

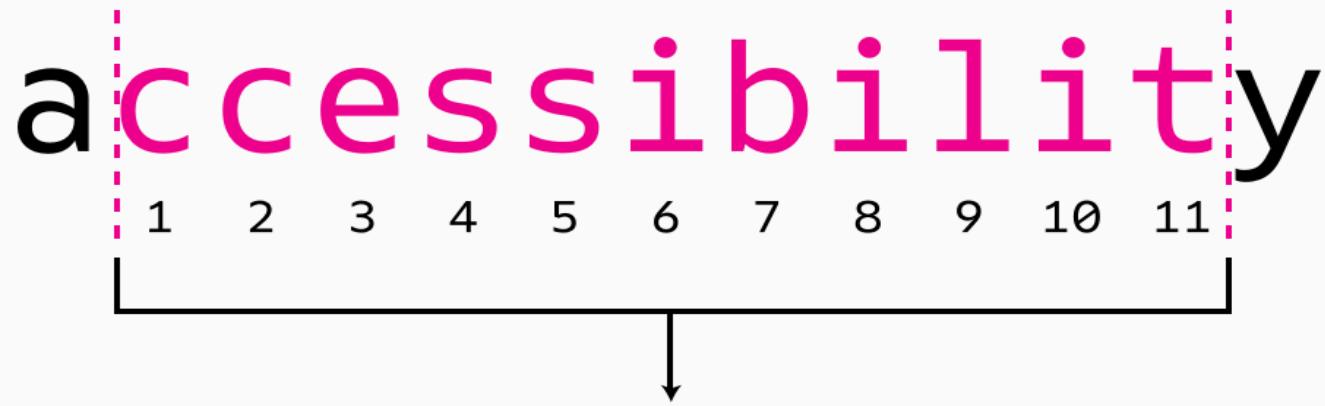
Введение в доступность интерфейсов

Глафира Жур



Глафира Жур

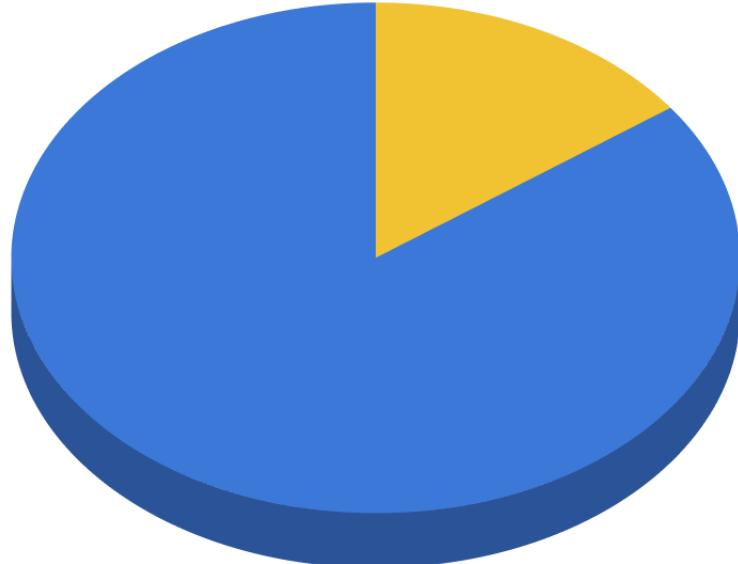
- В 2018 начала работать в LOVATA
(первые шаги в accessibility)
- С 2020 работаю в SpurIT
(Accessibility Expert / Team Lead)
- Познаю доступность уже около 2х лет
- [Twitter: @GlafiraZhur](#)
- [Telegram: @glafira_zhur](#)



a11y

Мировая статистика

Мировая статистика



- 15% – с ограниченными возможностями
- 85% – другие, включая временные ограничения

Наглядно в цифрах

Население Земли

7 809 320 722

15% от населения

1 171 398 108

Законы

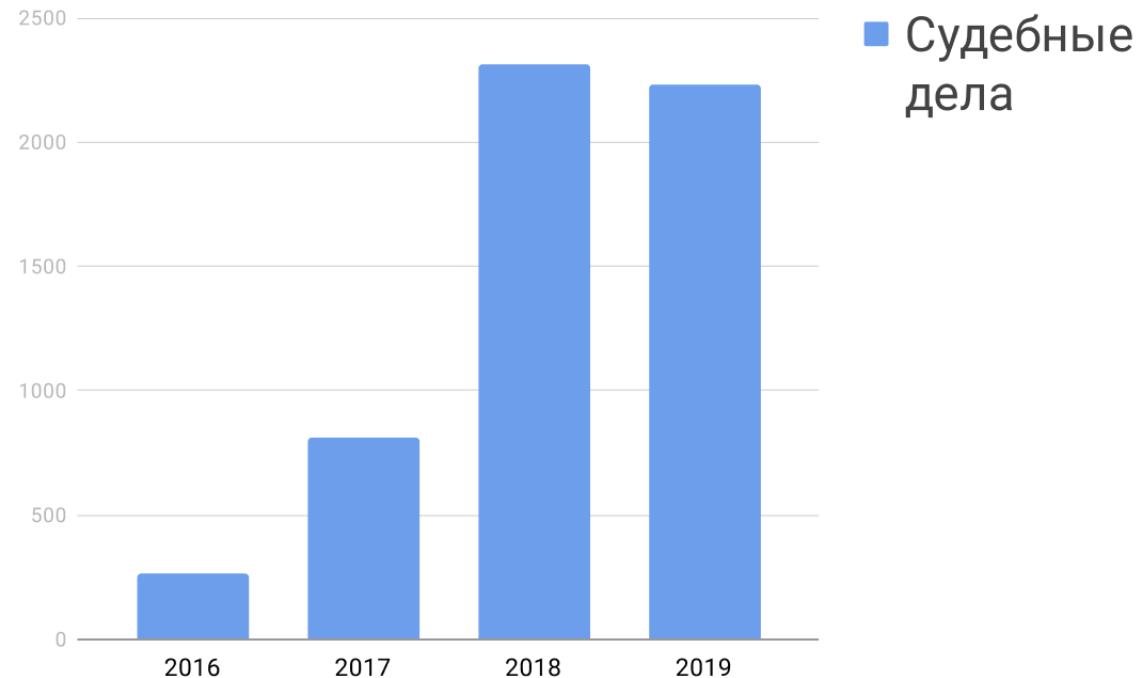
Законы в мире

- **СЕЙЧАС:** Section 508
(федеральные агентства и все, кто с ними связан)
- **СЕЙЧАС:** Americans with Disabilities Act (ADA)
(общественные места, представленные в сети Интернет)
- **2021:** Accessibility for Ontarians with Disabilities Act (AODA)
- **2025:** European Accessibility Act

Законы в России

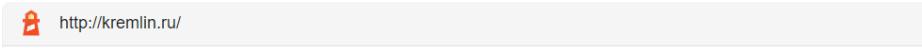
- Федеральный законом №419-ФЗ
- Федеральный законом №8-ФЗ
- Приказ Министерства связи и массовых коммуникаций России №483
- ГОСТ Р 52872-2012. Интернет-ресурсы. Требования доступности для инвалидов по зрению.

Рост обращений в суд (Америка)



Сайт президента РФ

<http://kremlin.ru/>



The screenshot shows the Lighthouse accessibility audit results for the Kremlin website. The overall score is 96, displayed prominently in a green circle. Below the score, the word "Accessibility" is written in a large, bold, black font.

These checks highlight opportunities to [improve the accessibility of your web app](#). Only a subset of accessibility issues can be automatically detected so manual testing is also encouraged.

ARIA — These are opportunities to improve the usage of ARIA in your application which may enhance the experience for users of assistive technology, like a screen reader.

▲ [aria-hidden="true"] elements contain focusable descendants

Contrast — These are opportunities to improve the legibility of your content.

▲ Background and foreground colors do not have a sufficient contrast ratio.

Additional items to manually check (10) — These items address areas which an automated testing tool cannot cover. Learn more in our guide on [conducting an accessibility review](#).

Сайт президента Франции

<https://www.elysee.fr/>

The screenshot shows the WAVE accessibility evaluation tool interface. At the top, it displays a green circular icon with the number 90, indicating a high level of accessibility. Below this, the word "Accessibility" is centered. A descriptive text follows, stating: "These checks highlight opportunities to [improve the accessibility of your web app](#). Only a subset of accessibility issues can be automatically detected so manual testing is also encouraged." Under the heading "ARIA", there are two expandable sections: "ARIA input fields do not have accessible names" and "Elements with an ARIA [role] that require children to contain a specific [role] are missing some or all of those required children.". Both sections have a red triangle icon followed by their respective descriptions. Under the heading "Contrast", there is one section: "Background and foreground colors do not have a sufficient contrast ratio.", preceded by a red triangle icon. The entire report is presented in a clean, white-space-oriented layout with a light gray background.

Сайт президента Америки

<https://www.whitehouse.gov/>

The screenshot shows the WAVE accessibility evaluation tool interface. At the top, it displays the URL <https://www.whitehouse.gov/>. In the center, there's a large orange circle containing the number 88. Below this, the word "Accessibility" is written. A descriptive text follows: "These checks highlight opportunities to [improve the accessibility of your web app](#). Only a subset of accessibility issues can be automatically detected so manual testing is also encouraged." Under the heading "Names and labels", it says: "These are opportunities to improve the semantics of the controls in your application. This may enhance the experience for users of assistive technology, like a screen reader." Three items are listed with red triangle icons: "Buttons do not have an accessible name", "<frame> or <iframe> elements do not have a title", and "Links do not have a discernible name". Each item has a collapse/expand arrow icon to its right. Below this, under the heading "Contrast", it says: "These are opportunities to improve the legibility of your content." One item is listed with a red triangle icon: "Background and foreground colors do not have a sufficient contrast ratio.", also with a collapse/expand arrow icon.

Зачем мне доступность?

- Повышение экспертности
- Повышение цены и конкурентоспособности на рынке
- Расширение кругозора и восприятия
- Впереди планеты всей



accessibility



Russia

Search



15

Jobs ▾

Date Posted ▾

Experience Level ▾

Company ▾

Job Type ▾

Remote ▾

Linked

Accessibility in Russia

47 results

Job Alert Off



BigData DevOps Engineer Promoted

Luxoft

Moscow, Moscow City, Russia



Actively recruiting

4 weeks ago · 1 applicant



Remote Middle F
Engineer for the
Goods Company

EPAM Systems · Yeka

Metropolitan Area

Posted 1 week ago · 4 views



Remote Middle Functional Test Engineer for the Largest Luxury Goods Company Promoted

EPAM Systems

Yekaterinburg Metropolitan Area



5 connections work here

1 week ago · 0 applicants

Save

App

See recent hiring tr

Restart Premium

LinkedIn Search Russia

Remote Middle Functional Test Engineer for the

Job

Company



accessibility



Germany

Search



16

Jobs ▾

Date Posted ▾

Experience Level ▾

Company ▾

Job Type ▾

Remote ▾

Linked

Accessibility in Germany

393 results

Job Alert Off



Frontend Developer - Angular (d/f/m) Promoted

arculus

Munich, Bavaria, Germany



Actively recruiting

4 days ago · 12 applicants



Frontend Developer
(d/f/m)

arculus · Munich, Bavaria

Posted 4 days ago · 59 views

Save

Apply



Senior UX Researcher (m/f/d) Promoted

EverEstate

Berlin, Berlin, Germany

1 month ago

See how you compare

Restart Premium

Job

- 3/5 skills match

- 12 applicants



kfzteile24 GmbH

Berlin, Berlin, Germany

Company

- 51-200 employees

- Industrial Automation

A Digital Accessibility Job Board.

Need someone who knows digital accessibility? You have come to the right place. This is a job board that is focused on people who know Assistive Technology, Section 504, Web Content Accessibility Guidelines (WCAG) and more.

Sign up for the [newsletter](#).



Accessibility Software Automation & Tools Engineer

Apple -  Santa Clara Valley, California

Are you interested in making the world a better place? Do you want to help influence and build some of Apple's most important products? Here at Apple we believe that.... [more job info](#)

Posted 3 days ago

A11y Meetups

Inclusive Design - Advocating For Inclusive Design On Your Design Team

 NoVA UX

 Sep 23, 2020



Software Development Engineer - Accessibility

Amazon -  Sunnyvale, CA

Accessibility New York City - Virtual Meetup Topic: '5

Сокращения

Сокращения

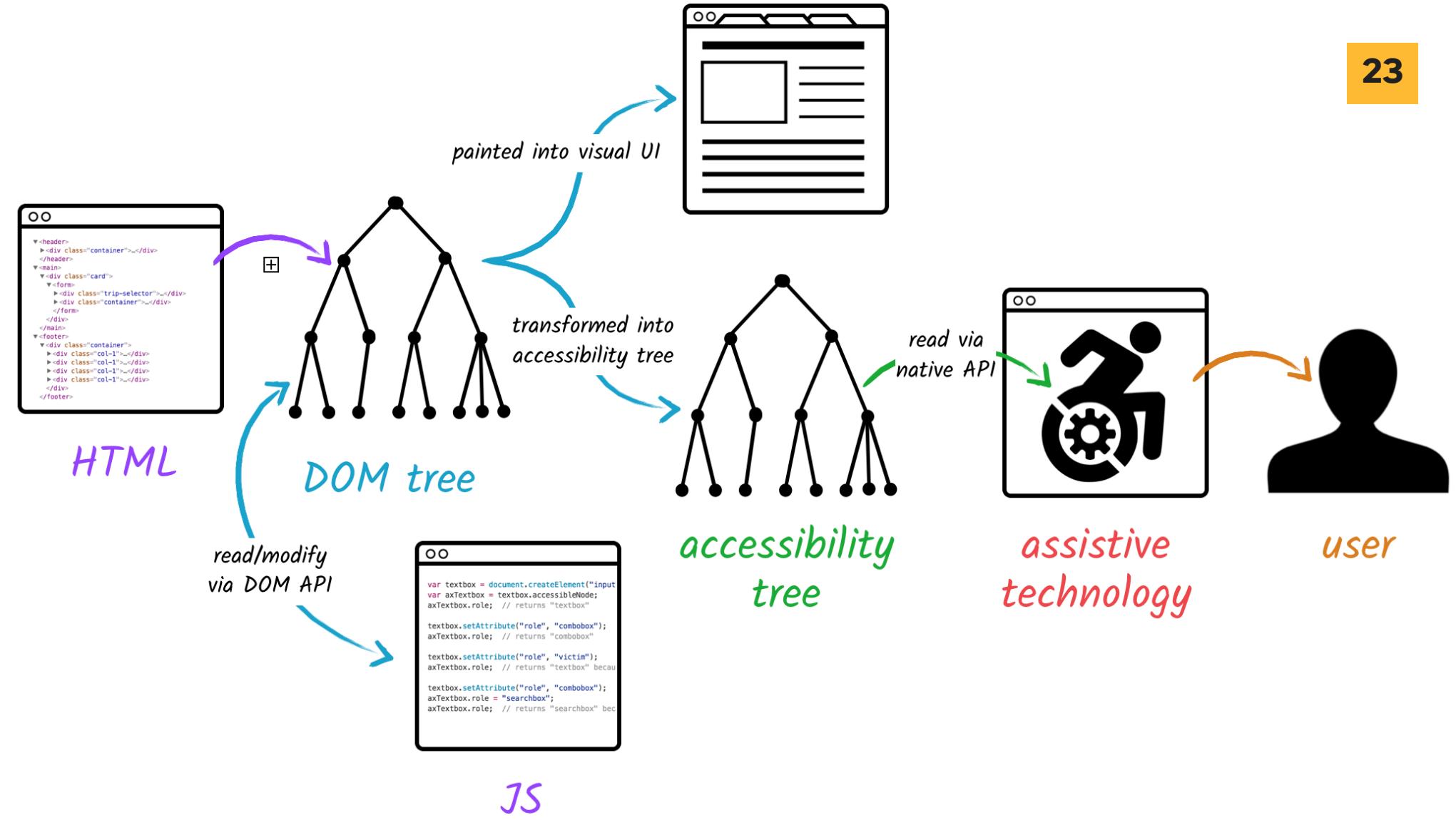
1. **a11y** = Accessibility
2. **WAI** = Web Accessibility Initiative
3. **ARIA** = Accessible Rich Internet Application
4. **WCAG** = Web Content Accessibility Guidelines
5. **AT** = ассистивные технологии
6. **CP** = скринридер

Что использовать в работе

Инструменты

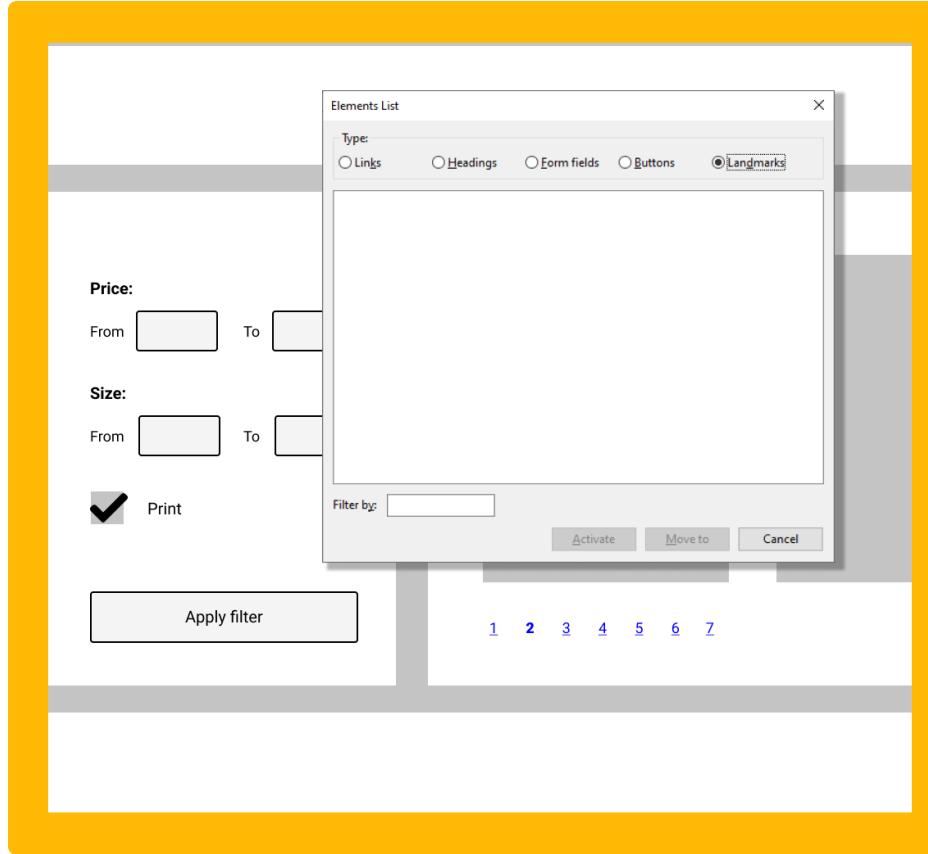
1. Валидатор W3C
2. Google LightHouse - инструмент Chrome Dev Tools
3. Accessibility Tree - инструмент браузера
4. Скринридеры - JAWS, NVDA, VoiceOver
5. Эмуляторы разных типов зрения - инструменты Chrome/Mozilla
6. WCAG 2.1 - стандарт
7. WAI-ARIA - спецификация

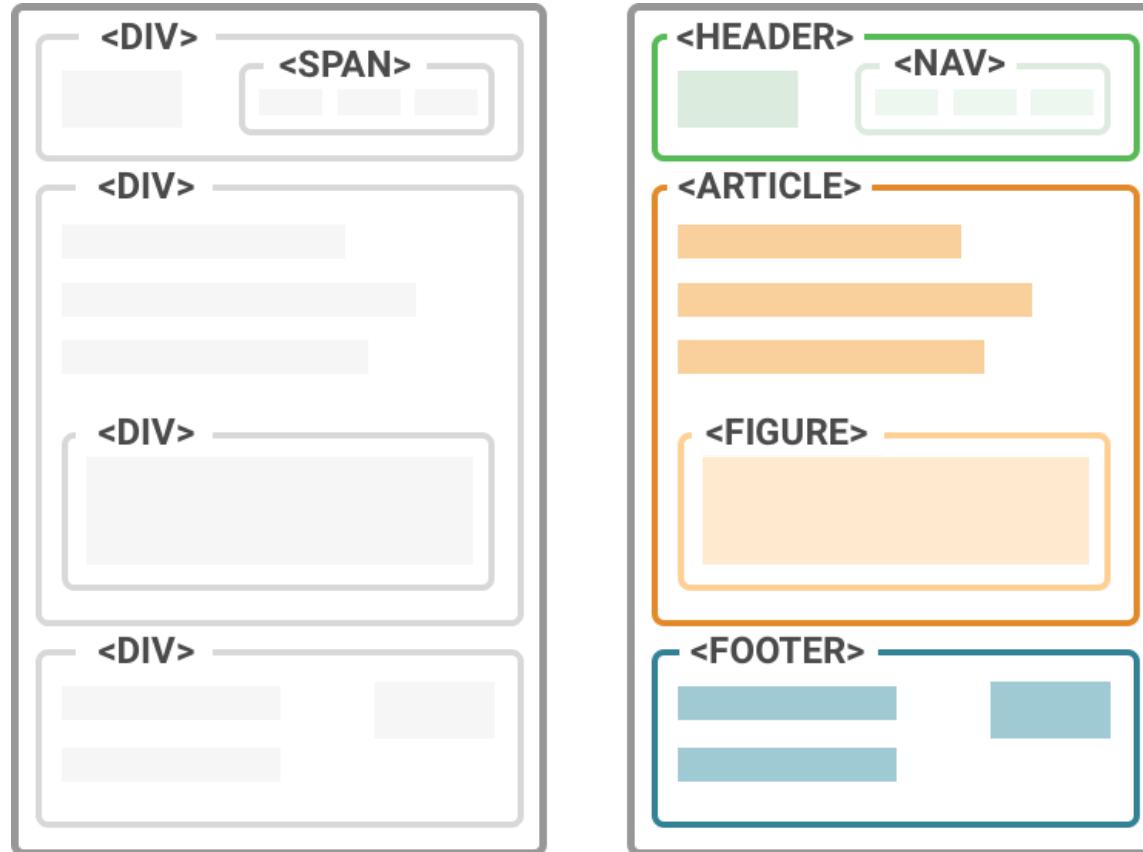
Схема взаимодействия



Самые частые проблемы доступности

Семантика





Elements List

Type:

Links Headings Form fields

Price:
From To

Size:
From To

Print

The interface shows a sidebar with filtering options and a main panel displaying a hierarchical tree of page elements. The tree starts with 'main' at the root level, which contains 'Filters' and 'Products'. 'Products' further contains 'Pagination, 2 of 7; navigation' and 'content info'. The element 'banner' is highlighted with a blue dotted selection border.

- banner
- main
 - Filters
 - Products
 - Pagination, 2 of 7; navigation
 - content info

Курсы валют в Сбербанк Онлайн

Актуально на 09:14, 7 октября 2020 г. Курс валют в Сбербанк Онлайн выгоднее, чем в офисах. [Курсы валют](#)

	Продаю	Покупаю	Хочу продать
USD	76,80 ▲	79,96 ▲	10 000 RUB ▼
EUR	90,27 ▼	93,58 ▲	106,86 EUR ▼

Купите валюту в Сбербанк Онлайн и получите наличные в офисе без комиссии

[Купить валюту](#)

Модель заболеваемости

Прогнозирует прирост числа инфицированных в зависимости от соблюдения мер жителями.

Ваш регион

Россия Москва

Соблюдение мер

Меры соблюдаются

Индекс потребительской активности

Как много различных товаров и услуг оплачивают жители России?

Ваш регион:

Россия

Индекс за 05.10.2020

74

Потребление в обыч

Elements List

Type:

- Links
- Headings
- Form fields
- Buttons
- Landmarks

- Другие продукты Сбер
- Лучшие предложения для меня
- Золотая дебетовая карта
- Кредит на любые цели
 - 11,9%
 - 26 641 ₽
- Курсы валют в Сбербанк Онлайн**
 - Модель заболеваемости
 - Индекс потребительской активности
- Новости
- Все продукты и услуги
- Контактная информация
- Коммуникации с клиентами
- Сбербанк в социальных сетях
- Приложения

Filter by:

Activate

Move to

Cancel

Текстовые альтернативы

Контраст

Недостаточный контраст

CONTACT US

NAME

EMAIL

MESSAGE

SEND

CONTACT US

Name*

ENTER YOUR NAME

Email*

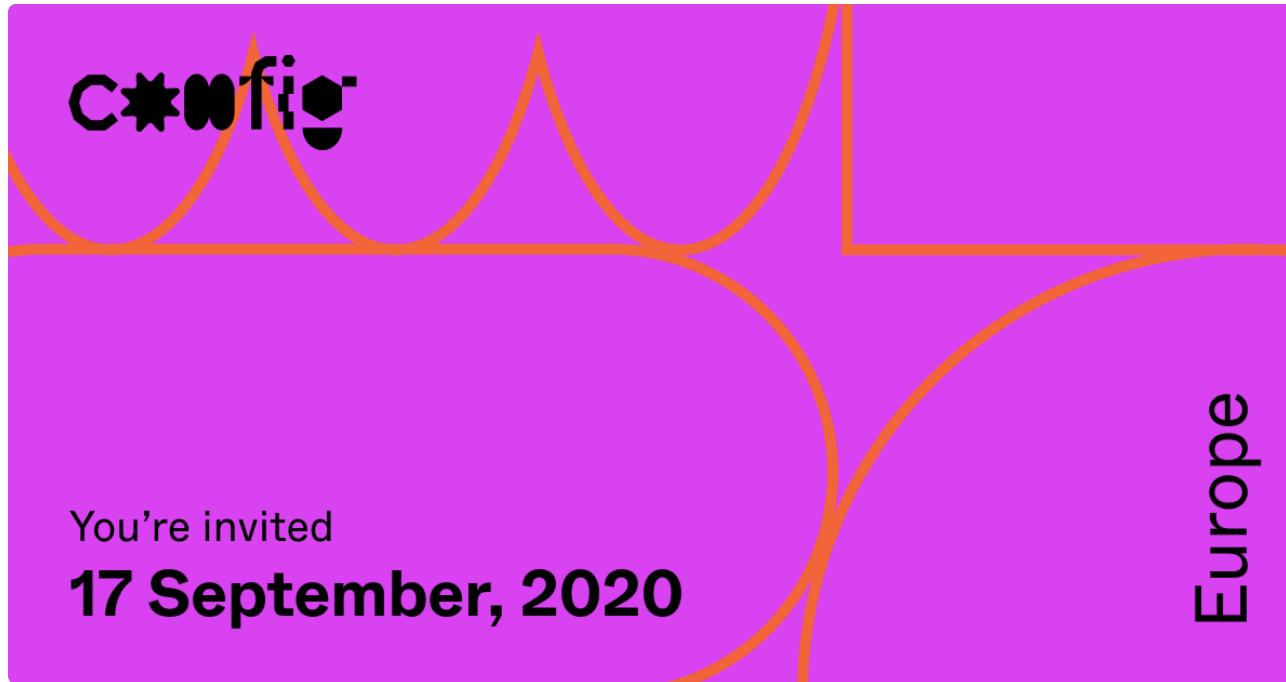
EXAMPLE@GMAIL.COM

Message

NO MORE THAN 500 CHARACTERS

SEND

Избыточный контраст



Использование цвета

A simple primary alert—check it out!

A simple secondary alert—check it out!

A simple success alert—check it out!

A simple danger alert—check it out!

A simple warning alert—check it out!

A simple info alert—check it out!

A simple light alert—check it out!

A simple dark alert—check it out!

A simple primary alert—check it out!

A simple secondary alert—check it out!

A simple success alert—check it out!

A simple danger alert—check it out!

A simple warning alert—check it out!

A simple info alert—check it out!

A simple light alert—check it out!

A simple dark alert—check it out!



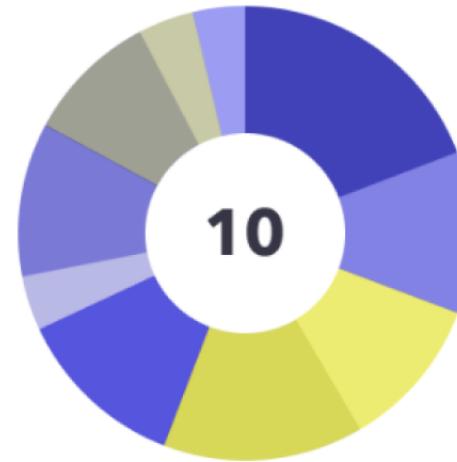
Certificate Authority



- COMODO S
- DigiCert SHA
- Fake LE Inte
- RapidSSL SH
- SelfSigned
- Symantec C
- Google Inte

Show more

Certificate Authority



- COMODO S
- DigiCert SHA
- Fake LE Inte
- RapidSSL SH
- SelfSigned
- Symantec C
- Google Inte

Show more



Current aligned

Usage relative

Date relative

Filtered

All



37

IE	Edge *	Firefox	Chrome	Safari	Opera	iO
	12-18	2-64	4-70		10-57	
6-10	79-84	65-79	71-84	3.1-13.1	58-69	3.1
11	85	80	85	14	70	
		81-82	86-88	TP		

Current aligned

Usage relative

Date relative

Filtered

All

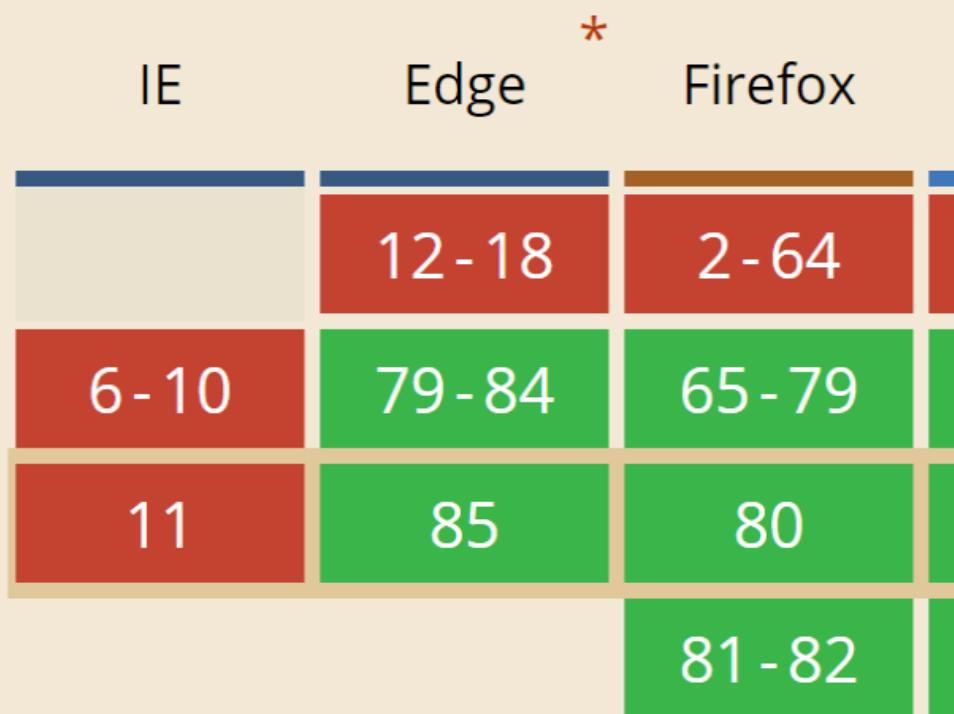


38

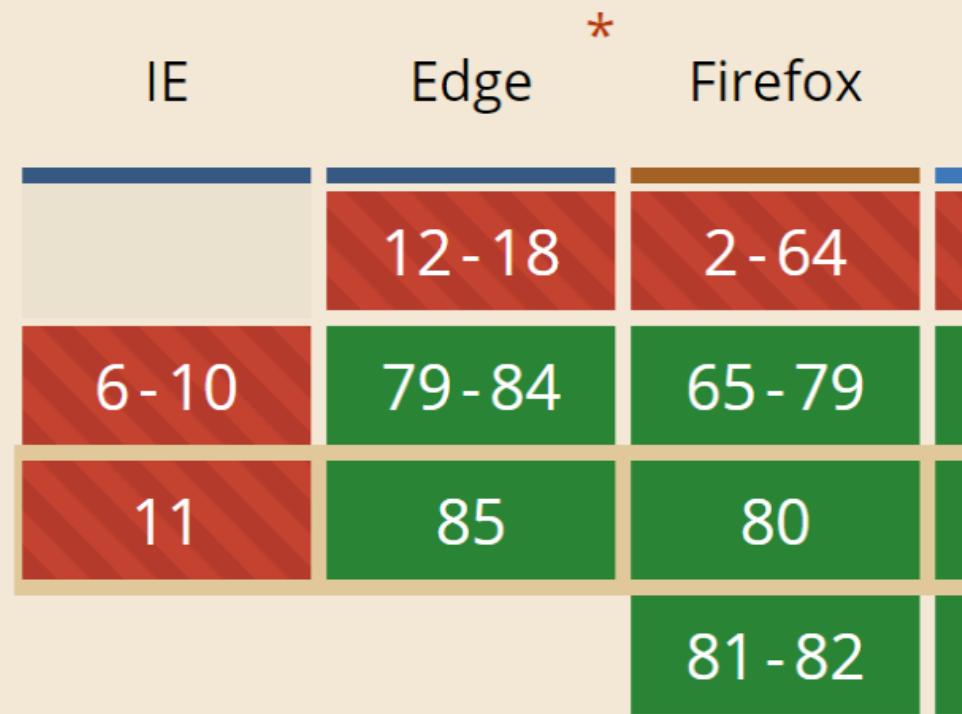
IE	Edge	Firefox	Chrome	Safari	Opera	iO
	12-18	2-64	4-70		10-57	
6-10	79-84	65-79	71-84	3.1-13.1	58-69	3.1
11	85	80	85	14	70	
	81-82	86-88	TP			



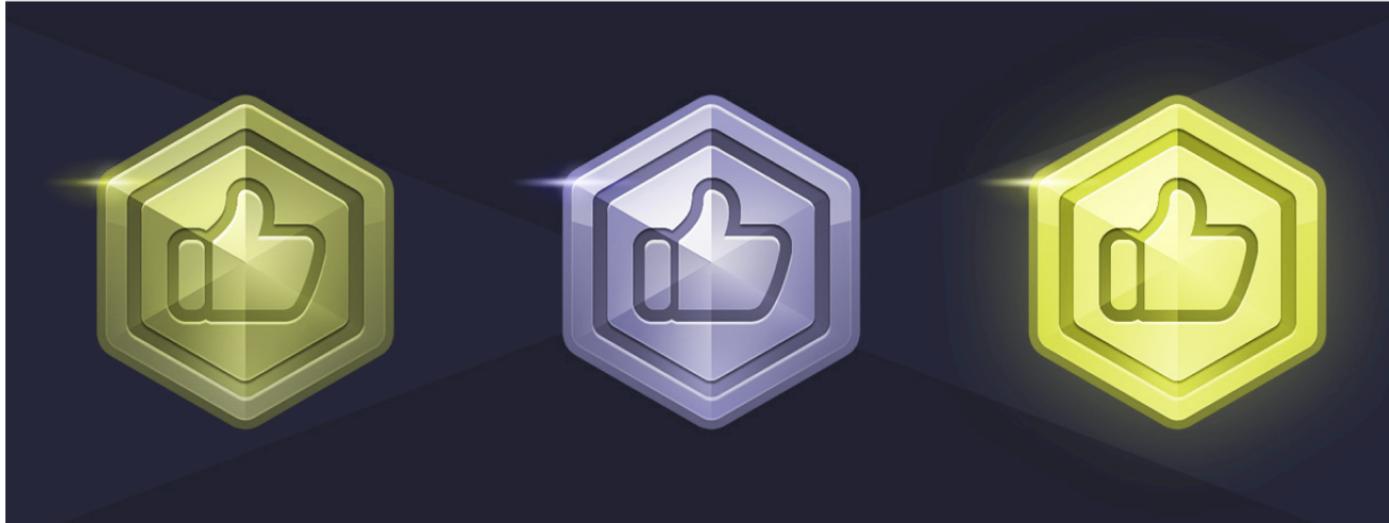
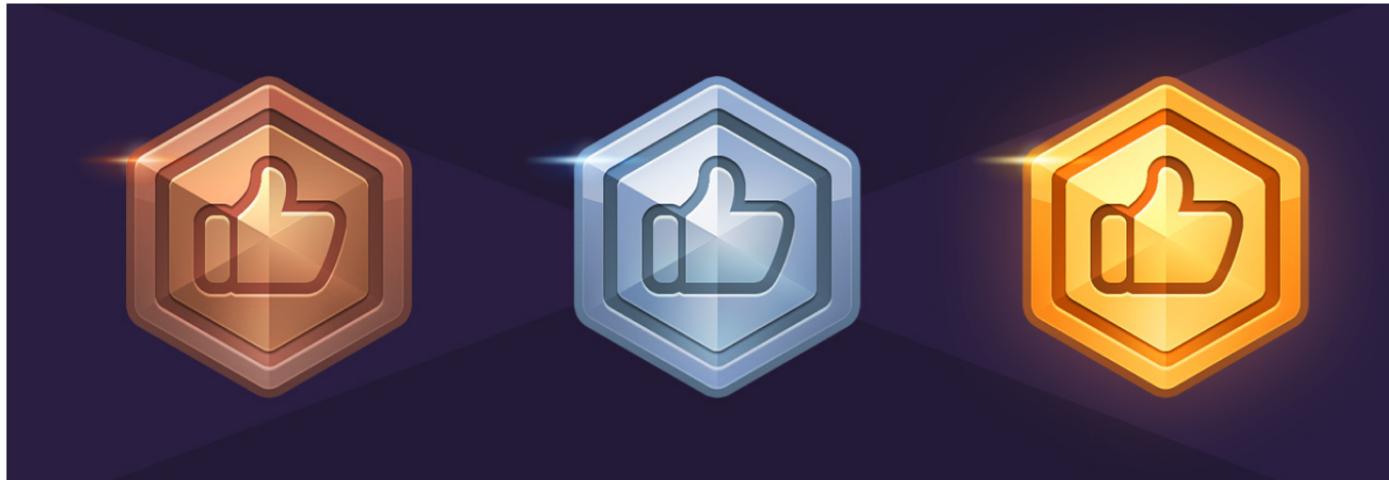
Current aligned	Usage relative	Date
-----------------	----------------	------



Current aligned	Usage relative	Date
-----------------	----------------	------



40



Hall



Build Citadel

15 38 15 15 15 30000 Month: 1, Week: 1, Day: 1

Hall

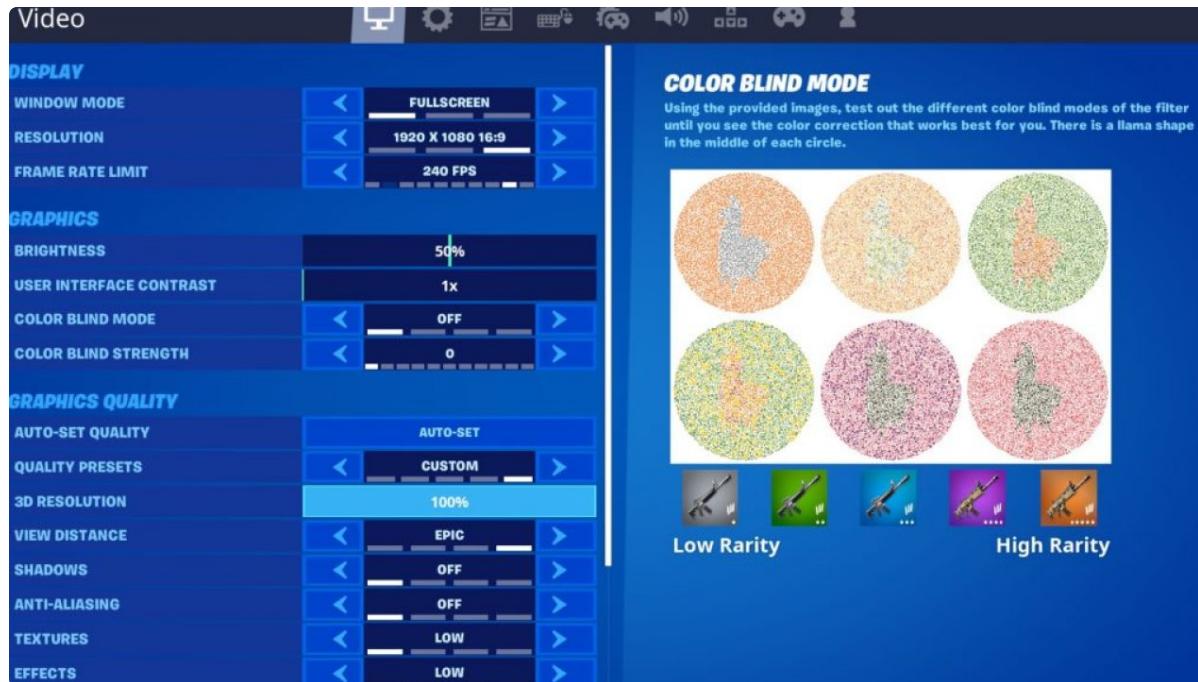


Build Citadel

15 38 15 15 15 30000 Month: 1, Week: 1, Day: 1

PS

Выбор цветового режима



Fortnite Color Blindness Mode



Формы

Template	<input type="checkbox"/> checkbox placeholder	Idle	Idle	Idle	Idle
	Helper text 0/20			Helper text	placeholder
Idle	<input type="checkbox"/>	Inactive (disabled)	Idle	Idle	Idle
		Reason for field being disabled			If the user is confused or additional information is available this element handles that.
On Focus	<input type="text"/>	On Focus	On Focus	On Focus	Error
	Helper text		Helper text 0/20	<input type="checkbox"/> Make primary	Helper text (mandatory)
Your username	username123	Success	Your Username	Your Username	Amount
	This username is unavailable	Helper text (optional)	321emanresu	321emanresu	\$USD
Sensitive Information	• • • • •	Password	Password	Password	Password + Validation
		Pa55wo	Pa55wo	Pa55wo	Pa55wo
Date	<input type="text"/>	Date	Mobile Phone	Mobile Phone	
		05-10-YYYY	<input type="text"/> (XXX) XXX XXXX	<input type="text"/> (XXX) XXX XXXX	<ul style="list-style-type: none"> At least 8 characters At least one capital letter At least one number No spaces
MM-DD-YYYY		MM-DD-YYYY			

Пример формы

Введите свой емейл

ПОДПИСАТЬСЯ

|

ПОДПИСАТЬСЯ

Пример формы

Введите свой емейл

ПОДПИСАТЬСЯ

Доступность с клавиатуры

Фокус

- Невидимый фокус
 - Плохой пример - Конституционный суд РФ
 - Хороший пример - GOV.UK
- Использование `tabindex` - Пример
- Контроль фокуса (Focus management) - <https://www.elysee.fr/>

Нативные и кастомные элементы

Нативная кнопка

Нормальная такая кнопка

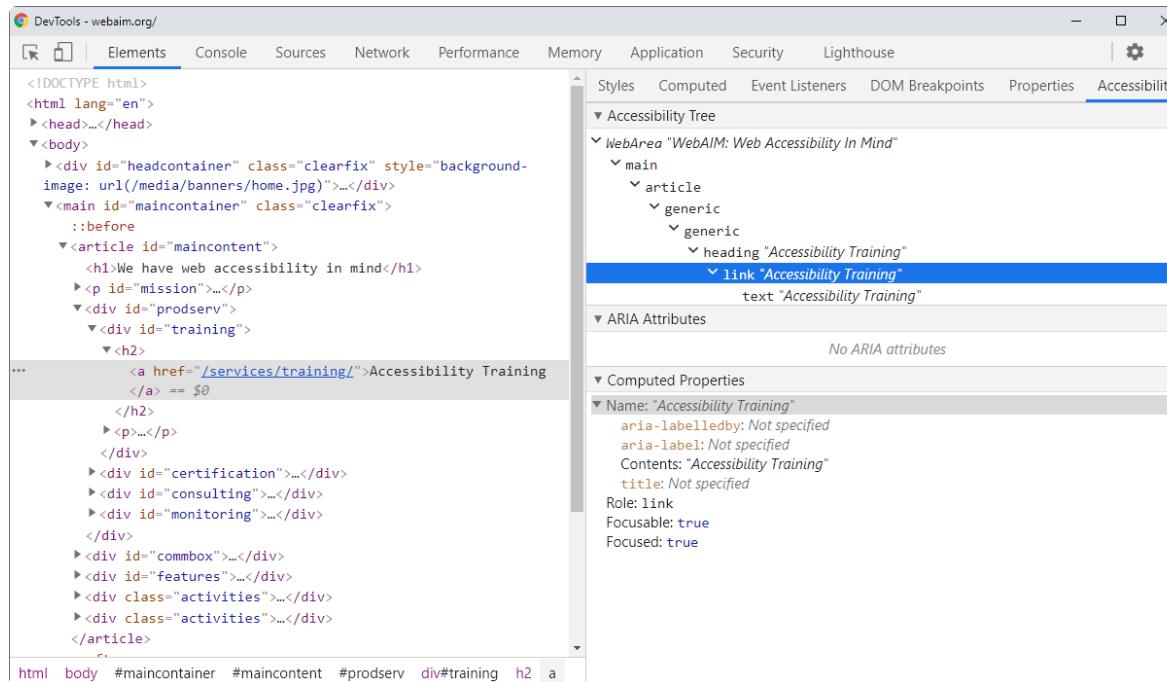
Кастомная кнопка

Нормальная такая кнопка

Как тестировать доступность

Средства браузеров

Google Chrome Accessibility Tab



Google Chrome Lighthouse

The screenshot shows the Lighthouse extension in the Chrome DevTools. The tab bar includes Elements, Console, Sources, Network, Performance, Memory, Application, Lighthouse, and a gear icon. The Lighthouse tab is active. The address bar shows the URL <https://web-accessibility.ca/>. Below the address bar, there are two checked checkboxes: "Clear storage" and "Simulated throttling". A large green circle with the number "94" is prominently displayed, indicating the overall accessibility score. The word "Accessibility" is written below the score. A descriptive text follows, stating: "These checks highlight opportunities to [improve the accessibility of your web app](#). Only a subset of accessibility issues can be automatically detected so manual testing is also encouraged." A section titled "ARIA" discusses opportunities to improve ARIA usage. A warning message "▲ ARIA IDs are not unique" is shown with a dropdown arrow. At the bottom, a section titled "Additional items to manually check (10)" provides information about areas where automated tools fall short, with a link to "conducting an accessibility review".

94

Accessibility

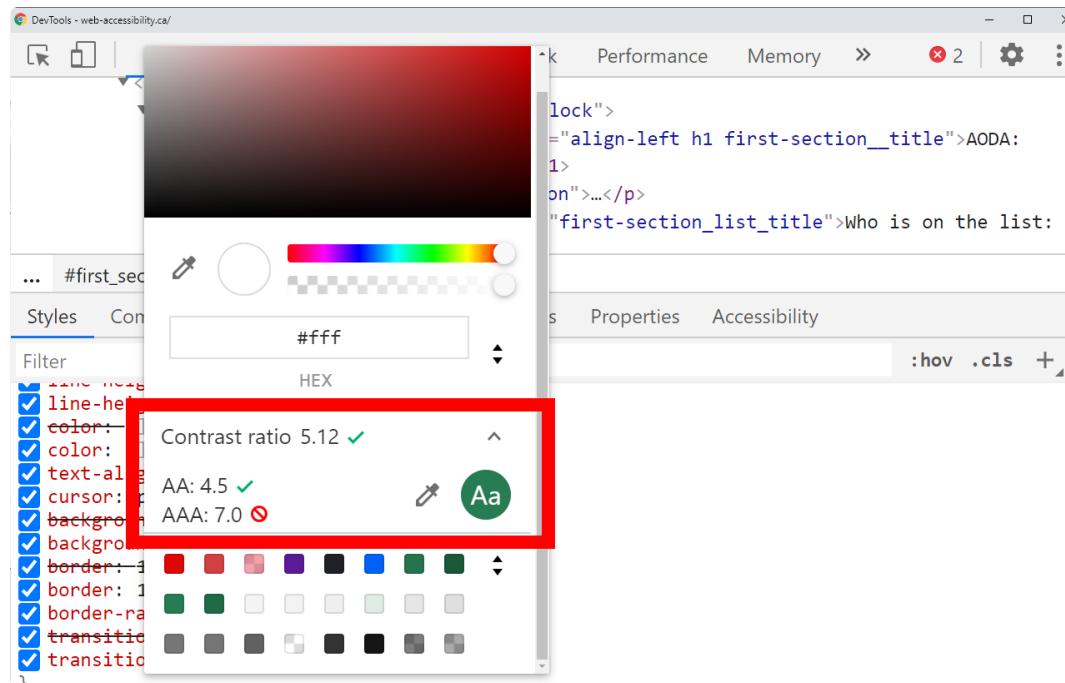
These checks highlight opportunities to [improve the accessibility of your web app](#). Only a subset of accessibility issues can be automatically detected so manual testing is also encouraged.

ARIA — These are opportunities to improve the usage of ARIA in your application which may enhance the experience for users of assistive technology, like a screen reader.

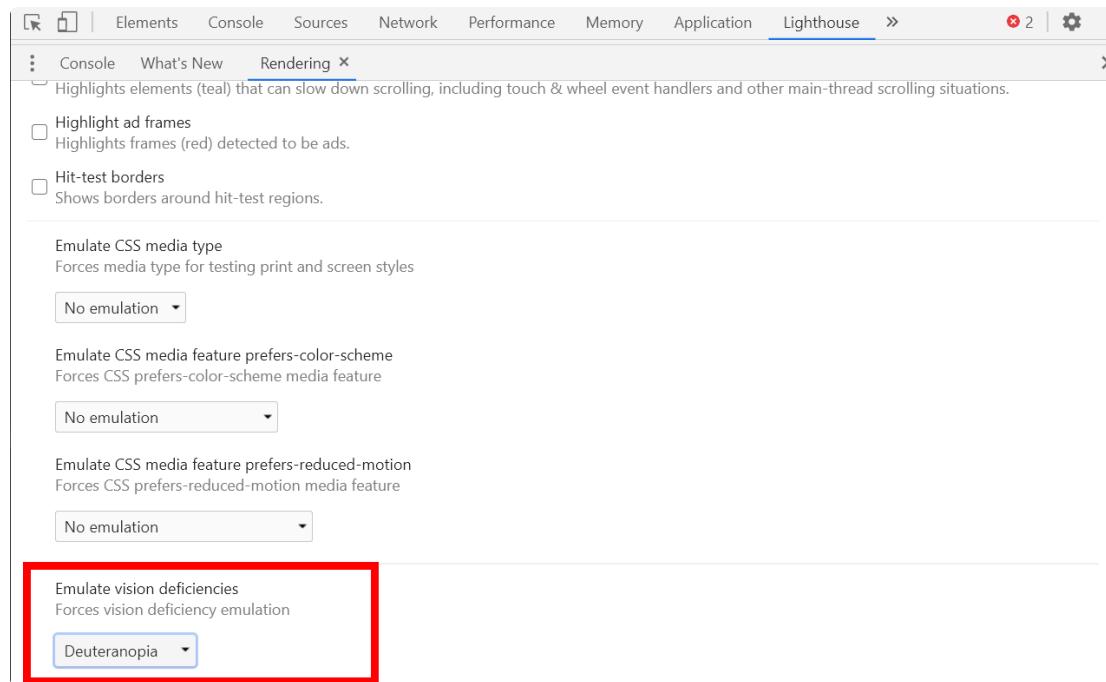
▲ ARIA IDs are not unique

Additional items to manually check (10) — These items address areas which an automated testing tool cannot cover. Learn more in our guide on [conducting an accessibility review](#).

Google Chrome DevTools Colors



Google Chrome Rendering Color Modes



Firefox Accessibility Checker

The screenshot shows the Firefox Developer Tools interface with the "Accessibility" panel open. The title bar includes tabs for Inspector, Console, Debugger, Styles, Profiler, and Accessibility. The Accessibility tab is active, indicated by a blue underline.

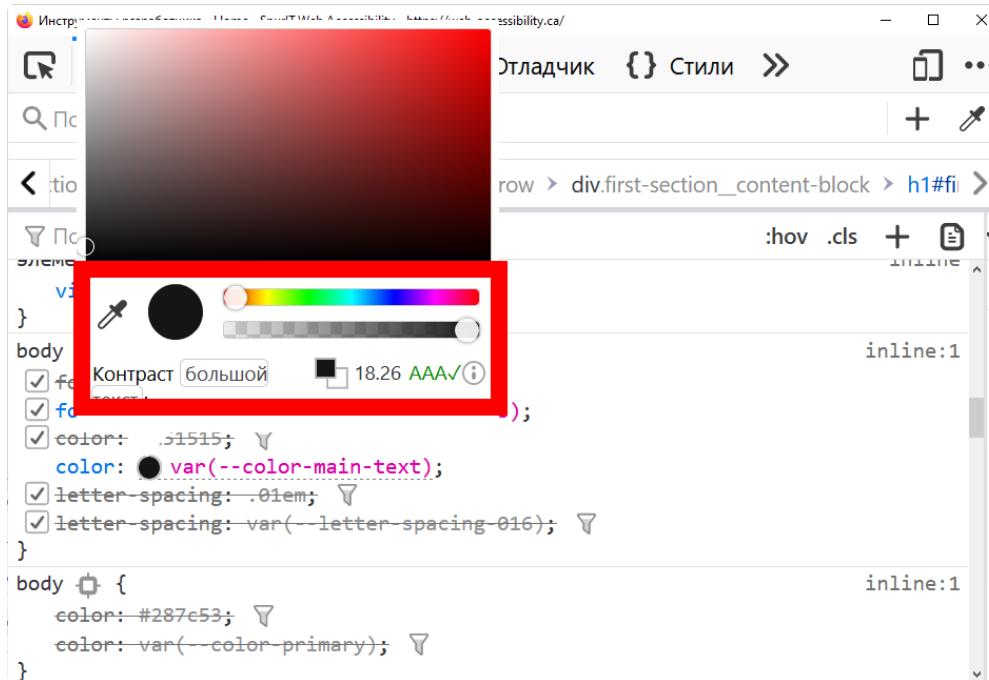
The main area displays a hierarchical tree of accessibility roles and their properties. A context menu is open over the "document" node, listing options: "Нет" (No), "Все проблемы" (All problems), "Контраст" (Contrast), "Клавиатура" (Keyboard), and "Текстовые метки" (Text labels).

Роль	Имя	Проверка
document:	"Home - SpurIT Accessibility"	Нет Все проблемы
landmark:		
link:	"Skip to content"	Контраст
region:	"AODA timer"	Клавиатура
section:		Текстовые метки
link:	"Home page"	
landmark:	"Main"	
landmark:	"Header locale switcher"	
link:	"english" (клавиатура)	
link:	"français"	
link:	"Phone Number +1 (888) 663-6479"	
landmark:		
landmark:	"Site"	
section:		

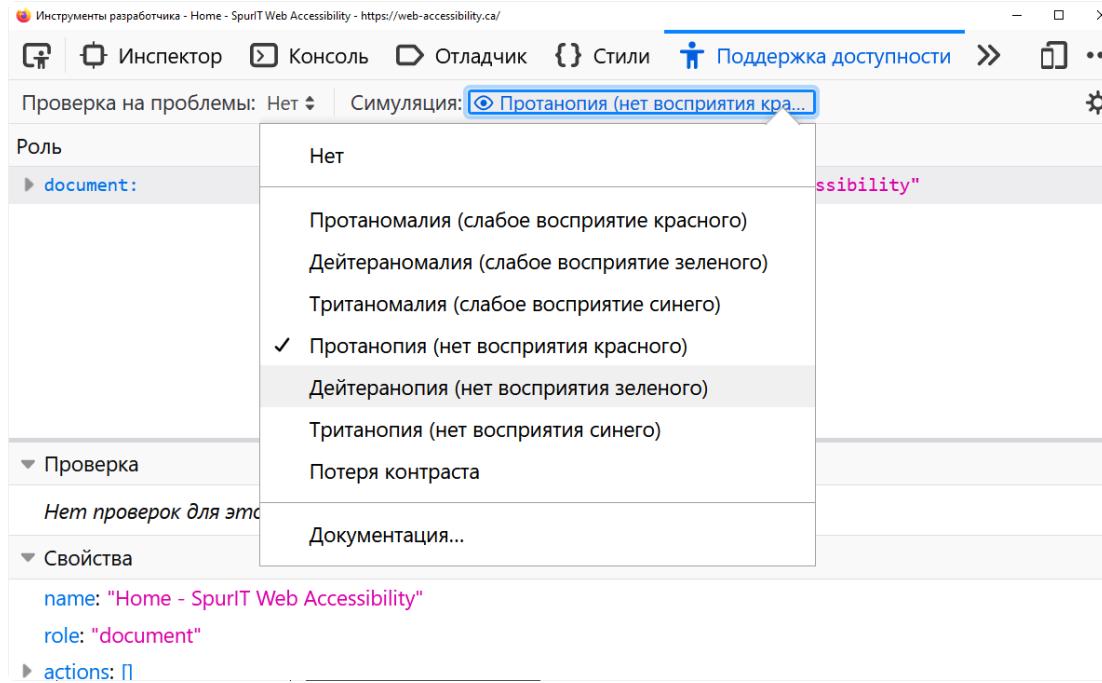
On the right side of the tree, detailed information about the selected node is shown:

- DOMNode: #document
- description: ""
- keyboardShortcut: ""
- childCount: 3
- indexInParent: 0
- states: [...]
- relations: {...}
- attributes: {...}

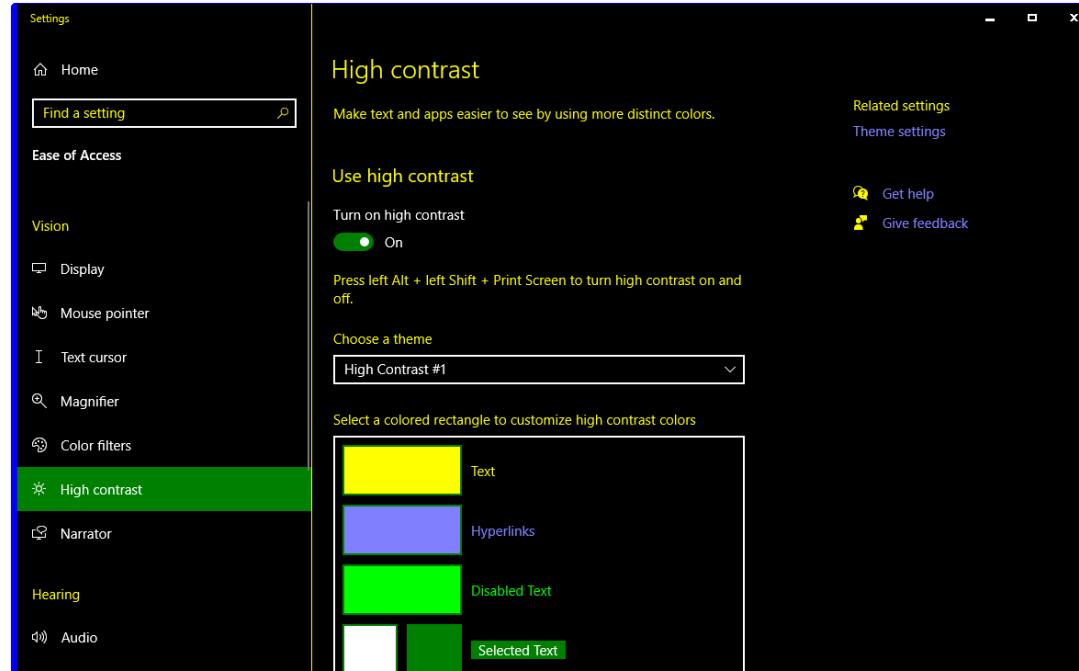
Firefox DevTools Colors



Firefox Color Modes Simulator



Режим высокой контрастности



Режим высокой контрастности

Name*
John Carlton

Email*
spur-i-t@gmail.com

URL*
Your website URL, http(s) is required

Get an audit

Name*
John Carlton

Email*
spur-i-t@gmail.com

URL*
Your website URL, http(s) is required

Get an audit

Name*
John Carlton

Email*
spur-i-t@gmail.com

URL*
Your website URL, http(s) is required

Get an audit

Плагины



Elements Console Sources Network Performance Memory Application Security Lighthouse axe

axe v4.5.3 (axe-core 3.5.5)

What you're analyzing
https://web-accessibility.ca/ Select Component

All Issues found 4 ▾ Save results Run again

IDs used in ARIA and labels must be unique 1

id attribute value must be unique 3

IDs used in ARIA and labels must be unique
Ensures every id attribute value used in ARIA and in labels is unique
Impact: critical Learn more

Element location
.nav[aria-labelledby="header_nav_title"] > .visually-hidden[aria-hidden="true"]

Element source
 Main

To solve this violation, you need to:
Fix the following:
Document has multiple elements referenced with ARIA with the same id attribute: header_nav_title
Related node:
</>Inspect
.header__content > .visually-hidden[aria-hidden="true"]

Issue tags: category: parsing wcag2a wcag411 >

NoCoffee Vision Simulator

**WCAG standards in Canada:
act now, or expect legal
consequences later**

AODA is just one of the laws and legislations that are aimed to make the web accessible to all Canadians:



The Accessible Canada Act
[Bill C-81](#)



Nova Scotia Accessibility Act
[Source](#)



The Accessibility for Manitobans Act
[AMA](#)



British Columbia Accessibility Act
[Bill 23](#)

These acts have a special focus on digital accessibility and websites – failure to comply with WCAG 2.0 AA requirements could end up with a fine of up to \$250,000.

And this is just the beginning, as other provinces ([British Ontario](#), [Saskatchewan](#), and [Yukon](#)) are planning to follow suit with their own accessibility initiatives, when the [Accessible Canada Act](#) is in place.

NoCoffee Vision Simulator [\(Reset all\)](#)

Pervasive Issues

- Blur (low acuity):
- Contrast less:
- Glare:
- Ghosting:
- Snow:
- Cloudiness (cataracts):
- Flutter (nystagmus):

Color deficiency: **Deutanopia** [Deutanopia](#)

Blocked visual field

- Normal
- Central (macular degeneration)
- Peripheral (glaucoma, retinitis pigmentosa)
- Corner (retinal detachment)
- Side (hemianopia)
- Large spots (diabetic retinopathy)
- Floaters

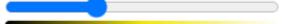
Strength and size:

[More info](#) [Feedback](#)

Color Contrast Checker

Foreground Color: #9B9108 

Background Color: #FFFFFF 

Lightness:  

Contrast Ratio: **3.25:1**

[permalink](#)

Normal Text

WCAG AA: **Fail**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Large Text

WCAG AA: **Pass**

WCAG AAA: **Fail**

The five boxing wizards jump quickly.

Graphical Objects and User Interface Components

WCAG AA: **Pass**

Text Input 

Очки



**Когда
разрабатывать
доступность?**

Внедрять на этапе проектирования



В готовом проекте действовать аккуратно



Обеспечить постоянную поддержку



Выводы

Выводы

- Узнавайте и пробуйте новое
- Учитесь и расширяйте границы
- Знакомьтесь с разными людьми
- Будьте котиками
- #StayHome

С чего начать

С чего начать

- Курс по доступности от Google
- Курс по доступности от W3C
- Курсы от Deque University
- Solving an Invisible Problem: Designing for Color-Blindness in Games

Кого почитать

- @paciellogroup
- @heydonworks
- @stevefaulkner
- @LeonieWatson
- @ sergeikriger
- @pepelsbey
- @ta_fokina
- @SelenIT2



Accessibility Club Minsk

@allyminsk

Спасибо!

- Twitter: @GlaFiraZhur
- Telegram: @glaFira_zhur