local, distanced user.

Where a web site focused on print sources presents students with options for navigating a physical space, a web site focused on a distanced patron is meant to mediate and provide an understanding of the structure of the electronic information available, an increasingly growing and changing environment. As libraries continue to add electronic resources of varying content and depth, the library website will continue to grow in depth and complexity. The challenge is to help a self-guiding patron to journey through these layers, and develop an understanding of what the contexts and usage of various resources are, without the immediate help of a librarian.

Distanced local patrons, while within close physical proximity of the libraries, have a cultural understanding of what constitutes “easy access”. Coming from a background that has always included the internet, they will automatically turn to an electronic resource for their information needs, whether a web search through Google, or mediated e – resources that the library purchases. (Lougee, 2002) In fact, students are now more comfortable with an online keyword search than they are with a print index. (Manuel 2002) In many cases “the library Web site is for all intents and purposes their library”.(Behr 2004 p. 19) Digital format comes innately to their understanding; print sources are no longer their primary understanding of information. Students have become “format agnostic”. They don’t understand, and largely don’t care about the format a piece of information is in and don’t have the predilection of previous generations for print materials as more authoritative. Information is information, and they will expect search results before having to choose a source for their research.(Abram & Luther, 2004)

These students are very accustomed to what can be called informal information retrieval systems, such as search engines that are searching all the text within web pages. In contrast, libraries use a very formal and highly structured information retrieval system and the search statements and strategies from one do not work well, if at all in the other. (Harris, 2005) The mental transition between these two structures is not automatic, and requires training. Librarians have traditionally given in-person instruction, teaching patrons how to make this transition. Librarians can assist this transition for our distanced local patrons by offering both training in advanced web search techniques as well as demonstrating the value and use of commercial library databases. (Sheesley 2002) Libraries can also assist in this transition by re-thinking web site design and mirroring sites such a Google or Yahoo! that patrons currently use for research.

In the meantime, the library website should be re-focused, recognizing two separate patron groups, the in-library patron and the virtual patron with each given equal importance via their own homepages. (Thompson 2003) IP address could be used to assign computers outside of the library physical space a designated website that will focus on electronic sources as the primary information format. Students feel comfortable with designs similar to frequently used commercial web sites (Tenopir 2001, p.42). Both websites (internal and external) could be linked in a tabbed layout similar to that of Amazon.com and other book chains. These tabs would allow patrons to transition from the internal to the external fluidly using a layout that is already familiar to most library patrons due to the popularity of these sites.

“Digital libraries comprise new information units and genres, allow for multiple novel organization schemes, and make diverse browsing and search mechanisms possible.” (Sanchez et al., 2001, p.15) The external website should focus on an organizational structure for the many databases and electronic resources that are available that will simplify the research experience for our patrons. A structure that mediates for the patron and points them in the direction of resources particularly suitable to their question or interests should be the primary focus of the external website. Additionally, the design needs to be flexible enough to allow patrons to move between formats and vendors. (Behr 2004) Traditionally, libraries have focused on format, dividing links to article databases from statistical or other databases, and dividing e-journals from all databases. With the external website, without a librarian to explain the different formats and their distinguishing characteristics, this focus no longer makes sense.

A subject based organizational scheme would make more sense to distanced patrons. It could be similar to the subject directories provided by Yahoo and Google, a format that many patrons are already familiar with. This style would necessarily include many redundant links. However, by creating a dynamically generated web site, this obstacle can be overcome. Many libraries already generate subject lists of online bibliographic databases using this technology. (Adalian & Swanson, 2001; Benjes & Brown, 2001; Galvan-Estrada, 2002; Garnar & Gil, 2001; Henning, 2002; Roberts, 2000; Westman, 2001) A database could be created with each database, e journal and e book as an individual entry with its' own description and subject keywords. When a patron selected a subject area, all resources with that subject area as a keyword would be pulled out and displayed for the patron. This would, in some cases such as large e-book programs like Knovel or Safari, possibly pull hundreds of items into one unorganized page. However, if librarians mediated the resources, ranking them or creating an algorithm to rank them, the most important sources could be presented more prominently. Similarly, if in the local website component database, a field sorted the resources by table of contents, the results could be ranked by relevance as well as allowing access to individual articles and chapters as well as the entire work. Students are very familiar with key word and natural language searches. Either of these could be performed in conjunction with a limit to discipline that will bring the number of results to a non-intimidating level. It would be similar to a federated search (a search of multiple databases across multiple platforms) but would target e-books and e-journals as well as article databases. This would provide a service that librarians have traditionally offered, helping students to narrow their search to a manageable level through training and advice.

A dynamically generated website would help to create a more targeted, “interesting” webpage for the user. It may also help them to see how different sources are related to their subjects and to notice their differences as well. To help this process of exploration and inquiry, in-depth tutorials, web FAQs, and “cheat sheets” could be placed prominently in relation to the resources. For instance, in the results of each subject search on the external website, a tutorial or help page generated by a vendor could be linked prominently next to the link to the database. Additionally, librarians could work

with vendors to place locally designed “help” pages on the screens within the database. (Wilson 2004 p.50) They could also encourage vendors to use language and color to draw attention to their professionally designed user guides. Again, this mirrors a role that librarians have played for in-house patrons, teaching information literacy so that the patron understands how the various information sources are related and ultimately interact.

In the past, user or bibliographic instruction has focused on including resources most appropriate to the topic, regardless of format. While in-person instruction reaches students that are local patrons, our local patrons are trekking to the library less frequently, and doing research online. Given the established propensity of students toward using electronic resources, it makes sense that their primary instruction, regardless of physical location, should highlight the resources that they most use. (Gray & Langley, 2002; Marcum, 2003) In addition to in-person instruction, librarians could design the library website in such a way as to provide immediate education based on the patrons’ selections.

Librarians could work with vendors to not only link help but also link locally designed tutorials that teach how to use individual databases. Tutorials could also teach students what next steps should be taken to get access to articles, how to cite e-books, and how to find cited references in e-journals, via the local link-resolver Firefox browser extension for Google scholar search results. (Binkley, 2004) If vendors would allow the tutorials to be dynamically placed internally on the database screens, multiple tutorials could rotate through the databases as well, allowing the student to access different educational opportunities every time that they access the database.

Finally, each database or vendor could include a link to a local digital reference services. When students are off track in the databases or not retrieving results that are helpful, they could click on a link that leads to a variety of reference options including digital reference, email reference, phone reference, face to face reference hours, and FAQs. (Wilson 2004, p. 49) This would give the patron multiple options for help in close proximity, both virtually and physically, that are specific to their access and resource availability. “If students know to automatically look for help information or search tips, this can become their starting point for performing more efficient and sophisticated searches in these sources”. (Thompson 2003)

Librarians overcoming distance to create meaningful instruction sessions frequently look to the web as their primary tool (Yang 2005). Regardless of whether the students are physically present during a face to face session or are present virtually in an online session, they will be using the web site as their primary interface to the library. Instructional sessions for distance learning students focus on teaching access to, use, and evaluation of digital libraries (whether specifically created or purchased for the libraries as a whole), relevant electronic journals and books, databases within the discipline, how to follow a citation from a database to the article, whether print or online, and how to access e-reserves (Yang 2005). In other words, librarians teaching a distance education

instruction session will cover all of the resources that a distanced local patron should also be aware of and using for their studies.

Information literacy is an ongoing concern for librarians and as we see fewer of our local distanced patrons, we have fewer opportunities to educate the patrons in these areas. Meanwhile, increasingly there is a mandate that students acquire these skills during the course of their education. Indeed “the most critical way [patrons] will use information literacy skills is in relation to the Internet, as it has become the primary way that they access information.” (Thompson 2003, p. 261) With the development of a website that caters to the distanced local patron, we will have to develop ways to transfer the information literacy skills that these students need. Current technology provides us tutorials as well as instructional handouts; banners and other reminder services; and webcasts.

One method of transferring information literacy skills might be to place “hints” in close proximity to the user. A database could be created with information to be included in banners or short messages which change each time a page is reloaded. These tips could assist students in making an initial evaluation of which source they should try first, or reminding them of considerations they must keep in mind, given the information source they do choose. For instance, after choosing an e-journal a banner would appear on the screen reminding the student to record the date and time of access to the article for the citation they will be creating for their work. This would be one way of delivering context-sensitive help.

In this way, information literacy could be reinforced, and students would still be getting the reminders that reference librarians customarily give when on the reference desk.

The law of proximity demands that these instructional tools be placed in the likely paths of web users. They are more likely to be used if they are highly relevant to the current search situation that the patron has created (Sheesley 2002). Therefore they should be dynamically distributed throughout the website based not on the subject that the patron is searching but on the format that they are currently accessing. These tools should be short, rather than in-depth treatments of an entire resource. They should be highly visible to the patron. Possible methods for creating this help might be to use a pop-up (although this has an associated negative connotation), to open a new window that allows the patron to move forward in the search while consulting the help, or to develop mouse-overs that will explain small portions of the website or database. These tools could explain large concepts such as “What do I do now that I have a citation?” or much smaller concepts such as “How do I cite this particular format?”

For instance, if the patron was accessing article databases, a tutorial explaining how to read a citation, and find the corresponding article would be useful to help the patron make the transition between the databases and e- or print journals. If the patron were to search for e-books, a tutorial on how to cite e-books as well as how to cite print books may help them to generate a bibliography later on in their research process. Because the database is dynamically distributed onto the webpage multiple banners and/or tutorials

could be inserted into the database, giving students variation in the instruction that they get each time they search.

The tutorials could also help to link the external and internal versions of the website. Following an article citation from an electronic index database to a physical print journal requires either a mental or technological leap. Technology can make the leap by following linked ISSNs into the OPAC, or the tutorial could assist the patron to make the mental leap by explaining the relationship between the article database, article citation, OPAC, and print journal. These, in addition to the abundant links to the digital reference service, should serve the patrons as both educational opportunities and signposts as to where to go next.

Can librarians treat virtual and in-house patrons equitably?

The services that librarians traditionally offer to in-house patrons are numerous. For patrons, the obvious services are those of reference, instruction, and point of need service, as well as circulation based services (charging books, answering directional questions, etc.) For the library that attempts to offer all of these services to their distanced local patrons, there are multiple complications and obstacles standing in the way of attempts to do it. The library would, by necessity, need a large information technology department to create the multiple databases, platforms for tutorials, digital library storage, and other pieces of technology that would be required to maintain this web site. The databases for dynamically generated e-resources and help banners and tutorials would need to be designed and filled. Code would need to be written that analyzed, ranked, and filled in the website. Issues of massive data transfer may slow down the web site, making patrons still using dial up access to the Internet an ongoing problem for the libraries. Flash tutorials and other instructional tools would need to be designed or updated.

All of these, although labor intensive and potentially costly in terms of staff hours and development costs, are achievable with current technology. In some ways, political will is the missing piece in this focus on distanced local patrons. For many librarians, there is a frustration and feeling that the patrons would come to the library if only they understood how much their grades (frustration level, efficiency, etc.) would improve. We are beyond the point when the patron would understand and/or value the print resources in the library. To many in engineering and science, books represent tertiary information, information that they can find more easily and possibly more accurately in other sources. For the youngest of our patrons, books are more difficult to use than electronic sources. In the future, incoming classes of engineers will have an even more strongly in-grained preference for electronic resources. One of the last things Harris states in her book is that for libraries to stay relevant and to become one of the primary research options for students, they need to work to meet students on their own terms and with the tools of their own choice. (2005, p. 138)

Political will is also missing in dealing with the vendors from whom we purchase these products. While librarians can express time and again that we need to be able to customize portions of their websites, until a critical mass is reached, the vendors have no reason to give libraries this added feature. There are advantages to vendors by allowing us this customizable feature. Questions would be directed to tutorials and local library help (chat reference; email reference; telephone reference) that are currently being directed to technical help for the database, saving them personnel time. Further, for some databases, professionally created tutorials that could be very useful to a patron trying to figure out the workings of a database are often not linked within the database. Many times they are hidden on a corporate website with no indication given that following a particular link would lead to help. Lobbying, by librarians, of vendors has proven effective in bringing about patron – friendly programming changes in the past. It is certainly worth asking vendors for a customizable space within database screens.

“Whereas librarians have some degree of control over students’ access to information in the library, the Internet lacks a comparable gatekeeper.” (Thompson 2003, p. 261) The website design process offers libraries the opportunity to mediate for students. (Muresan 2004) The gatekeeper role that librarians have served in the past continues to be of primary importance. As subject bibliographers and specialists, it is our role to determine which sources should be accessible to the students virtually, meaning not only what is available from vendors but what individual resources would be most helpful or most necessary to students to improve their scholarship. In this way, we should be looking at our print collections for those works that have proven their worth time and again, whether on a physical reference shelf, or most frequently checked out from the circulating collections. Librarians are in the best position to make these collection decisions. With these volumes, we should create searchable digital libraries of these important texts so that patrons have access to them. While there are intellectual property issues associated with the idea of home grown digital libraries (McCray, 2001, p. 51), there are also opportunities to work with vendors to influence vendor collection development, thereby ensuring that important works are accessible via an electronic means.

An issue that vendors have not been working with librarians on is the development of the collection included within their various databases. Libraries are required to buy the collections as packages without the right to de-select books that would prove to be of little value to their patrons or to substitute books that they have in their holdings that would prove to be extremely valuable to patrons. Currently, because of the alliance of databases with certain publishers, librarians cannot pick the best platform for a given work and lobby that vendor to digitize it. For instance, a book of electrical schematics would probably work best on the Knovel platform with its dynamic tables and PDF format. However, if it is published by a small publisher that has been folded into Elsevier, which owns the Referex platform, the librarian would have to lobby to get it put online in a way that he or she knows is less useful. Unfortunately, unless the publishers come to a consensus to share their works across platforms, or all develop

similar or interoperable technologies, this will continue to remain a problem.(Van Epps 2005)

Similarly, few vendors give the librarians an easy way to select e-books on a single title basis in a model that is similar to current collections practices, that will allow the libraries to customize their electronic collections to the disciplines at their university or college. Many titles may never be used under current models. This increases waste for university libraries, and may lead to an e-resource being cancelled because of the appearance that it is used infrequently. Current vendors that do allow customization make the process tedious, often a title by title process, to make their package options look more attractive to librarians. This results in librarians having to choose a time consuming, inefficient model for choosing highly tailored books that are highly used, or accepting a bunch of chaff with the wheat. If vendors could improve their package models so that books were split up by discipline and sub-discipline so that librarians could be selective in a way that was both monetarily and time efficient, similar to the models already in place by the Society of Optical Engineers (SPIE) and Knovel, as well as others, the quality of the experience of using e-resources could be improved for both patrons and librarians.

The Responsibility of Providing Equitable Access

Future steps towards a model of serving all patrons equitably are numerous, challenging, frustrating, rewarding, and ultimately will lead libraries in new directions of service. But ultimately, how do we determine when our service is truly equitable? Based on the statistics available from ACRL, libraries have been transferring much of their emphasis and money to electronic resources(ACRL 2004). As the percentage of monetary resources put towards supporting electronic resources continues to increase, librarians may begin to wonder if our attempt to reach out to local-distanced patrons has gone too far the other way. Are we now short-changing the patron who comes to the library and who expects not only access to electronic sources but also print sources? For the most part, libraries monograph expenditures have remained constant (not withstanding inflation in the prices of books). So where is the elusive balance point?

In-house patrons have an advantage that distanced local patrons do not have. They have face to face contact with a librarian. In essence all of the instructional tools that we are creating to reach local distanced patrons are trying to replace the services of individual librarians. Monetary equality for both patron groups does not equal equitable service for both groups. Access is the rubric that we need to use to judge equitable service, because it is by access that we have defined our profession. As librarians, we have a charge to provide access for distanced local patrons that equals the service they would receive from a professional librarian in person. Although many patrons don't have the same expectations for level of access as we have for them, it is we librarians who have a responsibility to protect their level of access. Librarians are the ultimate judges of equitable access because it is the aim of our profession that is being defeated if we fail to provide access. Access starts with the understanding that local distanced patrons have

equal right to the information we have in our libraries, and that we are responsible for aiding that access.

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