

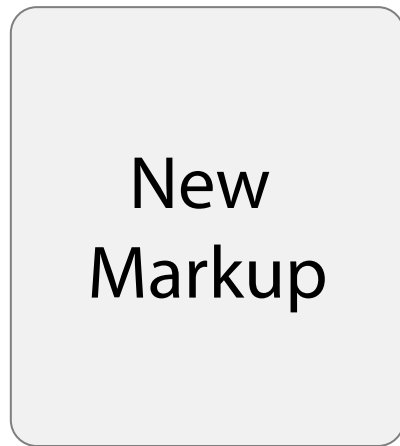
What is HTML5?

Related Technologies

W3C HTML5 Specification

Initial WHATWG HTML5 Specification

What is HTML5?



+



=



New Elements

article

aside

audio

bdi

canvas

datalist

details

embed

figcaption

figure

footer

header

main

math

mark

meter

nav

output

progress

section

source

summary

svg

time

track

video

wbr

article



```
<article></article>
```

aside



```
<aside></aside>
```

audio
source
track



```
<video>  
  <source src="vid.mp4">  
  <source src="vid.ogv">  
  <source src="vid.webm">  
  <track  
    kind="subtitles"  
    label="English Subtitles"  
    src="en.vtt"  
    srclang="en">  
</video>
```

canvas



```
<canvas></canvas>
```

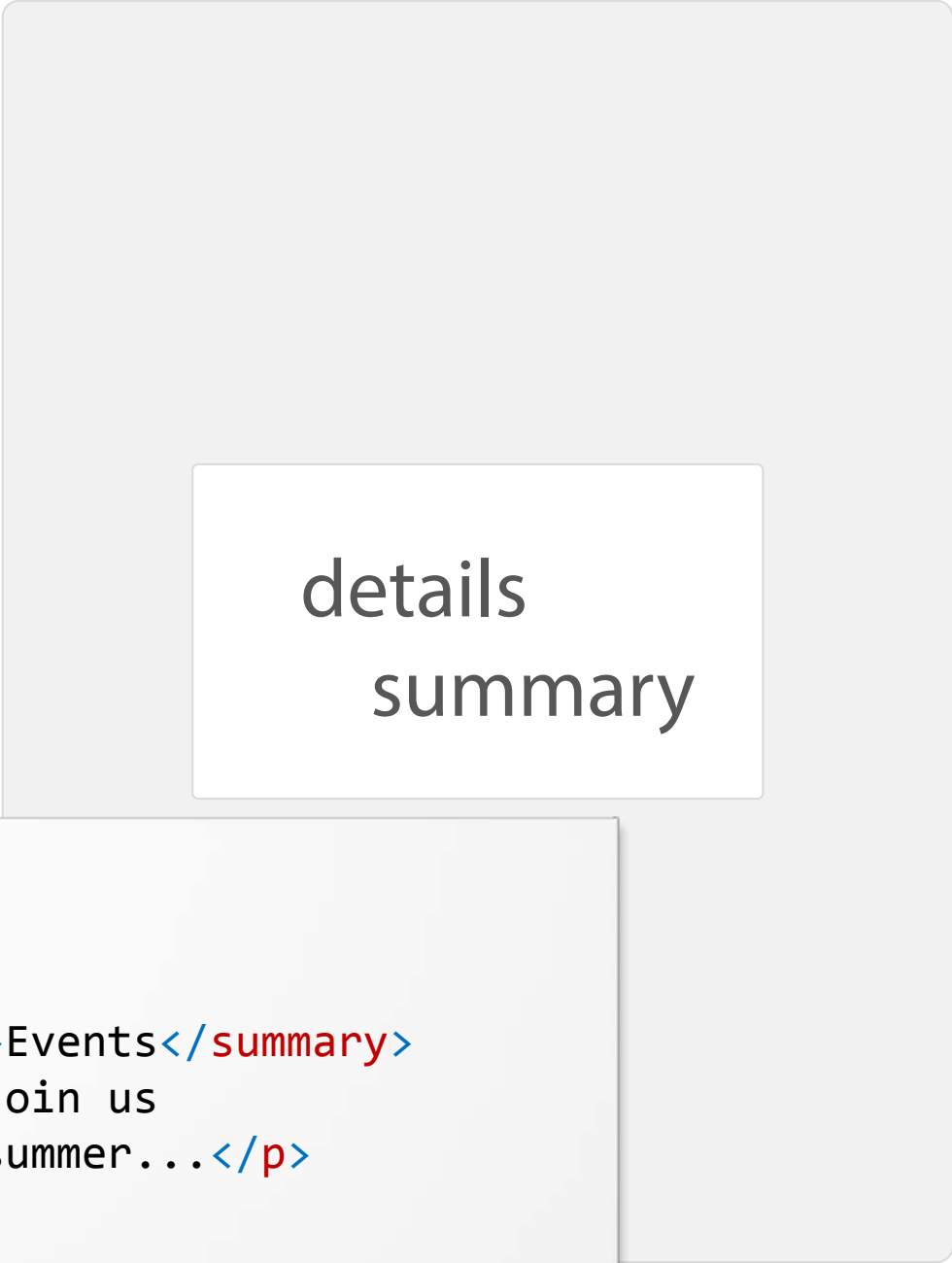


The diagram consists of a large light gray rounded rectangle in the background. In the foreground, there is a smaller light gray rounded rectangle on the left containing HTML code. To its right is a white rounded rectangle with the word 'datalist' in black text. On the far left, there is a dark gray code icon (</>).

datalist



```
<input
  type="text"
  list="colors">
<datalist id="colors">
  <option src="Blue">
  <option src="White">
</datalist>
```

details
summary



```
<details>  
  <summary>Events</summary>  
  <p>Come join us  
    this summer...</p>  
</details>
```

figure
figcaption



```
<figure>  
    
</figure>  
<figcaption>  
  Screenshot of Menu  
</figcaption>
```

header



```
<header></header>  
<footer></footer>
```

main



```
<main></main>
```



meter



```
<meter  
  min="0"  
  max="100"  
  value="70">70 out of 100</meter>
```



nav



```
<nav></nav>
```

output



```
<output></output>
```

progress



```
<progress  
  value="50"  
  max="0"></progress>
```



section



```
<section></section>
```

time



```
<time  
  datetime="2013-07-08T13:25:23-8:00"  
  pubdate>  
  July 7th, 2013  
</time>
```

New Elements

article

aside

audio

bdi

canvas

datalist

details

embed

figcaption

figure

footer

header

main

math

mark

meter

nav

output

progress

section

source

summary

svg

time

track

video

wbr

New Elements

article

aside

audio

bdi

canvas

datalist

details

embed

figcaption

figure

footer

header

main

math

mark

meter

nav

output

progress

section

source

summary

svg

time

track

video

wbr

New JavaScript APIs

New JavaScript APIs

Canvas

New JavaScript APIs

Canvas

Contacts

New JavaScript APIs

Canvas

Contacts

File API

New JavaScript APIs

Canvas

Contacts

File API

Forms

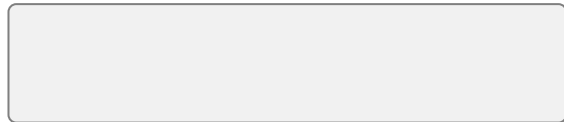
New JavaScript APIs

Canvas

Contacts

File API

Forms



New

Can

Cont

File

For

Geolo

Can I use... Support tables x

caniuse.com/#search=indexeddb

☆

☰

Can I use...

Compatibility tables for support of HTML5, CSS3, SVG and more in desktop and mobile browsers.

Search: indexeddb X

1 result found

Index

Tables

Import stats

FAQ

Resources

Embed

Compatibility tables

Browser comparison

Show options

Supported

Not supported

Partially supported

Support unknown

IndexedDB - Working Draft

Method of storing data client-side, allows indexed database queries. Previously known as WebSimpleDB API.

*Usage stats:

Global

Support: 57.71%

Partial support: 2.8%

Total: 60.51%

Show all versions

	IE	Firefox	Chrome	Safari	Opera	iOS Safari	Opera Mini	Android Browser	BlackBerry Browser
								2.1	
								2.2	
						3.2		2.3	
						4.0-4.1		3.0	
						4.2-4.3		4.0	
	8.0					5.0-5.1		4.1	7.0
Current	10.0	21.0	26.0	5.1	15.0	6.0-6.1	5.0-7.0	4.2	10.0 webkit
Near future	11.0	23.0	28.0	7.0		7.0			
Farther future		24.0	29.0						

Notes

Known issues (1)

Resources (5)

Feedback

Edit on GitHub

Partial support in BB10 refers to an outdated specification being implemented. Code targeting the current state of the specification might not work.

New JavaScript APIs

Canvas

IndexedDB

Contacts

Media Capture

File API

Forms

Geolocation

New JavaScript APIs

Canvas

IndexedDB

Contacts

Media Capture

File API

Microdata

Forms



New JavaScript APIs

Canvas

IndexedDB

Contacts

Media Capture

File API

Microdata

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Messaging

Geolocation

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Canvas

IndexedDB

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Media Capture

File API

Microdata

Forms

Messaging

Geolocation

Offline Web Applications

New JavaScript APIs

Canvas

IndexedDB

Selection

Contacts

Media Capture

File API

Microdata

Forms

Messaging

Geolocation

Offline Web Applications

New JavaScript APIs

Canvas

IndexedDB

Selection

Contacts

Media Capture

Server-Sent Events

File API

Microdata

Forms

Messaging

Geolocation

Offline Web Applications

New JavaScript APIs

Canvas

IndexedDB

Selection

Contacts

Media Capture

Server-Sent Events

File API

Microdata

Web Notifications

Forms

Messaging

Geolocation

Offline Web Applications

New JavaScript APIs

Canvas

IndexedDB

Selection

Contacts

Media Capture

Server-Sent Events

File API

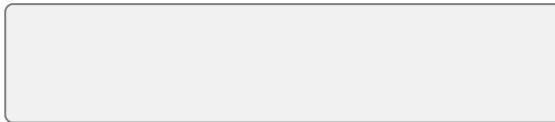
Microdata

Web Notifications

Forms

Messaging

Web Sockets



New JavaScript APIs

Canvas

IndexedDB

Selection

Contacts

Media Capture

Server-Sent Events

File API

Microdata

Web Notifications

Forms

Messaging

Web Sockets

Web Storage

New JavaScript APIs

Canvas

IndexedDB

Selection

Contacts

Media Capture

Server-Sent Events

File API

Microdata

Web Notifications

Forms

Messaging

Web Sockets

Offline Web Applications

Web Storage

New JavaScript APIs

Canvas

IndexedDB

Selection

Contacts

Media Capture

Server-Sent Events

File API

Microdata

Web Notifications

Forms

Messaging

Web Sockets

Geolocation

Offline Web Applications

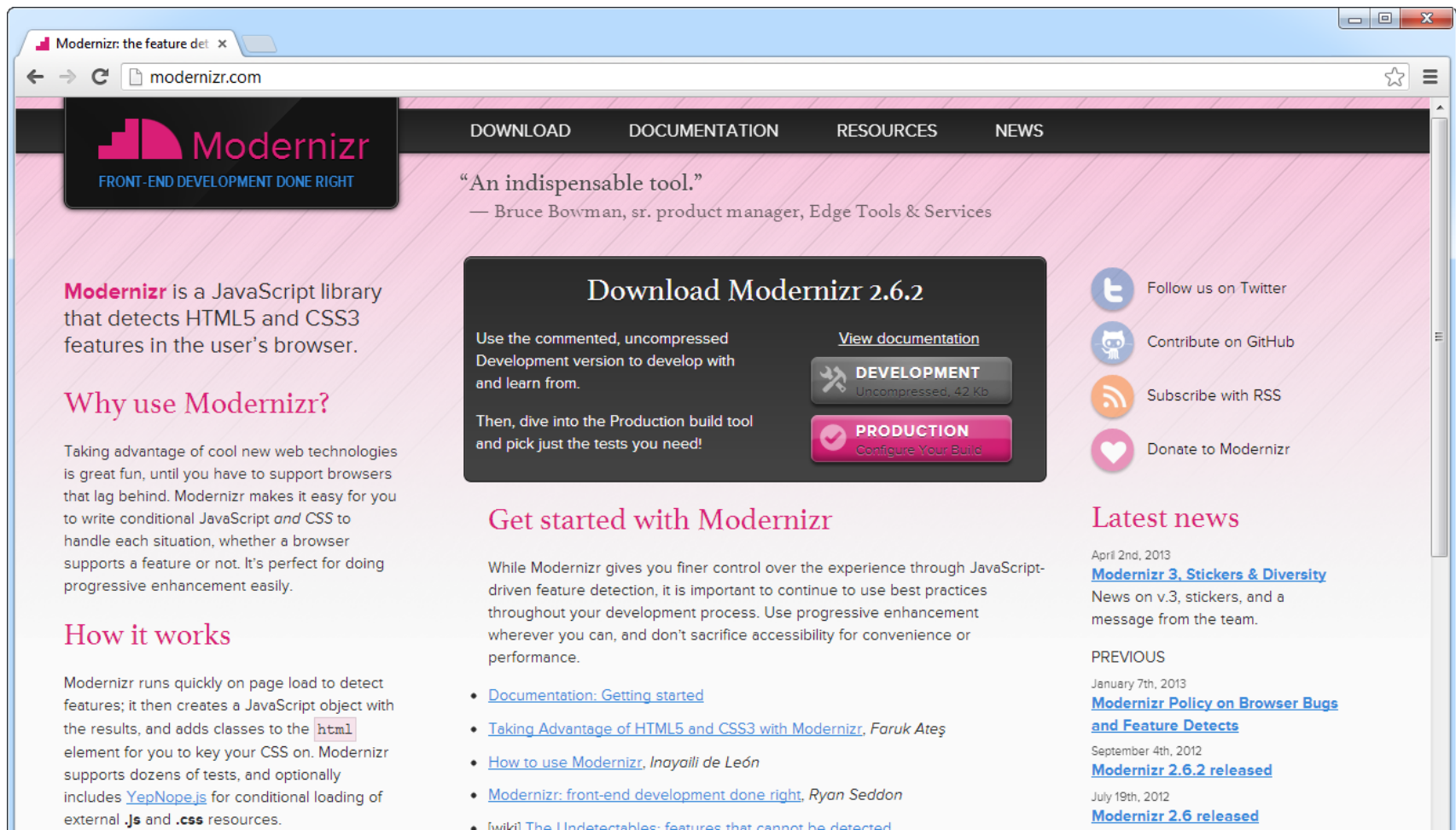
Web Storage

Web Workers

XMLHttpRequest Level 2

Markup

Detecting HTML5



The screenshot shows the Modernizr website in a browser window. The browser's address bar displays 'modernizr.com'. The website has a dark header with the Modernizr logo and navigation links: 'DOWNLOAD', 'DOCUMENTATION', 'RESOURCES', and 'NEWS'. The main content area is light pink with diagonal lines. On the left, there's a section titled 'Modernizr' with a sub-header 'FRONT-END DEVELOPMENT DONE RIGHT'. Below this, it explains that Modernizr is a JavaScript library for detecting HTML5 and CSS3 features. A 'Why use Modernizr?' section follows, highlighting its role in progressive enhancement. The 'How it works' section describes the process of detecting features and applying CSS classes. In the center, a dark box promotes 'Download Modernizr 2.6.2', offering both a 'DEVELOPMENT' version (commented, uncompressed) and a 'PRODUCTION' build tool. To the right, social media links for Twitter, GitHub, RSS, and a donation button are listed. The 'Latest news' section on the far right provides updates from April 2nd, 2013, to July 19th, 2012.

Modernizr: the feature det x

modernizr.com

Modernizr
FRONT-END DEVELOPMENT DONE RIGHT

DOWNLOAD DOCUMENTATION RESOURCES NEWS

“An indispensable tool.”
— Bruce Bowman, sr. product manager, Edge Tools & Services

Modernizr is a JavaScript library that detects HTML5 and CSS3 features in the user's browser.

Why use Modernizr?

Taking advantage of cool new web technologies is great fun, until you have to support browsers that lag behind. Modernizr makes it easy for you to write conditional JavaScript and CSS to handle each situation, whether a browser supports a feature or not. It's perfect for doing progressive enhancement easily.

How it works

Modernizr runs quickly on page load to detect features; it then creates a JavaScript object with the results, and adds classes to the `html` element for you to key your CSS on. Modernizr supports dozens of tests, and optionally includes [YepNope.js](#) for conditional loading of external `.js` and `.css` resources.

Download Modernizr 2.6.2

Use the commented, uncompressed Development version to develop with and learn from. [View documentation](#)

DEVELOPMENT
Uncompressed, 42 Kb

Then, dive into the Production build tool and pick just the tests you need!

PRODUCTION
Configure Your Build

Get started with Modernizr

While Modernizr gives you finer control over the experience through JavaScript-driven feature detection, it is important to continue to use best practices throughout your development process. Use progressive enhancement wherever you can, and don't sacrifice accessibility for convenience or performance.

- [Documentation: Getting started](#)
- [Taking Advantage of HTML5 and CSS3 with Modernizr](#), Faruk Ateş
- [How to use Modernizr](#), Inayaili de León
- [Modernizr: front-end development done right](#), Ryan Seddon
- [\[wiki\] The Undetectables: features that cannot be detected](#)

Latest news

April 2nd, 2013
[Modernizr 3, Stickers & Diversity](#)
News on v.3, stickers, and a message from the team.

PREVIOUS

January 7th, 2013
[Modernizr Policy on Browser Bugs and Feature Detects](#)

September 4th, 2012
[Modernizr 2.6.2 released](#)

July 19th, 2012
[Modernizr 2.6 released](#)

Follow us on Twitter

Contribute on GitHub

Subscribe with RSS

Donate to Modernizr

New Input Elements

color

datalist

date

datetime

datetime-local

email

month

number

range

search

tel

time

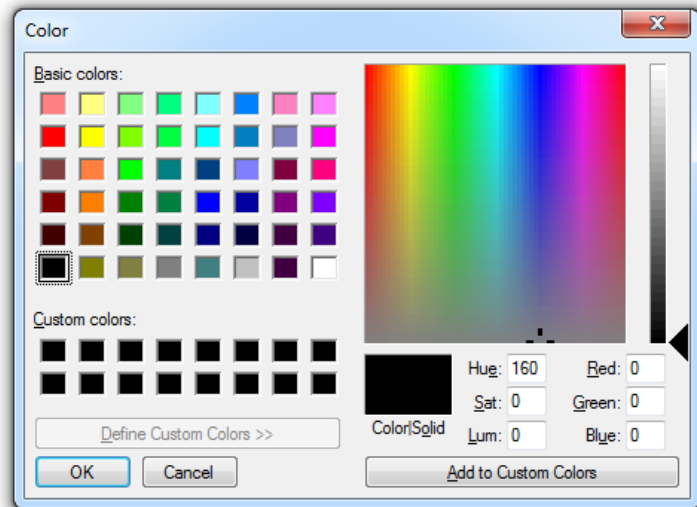
url

week

```
<input type="text" />
```

Color

```
<input type="color" />
```



Datalist

```
<label for="colors-box">Colors:</label><br/>
<input id="colors-box" list="colors" />
<datalist id="colors">
  <option value="Blue" />
  <option value="Red" />
  <option value="Yellow" />
  <option value="Orange" />
  <option value="White" />
</datalist>
```

Colors:

Blue
Red
Yellow
Orange
White

Date

```
<input type="date" />
```

mm/dd/yyyy

July, 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	1	2	3

Time

```
<input type="time" />
```

06:02 AM x

Datetime

```
<input type="datetime" />
```

2013-07-07 12:07 UTC

July 2013						
Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

Today

Datetime-local

```
<input type="datetime-local" />
```

2013-07-07 12:07 UTC

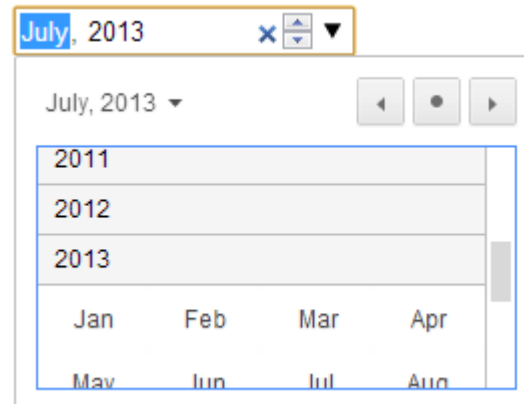
July 2013

Mon	Tue	Wed	Thu	Fri	Sat	Sun
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4
5	6	7	8	9	10	11

Today

Month

```
<input type="month" />
```



The image shows a web browser interface with a date picker. The top part of the picker shows "July, 2013" with a close button (X) and a dropdown arrow. Below this, there are navigation buttons: a left arrow, a center dot, and a right arrow. The main part of the picker is a list of years: 2011, 2012, and 2013. Below the years, there is a grid of months: Jan, Feb, Mar, Apr, May, Jun, Jul, and Aug. The year 2013 is currently selected, and the month of July is highlighted in the grid.

Week

```
<input type="week" />
```

Week 28, 2013

July, 2013

Week	Sun	Mon	Tue	Wed	Thu	Fri	Sat
27	30	1	2	3	4	5	6
28	7	8	9	10	11	12	13
29	14	15	16	17	18	19	20
30	21	22	23	24	25	26	27
31	28	29	30	31	1	2	3

Email, URL & Telephone

```
<input type="email" />  
<input type="url" />  
<input type="tel" />
```

Range

```
<input type="range" />
```



Number

```
<input type="number" />
```

Search

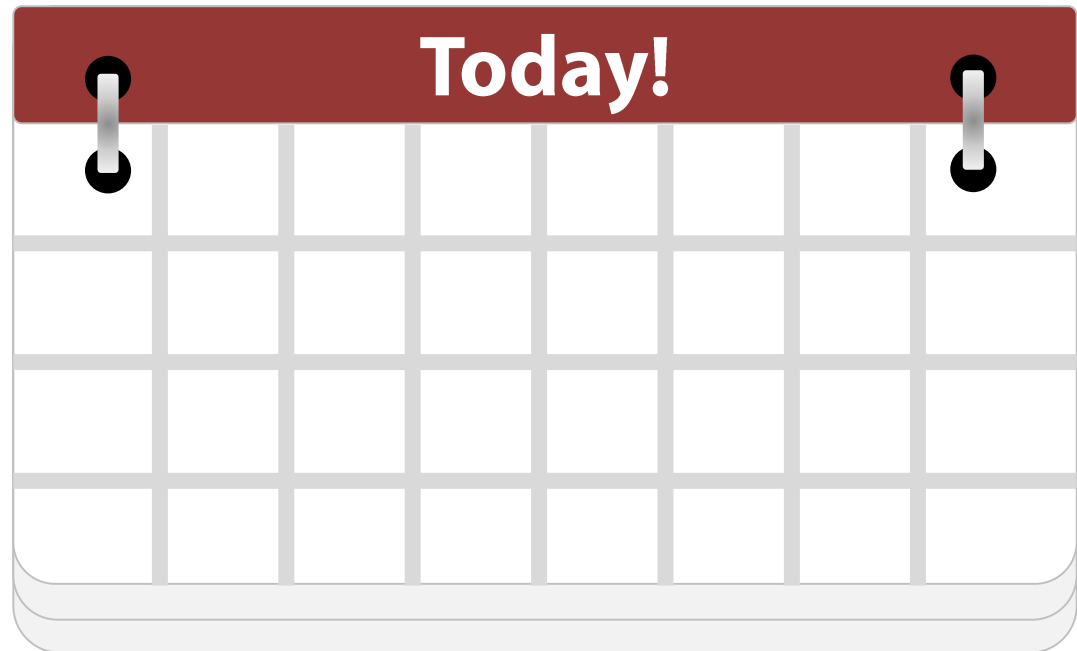
```
<input type="search" />
```

purple fuzzy ants



**When can I use these
elements?**

When can I use these elements?



Soft Keyboard: Text



Soft Keyboard: Number



Soft Keyboard: URL



Soft Keyboard: Email



Native Forms Validation

Change Email Address

The required user name may only be a series of alphabetical characters.

The required email address may not include any special characters other than the '@' sign.

Native Validation Rules

valueMissing

```
<input type="text" required value="" />
```

True if an element marked as required has an empty value.

typeMismatch

```
<input type="url" value="yellow submarine" />
```

True if the value of the element is not matched to the declared type.

patternMismatch

```
<input type="text" pattern="/^[A-z]+$/" value="1234" />
```

True when an element's value doesn't match against the regular expression in the `pattern` attribute.

tooLong

```
<input type="text" maxlength="3" value="hello" />
```

True when an element's value's length is longer than the `maxlength` attribute.

rangeUnderflow

```
<input type="range" min="3" max="5" value="0" />
```

True when an `range` element's value is smaller than the `min` attribute.

rangeOverflow

```
<input type="range" min="3" max="5" value="9" />
```

True when an `range` element's value is greater than the `max` attribute.

stepMismatch

```
<input type="range" min="5" max="20" step="5" value="8" />
```

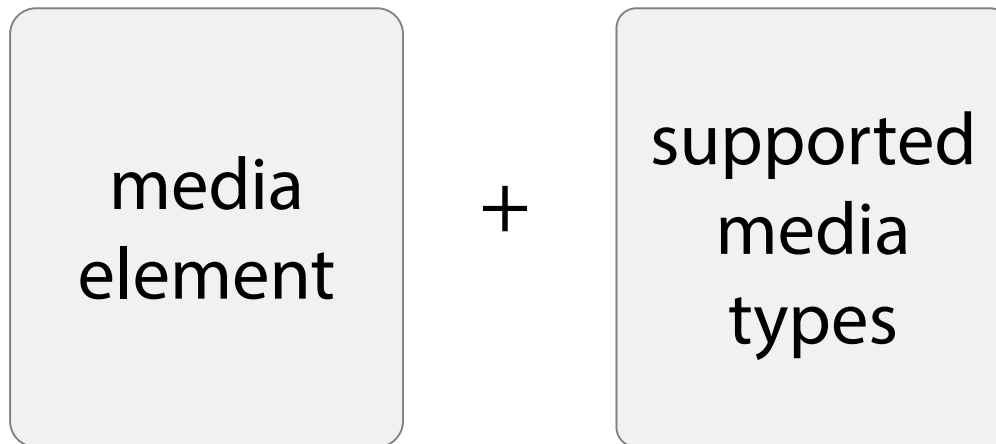
True when an `range` element's value is impossible given the `step` value.

valid

```
<input type="range" min="5" max="20" step="5" value="10" />
```

True when all other validation rules return false.

What is HTML5 Media?



Native Video Formats

WebM (VP8 & 9)

H.264 (MP4)

Ogg Theora



Video courtesy of: <http://www.bigbuckbunny.org/>

Native Audio Formats

WebM

AAC

WAV

MP3

Ogg Vorbis

Ogg Opus



Native Media Support



Volatile information....

Native Video Support

VP9 (WebM)	×	29.0 (nightly)	×	×	×
VP8 (WebM)	Manual Install	6.0 – 24.0	4.0	Depends	10.6
H.264 (MP4)	9.0	3.0	Depends	3.1	×
Ogg Theora	Manual Install	3.0	3.5	×	10.5
<div></div>					

Source: http://en.wikipedia.org/wiki/HTML5_video

No Common Format

Encode in multiple formats

Server Content Types

video/ogg .ogv

video/mp4 .mp4

video/webm .webm

Native Audio Support

Ogg Opus	✕	25	15.0	✕	14.0
WebM	✕	Yes	4.0	✕	10.6
AAC	9.0	Yes	21.0 (Windows only)	3.1	14.0
WAV	✕	✕	3.5	3.1	11.0
MP3	9.0	6.0	21.0 (Windows only)	3.1	14.0
Ogg Vorbis	✕	9.0	3.5	Yes	10.5
					

Sources: <http://bit.ly/12TvUjO>

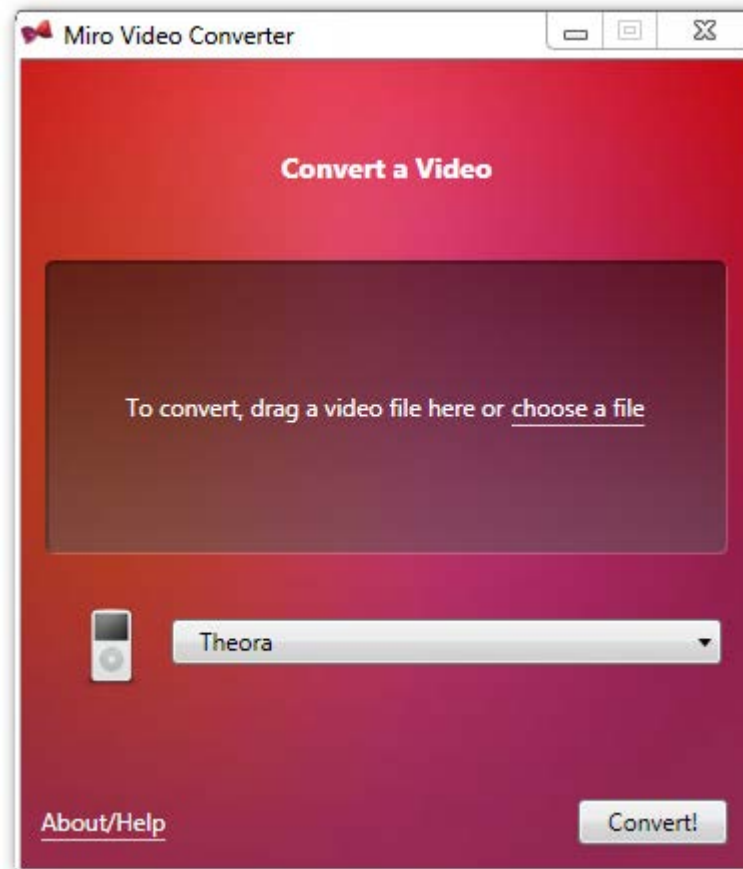
Native Audio Support

Ogg Opus	✕	25	15.0	✕	14.0
WebM	✕	Yes	4.0	✕	10.6
AAC	9.0	Yes	21.0 (Windows only)	3.1	14.0
WAV	✕	✕	3.5	3.1	11.0
MP3	9.0	6.0	21.0 (Windows only)	3.1	14.0
Ogg Vorbis	✕	9.0	3.5	Yes	10.5
					

Sources: <http://bit.ly/12TvUjO>

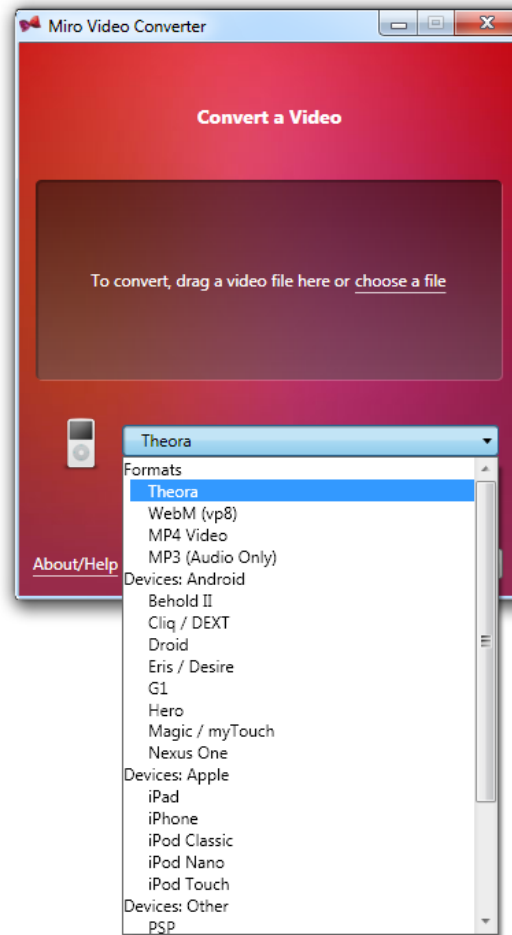
Encoding Media

Encoding Media

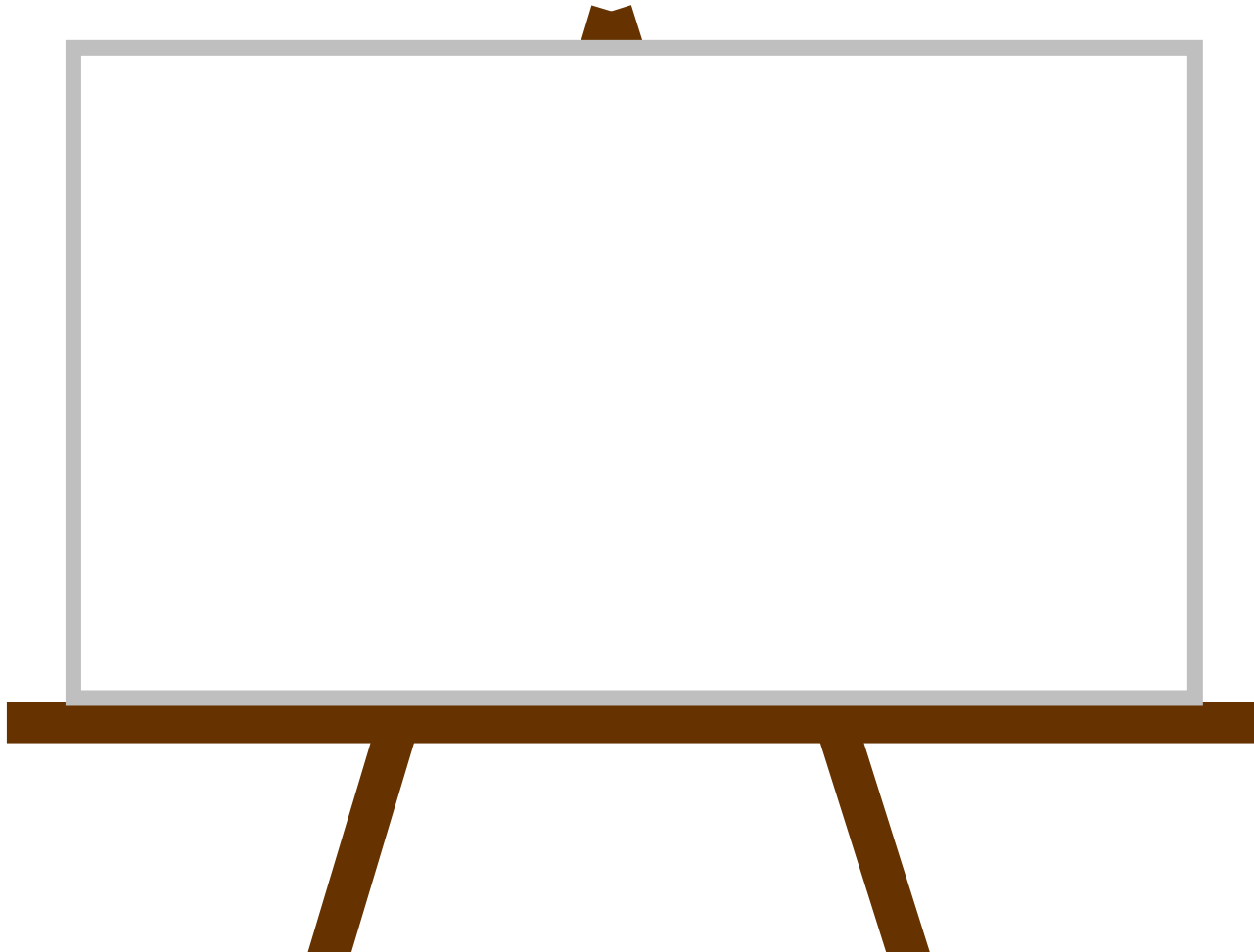


<http://mirovideoconverter.com/>

Encoding Media



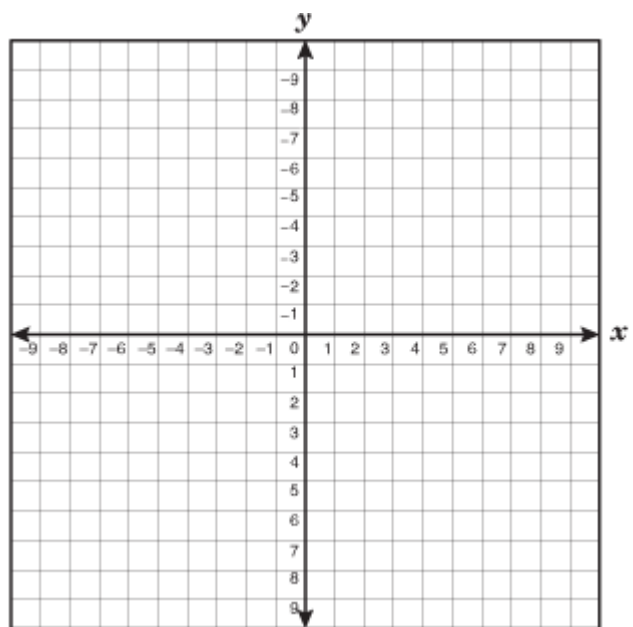
What is Canvas?

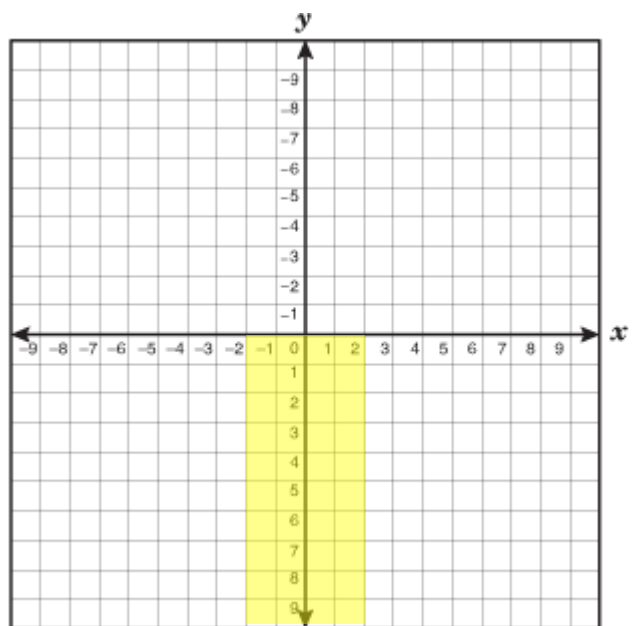


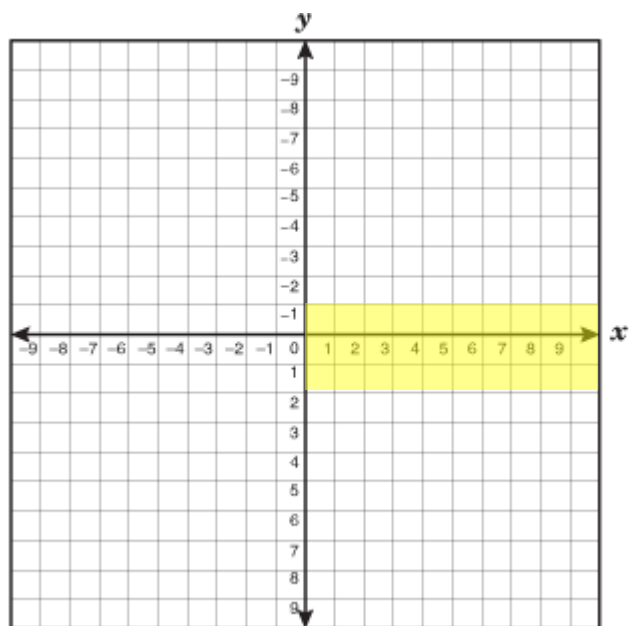
What is Canvas?

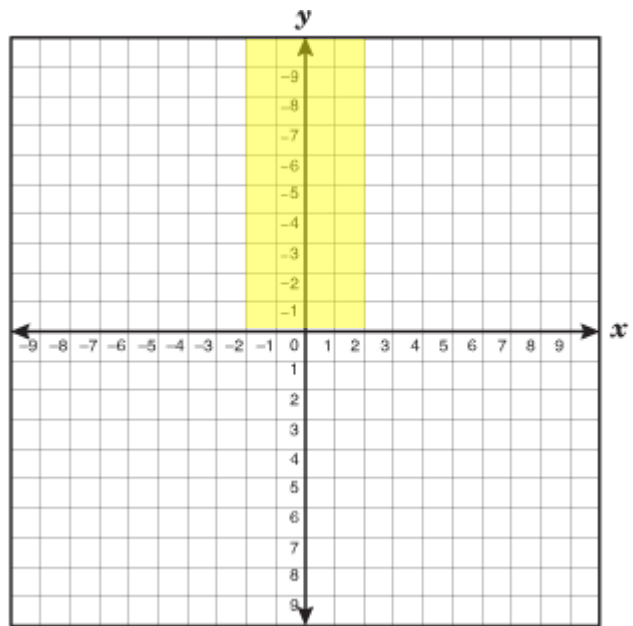


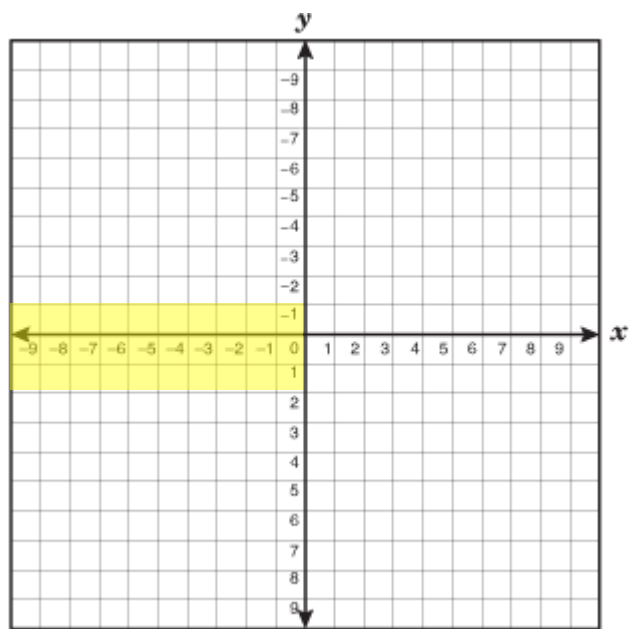
How Does it Work?

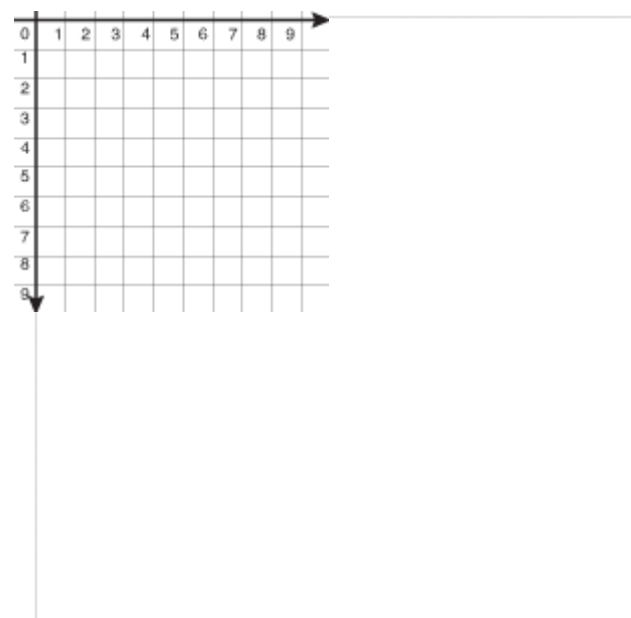


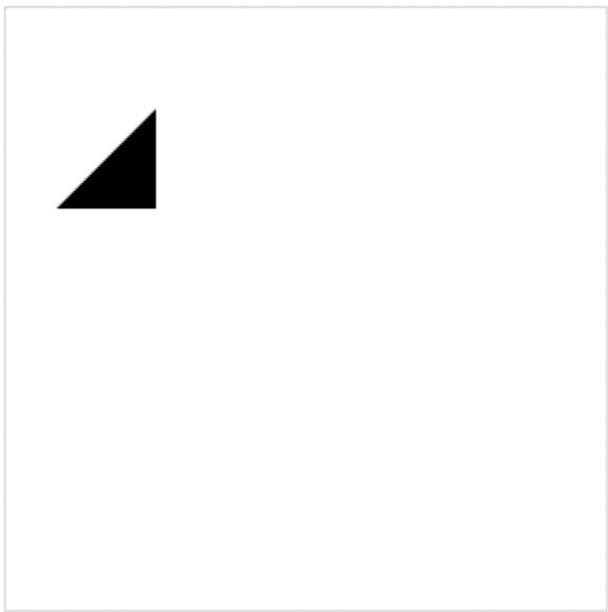









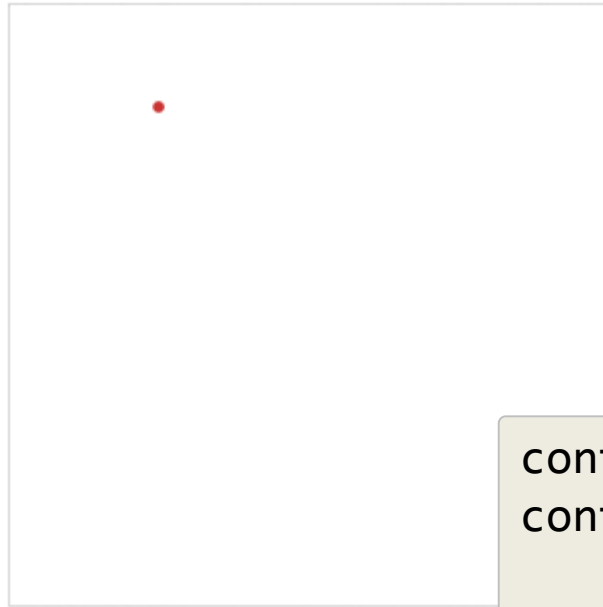




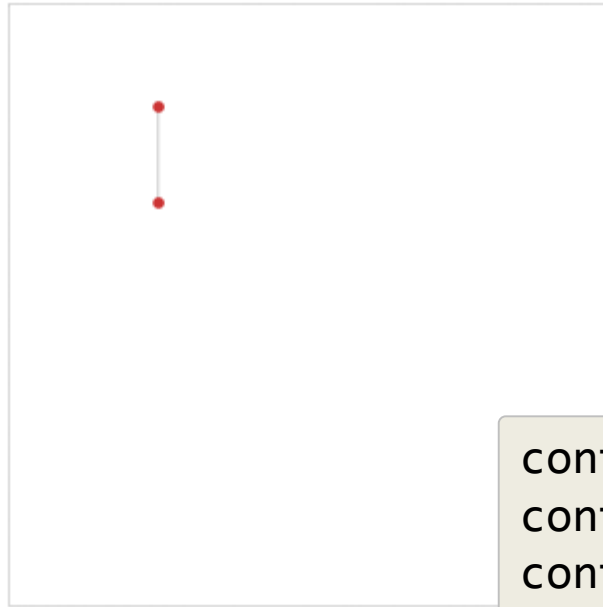


A diagram consisting of a large, empty rectangle on the left and a smaller, light beige rounded rectangle on the right. A thin vertical line connects the bottom-right corner of the large rectangle to the top-left corner of the smaller rectangle. The smaller rectangle contains the text 'context.beginPath();'.

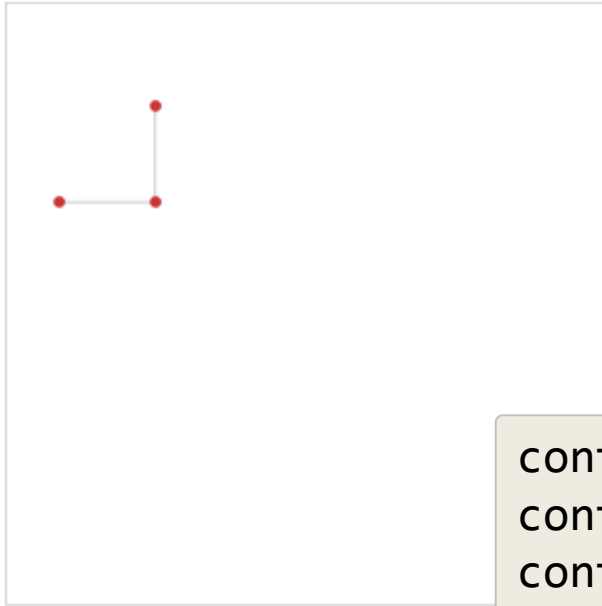
```
context.beginPath();
```



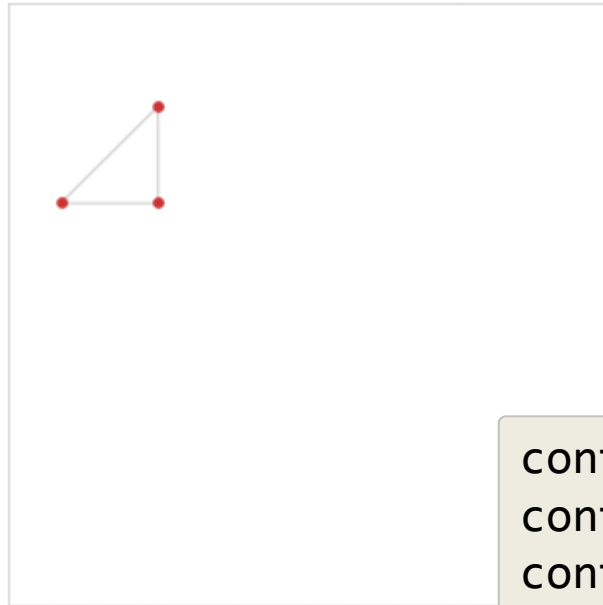
```
context.beginPath();  
context.moveTo(75, 50);
```



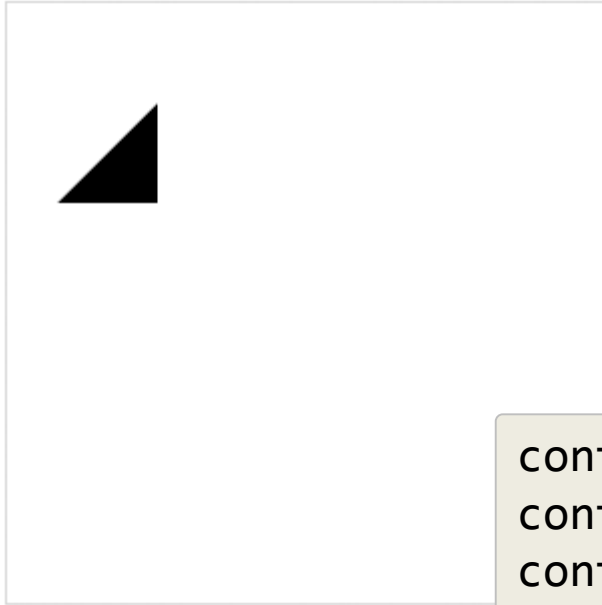
```
context.beginPath();  
context.moveTo(75, 50);  
context.lineTo(75, 100);
```

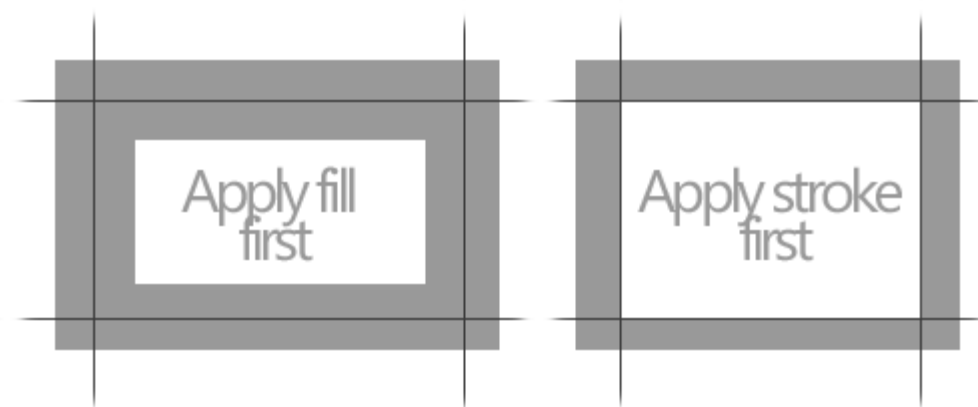
```
context.beginPath();  
context.moveTo(75, 50);  
context.lineTo(75, 100);  
context.lineTo(25, 100);
```



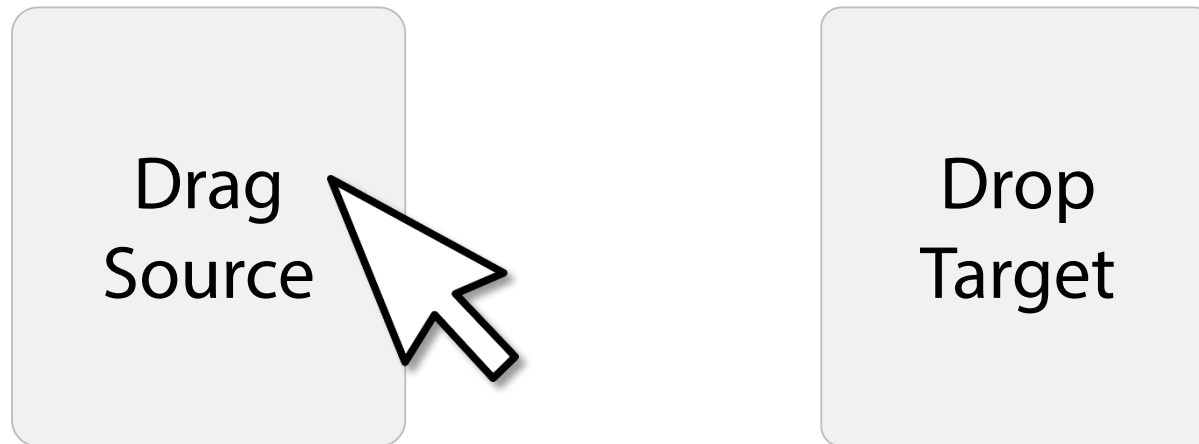
```
context.beginPath();  
context.moveTo(75, 50);  
context.lineTo(75, 100);  
context.lineTo(25, 100);  
context.fill();
```



```
context.beginPath();  
context.moveTo(75, 50);  
context.lineTo(75, 100);  
context.lineTo(25, 100);  
context.fill();
```



How Does it Work?



Cancel Default Behavior

to allow drop operations

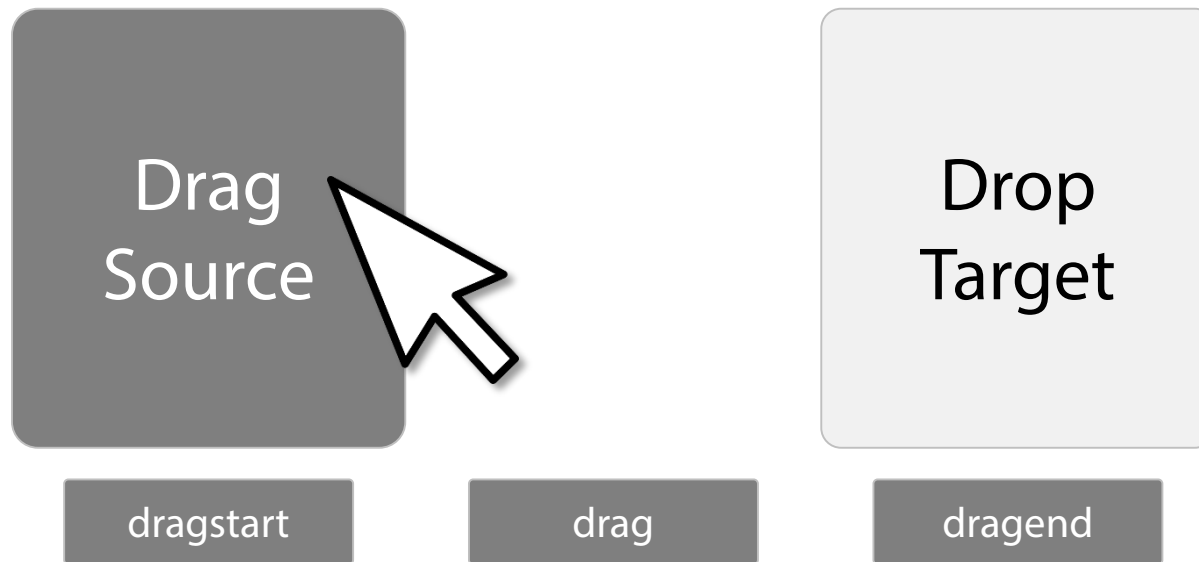
Events



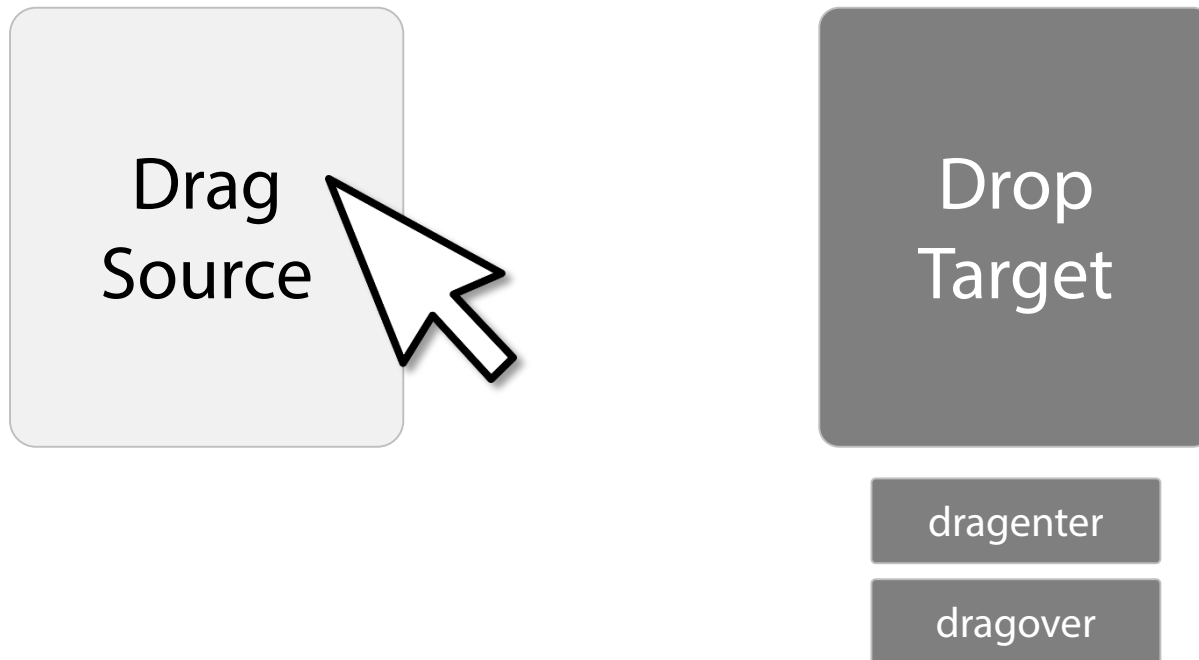
Events

Drag Source	Drop Target
dragstart	
drag	dragenter
	dragover
	dragleave
	drop
dragend	

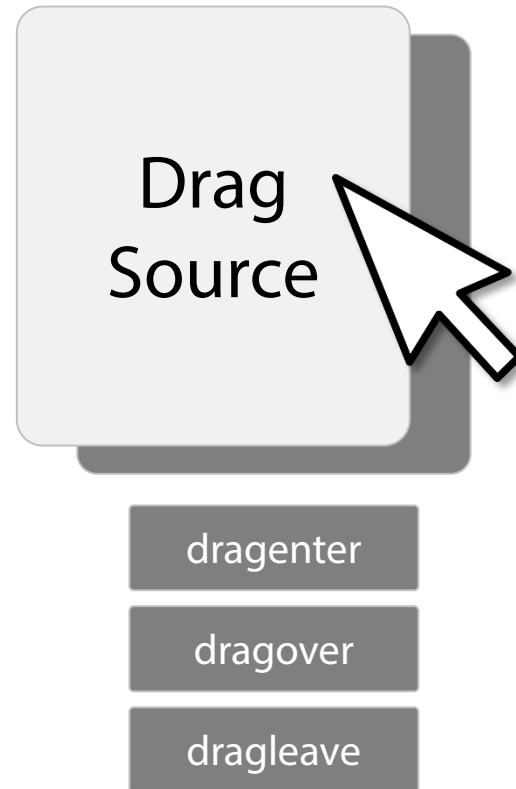
Events: Drag Source



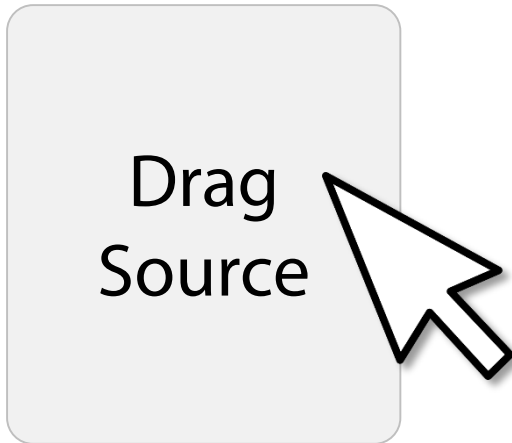
Events: Drop Target



Events: Drop Target



Events: Drop Target



dragenter

dragover

drop

dragstart

source

Fires on drag source as dragging begins.

drag source

Fires on drag source as dragging occurs.

dragend

source

Fires on drag source when dragging is complete.

dragenter

target

Fires on drop target when drag source enters its boundaries.



requires cancellation

dragover

Fires on drop target as drag source is being dragged inside its boundaries.



requires cancellation

dragleave

target

Fires on drop target when drag source is dragged outside the target's boundaries.

drop

target

Fires on drop target when the mouse button is released on the drag source while inside the target's boundaries.

Events

Drag Source	Drop Target
dragstart	
drag	dragenter
	dragover
	dragleave
	drop
dragend	