Working with High Contrast Mode

#a11yTOCamp

November 18, 2017

Hi there!

- UX Designer at Cantina in Boston, MA
- Occasional author at CSS-Tricks
- Janitor at the The A11Y Project

Head’s up

- Video
- High contrast
- Mild strobing

The ideal

WCAG AA

We don’t live in a perfect world

Grey (eh?) **and** **gray** (ah!)

The real world is complicated

Irlen Syndrome

Scotopic sensitivity

You don’t know what you don’t know

Keep your content open and interoperable

It's important to recognise that experience is not a singular thing, our experience is not universal, not everyone accesses content the same way we do, on the same devices, on the same networks, in the same modalities we do.

And when we design the web in the way that we expereince it, we actually limit the way that other people experience it. We actually exclude the people that are not like us, and that's not great.

—Aaron Gustafson

High Contrast Mode

A thing that exists

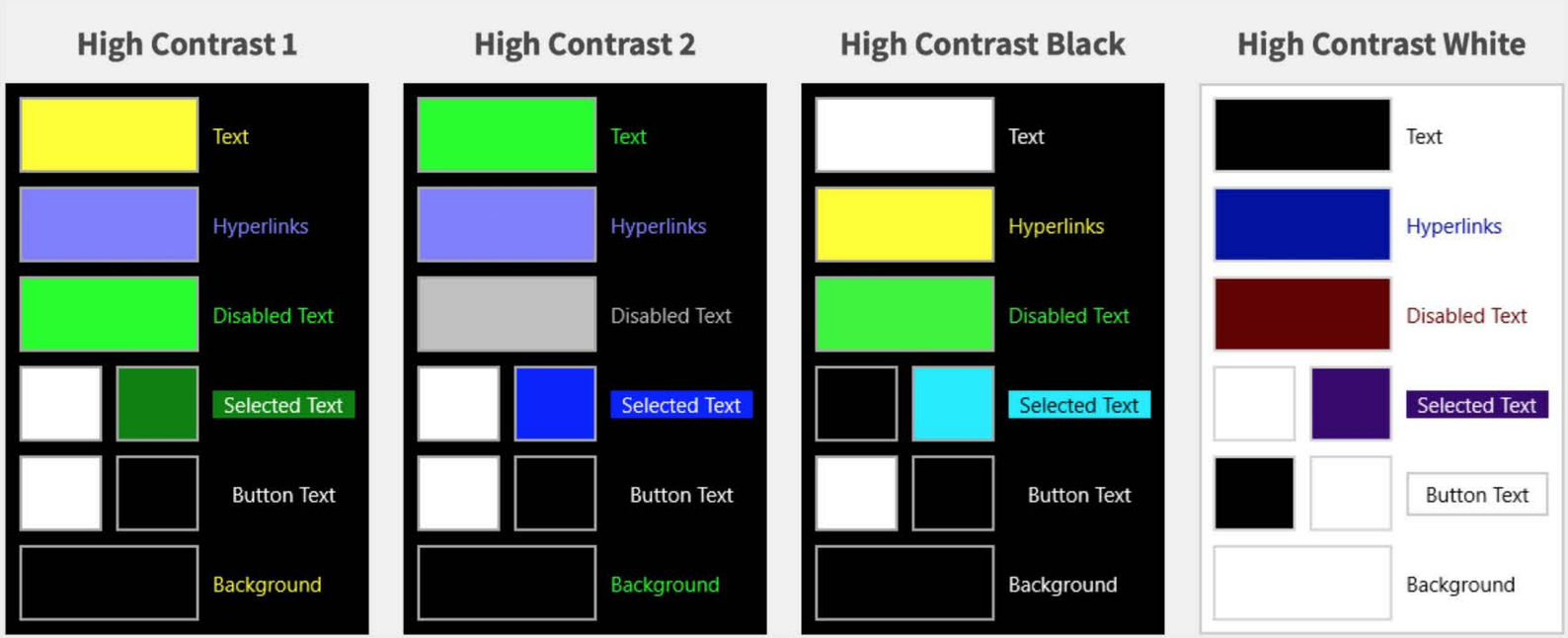
Where it works

Windows 7+

Internet Explorer 10+

Microsoft Edge

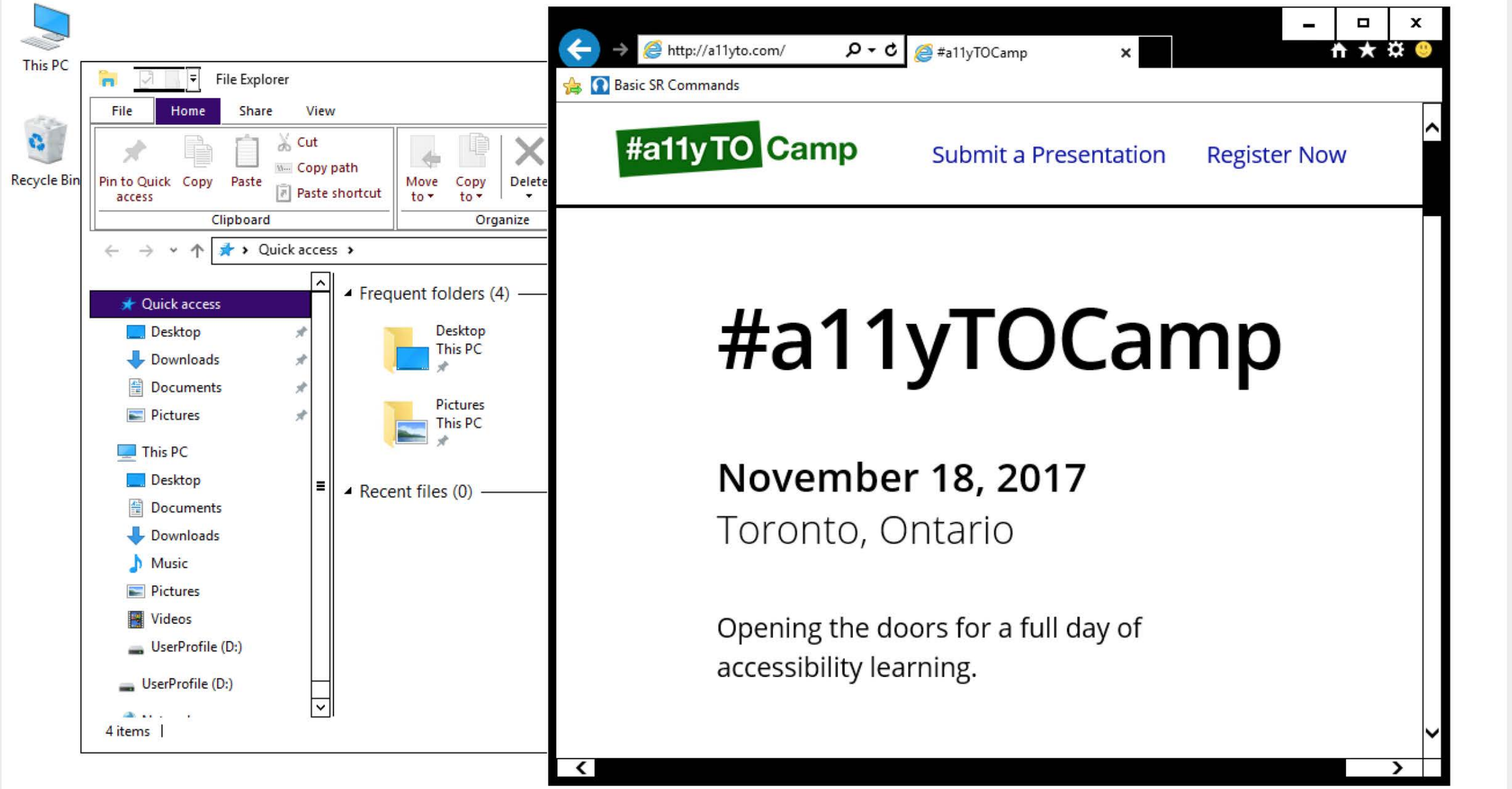
Different themes


High Contrast 1
Text
Hyperlinks
Disabled Text
Selected Text
Button Text
Background
High Contrast 2
Text
Hyperlinks
Disabled Text
Selected Text
Button Text
Background
High Contrast Black
Text
Hyperlinks
Disabled Text
Selected Text
Button Text
Background
High Contrast White
Text
Hyperlinks
Disabled Text
Selected Text
Button Text
Background

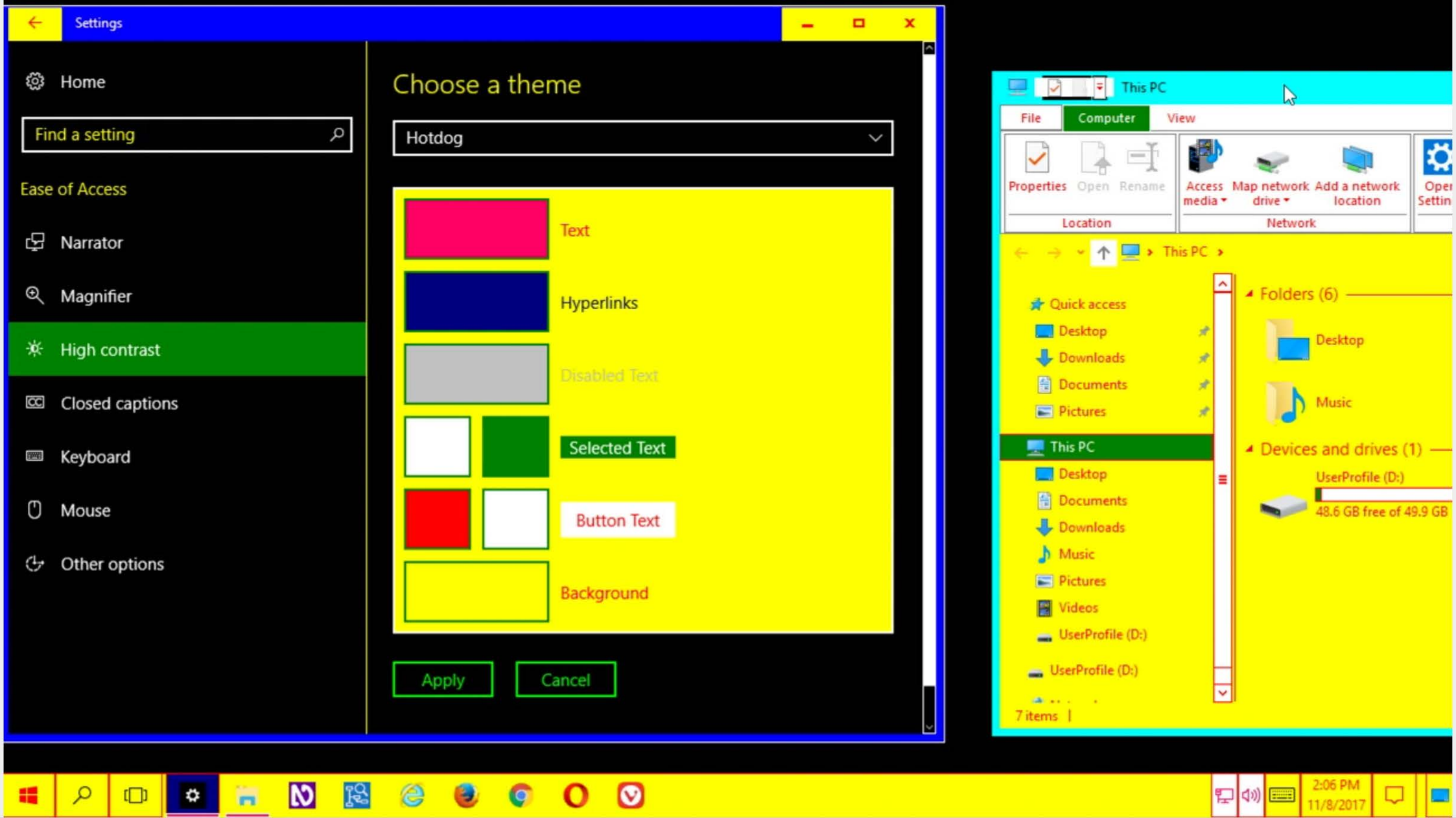
This PC
Recycle Bin
File Explorer
File
Home
Share
View
Cut
Copy path
Paste shortcut
Pin to Quick access
Copy
Paste
Move to
Copy to
Delete
Clipboard
Organize
Quick access
Desktop
Downloads
Documents
Pictures
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
UserProfile (D:)
UserProfile (D:)
Frequent folders (4)
Desktop
This PC
Pictures
This PC
Recent files (0)
4 items
http://a11yto.com/
#a11yTOCamp
Basic SR Commands
#a11yTO Camp
Submit a Presentation
Register Now
#a11yTOCamp
November 18, 2017
Toronto, Ontario
Opening the doors for a full day of accessibility learning.
2:31 PM
11/8/2017

This PC
Recycle Bin
File Explorer
File
Home
Share
View
Cut
Copy path
Paste shortcut
Pin to Quick access
Copy
Paste
Clipboard
Move to
Copy to
Delete
Organize
Quick access
Desktop
Downloads
Documents
Pictures
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
UserProfile (D:)
UserProfile (D:)
Frequent folders (4)
Desktop
This PC
Pictures
This PC
Recent files (0)
4 items
http://a11yto.com/
#a11yTOCamp
Basic SR Commands
#a11yTO Camp
Submit a Presentation
Register Now
#a11yTOCamp
November 18, 2017
Toronto, Ontario
Opening the doors for a full day of accessibility learning.
2:31 PM
11/8/2017

This PC
Recycle Bin
File Explorer
File
Home
Share
View
Cut
Copy path
Paste shortcut
Pin to Quick access
Copy
Paste
Clipboard
Move to
Copy to
Delete
Organize
Quick access
Quick access
Desktop
Downloads
Documents
Pictures
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
UserProfile (D:)
UserProfile (D:)
Frequent folders (4)
Desktop
This PC
Pictures
This PC
Recent files (0)
4 items
http://a11yto.com/
#a11yTOCamp
Basic SR Commands
#a11yTO Camp
Submit a Presentation
Register Now
#a11yTOCamp
November 18, 2017
Toronto, Ontario
Opening the doors for a full day of accessibility learning.
2:31 PM
11/8/2017


This PC
Recycle Bin
File Explorer
File
Home
Share
View
Cut
Copy path
Paste shortcut
Pin to Quick access
Copy
Paste
Move to
Copy to
Delete
Clipboard
Organize
Quick access
Desktop
Downloads
Documents
Pictures
This PC
Desktop
Documents
Downloads
Music
Pictures
Videos
UserProfile (D:)
UserProfile (D:)
Frequent folders (4)
Desktop
This PC
Pictures
This PC
Recent files (0)
4 items
http://a11yto.com/
#a11yTOCamp
Basic SR Commands
#a11yTO Camp
Submit a Presentation
Register Now
#a11yTOCamp
November 18, 2017
Toronto, Ontario
Opening the doors for a full day of accessibility learning.
2:31 PM
11/8/2017

Custom themes


Settings
Home
Find a setting
Ease of Access
Narrator
Magnifier
High contrast
Closed captions
Keyboard
Mouse
Other options
Choose a theme
Hotdog
Text
Hyperlinks
Disabled Text
Selected Text
Button Text
Background
Apply
Cancel
This PC
File
Computer
View
Properties
Open
Rename
Location
Access media
Map network drive
Add a network location
Network
Quick access
Desktop
Downloads
Documents
Pictures
This PC
Videos
UserProfile (D:)
Folders (6)
Music
Devices and drives (1)
48.6 GB free of 49.9 GB
7 items
2:06 PM
11/8/2017

Who uses it:

Everyone

People experiencing a biological condition

People experiencing an environmental condition

Tell me the numbers

Nah

Shaun Finglas
@ShaunFinglas

Follow

Protip - max brightness and high contrast mode enabled allows you to use your laptop in the garden. Looks ugly but functional.

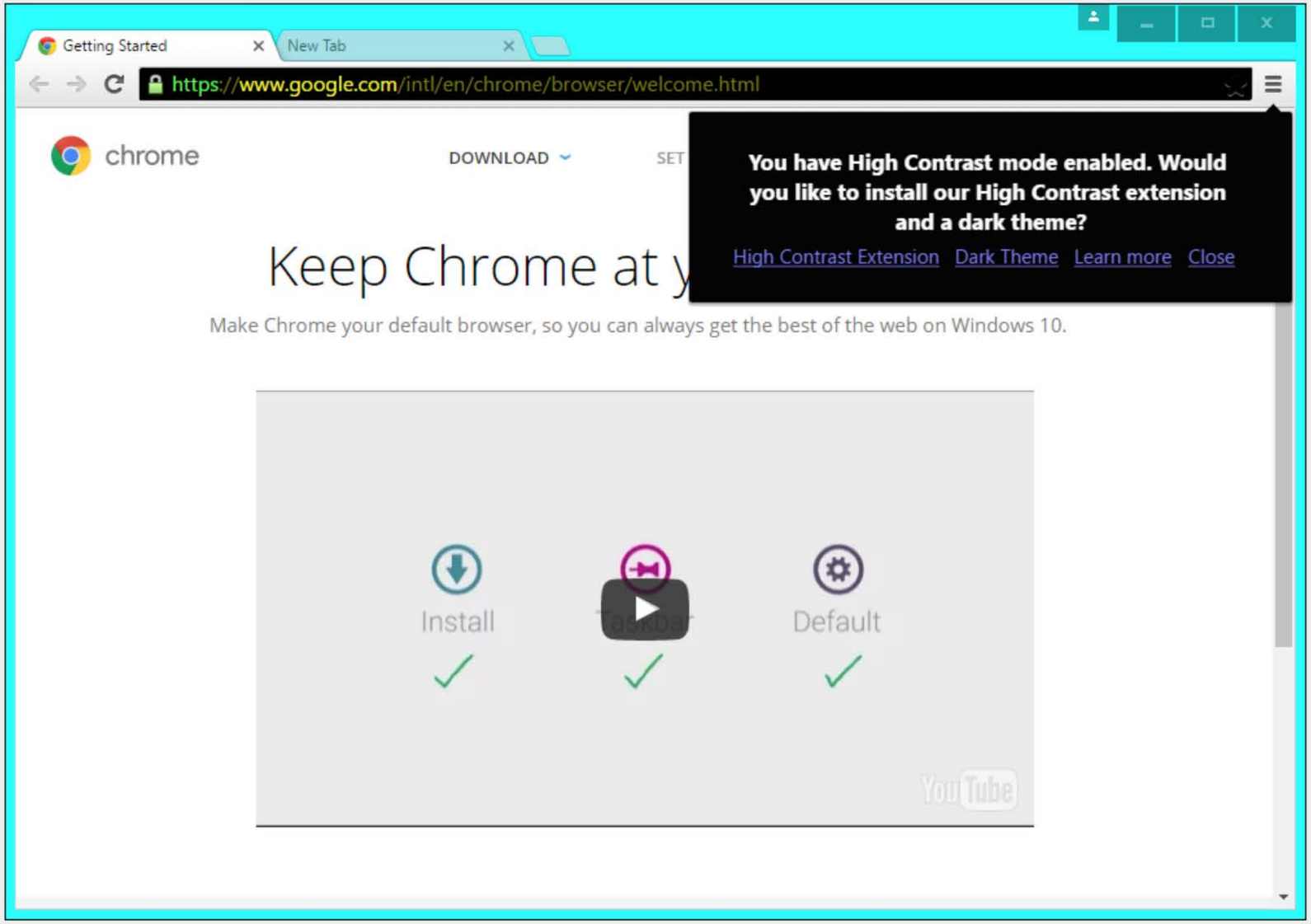
9:03 AM - 28 May 2017

1.4.8

Visual Presentation

“Foreground and background colors can be selected by the user.”

So close, and yet so far away


Getting Started
New Tab
https://www.google.com/intl/en/chrome/browser/welcome.html
chrome
DOWNLOAD
SET
You have High Contrast mode enabled. Would you like to install our High Contrast extension and a dark theme?
High Contrast Extension
Dark Theme
Learn more
Close
Keep Chrome at y
Make Chrome your default browser, so you can always get the best of the web on Windows 10.
Install
Default
YouTube

How it works

Semantic HTML

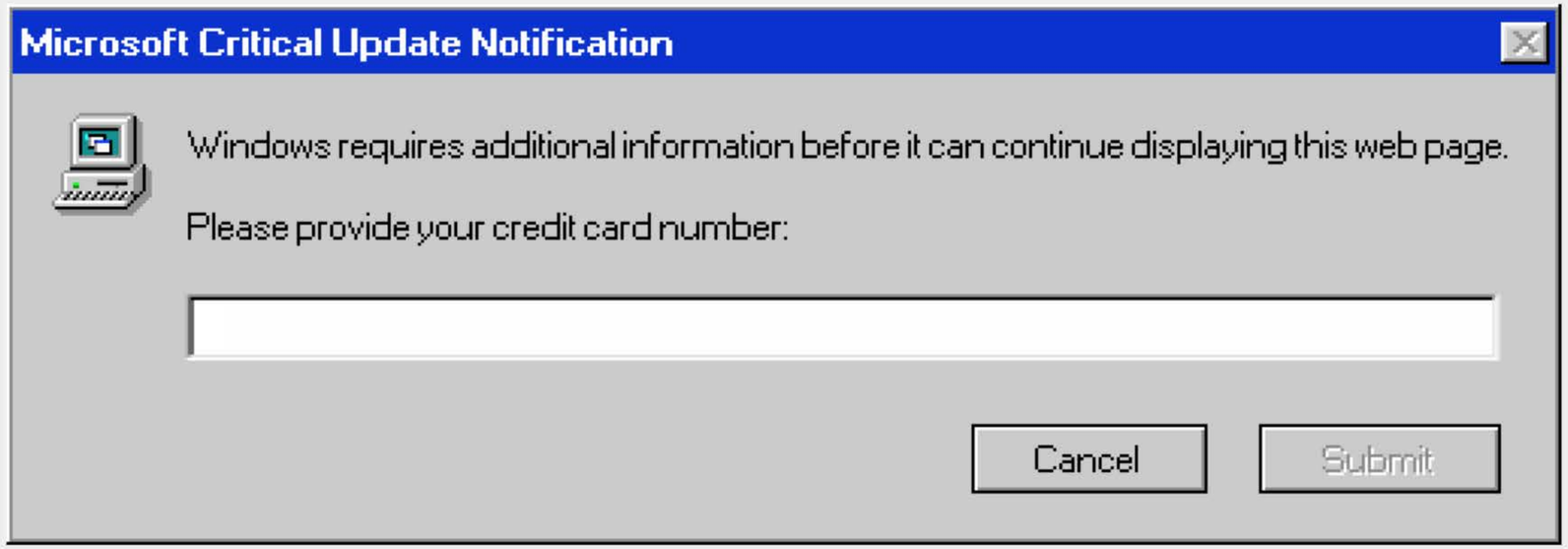
Using it

```css
/* Targets the High Contrast Black theme: */
@media (-ms-high-contrast: white-on-black) { }

/* Targets the High Contrast White theme: */
@media (-ms-high-contrast: black-on-white) { }

/* Targets any active High Contrast theme */
@media (-ms-high-contrast: active) { }
```

```
/* Targets the High Contrast Black theme: */
@media (-ms-high-contrast: white-on-black) { }

/* Targets the High Contrast White theme: */
@media (-ms-high-contrast: black-on-white) { }

/* Targets any active High Contrast theme */
@media (-ms-high-contrast: active) { }
```

CSS2
System Colors

ActiveBorder	ActiveCaption	AppWorkspace	Background
ButtonFace	ButtonHighlight	ButtonShadow	ButtonText
CaptionText	GrayText	Highlight	HighlightText
InactiveBorder	InactiveCaption	InactiveCaptionText	InfoBackground
InfoText	Menu	MenuText	Scrollbar
ThreeDDarkShadow	ThreeDFace	ThreeDHighlight	ThreeDLightShadow
ThreeDShadow	Window	WindowFrame	WindowText


Microsoft Critical Update Notification
Windows requires additional information before it can continue displaying this web page.
Please provide your credit card number:
Cancel
Submit

High Contrast Mode Keywords

ActiveBorder	ActiveCaption	AppWorkspace	Background
ButtonFace	ButtonHighlight	ButtonShadow	ButtonText
CaptionText	GrayText	Highlight	HighlightText
InactiveBorder	InactiveCaption	InactiveCaptionText	InfoBackground
InfoText	Menu	MenuText	Scrollbar
ThreeDDarkShadow	ThreeDFace	ThreeDHighlight	ThreeDLightShadow
ThreeDShadow	Window	WindowFrame	WindowText

ActiveBorder ActiveCaption AppWorkspace Background

ButtonFace ButtonHighlight ButtonShadow ButtonText

CaptionText GrayText Highlight HighlightText

InactiveBorder InactiveCaption InactiveCaptionText InfoBackground

InfoText Menu MenuText Scrollbar

ThreeDDarkShadow ThreeDFace ThreeDHighlight ThreeDLightShadow

ThreeDShadow Window WindowFrame WindowText

Keyword	Content Type
<a>	Links

Keyword	Content Type
`<a>`	Links
`windowText`	Text

Keyword	Content Type
`<a>`	Links
`windowText`	Text
`highlightText`	Selected Text Foreground
`highlight`	Selected Text Background

Keyword	Content Type
`<a>`	Links
`windowText`	Text
`highlightText`	Selected Text Foreground
`highlight`	Selected Text Background
`buttonFace`	Button Text

Keyword	Content Type
`<a>`	Links
`windowText`	Text
`highlightText`	Selected Text Foreground
`highlight`	Selected Text Background
`buttonFace`	Button Text
`window`	Background Color

“Isn’t this limited?”

Yes, that's the point!

Hugo Giraudel
@HugoGiraudel

Following

High contrast mode is not about design anymore but strict usability. You should aim for highest readability, not color aesthetics.

7:17 AM - 20 Jun 2017

2 4 5

Keep it predictable

Gentle nudges, not complete overhauls

Using it

Your name
ex: John

Your name

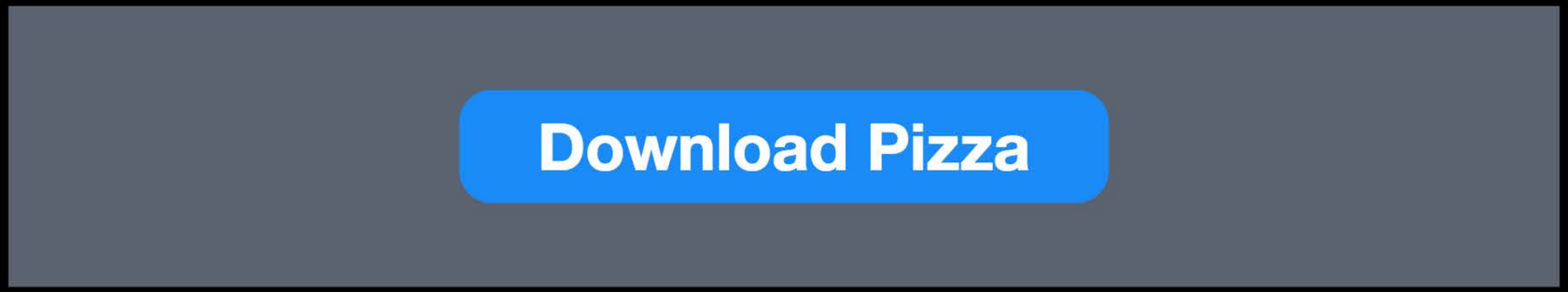
Example: John, Priyanka, 张伟

```
/* Apply styling when High Contrast Mode is active */
@media (-ms-high-contrast: active) {
}
```

```
/* Apply styling when High Contrast Mode is active */
@media (-ms-high-contrast: active) {
    input {
        border: 2px solid #ffffff;
    }
}
```

```
/* Apply styling when High Contrast Mode is active */
@media (-ms-high-contrast: active) {
    input {
        border: 2px solid buttonFace;
    }
}
```

```
<span class="button" role="button" tabindex="0">
  Download Pizza
</span>
```



```
<span class="button" role="button" tabindex="0">
  Download Pizza
</span>

/* Apply styling when High Contrast Mode is active */
@media (-ms-high-contrast: active) {
}
```

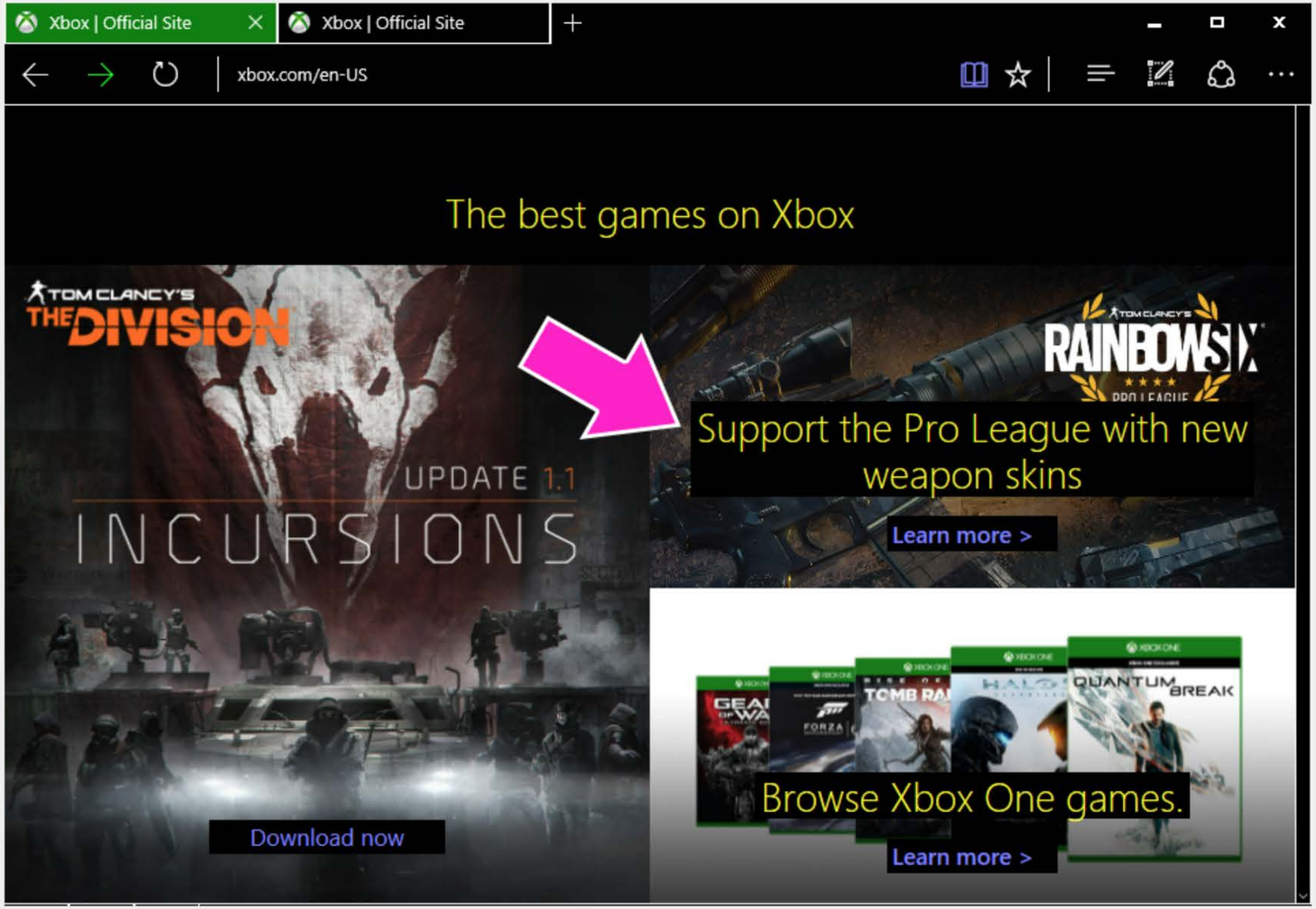
```
<span class="button" role="button" tabindex="0">
  Download Pizza
</span>

/* Apply styling when High Contrast Mode is active */
@media (-ms-high-contrast: active) {
    [role="button"] {
        border: 0.15em solid buttonText;
        color: buttonText;
    }
}
```

Content considerations

Background images

“Don’t use CSS background images to deliver content.”

—Terrill Thompson


Xbox | Official Site
Xbox | Official Site
xbox.com/en-US
The best games on Xbox
TOM CLANCY'S THE DIVISION
UPDATE 1.1
INCURSIONS
Download now
TOM CLANCY'S RAINBOW SIX
Support the Pro League with new weapon skins
Learn more >
QUANTUM BREAK
Browse Xbox One games.
Learn more >

Raster images

JPEGs, PNGs, GIFs, etc.

```css
/* Slightly enhance important images */
@media screen and (-ms-high-contrast: active) {
  img.hero {
    filter: brightness(1) contrast(1) saturate(1.5);
  }
}
```

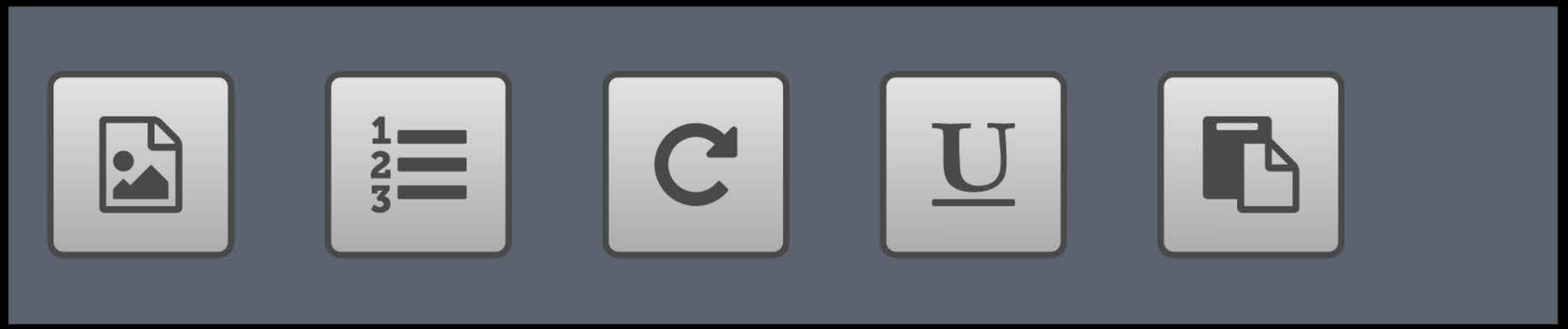
SOURCE: AP/REX/Shutterstock

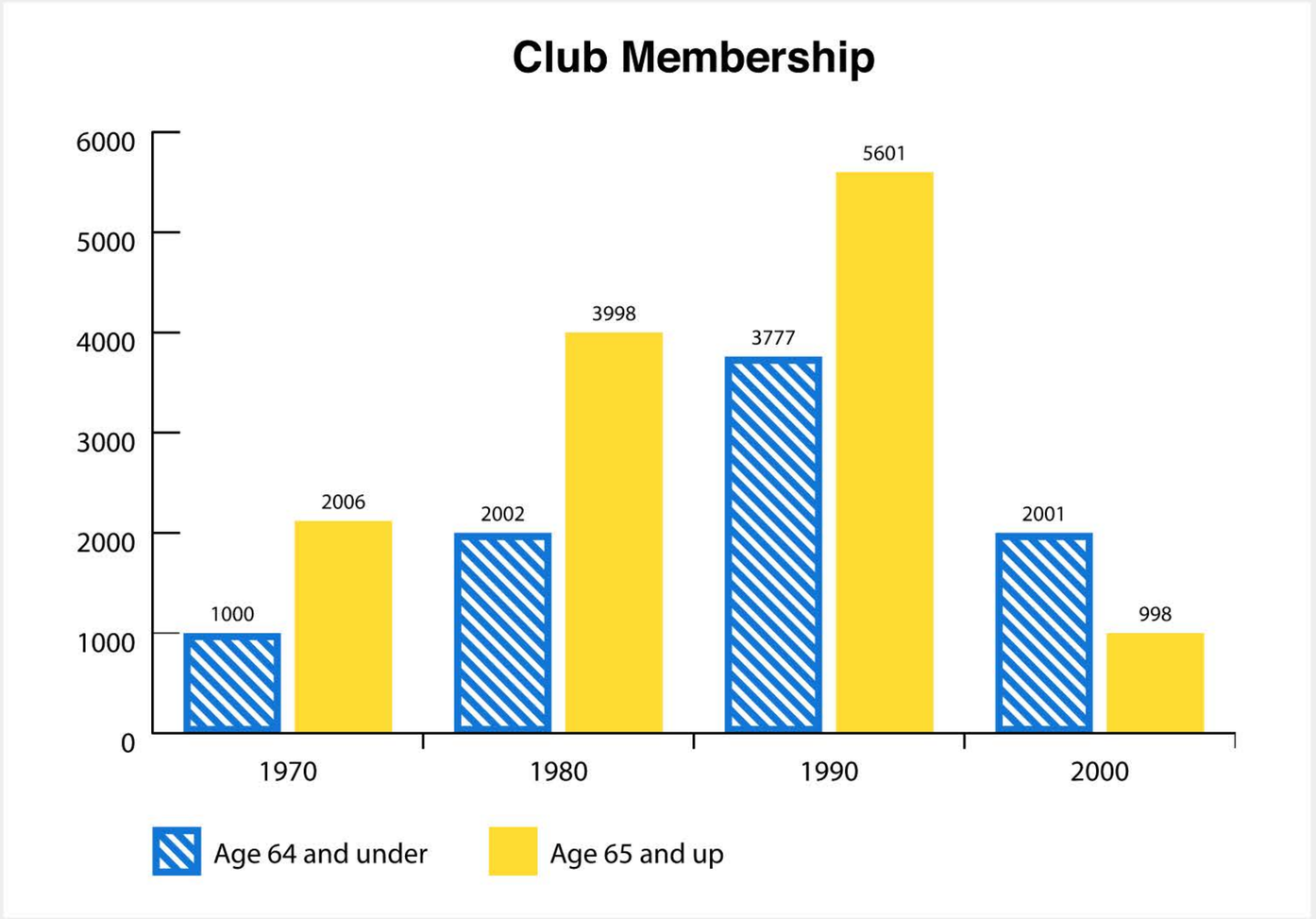
SVG

Scalable Vector Graphics

```css
/* Only applies to inline SVG */
/* Non-interactive icons */
.icon-svg {
  fill: currentColor;
}
```

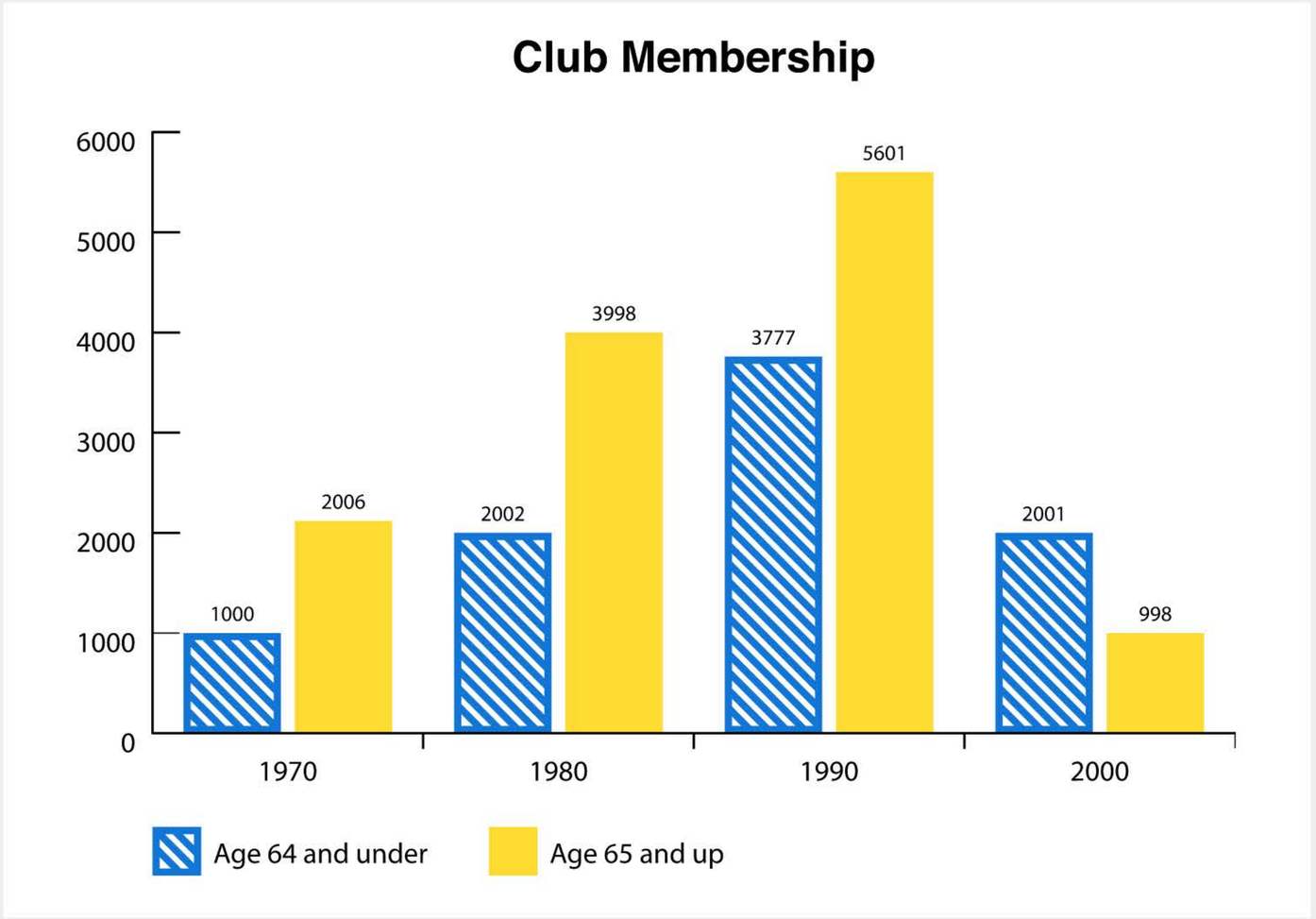
```
/* Interactive icons */
@media screen and (-ms-high-contrast: active) {
  button.icon-svg {
      background: none;
      border-color: buttonText;
      fill: buttonText;
  }
}
```




Club Membership
6000
5000
4000
3000
2000
1000
0
1000
2006
2002
3998
3777
5601
2001
998
1970
1980
1990
2000
Age 64 and under
Age 65 and up

```
/* Static color declarations */
.bar-chart { background-color: #ffffff; }

.bar-chart .frame { stroke: #000000; }

.bar-chart .text { fill: #000000; }

.bar-chart .age-sixtyfour-under { fill: #0074d9; }

.bar-chart .age-sixtyfour-under { fill: #ffdc00; }
```

```
/* Dynamic color when High Contrast mode is active */
@media (-ms-high-contrast: active) {
  .bar-chart { background-color: window; }

  .bar-chart .frame { stroke: highlightText; }
  .bar-chart .text { fill: highlightText; }

  .bar-chart .age-sixtyfour-under { fill: windowText; }

  .bar-chart .age-sixtyfour-over { fill: highlight; }
}
```


Club Membership
6000
5000
4000
3000
2000
1000
0
1000
2006
2002
3998
3777
5601
2001
998
1970
1980
1990
2000
Age 64 and under
Age 65 and up

SOURCE: https://dev.w3.org/SVG/tools/svgweb/samples/svg-files/gallardo.svg

Media

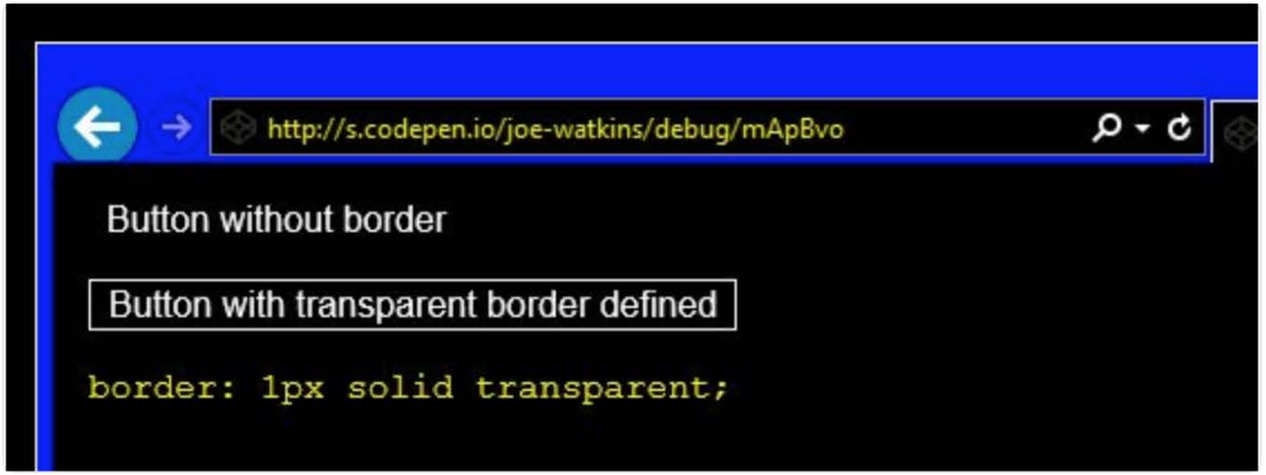
Audio, video, etc.

Fancy tricks

Joe Watkins
@_josephwatkins

Following

Adding a transparent border to buttons that have no borders can help make the buttons more obvious in High Contrast Mode #a11y #webdev



2:04 PM - 5 Oct 2016

17 41

Cut the Microsoft mustard

```
if (window.matchMedia("(-ms-high-contrast: active)").matches) {
  // We have support for IE 10+
} else {
  // Load a good fallback experience
}
```

Related Media Queries

Responsive Design is adapting design to an unknown browser.

Inclusive Design is adapting design to an unknown user.

Inverted

T-Mobile 4:13 PM

iphone.facebook.com

Humans of New York

@humansofnewyork

Like Follow Share More

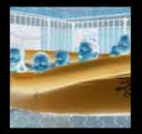
Arts & Humanities Website · New York, New York

Home Posts About Photos Videos Con

Visitor Posts

T-Mobile 4:13 PM

iphone.facebook.com



Humans of New York

@humansofnewyork

Like Follow Share More

Arts & Humanities Website · New York, New York

Home Posts About Photos Videos Con

Visitor Posts

```css
/* Invert inverted images */
@media (inverted-colors) {
  img {
    filter: invert(100%);
  }
}
```

T-Mobile 4:13 PM

iphone.facebook.com

Humans of New York

@humansofnewyork

Like Follow Share More

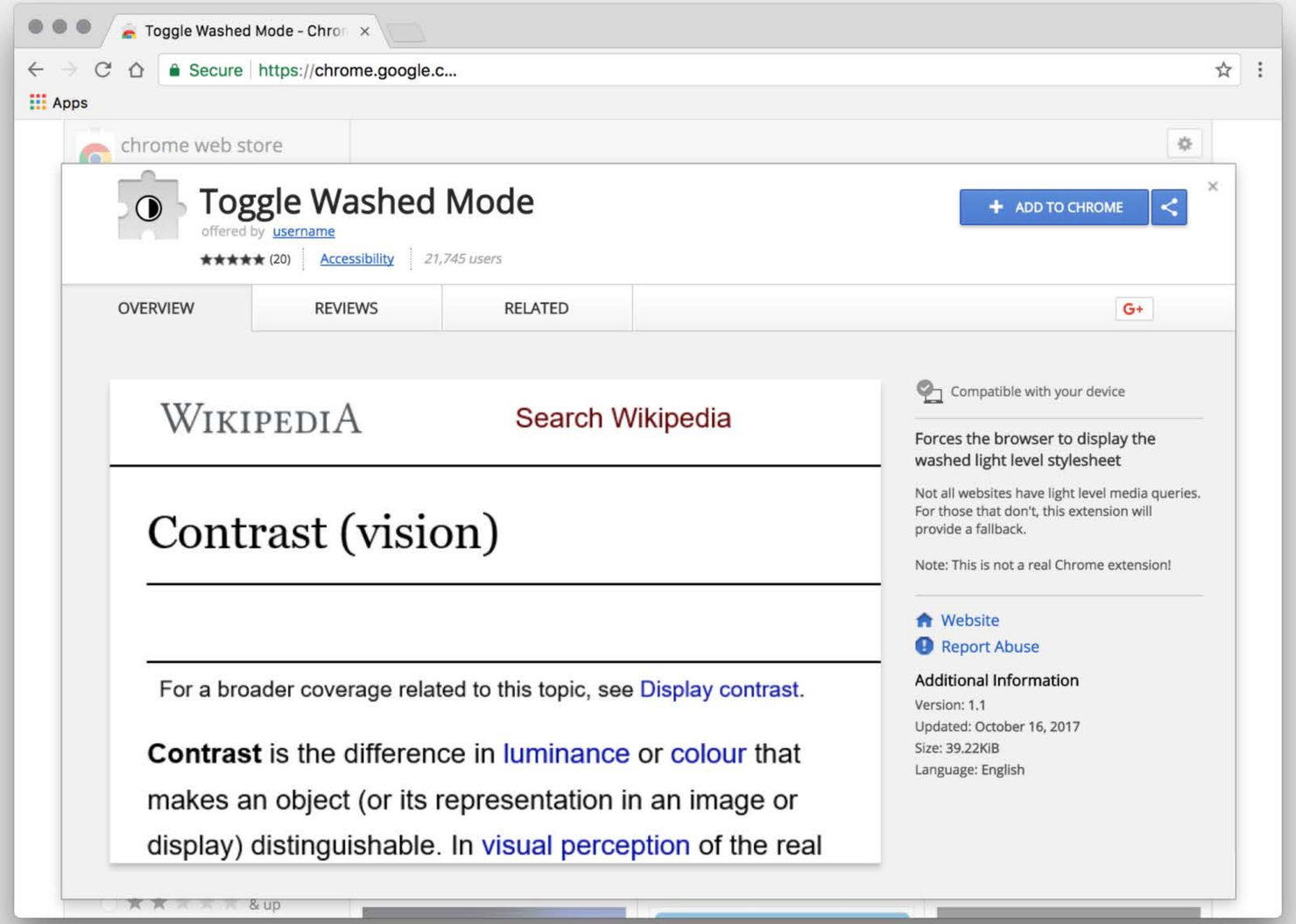
Arts & Humanities Website · New York, New York

Home Posts About Photos Videos Con

Visitor Posts

Light Level

```css
/* Boost contrast between elements */
@media (light-level: washed) {
  body {
    background-color: #ffffff;
  }

  p {
    color: #000000;
    font-size: 120%;
  }
}
```


Toggle Washed Mode - Chro
Secure https://chrome.google.c...
Apps
chrome web store
Toggle Washed Mode
offered by username
(20) Accessibility 21,745 users
ADD TO CHROME
OVERVIEW
REVIEWS
RELATED
G+
WIKIPEDIA
Search Wikipedia
Contrast (vision)
For a broader coverage related to this topic, see Display contrast.
Contrast is the difference in luminance or colour that makes an object (or its representation in an image or display) distinguishable. In visual perception of the real
Compatible with your device
Forces the browser to display the washed light level stylesheet
Not all websites have light level media queries. For those that don't, this extension will provide a fallback.
Note: This is not a real Chrome extension!
Website
Report Abuse
Additional Information
Version: 1.1
Updated: October 16, 2017
Size: 39.22KiB
Language: English
& up

How to do it?

Testing!

Testing!
Testing!
Testing!

Thank you

- eric.w.bailey@gmail.com
- @ericwbailey
- ericwbailey.design

References

- Building a more accessible web platform - Microsoft Edge DevBlog
- Greg Whitworth - How to use -ms-high-contrast
- Windows High Contrast Mode: the limited utility of -ms-high-contrast | The Paciello Group
- CSS Background Images & High Contrast Mode | Adrian Roselli

- Windows High Contrast and Background Images | Terrill Thompson
- Accessible SVGs in High Contrast Mode | CSS-Tricks
- How users change colours on websites - Gov.UK
- Media Queries Level 5 - W3C Editor's Draft
- Writing CSS with Accessibility in Mind - Medium

Resources

- Use high contrast mode - Windows Help
- Free Virtual Machines from IE8 to MS Edge - Microsoft Edge Development
- Amazon WorkSpaces - Virtual Desktops in the Cloud
- WebAIM: Color Contrast Checker