HTML Microdata Tutorial

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HTML Microdata Tutorial

<img src="/images/google-microdata.png" alt="Microdata example" style="width:338; height: 361; float: right"></img>
HTML tags provide for semantic markup of text primarily to make web documents more readable by human visitors. It is also possible to mark up structured data in HTML documents for special purposes that are not handled by the standard tags defined in the HTML specification. <dfn>Microdata</dfn> is an extension to HTML 5, also known as <dfn>HTML 5 with Microdata</dfn> that allows adding some additional structure to HTML documents.

These machine-readable properties can be processed by software searching for specific types of information. Some search engines, Google in particular, already support microdata in HTML 5 and use it to improve search engine results as shown in the results for the CBS, USA and The CW networks and the Nip/Tuck TV Series in the image on the right.

All it takes to implement microdata properties is simply adding a few attributes to existing HTML code. This makes it easier to implement item properties with microdata than with other data formats such as microformats and RDFa.

Microdata can be used to provide information on things like:

Schema.org schemas

- Articles
- Blogs
- Books
- Businesses
- Corporations
- Events
- Geographic Coordinates
- Images
- Job Postings
- Movies
- Music
- News

Rich Snippets

- Addresses
- Businesses
- Creative Works
- Events
- Geographical Coordinates
- Organizations
- People
- Products and Product Offers
- Ratings
- Recipes
- Reviews
- Videos

Schema.org schemas   Rich Snippets

- [Nutrition Information](#)

- [Offers](#)

- [Organizations](#)

- [Persons](#)

- [Places](#)

- [Products](#)

- [Ratings](#)

- [Recipes](#)

- [Restaurants and other Food Establishments](#)

- [Reviews](#)

- [TV Series](#)

- [User Comments](#)

- [Videos](#)

- [Web Pages](#)

Microdata can also be used by search engines to create a <dfn>breadcrumb trail</dfn>, consisting of a series of links, as shown in these results from a Google search:

<img src="/images/google-breadcrumbs.png" width="592" height="384"></img>
Compare how Google displays a breadcrumb trail (highlighted in yellow) based on microdata properties obtained from the HTML 5 web site where a URL appears for other web sites.

Definitions

property

A <dfn>property</dfn> is a simple data structure consisting of a name and a value, also known as a <dfn>name-value pair</dfn>. The [HTMLPropertiesCollection interface](#) provides access to a collection of properties.

Item Properties

```
...
<<i mode="pre">itemelem</i>   <a mode="pre" href="../attributes/microdata-item-attributes.html#item-
   ...
   <<i mode="pre">propelem</i>   <a mode="pre" href="../attributes/microdata-item-attributes.html#it
   ...
   <<i mode="pre">propitem</i>   <a mode="pre" href="../attributes/microdata-item-attributes.html#it
      <a mode="pre" href="../attributes/microdata-item-attributes.html#item-scope-attribute">itemsco
      ...
   </<i mode="pre">propitem</i>  >
   ...
</<i mode="pre">itemelem</i>  >
...
```

To add microdata to HTML code:

1. Add an `itemscope="itemscope"` attribute and an `itemtype` attribute to the parent element of the HTML code that describes the properties of the item.

2. If there are other properties outside the microdata item element, include an `itemref` `attribute` with a list of their `id` `attributes`.

3. Add an `itemprop` `attribute` to each element that represents a property of the item. The value of this attribute is the *name* of the property.

- The `itemprop` `attribute` can specify a list of property names separated by spaces *only* if those properties all have the same value.

- More than one element may have a `itemprop` `attribute` with a given value if the property has more than one value.

- The value of a property may be another item, indicated by an `itemscope="itemscope"` `attribute` and its own `itemtype` `attribute`.

The *value* of the property depends on the HTML element type as shown in the table below.

Item Property Values

The value of a property is usually part of the regular content of the HTML document, often provided by the text content of the HTML element where the `itemprop` `attribute` is coded. The property value can also be another microdata item or, for a small set of HTML element types, the value of a specific attribute as indicated in the following table:

Element	Value Source	Value Space
any element with an `itemscope="itemscope"` attribute	microdata item defined by the element	any microdata item
a	<a href> attribute	an absolute URL
area	<area href> attribute	an absolute URL
audio	<audio src> attribute	an absolute URL
embed	<embed src> attribute	an absolute URL
iframe	<iframe src> attribute	an absolute URL
img	<img src> attribute	an absolute URL
link	<link href> attribute	an absolute URL
meta	<meta content> attribute	any string
object	<object data> attribute	an absolute URL
source	<source src> attribute	an absolute URL
time	<time datetime> attribute	`datetime="yyyy-mm-ddThr:mi:ss.fracTZ` for date and time, `datetime="yyyy-mm-dd` for date only or `datetime="hr:mi:ss.fracTZ` for time only
track	<track src> attribute	an absolute URL
video	<video src> attribute	an absolute URL

any other element type	the text content of the element	any text

When the property value is part of a longer area of text content, a **span** element can be added to identify the part that is the value of the microdata property. When the value is not already part of the document, a <meta/> tag with a text value in the content attribute or a <link/> tag with a URL in the href attribute can be added to the HTML code.

Item List vs. HTML list

Because an Item List is a type of Creative Work, you would **not** use an Item List to itemize the values of a multi-valued property, such as for the ingredients in a recipe:

```
<div itemscope="itemscope" itemtype="http://schema.org/Recipe">
    <h1 itemprop="name">Chicken Recipe</h1>
    Ingredients:
    <ul itemprop="ingredients" itemscope="itemscope"
➥ itemtype="http://schema.org/ItemList">
        <li itemprop="itemListElement">chicken breasts</li>
        <li itemprop="itemListElement">cream of chicken soup</li>
        <li itemprop="itemListElement">Swiss cheese</li>
    </ul>
</div>
```

Again, this is **not** correct, even though the Rich Snippets Testing Tool will parse it and show the list item as the value of the multi-valued property as you would expect if an Item List was a data type rather than a Creative Work.

Instead, repeat the itemprop attribute for each value in the list:

```
<div itemscope="itemscope" itemtype="http://schema.org/Recipe">
    <h1 itemprop="name">Chicken Recipe</h1>
    Ingredients:
    <ul>
        <li itemprop="ingredients">chicken breasts</li>
        <li itemprop="ingredients">cream of chicken soup</li>
        <li itemprop="ingredients">Swiss cheese</li>
    </ul>
</div>
```

Microdata Examples

```
<<a mode="pre" href="../tags/article-tag/">article</a>   <a mode="pre" href="../attributes/microdata
    <<a mode="pre" href="../tags/heading-tags/">h1</a>   <a mode="pre" href="../attributes/microdata-
    <<a mode="pre" href="../tags/section-tag/">section</a>  >
        <<a mode="pre" href="../tags/heading-tags/">h2</a>  >Ingredients</h2>
        <<a mode="pre" href="../tags/ul-tag/">ul</a>  >
            <<a mode="pre" href="../tags/li-tag/">li</a>   <a mode="pre" href="../attributes/microdata-
                <a mode="pre" href="../attributes/microdata-item-attributes.html#item-type-attribute">it
                <<a mode="pre" href="../tags/span-tag/">span</a>   <a mode="pre" href="../attributes/mic
                <<a mode="pre" href="../tags/span-tag/">span</a>   <a mode="pre" href="../attributes/mic
            </li>
            <<a mode="pre" href="../tags/li-tag/">li</a>   <a mode="pre" href="../attributes/microdata-
                <a mode="pre" href="../attributes/microdata-item-attributes.html#item-type-attribute">it
                <<a mode="pre" href="../tags/span-tag/">span</a>   <a mode="pre" href="../attributes/mic
                <<a mode="pre" href="../tags/span-tag/">span</a>   <a mode="pre" href="../attributes/mic
            </li>
            <<a mode="pre" href="../tags/li-tag/">li</a>   <a mode="pre" href="../attributes/microdata-
                <a mode="pre" href="../attributes/microdata-item-attributes.html#item-type-attribute">it
                <<a mode="pre" href="../tags/span-tag/">span</a>   <a mode="pre" href="../attributes/mic
                <<a mode="pre" href="../tags/span-tag/">span</a>   <a mode="pre" href="../attributes/mic
            </li>
            <<a mode="pre" href="../tags/li-tag/">li</a>   <a mode="pre" href="../attributes/microdata-
```

```
                <a mode="pre" href="../attributes/microdata-item-attributes.html#item-type-attribut
                <<a mode="pre" href="../tags/span-tag/">span</a>   <a mode="pre" href="../attribut
        </ul>
    </section>
    <<a mode="pre" href="../tags/section-tag/">section</a>   <a mode="pre" href="../attributes/
        <<a mode="pre" href="../tags/heading-tags/">h2</a>  >Preparation</h2>
        <<a mode="pre" href="../tags/ol-tag/">ol</a>  >
          <<a mode="pre" href="../tags/li-tag/">li</a>  >Heat condensed milk and chocolate. Do
          <<a mode="pre" href="../tags/li-tag/">li</a>  >Pour into pie crust. Refrigerate.</li>
          <<a mode="pre" href="../tags/li-tag/">li</a>  >Top with whipped cream.</li>
        </ol>
    </section>
</article>
```

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Microdata Schemas

This list of microdata schemas provides some examples of how HTML microdata can be used:

Schema.org hierarchy

- **Thing** schema

- **CreativeWork** schema for a Creative Work, Map, Painting, Photograph, Sculpture, Web Page Element, Web Page Site Navigation Element, Web Page Table, Web Page Ad Block, Web Page Footer, Web Page Header or Web Page Side Bar

- **Article** schema for an Article, Blog Posting or Scholarly Article

- **NewsArticle** schema

- **Blog** schema

- **Book** schema

- **ItemList** schema

- **MediaObject** schema

- **AudioObject** schema

- **ImageObject** schema

- **VideoObject** schema for a Video Object or a Music Video Object

- **Movie** schema

- **MusicPlaylist** schema

- **MusicAlbum** schema

- **MusicRecording** schema

- **Recipe** schema

- **Review** schema

- **TVEpisode** schema

- **TVSeason** schema

- **TVSeries** schema

- **WebPage** schema for an About Page, , Checkout Page, generic Collection Page, , Image Gallery Collection Page, Video Gallery Collection Page, Contact Page, Item Page, Profile Page or Search Results Page

- **Event** schema for a Business Event, Childrens Event, Comedy Event, Dance Event, Education Event, Festival, Food Event, Literary Event, Music Event, Sale Event, Social Event, Sports Event, Theater Event, User Interaction, User Blocks, User Checkins, User Downloads, User Likes, User Page Visits, User Plays, User Plus Ones or User Tweets

- **UserComments** schema

- Intangibles
- **JobPosting** schema
- **Offer** schema
- **Rating** schema
- Structured Values
- **ContactPoint** schema
- **PostalAddress** schema

- **GeoCoordinates** schema
- **GeoShape** schema
- **NutritionInformation** schema

- **Organization** schema
- schema
- schema for a ,

- **Person** schema
- **Place** schema
- schema
- schema for a ,

- **Product** schema

Other Microdata Schemas

Breadcrumb Trails

<dfn>Breadcrumb microdata</dfn> can be used to provide search engines with a <dfn class="nobr">breadcrumb trail</dfn>, which provides a sequence of links (<dfn>breadcrumbs</dfn>) based on the hierarchical navigation of a web site. When available, Google displays a breadcrumb trail in the search results instead of a simple link, providing access to multiple pages on the site instead of just a single page.

Creative Works

Google Rich Snippets

Rich Snippets include:

Address Microdata

Microdata for Businesses and Organizations

Event Microdata

Geographical Coordinates Microdata

Offer Microdata

Person Microdata

Product Microdata

Microdata for Ratings

Recipe Microdata

Review Microdata

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THE END