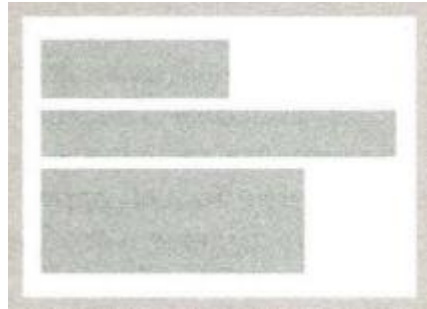# HTML (язык гипертекстовой разметки)

- Описывает **содержимое** и **структуру** информации на веб-странице (**не представление!**)
- Состоит из элементов – **тегов**, которые бывают парными и непарными
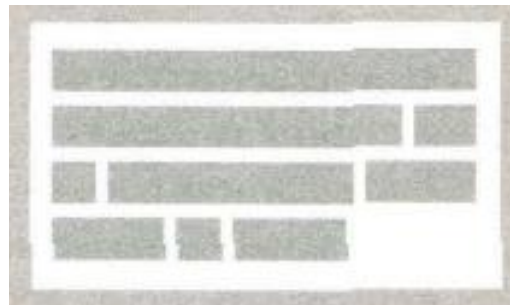- К тегу могут прилагаться атрибуты

```
<p lang="ru">Текст</p>
<hr />
```

Блочные и встроенные элементы

- **Блочные** элементы отображаются с новой строки

- **Встроенные** элементы отображаются на той же строке, что и соседние

```html
<!DOCTYPE html>
<html>
  <head>
    <title>Страница</title>
    <meta http-equiv="Content-Type"
        content="text/html; charset=utf-8">
    <meta name="description" content="Сайт">
    <link rel="stylesheet" href="./style.css">
  </head>
  <body id="the_body">
    <p class="article">...</p>
    <script src="./script.js"></script>
  </body>
</html>
```

Теги верхнего уровня

- **html** – обертка
- **head** – заголовок страницы
- **body** – тело страницы

Теги внутри head

- **title** – заголовок в окне браузера
- **meta** – информация о странице

<meta name="description" content="Для друзей">
<meta http-equiv="Content-Type" content="text/html; charset=utf-8">

Комментарий

```html
<!DOCTYPE html>
<html>
    <head>
        <title>Comments in HTML</title>
    </head>
    <body>
        <!-- start of introduction -->
        <h1>Current Exhibitions</h1>
        <h2>Olafur Eliasson</h2>
        <!-- end of introduction -->
        <!-- start of main text -->
        <p>Olafur Eliasson was born in Copenhagen, Denmark in 1967
        to Icelandic parents.</p>
        <p>He is known for sculptures and large-scale installation
        art employing elemental materials such as light, water, and
        air temperature to enhance the viewer's experience.</p>
        <!-- end of main text -->
        <!-- <a href="mailto:info@example.org">Contact</a> -->
    </body>
</html>
```

Специальные символы

Имя	Код	Вид	Описание
			неразрывный пробел
£	£	£	фунт стерлингов
€	€	€	знак евро
¶	¶	¶	символ параграфа
§	§	§	параграф
©	©	©	знак copyright
®	®	®	знак зарегистрированной торговой марки
™	™	™	знак торговой марки
°	°	°	градус

СТРУКТУРА ВЕБ-СТРАНИЦЫ

Заголовки: **<h1>** ... **<h6>**

```
<h1>This is a Main Heading</h1>
<h2>This is a Level 2 Heading</h2>
<h3>This is a Level 3 Heading</h3>
<h4>This is a Level 4 Heading</h4>
<h5>This is a Level 5 Heading</h5>
<h6>This is a Level 6 Heading</h6>
```

This is a Main Heading

This is a Level 2 Heading

This is a Level 3 Heading

This is a Level 4 Heading

This is a Level 5 Heading

This is a Level 6 Heading

Абзацы: **\<p\>**

```
<p>A paragraph consists of one or more sentences that form
a self-contained unit of discourse. The start of a
paragraph is indicated by a new line.</p>
<p>Text is easier to understand when it is split up into
units of text. For example, a book may have chapters.
Chapters can have subheadings. Under each heading there
will be one or more paragraphs.</p>
```

A paragraph consists of one or more sentences that form a self-contained unit of discourse. The start of a paragraph is indicated by a new line.

Text is easier to understand when it is split up into units of text. For example, a book may have chapters. Chapters can have subheadings. Under each heading there will be one or more paragraphs.

Полужирное **\<b\>** и курсивное **\<i\>** начертание (не рекомендуется!)

```
<p>This is how we make a word appear <b>bold.</b></p>
<p>Inside a product description you might see some <b>key
features</b> in bold.</p>
```

```
<p>This is how we make a word appear <i>italic</i>.</p>
<p>It's a potato <i>Solanum teberosum</i>.</p>
<p>Captain Cook sailed to Australia on the <i>Endeavour</i>.
</p>
```

Подстрочные **<sub>** и надстрочные **<sup>** знаки

```
<p>On the 4<sup>th</sup> of September you will learn about
E=MC<sup>2</sup>.</p>
<p>The amount of CO<sub>2</sub> in the atmosphere grew by
2ppm in 2009<sub>1</sub>.</p>
```

On the 4th of September you will learn about E=MC^2.

The amount of CO_2 in the atmosphere grew by 2ppm in 2009[1].

Перевод строки и горизонтальная линия

```html
<p>The Earth<br />gets one hundred tons heavier every day<br
 />due to falling space dust.</p>
```

The Earth
gets one hundred tons heavier every day
due to falling space dust.

```html
<p>Venus is the only planet that rotates clockwise.</p>
<hr />
<p>Jupiter is bigger than all the other planets combined.</p>
```

Venus is the only planet that rotates clockwise.

———————————————————

Jupiter is bigger than all the other planets combined.

СЕМАНТИЧЕСКАЯ РАЗМЕТКА

Важная информация **<strong>**

```html
<p><strong>Beware:</strong> Pickpockets operate in this
area.</p>
<p>This toy has many small pieces and is <strong>not
suitable for children under five years old.</strong></p>
```

Beware: Pickpockets operate in this area.

This toy has many small pieces and is **not suitable for children under five years old.**

Логическое ударение **\<em>**

```html
<p>I <em>think</em> Ivy was the first.</p>
<p>I think <em>Ivy</em> was the first.</p>
<p>I think Ivy was the <em>first</em>.</p>
```

I *think* Ivy was the first.

I think *Ivy* was the first.

I think Ivy was the *first*.

Цитаты **<blockquote>** и **<q>**

```html
<blockquote cite="
http://en.wikipedia.org/wiki/Winnie-the-Pooh">
    <p>Did you ever stop to think, and forget to start
    again?</p>
</blockquote>
<p>As A.A. Milne said, <q>Some people talk to animals. Not
many listen though. That's the problem.</q></p>
```

Did you ever stop to think, and forget to start again?

As A.A. Milne said, "Some people talk to animals. Not many listen though. That's the problem."

Аббревиатуры и акронимы

```html
<p><abbr title="Professor">Prof</abbr> Stephen Hawking is a
theoretical physicist and cosmologist.</p>
<p><acronym title="National Aeronautics and Space
Administration">NASA</acronym> do some crazy space stuff.</p>
```

Prof Stephen Hawking is a theoretical physicist and cosmologist.

NASA do some crazy space stuff.

Источники **\<cite\>**

```html
<p><cite>A Brief History of Time</cite> by Stephen Hawking
has sold over ten million copies worldwide.</p>
```

A Brief History of Time by Stephen Hawking has sold over ten million copies worldwide.

Списки определений **\<dfn>**

```html
<p>A <dfn>black hole</dfn> is a region of space from which
nothing, not even light, can escape.</p>
```

A *black hole* is a region of space from which nothing, not even light, can escape.

Исправления контента **\<ins\>**, **\<del\>**, **\<s\>**

```html
<p>It was the <del>worst</del> <ins>best</ins> idea she had
ever had.</p>
<p>Laptop computer:</p>
<p><s>Was $995</s></p>
<p>Now only $375</p>
```

It was the ~~worst~~ <u>best</u> idea she had ever had.

Laptop computer:

~~Was $995~~

Now only $375

СПИСКИ

Упорядоченные списки **<ol>**, **<li>**

```html
<ol>
    <li>Chop potatoes into quarters</li>
    <li>Simmer in salted water for 15-20 minutes until
    tender</li>
    <li>Heat milk, butter and nutmeg</li>
    <li>Drain potatoes and mash</li>
    <li>Mix in the milk mixture</li>
</ol>
```

1. Chop potatoes into quarters
2. Simmer in salted water for 15-20 minutes until tender
3. Heat milk, butter and nutmeg
4. Drain potatoes and mash
5. Mix in the milk mixture

Неупорядоченные списки **\<ul\>**, **\<li\>**

```html
<ul>
    <li>1kg King Edward potatoes</li>
    <li>100ml milk</li>
    <li>50g salted butter</li>
    <li>Freshly grated nutmeg</li>
    <li>Salt and pepper to taste</li>
</ul>
```

- 1kg King Edward potatoes
- 100ml milk
- 50g salted butter
- Freshly grated nutmeg
- Salt and pepper to taste

Вложенные списки

```html
<ul>
    <li>Mousses</li>
    <li>Pastries
        <ul>
            <li>Croissant</li>
            <li>Mille-feuille</li>
            <li>Palmier</li>
            <li>Profiterole</li>
        </ul>
    </li>
    <li>Tarts</li>
</ul>
```

- Mousses
- Pastries
    - Croissant
    - Mille-feuille
    - Palmier
    - Profiterole
- Tarts

Списки определений **\<dl>**, **\<dt>**, **\<dd>**

```html
<dl>
    <dt>Sashimi</dt>
    <dd>Sliced raw fish that is served with condiments such
    as shredded daikon radish or ginger root, wasabi and
    soy sauce</dd>
    <dt>Scale</dt>
    <dd>A device used to accurately measure the weight of
    ingredients</dd>
    <dd>A technique by which the scales are removed from
    the skin of a fish</dd>
    <dt>Scamorze</dt>
    <dt>Scamorzo</dt>
    <dd>An Italian cheese usually made from whole cow's
    milk (although it was traditionally made from buffalo
    milk)</dd>
</dl>
```

ССЫЛКИ

Ссылки **<a>**

```
<p>
  Search
  <a href="http://www.google.com/">Google</a> or our
  <a href="lectures.html">Lecture Notes</a>.
</p>
```

- Могут быть абсолютными и относительными
- .. – подняться на уровень вверх

```
<a href="mailto:jon@example.org">Email Jon</a>
```

```
<a href="http://www.imdb.com" target="_blank">
База данных фильмов во Всемирной паутине</a>
(открывается в новом окне)
```

Якорные ссылки

```html
<h1 id="top">Film-Making Terms</h1>
<a href="#arc_shot">Arc Shot</a><br />
<a href="#interlude">Interlude</a><br />
<a href="#prologue">Prologue</a><br /><br />
<h2 id="arc_shot">Arc Shot</h2>
<p>A shot in which the subject is photographed by an
encircling or moving camera</p>
<h2 id="interlude">Interlude</h2>
<p>A brief, intervening film scene or sequence, not
specifically tied to the plot, that appears within a film</p>
<h2 id="prologue">Prologue</h2>
<p>A speech, preface, introduction, or brief scene
preceding the the main action or plot of a film; contrast
to epilogue</p>
<p><a href="#top">Top</a></p>
```

ИЗОБРАЖЕНИЯ

Вставка изображения **<img>**

```
<img src="images/quokka.jpg" alt="Quokka (Setonix brachyurus)" />
```



```
<img src="images/quokka.jpg" alt="Quokka (Setonix brachyurus)" width="600" height="450" />
```

Иллюстрации и подписи **\<figure>**

```html
<figure>
    <img src="images/otters.jpg" alt="Photograph of two sea
    otters floating in water" />
    <br />
    <figcaption>Sea otters hold hands when they sleep so
    they don't drift away from each other.</figcaption>
</figure>
```


Sea otters hold hands when they sleep so they don't drift away from each other.

ТАБЛИЦЫ

Структура таблицы **\<table\>**, **\<tr\>**, **\<td\>**

```
<table>
    <tr>
        <td>15</td>
        <td>15</td>
        <td>30</td>
    </tr>
    <tr>
        <td>45</td>
        <td>60</td>
        <td>45</td>
    </tr>
    <tr>
        <td>60</td>
        <td>90</td>
        <td>90</td>
    </tr>
</table>
```

15 15 30

45 60 45

60 90 90

Заголовки таблиц

```html
<table>
    <tr>
        <th></th>
        <th scope="col">Saturday</th>
        <th scope="col">Sunday</th>
    </tr>
    <tr>
        <th scope="row">Tickets sold:</th>
        <td>120</td>
        <td>135</td>
    </tr>
    <tr>
        <th scope="row">Total sales:</th>
        <td>$600</td>
        <td>$675</td>
    </tr>
</table>
```

	Saturday	Sunday
Tickets sold:	120	135
Total sales:	$600	$675

Объединение столбцов (**colspan**)

```html
<table>
    <tr>
        <th></th>
        <th>9am</th>
        <th>10am</th>
        <th>11am</th>
        <th>12am</th>
    </tr>
    <tr>
        <th>Monday</th>
        <td colspan="2">Geography</td>
        <td>Math</td>
        <td>Art</td>
    </tr>
    <tr>
        <th>Tuesday</th>
        <td colspan="3">Gym</td>
        <td>Home Ec</td>
    </tr>
</table>
```

	9am	10am	11am	12am
Monday	Geography		Math	Art
Tuesday	Gym			Home Ec

Объединение строк (**rowspan**)

	ABC	BBC	CNN
6pm - 7pm	Movie	Comedy	News
7pm - 8pm		Sport	Current Affairs

```html
<table>
    <tr>
        <th></th>
        <th>ABC</th>
        <th>BBC</th>
        <th>CNN</th>
    </tr>
    <tr>
        <th>6pm - 7pm</th>
        <td rowspan="2">Movie</td>
        <td>Comedy</td>
        <td>News</td>
    </tr>
    <tr>
        <th>7pm - 8pm</th>
        <td>Sport</td>
        <td>Current Affairs</td>
    </tr>
</table>
```

Разделение строк таблицы
<thead>, **<tbody>**, **<tfoot>**

```html
<table>
    <thead>
        <tr>
            <th>Date</th>
            <th>Income</th>
            <th>Expenditure</th>
        </tr>
    </thead>
    <tbody>
        <tr>
            <th>1st January</th>
            <td>250</td>
            <td>36</td>
        </tr>
    </tbody>
    <tfoot>
        <tr>
            <td></td>
            <td>7824</td>
            <td>1241</td>
        </tr>
    </tfoot>
</table>
```

ФОРМЫ

Структура формы **<form>**

```
<form action="
http://www.example.com/subscribe.php" method=
"get">
    <p>This is where the form controls will
    appear.</p>
</form>
```

Ввод текста

```html
<input type="text" name="username" size="15" maxlength="30" />
```

Username: [   ]

Ввод пароля

```html
<p>Username:
    <input type="text" name="username" size="15" maxlength="30" />
</p>
<p>Password:
    <input type="password" name="password" size="15" maxlength="30" />
</p>
```

Username: admin

Password: •••

Текстовая область

```
<textarea name="comments" cols="20" rows="4">Enter your comments...</textarea>
```

```
Enter your comments...
```

Переключатель (радиокнопка)

```html
<input type="radio" name="genre" value="rock" checked="checked" /> Rock
<input type="radio" name="genre" value="pop" /> Pop
<input type="radio" name="genre" value="jazz" /> Jazz
```

Please select your favorite genre:
● Rock ○ Pop ○ Jazz

Флажок

```html
<input type="checkbox" name="service" value="itunes" checked="checked" />
iTunes
<input type="checkbox" name="service" value="lastfm" /> Last.fm
<input type="checkbox" name="service" value="spotify" /> Spotify
```
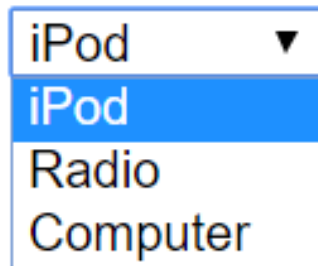
Please select your favorite music service(s):
☑ iTunes ☐ Last.fm ☐ Spotify

Раскрывающийся список

```html
<select name="devices">
    <option value="ipod">iPod</option>
    <option value="radio">Radio</option>
    <option value="computer">Computer</option>
</select>
```

What device do you listen to music on?

iPod ▼
iPod
Radio
Computer

Список множественного выбора

```html
<select name="instruments" size="3" multiple="multiple">
    <option value="guitar" selected="selected">Guitar</option>
    <option value="drums">Drums</option>
    <option value="keyboard" selected="selected">Keyboard</option>
    <option value="bass">Bass</option>
</select>
```
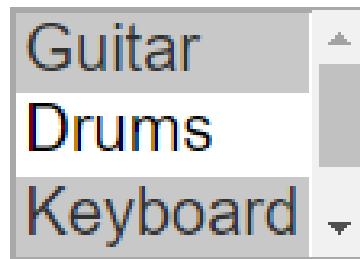
Загрузка файлов на сервер

```html
<form action="http://www.example.com/upload.php" method="post">
    <p>Upload your song in MP3 format:</p>
    <input type="file" name="user-song" /><br />
    <input type="submit" value="Upload" />
</form>
```
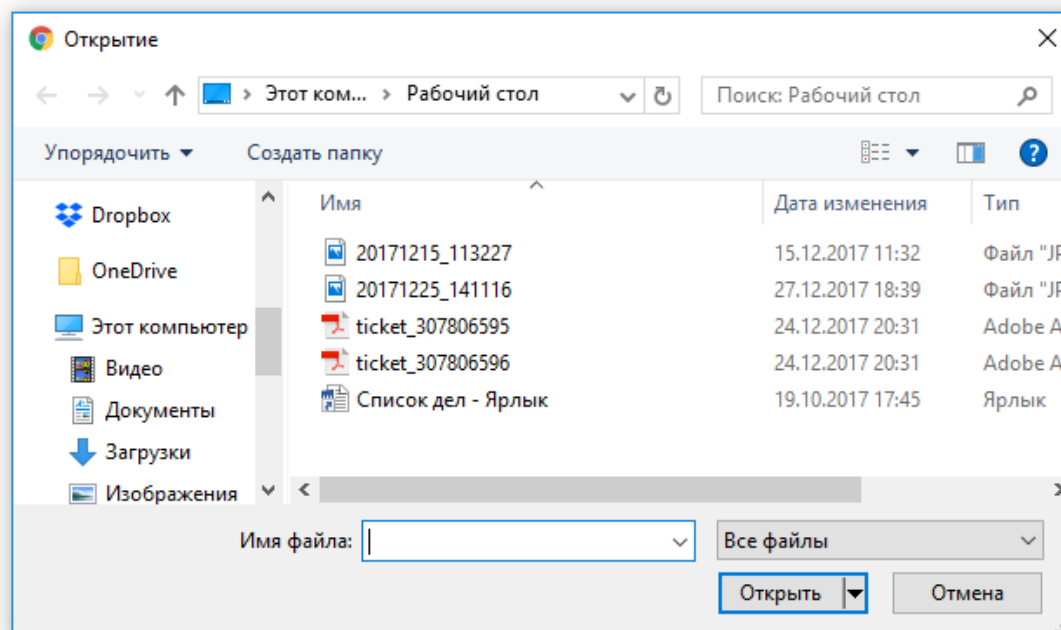
Кнопка подтверждения

```html
<form action="http://www.example.com/subscribe.php">
    <p>Subscribe to our email list:</p>
    <input type="text" name="email" />
    <input type="submit" name="subscribe" value="Subscribe" />
</form>
```

Subscribe to our email list:

[   ] [Subscribe]

Графическая кнопка

```
<input type="image" src="images/subscribe.jpg" width="100" height="20"
/>
```

Subscribe to our email list:

Метки элементов формы

```html
<form action="http://www.example.com/subscribe.php">
    <label>Age: <input type="text" name="age" /></label>
    <br/ >
    Gender:
    <input id="female" type="radio" name="gender" value="f">
    <label for="female">Female</label>
    <input id="male" type="radio" name="gender" value="m">
    <label for="male">Male</label>
</form>
```
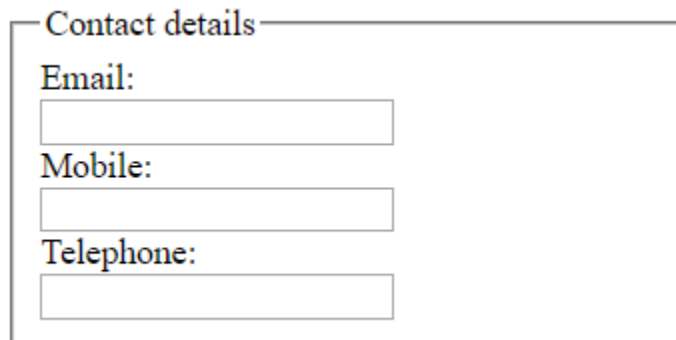
Age: [   ]
Gender: ○ Female ○ Male

Группировка элементов формы

```html
<form action="http://www.example.com/subscribe.php">
    <fieldset>
        <legend>Contact details</legend>
        <label>Email:<br /><input type="text" name="email" /></label><br />
        <label>Mobile:<br /><input type="text" name="mobile" /></label><br
        />
        <label>Telephone:<br /><input type="text" name="telephone" />
        </label>
    </fieldset>
</form>
```

Пример валидации

```html
<form action="http://www.example.com/login/" method="post">
    <label for="username">Username:</label>
    <input type="text" name="username" required="required" /></title><br />
    <label for="password">Password:</label>
    <input type="password" name="password" required="required" />
    <input type="submit" value="Submit" />
</form>
```

Username: [   ]

Password: [   ] Submit

⚠ Заполните это поле.

Ввод даты

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


Departure date: 14.12.2017

Декабрь 2017

Пн	Вт	Ср	Чт	Пт	Сб	Вс
27	28	29	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

Прочие поля ввода

```html
<input type="url" name="website" />

<input type="email" name="email" />

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

ВИДЕО- И АУДИОКОНТЕНТ

Видео

```html
<video src="video/puppy.mp4"
    poster="images/puppy.jpg"
    width="400" height="300"
    preload
    controls
    loop>
    <p>A video of a puppy playing in the snow</p>
</video>
```


▌▌ 0:07 / 0:20 ⬤ 🔊 ⬤ ⌞⌝

Видео

Атрибуты

autoplay	Видео начинает воспроизводиться автоматически после загрузки страницы.
controls	Добавляет панель управления к видеоролику.
height	Задает высоту области для воспроизведения видеоролика.
loop	Повторяет воспроизведение видео с начала после его завершения.
poster	Указывает адрес картинки, которая будет отображаться, пока видео не доступно или не воспроизводитс
preload	Используется для загрузки видео вместе с загрузкой веб-страницы.
src	Указывает путь к воспроизводимому видеоролику.
width	Задает ширину области для воспроизведения видеоролика.

```html
<video poster="images/puppy.jpg" width="400" height="320" preload controls loop>
    <source src="video/puppy.mp4" type='video/mp4;codecs="avc1.42E01E,
    mp4a.40.2"' />
    <source src="video/puppy.webm" type='video/webm;codecs="vp8, vorbis"' />
    <p>A video of a puppy playing in the snow</p>
</video>
```

Аудио

```html
<audio src="audio/test-audio.ogg" controls autoplay>
    <p>This browser does not support our audio format.</p>
</audio>
```

⏸ 0:04 / 0:17 ──●────── 🔊 ───●
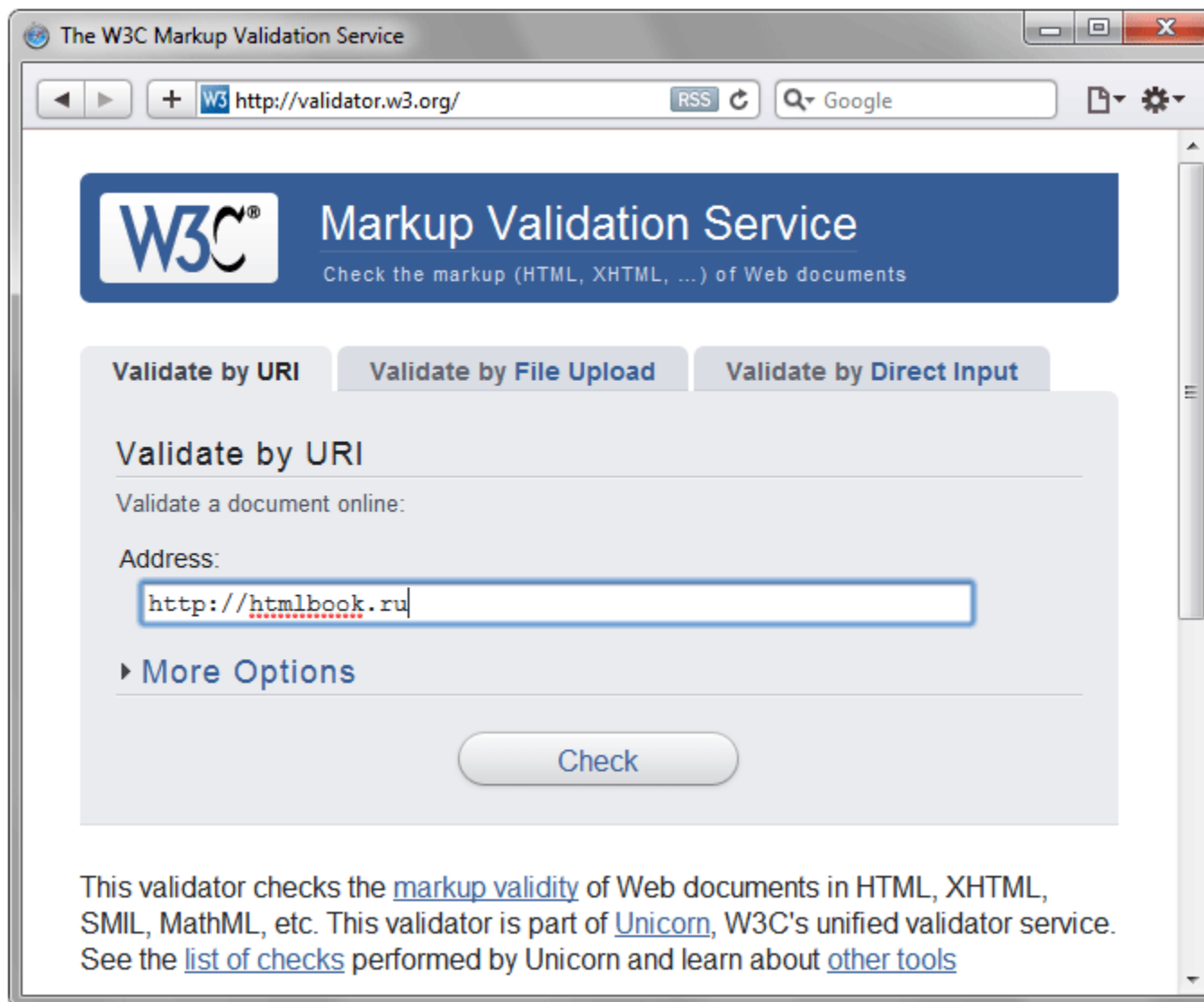
```html
<audio controls autoplay>
    <source src="audio/test-audio.ogg" />
    <source src="audio/test-audio.mp3" />
    <p>This browser does not support our audio format.</p>
</audio>
```

Атрибуты

autoplay	Звук начинает играть сразу после загрузки страницы.
controls	Добавляет панель управления к аудиофайлу.
loop	Повторяет воспроизведение звука с начала после его завершения.
preload	Используется для загрузки файла вместе с загрузкой веб-страницы.
src	Указывает путь к воспроизводимому файлу.

Валидация: validator.w3.org