

Podcasting Using an RSS Feed

L526 Library Automation

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<http://ella.slis.indiana.edu/~pbetty/L526/podcast.html>

**Introduction:** The goal of this project was to create a podcast in mp3 format using an RSS feed , and also to explore various topics and issues related to podcasting in general, with particular attention to podcasting in libraries. It is our hope that after listening to the podcast, or reading this transcript, the audience will have a better understanding of how to create a podcast, the technologies that are involved in podcasting, and podcasting's impact upon libraries and society in general. For this project, group members performed individual research on chosen topics of interest and provided written essays on their findings. To create the podcast, these written summaries were read by each group member and recorded directly to mp3 format using the Plato Audio recorder. The individual mp3 files were then edited using the professional music production and sequencing software Cubase SX. Open source audio downloaded from the Internet Archive (<http://www.archive.org/>) was combined with the recorded presentations to create an informative podcast with narration and segues similar in content to news programming heard on National Public Radio. The RSS feed for the podcast was created using an RSS feed generator<sup>1</sup>. The code generated by the feed contained a small number of errors, which were identified by using an RSS feed validator.<sup>2</sup> Minor corrections were then made to the source code of the feed to make it standardized and valid. To disseminate the podcast, a website was created which

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<sup>1</sup> TD Scripts Podcast RSS Feed Generator. Accessed 4/4/2006. [http://www.tdscripts.com/webmaster\\_utilities/podcast-generator.php](http://www.tdscripts.com/webmaster_utilities/podcast-generator.php)

<sup>2</sup> World Wide Web Consortium. W3C Feed Validator. Accessed 4/4/2006. <http://validator.w3.org/feed/>

includes instructions on subscribing to the podcast, a menu of resources, and a link to the .PDF file of the project paper.

**Defining the term Podcast:** The actual term “Podcasting” is formed from two separate terms: the iPod, which is Apple Computer’s device for playing compressed audio files, and from the term “broadcasting”.<sup>3</sup> Podcasts are audio or video files that can be downloaded and then played on a computer or any mp3 player. Podcasts use RSS technology to enclose the URL for the compressed file within these feeds. Users can subscribe to podcasts and have the compressed files downloaded automatically to their computers.<sup>4</sup> Wikipedia provides an excellent definition of podcasts:

“Podcasting is the distribution of audio or video files, such as radio programs or music videos, over the [Internet](#) using either [RSS](#) or [Atom syndication](#) for listening on mobile devices and personal computers. The term podcast, like "[radio](#)", can mean both the content and the method of delivery. Podcasters' websites also may offer direct download of their files, but the subscription feed of automatically delivered new content is what distinguishes a podcast from a simple download or real-time [streaming](#) (see below). Usually, the podcast features one type of "show" with new episodes either sporadically or at planned intervals such as daily, weekly, etc. In addition to this, there are Podcast networks that feature multiple shows on the same feed. Podcasting's essence is about creating content (audio or video) for an audience that wants to listen when they want, where they want, and how they want.”<sup>5</sup>

**A Very Short History of Podcasts:** Podcasts were created with the help of two separate recent technologies. Blogs, which can be like personal web pages for individuals or organizations, that are updated either sporadically or periodically, were waiting for some audio to enliven them and Podcasts provide that. The way Podcasts do this is through another technology, RSS, or Really Simple Syndication. RSS was already being used to update blogs, and when Dave Winer was able to enclose audio into the RSS feeds, Podcasts were created.<sup>6</sup> The number of Podcasts continues to grow. In October of 2004 there were approximately 5000 Podcasts. Three months later, in February of 2005,

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<sup>3</sup> Crofts, Sheri and Jon Dilley et al. (2005). *Podcasting: a new technology in search of viable business models*. First Monday. Accessed 4/4/2006. [http://www.firstmonday.org/issues/issue10\\_9/crofts/](http://www.firstmonday.org/issues/issue10_9/crofts/)

<sup>4</sup> Balas, Janet L. (2005). *Blogging is so last year—now podcasting is hot*. Computers in Libraries. Vol.25(10), 29-32.

<sup>5</sup> Wikipedia.org. *Podcasting*. Accessed 4/4/2006. <http://en.wikipedia.org/wiki/Podcasting>

<sup>6</sup> Crofts, Sheri and Jon Dilley et al. (2005).

there were 700,000.<sup>7</sup> The convenience of, and potential use of podcasts in libraries, is being noticed by many librarians. An article in *The Teacher Librarian* reports that “(Podcasts) allow people to select specific audio and video programming related to their needs and interests, independently of scheduled mainstream broadcast media”.<sup>8</sup>

**How Libraries are using Podcasts:** I was surprised to see just how creative and ingenious librarians can be with new technology when I was researching Podcasts and their use in libraries. So far, librarians have used Podcasts for continuing education and professional development, and notifying patrons of library news. Libraries are also using Podcasts for actual books, music, or other audio files of interest to patrons. Here are a few of the examples of podcasts and libraries I came across.

#### A.) Professional Development

- PALINET, a membership organization for libraries in the mid-Atlantic region, has begun posting Podcasts that cover different aspects of librarianship such as vendor relationships and different kinds of software. This is tremendously advantageous to librarians looking for information on these topics. Now all they have to do is listen to a Podcast from PALINET to increase their knowledge on the topic.
- Online Programming for All Libraries (OPAL), provides web-based training and now offers archives of these training sessions as Podcasts. This is really advantageous for librarians, especially in rural areas, who may not have the funds or time to attend conferences or workshops.
- Individual librarians also are posting Podcasts where they basically talk and lecture on subjects related to libraries. This may be in addition to the blogs they are already posting.<sup>9</sup>
- Lastly, *Online* magazine suggests that conferences, or conference attendees, could record the event and create a Podcast out of it.<sup>10</sup>

#### B.) Notifying Patrons of Library News

- Patrons can subscribe to Library Podcasts that update them about Library news and upcoming events.
- Podcasts from the library can notify patrons of community events.
- Newly acquired Library Books. (And I thought, why not have a Podcast where a Librarian reads the book and then reads his/her written review....kind of like NPR's book section. Oh, by the way, NPR does have a 'Book' Podcast).
- For Academic Libraries, Podcasts can be used to notify students of new course materials or assignments.<sup>11</sup>
- Podcasts can also be used as marketing and advertising tools for libraries.<sup>12</sup>

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<sup>7</sup> Biever, Celeste. (2005). *And now for the podcast...* New Scientist. Vol. 185(2486), 24.

<sup>8</sup> Clyde, Laurel. (2005). *Some new internet applications coming now to a computer near you.* Teacher Librarian Vol 33(1).

<sup>9</sup> Balas, Janet L. (2005).

<sup>10</sup> Notess, Greg. (2005). *Casting the net: podcasting and screencasting.* Online. Vol.29(6), 43-45.

<sup>11</sup> Gordon-Murnane, Laura. (2005). *Saying "I do" to podcasting.* Searcher. Vol.13(6).

### C.) PROVIDING THE ACTUAL EVENT AND OTHER FILES

- Libraries are using audiobooks mp3 players to circulate audiobooks.
- Events and programs at the library are being recorded and placed as podcasts on the library's website.
- Class sessions and lectures are being made available on podcasts from the Library's website.

Examples of Podcasts in use:

Here are some specific examples of how some libraries are using Podcasts.

- 1) In 2004, Duke University bought ipods for its freshmen class for use in listening to lectures and audiobooks available on Podcasts.
- 2) The South Huntington Public Library has developed a program to allow patrons to check out ipod shuffles containing audiobooks.<sup>13</sup>
- 3) The Thomas Ford Memorial Library has posted Podcasts of Teen Reviews of books and other content.
- 4) LibriVox is an open source library project to record and distribute Podcasts of Public Domain Books.<sup>14</sup>
- 5) The Spoken Alexandria Project is similar to LibriVox in that it's creating Podcasts of Public Domain books, but it is also including modern works as Podcasts, with permission from the author.<sup>15</sup> Recent Podcast entries on this site include an informational brochure from the National Institute of Mental Health, Kelly Link's short story "Most of my Friends are Two-Thirds Water" and President John F. Kennedy's inaugural address.

**RSS and XML:** Podcasts are made accessible to the public through the use of a feed. Feeds can be created using RSS or Atom formats, the former being the more popular of the two. The most popular way to deliver a podcast is to create a web blog, which automatically creates the feed for you. After creating a podcast and making it available through a feed you need to inform people that it exists. This is done by publicizing the feed by getting it listed in a podcast directory such as *iPodder* (<http://www.ipodder.org>) or *All Podcasts* (<http://www.allpodcasts.com>). If the podcast is part of a web blog you can also register it with a blog search engine.

The RSS 1.0, RSS 2.0, and Atom standards are used to syndicate content over the web and are written in XML. The 2.0 standard is called Really Simple Syndication which is based on simplicity.

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<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

<sup>14</sup> Balas, Janet L. (2005).

<sup>15</sup> Ibid.

The specifications can be found on the Harvard Law RSS Website located at <http://blogs.law.harvard.edu/teach/rss>. The RSS 1.0 standard is referred to as RDF Site Summary and uses the Rich Description Framework to describe a feed in more detail than the 2.0 standard. The RSS 1.0 standard can be found at the following URL: <http://web.resource.org/rss/1.0/spec>. Please be aware that the 1.0 and 2.0 standards are completely different from each other and that 2.0 is not a newer version of 1.0. The Atom format is relatively new, but works and acts similar to the RSS format.

XML stands for extensible markup language, which was created to help manage and share information through the Internet. The advantage of XML over other web markup languages is that it can be used to create a language that meets your specific needs. The language uses a series of tags (words in brackets) that can describe the item they contain. For example, a tag for animals could be written to describe cats and would look like: `<animals>Cat's</animals>`.

Feeds are written using the XML programming language to describe content of a website or podcast. As new content is created for the site, the feed is edited to include the URLs for the new content. This gives people the opportunity to easily keep track of new content and podcasts from multiple websites. To subscribe to a feed you need to use an aggregator.

An aggregator is a software application that allows a person to subscribe to a feed and uses an XML parser to display the content of a feed in human readable format. There are two different kinds of news aggregators: web based and desktop. Web based aggregators are on line portals that check for feed updates on a regular basis and are accessible from anywhere provided you have access to the Internet. Desktop aggregators are software programs that are installed on the client's (i.e. user's) machine. Many aggregators include features that allow the user to manage the syndicated content they receive.

A podcatcher is an aggregator on steroids that has a built in media player that can automatically download and play the podcast. Podcatchers work very similar to a news aggregator, but with built in support to handle MP3 files. The most popular podcatcher is iTunes (version 4.9 and higher) by

Apple. Other options include *iPodder*, an open source product that can run on a Linux, Macintosh, or Windows machine and *Juice* available for Windows. Links to several podcatchers are included on the project website.

At the moment a web-based podcatcher is not available. However, the Mozilla Firefox web browser can be used to continuously monitor a feed for you. The browser allows a person to easily bookmark any feed by using the Live Bookmark feature. It will create a directory in the bookmarks section and will contain all of the links to the feeds you want to keep track of. A Live Bookmark can be created by visiting a web-site containing a RSS or Atom feed and selecting the Live Bookmark icon in the location bar.

However, there is nothing wrong with using a news aggregator to subscribe to a podcast. The one caveat is that it does not have the capability of automatically downloading or playing an MP3 file. It will only give you a description of the web-site, podcast, and the URLs where they are located. This option makes it easy to use an on line news aggregator such as *Bloglines* (<http://www.bloglines.com/>) to receive updates about your favorite podcast. The advantage is that as long as you have a computer and access to the Internet you can still keep in touch. This works well for students and others who use computers that prevent a person from installing software on them.

**Compressed Audio:** As described above, a podcast is meant to fit on a podcatcher alongside several gigabytes of additional audio and video. Considering that podcasts are often substantially longer than your average song, file size becomes an especially important consideration. Take the following example: on my hard drive, I have a podcast just under 40 megabytes large for about 30 minutes of audio, encoded at a bit rate of 112 kilobits per second, which is not an especially high bit rate. To put it in perspective, your average song is more likely to be closer to 5 megabytes. For a typical hard drive based iPod, which holds 20 gigabytes or more of data, this hardly presents a problem. For smaller, flash-based iPods such as the Nano, which tops out at 4 gigabytes, even 40 megabytes is a large chunk

of space, but it is still manageable. What makes it manageable is the fact that mp3 is a lossy compression format, which means it allows for some high and low end audio loss in order to keep file size small. With lossless or raw audio, the file could be ten times the size, and then size really does become a problem. In raw audio, a single 50 megabyte podcast could reach 500 megabytes, depending on the format: nearly large enough to completely fill the smallest iPod Shuffle.

So what does all that mean? To just about everyone but a committed audiophile, terms like lossy and bit rate can sound like a foreign language. Quite simply, there is always a trade-off when it comes to audio compression: size versus quality. The lower the compression, the better the bit rate, which results in higher quality audio but a larger file size. Alternatively, the higher the compression, the poorer the bit rate, which results in lower audio quality but a smaller file size.

An examination of bit rate itself can help us understand the different levels of compression better. At opposite ends of the spectrum are telephone quality at 8 kbit/s and near compact disc quality at approximately 320 kbit/s (though raw CD audio data runs at about 1411 kbit/s). A standard, podcast grade mp3 fits somewhere in between at 128 kbit/s, although the format can support a much higher bit rate. The idea is that we can decide to push so much sound information into each second, and if we only have so much bandwidth to work with, such as a telephone line, we can remove extra sounds. On the reverse side, we could include even more sound than found on the typical CD, such as by adding additional audio channels.

Lossy compression operates on fixed bit rates in order to offer an optimum size to quality ratio, but there is another option which is only now beginning to gain in popularity, thanks to increased hard drive sizes and advances in compression techniques. Many formats, such as FLAC and MPEG4 Audio Lossless Coding, support something called lossless audio. Lossless promises no sound loss; what you hear in a lossless audio file should be as close to the source audio as possible. Of course, based on everything I've said thus far, the file size for this format should be massive, but these compression schemes now employ something called variable bit rates, which adjusts the bit rate for each sample

depending on the sound's complexity. File size is still significantly larger than mp3, but as the next wave of portable audio players are released, with increased storage space, and hopefully, support for more formats, lossless audio may become a more viable option for audio compression.

File size is one reason why most podcasts are in mp3, but it is not the primary reason. MP3 has long been the standard for mid-quality audio, and when Apple designed their iPod, there was little chance they would not support the format. In fact, it is one of only a few audio formats the iPod supports, the others being mp3's successor, MPEG4 (also known as AAC), WAV, Apple Lossless, and a few lesser formats, but the most size-conscious formats are MP3 and AAC. Because Apple has the largest share of the portable audio player market, those who want their podcasts to reach the widest audience need to cater to iPods. At the same time, few other brands support the newer AAC, which means that to compress audio in that format will alienate everyone but iPod users. Almost everyone supports mp3, and therefore it is the best option at this time.

This lack of choice really is unfortunate. While MP3's size to quality ratio is decent, there are better formats out there, which are less successful because they lack the cultural monopoly. For example, Microsoft's WMA has improved a great deal in the past few years and is now arguably more efficient than MP3 or AAC. One can say the same about the open source project Ogg Vorbis. Because MP3 is a closed source format, currently owned by Thomson Consumer Electronics, any user who plays MP3's on their computer but has never paid the licensing fee is technically engaging in piracy. This fee comes pre-paid for legitimate users of Windows and OSX, but many users running open source operating systems are in violation. MP3 alienates those users. The licensing requirements also complicate things for companies like Microsoft, who have responded by building their WMA into a strong competitor.

To say that the MP3 family's days are numbered is premature but not improbable. The lossless audio trend is spreading rapidly, but MPEG4 ALC is still a rare presence on websites offering high-quality music. The Smithsonian recently opened an audio store, which offers lossless audio in FLAC,

as does Mindawn ( <http://www.mindawn.com/> ), a young, independent music download service.

Lossless WMA is growing in popularity in Windows, but unlike FLAC, this format supports Digital Rights Management. Even Apple has its own lossless format, which iPods currently support.

For the time being, MP3 is the podcasting standard. It offers small files of decent quality, and it is widely supported. Most of all, Apple has set itself up as the champion of this format, and at present, this guarantees the continued use of mp3 as the de facto standard for digital audio.

**Podcasting, MP3s, and Society:** MP3 have major consequences for American society in many ways. The phenomenon of MP3s is a vital contemporary issue for the music industry. It is an example of the effect of the World Wide Web on how global society is structured. To comprehend and analyze the challenges posed by MP3, it is necessary to place this reality in its technological and social framework. To start, we must examine MP3 in the context of the Internet phenomenon, its political consequences and its capabilities as a medium.

The World Wide Web was developed, and achieved popularity, in the last ten years of the 20<sup>th</sup> century in a certain ideologically structured historical instant. The World Wide Web, according to Jon Stratton, was built to be assistive for modern economies and politics, born from the idea that the Internet provides rapid, nearly instant, exchange of goods—capital, information, products—with a minimum of barriers.<sup>16</sup> New media is linked to the circulation of goods as well as information. David Harvey, for instance, imagined the qualitative changing of modern capitalism due to global communicational systems and global markets<sup>17</sup>. It is possible to view the Internet as a modern sophisticated system—made in a strong ideological framework—that goes beyond national borders and quickens cultural and economic globalization. The global response to the Internet has been phenomenal. What has made this technological transformation so different from all prior technological

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<sup>16</sup> *Notes*. (2000). Philadelphia, PA Vol. 56 ( 3)

<sup>17</sup> *Ibid*

“revolutions” is the Internet’s basic provision of interactivity. This interactivity permits the free expression of ideas and opinions that at times conflict with more traditional points of view.

Therefore, the Internet assists open access and free communication, but as a consequence there can be conflicts with the social and moral beliefs held by some of its users. If copyright laws are ignored in one place on the globe by freely distributing MP3 music in a state where laws regarding piracy are not sufficiently formed or not strictly enforced, it is challenging for parties in other countries to halt this distribution. Also, the large volume of traffic on the Internet makes it very hard to track messages and files over time and space. If one accepts as a given that there are thousands of MP3 and podcast sites worldwide, with many musical resources, visited by millions, there is a new social reality of individuals organizing themselves and their musical passions by creating relationships in different MP3 communities. This is a significant trend that should not be ignored by libraries.

What does the library community have to say about MP3s? Three essays on the future of music libraries in the March 2000 edition of *Notes: Quarterly Journal of the Music Library Association* talked about the online digital music phenomenon.<sup>18</sup> As documented by Freeborn, current plans to lease digital audio collections commercially do not exist.<sup>19</sup> However, there are numerous commercial efforts that make it easier for consumers to legally buy MP3s. At online sites such as mp3.com and eMusic.com, one can buy individual tracks or entire albums and gain immediate access. eMusic.com has started offering a service whereby customers can legally download unlimited numbers of MP3s from their site for monthly payments starting at \$9.99.

The big five in the recording industry (Warner Music, EMI, Sony Music, BMG, and Universal Music) are planning, with the help of computer giant IBM, to distribute digital music through their own commercial site. This service known as “The Madison Project” is still being tested. Abundant

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<sup>18</sup> *Ibid*

<sup>19</sup> Freeborn, R. (2000). *Cataloging MP3s: The Sound of Things to Come*. Journal of Academic Librarianship. Volume 7(2) Accessed March 08, 2006, from <http://wings.buffalo.edu/publications/mcjrnl/v7n2/freebornmp3.html>.

commercial access to mp3 files might create lower use of a library's audio collection. However, Wright's<sup>20</sup> concern over selection offerings is well grounded. The catalogs of both mp3.com and eMusic.com are aimed mostly toward popular listeners. Those who like alternate genres are left with a limited choice of composers, recordings, and artists.

In his essay *Sound Recordings*, Tom Moore put forward three reasons why sound recordings in a physical medium (such as compact discs) will stay the format of choice for most libraries when compared to their online counterparts:

"One of the most important [things] is that, at least for now, the quality of sound available over the Internet is not comparable to what the listener expects from the compact disc. The time required to download a sound file, with the most recent compression algorithms, is substantially more than the file's playing time. Perhaps most important, the cost differential between the hardware required to play a compact disc or cassette and the hardware needed to receive and play sound files from the Internet is enormous."<sup>21</sup>

While the quality of sound produced by many MP3s will be lower than their CD equivalent for the sake of higher file transfer rates, the difference to the majority of listeners is negligible provided a person records at near CD levels (128 kbps [kilobits per second] or higher). Moore's second point concerning download speed is legitimate if one uses traditional dial up modems with speeds of 56K or slower. It is becoming less and less of a problem since the recent growth in broadband availability (such as cable, DSL, to consumers). Though Moore's last reason pertaining to the hardware cost difference remains valid, we must consider that prices for hardware and software tend to decline overtime. Presently, the technology exists to give patrons on-demand access to library sound recording collections from the comfort of their homes, but budget restraints within the library often hinder these types of services. Libraries must also consider the fees and restrictions associated with copyright and license issues.

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<sup>20</sup> Moore, T. 2000. *Sound recordings*. Notes. 56/3:635-640.

<sup>21</sup> *Ibid*

**Copyright:** Although the laws governing the distribution of digital media and the internet have been slow to address trends such as podcasting, there are several critical issues related to copyright that the creator of any podcast should consider. As delineated by Jack Herrington in his book Podcasting Hacks, there are strict laws regulating the use of copyrighted music.<sup>22</sup> Separate rights are held by the composer and performer of copyrighted music, and any use should be cleared with the person(s) who hold these rights. Alternatively, you may use open source audio for your podcasts. Organizations like the Internet Archive ([www.archive.org](http://www.archive.org)) host music from artists that agree to distribute their works under a Creative Commons license (<http://creativecommons.org/>). A Creative Commons license specifies the appropriate use of the material. In many instances, a user is free to use materials for purposes other than commercial profit.

**Conclusion:** After researching this topic, we've found some basic tips for libraries to consider about podcasting. Firstly, keep them short, as the longer they get the less-likely they will be used and listened to completely. Also remember, if you are going to provide podcasts, keep your particular community and their interests and needs in mind. Finally, podcasts and podcasting require the investment of expertise, time, and money. While the podcast is free for the end-user, it is not free for the library that wants to create it. To help our audience create their own podcasts, we have included links to a number of online resources on the project webpage, visible at:

<http://ella.slis.indiana.edu/~pbetty/L526/podcast.html>

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<sup>22</sup> Herrington, Jack. (2005). *Podcasting Hacks: Tips & Tools for Blogging Out Loud*. Cambridge; O'Reilly: 350-357.