

In this lab, we will be using the following Free and Open Source Software (FOSS), which is our platform for the remaining work in the course:

<b>Apache</b>	the most popular web server software on the planet
<b>MySQL</b>	a relational database management system (RDBMS)
<b>Perl, PHP</b>	for producing dynamic web content

A similar configuration is known as **LAMP**, an acronym standing for **L**inux (the operating system), **A**pache (the web server software), **M**ySQL (the database server), and **P**rogramming (the code used to connect the database to a web page.)

[Our setup is technically called “SAMP” because Solaris is the operating system on which all the software is running.]

The "P" usually also stands for **P**erl, **P**HP, or **P**ython -- the three most popular programming languages (Java and Ruby are others) for web sites that are **not** based on a Microsoft Windows platform (ASP.NET). We will be using **P**erl and **P**HP (**P**HP **H**ypertext **P**reprocessor).

All of this software is installed on the Technology web server:  
technology.niagarac.on.ca on IP address 192.197.62.35

**FOR THIS LAB, YOU NEED TO LOG ON TO THE TECHNOLOGY SERVER WITH PuTTY. SEE THE INSTRUCTIONS ON THE WEB SITE.**

## Setting Up A Basic Web Site

In this part, we will be using Apache and trying out CGI.

### Creating The Site Index

In your home directory, you have two folders:

**public\_html** This is where you save all HTML, CSS, PHP, and image files (and any other static content.)

**public\_cgi** This is where you save all CGI programs written in Perl.

To get started, run the following script from a PuTTY session.

**/shared/ctec1906/lab1/bin/setup**

In the `~/public_html` directory is `index.html` and a few image files and `testMySQL.php`.

Load the page in the web browser to view it:

<http://technology.niagarac.on.ca/students/x/yourhome/>

<http://192.197.62.35/students/x/yourhome/>

<http://technology.niagarac.on.ca/~yourusername/>

<http://192.197.62.35/~yourusername/>

<http://technology.niagarac.on.ca/students/x/yourhome/index.html>

<http://192.197.62.35/students/x/yourhome/index.html>

<http://technology.niagarac.on.ca/~yourusername/index.html>

<http://192.197.62.35/~yourusername/index.html>

where *x* is the first letter of your last name (lower case), *yourhome* is the name of your home directory – typically your first initial and your last name (all lower case), and *yourusername* is your Solaris user name.

For example, Joe Blough with username `jblough1` and home directory `/internal/L5/home/jblough` has the following URLs:

<http://technology.niagarac.on.ca/students/b/jblough/>

<http://192.197.62.35/students/b/jblough/>

<http://technology.niagarac.on.ca/~jblough1/>

<http://192.197.62.35/~jblough1/>

<http://technology.niagarac.on.ca/students/b/jblough/index.html>

<http://192.197.62.35/students/b/jblough/index.html>

<http://technology.niagarac.on.ca/~jblough1/index.html>

<http://192.197.62.35/~jblough1/index.html>

Make a backup of `index.html`.

```
cd ~/public_html
cp index.html index.html.orig
```

Next run HTML Tidy on it to convert it to well-formed XHTML:

```
tidy -asxhtml -i -m index.html
```

Edit the `index.html` file and insert your name in the title. For example,

```
<title>Tim Berners-Lee's Web Site</title>
```

Refresh the page in the web browser to verify the change. To make sure that you are doing a refresh from the Apache server and *not just from the browser's cache*, hold down the **Shift** key when you click on the **Reload** icon.

Also, you can use `wget -O - url | head` to test the title change, where `url` is any of the URLs listed above.

Next, add a clickable image. Choose one of the image files. For example:

```
<div align="center"><a href="http://httpd.apache.org/"></a></div>
```

Again, refresh the page in the web browser. Click on the image, it should take you to the Apache web site.

In the `~/public_cgi` directory are two sample CGI scripts. Make these scripts executable (with `chmod`) and then test them out:

```
cd ~/public_cgi
chmod +x *
```

In all URLs below, replace *host* with the name or IP address of the web server. Replace other words in italics with your appropriate information.

`http://host/cgi-bin/students/yourhome/test-cgi`

`http://host/cgi-bin/students/yourhome/printenv`

Try

`http://host/cgi-bin/students/yourhome/test-cgi?yourfirstname`

and

`http://host/cgi-bin/students/yourhome/test-cgi?yourfirstname+yourlastname`

Compare the results.

Get the absolute (i.e., full) path of your home directory using the `pwd` command and include it in the URL:

`http://host/cgi-bin/students/yourhome/test-cgiyour-home-directory-path`

Compare the result with those of the previous URLs.

Now combine the two:

`http://host/cgi-bin/students/yourhome/test-cgiyour-home-directory-path?your-first-name+your-last-name`

Compare the result with those of the previous URLs.

Try the same URL adjustments with `printenv` CGI script.

Example: Joe Blough's CGI URLs, using the IP address:

<http://192.197.62.35/cgi-bin/students/jblough/test-cgi>

<http://192.197.62.35/cgi-bin/students/jblough/printenv>

<http://192.197.62.35/cgi-bin/students/jblough/test-cgi?Joe>

<http://192.197.62.35/cgi-bin/students/jblough/test-cgi?Joe+Blough>

<http://192.197.62.35/cgi-bin/students/jblough/test-cgi/export/home/jblough>

<http://192.197.62.35/cgi-bin/students/jblough/test-cgi/export/home/jblough?Joe+Blough>

## Testing PHP

```
cd ~/public_html
```

Create a file on the fly. Or you can use a text editor instead if you wish. Type in the highlighted line, press Enter, and then press Control-D (the UNIX end-of-file character) to end input.

```
cat > test.php
```

```
<?php phpinfo( ) ; ?>
```

Enter the following URL to verify that PHP is indeed installed correctly and working:

<http://host/yourpath/test.php>

where *host* is the name or IP address of the web server and *yourpath* gets to your web site either directly or via your user name. For example,

<http://technology.niagarac.on.ca/students/b/jblough/test.php>

<http://technology.niagarac.on.ca/~jblough1/test.php>

The output gives you all kinds of information about your PHP installation, and about the Apache server setup as well.

Using the information from the previous parts, run the two test scripts in your browser. *The order is not important!*

1. **testMySQL.php** (in your `public_html` directory)
2. **testMySQL.cgi** (in your `public CGI` directory)

## Lab Hand In

Take a screenshot of your browser window containing the output of `testMySQL.cgi` or `testMySQL.php`.

### Windows Screen Shots

1. Start Microsoft Word.
  2. Minimize Word.
  3. Make sure that your web browser window is visible.
  4. Press Ctrl-PrtSc (Control-PrintScreen) to take the screen shot.
  5. Restore Word.
  6. Paste.
- Windows 7 (and Vista) also has the **Snipping Tool**, which takes screen shots.
  - Alternately, you can paste into **MSPaint** and save as a `.png` file.

**Email your screenshot image to Mike Boldin by midnight, Friday, January 20, 2012.**

mboldin@niagaracollege.ca  
mboldin@gmail.com

Marking scheme:

index.html backed up [1 mark]

index.html file updated with name in title [2 marks]

index.html file tidied [1 mark]

index.html has clickable image [2 marks]

CGI scripts have execute permission [1 mark]

test.php created [1 mark]

Screen shot as .png file or in Word .docx [2 marks]

*Late or incorrect submissions lose 10% (1 mark) per day, receive a zero after 5 days late (Jan. 27)*