

## Introduction

Open source web software is installed on the Technology web server: `technology.niagarac.on.ca` on IP address `192.197.62.35` on the Internet, `192.168.90.17` on the L-5 LAN.

Apache – the web server  
Perl, PHP – the programming environments  
MySQL – the database server

**This part of the lab is to be completed on the Technology web server: from L-5 you can open up a terminal window and run:**

### **ssh enterprise**

From elsewhere, you can connect via **PuTTY** or another suitable SSH client.

*The remaining parts of Lab #1 are to be completed from one of the workstations in L-5.*

## 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 XHTML, 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 Terminal window or an SSH session.

```
/shared/ctec1731/lab0/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://192.168.90.17/students/x/yourhome/>

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

<http://192.197.62.35/~yourusername/>

<http://192.168.90.17/~yourusername/>

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

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

<http://192.168.90.17/students/x/yourhome/index.html>

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

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

<http://192.168.90.17/~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 `/export/home/jblough` (in L-5, `/internal/L5/home/jblough` on Technology) has the following URLs:

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

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

<http://192.168.90.17/students/b/jblough/>

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

<http://192.197.62.35/~jblough1/>

<http://192.168.90.17/~jblough1/>

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

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

<http://192.168.90.17/students/b/jblough/index.html>

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

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

<http://192.168.90.17/~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.

## Testing CGI

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 L-5 LAN IP address:

<http://192.168.90.17/cgi-bin/students/jblough/test-cgi>

<http://192.168.90.17/cgi-bin/students/jblough/printenv>

<http://192.168.90.17/cgi-bin/students/jblough/test-cgi?Joe>

<http://192.168.90.17/cgi-bin/students/jblough/test-cgi?Joe+Blough>

<http://192.168.90.17/cgi-bin/students/jblough/test-cgi/export/home/jblough>

<http://192.168.90.17/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.

## Testing MySQL

Using the information from the previous parts, run the two test scripts in your browser.

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`.

### Windows 7 Screen Shots – Snipping Tool

1. Make sure that your web browser window is visible.
2. From the Start menu, run the Snipping Tool.
3. From the New pulldown menu, select Window snip.
4. Click on your browser window to take the screen shot.
5. Save the screen shot as a PNG file.

### Windows Screen Shots - Word

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.

### Solaris Screen Shots - Common Desktop Environment (CDE)

1. Open a Terminal window.
2. Run the command:

```
sleep 20 ; /usr/openwin/bin/xwd -root -out filename.xwd
```

3. Minimize the Terminal window.

4. You have 20 seconds (or less) to set up the screen before the snap shot is taken.
5. Convert the X Window Dump format file to a more compatible format, for example:

```
/opt/sfw/bin/convert shot1.xwd shot1.png
```

**NOTE: .xwd screenshots will not be accepted!**

### Solaris Screen Shots - GNOME Desktop Environment

From the **Action** menu, select **Screenshot...**, enter an appropriate filename and click OK. The screen shot is automatically saved in **PNG** format.

### Email your screenshot image to Mike Boldin.

mboldin@niagarac.on.ca  
mboldin@gmail.com  
mike\_boldin@yahoo.ca  
mike\_boldin@cogeco.ca

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 .doc [2 marks]