

## Tutorial 12: *Programming with AJAX*

---

### Perl for WampServer Installation Instructions

#### The Perl Programming Language

**Perl** is an acronym for **P**ractical **E**xtraction and **R**eport **L**anguage.

Perl is a high-level [interpretive](#) programming language which uses a syntax similar to C/C++. Perl is especially good at processing text. Its speed and flexibility make it well suited for form processing and on-the-fly Web page creation. Perl has become one of the most popular languages for writing [CGI scripts](#). You can learn more about Perl at [Dictionary.com](#) and [About.com](#).

Follow these graphical step by step instructions to install *Perl* into *WampServer*.

**Important:** If you haven't already installed *WampServer* you need to do that first before installing Perl.

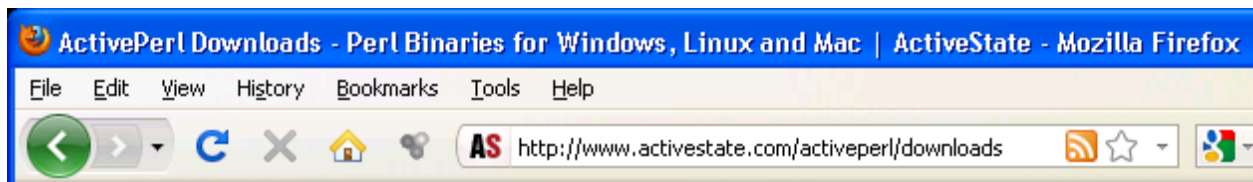
### Step 1 of 36

#### Go to the ActivePerl Web site

*ActivePerl* is the leading commercial-grade distribution of the open source Perl scripting language. The Community Edition is free.

Open a Web browser and go to the *ActivePerl* download page at <http://www.activestate.com/activeperl/downloads/>

In this example the Mozilla *Firefox* Web browser is being used.



## Step 2 of 36

### Determine if your computer is running the 32-bit or 64-bit version of Windows


The terms 32-bit and 64-bit refer to the way a computer's processor (also called a CPU), handles information. The 64-bit version of Windows handles large amounts of random access memory (RAM) more effectively than the 32-bit version. Follow the steps in the sections below to find out if your PC is running the 32-bit or 64-bit version of Windows and what edition of Windows is on your PC.

#### Computers running Windows XP

- Click Start, right-click My Computer, and then click Properties.
  - If "x64 Edition" is listed under System, you're running the 64-bit version of Windows XP.
  - If you don't see "x64 Edition" listed under System, you're running the 32-bit version of Windows XP.

The edition of Windows XP you're running is displayed under System near the top of the window.

#### Computers running Windows Vista or Windows 7

- Click the Start button , right-click Computer, and then click Properties.
  - If "64-bit Operating System" is listed next to System type, you're running the 64-bit version of Windows Vista or Windows 7.
  - If "32-bit Operating System" is listed next to System type, you're running the 32-bit version of Windows Vista or Windows 7.

The edition of Windows Vista or Windows 7 you're running is displayed under Windows edition near the top of the window.

## Step 3 of 36

### Choose the download for your operating system

Click on the 32-bit or 64-bit [Download](#) link to download the *ActivePerl* software to your computer.

- If you have a Windows 32 bit operating system, choose the [x86](#) download
- If you have a Windows 64-bit operating system, choose the [x64](#) download

ActivePerl Downloads - Perl Binaries for Windows, Linux and Mac | ActiveState - Mozilla Firefox

http://www.activestate.com/activeperl/downloads

**ActiveState**  
The Dynamic Language Experts

Welcome, Guest | [Sign In](#) | [My Account](#) | [Store](#) | [Cart](#)

SOLUTIONS | PRODUCTS | SUPPORT & SERVICES | PARTNERS | COMMUNITY | RESOURCES | COMPANY

Overview > White Papers > Webinars > Screencasts > Download Center > **ActivePerl Downloads**

ActivePython Downloads  
ActiveTcl Downloads  
ActivePerl Pro Studio Downloads  
ActivePerl Pro Studio Downloads  
Perl Dev Kit (PDK) Downloads  
Tcl Dev Kit (TDK) Downloads  
Komodo IDE Downloads  
Komodo Edit Downloads

**ActivePerl® Community Edition**

Home > Resources > Download Center > ActivePerl Downloads

### Download Perl Binaries: ActivePerl Community Edition

ActivePerl is the leading commercial-grade distribution of the open source Perl scripting language. Download ActivePerl Community Edition free binaries for your development projects and internal deployments.

By downloading ActivePerl Community Edition's Perl binaries, you agree to comply with the terms of use of the [ActiveState Community License](#).

**Download ActivePerl 5.14.2 for Windows (x86)**

**Download ActivePerl 5.14.2 for Windows (64-bit, x64)**

### Download Perl: Other Platforms and Versions

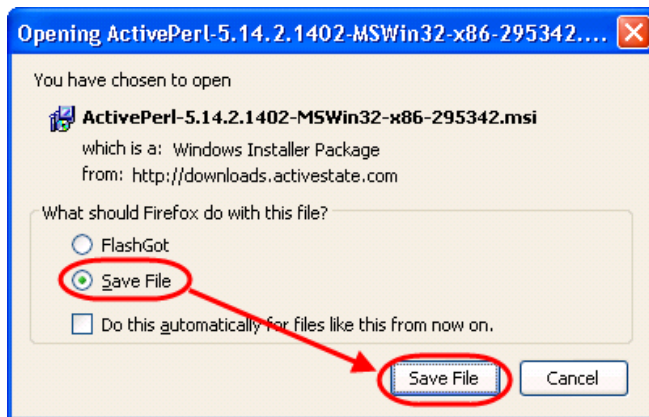
Version	Windows (x86)	Windows (64-bit, x64)	Mac OS X (Universal)	Linux (x86)	Linux (x86_64)
5.14.2.1402	<a href="#">Windows Installer (MSI)</a>	<a href="#">Windows Installer (MSI)</a>	<a href="#">Mac Disk Image (DMG)</a>	<a href="#">AS Package</a>	<a href="#">AS Package</a>
5.12.4.1205	<a href="#">Windows Installer (MSI)</a>	<a href="#">Windows Installer (MSI)</a>	<a href="#">Mac Disk Image (DMG)</a>	<a href="#">AS Package</a>	<a href="#">AS Package</a>

Done

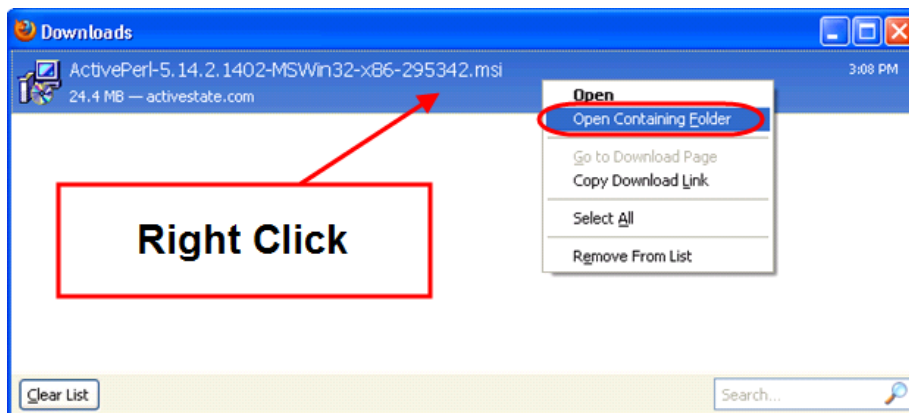
## Step 4 of 36 (page 1 of 4)

### Firefox (Windows Xp)

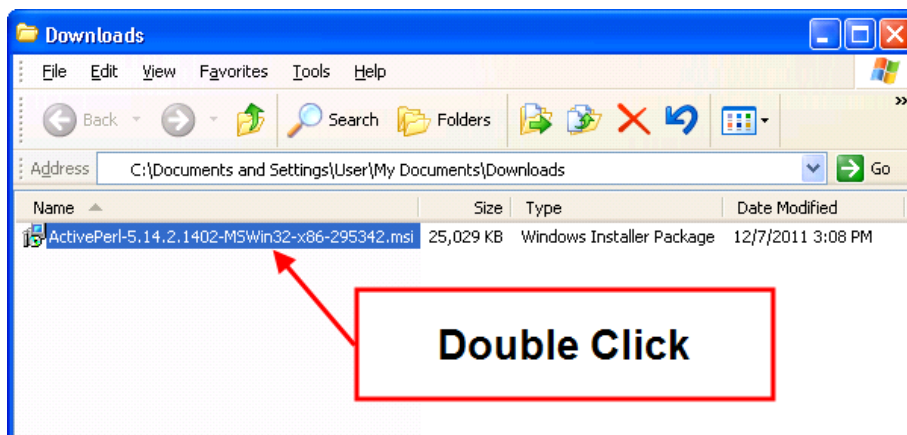
Choose the *Save File* option and then click the *Save File* button.



Right click on the Perl installation program that you just downloaded and select the *Open Containing Folder* command. If you don't see the window directly below displayed on your computer go to the Firefox *Tools* menu and select the *Downloads* command.



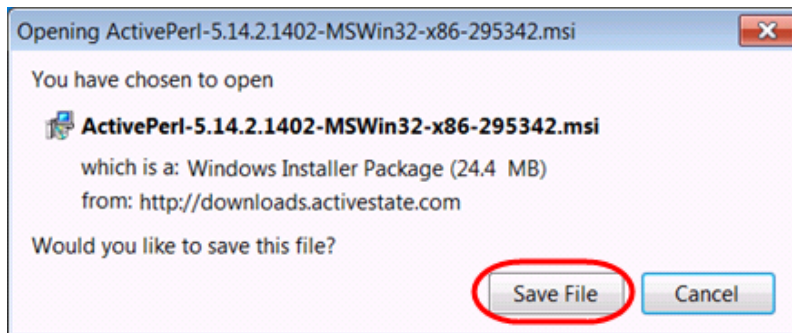
Double click on the Perl installation program.



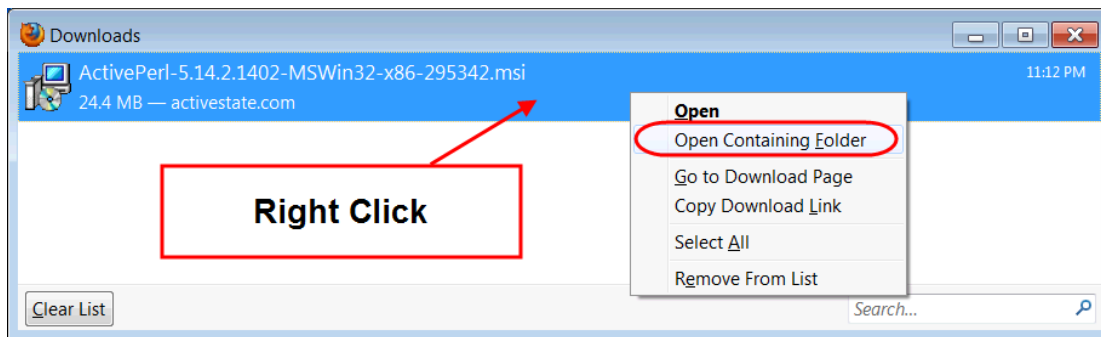
## Step 4 of 36 (page 2 of 4)

### Firefox (Windows 7)

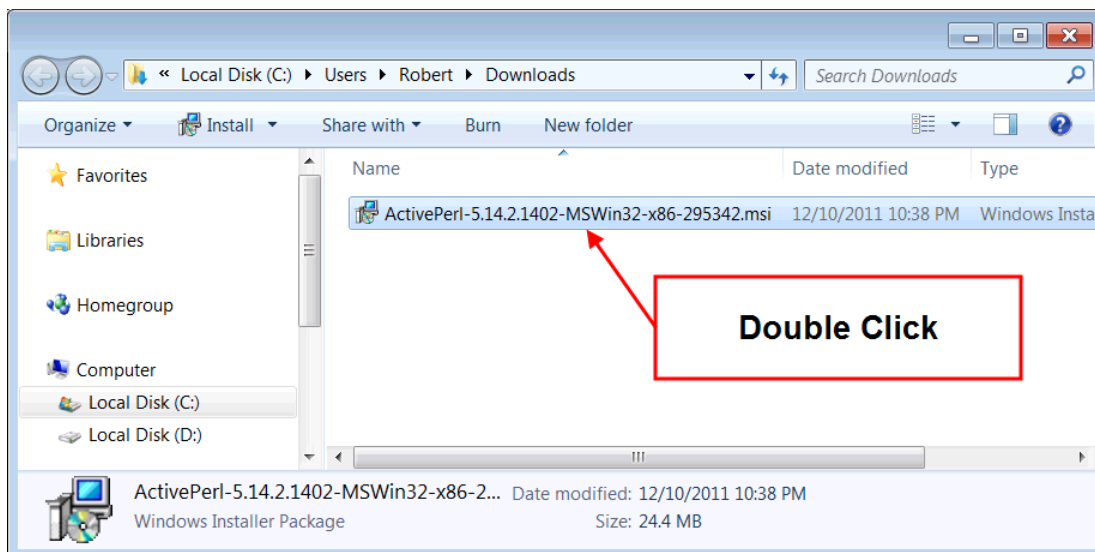
Click the *Save File* button to save the Perl installation program to your computer.



Right click on the Perl installation program that you just downloaded and select the *Open Containing Folder* command. If you don't see the window directly below displayed on your computer go to the Firefox *Tools* menu and select the *Downloads* command.



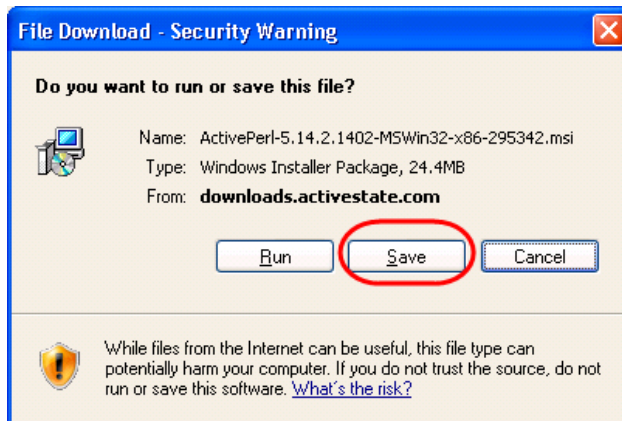
Double click on the Perl installation program.



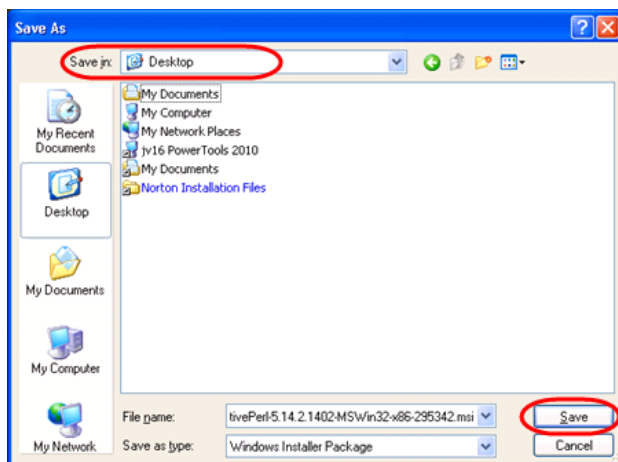
## Step 4 of 36 (page 3 of 4)

### Internet Explorer (Windows Xp)

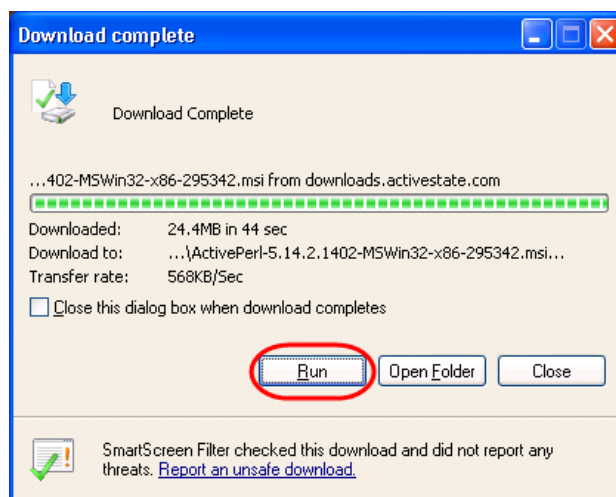
Choose the *Save* button. You could also click the *Run* button and skip the steps in the next two images.



Then choose the *Save in* location and click the *Save* button.



Click the *Run* button.

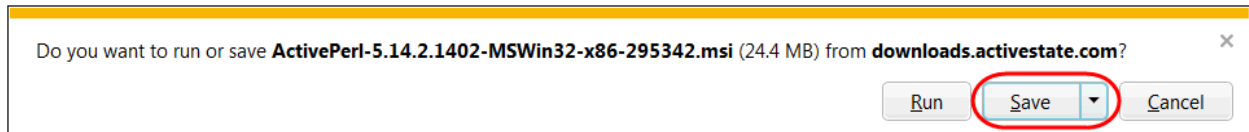


## Step 4 of 36 *(page 4 of 4)*

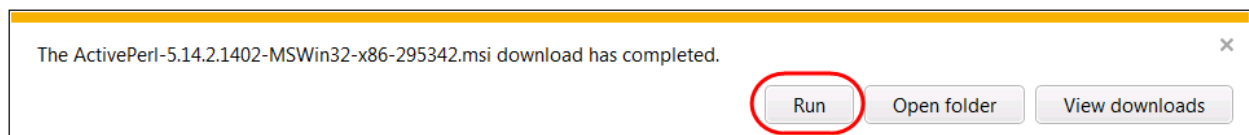
### Internet Explorer (Windows 7)

There are a number of ways to download and run the Perl installation program in Windows 7. Here is a two-step process.

Click the *Save* button.

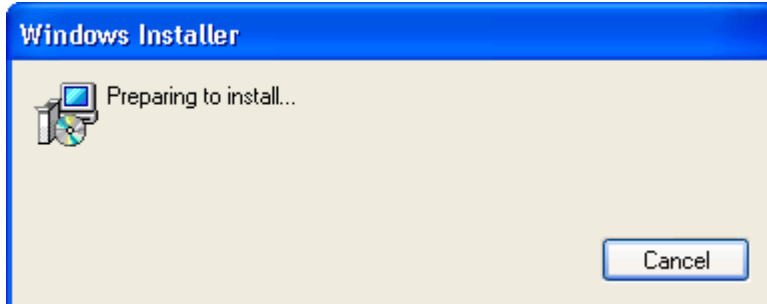


Click the *Run* button.



## Step 5 of 36

### The ActivePerl installation program starting up



## Step 6 of 36

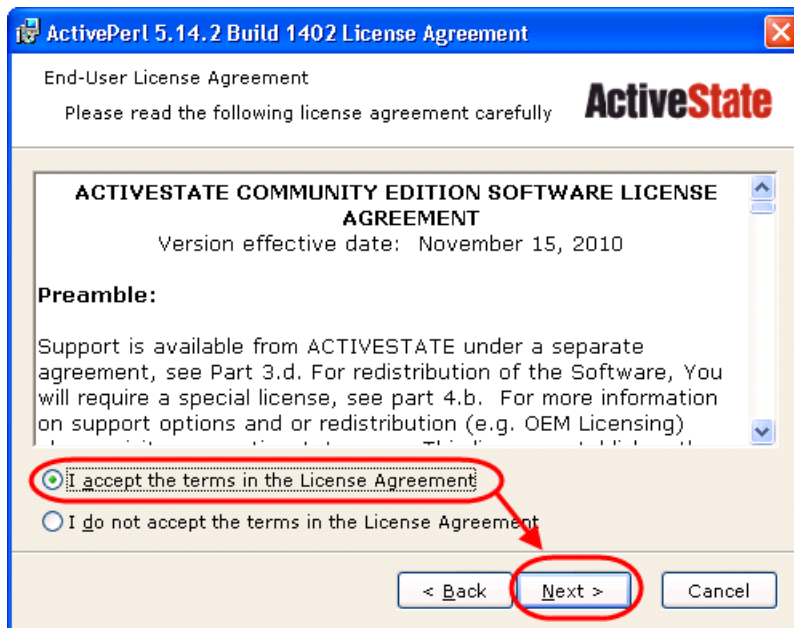
### Running the ActivePerl installation program

Click the *Next* button.



## Step 7 of 36

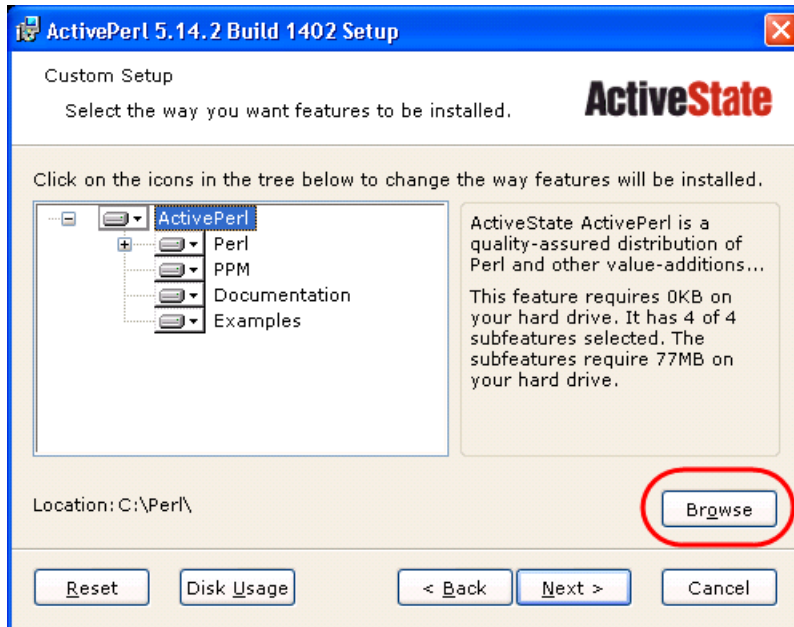
Select the *I accept the terms in the License Agreement* option and click the *Next* button.





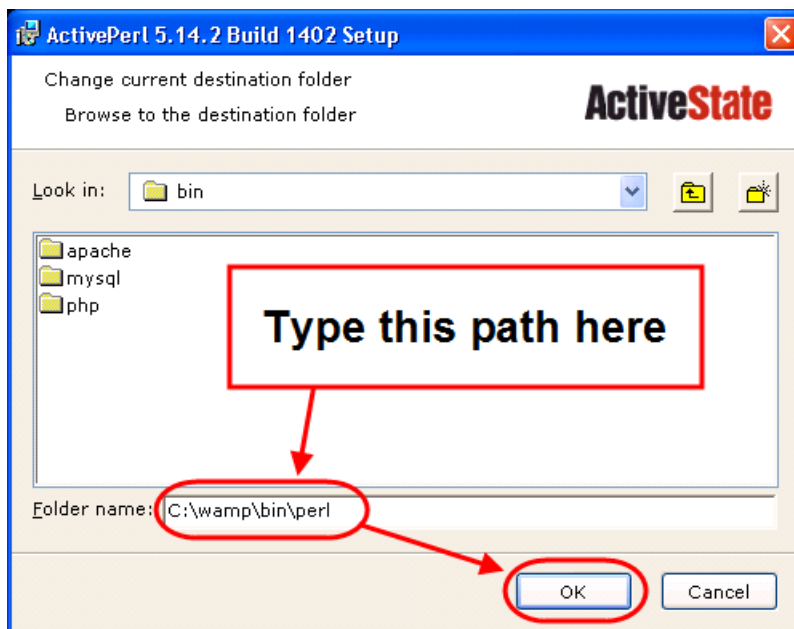
## Step 8 of 36

Click the *Browse* button.



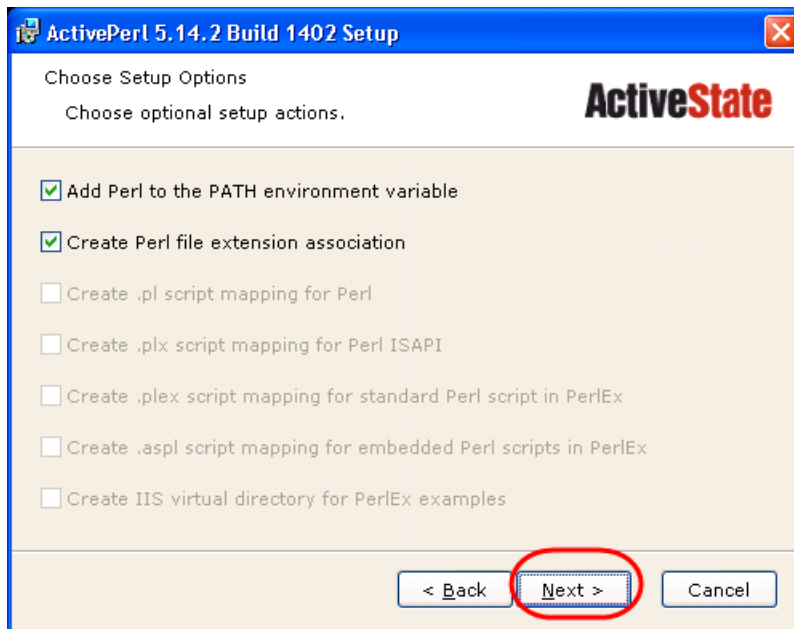
## Step 9 of 36

Change the *Folder Name* to `C:\wamp\bin\perl` and click the *Next* button.



## Step 10 of 36

Click the *Next* button.



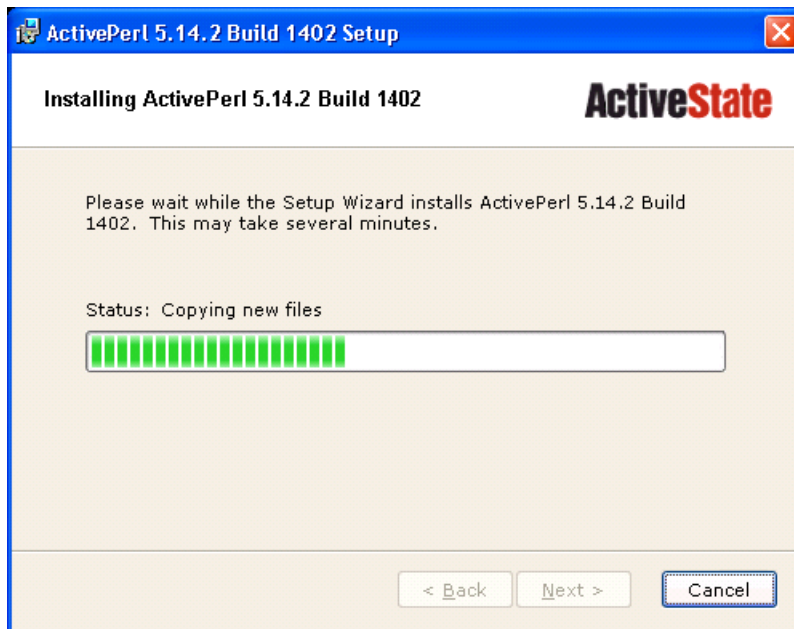
## Step 11 of 36

Click the *Install* button.



## Step 12 of 36

The *ActivePerl* installation in progress.



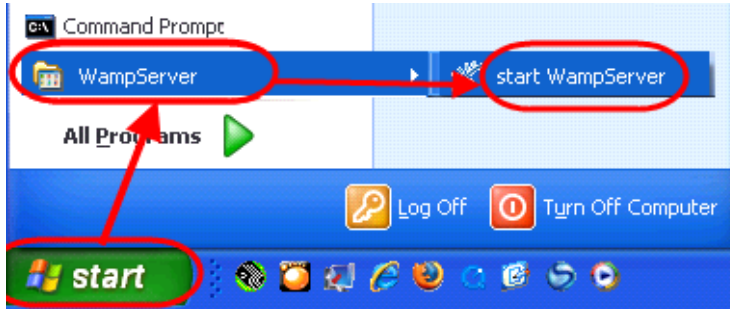
## Step 13 of 36

Click the *Finish* button.



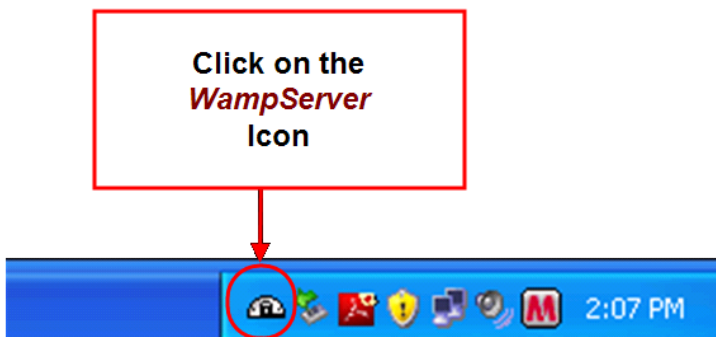
## Step 14 of 36

The next step is configure the *Apache* Web server to work with *ActivePerl*. First start *WampServer*.



## Step 15 of 36

Click on the *WampServer* icon on the *Tray Status Area*, or *Tray*, located on the bottom right corner of the *Task Bar* where the clock is located (the bottom right corner of your screen).



## Step 16 of 36

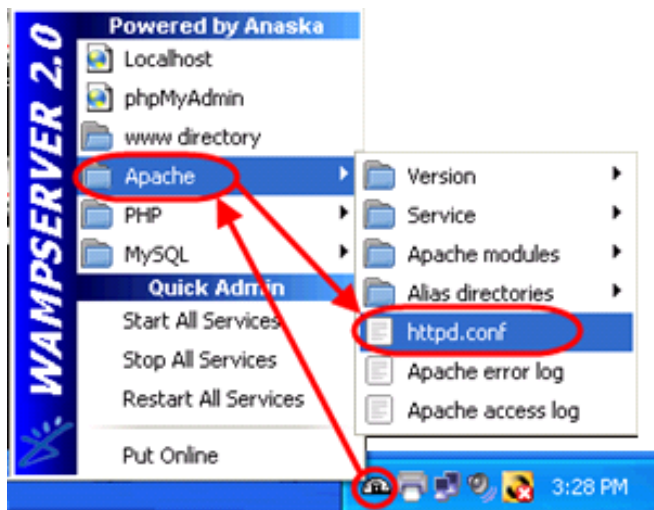
You can either edit the Apache **httpd.conf** configuration file yourself as shown on the next pages in steps 17 – 22 or you can simply copy a completed configuration file into your Apache configuration folder.

If you do the following you do not need to complete steps 17 – 22.

1. Make a backup copy of your **C:\wamp\bin\apache\Apache2.2.11\conf\httpd.conf** file (right click the file and select the copy command, and then immediately do a paste in the same folder).
2. Download this [httpd.conf](#) Apache configuration file and place it into the **C:\wamp\bin\apache\Apache2.2.11\conf\** folder.
3. Go to step 23

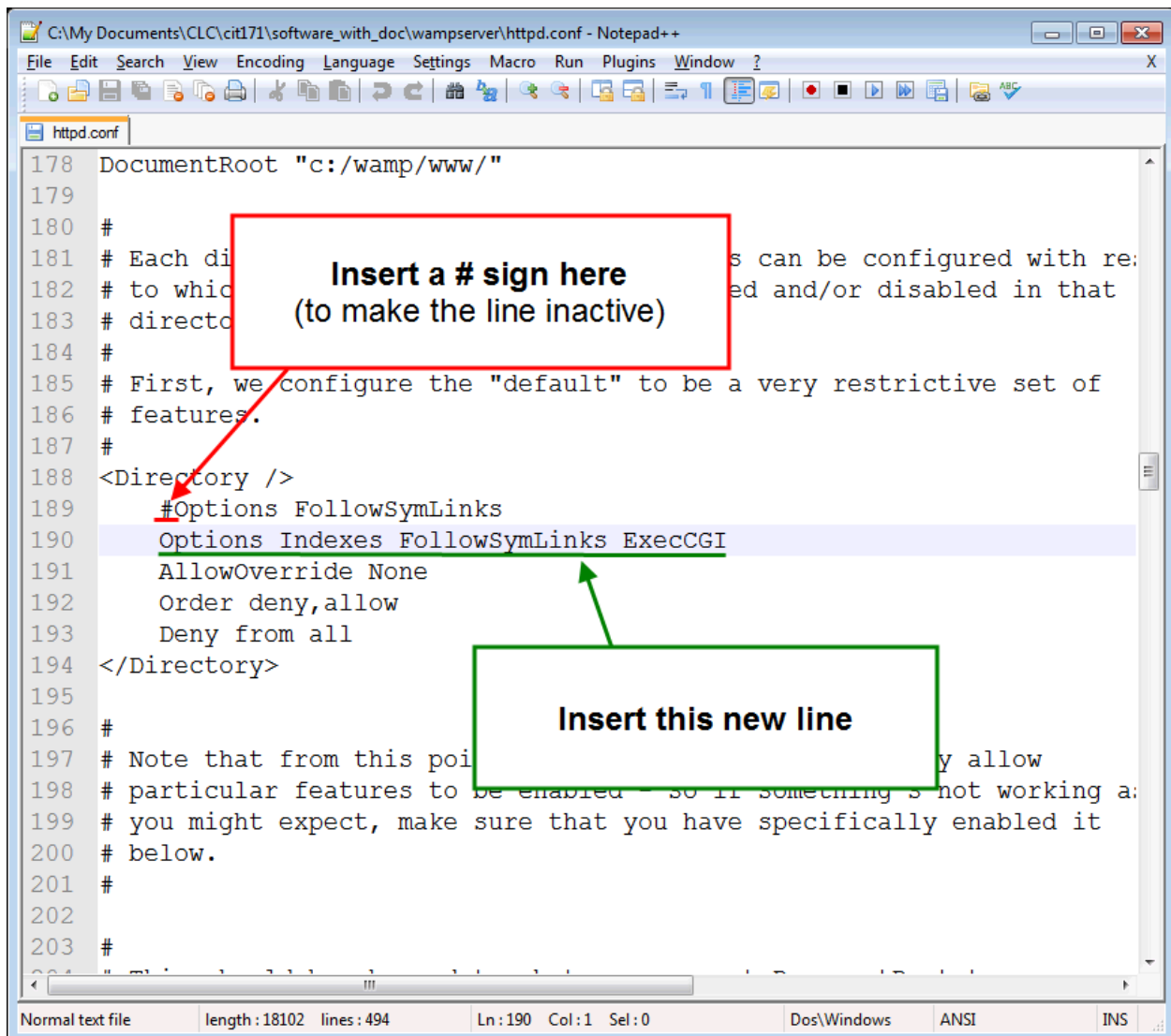
## Step 17 of 36

Select the **httpd.conf** command from WampServer's *Apache* menu.



## Step 18 of 36

Make the following changes to the `httpd.conf` file.



The screenshot shows the Notepad++ editor with the `httpd.conf` file open. The file path is `C:\My Documents\CLC\cit171\software_with_doc\wampserver\httpd.conf`. The editor displays the following code:

```
178 DocumentRoot "c:/wamp/www/"
179
180 #
181 # Each directory has its own "Options" line which can be configured with re
182 # to which features can be enabled and/or disabled in that
183 # directory.
184 #
185 # First, we configure the "default" to be a very restrictive set of
186 # features.
187 #
188 <Directory />
189     #Options FollowSymLinks
190     Options Indexes FollowSymLinks ExecCGI
191     AllowOverride None
192     Order deny,allow
193     Deny from all
194 </Directory>
195
196 #
197 # Note that from this point onwards you may allow
198 # particular features to be enabled - so if something's not working as
199 # you might expect, make sure that you have specifically enabled it
200 # below.
201 #
202
203 #
```

Two annotations are present:

- A red box with the text "Insert a # sign here (to make the line inactive)" points to the `#Options FollowSymLinks` line (line 189).
- A green box with the text "Insert this new line" points to the `Options Indexes FollowSymLinks ExecCGI` line (line 190).

The status bar at the bottom indicates: "Normal text file", "length: 18102 lines: 494", "Ln: 190 Col: 1 Sel: 0", "Dos\Windows", "ANSI", "INS".

## Step 19 of 36

Make the following change to the `httpd.conf` file.

```

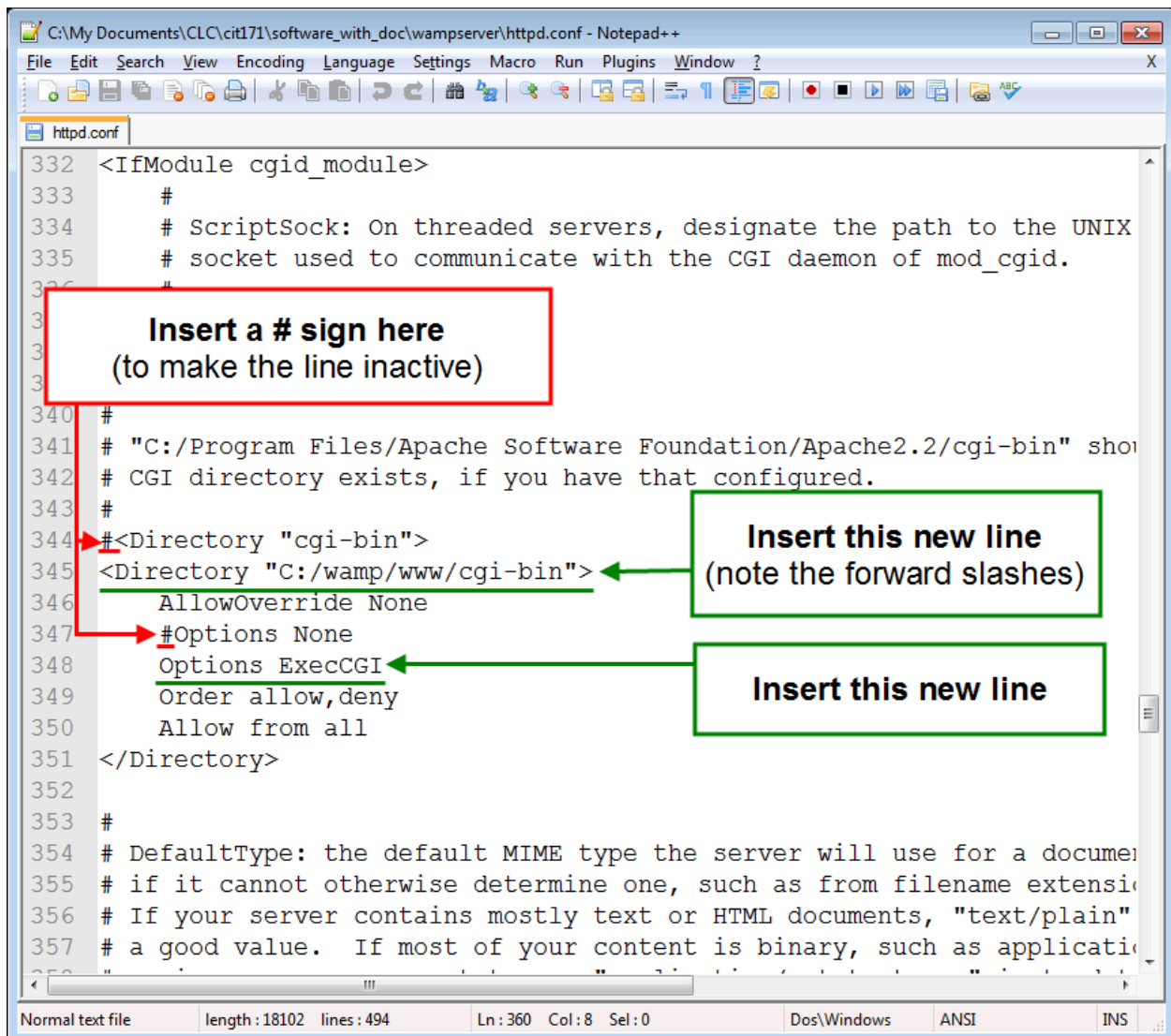
313 # Alias /webpath /full/filesystem/path
314 #
315 # If you include a trailing / on /webpath then the server will
316 # require it to be present in the URL. You will also likely
317 # need to provide a <Directory> section to allow access to
318 # the filesystem path.
319
320 #
321 # ScriptAlias: This controls how directories containing server scripts are handled. By default,
322 # such requests will result in an HTTP 404. The same as Aliases, except that
323 # the directory is treated as a directory of scripts to be executed rather than as
324 # a directory of documents to be served. The same rules about trailing "/" apply to ScriptAlias
325 # directives as to Alias.
326 #ScriptAlias /cgi-bin/ "/usr/local/apache/cgi-bin/"
327
328 #
329 #
330 </IfModule>
331
332 <IfModule cgid_module>
333 #
334 # ScriptSock: On threaded servers, designate the path to the UNIX
335 # socket used to communicate with the CGI daemon of mod_cgid.
336 #
337 #Scriptsock logs/cgisock
338 </IfModule>

```

Normal text file | length : 18102 | lines : 494 | Ln : 190 Col : 1 Sel : 0 | Dos\Windows | ANSI | INS

## Step 20 of 36

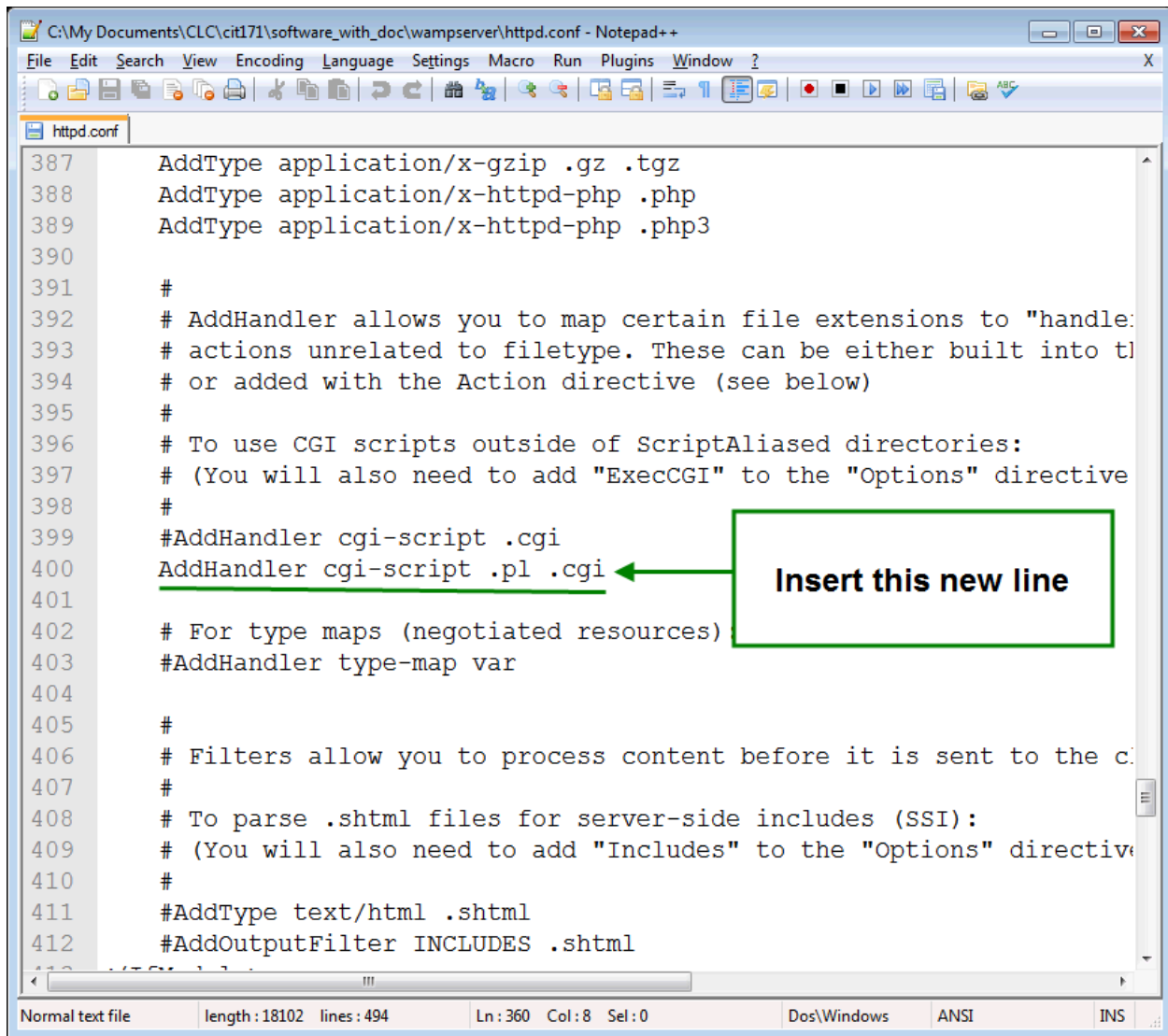
Make the following changes to the `httpd.conf` file.





## Step 21 of 36

Make the following change to the **httpd.conf** file.



```
C:\My Documents\CLC\cit171\software_with_doc\wampserver\httpd.conf - Notepad++
File Edit Search View Encoding Language Settings Macro Run Plugins Window ?
httpd.conf
387 AddType application/x-gzip .gz .tgz
388 AddType application/x-httpd-php .php
389 AddType application/x-httpd-php .php3
390
391 #
392 # AddHandler allows you to map certain file extensions to "handle:
393 # actions unrelated to filetype. These can be either built into th
394 # or added with the Action directive (see below)
395 #
396 # To use CGI scripts outside of ScriptAliased directories:
397 # (You will also need to add "ExecCGI" to the "Options" directive
398 #
399 #AddHandler cgi-script .cgi
400 AddHandler cgi-script .pl .cgi
401
402 # For type maps (negotiated resources)
403 #AddHandler type-map var
404
405 #
406 # Filters allow you to process content before it is sent to the c
407 #
408 # To parse .shtml files for server-side includes (SSI):
409 # (You will also need to add "Includes" to the "Options" directiv
410 #
411 #AddType text/html .shtml
412 #AddOutputFilter INCLUDES .shtml
413
Normal text file length : 18102 lines : 494 Ln : 360 Col : 8 Sel : 0 Dos\Windows ANSI INS
```

## Step 22 of 36

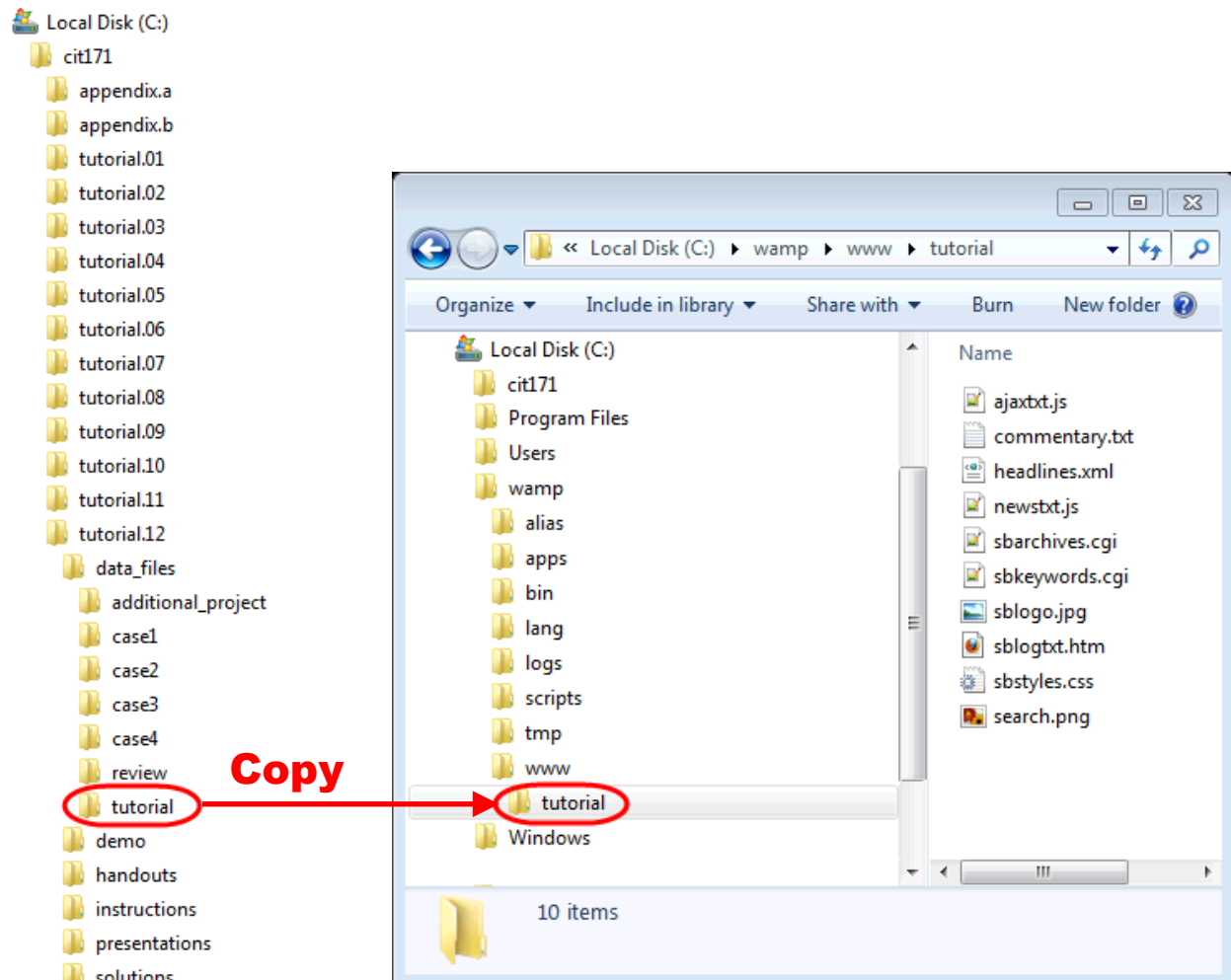
**Save the changes to the httpd.conf file**

From the **File** menu select the **Save** command.

## Step 23 of 36

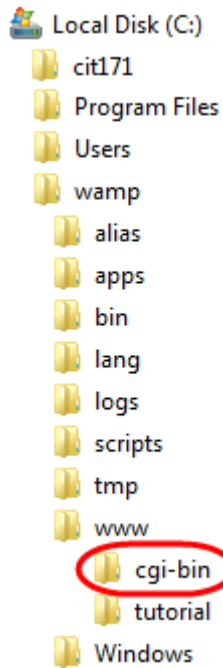
Copy the Tutorial 12 **tutorial** folder from the CIT 171 course files into the **C:\wamp\www\** folder.

**CLC IT Staff:** Here is a link to a completed version of the tutorial folder that can be used for *WampServer* and *Perl* installation and testing: [tutorial.zip](#). Simply download this zip file, extract it into the C:\wamp\www\ folder as shown below, and then complete steps 24–26, .29, and 32–34.



## Step 24 of 36

Manually create a folder named **cgi-bin** under the **C:\wamp\www\** folder.



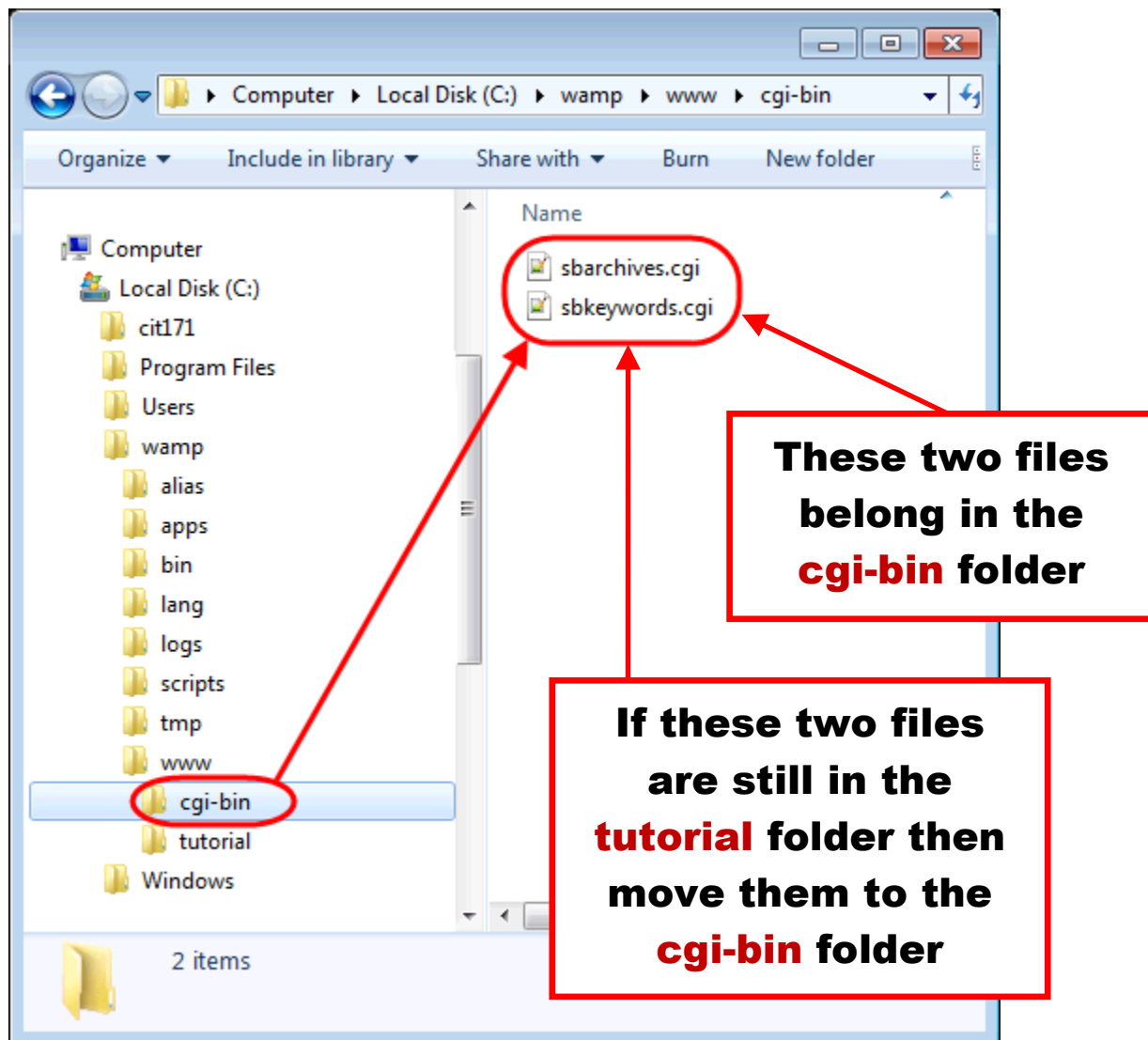
**Manually create a  
new folder named  
**cgi-bin**  
under the  
**C:\wamp\www**  
folder**

## Step 25 of 36

**To transfer the cgi script files to your Web server account:**

Page JVS 763 (second light brown box, steps #1 & 2) and page JVS 769 (step #2)

Move the files named `sbarchives.cgi` and `sbkeywords.cgi` from the `tutorial` folder to the `cgi-bin` folder.



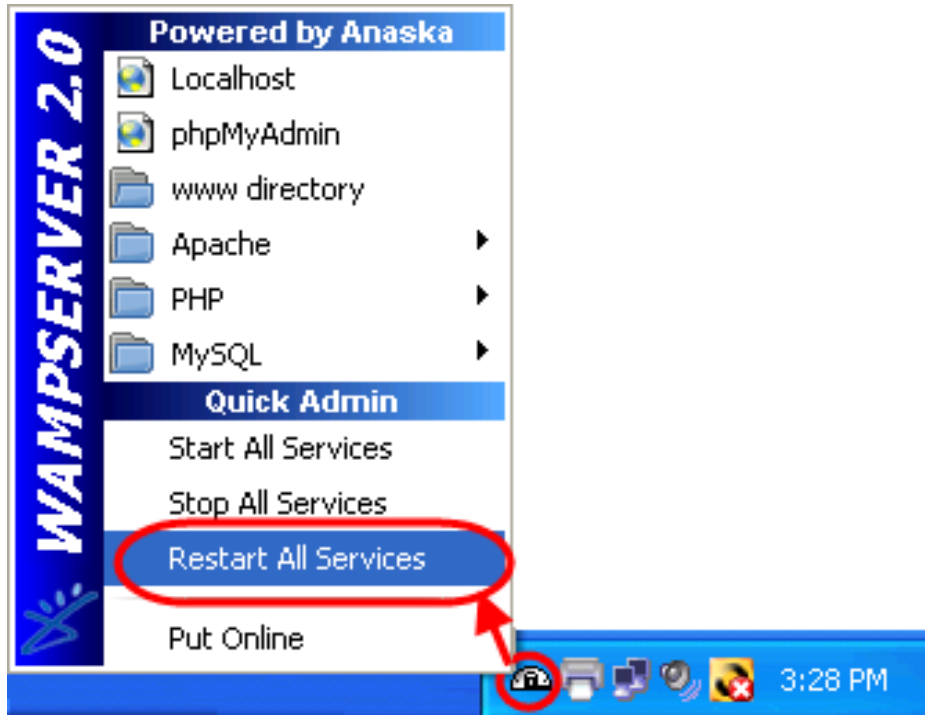
**Important:**

Page JVS 763 (third light brown box, steps #1 & 2) and page JVS 769 (step #3)

These script files already exist on the CLC Web server in a protected `cgi-bin` folder. Students do not have access to this protected `cgi-bin` folder and are not able to set permissions on the script files within it. Students do, however, have access to these script files on their computers in WampServer's `cgi-bin` folder.

## Step 26 of 36

Select the *Restart All Services* command from the *WampServer* menu.



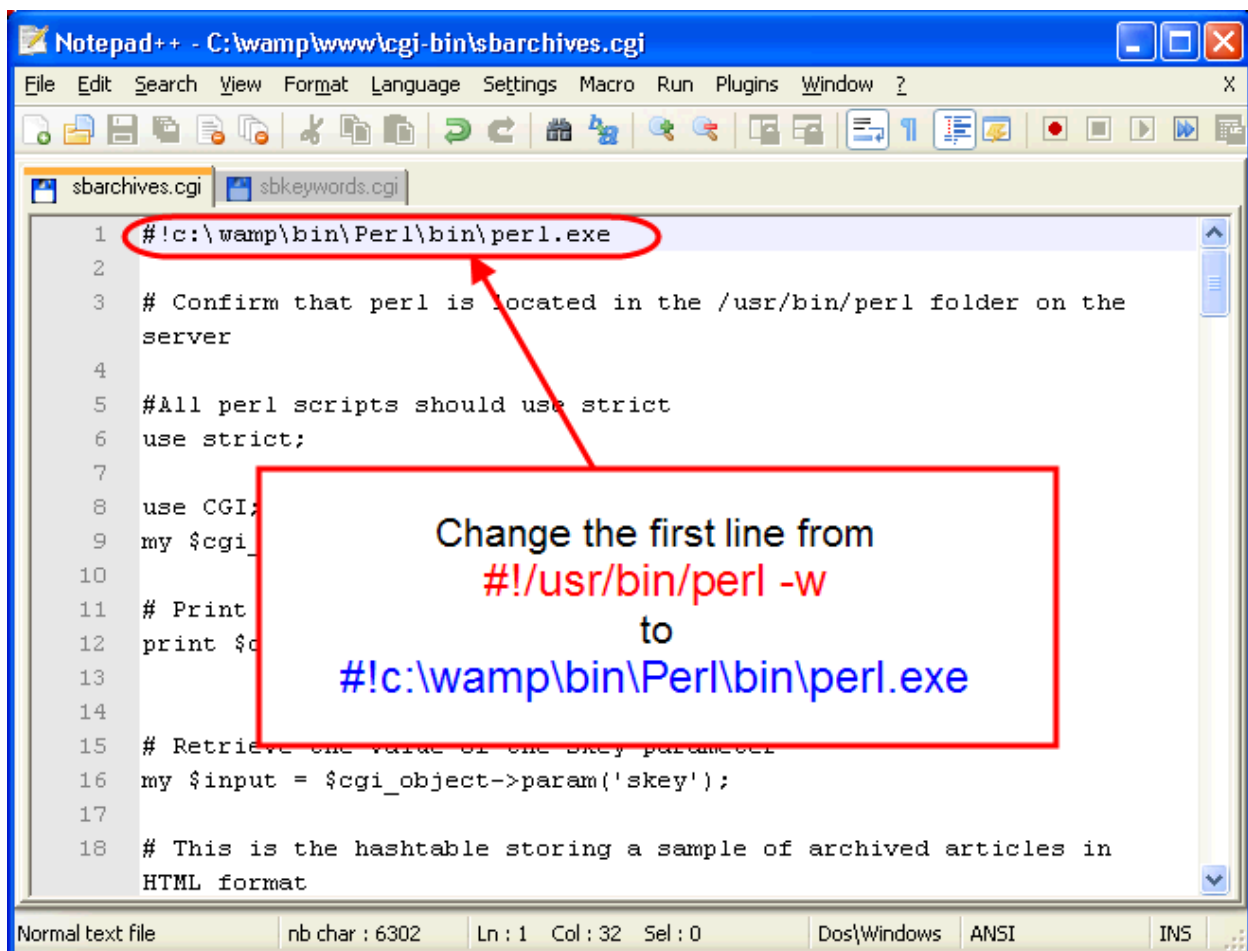
## Step 27 of 36

### To edit the sbarchives.cgi file:

Page JVS 763 (first light brown box, steps #1 - 3)

Open the **sbarchives.cgi** script file with a text editor like [Notepad++](#) and make the following change. Remember to save the file after making this change.

Alternatively you can download this [sbarchives.cgi](#) into the **C:\wamp\www\cgi-bin\** folder instead of making the editing changes in this step.

A screenshot of the Notepad++ text editor. The title bar reads 'Notepad++ - C:\wamp\www\cgi-bin\sarchives.cgi'. The menu bar includes File, Edit, Search, View, Format, Language, Settings, Macro, Run, Plugins, Window, and Help. The toolbar contains various icons for file operations and editing. The editor has two tabs: 'sbarchives.cgi' (active) and 'sbkeywords.cgi'. The code in 'sbarchives.cgi' is as follows:

```
1  #!c:\wamp\bin\Perl\bin\perl.exe
2
3  # Confirm that perl is located in the /usr/bin/perl folder on the
  server
4
5  #All perl scripts should use strict
6  use strict;
7
8  use CGI;
9  my $cgi_
10
11 # Print
12 print $c
13
14
15 # Retrieve the value of the key parameter
16 my $input = $cgi_object->param('key');
17
18 # This is the hashtable storing a sample of archived articles in
  HTML format
```

Line 1 is highlighted. A red circle is drawn around the first line. A red arrow points from a text box to this line. The text box contains the instruction: 'Change the first line from **#!/usr/bin/perl -w** to **#!/c:\wamp\bin\Perl\bin\perl.exe**'. The status bar at the bottom shows 'Normal text file', 'nb char : 6302', 'Ln : 1 Col : 32 Sel : 0', 'Dos\Windows', 'ANSI', and 'INS'.

## Step 28 of 36

**To make the sbarchives.cgi file publically executable:**

Page JVS 763 (third light brown box, steps #1 & 2):

The **cgi-bin** folder on the CLC Web server is a protected folder and students do not have access to it. Students are not able to modify the file attributes of the **sbarchives.cgi** script file to allow the public to execute it. The file permissions of **sbarchives.cgi** script file on the CLC Web Server have already been set by the CLC Web Server Webmaster.

## Step 29 of 36 (part 1 of 2)

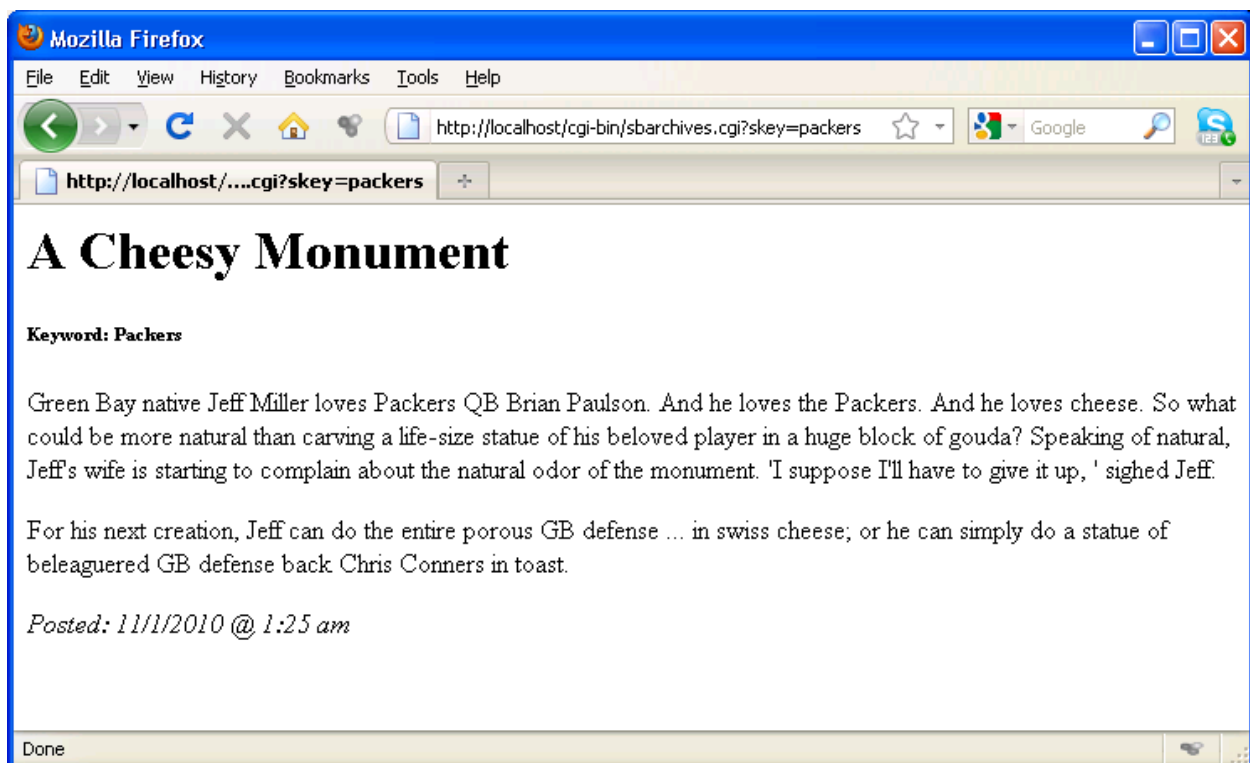
**To test the sbarchives.cgi script:**

Page JVS 764 (second brown box, step #1)

To test the **sbarchiives.cgi** script file type the following into your Web browser:

<http://localhost/cgi-bin/sbarchives.cgi?skey=packers>

Note that this file is already completed for students. Except for the one change on line 1 that states where Perl is located this file is ready to go. The textbook doesn't instruct students make any changes to this file so you can test it right away to see that it works.



Also try the following (page 765. first brown box, steps #2 & #3):

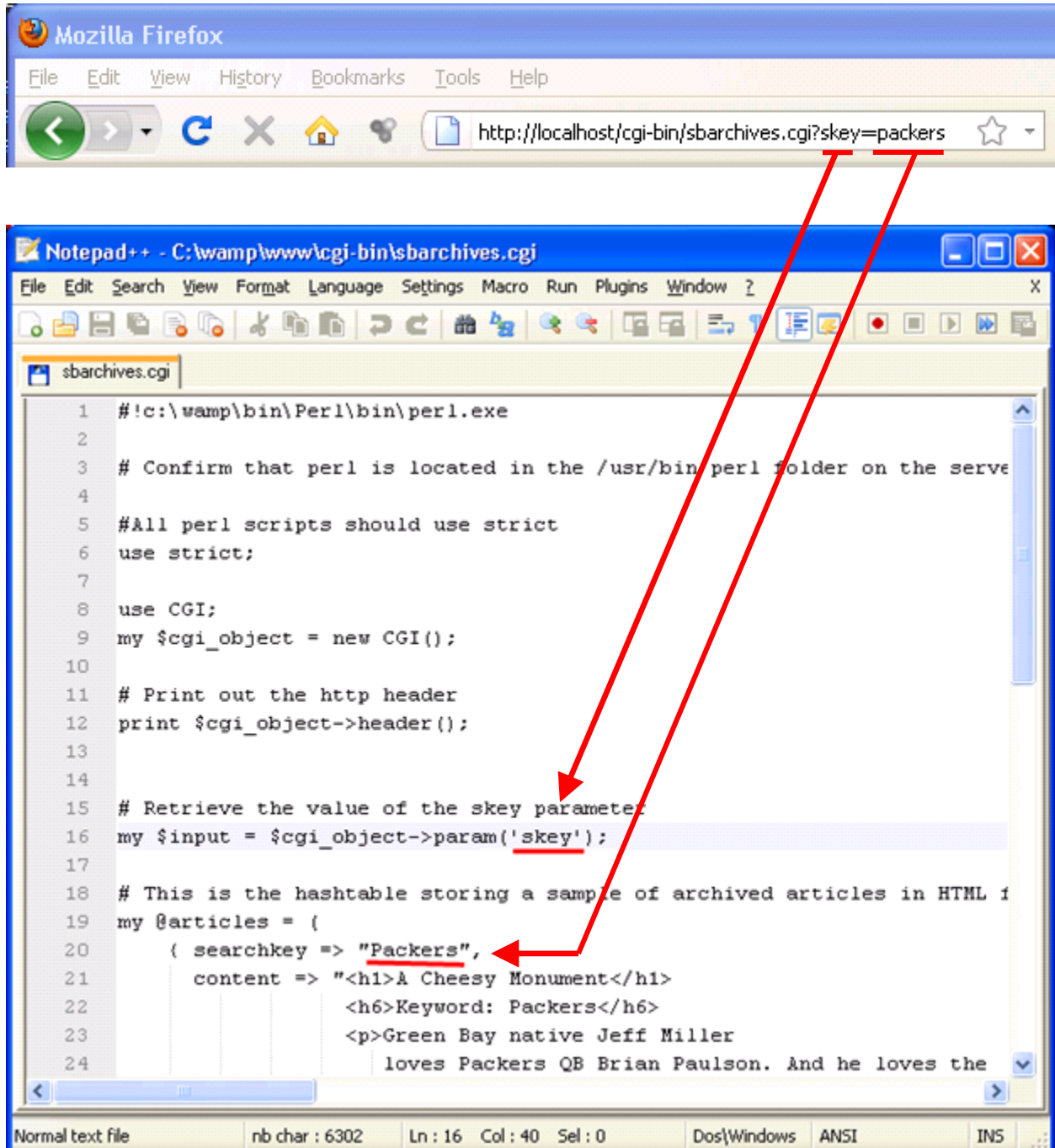
<http://localhost/cgi-bin/sbarchives.cgi?skey=baseball>

<http://localhost/cgi-bin/sbarchives.cgi?skey=texans>

## Step 29 of 36 *(part 2 of 2)*

### To test the sbarchives.cgi script:

Here is how the `sbarchiives.cgi` script file works.





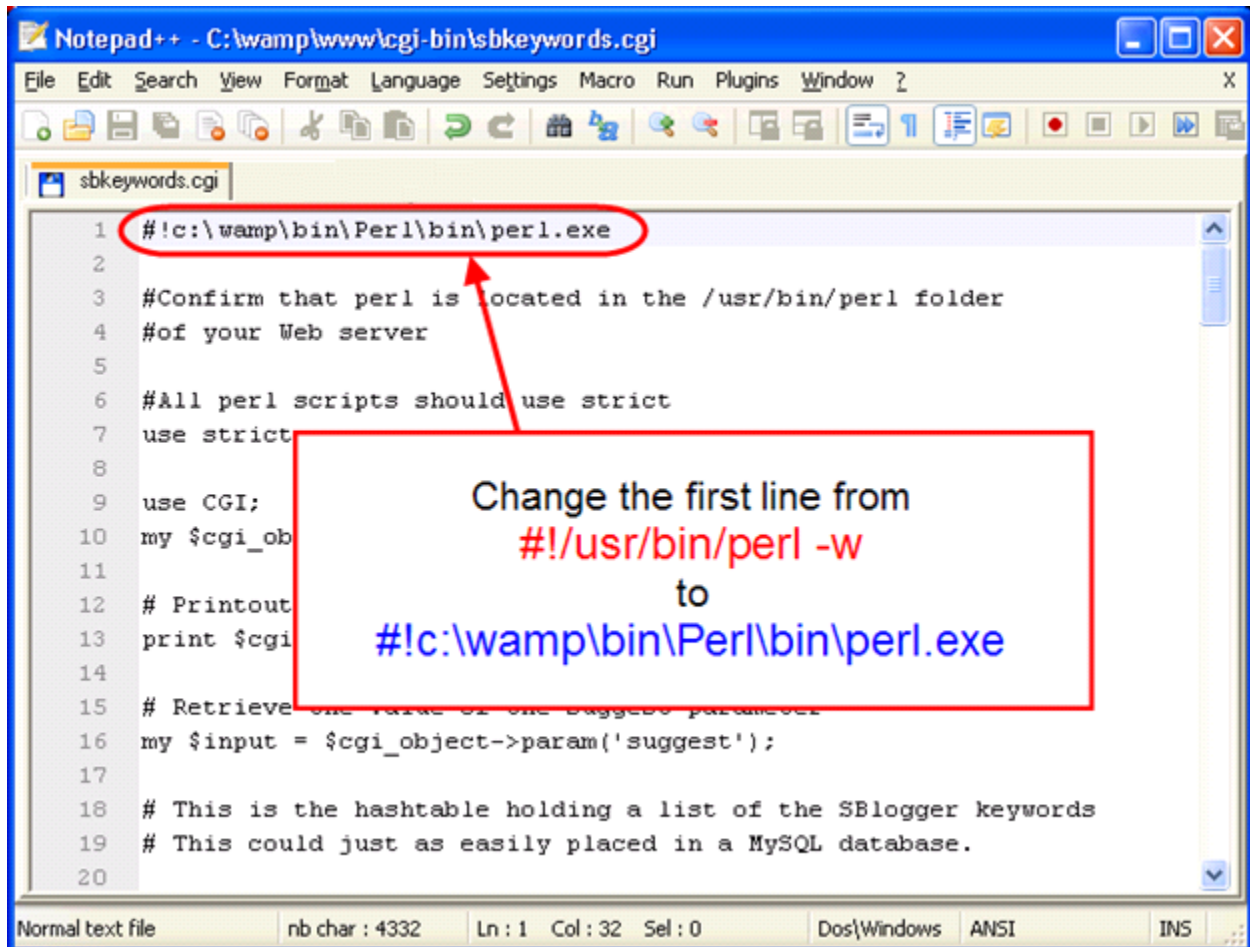
## Step 30 of 36

### To edit the sbkeywords.cgi file:

Page JVS 769 (first light brown box, step #1)

Make the following change to the **sbkeywords.cgi** script file.

Alternatively you can download this [sbkeywords.cgi](#) into the **C:\wamp\www\cgi-bin\** folder instead of making the editing changes in this step.



The screenshot shows the Notepad++ editor with the file **sbkeywords.cgi** open. The first line of the script is `#!/c:\wamp\bin\Perl\bin\perl.exe`, which is circled in red. A red arrow points from a red-bordered box to this line. The box contains the text: "Change the first line from `#!/usr/bin/perl -w` to `#!/c:\wamp\bin\Perl\bin\perl.exe`". The rest of the script content is visible below, including comments and Perl code.

```
1 #!/c:\wamp\bin\Perl\bin\perl.exe
2
3 #Confirm that perl is located in the /usr/bin/perl folder
4 #of your Web server
5
6 #All perl scripts should use strict
7 use strict;
8
9 use CGI;
10 my $cgi_obj = CGI->new;
11
12 # Printout
13 print $cgi_obj->header;
14
15 # Retrieve one value of one suggested parameter
16 my $input = $cgi_obj->param('suggest');
17
18 # This is the hashtable holding a list of the SBlogger keywords
19 # This could just as easily be placed in a MySQL database.
20
```

## Step 31 of 36

**To make the `sbkeywords.cgi` file publically executable:**

Page JVS 769 (first light brown box, step #3)

The `cgi-bin` folder on the CLC Web server is a protected folder and students do not have access to it. Students are not able to modify the file attributes of the `sbkeywords.cgi` script file to allow the public to execute it. The file permissions of `sbkeywords.cgi` script file on the CLC Web Server have already been set by the CLC Web Server Webmaster.

## Step 32 of 36 *(part 1 of 2)*

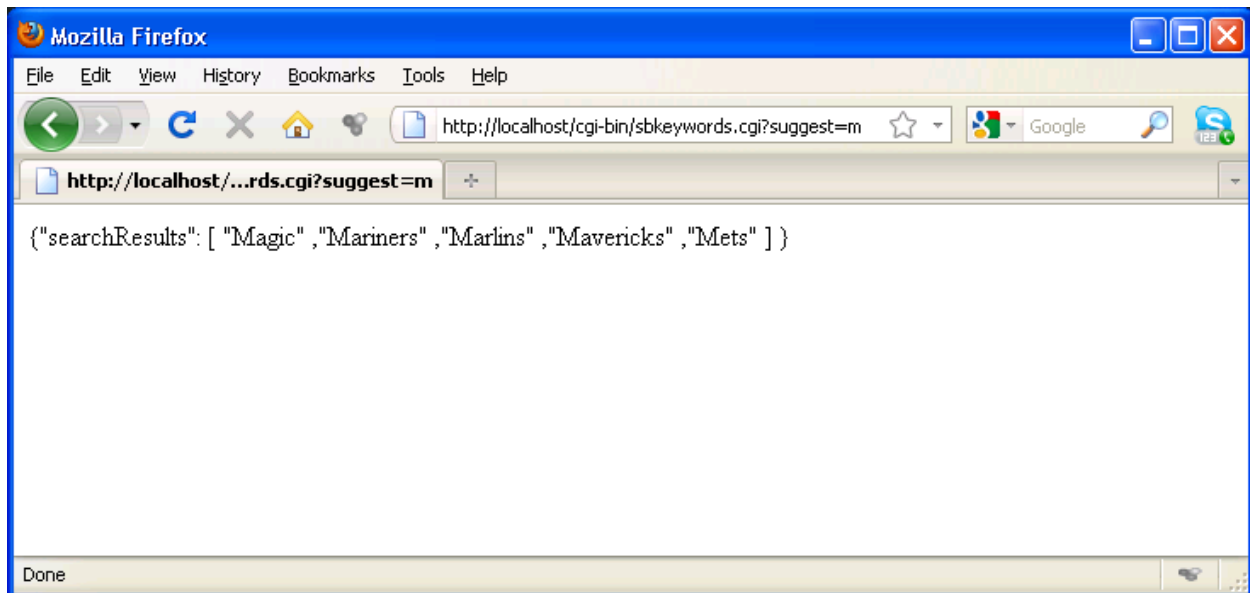
**To test the `sbkeywords.cgi` script:**

Page JVS 769 (second brown box, step #4)

To test the `sbkeywords.cgi` script file type the following into your Web browser:

<http://localhost/cgi-bin/sbkeywords.cgi?suggest=m>

Note that this file is already completed for students. Except for the one change on line 1 that states where Perl is located this file is ready to go. The textbook doesn't instruct students make any changes to this file so you can test it right away to see that it works.



Also try the following:

<http://localhost/cgi-bin/sbarchives.cgi?skey=a>

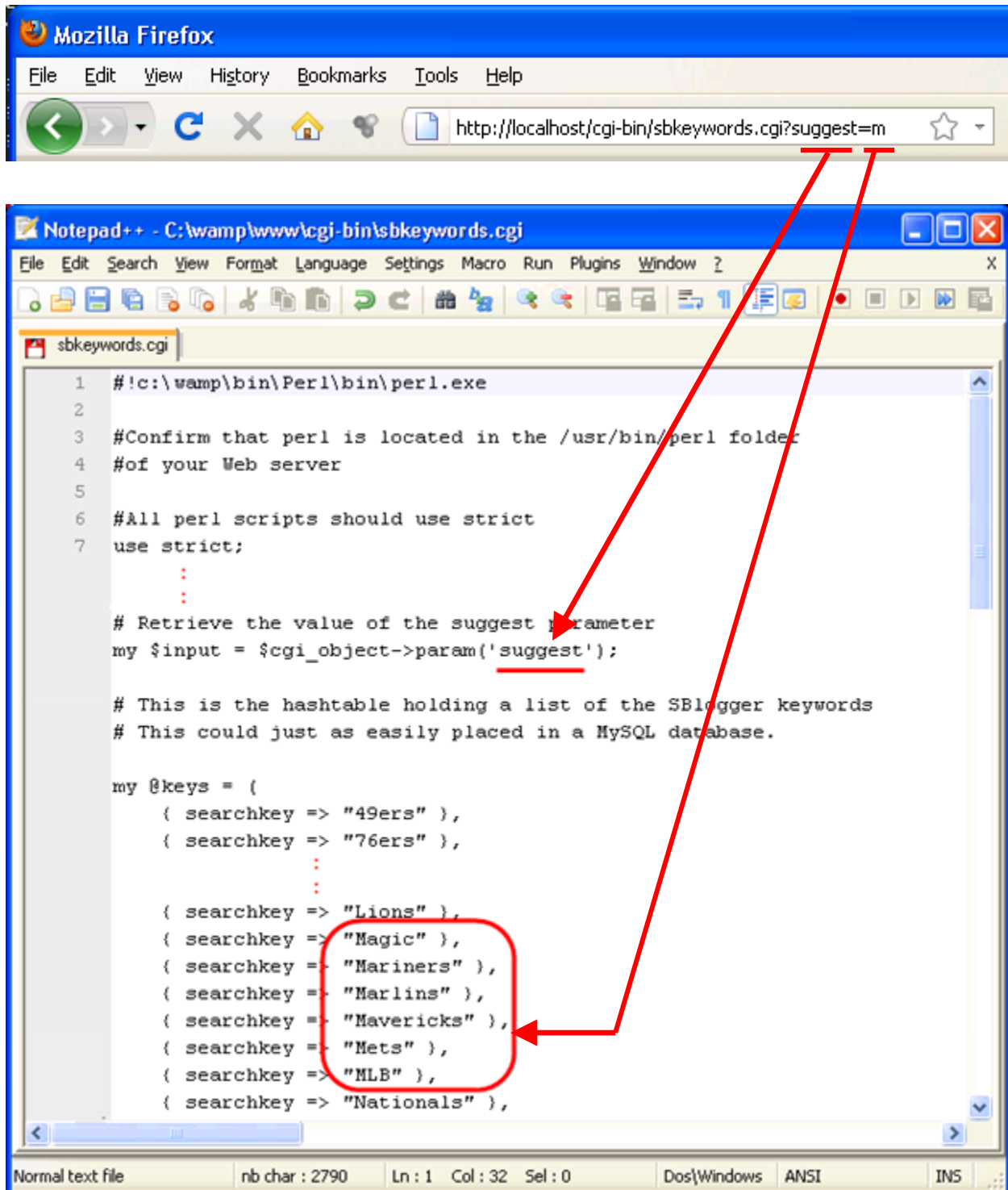
<http://localhost/cgi-bin/sbarchives.cgi?skey=p>

<http://localhost/cgi-bin/sbarchives.cgi?skey=v>

## Step 32 of 36 (part 2 of 2)

To test the `sbkeywords.cgi` script:

Here is how the `sbkeywords.cgi` script file works.



## Step 33 of 36

### To test the autocomplete suggestion box

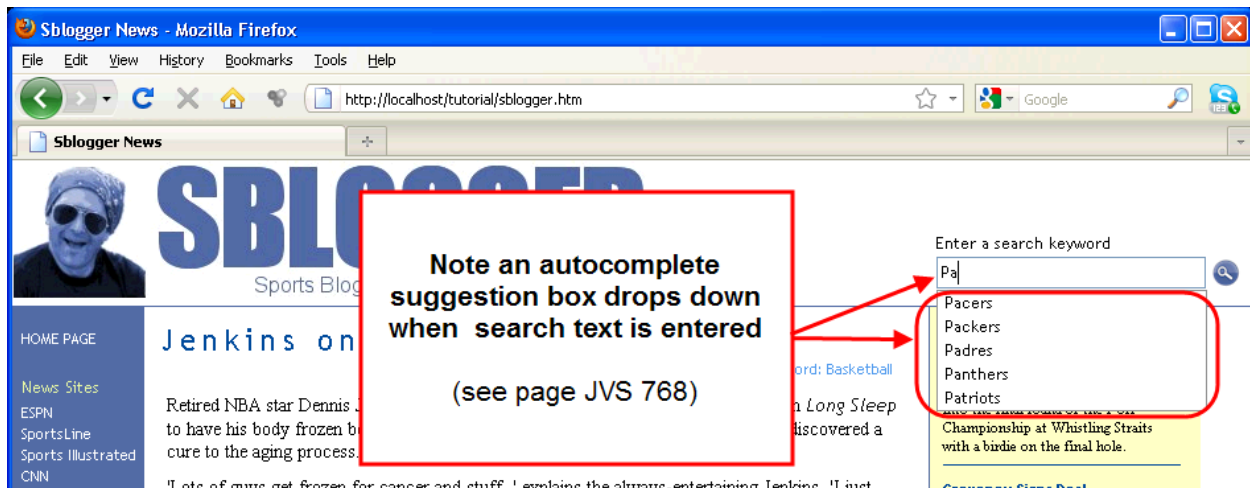
Bottom of page JVS 768 and page JVS 776.

To test the `sbkeywords.cgi` script file autocomplete suggestion box functionality type the address where you have your *Tutorial 12* Web page named `sblogger.htm` into your Web browser. For example:

<http://localhost/tutorial.12/tutorial/sblogger.htm>

and type in the letters “Pa” into the ‘Enter a search keyword’ text box. You should see the following results.

**Important:** You will need to complete the tutorial Web page `sblogger.htm` before this will work.



## Step 34 of 36

### To test the archive search

Page JVS 768

To test the [sbarchives.cgi](#) script file archive search functionality type the address where you have your *Tutorial 12* Web page named [sblogger.htm](#) into your Web browser. For example:

<http://localhost/tutorial/sblogger.htm> (same address as in the previous step)

and type the word “Packers” into the ‘Enter a search keyword’ text box and click the **Search** button. You should see the following results.

**Important:** You will need to complete the tutorial Web page [sblogger.htm](#) before this will work.

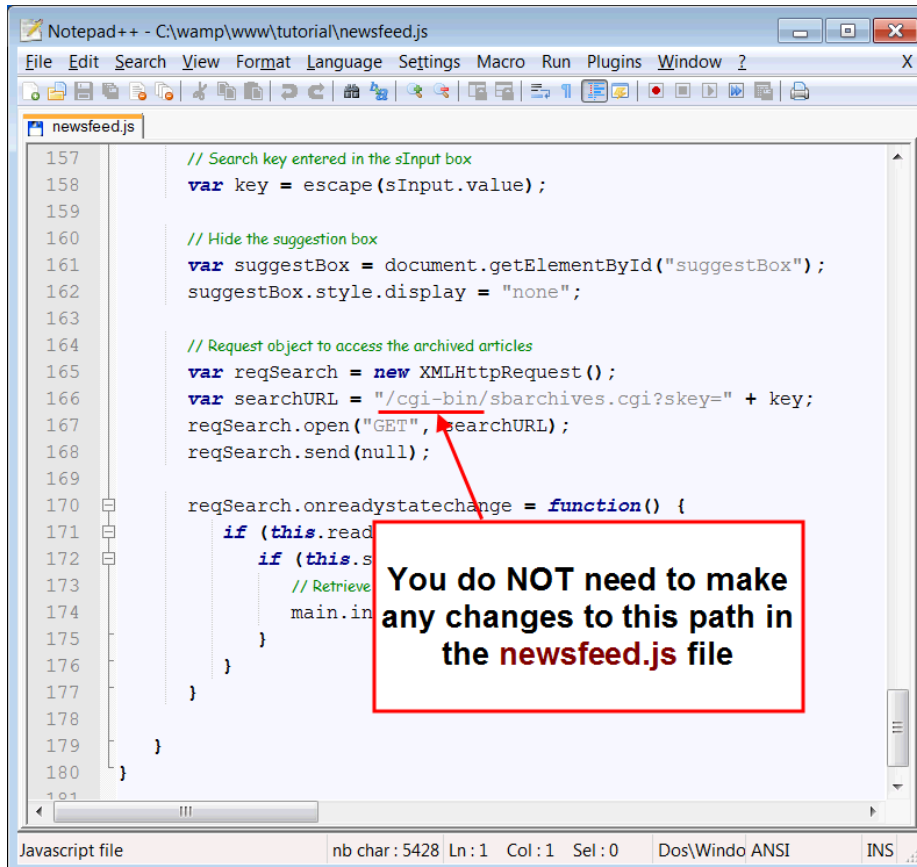


## Step 35 of 36

### newsfeed.js cgi path

Pages JVS 765 - 768

You do NOT need to change the cgi path in the **newsfeed.js** file



```
157 // Search key entered in the sInput box
158 var key = escape(sInput.value);
159
160 // Hide the suggestion box
161 var suggestBox = document.getElementById("suggestBox");
162 suggestBox.style.display = "none";
163
164 // Request object to access the archived articles
165 var reqSearch = new XMLHttpRequest();
166 var searchURL = "/cgi-bin/sbarchives.cgi?skey=" + key;
167 reqSearch.open("GET", searchURL);
168 reqSearch.send(null);
169
170 reqSearch.onreadystatechange = function() {
171     if (this.readyState == 4) {
172         if (this.status == 200) {
173             // Retrieve the archived articles
174             main.in
175         }
176     }
177 }
178
179 }
180
181 }
```

## Step 36 of 36

### Finished

You have successfully installed *Perl* into *WampServer*.

#### Important:

- Only edit the *Tutorial 12* files in the *WampServer* **C:\wamp\www\** folder.
- Make sure *WampServer* is turned on when you are working on *Tutorial 12*
- Only view the *Tutorial 12* Web page through *WampServer*. For example:  
<http://localhost/tutorial.12/tutorial/sblogger.htm>

If you are unable to get *Perl* to work correctly with *WampServer* you can always upload your tutorial to the CLC Web server and test it there. You do not need to upload the **sbarchives.cgi** or **sbkeywords.cgi** script files to the CLC Web Server because they already exist there in a protected folder which students do not have access to.