

Developing New Methods for Web Archiving: Preserving the Dynamic Content of the iSchool Website

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Developing a System for Archiving the Website

This project was tasked with archiving the School of Information's website. The School of Information (iSchool) at the University of Texas at Austin was launching a completely re-designed version of the website in March 2013, and the iSchool administration wanted to preserve a copy of the old website. The four project members were students in INF 392K: Digital Archiving and Preservation, taught by Dr. Pat Galloway, and were assigned to develop a method to preserve the out-going version of the website.

Previous work

Our work built upon the efforts of two groups in prior iterations of the INF 392K course who archived the School of Information's website.

A group of students in 2005 made the first attempt at archiving the website. This group, which included Rick Taylor, Mark Downs, Stephanie McFarland, and Melanie Cofield, focused on understanding the intellectual property issues involved in archiving the website, explored methods for crawling the website, and evaluated DSpace's usefulness as an access venue for archived websites. Although the group members' project reports suggest that they did not have as much success as they hoped for, their work provided important information and groundwork for the present project. Following interviews with iSchool staff, this group decided that their primary goal in archiving the website was to preserve its informational value as a historical record of the iSchool, and in particular of the ways in

which the school presented itself online. Because of this, they chose to store all dynamic content as static HTML pages, for ease of preservation and access; the original code behind the site was not needed to meet the needs of their designated community.

Intellectual property (IP) was a prominent concern for this group. Two particular elements of the website raised IP concerns: student-created technology tutorials and licensed images. They determined that tutorials created by student employees in the IT lab were the intellectual property of the creators, and they therefore worked with IT staff to implement procedures by which lab staff gave permission for their materials to be archived. They also discovered that many of the images used on the website were not owned by the School, but instead were licensed for a specific period of time from a third party. This caused considerable concern for the group, who raised the issue of these images with the iSchool administration, but the images were ultimately included in the archived version of the site.

The 2005 group explored two options for crawling the website: HTTrack and Heritrix. They ultimately decided that Heritrix was too difficult to use, and opted for HTTrack, which requires much less configuration and is operated through a GUI. As will be discussed below, our group had a similar experience, suggesting how little has changed in the field of web crawler technology in the intervening 7 years.

One of the implications of using HTTrack rather than Heritrix is that the crawl produces a complete copy of the website's file directory, rather than a single file. The 2005 group found this to be a significant problem for ingest and access in DSpace, as they tried to ingest each file separately. This meant that ingest and metadata creation took up a significant amount of their energy. Perhaps more significantly, they found that DSpace offers limited support for viewing HTML, as it is not able to maintain the links between different pages and image files. This points to a larger issue of access within web archiving, one which our group has attempted to solve through the use of a virtual machine.

A second group of 392K students worked at archiving the iSchool website in 2006, including Janice Carter, Kyong Rae Lee, Carlos Ovalle, and Nikki Thomas. This group approached the task in a different way than the previous project. They decided their primary goal in archiving the website was to

support the records management needs of the School and therefore focused their efforts on preserving only those parts of the website that constituted official record material. This allowed them to avoid many of the more difficult IP questions faced by the 2005 group. Although they preserved the website for different reasons than the 2005 project, both groups determined that the necessary significant properties of the website included only the information displayed and the “look-and-feel” of the site; neither project attempted to archive the back-end PHP code or database structures that ran the site.

The 2006 group installed and used Heritrix to crawl the site. Because of the problems in ingesting the materials created by HTTrack, as discussed above, they determined that Heritrix was a better option. Although they were eventually able to get Heritrix running on an iSchool server, the group ran into multiple problems during the process of installation and crawling, including Java errors and scoping the crawl appropriately.

This group also put a lot of work into determining the requirements for the archived website materials to be considered authentic. They specified authenticity requirements at multiple phases, including during the active period of the website, during the archiving process, and after the materials had been uploaded into DSpace. This detailed analysis determined that website records maintained by the School of Information IT staff and uploaded into DSpace, with a documented chain of custody, can be considered to have maintained their identity and integrity and are therefore authentic. This work was extremely helpful for our project, as we were able to use the authenticity requirements set out in the 2006 report to ensure that our materials maintained their authentic character.

Our Strategy

Based on the examples of previous work, our team decided that we want to continue evaluating web crawler technologies, in hopes that improvements had been made since 2006. While significant problems with crawling exist (mostly of a technological nature), web crawling is well-established as a methodology in web archiving, and we were interested in pushing into new, unexplored territory. In particular, we were interested in the challenge of archiving dynamic web content, which is rapidly

becoming one of the most important issues for web archiving. Previous groups had shied away from addressing this problem, as they determined preserving dynamic content and PHP code was not necessary to meet their goals. In an early meeting with our group and Sam Burns, the iSchool's Content and Communications Strategist, Sam encouraged us to think about web designers and system administrators as part of our designated community. That community would be interested not only in how the website was displayed, its "look and feel," but also in the technical architecture underlying the site. The PHP code used to generate web pages contains a great deal of information about how the site is constructed, which would be valuable for administrators of future versions of the website.

Archiving the PHP and databases used to generate the web pages also posed interesting questions about access and how future users could interact with the site. It is possible to simply ingest the text files containing the code and SQL commands used to generate the needed databases into a digital repository, and this became part of our ultimate archiving strategy. However, those pieces on their own would not provide a functioning version of the website that users could view and interact with. To do that, a system would need to be provided that housed all of the necessary files and software together and maintained the correct relationships between the pieces. Again acting with Sam's advice and support, we decided to attempt a virtualization strategy to preserve a working version of the website. We built a virtual machine, using Oracle VirtualBox, and placed into it all of the necessary files and directory structure, as well as software, finally saving all of that together as a single VMDK (Virtual Machine Disk) file. Our initial theory was that this would solve both the problem of how to archive PHP and dynamic content, and the issues of access and storage faced by earlier groups. While creating a functioning website inside a virtual machine was not as easy as we had hoped and we had to face issues of security and IP, our virtualization strategy seems to have been largely successful.

Web Crawling/Documenting the Public Interface

Based upon previous groups' attempts to use Heritrix to crawl and archive the public interface for the website, we began our work researching web crawlers with the expectation that Heritrix would

ultimately be the appropriate choice for archiving the website. After researching additional options, along with user documentation indicating that Heritrix did not have a user-friendly interface and that generating automated crawls was a challenge, we selected Web Curator Tool. Web Curator Tool, described as an “open-source workflow management application for web archiving”¹ is the result of a collaborative effort between the British Library and the National Library of New Zealand. Web Curator Tool is built on a Java-based platform and combines several web-crawling technologies, such as Heritrix and NutchWAX, in order to create a user-friendly open source system for automating web crawls. Web Curator Tool is run in a browser using Apache Tomcat as a server, and is therefore much easier to engage with than Heritrix, which uses terminal and command-line functions to automate and complete crawls. The latest versions of these applications output WARC (“Web ARChive”) files, the successor to the ARC format and a new international standard format² developed and maintained by the International Internet Preservation Consortium (IIPC). Part of our decision to use Web Curator Tool was the desire to generate archival quality web crawls in this standard format, which combines the original web content exactly as it was captured along with metadata into an aggregate archival file. This metadata includes a unique identifier for each contained file as well as a digital hash to show that the record hasn’t been altered during the harvesting process. The metadata included in the WARC format helps to ensure the integrity and authenticity of the archived content.³

Unfortunately, troubleshooting with Web Curator Tool remains difficult. The system, according to developers, is “not designed for installation by end-users...that’s what we have system administrators for,”⁴ which means that instructions for installation are designed with a System Administrator in mind, not with a user who lacks familiarity with Java-based programming. Troubleshooting errors is primarily the responsibility of the user, as is the installation and proper configuration of all of the component

¹ “The Web Curator Tool Project,” Web Curator Tool, accessed 28 April 2013, <http://webcurator.sourceforge.net/>.

² ISO 28500:2009 - WARC file format, http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=44717

³ Hanzo Archives Learning Center - WARC Files, http://www.hanzoarchives.com/learning/warc_files

⁴ WCT presentation by dcc.co.cuk

software pieces required to use Web Curator Tool: PostgreSQL (or MySQL), Java, and Apache Tomcat. Documentation for resolved errors is also limited, and generally assumes a familiarity with the software that an end-user would not typically have.

As a result, our repeated efforts to install and deploy Web Curator Tools were met with several challenges. At the moment, the only supported platform for using and installing Web Curator Tool is Linux. However the group did not have access to a Linux operating system during our first install attempt. Instead, the group used separate installation instructions developed by Web Curator Tool to install the software on a Windows machine. The first installation attempt lasted for over seven hours, involving installing and configuring PostgreSQL, phpMyAdmin, Apache Tomcat 5.5, and the Web Curator Tool installation files. After installing and configuring all of the components to run Web Curator Tool, attempts to deploy the .war files for Web Curator Tool in Apache Tomcat were unsuccessful. After two weeks of attempted re-installations, reading through the error logs, and still unsuccessfully deploying the .war files, the group decided to attempt to use a Linux environment to complete the installation. Using the COM2 computer in the Digital Archaeology Lab, which runs an Ubuntu operating system, the group installed and configured PostgreSQL, Apache Tomcat 6.0, and the Web Curator Tool files. While we were able to successfully install the component pieces, we could not get Java configured properly due to a previous installation of Java on the COM2 machine that we were unable to uninstall and start with a newer version of Java. After enlisting the assistance of Communications and Web Strategist Sam Burns with the installation, we decided that the Web Curator Tool installation was not going to be a successful undertaking and opted for the previously installed and crawled HTTrack files.

Installing HTTrack

After our exploration of Web Curator Tool, we decide to use HTTrack to harvest the website. HTTrack is a free website copier that downloads the directories, HTML files, CSS files, and images from a website to a local directory for offline viewing. It automatically rebuilds the original site's relative link structure so that you can browse the local site in the same way as you would if you were viewing it

online.⁵ The software has two releases: WinHTTrack for Windows computers and WebHTTrack for Linux/Unix machines. While Heritrix and Web Curator Tool require technical expertise and a familiarity with the command line or help from a systems administrator, HTTrack is user friendly and straightforward to use. Users with limited technical knowledge can configure the program and start crawling a website in minutes, without the need to consult a manual. Users who are more technically savvy can adjust the parameters of the crawl, such as choosing the types of files to harvest or how many links to follow. Heritrix and WCT also allow parameters to be adjusted, if the user has the technical skills. Our mirrored site, captured in about four hours, looked similar to the crawled site, so we did not feel it was necessary to adjust the parameters for another crawl. One important aspect of HTTrack to be aware of is the presence of the hts-cache directory. This directory keeps the original bits and headers data that were downloaded from the website, whereas the browse version was modified to be viewable locally.⁶ The cache should be kept to maintain the authenticity of the website and for preservation purposes, while the browsable files are available for accessing the site offline.

For the purposes of our project, we wanted people to be able to view and navigate the iSchool website as it was before the redesign in March 2013. HTTrack was a solution that was easy to implement and fit our specific needs. However, it does seem to be designed for capturing a small number of websites, since multiple sites harvested together are put in the same folder. Therefore, it is a useful tool for small archives or others wanting to do web archiving on a small scale. Larger institutions wanting to capture many websites may want to consider using Heritrix, or tools that are built on Heritrix such as WCT, as it is specifically designed to handle large scale web archiving.

As one final attempt to save a copy of the website in the recognized ARC format, we explored using HTTrack2Arc, a Java-based transformation utility created by the Portuguese Web Archive that turns the results of an HTTrack crawl into an ARC file.⁷ Upon first glance, the tool seemed simple to install and run from a Linux command line, with which we felt somewhat comfortable after our attempts

⁵ <http://www.httrack.com/>

⁶ <http://e-records.chrisprom.com/httrack-evaluation/>

⁷ <https://code.google.com/p/httrack2arc/>

to install WCT. Upon attempting to run the program, we discovered that it required additional Java configuration that was beyond our skill set. Having learned to be critical of even seemingly simple command line operations from our efforts with WCT, we decided not to spend a large amount of time attempting to trying to learn enough Java to run HTTrack2Arc. While the ARC format would have been desirable as a simpler means of storing a copy of the site, we feel confident that the HTTrack files provide the necessary information to document the iSchool website's appearance. However, rather than attempting to ingest each item individually as the 2005 group did, we tarred all of the files together and ingested them as a single object into DSpace.

Creating the VMDK File

Creating the Initial File

The VMDK (Virtual Machine Disk) file was created using Oracle Virtualbox⁸. The group began with an attempt to install Virtualbox on the COM2 computer, which was successful, however running or creating VMDK files was not possible. The COM2 computer does not have the features needed to support virtualization, so the vmdk file was created in a Mac OS. To create the virtual environment, we opted for a Linux/Ubuntu operating system because the original website content was generated and modified using a Linux operating platform. The most recent version of Ubuntu (12.04) was downloaded from www.ubuntu.com, and a new VMDK file was created with Ubuntu 12.04 as the operating system. After starting the VMDK file for the first time, the Ubuntu installer ran and generated the operating system for the Virtual Machine. A super-user was created and Apache, MySQL and PHP⁹ were installed using the “sudo apt-get” command in terminal. The Apache and PHP installations were both tested by using the localhost address in a web browser, before determining that the VMDK file was ready to have the iSchool website files imported and added to MySQL to render the website in the virtual environment.

⁸ The version of Oracle Virtualbox used was 4.2.10, the most recent release at the time of the vmdk file's creation

⁹ Versions of software installed were mySQL 5.0.95, Apache 2.2.3, and php 5.1.6, all the software versions currently in use in the iSchool's management of the website.

Importing the Data

The website component files were obtained from the iSchool's Content and Communications Strategist, Sam Burns, on April 4th, 2013. Sam, who administers the website and is familiar with both its content and structure, placed all of the website component files (HTML, PHP, INC, JPEG, PNG, SQL databases, among others) into a compressed TAR (.tgz) file and uploaded that file to the vauxhall server (vauxhall.ischool.utexas.edu) in a folder specially created for this purpose. The files uploaded included all the current and past iSchool website component files, except for video tutorials. The video tutorials were not included because of their large size. For a complete file listing see Appendices A and B. Also included in the files downloaded were the two databases which run the iSchool website: iSchool and News. The databases were in the form of .sql files which included the SQL commands to build the various tables and insert the files into the local database.

In the Virtual Machine, the .tgz file was downloaded using an FTP client, and then unpackaged for use. The usernames passwords in the files were changed from their original to "username" and "password". This was done so that the original passwords did not become known, compromising the security of the live site. All of the website component files were placed in the system's www folder (/var/www), and the index.php page which was used earlier to test the operability of the localhost in the web browser was replaced with the iSchool website's index.php file. Two databases were created using the terminal command "CREATE DATABASE iSchool;" and "CREATE DATABASE News;". Using the super-user account, a new user named "admin" was created, and permission was given to that user to access the two new databases. That was done with the "GRANT SELECT,INSERT,UPDATE,DELETE ON iSchool.* TO 'admin'@'localhost';" and "GRANT SELECT,INSERT,UPDATE,DELETE ON News.* TO 'admin'@'localhost';" commands. After the databases were created and permissions were granted, the data was inserted into the database from our .sql files using "mysql -u admin -p -h localhost iSchool < iSchool.sql" and "mysql -u admin -p -h localhost News < News.sql". For a complete list of commands used in installing the databases, see Appendix C.

Rendering the Data in a Browser

At this point the website was basically functional, with most of the PHP and HTML files rendering correctly in the web browser. However there were a few pages which would not load under the localhost/ URL. One particular page which, when the link was clicked from the home page, would try to redirect to the live <http://www.ischool.utexas.edu> URL. It was discovered that this was happening because the component files included the current PHP file, as well as an older HTML file. The older .html file had been superseded, however the settings in our Virtual Machine's Apache server made the HTML file the first choice for launching. After correcting this setting in the Apache server, the PHP page loaded correctly at localhost/.

Finishing the Virtual Machine

Once all the component files and databases were installed and the website was operational within the Virtual Machine, the Machine's desktop, browser history, and other extraneous files were cleaned up. Instructions to open the browser were included in the form of text on a JPEG file used as the Machine's desktop background. The VMDK file was then uploaded to DSpace.

Management of the Data

DSpace management & structure

In designing the structure for these materials in DSpace, we were strongly guided by the work of the previous iSchool website groups. We believed that it makes the most sense to use the same general structure, to make it easier for users to understand the kinds of materials contained in the archive. Accordingly, we followed the 2006 group's structure of creating two sub-communities: one for the archived materials and another for the documentation of the archiving process. We called those sub-communities "2013 Website Archive" and "2013 Website Documentation." The Website Archive sub-community contains four collections: "2013 Website Individual Component Files," "2013 Website Screenshots," "2013 Website Virtual Machine," and "2013 Website Webcrawls." Each of those

collections represents a distinct method of documenting and providing access to the website, so although similar content is contained in each, the materials they hold are different enough to warrant separate collections.

The Documentation sub-community contains three collections: “2013 Website Meeting Notes,” “2013 Website Reports,” and “2013 Website System Documentation.” We found the 2006 group’s meeting notes very helpful, so decided to provide our meeting notes for future groups’ use. The System Documentation collection is particularly important, as it provides a place to provide additional documentation about the materials that we created and how they can be preserved and accessed.

Representation Information

We were very aware during the process of creating the virtual machine that all of our work to create the VMDK file would be worthless if we were not also able to ensure that the file would be accessible over the long term. Accordingly, we used the OAIS Reference Model as a means to think about what types of additional information would be necessary to ensure that the file would be usable in the future (“Representation Information” in the OAIS parlance). We archived this material in the 2013 Website System Documentation collection.

The OAIS model defines three types of Representation Information (RI): Structure Information, Semantic Information, and Other Representation Information.¹⁰ The first of these categories, Structure Information, includes information that helps turn a bitstream into meaningful information, usually provided as a file format specification. The majority of the files we ingested are in common file formats (TXT, PNG, PDF, etc.), and we determined that those specifications are adequately documented elsewhere. The VMDK file, however, is in a slightly more unusual format, so we opted to include a copy of the format specification as part of our archived materials.

The second type of RI is Semantic Information, which includes information about how to interpret the content once it is displayed; one way of thinking about it is that Structure Information turns

¹⁰ OAIS Model, Section 4.2.1.3

the bitstream into characters, and Semantic Information tells a user how to interpret those characters. The Semantic Information we chose to include consists of a list of the programs and their respective versions stored in the virtual machine and used to generate the website within that environment. We viewed this as essential information to include so that the materials within the virtual machine could be accurately used and understood; additionally, this information allows the materials stored as Individual Component Files and their relationships to the website to be better understood. Ideally, by providing this information about the programs used to generate and host the website, the Individual Component Files could be used to re-create a functioning version of the website, in case the VMDK file becomes corrupted or is no longer accessible. We considered including additional Semantic Information, especially because many of the archived files are code and we could have included information about how to read and interpret the HTML, PHP, and other code used to generate the website. We decided, however, that we could rely on our Designated Community to have the necessary knowledge to interpret the code if they needed to.

The final category of RI is Other Representation Information, a catch-all term for additional documentation that enables the archived materials to be understood and accessed. In our case, we determined that instructions about how to view the VMDK file were necessary, since virtual machines and the software used to access them require some specialized knowledge to use. In the System Documentation collection, we included a user manual for the Oracle VM VirtualBox program that we used to create and view the VMDK file. This is not the only program that could be used to view the archived VMDK file, but it is one free, open-source option. In addition to this user manual, we also created a set of instructions for viewing the VMDK file using VirtualBox and saved those instructions in the Virtual Machine collection, alongside the VMDK file itself. These instructions were intended for users with no experience using virtual machines, and include step-by-step instructions as well as screenshots, to ensure that the VMDK file is accessible even if the specialized knowledge of how to run a virtual machine is not available.

Open/Closed Collections

One of the important implications of our choice to archive all of the files used to generate the iSchool website was the effect on who should be allowed to have access to the archived site. In early meetings with Sam Burns, he expressed some concerns about the security of the website being compromised if the PHP code and database structures were made available. One important concern was the passwords held in the “include.php” files that generate content on many pages. Although we were able to remove that password information as described above, this alerted us to the possibility that more sensitive information might be buried in the code of which we were not aware.

Additionally, the fact that we obtained the entire set of files that make up the iSchool website means that we were not able to, on a granular level, determine what materials we would and would not take. Reports from the previous website archiving groups make it clear that there are significant privacy and IP issues involved with much of the material that is part of the iSchool’s website. In getting the original files from the site administrator, we obtained not only the material that is currently at the “top level” of the site, which would be captured by a shallow crawl, but also the material that exists in “deeper” levels and may not even be linked to from the main pages on the site. While in many ways this is very exciting, since archiving the “deep web” is a particular challenge for web archiving, it is also very challenging. Working through all of the files that we were given to identify sensitive information that should be redacted would be extremely time-consuming and require an in-depth knowledge of the site architecture and directories. While we are fairly confident that we addressed most of the security needs, we were unable to devote the time needed to explore every file and redact every possible piece of sensitive information.

For both of those reasons, we chose to make the two collections that contain materials obtained directly from the iSchool administration (the Virtual Machine and Individual Component Files collections) closed to public access. The materials will be made available upon request and approval by the DSpace administrator, who is expected to provide access to any iSchool staff member with a legitimate need to see the files. This was not an easy decision for us to make, since one of the most exciting elements of the virtual machine strategy was its usefulness as an access tool. By closing the

Virtual Machine collection, we will not have the ability to see if this is truly a useful way for researchers to access archived websites. However, the tradeoff of restricted access was necessary to allow us to use the files we obtained from the iSchool administration and respect the rights of the creators and subjects of the website.

Conclusions/Future Recommendations

Website archiving is still a relatively new field, and archives tend to rely on web crawls as a system for documenting public internet sites. However, most web crawlers are still incapable of archiving php code, so items such as database queries, or unique attributes of a website that require user interaction to render in a browser, are still not captured by web crawlers. We believe that our strategy of archiving the back-end of a website and creating a virtual machine in which an archived version of the site can be run is one potentially fruitful approach to the challenge of archiving dynamic content. For future endeavors, the amount of work necessary to undertake this task and the IP and security concerns involved mean that further refinement will be necessary before virtualization can be used as a wide-scale web archiving approach.

One area where our group closely mirrored other groups' attempts was getting mired in the difficulty of installing an open-source web crawler--past groups attempted to use Heritrix but were unable to obtain a comprehensive, automated crawl of the website, whereas our group attempted to install and use Web Curator Tool, with the expectation that the user-interface would allow for an easier crawl. Unfortunately, open-source does not mean user-friendly, and a significant portion of our group's time was spent attempting to install software that is ultimately not designed for end-user installation. Future web-crawling efforts should, in our recommendation, make use of Web Curator Tool, provided it is still the most user-friendly and comprehensive open source software available - however, they should also involve a System Administrator as early as possible in the process. Web Curator Tool is user friendly after its

installed, but the involvement of a System Administrator is crucial to a successful install and configuration of the software.

In keeping with the OAIS model, it would be ideal if all materials saved and used in a future vmrk file could be kept open access. The individual website components, such as database structures, HTML and CSS files, remain the intellectual property of the website developer, and future endeavors should more closely examine password protecting sensitive information within the VirtualBox environment. The creation of the VMDK file itself is contingent upon access to not only the publicly visible aspects of the website, but all of the additional materials required to render the website in a browser. Since access to future endeavors might be limited to only publicly visible aspects of the site, the creation of a VMDK file, or the virtualization of a website may not be a practical choice for future web archiving efforts.

One element of this project was an intentional duplication of documentation, preserving the website in multiple different formats (e.g. screenshots, crawls, and a virtual machine). As the web archiving community matures, it would be advisable for best practice guidelines to be established as to what is necessary and sufficient documentation of a website. Duplication of documentation is understandable in a project such as ours, since we were intentionally trying to determine the best methods for preserving a website. However, for web archiving to accomplish its goal of creating a system to comprehensively document the Internet, the archival community will need to decide on shared standards and guidelines.

Preserving websites continues to present real challenges to the digital archiving community, and new issues will continue to appear as online technologies evolve. However, this project has shown that new techniques can be successfully applied to the challenge of preserving web resources, and we hope that others will continue to experiment with visualization as a method of web archiving and developing more user-friendly web crawling tools.

Appendix A - high-level file and folder listing

Listing of "iSchool_Web" (Page 1)

Name	Kind	Size	Modified
about	Folder	1.2 GB	2/29/12 at 3:46:20 PM
admissions	Folder	164 KB	6/8/11 at 1:55:07 PM
advising	Folder	264 KB	3/19/13 at 11:19:10 AM
careers	Folder	31.8 MB	8/18/11 at 1:54:07 PM
contact.php	TextWiangler text document	1001 bytes	9/27/12 at 10:36:26 AM
courses	Folder	408 KB	2/18/13 at 3:56:33 PM
development	Folder	1.1 MB	3/26/12 at 12:22:05 PM
events	Folder	3.7 MB	3/15/11 at 3:23:46 PM
favicon.ico	Windows icon image	894 bytes	11/3/09 at 3:10:09 PM
forms	Folder	7.2 MB	11/28/12 at 11:45:00 AM
front_page.css	CSS style sheet	2 KB	1/15/10 at 3:28:35 PM
global.php	TextWiangler text document	21 KB	5/29/12 at 4:12:58 PM
images	Folder	13.8 MB	12/18/12 at 4:43:29 PM
images-2005	Folder	9.7 MB	11/17/09 at 8:13:13 PM
index.php	TextWiangler text document	12 KB	11/27/12 at 1:51:34 PM
information	Folder	280 KB	8/25/11 at 3:31:24 PM
ischool.css	CSS style sheet	22 KB	8/27/12 at 4:51:11 PM
ischool.css.bkp	Document	17 KB	10/3/11 at 10:55:39 PM
iSchoolNewsfeed.xml	XML Document	6 KB	4/4/13 at 1:00:01 PM
iSchoolNewsfeed.xsl	XSL Stylesheet Document	6 KB	11/18/05 at 2:38:48 PM
jobs	Folder	4 KB	9/6/12 at 2:19:13 PM
jobweb	Folder	1.5 MB	8/18/11 at 5:14:45 PM
kilgailin	Folder	12 KB	3/10/10 at 11:24:16 AM
labs	Folder	332.9 MB	7/22/12 at 4:42:05 PM
local.inc	TextWiangler Document	1 KB	1/15/10 at 12:57:08 PM
ojs	Folder	12.3 MB	1/26/06 at 6:08:07 PM
orientation	Folder	784 KB	7/31/12 at 4:15:25 PM
people	Folder	3.5 MB	10/2/12 at 9:54:01 AM
programs	Folder	17.2 MB	2/7/12 at 8:35:22 PM
research	Folder	13.3 MB	1/15/13 at 2:49:04 PM
rabats.txt	Plain Text	51 bytes	5/10/10 at 12:56:18 PM
rooms	Folder	2.4 GB	2/25/13 at 8:41:52 AM
sale_email.php	TextWiangler text document	399 bytes	9/7/10 at 9:11:46 PM
schoolwide	Folder	1.3 MB	2/24/11 at 11:45:15 AM
search.php	TextWiangler text document	6 KB	5/29/12 at 9:29:43 PM
shared	Folder	3.1 MB	1/17/13 at 1:49:55 PM

Appendix B - full file listing

Listing of "iSchool Web" (Page 1)

about	about/quote.gil	information_institute.png
_notes	dillon_thumb.jpg	ischool_lilas.jpg
about/ut.php	index.php	james_hawison.jpg
enews	ischool_vision.jpg	james_hawison_red_s_mall.jpg
enews_2009-12-01.php	local.inc	lci.jpg
enews_2010-06-01.php	location.php	lecia_barker.jpg
enews_2011-03-01.php	logos	libby_petelek.jpg
enews_april_2006.php	index.php	lincoln_bible.jpg
enews_april_2007.php	logo_lang.jpg	larrie_dang.jpg
enews_april_2008.php	logo_tall_dark.jpg	marry_lynn.jpg
enews_august_2003.php	move.php	mcmillan_burn_001.jpg
enews_december_2008.php	new_index.php	mcmillan_burn_gloves.jpg
enews_february_2005.php	news	mcmillan_burn_group.jpg
enews_january_2003.php	CHAFF	nancy_eaton.jpg
enews_july_2006.php	UTDirectNewsfeed.rdl-	nathan_ensmenger.jpg
enews_july_2007.php	images	parish.jpg
enews_july_2008.php	2011_tela.jpg	Privacy_in_America.jpg
enews_june_2004.php	alumni_dc_03.jpg	recovery.jpg
enews_june_2005.php	alumni_dc_04.jpg	ricelively.jpg
enews_june_2009.php	alumni_dc_08.jpg	ricelively_news.jpg
enews_march_2003.php	alumni_dc_09.jpg	saa_proclamation.jpg
enews_march_2004.php	android001.jpg	students_with_books.jpg
enews_may_2003.php	android002.jpg	students_with_books_large.jpg
enews_november_2003.php	android003.jpg	lanya_clement.jpg
enews_november_2005.php	android004.jpg	three_deans.jpg
enews_october_2006.php	android005.jpg	TribalBookCover.jpg
enews_september_2004.php	archives.jpg	turnbull_news.jpg
images	anna_ba_dora.jpg	update_grove_news.jpg
1616pic1.jpg	aspray_everyday_information.jpg	waitol.png
CiaranTrace.jpg	austin_his_lary.png	white_whale_games.jpg
Commencement.JPG	bias_book.jpg	william_aspray.jpg
DianeBailey.png	bias_image.jpg	index.php
Dan.jpg	blukenbill_news.jpg	kailtemp.txt
Facebookimage.gil	deb_peel.jpg	news_archive
immioath.jpg	dillon.jpg	ad.html
iSchoolLogo.png	dillon_book.jpg	alise_01212005.php
lecia_barker.jpg	daug_aard.jpg	alumna_cover_11042004.php
lincoln_bible.jpg	exhibit_hall.jpg	alumni_dc_09212005.php
Miles.jpg	exhibit_hall_large.jpg	alumni_dinner_02102003.html
PatSmith.JPG	FiCoHISL.gil	alumni_dinner_09232003.html
PatSmith1.JPG	gary_geisler.jpg	archives.html
TexasArchive/themovingimagelogo.jpg	GraduationAnimation.gil	asis_11222004.php
UTNola.jpg	grateful_dead.png	baseball_09152005.php
WeShallRemainLogo.png	health_informatics_cover.jpg	belinda_n_andrew.jpg
yan_zhang.jpg	hoover.jpg	bias_ibm_01272004.html
yanzhang.jpg	iasummit.jpg	bias_ibm_09272005.php
index.php	iGive_logo.png	bias_joins_ut_01292003.html
vision.php	immioath_group1.jpg	book_les_alumni_dinner_11052003
forums-keyword.php	immioath_group2.jpg	book_les_alumni_dinner_text1.html
forums.php	immioath_group3.jpg	capstone_04142005.php
history.php	immioath_group4.jpg	capstone_lair_09142005.php
images	immioath_health_textbook.jpg	capstone_presentations_07122005.

impl. agent: 551.73554 aka www.551.73553.html

Macintosh HD:Users:jaredwilson:Documents:School:Graduate School:UT (University of Texas):combined 2015-2016 10-2016 and 09-2016

	plasma (units/ml)	serum (units/ml)
1	0.00	0.00
2	0.00	0.00
3	0.00	0.00
4	0.00	0.00
5	0.00	0.00
6	0.00	0.00
7	0.00	0.00
8	0.00	0.00
9	0.00	0.00
10	0.00	0.00
11	0.00	0.00
12	0.00	0.00
13	0.00	0.00
14	0.00	0.00
15	0.00	0.00
16	0.00	0.00
17	0.00	0.00
18	0.00	0.00
19	0.00	0.00
20	0.00	0.00
21	0.00	0.00
22	0.00	0.00
23	0.00	0.00
24	0.00	0.00
25	0.00	0.00
26	0.00	0.00
27	0.00	0.00
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31	0.00	0.00
32	0.00	0.00
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39	0.00	0.00
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45	0.00	0.00
46	0.00	0.00
47	0.00	0.00
48	0.00	0.00
49	0.00	0.00
50	0.00	0.00
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52	0.00	0.00
53	0.00	0.00
54	0.00	0.00
55	0.00	0.00
56	0.00	0.00
57	0.00	0.00
58	0.00	0.00
59	0.00	0.00
60	0.00	0.00
61	0.00	0.00
62	0.00	0.00
63	0.00	0.00
64	0.00	0.00
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80	0.00	0.00
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83	0.00	0.00
84	0.00	0.00
85	0.00	0.00
86	0.00	0.00
87	0.00	0.00
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89	0.00	0.00
90	0.00	0.00
91	0.00	0.00
92	0.00	0.00
93	0.00	0.00
94	0.00	0.00
95	0.00	0.00
96	0.00	0.00
97	0.00	0.00
98	0.00	0.00
99	0.00	0.00
100	0.00	0.00

Macintosh HD/Users/jarredwilson/Documents/School/Graduate School/UT (University of Texas at Austin)/Spring 2014/Eligible 2014 and CB&K PreM

Listing of "iSchool_Web" (Page 4)

association_job_search.php	comp.jpg	admin_functions.php
internships.php	llag.jpg	calendar_functions.php
tech_job_search.php	IntLtwi.gif	date_functions.php
UTMentorInfo2009.pdf	grad54.jpg	draw_functions.php
UTStudentApp2009.doc	hook.jpg	event.js
workshop_downloads	icon.gif	ical_parser.php
career_lai_tips.doc	support.gif	init.inc.php
career_lai_tips.pdf	texas_giving.gif	list_functions.php
creating_resumes.doc	texas_giving.jpg	OLDtemplate.php
creating_resumes.pdf	twi.gif	overlapping_events.php
workshops.php	yellow_weave.gif	sanitize.php
contact.php	index.php	template.php
courses	information_society.php	timezones.php
advising.php	local.inc	userauth_functions.php
class_details.php	student_giving.php	images
class_details_test.php	support.gif	cancelled.gif
classes.php	supporters.php	completed.gif
core_courses_list.php	therm.jpg	confirmed.gif
core_in1382c_fall_2008.php	thermbat.jpg	important.gif
core_in1387c_fall_2008.php	therma.php	not_completed.gif
course_descriptions.php	updates	phpical-logo.gif
course_details.php	index.html	recurring.gif
course_numbering.gif	ways2give.html	spacer.gif
course_rotation.php	ways2give.php	tentative.gif
courses.php	events	valid-11.png
help.php	admin	includes
index.html	index.php	event.php
index.php	AUTHORS	login.php
index.php-	cal_test.html	loda.php
instruction	cal_test.html-	index.php
la_resources	calendars	languages
example_course_pages.zip	event_list.inc	alrikaans.inc.php
images	get_calendars.csh	brazilian.inc.php
ischool_course_rotation.doc	get_calendars.csh-	bulgarian.inc.php
local.inc	get_calendars.log	catalan.inc.php
local.inc-	get_calendars_test.csh	czech.inc.php
msis_course_guidelines.php	get_calendars_test.csh-	danish.inc.php
phd_methods_courses.php	get_calendars_test.log	deutsch.inc.php
wise.php	ischool.ics	english.inc.php
wise_classes.php	publish.php	esperanto.inc.php
development	publish_log.txt	finnish.inc.php
advisory_council.php	upcoming_events.inc	french.inc.php
Arial.ttl	upcoming_events.inc-	galego.inc.php
bust.jpg	canlig.inc-dist.php	german.inc.php
contact.php	canlig.inc.php	hungarian.inc.php
discovery_fund.php	canlig.inc.php-	italian.inc.php
endowment_list.php	COPYING	japanese.inc.php
endowments.php	day.php	korean.inc.php
images	default_canlig.php	lithuanian.inc.php
_notes	error.php	norwegian.inc.php
bkmrk.jpg	event_list.php	polish.inc.php
calendar.png	functions	portuguese.inc.php

Macintosh HD:Users:jaredwilson:Documents:School:Graduate School:UT (University of Texas at Austin):B96K:Pr&M

	board: tel	month: tel
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Macintosh HD/Users/jamiedwilson/Documents/School/Graduate School/UT (University of Texas) - online 2019 Spelling 10-2016 and B98K: B98M

Listing of "iSchool_Web" (Page 6)

month_medium.tpl	INF3BBR_supervisor_info.doc	wise_application.pdf
month_small.tpl	INF3BBR_supervisor_info_2012.docx	front_page.css
preferences.tpl	isara_lairm.pdf	global.php
print.tpl	lic_application.doc	images
rss_index.tpl	lic_application.pdf	about.gif
search.tpl	masters_report_guided.doc	about_sel.gif
search_box.tpl	masters_thesis_guide.doc	admissions.gif
seminar.tpl	new_student_app.doc	admissions_sel.gif
sidebar.tpl	new_student_app.pdf	alumni.jpg
todo.tpl	orientation_lal_2010.doc	analog
week.tpl	pep-proposal-3-12-rev11-12.docx	analog.gif
year.tpl	pep-proposal-3-12-rev11-12.pdf	analog.png
test.html	pep-proposal-3-12.docx	baia1.gif
TIMEZONES	pep-proposal-3-12.pdf	baia1.png
upcoming.php	pep-proposal-7-12.docx	baia16.gif
week.php	pep-proposal-7-12.pdf	baia16.png
year.php	pep-proposal-nov12.docx	baia2.gif
lavican.ica	pep-proposal-nov12.pdf	baia2.png
forms	pep_program_evaluation.doc	baia32.gif
admin_tales.doc	pep_proposal.doc	baia32.png
advanced_study_application.doc	pep_proposal.pdf	baia4.gif
advanced_study_application.pdf	pep_proposal_worksheet.doc	baia4.png
amazon_mechanical_turk_request.pdf	pep_sample_agreement-7-12.doc	baia8.gif
award_applications	pep_sample_agreement.doc	baia8.png
request_lair_travel.doc	pep_sample_evaluation.doc	baib1.gif
BACKUP	petition_transfer.doc	baib1.png
continuing_student_app.pdf	petition_transfer.pdf	baib16.gif
new_student_app.pdf	phd_advising_lairm.doc	baib16.png
ta_app.pdf	phd_advising_lairm.pdf	baib2.gif
ta_application.doc	phd_application.doc	baib2.png
ta_application.pdf	phd_application.pdf	baib32.gif
ta_application_old.doc	phd_handbook.doc	baib32.png
capslane_3BBLaq.doc	phd_handbook.pdf	baib4.gif
capslane_presentation_guidelines.doc	phd_program_desc.doc	baib4.png
conditional_admissions_lairm.pdf	phd_program_desc.pdf	baib8.gif
continuing_student_app.doc	phd_program_study.doc	baib8.png
continuing_student_app.pdf	phd_program_study.pdf	baic1.gif
eas.doc	phd_student_handbook_ver_lal_2009.pdf	baic1.png
eas.pdf	phd_student_handbook_ver_lal_2011.pdf	baic16.gif
faculty_funds_request.doc	research_excellence.pdf	baic16.png
faculty_mechanical_turk_purchase.pdf	school_library_practicum_app.doc	baic2.gif
faculty_travel_grant.pdf	student_medical_release.doc	baic2.png
faculty_travel_request.doc	student_travel_release.doc	baic32.gif
faculty_travel_request.pdf	student_travel_request.doc	baic32.png
Gender_Equity_Commitment.pdf	ta_application.doc	baic4.gif
index.html	ta_application.pdf	baic4.png
index.php	ta_job_duties.doc	baic8.gif
index.php~	travel_policy.php	baic8.png
individual_study.doc	travel_reimbursement.xls	baid1.gif
individual_study.pdf	wise_application-2011.docx	baid1.png
INF3BBR_evaluation.doc	wise_application-2011.pdf	baid16.gif
INF3BBR_manual.doc	wise_application.doc	baid16.png

Macintosh HD:Users:jamedwilson:Documents:School:Graduate School:UT (University of Texas at Austin) 2011-2012 Spring B 96 KB

Listing of "iSchool_Web" (Page 7)

baid2.gil	baih4.gil	baia2.png
baid2.png	baih4.png	baia32.gil
baid32.gil	baih8.gil	baia32.png
baid32.png	baih8.png	baia4.gil
baid4.gil	baii1.gil	baia4.png
baid4.png	baii1.png	baia8.gil
baid8.gil	baii16.gil	baia8.png
baid8.png	baii16.png	baib1.gil
baie1.gil	baii2.gil	baib1.png
baie1.png	baii2.png	baib16.gil
baie16.gil	baii32.gil	baib16.png
baie16.png	baii32.png	baib2.gil
baie2.gil	baii4.gil	baib2.png
baie2.png	baii4.png	baib32.gil
baie32.gil	baii8.gil	baib32.png
baie32.png	baii8.png	baib4.gil
baie4.gil	baij1.gil	baib4.png
baie4.png	baij1.png	baib8.gil
baie8.gil	baij16.gil	baib8.png
baie8.png	baij16.png	baic1.gil
baii1.gil	baij2.gil	baic1.png
baii1.png	baij2.png	baic16.gil
baii16.gil	baij32.gil	baic16.png
baii16.png	baij32.png	baic2.gil
baii2.gil	baij4.gil	baic2.png
baii2.png	baij4.png	baic32.gil
baii32.gil	baij8.gil	baic32.png
baii32.png	baij8.png	baic4.gil
baii4.gil	html2.gil	baic4.png
baii4.png	html2.png	baic8.gil
baii8.gil	sq0.png	baic8.png
baii8.png	sq1.png	baid1.gil
baig1.gil	sq2.png	baid1.png
baig1.png	sq3.png	baid16.gil
baig16.gil	sq4.png	baid16.png
baig16.png	sq5.png	baid2.gil
baig2.gil	sq6.png	baid2.png
baig2.png	sq7.png	baid32.gil
baig32.gil	sq8.png	baid32.png
baig32.png	sq9.png	baid4.gil
baig4.gil	sqg.png	baid4.png
baig4.png	analogo.gil	baid8.gil
baig8.gil	analogo.png	baid8.png
baig8.png	archive.gil	baie1.gil
baih1.gil	AreYouType1.gil	baie1.png
baih1.png	assignments.gil	baie16.gil
baih16.gil	assignments_sel.gil	baie16.png
baih16.png	baia1.gil	baie2.gil
baih2.gil	baia1.png	baie2.png
baih2.png	baia16.gil	baie32.gil
baih32.gil	baia16.png	baie32.png
baih32.png	baia2.gil	baie4.gil

Macintosh HD:Users:jaredwilson:Documents:School:Graduate School:UT (University of Texas at 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home_about.gil.mna	baic16.png	baig32.png
home_about_sel.gil.mna	baic2.gil	baig4.gil
home_admissions.gil.mna	baic2.png	baig4.png
home_admissions_sel.gil.mna	baic32.gil	baig8.gil
home_careers.gil.mna	baic32.png	baig8.png
home_careers_sel.gil.mna	baic4.gil	baih1.gil
home_computing.gil.mna	baic4.png	baih1.png
home_computing_sel.gil.mna	baic8.gil	baih16.gil
home_causes.gil.mna	baic8.png	baih16.png
home_causes_sel.gil.mna	baid1.gil	baih2.gil
home_people.gil.mna	baid1.png	baih2.png
home_people_sel.gil.mna	baid16.gil	baih32.gil
home_programs.gil.mna	baid16.png	baih32.png
home_programs_sel.gil.mna	baid2.gil	baih4.gil
home_research.gil.mna	baid2.png	baih4.png
home_research_sel.gil.mna	baid32.gil	baih8.gil
nav_bg.gil.mna	baid32.png	baih8.png
about.gil	baid4.gil	baie1.gil
about_sel.gil	baid4.png	baie1.png

Macintosh HD/Users/jamiedwilson/Documents/School/Graduate School/UT (University of Texas at Austin) 2014-2015 Spring B&B Print

Listing of "iSchool Web" (Page 16)

april_smith_thumb.jpg	laurie_capalac.jpg	stephanie_lowery_thumb.jpg
barbara_immioth.jpg	laurie_capalac_low.jpg	sue_murphy.jpg
barbara_immioth_thumb.jpg	laurie_capalac_thumb.jpg	sue_murphy_thumb.jpg
barbara_jansen.jpg	lea_engle_thumb.jpg	tanya_abouin.jpg
barbara_jansen_thumb.jpg	lecia_baker.jpg	tanya_abouin_thumb.jpg
bettie_mcginness.jpg	lecia_baker_thumb.jpg	tany_cherian.jpg
bettie_mcginness_thumb.jpg	libby_petelek.jpg	tany_cherian_thumb.jpg
bill_anderson.jpg	loriene_roy.jpg	unmil_karadkar.jpg
bill_anderson_thumb.jpg	loriene_roy_thumb.jpg	unmil_karadkar_thumb.jpg
carla_criner.jpg	luke_dunlap.jpg	william_aspiay.jpg
carla_criner_thumb.jpg	luke_dunlap_thumb.jpg	william_aspiay_thumb.jpg
caroline_lrick.jpg	maria_esteira.jpg	yan_zhang.jpg
caroline_lrick_thumb.jpg	maria_esteira_thumb.jpg	yan_zhang_thumb.jpg
cassie_alvarado.jpg	matthew_lease.jpg	people.gil
cassie_alvarado_thumb.jpg	matthew_lease_thumb.jpg	people_sel.gil
chela_melger.jpg	megan_winget.jpg	programs.gil
chela_melger_thumb.jpg	megan_winget_thumb.jpg	programs_sel.gil
ciaran_liace.jpg	melanie_leinberg.jpg	PythonPowered.png
ciaran_liace_thumb.jpg	melanie_leinberg DD1.jpg	readings.gil
connie_brooks.jpg	melanie_leinberg DD2.jpg	readings_sel.gil
connie_brooks_thumb.jpg	melanie_leinberg DD3.jpg	RedURLBall.gil
craig_blaha.jpg	melanie_leinberg_thumb.jpg	research.gil
craig_blaha_thumb.jpg	michael_laird.jpg	research_sel.gil
default.jpg	michael_laird_thumb.jpg	resource.gil
default_thumb.jpg	michael_winslip.jpg	resources.gil
diane_bailey.jpg	michael_winslip_thumb.jpg	resources_sel.gil
diane_bailey_thumb.jpg	nicole_rabichaux.jpg	return_title.gil
don_carleton.jpg	nicole_rabichaux_thumb.jpg	rss_button.gil
don_carleton_thumb.jpg	owen_mc_nally.jpg	sanchez.jpg
dorothy_highl.jpg	owen_mc_nally_low.png	separator.gil
elizabeth_clark.jpg	owen_mc_nally_thumb.jpg	SmallTtypelBall.gil
elizabeth_clark_thumb.jpg	paul_aumeiryan.jpg	space.gil
elly_stevens.jpg	paul_aumeiryan_thumb.jpg	space_black.gil
elly_stevens_thumb.jpg	quinn_stewart.jpg	sq0.png
fleming_zeay.jpg	quinn_stewart_thumb.jpg	sq1.png
fleming_zeay_thumb.jpg	rebecca_elder.jpg	sq2.png
harry_martin.jpg	rebecca_elder_thumb.jpg	sq3.png
harry_martin_thumb.jpg	rebecca_hill.jpg	sq4.png
jacqueline_peery.jpg	rebecca_hill_thumb.jpg	sq5.png
jacqueline_peery_thumb.jpg	samburns.jpg	sq6.png
jen_moore.jpg	samburns_thumb.jpg	sq7.png
jen_moore_thumb.jpg	sarah_allaga.jpg	sq8.png
jan_kalka.jpg	sarah_allaga_thumb.jpg	sq9.png
jan_kalka_thumb.jpg	sarah_kim.jpg	sqg.png
kai_mantsch.jpg	sarah_kim_thumb.jpg	staff
kai_mantsch_thumb.jpg	s_hane_williams.jpg	kai_mantsch.jpg
kamar_nassoi.jpg	s_hane_williams_thumb.jpg	stair.gil
kamar_nassoi_thumb.jpg	s_heila_siegler.jpg	student.jpg
kathleen_houlihan.jpg	s_heila_siegler_thumb.jpg	student_giving_logo.gil
kathleen_houlihan_thumb.jpg	tan_gunn.jpg	syllabus.gil
kim_smith.jpg	tan_gunn_thumb.jpg	syllabus_sel.gil
kim_smith_thumb.jpg	stephanie_lowery.jpg	title.gil

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Listing of "iSchool_Web" (Page 22)

Astraphysics.xml	active.tpl	edprocess.png
Biology.xml	completed.tpl	edprocesslarge.png
Business.xml	index.tpl	help.gil
Chemistry.xml	navidebar.tpl	icons
Cognitive_Science.xml	submission	info.gil
Computer_Science.xml	submission.tpl	letter.gil
Economics.xml	submissionEditing.tpl	locks.gil
Education.xml	submissionReview.tpl	mail.gil
Environment.xml	submit	menulist.gil
General_Science.xml	comment	pkp.gil
Generic.xml	comment.tpl	index
Humanities.xml	comments.tpl	journal.tpl
Life_Sciences.xml	common	site.tpl
Mathematics.xml	error.tpl	information
Music.xml	footer.tpl	information.tpl
Physics.xml	formErrors.tpl	install
Social_Sciences.xml	header.tpl	install.tpl
it-version.dtd	message.tpl	installComplete.tpl
styles	sidebar.tpl	upgrade.tpl
articleView.css	copyeditor	upgradeComplete.tpl
comments.css	active.tpl	issue
common.css	completed.tpl	archive.tpl
help.css	index.tpl	current.tpl
it.css	navidebar.tpl	issue.tpl
templates	submission	view.tpl
about	submission.tpl	viewPage.tpl
aboutThisPublishingSystem.tpl	editor	layoutEditor
contact.tpl	index.tpl	active.tpl
editorialPolicies.tpl	issues	completed.tpl
editorialTeam.tpl	navidebar.tpl	index.tpl
index.tpl	notifyUsers.tpl	navidebar.tpl
journalSponsorship.tpl	notifyUsersEmail.tpl	submission
site.tpl	schedulingQueue.tpl	submission.tpl
siteMap.tpl	selectSectionEditor.tpl	manager
submissions.tpl	submissions.tpl	emails
subscriptions.tpl	submissionsArchives.tpl	files
admin	submissionsInEditing.tpl	importexport
importOJS1.tpl	submissionsInReview.tpl	index.tpl
index.tpl	submissionsUnassigned.tpl	languageSettings.tpl
journals.tpl	email	people
journalSettings.tpl	email.tpl	sections
languages.tpl	gateway	setup
settings.tpl	locks.tpl	subscription
systemConfig.tpl	help	proofreader
systemConfigUpdated.tpl	footer.tpl	active.tpl
systemInfo.tpl	header.tpl	completed.tpl
article	helpTac.tpl	index.tpl
article.tpl	searchResults.tpl	navidebar.tpl
intertitlial.tpl	toc.tpl	submission
pdfIntertitlial.tpl	topic.tpl	submission.tpl
view.tpl	view.tpl	reviewer
author	images	active.tpl

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Listing of "iSchool Web" (Page 27)

SH_rpt3.pdf	digitallibraries.php	master29_imageD41.gif
SH_rpt4.pdf	lunded_research.php	master29_imageD42.gif
SH_rpt5.pdf	health.php	master29_imageD43.gif
SH_rptL1.pdf	iadu.php	master29_imageD45.gif
ShannonPhillips_ReportD01.pdf	iadu_current_research.php	master29_imageD46.gif
ShannonPhillips_ReportD02.pdf	iadu_doctoral.php	master29_imageD47.gif
ShannonPhillips_ReportD03.pdf	iadu_faculty.php	master29_imageD49.gif
SR_FinRpt.pdf	iadu_grant_proposals.php	master29_imageD51.gif
SR_rpt2.pdf	iadu_masters.php	master29_imageD52.gif
SR_rpt3.pdf	iadu_research_projects.php	master29_imageD54.gif
SR_rpt4.pdf	images	master29_imageD55.gif
SR_rpt5.pdf	ims_logo.gif	master29_imageD57.gif
SR_rptL1.pdf	ipl_logo.gif	master30_imageD16.gif
WendyKraemer_April2004.pdf	index.php	master30_imageD48.gif
WendyKraemer_Jan2004.pdf	iwig.php	navigation_bar.htm
WendyKraemer_June2004.pdf	journals.php	next_active.gif
WendyKraemer_Mai2004.pdf	local.inc	next_disabled.gif
WendyKraemer_May2004.pdf	publications.php	outline_collapsed.gif
distance_education.php	research-a-palooza-10282003.htm	outline_collapsed.htm
dual_degrees.php	research-a-palooza-10282003.PPT	outline_expand.gif
endorsement-1aim.doc	research-a-palooza-10282003_files	outline_expanded.htm
endorsement-1aim.pdf	blank_notes.htm	outline_navigation_bar.htm
general_info.php	endshow.htm	prev_active.gif
grad_pack.php	filelist.xml	prev_disabled.gif
images	master29_background.gif	slideD051.htm
grad_writing_project_logo.gif	master29_imageD01.gif	slideD051_background.gif
powerpoint-icon.gif	master29_imageD03.gif	slideD053.htm
index.php	master29_imageD05.gif	slideD054.htm
jd_mis_sample_proigam.pdf	master29_imageD07.gif	slideD054_imageD04.gif
local.inc	master29_imageD09.gif	slideD055.htm
masters	master29_imageD11.gif	slideD055_background.gif
areas.php	master29_imageD12.gif	slideD056.htm
candidacy.php	master29_imageD13.gif	slideD056_background.gif
curriculum.php	master29_imageD14.gif	slideD058.htm
curriculum.php-	master29_imageD15.gif	slideD058_imageD5D.gif
endorsement-1aim.doc	master29_imageD17.gif	slideD066.htm
index.php	master29_imageD18.gif	slideD066_imageD06.gif
masters_printable.php	master29_imageD19.gif	slideD071.htm
minor.php	master29_imageD20.gif	slideD073.htm
pcs.laigz	master29_imageD27.gif	slideD074.htm
phd.php	master29_imageD28.gif	slideD076.htm
phd_annual_review_2006.doc	master29_imageD29.gif	slideD076_background.gif
phd_annual_review_2006.pdf	master29_imageD30.gif	slideD077.htm
phd_handbook.pdf	master29_imageD31.gif	slideD078.htm
specializations	master29_imageD32.gif	slideD078_background.gif
cas.php	master29_imageD34.gif	slideD078_imageD44.jpg
eas.php	master29_imageD35.gif	slideD079.htm
index.php	master29_imageD36.gif	slideD080.htm
ssk.php	master29_imageD37.gif	slideD082.htm
research	master29_imageD38.gif	slideD083.htm
_notes	master29_imageD39.gif	slideD084.htm
cdll_proigam.php	master29_imageD40.gif	slideD085.htm

Listing of "iSchool_Web" (Page 29)

japanese.inc.php	week.tpl	calendar_nav.tpl
koian.inc.php	year.tpl	day.tpl
lithuanian.inc.php	green	default.css
norwegian.inc.php	admin.tpl	default.css.20090824
polish.inc.php	calendar_nav.tpl	error.tpl
portuguese.inc.php	day.tpl	event.tpl
russian.inc.php	default.css	footer.tpl
slovak.inc.php	error.tpl	header.tpl
slovenska.inc.php	event.tpl	images
spanish.inc.php	footer.tpl	month.tpl
swedish.inc.php	header.tpl	month_school.tpl
traditional_chinese.inc.php	images	month_large.tpl
layout.php	month.tpl	month_medium.tpl
month.php	month_large.tpl	month_small.tpl
month_school.php	month_medium.tpl	OLDupcoming.tpl
preferences.php	month_small.tpl	preferences.tpl
print.php	preferences.tpl	print.tpl
README	print.tpl	rss_index.tpl
reserve_room.php	rss_index.tpl	search.tpl
reserve_room.phpold	search.tpl	search_box.tpl
room_form.inc	search_box.tpl	sidebar.tpl
rooms.png	seminar.tpl	sidebar_year.tpl
rss	sidebar.tpl	tada.tpl
index.php	tada.tpl	upcoming.tpl
rss.php	week.tpl	week.tpl
rss1.0.php	year.tpl	week.tpl.orig
rss2.0.php	grey	year.tpl
xml.gil	admin.tpl	red
search.php	calendar_nav.tpl	admin.tpl
templates	day.tpl	calendar_nav.tpl
default	default.css	day.tpl
admin.tpl	error.tpl	default.css
calendar_nav.tpl	event.tpl	error.tpl
day.tpl	footer.tpl	event.tpl
default.css	header.tpl	footer.tpl
error.tpl	images	header.tpl
event.tpl	month.tpl	images
footer.tpl	month_large.tpl	month.tpl
header.tpl	month_medium.tpl	month_large.tpl
images	month_small.tpl	month_medium.tpl
month.tpl	preferences.tpl	month_small.tpl
month_large.tpl	print.tpl	preferences.tpl
month_medium.tpl	rss_index.tpl	print.tpl
month_small.tpl	search.tpl	rss_index.tpl
preferences.tpl	search_box.tpl	search.tpl
print.tpl	seminar.tpl	search_box.tpl
rss_index.tpl	sidebar.tpl	sidebar.tpl
search.tpl	tada.tpl	sidebar_year.tpl
search_box.tpl	week.tpl	tada.tpl
sidebar.tpl	year.tpl	week.tpl
sidebar_year.tpl	ischool	year.tpl
tada.tpl	admin.tpl	tan

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Appendix C - SQL commands

These are the commands to create users and databases in MySQL.

Login to MySQL

First you need to login as the mysql database root user using a mysql command line client. Type the following command to login with a password at a shell prompt:

```
mysql -u root -p
```

Create a database

```
CREATE DATABASE databasename;
```

Create a New User

The root user has full access to all of the databases. However, in cases where more restrictions may be required, there are ways to create users with custom permissions.

Make a new user within the MySQL shell:

```
CREATE USER 'newuser'@'localhost' IDENTIFIED BY 'password';
```

At this point newuser has no permissions to do anything with the databases. In fact, if newuser even tries to login (with the password: password), they will not be able to reach the MySQL shell.

Therefore, the first thing to do is to provide the user with the permissions they will need to access the new database.

GRANT (add) privileges to a newly created user

```
GRANT SELECT,INSERT,UPDATE,DELETE ON databasename.* TO 'newuser'@'localhost';
```

If you want to give them access to any database or to any table, make sure to put an asterisk (*) in the place of the database name or table name.

However, with such settings this user is not able to install the databases as it cannot create tables. To add all privileges to the user you don't have to list all of them but you can use the ALL shortcut as follows:

How to GRANT all privileges to a user

```
GRANT ALL ON databasename.* TO 'newuser'@'localhost';
```


The asterisks in this command refer to the database and table (respectively) that they can access—this specific command allows the user to read, edit, execute and perform all tasks across all the databases and tables.

Once you have finalized the permissions that you want to set up for your new users, always be sure to reload all the privileges.

To activate the new permissions, issue the following command:

```
FLUSH PRIVILEGES;
```

Your changes will now be in effect.

To test out your new user, log out by typing

```
quit
```

and log back in with this command in terminal:

```
mysql -u [username] -p
```

List user accounts

```
SELECT User FROM databasename.user;
```

Import into the database:

```
mysql -u username -p -h localhost databasename < data.sql
```

Display databases

```
SHOW DATABASES;
```

Display tables in database

```
SHOW TABLES IN databasename;
```

Display data in table

```
SELECT * FROM databasename.tablename;
```