**Assignment #9: Hyperlinks**

## Lesson

# Linking to Local Files

Can my document talk to my document? Well, they can at least be linked!

Now, you will take your first step of "anchoring" by creating a hypertext link to a second web page. These links are called "local" because they reside on the same computer as the working document (they do not have to venture out on the Internet). You will also be shuffling around the parts of your growing web site (do you see how this becomes more than just a "home page"?).

### Link to Local Files

The simplest **anchor** link is one that opens another HTML file in the same directory as the presently displayed web page. The HTML format for doing this is:

 <a href="filename.html">text that responds to link</a>

Think of it as "a" for **a**nchor link and "href" for "**h**ypertext **ref**erence".

The filename must be another HTML file. Whatever text occurs after the first **>** and before the closing **</a>** symbols will be the "hypertext" that appears underlined and "hyper."

Now follow these steps to build an anchor link in your HTML document to a local file:

1. Open your HTML document, **volc.html**, in the text editor.
2. First, under the **Volcanic Places in the USA** heading, enter the following text which introduces the two volcanoes discussed in later sections.
3. Listed below are two places in the United States that are

 considered "active" volcanic areas.

1. Below the "Mount St. Helens" heading, enter:
2. On May 18, 1980, after a long period of rest, this quiet
3. mountain in Washington provided <a href="msh.html">
4. detailed observations</a> on the mechanics

 of highly explosive eruptions.

**The text "detailed observations" will link the viewer to a second HTML document called msh.html. This second HTML file does not yet exist; we will construct it in steps (5) and (6).**

1. Save and close your HTML document
2. Now, with your text editor, open a window for a **New** document.
3. Enter the following text in the new window:
4. <html>
5. <head>
6. <title>Mount St Helens</title>
7. </head>
8. <body>
9. <h1>Mount St Helens</h1>
10. The towering pine trees of this once-quiet mountain
11. were toppled over like toothpicks.
12. </body>
13. </html>
14. Save this file as **msh.html** in the same directory/folder as your working HTML file (**volc.html**).
15. **Reload** **volc.html** in your web browser.
16. Test the hypertext link for the words "detailed observations". When selected, it should connect you to the new page about Mount St. Helens.

### Anchor Link to a Graphic

In an earlier lesson, we learned how to display an "inline" graphic that would appear in your web page. With the **anchor** tag, you can also create a link to display a graphic file. When the anchor link is selected, it will download the image file and display the image by itself in your web browser.

**NOTE: Most web browsers will display such a link to an image file directly in your web browser. Depending on the web browser, and the preferences/settings on your computer, you may be promoted to either save the file or to select an application to display the file. Regardless of the action, if you get that far, the link to the image file has succeeded.**

The simplest anchor link is to a file in the same directory/folder as the document that calls it. The format for creating a hypertext link to a graphic is the same as above for linking to another HTML document:

 <a href="filename.gif">text that responds to link</a>

where **filename.gif** is the name of a GIF image file.

Now follow these steps to add a link to a graphic file in your HTML document:

1. Download a copy of a GIF image from the [Lesson 8a Image Studio.](http://www.mcli.dist.maricopa.edu/tut/tut8aimg.html)
2. Open the **msh.html** file in the text editor.
3. Modify the text to include a link to the image of Mount St. Helens.
4. The towering pine trees of this once-quiet mountain

 were <a href="msh.gif">toppled over like toothpicks</a>.

1. **Save** the **msh.html** file and **Reload** in your web browser
2. Now click on the link you just created in step (3).
3. A picture of blown down trees should be displayed.

### Links to other directories

The **anchor** tags can also link to an HTML document or graphic file in another directory/folder in relation to the document that contains the anchor. For example, in our lesson, we may wish to keep all of the graphics in a separate directory/folder called **pictures**. As you create more and more HTML files, keeping the image files in its own area will make things a bit more organized for you. Let's do that now:

1. From your computer system, create a sub-directory/folder called **pictures** in the same location where your **volc.html** file is stored.
2. Move the **msh.gif** file to this new sub-directory/folder.
3. Open the **msh.html** file in your text editor.
4. Edit the **anchor** tag for the graphic to read:
5. The towering pine trees of this once-quiet mountain
6. were <a href="pictures/msh.gif">toppled over

 like toothpicks</a>.

**NOTE: With HTML you can direct your web browser to open any document/graphic at a directory level *lower* (i.e. a sub-directory or folder within the directory/folder that contains the working HTML file) by using the "/" character to indicate the change to a sub-directory called "pictures."**

**work area**

**volc.html**
**pictures**

**msh.gif**

1. Save the HTML document and **Reload** in your web browser.

If all went well, the link in the sentence describing the blown-down trees should now call up the graphic file stored in the **pictures** sub-directory/folder.

## Anchor Links to a Higher Level Directory

The types of links we have constructed here are known as "relative" links, meaning a web browser can construct the full URL based upon the current location of the HTML page and the link information in the **<a href=...>** tags. This is very powerful because you can build all your web pages on one computer, test them, and move them to another computer -- all the relative links will stay intact.

In this lesson we saw how to construct a hyperlink to a document that is stored in a directory **lower** than the working HTML page. Note that you can also construct a link that connects to a **higher** level directory as well by using this HTML:

 <a href="../../home.html">return to home</a>

Each instance of **"../"** the URL of an anchor link tells the web browser to go to a higher level directory/folder relative to the current page; in this case to go up two directory/folder levels and look for a file called**home.html**.

In our example, let's say that our **pictures** sub directory was not in the same directory/folder as the **volc.html** file but was actually one level higher.

In the previous section we constructed a link from the **volc.html** file to the **msh.gif** file in a subdirectory:

 <img src="pictures/msh.gif">

Now, we want to reorganize our web structure so that the pictures folder/directory is at a higher level. The link is now written:

 <img src="../pictures/msh.gif">

so the web browser looks for a folder called "pictures" that is stored one level up from our **volc.html** file.

An advantage of this structure is that it would be easier to store a large number of graphics in this upper folder/directory that can be shared in other web pages. We may do another lesson on landforms that makes use of the pictures stored in this folder/directory.

So now it is time to do a little re-organizing of our HTML files. This requires that you are familiar with moving files and directories around on your computer. **Read this carefully! It may be feeling like it's getting complicated, but it will all be clear soon!**

1. First, create a new folder/directory and name it **volcano** (it is recommended to keep the file names in all lower case).
2. Now, move the two HTML files **volc.html** and **msh.html** into this new folder/directory.
3. Move the **pictures** folder/directory (along with the **msh.gif** file inside) so that it is in the **same** level as the new **volcano** folder/directory. Also, move the **lava.gif** file that we added in [lesson 7a](http://www.mcli.dist.maricopa.edu/tut/tut7a.html) into the pictures folder.
4. So your entire **workarea** directory should now contain two subdirectories -- one that holds your HTML files (**volcano**) and another one that holds the graphics (**pictures**):

**work area**

**pictures**

**lava.gif**
**msh.gif**

**volcano**

**volc.html**
**msh.html**

1. We've moved some things around so now we will have to update the anchor links in our HTML files. First, look at the first local link we built in the **volc.html** file:
2. <h3>Mount St Helens</h3>
3. On May 18, 1980, after a long period of rest, this quiet
4. mountain in Washington provided <a href="msh.html">detailed
5. observations</a> on the mechanics of highly explosive
6. eruptions.

**NOTE: Since the msh.html file is still in the same relative directory as volc.html, we do not have to change any of this HTML! Can you see how relative file linking is one of the powerful features of HTML?**

1. But now let's look at the link to the picture of Mt. St Helens that we created in the **msh.html** file:
2. The towering pine trees of this once-quiet mountain
3. were <a href="pictures/msh.gif">toppled over

 like toothpicks</a>.

Open this file in your text editor and edit the link to read:

 The towering pine trees of this once-quiet mountain

 were <a href="../pictures/msh.gif">toppled over

 like toothpicks</a>.

This relative link tells the web browser to go up one level from the current folder/directory (**volcano**) and look there for another folder/directory called **pictures** that contains a GIF image called **msh.gif**

1. You will have to update the **<img...**> tag that displays the title graphic. Open the **volc.html** file in your text editor and modify the line just below the **<body>** tag to read:

 <img alt="A Lesson on:" src="../pictures/lava.gif" width=300 height=259>

1. Save your file. You should then **Open** the **volc.html** file in your web browser and test the link to **msh.html** and then try the link to the picture of Mount St Helens.

## One More Small Change

This last small step may not be obvious, but we will explain it shortly. The last thing you should do in this lesson is to change the name of your working file from **volc.html** to **index.html**. You should do this using the normal way of editing a file's name from the computer desktop (on the Macintosh click on the file name; on Windows right-mouse click on the icon and select the option for **Rename**). Note also for Windows users that if you use a special editor program to create HTML files, you will not see the ".html" extension on the desktop file name, so in that case, you would change the file name from **volc** to **index** because under the hood, the computer knows that there is a ".html" at the end.

Why are we doing this? Let's say you have finished this lesson and are ready to store it on a World Wide Web server for the world to see. And let's assume that the Internet address for this server at Big University is:

 http://www.bigu.edu/

And your file will be stored in a series of directories:

--= top level of server: www.bigu.edu

 /courses

 /science

 /geology

 /volc.html

so that the URL for the Volcano Web might be:

 http://www.bigu.edu/courses/science/geology/volcano/volc.html

Pretty long, eh? Now here is the promised explanation -- on most WWW servers you can designate one standard name that is the "default" web page for that directory and on most systems that name is.... **index.html**. What this means is that the Internet address:

 http://www.bigu.edu/courses/science/geology/volcano/

is equivalent to

 http://www.bigu.edu/courses/science/geology/volcano/index.html

This might make you think that it is a lot of energy to cut 20 letters out of a URL! But it does tend to make your URL look a bit more professional -- If you were creating the Longhorn Cheese Home page,

 http://www.cheese.com/longhorn/

looks less redundant in print than

 http://www.cheese.com/longhorn/longhorn.html

which comes into play when people read about your URL and are trying to connect by typing it into their web browser.

Note also that this special file name **index.html** is used on most web servers but it might also be **default.htm**-- check with the people that run your web server.

## Check Your Work

Compare your web page with a [sample](http://www.mcli.dist.maricopa.edu/tut/tut8a_ex/index.html) of how this document should appear. You will first see your *Volcano Web* page. When you click on the hypertext for **detailed observations**, your web browser will display a new page. Finally, when you click on **toppled over like toothpicks**, your web browser will display in an external window a picture file that is stored in a sub folder/directory.

Use the web browser's **back** button twice to return to this page. If your web page was different from the sample, review the text you entered in the text editor.

## Review

Answer the following questions in a word document and submit it with the rest of your assignment.

1. What were the steps you used in creating a link within your document to a local file?
2. What steps did you use to create a link which displayed a graphic in an external window?
3. How did you create a link to a file in a lower directory/folder than your main document? a higher directory?
4. What is the significance of a file called **index.html** on a WWW server?

## More Information

You can use the anchor link tag to build a hypertext link that can download **any** kind of file, not just HTML or image files. Often, this is used to provide links to download software files or document files.

The method to do this, is exactly the same as you have seen for linking to HTML files- use the **<a href="...">link text</a>** tag structure, except the part in the quotes is the name of the file:

* **<a href="myfile.zip">Download a Windows .ZIP file</a>**
(compressed archive of multiple files)
* **<a href="myfile.exe">Download a Windows .EXE file</a>**
(an executable file, e.g. software)
* **<a href="myfile.sit.hqx">Download a Macintosh .HQX file</a>**
(compressed archive of multiple files)
* **<a href="myfile.pdf">Link to a Adobe Acrobat (PDF)</a>**
(document file, either viewed in the browser or downloaded)
* **<a href="myfile.doc">Link to a MS Word file</a>**
(document file, either viewed in the browser or downloaded)
* **<a href="myfile.ppt">Link to a MS PowerPoint file</a>**
(presentation file, either viewed in the browser or downloaded)

## Course Project Task

Create a second HTML document that uses the HTML formatting that you are familiar with at this point. Return to the first one you created and make an anchor that links to this new one.