WORKING WITH FRAMES

When you complete this chapter, you will be able to:

- Understand frames
- Understand frame syntax
- Use targeting in framesets
- Plan frame content

The frame elements let you partition the canvas area of the browser into multiple windows called **frames**. Each frame can display a separate, independent Web page. The use of frames has become a subject of controversy on the Web because in many cases, framed Web sites are poorly designed. They detract from the user's experience with long download times and confusing navigation. The judicious use of frames, however, can enhance your Web site, allowing consistent simultaneous display of navigation information and content. Frames can be the right solution for specific information problems or for organizing large quantities of content. This chapter explains how to work with frames to display your information effectively.

Principles of Web Design, Third Edition
Joel Sklar
ISBN 0-619-21666-2

UNDERSTANDING FRAMES

Frames were introduced by Netscape for the 2.0 release of its browser. Frames now are supported in a wide variety of browsers. Controversial since their inception, frames can polarize Web designers, some lauding the benefits, others characterizing frames as unnecessary. As you will see, frames can work well if you use them correctly. Far too many Web sites use frames just because they are available, with no real benefit to the user.

Frames allow you to divide the browser window into independent windows, each displaying a separate Web page. Figure 1 shows an example of a framed set of pages that contains three independent frames.

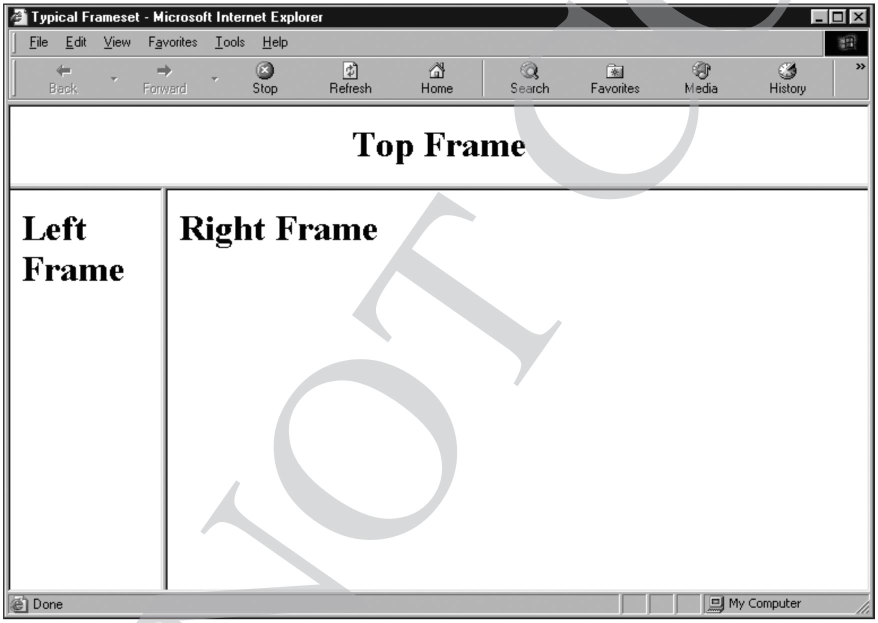
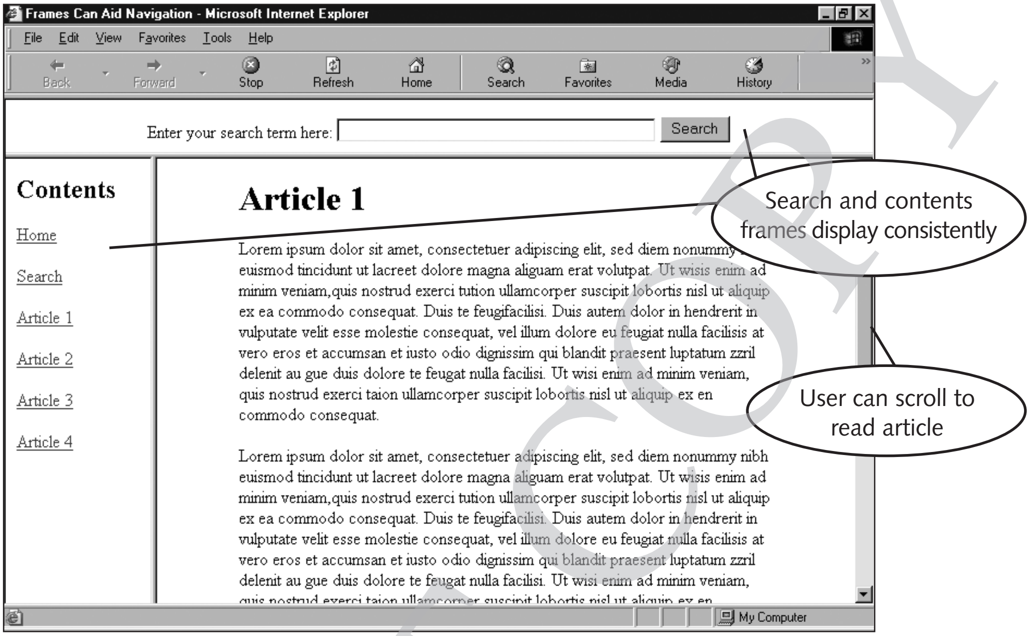


Figure 1 Typical frameset

Each of these frames displays a separate XHTML file. To create this frameset, you would first create the individual XHTML files, and then create the XHTML file containing the frame code that holds the three documents together.

Frame Benefits

Frames offer a number of benefits, including allowing users to scroll independently in one frame without affecting the contents of an adjoining frame. This is an ideal way to present large collections of information that are hard to navigate using the traditional single-page browser display. For example, Figure 2 shows a frameset that displays a table of contents in one frame, search tools in another, and content in a third.


Frames Can Aid Navigation - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media History
Enter your search term here:
Search
Contents
Home
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Article 2
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Article 4
My Computer

Article 1

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Search and contents frames display consistently

User can scroll to read article

Figure 2 Frames can aid navigation

Because the frames can be scrolled independently, the table of contents and search tool are always visible to the user. This may be exactly the type of additional function you need to solve an information design problem.

Frames work best when you keep them simple. Two or three frames per frameset should be enough to accommodate your information needs. More frames will clutter the screen, making it difficult for your reader to find information.

Frame Drawbacks

Frames present a variety of drawbacks that you need to consider before organizing your content with frames.

- *Bookmarks*—Although the newer browsers solve this problem, many browsers do not let the user bookmark individual pages from a Web site. Because the pages are all referenced from a single HTML frames file, the user cannot return to an exact page within a site, only to the main framed page.
- *Download overhead*—Because the browser is loading more than one document, the initial download time can be higher for a framed set of documents than for a single HTML document.
- *Confusing navigation*—Users can become confused if you build complicated framed document sets without enough navigation choices to let users jump

to the page of their choice. The Back button in the browser only lets the user load the previous page displayed within the frame, which may not be what the user expects.

- *Visual confusion*—Too many frames within the browser window (each with its own scroll bar) can confuse the user and will make poor use of the available screen. Limit the number of frames to avoid breaking the browser window into too many sections.
- *Frames and search engines*—Frameset code contains no actual content; the content is contained in the XHTML files displayed in the frames. Because search engines that read the content of a page for indexing will find no information on a framed page, it is a good idea to avoid using a framed document as the top-level page for your Web site. Instead, provide a standard Web page as your top-level page and use the framed content at a lower level of the Web site. You also can use the <noframes> element (described later in this chapter) to provide content for search engines. For more tips on working with framed pages and search engines, see "Working with Search Engines" in Chapter 11.
- *User preferences*—Users can force their browsers to display a page outside of your frameset. Make sure that your pages can stand alone if for some reason a user chooses to display a page on its own. You may want to add a simple text-based navigation bar on each page that is not viewable within the framed document, but can be used to navigate your Web site if a user breaks out of the frameset. You also may want to give the user a choice to navigate your Web site either with or without frames by adding links on the main page to framed and unframed versions of your Web site.

Frame Syntax

Frameset documents contain the code that assembles the frames and their contents. Frameset documents themselves have no actual content; therefore they have no <body> element.

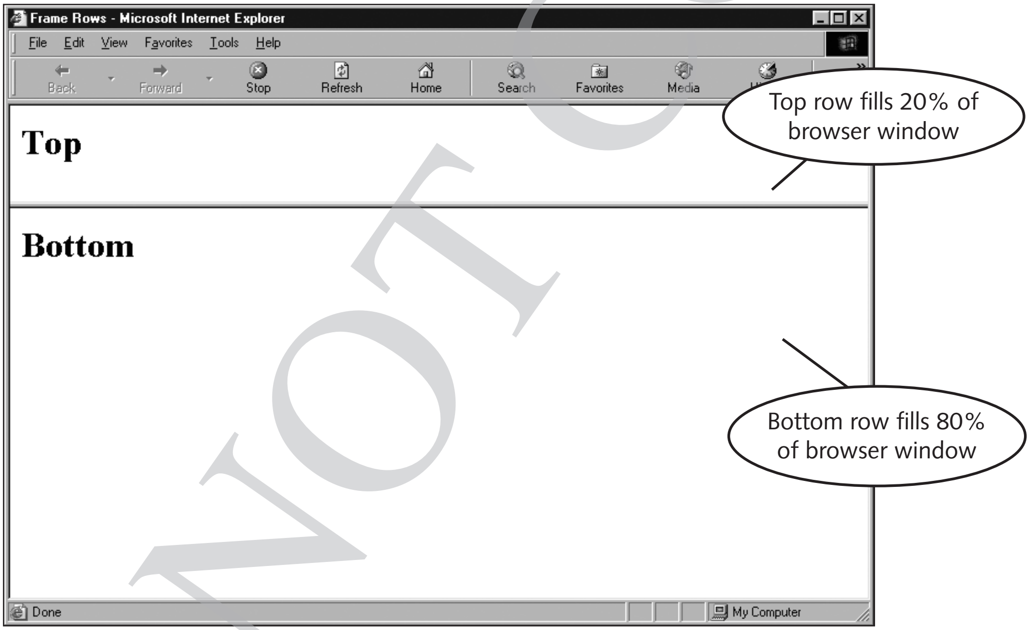
The <frameset> Element

The <frameset> element is the container for the frameset code. The cols and rows attributes let you specify the characteristics of the frameset. You can specify a frameset as either cols or rows, but not both. The width (specific to columns) and height (specific to rows) can be expressed as either a percentage value or pixel count in the cols and rows attributes. As with tables, percentage widths build frames relative to the browser window size.

Absolute pixel widths are fixed regardless of the browser size. The following code is an example of a simple frameset document that divides the browser canvas into two rows:

```
<html>
<head>
<title>Frame Rows</title>
</head>
<frameset rows="20%,80%">
<frame src="top.htm" />
<frame src="bottom.htm" />
</frameset>
</html>
```

Figure 3 shows the result of this code.


Frame Rows - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media
Top
Bottom
Done
My Computer

Top row fills 20% of browser window

Bottom row fills 80% of browser window

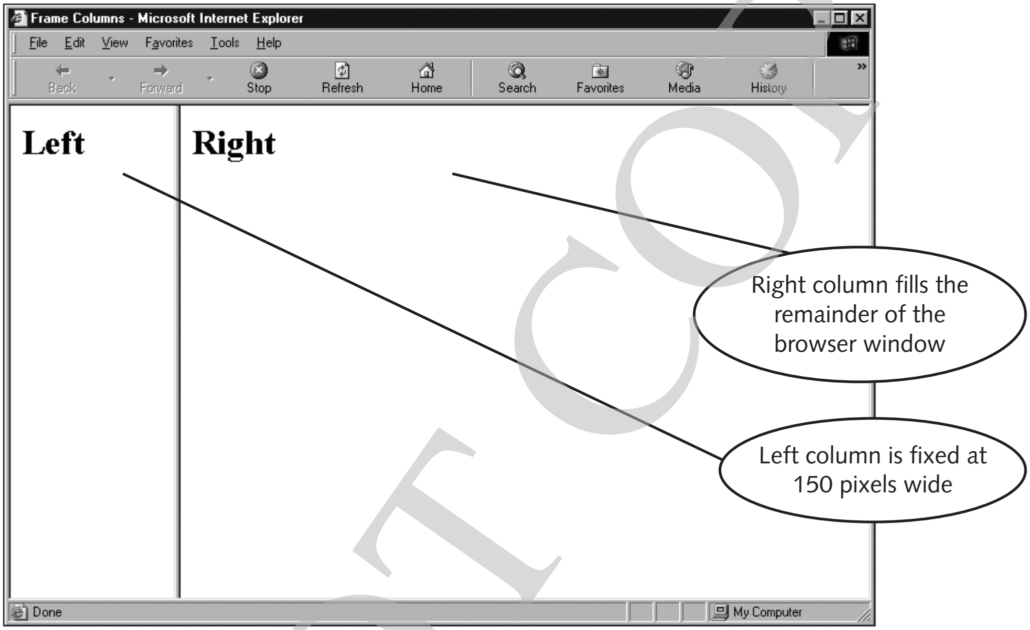
Figure 3 Two-row frameset

The <frame> Element

Re-examine the code for Figure 3. The <frame> element determines the contents of each frame. Row framesets fill top to bottom. The first <frame> element points to the file to display in the top row, and the second <frame> element points to the file for the bottom row.

The <frame> element is empty. The src attribute provides the location of the file that displays within the frame. Other attributes to the <frame> tag let you name the frame for targeting, decide whether frames have a scroll bar, and specify whether the user can resize the frame. These attributes are described later in this chapter.

In Figure 4, the frameset is divided into two column frames.


Frame Columns - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Forward
Stop
Refresh
Home
Search
Favorites
Media
History
Left
Right
Done
My Computer

Right column fills the remainder of the browser window

Left column is fixed at 150 pixels wide

Figure 4 Two-column frameset

In this frameset the left column is 150 pixels wide; the right column defaults to the remainder of the browser window size. In the following code, note the syntax in the opening <frameset> tag. The cols attribute determines the width of the columns. The first value sets the left column to 150 pixels. The asterisk (*) character tells the browser to fill the right column to the remainder of the browser window.

```
<html>
<head>
<title>Frame Columns</title>
</head>
<frameset cols="150,*">
<frame src="left.htm" />
<frame src="right.htm" />
</frameset>
</html>
```

Because the left column is set to a fixed width, it will remain unchanged regardless of the user's browser size or screen resolution. Also note that in column framesets, the frames fill left to right. The first <frame> element fills the left column and the second fills the right column.

TIP

Even though most browsers can display frames, it still is a good idea to add <noframes> content to help search engines index your framed content. When encountering a framed set of pages, some search engines look for the <noframes> element for content information.

The <noframes> Tag

The <noframes> tag lets you provide an alternate page for users who do not have a frames-compliant browser. You can enclose the contents of a standard Web page, contained in a set of <body> tags, within the <noframes> element. This alternate page code follows the frameset code in the XHTML file:

```
<html>
<head>
<title>Frames</title>
</head>
<frameset cols="75%, 25%">
     <frame name="index" src="index.htm" />
     <frame name="title" src="title.htm" />
<noframes>
<body>
(alternate page HTML code)
</body>
</noframes>
</frameset>
</html>
```

Nesting Frames

Figure 5 shows a rows frameset that contains a nested columns frameset in the second row.

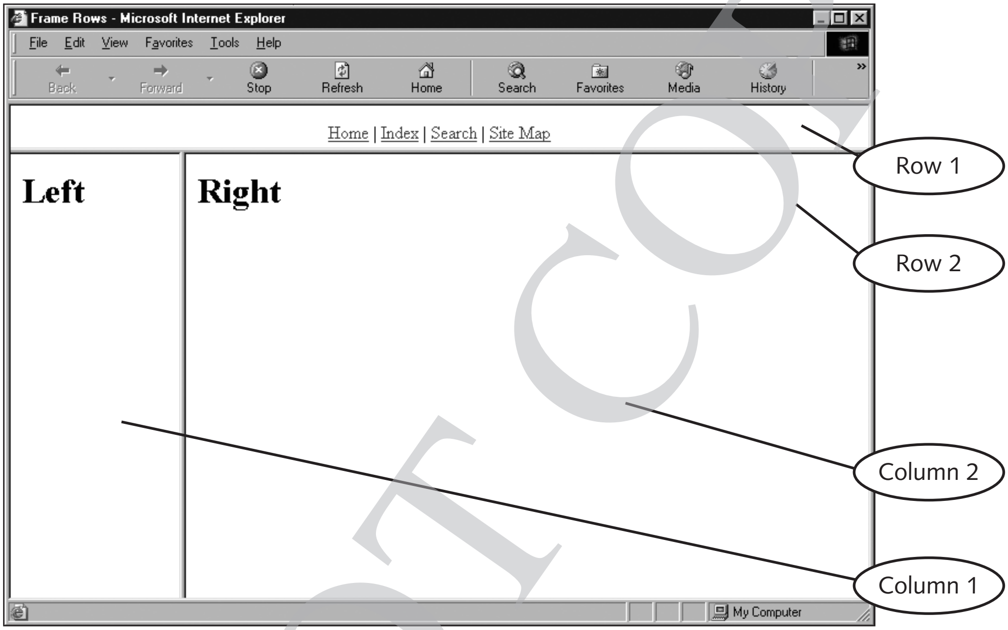

Frame Rows - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media History
Home | Index | Search | Site Map
Left
Right
My Computer
Row 1
Row 2
Column 2
Column 1

Figure 5 Nested frameset

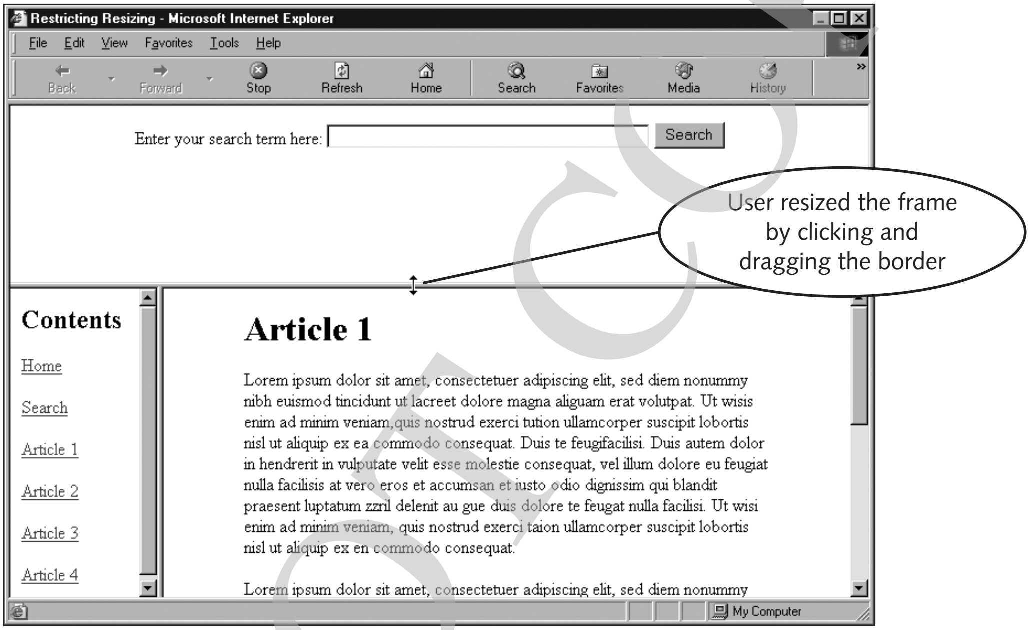
Nesting allows you to break the screen into both row and column frames. The following code shows the nesting of the framesets:

```
<html>
<head>
<title>Frame Rows</title>
</head>
<frameset rows="40,*">
<frame src="topnav.htm" /> <! this is row 1 >
<frameset cols="20%,80%"> <! the nested frameset fills
 row 2 >
<frame src="left.htm" /> <! this is column 1 >
<frame src="right.htm" /> <! this is column 2 >
</frameset>
</frameset>
</html>
```

Notice in the previous code that two closing </frameset> tags are necessary to close both framesets.

Restricting Resizing

By default, the user has the option of resizing your frames by clicking and dragging the frame border. In most situations you probably want to restrict resizing so the user sees the frameset in the way you intended. Figure 6 shows a frameset that the user has resized by clicking and dragging the frame border.


Restricting Resizing - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media History
My Computer
User resized the frame by clicking and dragging the border

Enter your search term here: Search

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Article 3

Article 4

Article 1

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Figure 6 Default allows the user to resize the frame

Under most circumstances, you probably want to restrict the user's ability to resize your frames. To restrict resizing, add the noresize attribute to the <src> elements in your frameset, as shown in the following code:

```
<html>
<head>
<title>Restricting Resizing</title>
</head>
<frameset rows="50,*">
<frame src="search.htm" noresize />
     <frameset cols="135,*">
     <frame src="contents.htm" noresize />
     <frame src="article1.htm" noresize />
     </frameset>
</frameset>
</html>
```

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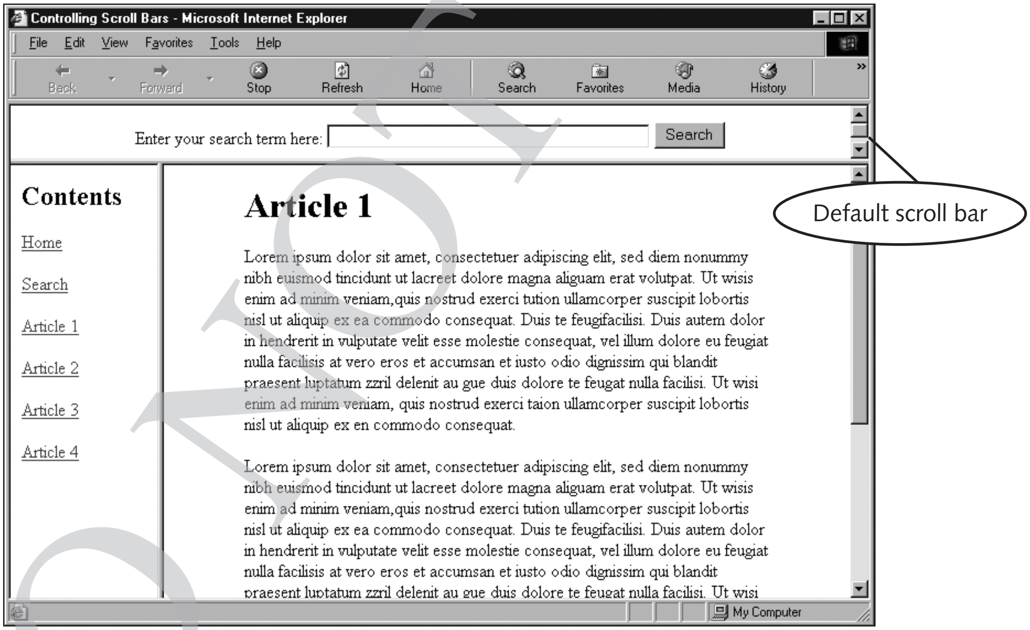
Controlling Scroll Bars

By default, scroll bars in frames are set to appear automatically if the content is not accessible within the frame window. In most cases this is the best setting for scroll bars, because you will not need to worry about them. No matter the user's browser size or screen resolution, if scroll bars are necessary they will appear. Sometimes, however, you may want to control whether scroll bars display. Use the scrolling attribute in the <frame> element to control scroll bars. The valid values are "yes," "no," or "auto," which is the default setting.

Figure 7 shows a three-frame frameset. Notice that the top frame displays a scroll bar even though no additional content follows the search text box.

The browser displays a scroll bar, because the height of the top frame is slightly smaller than the browser finds necessary to display the contents. One way to solve this problem is to change the height of the frame. Because this frame looks good at this height, however, you can remove the scroll bar by adding the scrolling="no" attribute to the <frame> element. Figure 8 shows the result of the attribute addition.



Enter your search term here:

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Article 1

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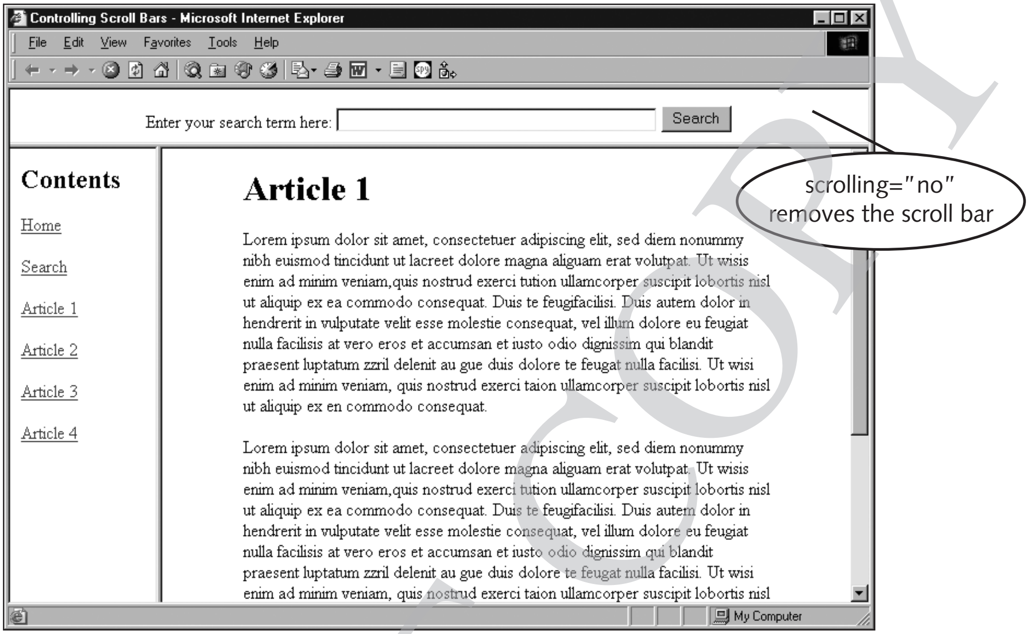
Figure 7 Unnecessary default scroll bar


Controlling Scroll Bars - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Search
My Computer

Enter your search term here:

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Article 1

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scrolling="no" removes the scroll bar

Figure 8 Frame with no scroll bar

The scroll bar is no longer displayed, which enhances the look of the frameset. Also, because a scroll bar indicates additional information, omitting the scroll bar reflects the content of this page more accurately. The code for the complete frameset follows:

```
<html>
<head>
<title>Controlling Scroll Bars</title>
</head>
<frameset rows="50,*">
<frame src="search.htm" scrolling="no" />
<frameset cols="135,*">
<frame src="contents.htm" />
<frame src="article1.htm" />
</frameset>
</frameset>
</html>
```

Controlling Frame Borders

As with tables, you can choose not to display frame borders, or to remove the default border spacing between frames entirely. This technique lets you create seamless frames with no visible dividing line, unless a scroll bar pops up. Figure 9 shows an example of a two-frame frameset with the frame borders turned off.

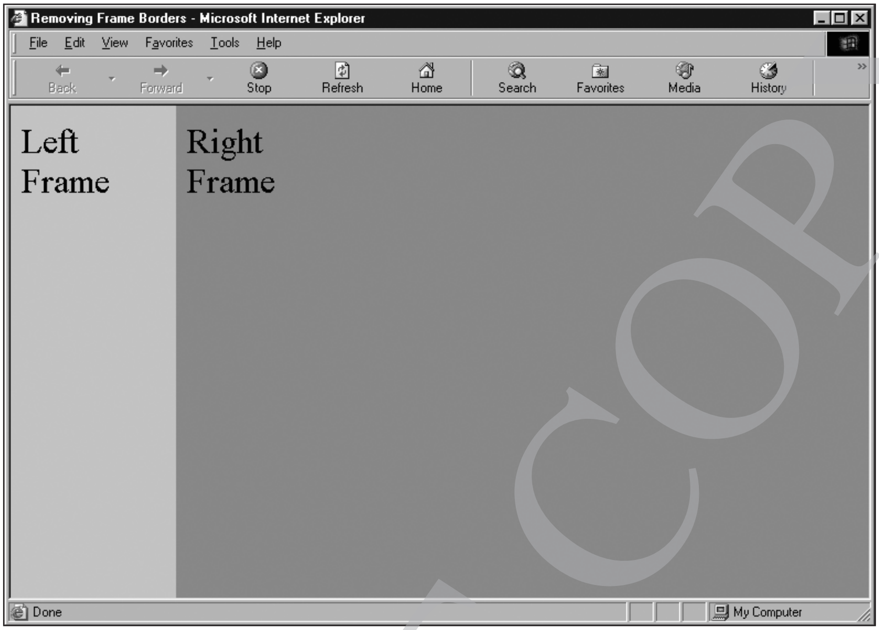


Figure 9 Frame borders turned off

To make sure that the frame border and spacing are turned off for both Netscape Navigator and Internet Explorer, set the border attribute to "0", as shown in the code for the previous frameset:

```
<html>
<head>
<title>Removing Frame Borders</title>
</head>
<frameset cols="150,*" border="0">
<frame src="leftgray.htm" />
<frame src="rightgray.htm" name="content" />
</frameset>
</html>
```

TIP

Older browsers are not consistent regarding the attributes to be used to turn off frame borders. Netscape Navigator 4.0 requires frameborder="no" and border="0" attributes. Internet Explorer 5.0 can correctly interpret frameborder="no", but you need to set framespacing="0" to remove the default border spacing between frames. All of these attributes reside in the opening <frameset> tag. If you have trouble with frame borders, test these attributes in your code.

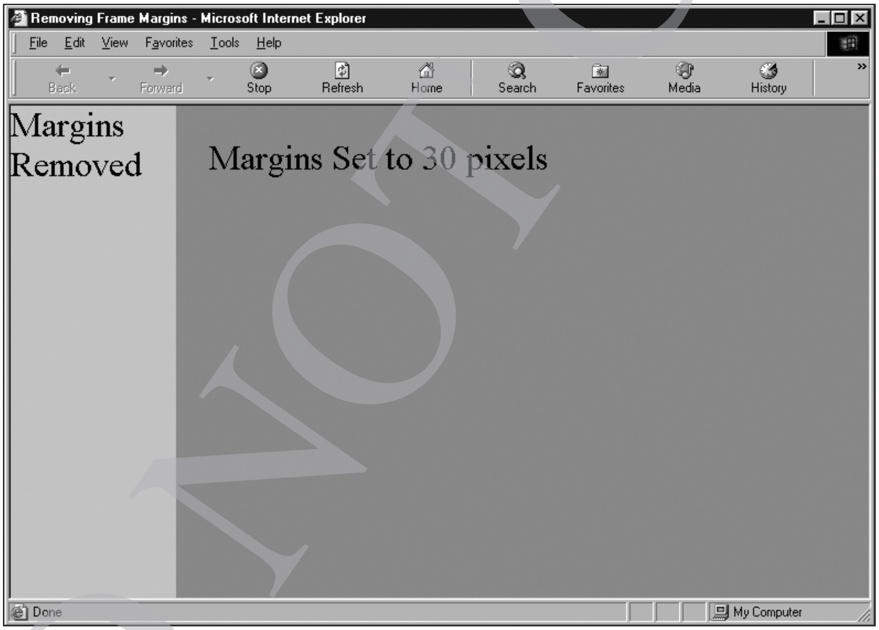
ISBN 0-619-21666-2

Controlling Frame Margins

Two frame attributes let you control the pixel width of both the vertical and horizontal margins in a frame. The marginwidth attribute lets you control the left and right margins, while marginheight affects the top and bottom margins. Setting these attributes to zero (0) removes the margins entirely, allowing your content to touch the sides of the frame. You most likely would use these attributes in combination with the frame border attributes described in the previous section.

Add the marginheight and marginwidth attributes to the <frame> element for the frame you want to affect. Figure 10 shows a frameset with two different margin settings.

The left frame has both margin attributes set to zero (0). Even so, the top margin still includes some space, due to built-in leading in the line of text. The left margin, however, has been completely removed. In the right column both margins have been set to 30 pixels.



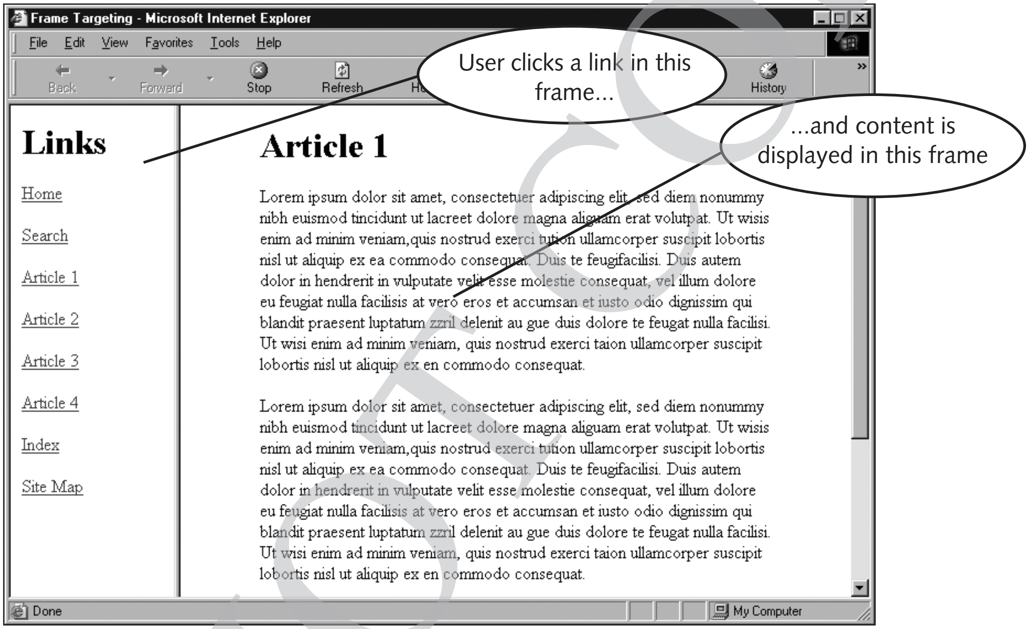
Margins Removed

Margins Set to 30 pixels

Figure 10 Frame borders and margins removed

TARGETING IN FRAMESETS

The power of frames comes from the ability to display information consistently in one frame while the contents of a second frame might change based on the user's choice. By default, a link loads into the same frame in which it was selected.You can change this default behavior and target the destination of a link to another frame in the frameset. In this section you will learn how to target within a simple frameset, as shown in Figure 11.


Frame Targeting - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh History
Done
My Computer

User clicks a link in this frame...

...and content is displayed in this frame

Links

Home

Search

Article 1

Article 2

Article 3

Article 4

Index

Site Map

Article 1

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Figure 11 Targeting from one frame to another

To target from one frame to another, you must perform two tasks:

1. Name your frames using the name attribute in the <frame> element.
2. Target links to display their content in the named frame.

Naming Frames

To name a frame, add the name attribute to the <frame> element. You do not have to name all of the frames within a frameset, only the frames you want to target. Figure 12 shows a frameset with two frames. The right frame is named "main".

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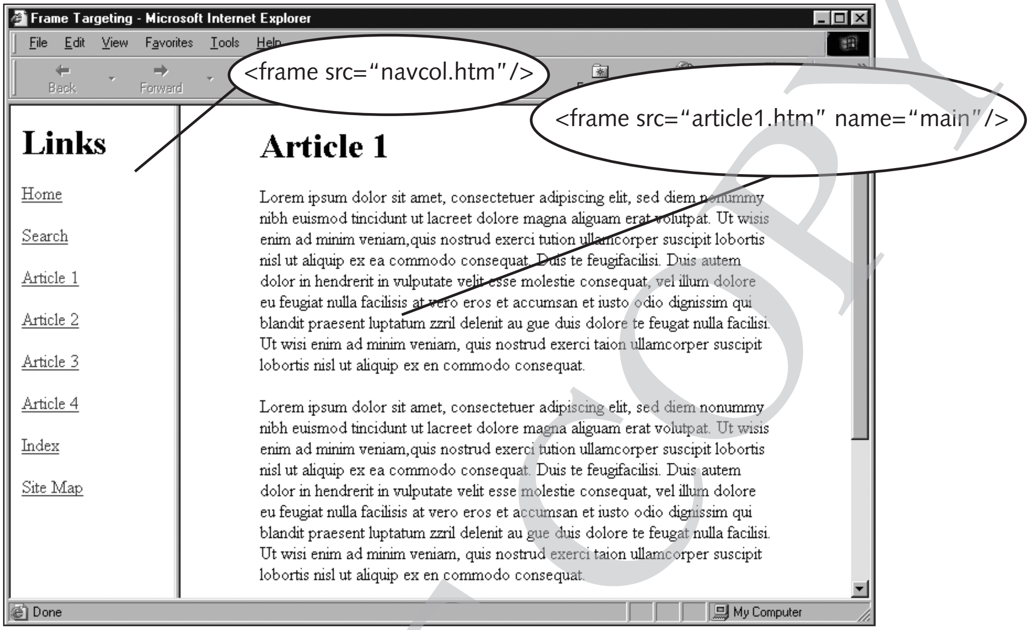
Frame Targeting - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Forward
Done
My Computer

<frame src="navcol.htm"/>

<frame src="article1.htm" name="main"/>

Links

Home

Search

Article 1

Article 2

Article 3

Article 4

Index

Site Map

Article 1

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Figure 12 Naming a frame for targeting

Here is the code for the frameset illustrated in Figure 12:

```
<html>
<head>
<title>Frame Targeting</title>
</head>
<frameset cols="150,*">
<frame src="navcol.htm" />
<frame src="article1.htm" name="main" />
</frameset>
</html>
```

The name attribute in the second <frame> element names the right frame window "main." You now can target this window to display linked content.

Targeting Named Frames

To target the named frame, you must edit the HTML document that contains the <a> elements and provide target attributes that tell the browser which frame displays the content. You can use the target attribute in either the <base> or <a> elements.

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Joel Sklar
ISBN 0-619-21666-2

Targeting in the <base> Element

In this example, the HTML document that occupies the left frame window is named "navcol.htm." Adding the <base> element lets you set the default target frame for all of the links in the document. The <base> tag is empty and resides in the <head> section of the document. The code in navcol.htm shows the <base> element.

```
<html>
<head>
<title>Frame Links</title>
<base target="main" />
</head>
<body>
<h1>Links</h1>
<p><a href="index.htm">Home</a></p>
<p><a href="search.htm">Search</a></p>
<p><a href="article1.htm">Article 1</a></p>
<p><a href="article2.htm">Article 2</a></p>
<p><a href="article3.htm">Article 3</a></p>
<p><a href="article4.htm">Article 4</a></p>
<p><a href="contindx.htm">Index</a></p>
<p><a href="sitemap.htm">Site Map</a></p>
</body>
</html>
```

Notice that the <base> element contains the target attribute set to "main." This establishes the default window target name for all of the links contained in the file. Any link that the user selects will display in the frame window named "main."

Targeting in the <a> Element

You can override a default base target by using the target attribute in the <a> element. This allows you to target a specific link to a destination different from the base target. You can target a different window within the frameset or use one of the special targeting values in the next section. The following <a> element targets article1.htm to the frame named "frame2."

```
<a href="article1.htm" target="frame2">Article 1</a>
```

TIP

Make sure that you match the case of both the target and name attributes, or the browser will not be able to resolve the target name.

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Using Special Target Names

There are four special target names that you can use with the target attribute in either the <base> or <a> elements. Table 1 lists the special names.

Table 1 Special target names

Name	Description
_self	The default behavior for links in a frameset. The linked content is loaded into the same window as the <a> element. You most likely would use this in the <a> element to override a base target.
_blank	Opens a new browser window to display the linked content. However, this can confuse users, who may not realize that they are looking at a new window.
_parent	Lets you break out of a child frameset and display the link in the parent frameset. This name is only useful when you have a link in a frameset that displays an embedded frameset. In most cases using embedded framesets is poor navigation design that can confuse your user.
_top	The most useful of all the special names, _top lets you remove frames and display the linked content in the same, refreshed browser window.

Notice that all of these special names begin with an underscore. Any other target name that begins with an underscore will be ignored by the browser.

Special target names can help you in a variety of situations. For example, you can use them when you link to other sites from within a frameset. Figure 13 shows the Harvard University Art Museum site shown within a framed site.

ISBN 0-619-21666-2

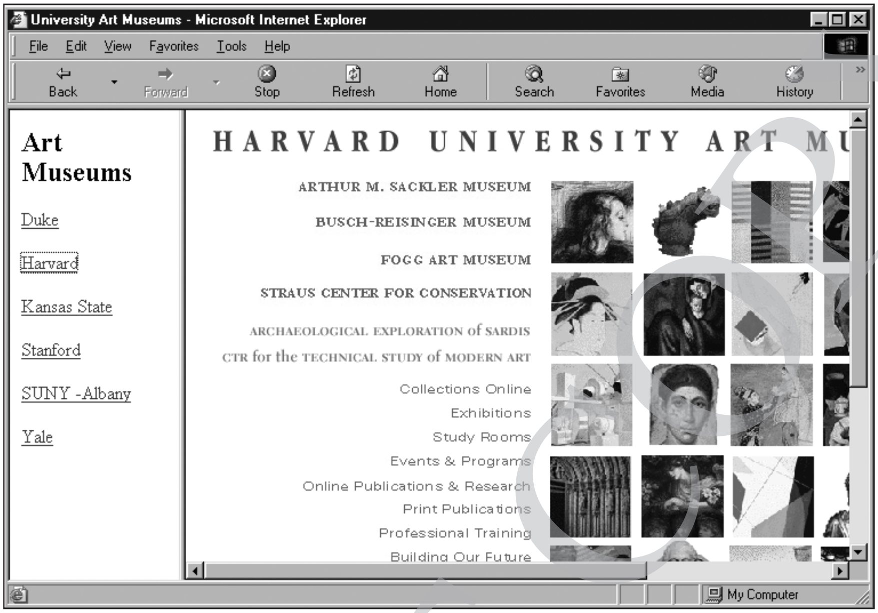

University Art Museums - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media History
Art Museums
Duke
Harvard
Kansas State
Stanford
SUNY -Albany
Yale
HARVARD UNIVERSITY ART MU
ARTHUR M. SACKLER MUSEUM
BUSCH-REISINGER MUSEUM
FOGG ART MUSEUM
STRAUS CENTER FOR CONSERVATION
ARCHAEOLOGICAL EXPLORATION of SARDIS
CTR for the TECHNICAL STUDY of MODERN ART
Collections Online
Exhibitions
Study Rooms
Events & Programs
Online Publications & Research
Print Publications
Professional Training
Building Our Future
My Computer

Figure 13 Harvard University Art Museum site shown within a framed site

As you can see, loading the Harvard University Art Museum Web site within a frameset does not work well. The size of the frame is too small to display the Web site properly, forcing the user to scroll horizontally to view the entire page. You can solve this problem by using special target names to break out of the frameset. There are two ways to handle this problem:

- Use _blank to load the Web page in a new browser window.
- Use _top to load the Web page to the top of the existing window.

Using _blank

The _blank special target name lets you load the linked content into a new instance of the browser. Figure 14 shows the results, with the newly launched browser window overlapping the window that contains the link.

Notice that the Back button is not available in the new browser window, because this is the first page in the new window. Not being able to use Back can be frustrating to users who rely on it for navigation.

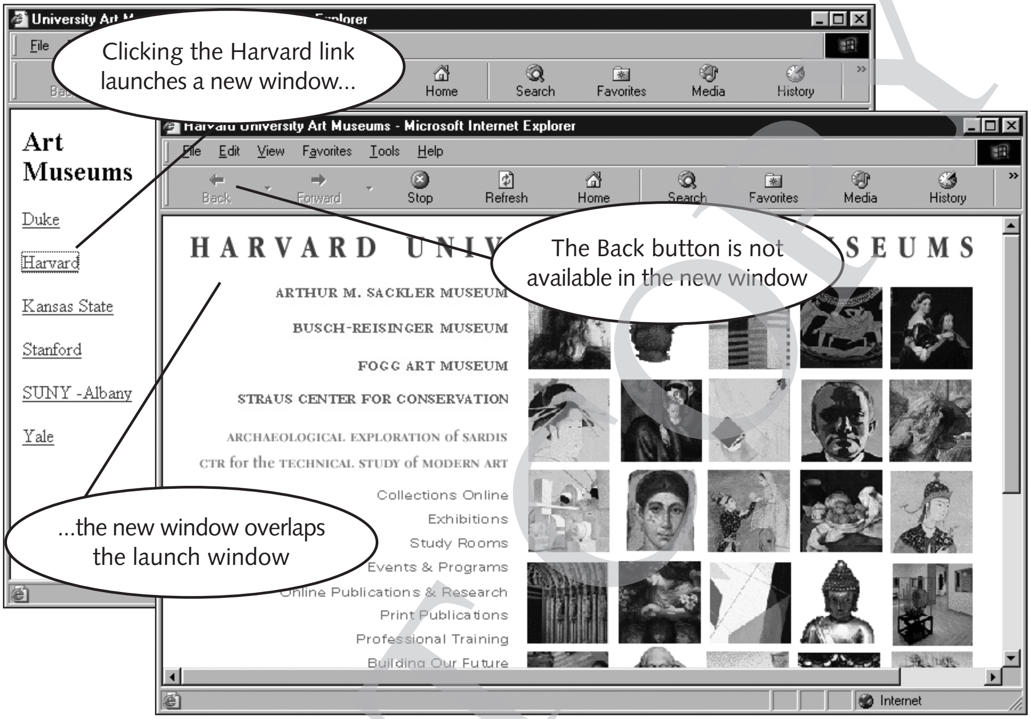

Clicking the Harvard link launches a new window...
The Back button is not available in the new window
...the new window overlaps the launch window
University Art M... Explorer
Harvard University Art Museums - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media History
Art Museums
Duke
Harvard
Kansas State
Stanford
SUNY -Albany
Yale
HARVARD UNIV... SEUMS
ARTHUR M. SACKLER MUSEUM
BUSCH-REISINGER MUSEUM
FOGG ART MUSEUM
STRAUS CENTER FOR CONSERVATION
ARCHAEOLOGICAL EXPLORATION of SARDIS
CTR for the TECHNICAL STUDY of MODERN ART
Collections Online
Exhibitions
Study Rooms
Events & Programs
Online Publications & Research
Print Publications
Professional Training
Building Our Future
Internet

Figure 14 Using _blank launches a second browser window

Remember that the targeting information is in the file that contains the links, not the frameset file. In this example, the _blank target name resides in the <base> element, setting the default target for all of the links within the file. The following code shows the use of _blank in the left navigation column of Figure 14.

```
<html>
<head>
<title>Art Museum Links</title>
<base target="_blank" />
</head>
<body>
<h2>Art Museums</h2>
<p><a href="http://www.duke.edu/web/duma/">Duke</a></p>
<p><a href="http://www.artmuseums.harvard.edu/">Harvard</a
></p>
<p><a href="http://www.ksu.edu/bma/">Kansas State</a></p>
<p><a href="http://www.stanford.edu/dept/suma/">Stanford</
a></p>
<p><a href="http://www.albany.edu/museum/">SUNY -
 Albany</a></p>
<p><a href="http://www.yale.edu/yuag/">Yale</a></p>
</body>
</html>
```

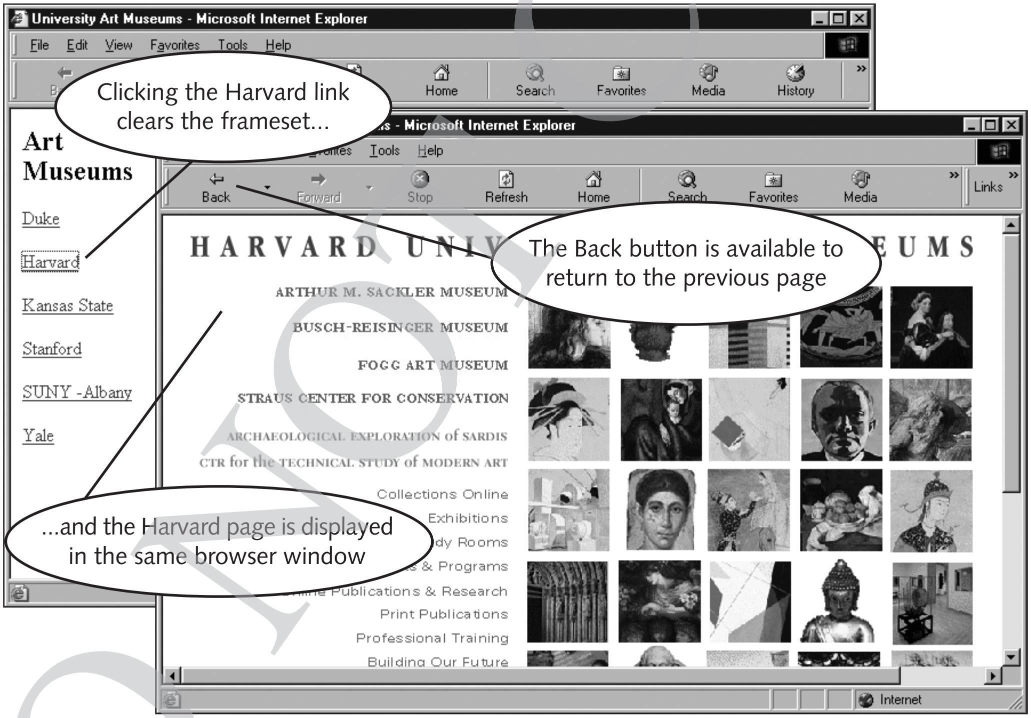
This code contains one flaw. Using _blank as the default target name means that every link in this window will launch a new browser window. Before long, the user's computer either will run out of memory or the screen will become cluttered by overlapping windows. For this reason, limit the use of _blank for special purposes, or do not use it at all.

TIP

If you decide to use _blank, you can help users by letting them know that clicking the link will open a new browser window.

Using _top

Using _top as a special target name displays the linked content in a non-framed window using the same instance of the browser. Figure 15 shows the results.


University Art Museums - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Home Search Favorites Media History
Art Museums
Duke
Harvard
Kansas State
Stanford
SUNY -Albany
Yale
Back Forward Stop Refresh Home Search Favorites Media Links
HARVARD UNIVERSITY ART MUSEUMS
ARTHUR M. SACKLER MUSEUM
BUSCH-REISINGER MUSEUM
FOGG ART MUSEUM
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ARCHAEOLOGICAL EXPLORATION of SARDIS
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Collections Online
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Clicking the Harvard link clears the frameset...

The Back button is available to return to the previous page

...and the Harvard page is displayed in the same browser window

Figure 15 Using _top loads content at the top level of the same window

The browser clears the frameset and loads the Harvard page in the same window. The Back button is available if the user wants to return to the previous page. Because the browser maintains only one open window, there is no additional memory overhead or confusion for the user. This effect is hard to reproduce on paper, so use the sample files on the *Principles of Web Design* Online Companion Web site to see an example.

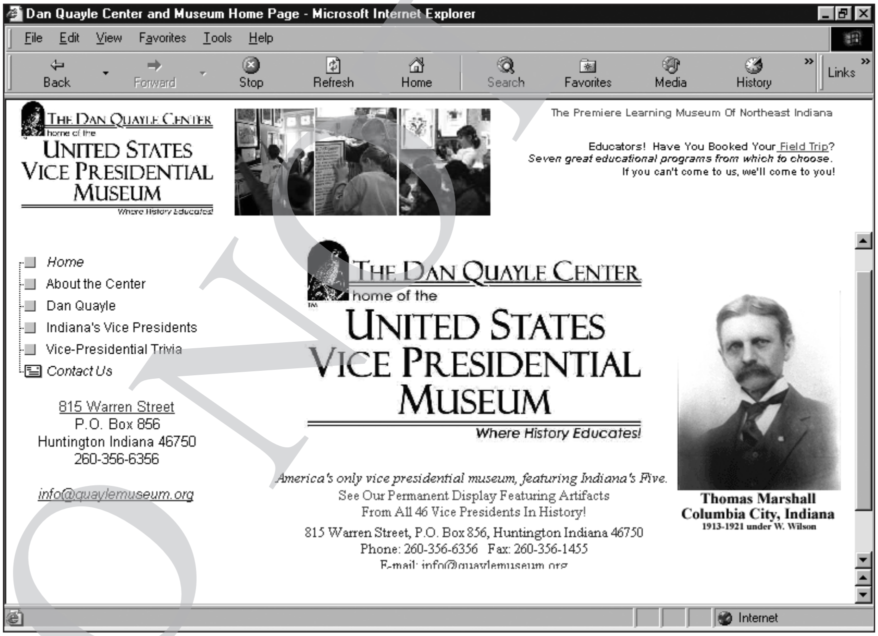
Principles of Web Design, Third Edition
Joel Sklar
ISBN 0-619-21666-2

Planning Frame Content

The variable nature of the World Wide Web affects your framed pages. If you are planning on building a framed site, you must prepare your content for display within a frameset. Frameset display is affected by the base screen resolution you use to code your framed pages. You must decide on the lowest common denominator screen resolution that will display the frameset effectively.

Frames and Screen Resolution

Frame scroll bars and borders add to the screen space requirements of frames. Many Web designers who incorporate frames into sites build them for a base resolution of 800 × 600, forcing users to change their screen resolutions in order to view the content. Even if you decide to code for a higher resolution, you always should test at a 640 × 480 resolution, because some users will view your Web site at this resolution. Also, test your work in different browsers. Small differences between the way browsers display frames can affect their look significantly. Figures 16 and 17 show the Dan Quayle Vice Presidential Museum Web site (*www.quaylemuseum.org/*) at 800 × 600 and at 640 × 480.



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Huntington Indiana 46750
260-356-6356

info@quaylemuseum.org

America's only vice presidential museum, featuring Indiana's Five.
See Our Permanent Display Featuring Artifacts
From All 46 Vice Presidents In History!
815 Warren Street, P.O. Box 856, Huntington Indiana 46750
Phone: 260-356-6356 Fax: 260-356-1455
E-mail: info@quaylemuseum.org

Figure 16 The Dan Quayle Web site at 800 × 600

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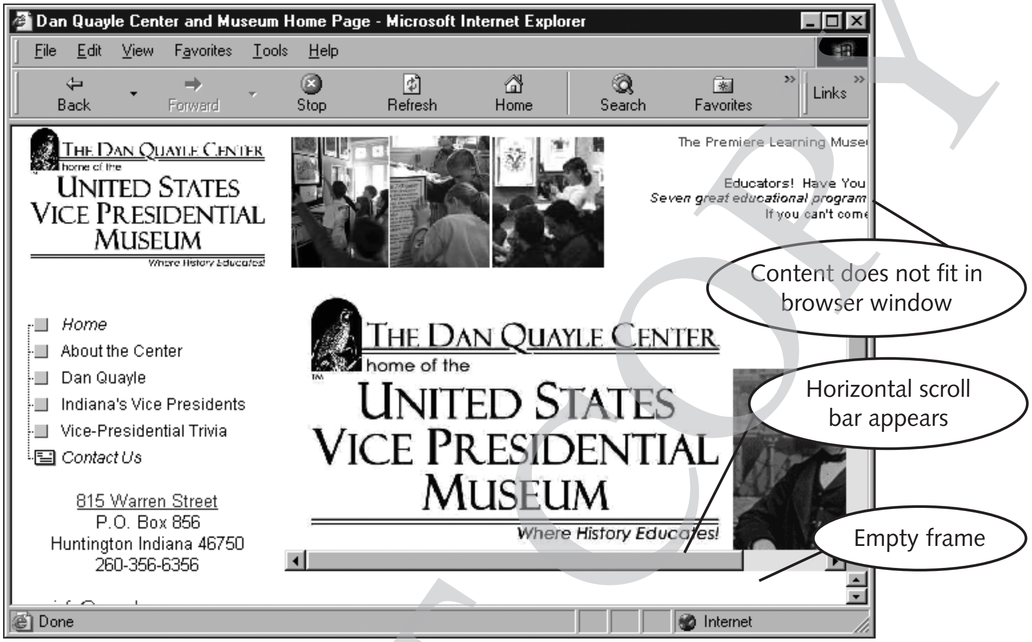

Dan Quayle Center and Museum Home Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Links
THE DAN QUAYLE CENTER home of the UNITED STATES VICE PRESIDENTIAL MUSEUM Where History Educates!
The Premiere Learning Muse
Educators! Have You
Seven great educational program
If you can't come
Home
About the Center
Dan Quayle
Indiana's Vice Presidents
Vice-Presidential Trivia
Contact Us
815 Warren Street
P.O. Box 856
Huntington Indiana 46750
260-356-6356
Done
Internet

Content does not fit in browser window

Horizontal scroll bar appears

Empty frame

Figure 17 The Dan Quayle Web site at 640 × 480

The page design for this Web site is less than perfect at 800 × 600, but if the user views it at 640 × 480 there are additional scroll bars and content that do not fit within the browser window. A blank frame, possibly an error in coding, appears at the bottom of the screen. Clearly this site needs some further testing and tinkering to ensure that the content is viewable at different screen resolutions.

Designing Effective Frames

You must build your pages to fit within the frames in which they will display. You also will need to accommodate different screen resolutions that can affect the size of the frame within the frameset. As with tables, decide whether you will use fixed or relative framesets. You also can choose to mix these two measurement types within a single frameset, which can be the best way to handle multiple screen resolutions.

Mixing Fixed and Variable Frames

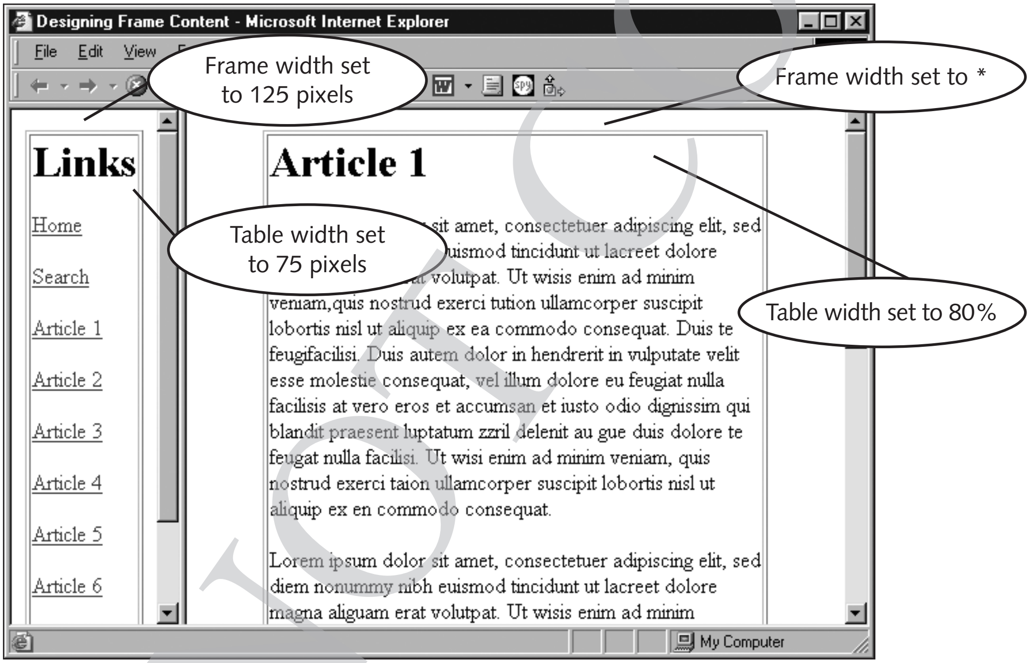
Examine the following sample frameset that mixes a fixed frame and a variable frame to accommodate different resolutions.

Here is the code for the sample frameset:

```
<html>
<head>
<title>Designing Frame Content</title>
```

```
    </head>
    <frameset cols="125,*">
    <frame src="leftfxd.htm" />
    <frame src="article1.htm" name="main" />
    </frameset>
    </html>
```

Notice that the code for the left column is fixed at 125 pixels. The asterisk (*) wildcard character sets the right column to a variable width that changes based on the browser size. Figure 18 shows the frameset at 640 × 480 resolution.


Designing Frame Content - Microsoft Internet Explorer
File Edit View
Frame width set to 125 pixels
Frame width set to *
Table width set to 75 pixels
Table width set to 80%
My Computer

Links

Home

Search

Article 1

Article 2

Article 3

Article 4

Article 5

Article 6

Article 1

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Figure 18 Sample frameset at 640 × 480 resolution

Tables in each XHTML file keep the content aligned within the frameset. The table borders are turned on so you can see them. The table in the left frame has a fixed width of 75 pixels. The difference between the frame width of 125 and the table width of 75 is taken up by the scroll bar and frame margins. This frame and content will display consistently regardless of the screen resolution. The code for the table in the left frame content, leftfxd.htm, follows:

```
    <html>
    <head>
    <title>Left Fixed Column</title>
    <base target="main" />
    </head>
```

```
<body>
<table width="75" border>
<tr>
<td>
<h1>Links</h1>
<a href="index.htm">Home</a>
<p><a href="search.htm">Search</a></p>
<p><a href="article1.htm">Article 1</a></p>
<p><a href="article2.htm">Article 2</a></p>
<p><a href="article3.htm">Article 3</a></p>
<p><a href="article4.htm">Article 4</a></p>
<p><a href="article5.htm">Article 5</a></p>
<p><a href="article6.htm">Article 6</a></p>
<p><a href="contindx.htm">Index</a></p>
<p><a href="sitemap.htm">Site Map</a></p>
</td>
</tr>
</table>
</body>
</html>
```

The right frame is a variable width; therefore, the content within the right frame is contained in a centered table set to an 80 percent width. The 80 percent width allows for white space on both sides of the text. The code for the right frame content, article1.htm, follows:

```
<html>
<head>
<title>Right Variable Column</title>
</head>
<body>
<div align="center">
<table width="80%" border>
<tr>
<td>
<h1>Article 1</h1>
<p>Lorem ipsum dolor sit amet, consectetuer adipiscing
elit, sed diem nonummy nibh euismod ti . . .(content
abbreviated)</p>
</td>
</tr>
</table>
</div>
</body>
</html>
```

Now look at the same frameset at an 800 × 600 resolution in Figure 19.

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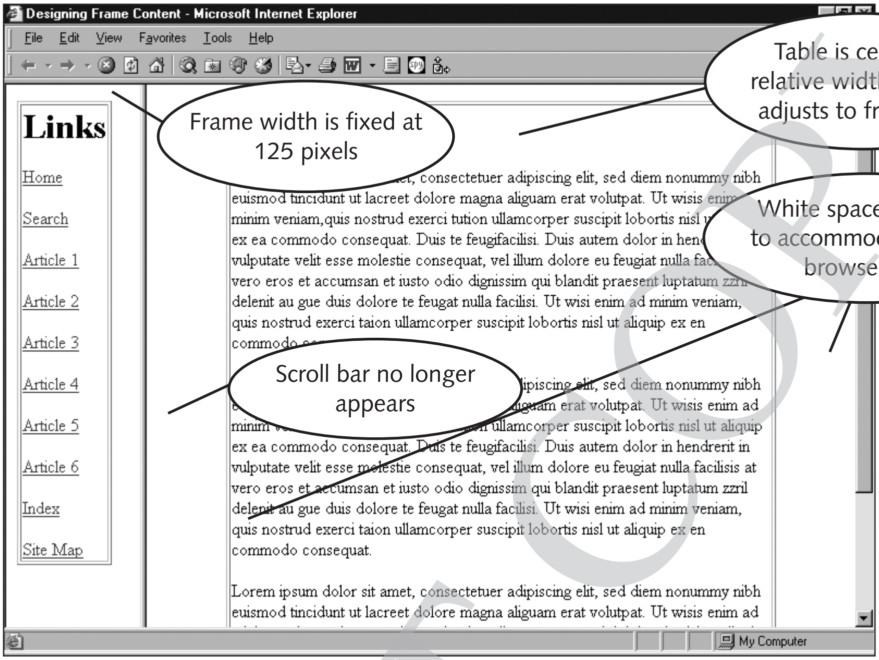
Designing Frame Content - Microsoft Internet Explorer
File Edit View Favorites Tools Help
My Computer

Links

Home

Search

Article 1

Article 2

Article 3

Article 4

Article 5

Article 6

Index

Site Map

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Frame width is fixed at 125 pixels

Table is centered; relative width of 80% adjusts to frame size

White space expands to accommodate larger browser size

Scroll bar no longer appears

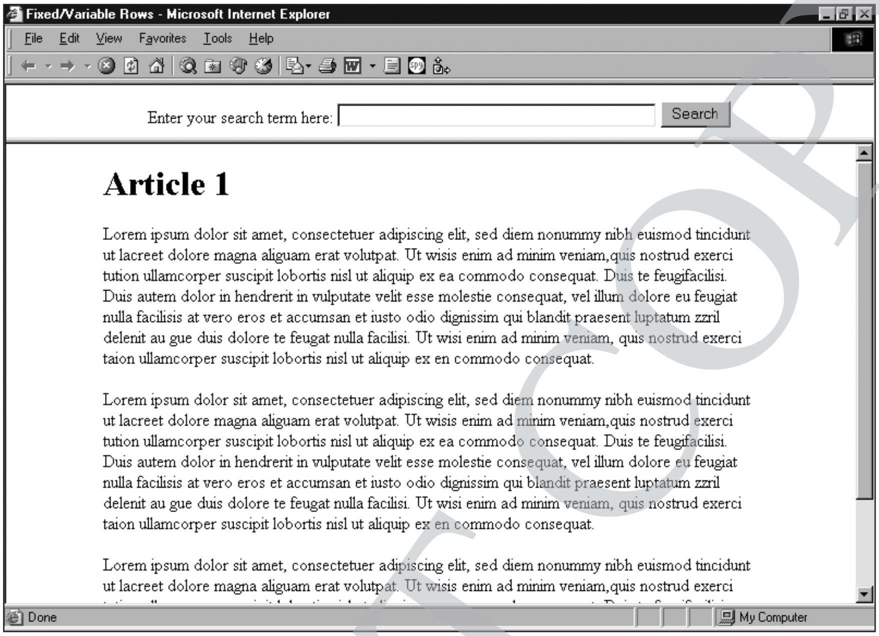
Figure 19 Sample frameset at 800 × 600 resolution

The left frame is fixed at 125 pixels. The only difference in the higher resolution is that the scroll bar no longer appears in the left frame. The right column still has centered content with white space on both sides of the text. Because the table in the right frame is variable, it adjusts to the new screen resolution.

If you are building a row frameset, you can use this combined fixed and variable coding method. Set one row to a fixed width and let the second row default to the remainder of the browser canvas, as shown in the following code:

```
<html>
<head>
<title>Fixed/Variable Rows</title>
</head>
<frameset rows="50,*">
<frame src="search.htm" scrolling="no" />
<frame src="article1.htm" />
</frameset>
</html>
```

This code creates the page shown in Figure 20.


Fixed/Variable Rows - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Done
My Computer

Enter your search term here: Search

Article 1

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Figure 20 Fixed top row, variable second row

The top row is 50 pixels high. The second row fills the browser window regardless of screen resolution.

A final example of the fixed/variable method is a common three-row frameset. In this set the top and bottom rows contain navigation, while the middle row contains content. The top and bottom rows are fixed and the middle row is variable. Here is the code:

```
<html>
<head>
<title>Fixed/Variable Rows</title>
</head>
<frameset rows="50,*,35">
<frame src="search.htm" scrolling="no" />
<frame src="article1.htm" name="main" />
<frame src="botmnav.htm" scrolling="no" />
</frameset>
</html>
```

Figure 21 shows this frameset.

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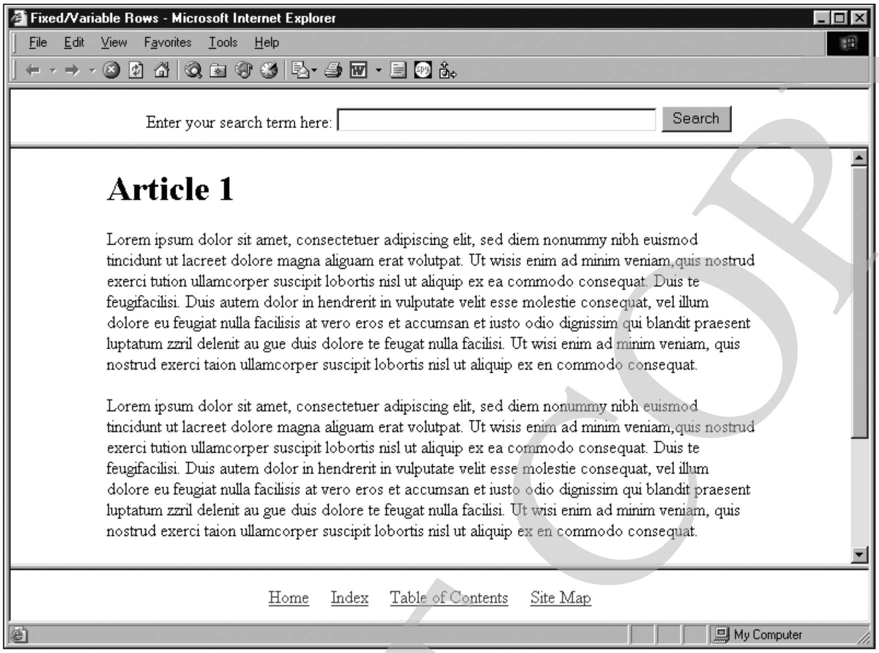
Fixed/Variable Rows - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Search
Home Index Table of Contents Site Map
My Computer

Enter your search term here:

Article 1

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Figure 21 Three-row frameset with variable middle row

Working with Framesets

In this set of steps you will build a frameset that contains links to a small web of pages. The frameset will include a navigation and content frame, with the links targeted from one window to another within the frameset.

To build the frameset:

1. Copy the following files from the Online Companion Web site:
   - frame.htm
   - hot.htm
   - new.htm
   - navigate.htm
   - info.htm
   - order.htm
   - welcome.htm
2. Save the files to your work folder using the same filenames.

3. Start Notepad or another text editor and open the file **frame.htm**. It contains the following code:

```
<html>
<head>
<title>Frameset Practice</title>
</head>

</html>
```

4. Add the <frameset> element, defining a frameset with two columns. Set the left column to 140 pixels and the right column to 80%, as shown in shaded text in the following code:

```
<html>
<head>
<title>Frameset Practice</title>
</head>
<frameset cols="140, 80%">

</frameset>
</html>
```

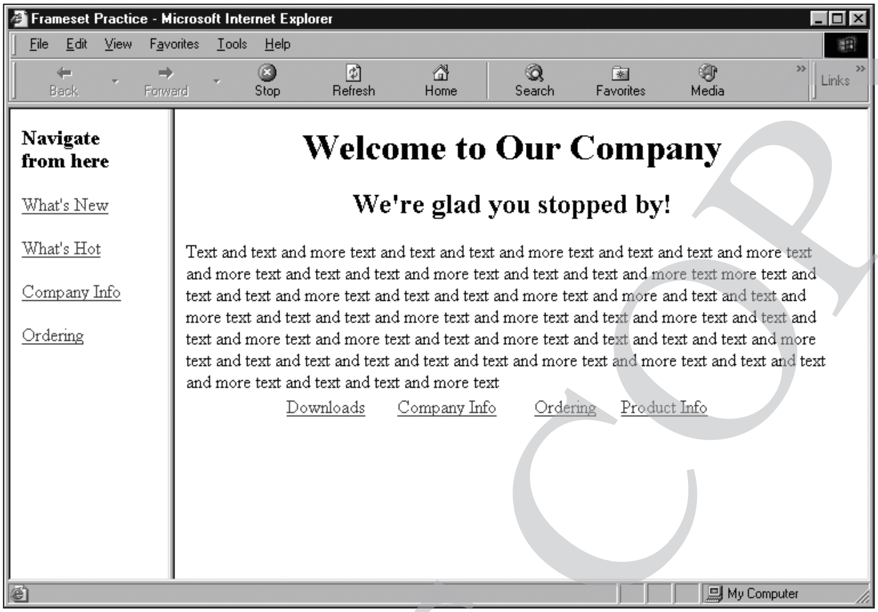
5. Add the first <frame> element, with a src attribute that selects the file navigate.htm.

```
<html>
<head>
<title>Frameset Practice</title>
</head>
<frameset cols="140, 80%">
<frame src="navigate.htm" />
</frameset>
</html>
```

6. Add the second <frame> element, with a src attribute that selects the file welcome.htm.

```
<html>
<head>
<title>Frameset Practice</title>
</head>
<frameset cols="140, 80%">
<frame src="navigate.htm" />
<frame src="welcome.htm" />
</frameset>
</html>
```

7. Save the file and view it in the browser. It should look like Figure 22.


Frameset Practice - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media Links
My Computer

Navigate from here

What's New

What's Hot

Company Info

Ordering

Welcome to Our Company

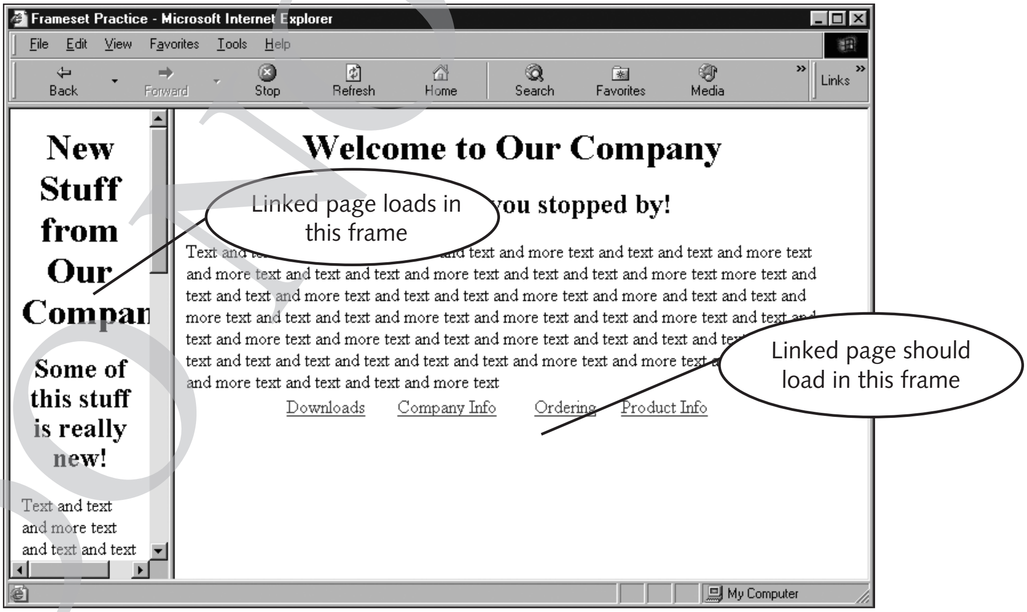
We're glad you stopped by!

Text and text and more text and text and text and more text and text and text and more text and more text and text and text and more text and text and text and more text more text and text and text and more text and text and text and more text and more and text and text and more text and text and text and more text and more text and text and more text and text and text and more text and more text and text and more text and text and text and more text and text and text and text and text and text and more text and more text and text and text and more text and text and text and more text

Downloads Company Info Ordering Product Info

Figure 22 The practice frameset

8. Test the links in the navigation frame. When you click a link, the page loads to the default window rather than the content window, as shown in Figure 23.


Frameset Practice - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media Links
My Computer

New Stuff from Our Compan

Some of this stuff is really new!

Text and text and more text and text and text

Welcome to Our Company

you stopped by!

Text and te text and more text and text and text and more text and more text and text and text and more text and text and text and more text more text and text and text and more text and text and text and more text and more and text and text and more text and text and text and more text and more text and text and more text and text and text and more text and more text and text and more text and text and text and more text and text and text and te text and text and text and text and text and text and more text and more text a and more text and text and text and more text

Downloads Company Info Ordering Product Info

Linked page loads in this frame

Linked page should load in this frame

Figure 23 Default linking behavior

9. Correct the linking behavior by adding targeting. In the file frame.htm, add names to the frames as shown in the following code, and then save the file.

   ```
   <html>
   <head>
   <title>Frameset Practice</title>
   </head>
   <frameset cols="140, 80%">
   <frame src="navigate.htm" name="navigate" />
   <frame src="welcome.htm" name="content" />
   </frameset>
   </html>
   ```

10. In Notepad or your text editor, open the file **navigate.htm** from your work folder. In the head section of the file add the <base> element with a target attribute that selects the content frame, as shown in the following code:

    ```
    <html>
    <head>
    <title>Navigator</title>
    <base target="content">
    </head>

    <body>

    <h3>Navigate<br>from here</h3>

    <p><a href="new.htm">What's New</a></p>

    <p><a href="hot.htm">What's Hot</a></p>

    <p><a href="info.htm">Company Info</a></p>

    <p><a href="order.htm">Ordering</a></p>

    </body>
    </html>
    ```

11. Save the file **navigate.htm**.

12. Open the file **frame.htm** in your browser. When you test the links in the navigation frame, the linked pages should display in the content frame, as shown in Figure 24.

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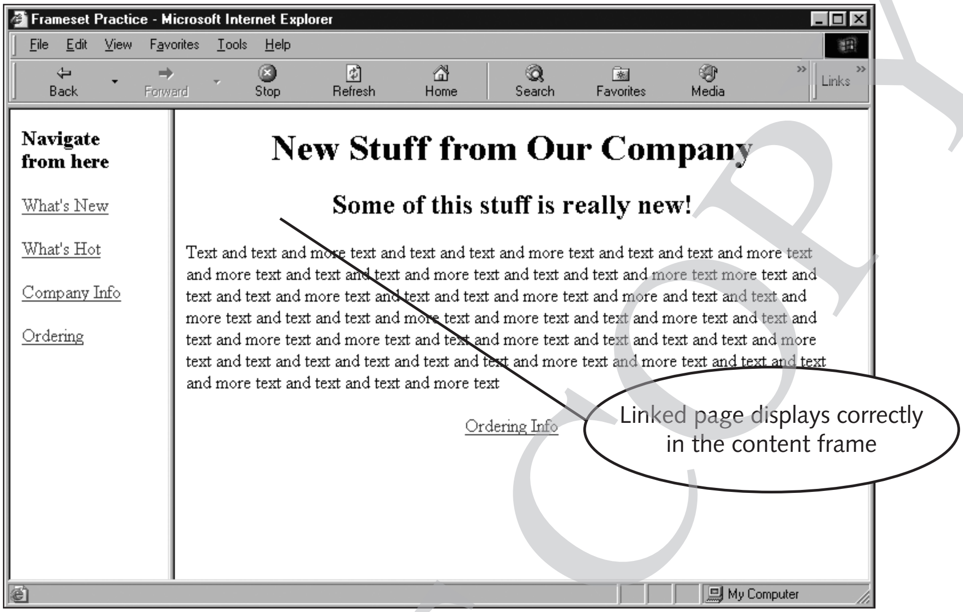
Joel Sklar
ISBN 0-619-21666-2


Frameset Practice - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Forward
Stop
Refresh
Home
Search
Favorites
Media
Links
My Computer

Navigate from here

What's New

What's Hot

Company Info

Ordering

New Stuff from Our Company

Some of this stuff is really new!

Text and text and more text and text and text and more text and text and text and more text and more text and text and text and more text and text and text and more text more text and text and text and more text and text and text and more text and more and text and text and more text and text and text and more text and more text and text and more text and text and text and more text and more text and text and more text and text and text and text and more text and text and text and text and text and text and more text and more text and text and text and more text and text and text and more text

Ordering Info

Linked page displays correctly in the content frame

Figure 24 The completed frameset

Chapter Summary

Using frames judiciously can enhance your Web site, allowing you to consistently display navigation information and content concurrently. Frames can be the right solution for specific information problems or for providing large collections of content. Keep the following in mind as you work with frames:

- Frames allow you to divide the browser window into independent windows, each displaying a separate Web page. Frames allow users to scroll in one frame without affecting the contents of an adjoining frame. This is an ideal way to present large quantities of information that are hard to navigate using the traditional single-page browser display.
- Although frames offer a number of benefits, you should use them judiciously. Make sure that your content benefits from the use of frames, and build simple framesets with no more than two or three frames.
- Frames present drawbacks that you need to consider before organizing your content with frames. These drawbacks include the inability to bookmark pages, increased download times, potential navigation and visual confusion, and the inability of search engines to find framed documents.
- Because frameset documents have no content, they are not the best choice for the top-level page of your Web site. Consider using a standard Web page for the top level, and then link to your framed content.

- Frameset documents contain the code that assembles the frames and their contents. The <frameset> element is the container for the frameset code. Because frameset documents themselves have no actual content, they have no <body> element.
- <frame> is an empty element that determines the contents of each frame. The src attribute provides the location of the file that displays within the frame. Other attributes to the <frame> tag let you name the frame for targeting, specify whether frames have a scroll bar, and indicate whether the user can resize the frame.
- Use the <noframes> element to contain alternate information about your Web site for users with browsers that cannot display frames.
- You can designate one frame that displays unchanging information while the contents of a second frame change based on the user's choice. By default, a link loads into the same frame from which it was selected. You can change this default behavior and target the destination of a link to another frame in the frameset. To target from one frame to another, you first must name your frames using the name attribute in the <frame> element, and then target links to display their content in the named frame.
- Use special target names to solve unique design problems, favoring _top over _blank whenever possible.
- Frameset display is affected by the base screen resolution you use to code your framed pages. Decide on the lowest common denominator screen resolution that will display the frameset effectively. You also can build framesets using a combination of fixed and variable frame widths to accommodate different screen resolutions.
- Test your work. Different browsers and screen resolutions may affect the look of your framesets.

Review Questions

1. What is the main benefit of using frames?
2. Why do framesets add to initial download time?
3. Name two ways in which frames might confuse users.
4. Why do search engines have problems with framesets?
5. What are the two attributes you use to structure the look of a frameset?
6. How does the order of the <frame> element within the <frameset> affect the display of the frameset?
7. What is the purpose of the <noframes> element?
8. What is the benefit of the noresize attribute?
9. What is the default setting for the scrolling attribute?
10. List the correct attributes to the <frameset> element that will remove the frame borders in both Netscape Navigator and Internet Explorer.

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11. What are the two tasks you must perform to add targeting to a frameset?
12. Which element lets you set a default target for all links in a document?
13. List the four special target names.
14. Are target names case-sensitive?
15. Which special target name is the default behavior for links in a frameset?
16. What is the major drawback of the _blank special target name?
17. How can you control the display of content within a frameset?
18. What additional browser elements can affect the display of your frameset?
19. How can you accommodate frameset display at varying screen resolutions?

Hands-on Projects

HANDS-ON PROJECTS

1. Browse the Web for a mainstream Web site that you think effectively uses frames.
   a. Test the site at different resolutions.
   b. Test the site in at least two different browsers.
   c. Navigate the site and judge the effectiveness of the navigation and content presentation.
   d. Write a summary of your findings.
2. Browse the Web for a framed mainstream Web site that you think would benefit from not using frames.
   a. Test the Web site at different resolutions.
   b. Test the Web site in at least two different browsers.
   c. Navigate the Web site and judge the effectiveness of the navigation and content presentation.
   d. Write a design critique and suggest ways in which the Web site could be redesigned without using frames.
3. Visit the *Principles of Web Design* Online Companion Web site and download some of the sample frame content files.
   a. Build a two-column frameset that contains a fixed left navigation frame and a variable right content frame.
   b. Target all of the links in the left frame to the right content frame.
   c. Restrict the user's ability to resize the frames.
   d. Test your work in different browsers and at different resolutions.

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4. Visit the *Principles of Web Design* Online Companion Web site and download some of the sample frame content files.
   a. Build a two-row frameset that contains a fixed top navigation frame and a variable bottom content frame.
   b. Target all of the links in the top frame to the bottom content frame.
   c. Completely remove the frame borders.
   d. Test your work in different browsers and at different resolutions.
5. Visit the *Principles of Web Design* Online Companion Web site and download some of the sample frame content files.
   a. Build a simple two-row or two-column frameset, or use one of the framesets from Project 3 or 4. Add links to your navigation frame that point to live Web sites.
   b. Add a special target name that will load the linked Web sites into a new browser window.
   c. Test the links and view the browser's behavior.
   d. Test the results in different browsers.
6. Visit the *Principles of Web Design* Online Companion Web site and download some of the sample frame content files.
   a. Build a simple two-row or two-column frameset, or use one of the framesets from Project 3 or 4. Add links to your navigation frame that point to live Web sites.
   b. Add a special target name that will load the linked Web sites at the top level of the existing browser window.
   c. Test the links and view the browser's behavior.
   d. Test the results in different browsers.

CASE PROJECT

CASE PROJECTS

Determine whether frames will enhance the effectiveness of your Web site and presentation of your content. Write a design summary that states how your Web site would benefit from the use of frames, and include a sketch of the structure and navigation of your proposed framed Web site. Discuss targeting behavior and how you would handle links to sites outside of your own. Discuss whether you would have a framed page or standard Web page for the top-level page of your Web site.

If you determine that your Web site would benefit from frames, build a test frameset. Include some sample content pages. Test your frameset at different resolutions and in different browsers. If the testing shows positive results, adopt the frameset for your completed Web site.

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