Apache web server, MySQL database, and PHP http scripting language, by Eric Piehl.

This file describes information I have found useful on this subject.   For information on ♣ green or </> other programming subjects, please see a list of this document's **sister docs**.

Brian's Bookstore has good prices, service.

Book "**PHP 6 and MySQL 5** for **Dynamic Web Sites**: Visual QuickPro Guide (3rd Edition)",
by **Larry Ullman**, 2008, ISBN10 0-321-58599-X.
 • Get **errata**.
 • Download **examples**.
 • More downloads.
 • Author's links.

Really good links on HTML, web pages, XML and its navigation and transformation, HTTP, schemas, programming web application with servlets or JSP, web services and complete web apps.

Ideas

This class does not dive deep into any particular technology, but seems to focus on getting a whole bunch of technologies to play nice together.

PHP is used in over 30% of top websites. -- http://trends.builtwith.com/framework retrieved 2010-7-3.

Install Software

As always, on Windows, reboot:
 (1) before installing anything if you have been working for a while,
 (2) between installing or upgrading any two software products, and
 (3) after your last install.

Low end option A:
All-in-one already-integrated **WampServer** www.wampserver.com/en 2.0f, includes:
 • Apache 2.2.11
 • PHP 5.2.8 (upd: to prevent horrible vulnerability CVE-2012-1823, install 5.4.3 or newer)
 • MySQL 5.1.30

Low end option B:
Uniform Server is a free open source WAMP package for Microsoft Windows, comprising a pre-configured setup of complementary:
 • open source web server tools,

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- the Apache HTTP Server,
- scripting languages PHP and Perl, and
- the MySQL database engine.

All lives and runs on a flash-drive/jumpdrive/thumbdrive/USB-drive/USB-key/USB-stick, from www.wikipedia.org/wiki/Uniform_Server WAMP.

High end option: install separates:

- **Web server Apache** or Microsoft **IIS** or PWS. (For popularity, see http://trends.builtwith.com/Web-Server or http://greatstatistics.com/.) Assuming Apache www.wikipedia.org/wiki/Apache_HTTP_Server, install from http://httpd.apache.org/ > Download version **2.2.11** from a mirror (if Windows, use Win32 binary MSI Installer):
    - o Change its configuration file file:///C:\Program Files\Apache Software Foundation\Apache2.2\conf\httpd.conf from hard-to-use:
      ```
      DocumentRoot "C:/Program Files/Apache Software Foundation/Apache2.2/htdocs"
      …
      <Directory "C:/Program Files/Apache Software Foundation/Apache2.2/htdocs">
      ```
      to something easier to find and remember, like:
      ```
      DocumentRoot "C:/localhost"
      …
      <Directory "C:/localhost">
      ```
    - o Change its configuration file above from turned off:
      ```
      #ErrorDocument 404 /missing.html
      ```
      to turned on:
      ```
      ErrorDocument 404 "/CO241EricPiehl404.php"
      ```
    - o Specify your email address:
      ```
      ServerAdmin eric.piehl@gmail.com
      ```
    - o If you have a registered DNS name or dotted-IP address, specify:
      ```
      ServerName www.ericpiehl.com:80
      ```
    - o Later, PHP install with insert into Apache's configuration file:
      ```
      #BEGIN PHP INSTALLER EDITS – REMOVE ONLY ON UNINSTALL
      PHPIniDir "C:/PHP/"
      LoadModule php5_module "C:/PHP/php5apache2_2.dll"
      #END PHP INSTALLER EDITS – REMOVE ONLY ON UNINSTALL
      ```

- **HTTP scripter PHP** (install this only after Apache installed and rebooted) www.php.net version **5.2.8** (to prevent horrible vulnerability CVE-2012-1823, install 5.4.3 or newer).
    - o **Gotcha 1:** Do **NOT** install to default location C:\Program Files\PHP — Apache will not talk to it — but install PHP to `C:\PHP\`.
    - o Verify PHP's install has installed `"C:/PHP/php5apache2_2.dll"`, and put that line in Apache's configuration file above. If not, please see:
        - ▪ http://us3.php.net/manual/en/install.windows.apache2.php
        - ▪ http://apachelounge.com/
        - ▪ http://snaps.php.net/
    - o **Gotcha 2:** In PHP's configuration file file:///C:\PHP\php.ini, set:
        - ▪ `display_errors = On`
        - ▪ `display_startup_errors = On`
        - ▪ `error_log = phpErrorLog.txt`
    - o Someone else (MySQL?) will be adding:
        - ▪ `extension_dir ="C:\PHP\ext"`
        - ▪ …
          `PHP_IMAP]`

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```
extension=php_imap.dll
[PHP_MYSQL]
extension=php_mysql.dll
[PHP_MYSQLI]
extension=php_mysqli.dll
[PHP_SNMP]
extension=php_snmp.dll
[PHP_ZIP]
extension=php_zip.dll
```

- o *Optional: For PHP's configuration file `file:///C:\PHP\php.ini`, review other changes between shipped files `php.ini-dist` and `php.ini-recommended`. I have several other changes recorded in my CO241 folder.*
- o Recycle PHP by turning Apache off and on (right-click Apache icon in Notification Area [will be Action Center in Win10X] [formerly System Tray — by the clock] > Open Apache Monitor > Restart > wait to finish > Exit).
- o Test by putting some `form.html`, `handle_form.php`, etc. in `file:///C:\localhost\` and bring up in web browser some raw html or PHP, perhaps `http://127.0.0.1/form.html` or `http://localhost/handle_form.php`, and see if you see PHP commands, or the output that it should be producing.
- o If that does not work, try `http://127.0.0.1:80/form.html` / `http://localhost:80/handle_form.php` or `http://127.0.0.1:8080/form.html` / `http://localhost:8080/handle_form.php`.

- **Database MySQL** www.mysql.com > Downloads > Community version **5.1.30**.
  - o Optional GUI interface to MySQL **phpMyAdmin** www.wikipedia.org/wiki/Phpmyadmin www.phpmyadmin.net **3.1.2**. ,
    - ▪ **Gotcha 3:** Put **phpMyAdmin** folder inside file:///C:\localhost or whatever you used in PHP's install's last bullet point.
  - o Or optional GUI Adminer.
  - o Or optional GUI interface **HeidiSQL** www.heidisql.com. I have not used this, but someone told me that this is better than **phpMyAdmin**. Fat client?
  - o Optional Admin 1.1.1 rc.
  - o Optional Query Browser www.mysql.com 1.1.13.
  - o Have not tried these optional, alleged "10 essential MySQL tools for admins".

All options:
Install **other tools**:

- Good **colorizing** program **editor**, such as:
  - o **Notepad++** 5.8.5 www.wikipedia.org/wiki/Notepad++. -OR-
  - o Textpad www.textpad.com (if you install, get add-on syntax files for your favorite languages, and set colors to something vibrant). -OR-
  - o gVim 7.3 if you like VI or ☗ Linux and want function over prettiness. -OR-
  - o MacVim for Apple Mac OS X. -OR-
  - o Komodo Edit for HTML, CSS, JavaScript, JSP, PHP, XML. No WYSIWYG. -OR-
  - o Eclipse. I love it, but steep learning curve. *TODO: try on PHP, SQL, html….*
  - o Microsoft VSCode Visual Studio Code. –OR-
  - o Editors that cost $$:

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- SlickEdit (more powerful than UltraEdit, but steeper learning curve).
- UltraEdit (easier to learn than SlickEdit, but much clunkier source where-defined *Open Declaration* or *Go To Definition*, and where-used *Find All References* features).
  - o Some of these use powerful Search/Replace using Regular Expressions.

- Is-this-download-site-any-good Firefox add-on McAfee SiteAdvisor.

- **HTML editor**, WYSIWYG:
  - o www.wikipedia.org/wiki/**KompoZer** version 0.7.10, said to be more reliably maintained than Nvu.
    - when is this going to support HTML 5?
    - font type guide
  - o http://wordpress.org/ said to be very good, including some blogging tools.
  - o Dreamweaver (I like this a lot, but my version is old). Dreamweaver is used in 6% of top websites. -- http://trends.builtwith.com/framework retrieved 2010-07-03.
    - font type guide

- **HTML validator** program www.wikipedia.org/wiki/**HTML_Tidy** (set to XHTML 1.0 Transitional) (this is **extremely** useful) or use http://validator.w3.org/.

- Optional, if you are going to write your web-app in Python, (I have not done this, but comes from very-reliable GR-LUG member Dave Brondsema):
  - o get Apache to run your Python app with mod_wsgi ,
    -OR-
  - o have Apache reverse-proxy to a standalone wsgi server like cherrypy or gunicorn.

- Optional **Firefox** add-ons Firebug and Web Developer (add to the other add-ons I recommend: Adblock Plus, ChromaTabs Plus, Dafizilla, IE Tab, Html Validator above, HTTPS Everywhere, and McAfee SiteAdvisor).

- **Chrome** is way faster than Firefox 3 (as of 2011-01-11). *TODO: if you can stand the thought of having three browsers on your machine, try Chrome v. Firefox again now that Firefox 4 is out.* After a little learning curve, I like Chrome a lot, and use it as my primary Browser.
  - o I hear that **add-ons** FlashBlock and AdBlock are good.
  - o I hear that **add-ons** IETab, Stayfocusd and Feedly are good; I have them, but are currently Disabled. I have Google Calendar Checker extension turned on.
  - o No *(little?)* need for the Firefox add-on **Firebug**, with equivalent *(?)* functionality built into Chrome, on page of interest > right-click Inspect Element (or Ctrl-Shift-I or click wrench icon > Tools > Developer tools) (see other cool tools under the wrench icon). Karl Swedberg wrote, "Firebug was one of the few things keeping me using Firefox rather than Chrome, but the pace of improvements to the Chrome Dev Tools has been amazing. I like a number of the features in Chrome Dev Tools much more than similar ones in Firebug now. Definitely run Chrome from at least the Dev channel to get all the good stuff. Paul Irish has a couple great videos (1 , 2) that show some of the cool stuff you can do". I have done this, looks good. *TODO: finish watching those two videos.*

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- o If you use Chrome, you may need to use *chrome://about*, **chrome://plugins**, *chrome://settings/passwords* and *chrome://settings/content*.
- o For all web browsers, consider installing plug-in:
  - ▪ Privacy Badger new from the EFF (I am experimenting with this), or
  - ▪ www.**ghostery**.com> set to block web tracking types Advertising, Analytics, Beacons, Privacy and Widgets. A cousin recommended this. I am experimenting with this, currently with everything blocked except for one Analytics that I use occasionally. So far, so good.

- Optional (I have not used this yet, but recommended by the Sierra Club webmastering listserv) Cascading Stylesheet **CSS Validator** http://jigsaw.w3.org/css-validator/.

- Optional (I have not used this yet, but recommended by the Sierra Club webmastering listserv) **JavaScript Validator** www.jslint.com.

- Zip program **7-Zip** www.7-zip.org. Best I have seen. Does all formats, even UNIX like .tar.bzip2 and .tgz, bulletproof, and easy to use.

- Optional, see my General programming and computer **Tools** for:
  - o **Compare** folders and files utility (you need one to keep the various versions of stuff straight!)
  - o **Draw** or **image manipulation** programs
  - o **Unix** or **Windows** utilities
  - o SVN or other source code management/revision control system.

Run on multiple versions of PHP

Use conditional function definitions if some of your servers may not have the PHP function you want. Example: http://phpclass.temporaldynamics.net/Piehl/finalProject/mysqli_connect.txt.

Run Apache with PHP

If use lab machines, bring up ⊞Start > VMWare > Open `C:\VMimages\co241\winXPPro.vmx`.

If on own machine, should always be running — see Apache icon in Notification Area (will be Action Center in Win10X) (formerly System Tray — by the clock) for green Play icon.

"There is no place like `127.0.0.1`" (home).

Run MySQL

Bring up MySQL command mode: in ⊞Start > Run > cmd [Enter] box, Copy/Paste
```
    "C:\Program Files\MySQL\MySQL Server 5.1\bin\mysql.exe" -u root -p --help
```
or
```
    "C:\Program Files\MySQL\MySQL Server 5.1\bin\mysql.exe" -u root -p dbName
```

Bring up **phpMyAdmin** with http://localhost/phpMyAdmin/index.php.

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Test

Option 1: On your own machine, at http://localhost/CO241EricPiehlHw3 or http://localhost/finalProject. Mostly what talked about above.

Option 2: FTP to http://raider.grcc.edu folder webdocs, and run from there?

Option 3: FTP to instructor site as discussed in next section. Do not notify instructor until ready to turn in.

If you need debugging info such as RAM, CPU utilization, drives, etc., you can try phpSysinfo.

Submit homework to Instructor

All pages should be verified to XHTML 1.0 Transitional http://validator.w3.org/.

Submit to instructor with: instructions from BlackBoard file <Using the Class Webspace.doc>:
- Use **FTP fat client** (e.g., open-source free FileZilla [but watch out for it asking to install other software {tell it No}, and installing other software without asking, such as Web Companion {reboot and uninstall it}!], DreamWeaver CS4 or WS_FTP95LE [back when it was still free]) with:
    o Hostname/Address=phpclass.temporaldynamics.net
    o userid and password from <Using the Class Webspace.doc>
    o Initial Remote Site Folder=/public/*Piehl*
-OR-
- To **FTP without client 1**:
    o ftp://phpclass.temporaldymamics.net >
    o on folder `pub` right-click > Login As (actually, I found it on File menu) >
    o userid and password from <Using the Class Webspace.doc>.
  Apparently, I cannot go direct to ftp://phpclass.temporaldynamics.net/public/Piehl.
-OR-
- To **FTP without client 2**:
    o https://addons.mozilla.org/firefox/684/ install Firefox Add-on FireFTP >
    o as above.

Can **test page there**, in form http://phpclass.temporaldynamics.net/*myFolder*/*myPage*.php (no "public/"), e.g.:
- http://phpclass.temporaldynamics.net/*Piehl/CO241EricPiehlHw1C*.php or
- http://phpclass.temporaldynamics.net/*Piehl/CO241EricPiehlHw3* or
- http://phpclass.temporaldynamics.net/*Piehl/finalProject*.

If needed, phpMyAdmin http://phpclass.temporaldynamics.net/phpmyadmin.

When homework ready, submit by:
- Publish it to the class web server.
- Create a Word document showing the source code for every page in your site.
    o Verify you clearly labeled each web page in your document.
    o Submit the document within Blackboard.
- Print a copy of the above, and hand in.

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- Notify instructor (by email?).

-30- [send comments to the author](#).