

## Chapter 4 — Anchors and URLs

One of the most powerful features of HTML is the ability to link documents together. In fact, this linking of documents is what creates the interconnected web of knowledge, that we call the Web. The links on a page are called anchors. Anchors have the address of the other resource as an attribute, encoded as a Uniform Resource Locator (URL).

### *Learning Outcomes for this Chapter*

Upon completion of the reading of this chapter and assignments found at the end, a student should be able to:

- explain the various parts of an URL,
- differentiate between an absolute URL on a server and a relative path to a local item,
- create a relative path URL to a local file in a sub-folder,
- use the id attribute to place a unique identifier on a HTML tag,
- create an anchor, with text, that will take the user to a page on a remote server, a relative page, or to a specific tag on the current page,
- create an anchor to a PDF or other non HTML file.

### **URL**

If you recall from Chapter 1, the original purpose of an HTML document was to link resources, which we can achieve by using Uniform Resource Locators (URL or URLs).<sup>71 72</sup> URLs are actually a subset of URIs (Uniform Resource Identifiers). A URL can be used to point to web-pages, text, pictures, and media. You have most likely used thousands of URLs during your time on the Web, all the buttons and links that takes you from one webpage to another. Though all URLs serve the same function, they can be categorized into the Absolute and Relative categories, which are based on the location of resources that they retrieve.

### **Absolute URL**

An Absolute URL is an identifier that usually makes links between resources on other web servers or websites.<sup>73</sup> You can think of these URLs as long distance phone calls that connect with faraway places. Writing external links to other sites is simple as long as you know the direct extension to where you are trying to reach.

An external URL is written as `http://server_name_or_number`, and may be followed by one or more `/page_name`, `/resource`, or `/folder_name` depending on the final

71 <http://www.ietf.org/rfc/rfc3986.txt>

72 [http://en.wikipedia.org/wiki/Uniform\\_resource\\_locator](http://en.wikipedia.org/wiki/Uniform_resource_locator)

73 <https://url.spec.whatwg.org/#url-writing>



destination. Here are some examples of external links:

- <http://www.yahoo.com> — A link to the www server at Yahoo
- <http://www.cnn.com/WORLD/> — A link to CNN's World News folder
- <http://openclipart.org/assets/images/images/openclipart-banner.png> — a link to the banner picture in a sub-sub-folder at OpenClipart. Note the hierarchy of the folders in the link. The picture *openclipart-banner.png* is within the folder *images*, which is within another folder titled *images*, which is within the folder *assets*. All folders must be listed to properly target a URL.

URLs can become quite complex, including server port numbers, server names, folders, pages, query strings, and even anchors within a single page. Many of these uses are beyond the scope of this book and will not be discussed in depth. It is, however, important to be able to recognize and understand a complex URL when you see one.

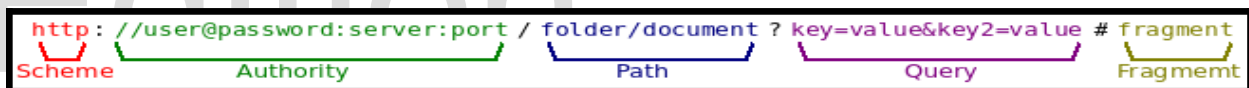


Illustration 12: Uniform Resource Locator (URL)

URLs are made up of several sections. They are:

- **Scheme:** This tells the program, often a web browser, what type of resource this URL points to. In the context of this book you will see *http* which stands for Hyper Text Transfer Protocol and *https* which stands for Hyper Text Transfer Protocol Secure.
- **Authority:** In a URL an authority starts with two slashes and usually contains the server name (www) a period followed by the domain name of the server. It may also contain user authentication and port numbers.
- **Path:** In the examples above you have seen that this may contain the folders (if there are folders) and the name of the final page to be displayed or other resource.
- **Query:** The optional information following the question mark represents data being sent from the web browser back to the server.
- **Fragment:** The fragment will tell the browser to jump to a specific element on the page when the URL is processed. How to use fragments within your URLs will be discussed later in this chapter.



## Relative URL

In contrast to an Absolute URLs, Relative URLs make links to resources that are on the same server as your webpage.<sup>74</sup> These URLs can be thought of as local phone calls made between people who are in the same office. There are several ways to express a Relative URL depending on the location of the link. Here are a few examples given the following file system:

```
.
|
| media
| | smile.ogg
| | ...
| |
| | www
| | | page.html
| | | image.png
| | |
| | | images
| | | | pix.jpg
| | | | ...
| | |
```

- `image.png` — A link to a picture in the same folder as the HTML page "page.html". This can also be written as `./image.png`
- `images/pix.jpg` — A link to a picture in a sub-folder "images" in the folder where the HTML page exists
- `../media/smile.ogg` — A link to a movie in a sibling folder. `../` refers to the parent folder where you can then find the sibling folder that houses your HTML document.

## Creating Anchors

An anchor refers to any element on a webpage that allows you to link from one place to another. We can do this using the `<a>...</a>` tag. The URL that is pointed to by an `<a>...</a>` tag can lead to a website, a specific location on a page, an image, or a downloadable file.<sup>75</sup>

There are two attributes that are commonly used in an anchor.

- **`href="enter URL here"`** — The URL within this attribute may be an absolute or relative path and may contain fragments that will cause the browser to jump to anchors of the destination page. This will be the most commonly used attribute.

<sup>74</sup> <https://url.spec.whatwg.org/#urls>

<sup>75</sup> <https://html.spec.whatwg.org/multipage/text-level-semantics.html#the-a-element>



- **target="context"** — This attribute tells the browser to open the link inside another browser window (**target="\_blank"**) or other context (iframe) which can open documents within your HTML document.

Notice that the text or image inside the `<a>...</a>` tag becomes a link that you can click on.

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>Page with Links</title>
  </head>
  <body>
    <main>
      <h1>Sample page with few different links:</h1>
      <p>
        <a href="other.html">Other</a>
        - The "other" page in the same folder.
      </p>
      <p>
        <a href="media/nothing.pdf">PDF</a>
        - The "nothing" pdf from the folder media.
      </p>
      <p>
        <a href="media/Seashell120-300px.png">
          
        </a>
        - A bigger shell from the folder media.
      </p>
      <p>
        <a href="http://topsailbeach.org">
          
        </a>
        - Paradise in the Outer Banks of North Carolina.
      </p>
      <p>
        <a href="http://openclipart.org/detail/261551/sea-shell-20">
          
        </a>
        - The Open Clip Art page where the sea shell image was
      </p>
      found.
    </main>
  </body>
</html>
```



## Sample page with few different links:

[Other](#) - The "other" page in the same folder.

[PDF](#) - The "nothing" pdf from the folder media.



- A bigger shell from the folder media.



- Paradise in the Outer Banks of North Carolina.



- The Open Clip Art page where the sea shell image was found.

Illustration 13: Simple Page with Links

<http://syw2l.org>

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>Other Page</title>
  </head>
  <body>
    <main>
      <h1>The Other Page</h1>
      <p>
        <a href="links.html">links</a>
        - Back to the "links" page in the same folder.
      </p>
    </main>
  </body>
</html>
```





*Illustration 14: Page with a Relative Link*

## Using Fragments to Jump to a Tag on a Page

By assigning an `id="name"` to an element you can then reference that element later. You must be careful to only assign one element on your page a specific identifier. Like your drivers-license number or student ID number only one person can be assigned a number or the world gets very confusing.

By assigning an `id` to an element we have created a way to **anchor** to that element. In the URL referencing the page, either absolute or relative, you can have the web browser jump to that element by specifying its `id` as a fragment on the end. A fragment begins with a pound sign "#", is followed by an id. The fragment must be at the end of the URL. If you are referencing an anchor on the same page, the relative URL would begin with the pound sign "#" and just contain the fragment.

Let's say that you are creating a webpage that lists all the employees in your company or students in your class. If a user were to try looking for person whose name begins with the letter R, they would have to scroll down the entire page just to find what they are looking for. This is where anchors to fragments come in.

Setting up this behavior is a two part process. First, you must give the section that you are targeting a unique identifier. Using the example above, if the R section began in an article, you might write it as `<article id="letterr">...</article>`. Then, when you are setting up your index at the top of your page, you would set up your anchor as `<a href="#letterr">Jump to Letter R</a>`. Clicking that text "Jump to Letter R" would then allow the user to instantly view the specified section.

Below is an example of URLs, hyperlinks, and anchors being used properly within an HTML document.

```
<!DOCTYPE html>
```



```
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>Links Demo</title>
  </head>
  <body>
    <header style="background-color: pink;">
      <h1>Some Site</h1>
      <h2>A page with links</h2>
      <p><a href="#personallinks">Personal</a> <a
href="#generallinks">General</a></p>
    </header>
    <main>
      <section id="personallinks">
        <h2>Personal Links</h2>
        <p><a href="http://www.goldstarchili.com">Gold Star Chili</a>
- Cincinnati style goodness.</p>
        <p><a href="http://www.primantibros.com/">Primanti Brothers</
a> - A great sandwich.</p>
      </section>
      <section id="generallinks">
        <h2>General Links (opened in a new window or tab)</h2>
        <p><a href="http://www.google.com" target="_blank">GOOGLE</a>
- Need I say more.</p>
        <p><a href="http://www.yahoo.com" target="_blank">Yahoo!</a>
- News and stuff.</p>
        <p><a href="http://www.cnn.com/TECH" target="_blank">Tech
News from CNN</a> - Ride the tech tsunami.</p>
      </section>
    </main>
    <footer style="background-color: LightSteelBlue;">
      <p><a href="about.html"></a>
      <p><small>All external links
are provided only as an illustration of what can be done.
The authors and publishers of this material assume no
responsibility
for the content of the external sites.</small></p>
    </footer>
  </body>
</html>
```





Illustration 15: Page with Many Types of Anchors

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8">
    <title>About Page</title>
  </head>
  <body>
    <header style="background-color: pink;">
      <h1>Some Site</h1>
      <h2>About</h2>
      <p><a href="main.html">Links</a></p>
    </header>
    <main>
      <section>
        <h2>About This Site</h2>
        <p>This site is demonstrating the concept of the
        <em>&lt;a&gt;</em> tag and what a hyperlink is.</p>
      </section>
    </main>
    <footer style="background-color: LightSteelBlue;">
      <p><a href="about.html"></a>
    </footer>
  </body>
```





```
</html>
```

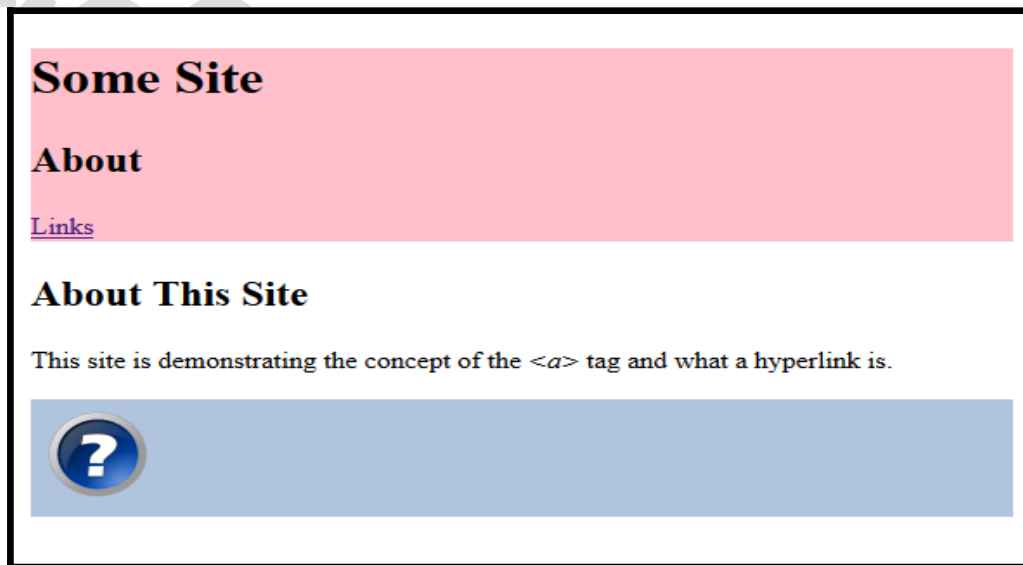


Illustration 16: About Page

## Linking to Files

The `<a> . . . </a>` tag can also create an anchor to files that are not other HTML pages. For instance if you have a PDF file that you want the user to download you would use an HTML statement like `<a href="somefile.pdf">pdf</a>`. You may include links to almost any type of file you have on your server. When the user clicks on the hyperlink, either another application will open the file or a dialog be presented to ask the user what they want to do with the file (open it or save it).

## Advanced Topics for Exploration

### Vocabulary

- .
- ..
- \_blank
- absolute
- authority
- fragment
- href
- hyperlink
- path
- query



- relative
- scheme
- target

## Exercises

### Word Search

```
u e a t a o a h a h a r t
e r m r u a _ h b y y l t
o t l t t r b c s p p e y
h n a h h e l s o e a e a
m p h n o l a c l r n g y
u p r p r a n h u l c t e
r e e a i t k e t i h r i
l r f t t i t m e n o r o
r i t h y v r e e k r h n
l o r e e e m e t n b t r
n d c b f r a g m e n t p
r c t a r g e t t t a a h
e i i a q u e r y y r e m
```

blank, absolute, anchor, authority, fragment, href, hyperlink,  
path, period, query, relative, scheme, target

### Problems

