

EBOOKS & ACCESSIBILITY

<https://bit.ly/ebooksA11y>



THE STATE OF (E)READING

- 72% of U.S. adults **have read a book** in the last year (2019).
- 27% of U.S. adults **haven't read a book** in any format in the last year.
- Those numbers haven't changed much since 2011.

READING FORMATS

- 37% of adults read **only print** books.
- 28% of adults read **both print and digital** (eBooks and audio books).
- 7% adults read **only digital** books.

READING FORMATS

- Formats people have used for reading in the last year (2019):
 - 65% have read **a print book** −08%
 - 25% have read **an eBook** +11%
 - 20% have read **an audiobook** +14%

E-READING DEVICES

- Digital formats U.S. adults have used to read books (2016):
 - 15% read on a tablet computer +11%
 - 8% read on a dedicated eBook reader -01%
 - 13% read on a cellphone +08%
 - 11% read on a desktop or laptop computer +08%

CONCLUSIONS

- Print books continue to be more popular than eBooks and audiobooks.
- Most readers of digital formats also read print books. It's not either/or, but both-and.
- Interest in digital book formats continues to grow, with audiobooks growing a little faster than eBooks.
- The share of readers on tablets or cellphones has increased substantially since 2011, while the share using dedicated e-readers has remained more or less stable.

WHAT IS AN EBOOK?

The vast majority of eBooks that people actually read on digital devices are in one of a handful of formats.

- EPUB (2.0, 3.0)
- Mobi (AZW, AZW3)
- iBook (IBA)
- and, okay, PDF



EPUB CHARACTERISTICS

EPUB

- ▶ Re-Flowable text
- ▶ Reader controls font style and size
- ▶ Swipe for page turn
- ▶ Image positioning difficult

PDF

- ▶ Text doesn't re-flow when enlarged
- ▶ Usually fixed font style and size
- ▶ Vertical scrolling for page turn
- ▶ Exact image positioning

FIXED LAYOUT EPUBS

- Image-rich books, comics, kids books, text books with interactivity, etc.
- More like PDFs
- Specify where lines break (poems, captions stay with images)
- Text is still live, searchable, selectable, and can be superimposed over images
- Control image positioning
- Narration or Ambient Audio
- Read Along
- Interactivity with scripts

FLUID LAYOUT EPUBS MORE ACCESSIBLE THAN PRINT

- Mitigates print disability
 - Ability to change text size (visual impairment)
 - Ability to specify font (dyslexia)
- Machine-readable (low vision, blindness, learning disabilities)
 - Screen readers (can supplement visual for low vision users)
 - Can be converted to braille, audio, etc.

EPUB 3.0

- More accessible than EPUB 2.0
 - Better Semantics (HTML5)
 - ARIA Roles for more precise descriptions of content.
 - MathML
 - Audio/video media capabilities
 - Synchronized audio

CRACKING OPEN YOUR EPUB

On a PC

Change .epub to .zip






On a Mac

eCanCrusher













ANATOMY OF AN EPUB



▼		TreasureIsland	✓
▼		META-INF	✓
		container.xml	✓
		mimetype	✓
▶		OEBPS	✓

OEBs: THE BOOK FOLDER

▼		TreasureIsland	✓	Nov 8, 2020 at 10:54 PM
▼		OEBPS	✓	Today at 4:18 PM
▶		Images	✓	Nov 8, 2020 at 10:54 PM
▶		Fonts	✓	Nov 8, 2020 at 10:54 PM
▶		Text	✓	Nov 8, 2020 at 10:54 PM
▶		Styles	✓	Nov 8, 2020 at 10:54 PM
		content.opf	✓	Feb 11, 2018 at 5:09 PM
		toc.ncx	✓	Feb 11, 2018 at 4:02 PM
▶		META-INF	✓	Nov 8, 2020 at 10:54 PM
		mimetype	✓	Feb 11, 2018 at 4:02 PM

CONTENT.OPF

```
<?xml version="1.0" encoding="utf-8"?>
<package version="3.0" unique-identifier="bookid" prefix="ibooks:
http://vocabulary.itunes.apple.com/rdf/ibooks/
vocabulary-extensions-1.0/" xmlns="http://www.idpf.org/2007/opf">
  <metadata xmlns:dc="http://purl.org/dc/elements/1.1/">

    <meta name="cover" content="cover.jpg" />
    <meta property="ibooks:specified-fonts">true</meta>
    <dc:title>Treasure Island</dc:title>
    <dc:creator>Robert Louis Stevenson</dc:creator>
    <dc:subject>Fiction</dc:subject>
    <dc:publisher>Small World Press</dc:publisher>
    <dc:date>2018-02-11T19:45:33Z</dc:date>
    <dc:language>en-GB</dc:language>
    <meta property="dcterms:modified">2018-02-11T16:02:58Z</meta>
    <dc:identifier id="bookid">
urn:uuid:BF4B61D2-6843-405A-AA2B-53EDEBA61FBF</dc:identifier>
    <dc:source>9780000000000</dc:source>
```

MANIFEST

```
<manifest>
  <item id="cover" href="Text/cover.xhtml" media-type="application/xhtml+xml"/>
  <item id="titlepage.xhtml" href="Text/titlepage.xhtml" media-type="application/
xhtml+xml"/>
  <item id="copyright.xhtml" href="Text/copyright.xhtml" media-type="application/
xhtml+xml"/>
  <item id="epigraph.xhtml" href="Text/epigraph.xhtml" media-type="application/
xhtml+xml"/>
  <item id="dedication.xhtml" href="Text/dedication.xhtml" media-type="application/
xhtml+xml"/>
  <item id="part1.xhtml" href="Text/part1.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp1.xhtml" href="Text/chp1.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp2.xhtml" href="Text/chp2.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp3.xhtml" href="Text/chp3.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp4.xhtml" href="Text/chp4.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp5.xhtml" href="Text/chp5.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp6.xhtml" href="Text/chp6.xhtml" media-type="application/xhtml+xml"/>
  <item id="part2.xhtml" href="Text/part2.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp7.xhtml" href="Text/chp7.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp8.xhtml" href="Text/chp8.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp9.xhtml" href="Text/chp9.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp10.xhtml" href="Text/chp10.xhtml" media-type="application/xhtml+xml"/>
  <item id="chp11.xhtml" href="Text/chp11.xhtml" media-type="application/xhtml+xml"/>
```


SPINE

```
150 <spine toc="ncx">
151   <itemref idref="cover" linear="no"/>
152   <itemref idref="frontispiece.xhtml"/>
153   <itemref idref="titlepage.xhtml"/>
154   <itemref idref="copyright.xhtml"/>
155   <itemref idref="epigraph.xhtml"/>
156   <itemref idref="dedication.xhtml"/>
157   <itemref idref="loi.xhtml"/>
158   <itemref idref="inline-toc.xhtml"/>
159   <itemref idref="part1.xhtml"/>
160   <itemref idref="chp1.xhtml"/>
161   <itemref idref="chp2.xhtml"/>
162   <itemref idref="chp3.xhtml"/>
163   <itemref idref="chp4.xhtml"/>
164   <itemref idref="chp5.xhtml"/>
165   <itemref idref="chp6.xhtml"/>
166   <itemref idref="part2.xhtml"/>
167   <itemref idref="chp7.xhtml"/>
168   <itemref idref="chp8.xhtml"/>
169   <itemref idref="chp9.xhtml"/>
170   <itemref idref="chp10.xhtml"/>
```



GUIDE

```
<guide>  
  <reference type="cover" title="Cover" href="Text/cover.xhtml"/>  
  <reference type="toc" title="Table of Contents" href="Text/  
inline-toc.xhtml#_idContainer117"/>  
  <reference type="text" title="Beginning" href="Text/epigraph.xhtml#_idContainer115"/>  
</guide>
```


ACCESSIBILITY METADATA

```
16
17 <meta property="schema:accessMode">textual</meta>
18 <meta property="schema:accessMode">visual</meta>
19 <meta property="schema:accessModeSufficient">textual,visual</meta>
20 <meta property="schema:accessModeSufficient">textual</meta>
21 <meta property="schema:accessibilityFeature">structuralNavigation</meta>
22 <meta property="schema:accessibilityFeature">alternativeText</meta>
23 <meta property="schema:accessibilityAPI">ARIA</meta>
24 <meta property="schema:accessibilityControl">fullKeyboardControl</meta>
25 <meta property="schema:accessibilityControl">fullMouseControl</meta>
26 <meta property="schema:accessibilityControl">fullTouchControl</meta>
27 <meta property="schema:accessibilityHazard">noFlashing</meta>
28 <meta property="schema:accessibilityHazard">noSound</meta>
29 <meta property="schema:accessibilityHazard">noMotionSimulation</meta>
30
31 <meta property="schema:accessibilitySummary">tmp</meta>
32 </metadata>
```


accessMode

- textual — contains text content
- visual — contains visual content such as images, graphics, diagrams, animations, and video
- auditory — contains auditory content, such as standalone audio clips and audio soundtracks for video content
- tactile — contains tactile content such as embedded braille and tactile diagrams.

accessibilityFeature

- alternativeText
- audioDescription
- braille
- captions
- resizeText
- signLanguage
- displayTransformability
- structuralNavigation
- highContrast
- structuralNavigation
- transcript
- longDescription












accessibilityHazard

- Flashing
- Motion simulation
- Sound

accessibilitySummary

- “This publication conforms to the EPUB Accessibility at WCAG Level”
- “Short descriptions provided, but no long descriptions”

CONTENT FILES

▼		TreasureIsland	✓	Nov 8, 2020 at 10:54 PM	--	Folder
▼		OEBPS	✓	Today at 4:18 PM	--	Folder
▶		Images	✓	Nov 8, 2020 at 10:54 PM	--	Folder
▶		Fonts	✓	Nov 8, 2020 at 10:54 PM	--	Folder
▼		Text	✓	Nov 8, 2020 at 10:54 PM	--	Folder
		chp1.xhtml	✓	Feb 11, 2018 at 5:50 PM	14 KB	XHTML
		chp10.xhtml	✓	Feb 11, 2018 at 5:50 PM	13 KB	XHTML
		chp14.xhtml	✓	Feb 11, 2018 at 5:50 PM	13 KB	XHTML
		chp15.xhtml	✓	Feb 11, 2018 at 5:49 PM	15 KB	XHTML
		chp16.xhtml	✓	Feb 11, 2018 at 5:49 PM	11 KB	XHTML
			✓			

THREE CATEGORIES

Structure



Presentation



Behavior



STRUCTURE & SEMANTICS

“Structure is the elements you use to craft your EPUB content, and semantics is the additional meaning you can layer on top of those structures to better indicate what they represent.”

—Matt Garrish

MORE MEANINGFUL MARKUP

HTML 4

```
<div id="footer">  
    <p>Copyright 2012, Miskatonic University</p>  
</div>
```

HTML5

```
<footer>  
    <p>Copyright 2012, Miskatonic University</p>  
</footer>
```


STRUCTURAL TAGS

<section>

<nav>

<aside>

<header>

<hgroup>

ARIA ROLES

- ARIA role attributes apply more precise meaning to generic HTML tags.
- Define chunks of content, adding a layer of additional meaning.
- Help assistive technologies to navigate document by identifying regions and providing landmarks.

ARIA FOR EPUBS

```
untitled
1 <section role="doc-endnotes" aria-labelledby="hd-notes">
2   <h1 id="hd-notes">Endnotes</h1>
3
4   <section>
5     <h2>Chapter 1</h2>
6     <ol>
7       <li role="doc-endnote">...</li>
8       ...
9     </ol>
10  </section>
11  ...
12 </section>
```

TAG CHOICE

“But what would that prove?” posed the Don. “The question is not of your strength, but of *my art*. If, as you say, I am a fraud, what could you possibly have to fear from such a contest? Weren’t you saying before, if I heard you correctly, that you could sleep even in the midst of a battle?”

```
1 <p>“But what would that prove?” posed the Don. “The question is not  
of your strength, but of <em>my art</em>. If, as you say, I am a  
fraud, what could you possibly have to fear from such a contest?  
Weren’t you saying before, if I heard you correctly, that you could  
sleep even in the midst of a battle?”</p>
```


TAG CHOICE

At first, the Don didn't mix much with us, taking *apertivo* at the inn maybe one evening out of twenty and then staying only long enough to fortify himself with a few olives, a slice or two of salted tomato, and a glass of red vermouth. His head was crowned with soft ivory curls, and he smelled of rosewater and fresh wood shavings. He was rangy, with a long sharp face, but

```
1 <p>At first, the Don didn't mix much with us, taking
2 <i class="it" lang="it-IT" xml:lang="it-IT">apertivo</i>
   at the inn maybe one evening out of twenty and then
   staying only long enough to fortify himself with a few
   olives, a slice or two of salted tomato, and a glass of
   red vermouth. His head was crowned with soft ivory
   curls, and he smelled of rosewater and fresh wood
   shavings. He was rangy, with a long sharp face,
3 ...
4 </p>
```

TAG CHOICE

And that is how Leandro came to pass the spring with us and become our dancing master. In the mornings he practiced his footwork, retiring to his room in the afternoons to read *Libro dell'arte del danzare*, a copy of the original, transcribed by his own hand. So great was his devotion to his art that in the evenings he offered lessons in courtly dancing to any who showed an interest.

```
1 <p>And that is how Leandro came to pass the spring with us
and become our dancing master. In the morning he practiced
his footwork, retiring to his room in the afternoons to
read <cite class="it" lang="it-IT" xml:lang="it-IT">Libro
dell'arte del danzare</cite>, a copy of the original,
transcribed by his own hand. So great was his devotion to
his art that in the evenings he offered lessons in courtly
dancing to any who showed an interest.</p>
```


BREAKS

But there was nothing he could do for them now, nothing but watch. Fire reached the magazine for the truck's fifty cal and started cooking off the ammo. A shower of pale sparks filled one corner of the monitor. "Hang in there," Scott said. "Cobra is inbound." It was just past 2300 hours in Nevada when the choppers landed. Then someone tapped him on the shoulder, and his shift was over.

Scott filled up at the Shell station across from the base. Its highway sign was busted, the plastic casing torn away so that the fluorescents shone bare white. It was grimy and disordered inside, with empty patches on the shelves and boxes of stock heaped in one corner. Waiting for the cashier to ring him up for the gas and a twelve pack, Scott eyed the PowerBall display. Laura liked to play, and sometimes they made an event out of it, eating popcorn on the couch and letting the girls stay up an extra hour to watch the drawing. But tonight it seemed wrong somehow, and reckless, to invite fortune into their lives like that.

CODING BREAKS

```
1 <p>But there was nothing he could do for them now, nothing but  
watch. Fire reached the magazine for the truck's fifty cal and  
started cooking off the ammo. A shower of pale sparks filled one  
corner of the monitor. "Hang in there," Scott said. "Cobra is  
inbound." It was just past 2300 hours in Nevada when the choppers  
landed. Then someone tapped him on the shoulder, and his shift was  
over.</p>
```

```
2  
3 <hr class="break">
```

```
4  
5 <p class="first">Scott filled up at the Shell station across from  
the base. Its highway sign was busted, the plastic casing torn away  
so that the fluorescents shone bare white. It was grimy and  
disordered inside, with empty patches on the shelves and boxes of  
stock heaped in one corner. Waiting for the cashier to ring him up  
for the gas and a twelve pack, Scott eyed the PowerBall display.  
Laura liked to play, and sometimes they made an event out of it,  
eating popcorn on the couch and letting the girls stay up an extra  
hour to watch the drawing. But tonight it seemed wrong somehow, and  
reckless, to invite fortune into their lives like that.</p>
```


ACCESSIBLE IMAGES

- Describe your images
 - Avoid repetition
 - Appropriate to reading level
 - Be concise
 - Be objective
 - Start general, go to specific
- Do not describe purely decorative images.
 - ``

LONG DESCRIPTION FOR COMPLEX IMAGES

```
1 <figure id="fig-01">
2   
8   <figcaption>
9     The hydrologic cycle. <a href="desc/fig-01.xhtml">Description</
10    a>
11  </figcaption>
12 </figure>
```

EXTENDED DESCRIPTION

```
1 <body>
2   <div epub:type="sidebar">
3     <h1>The Hyrdological Cycle</h1>
4     <h2 id="desc01">Description of image on page 5</h2>
5     <p>The concept of hydrological cycle is elegantly simple.
      But, its importance in the functioning of the geological
      and biological Earth is profound, transcending water
      itself. It plays an overarching role in the cycling of
      solar energy, sediments, and chemical elements vital for
      the sustenance of life. Although it is clear that
      contemporary ecosystems reflect an evolutionary adaptation
      to the delicate linkages that exist among the various
      components of the hydrological cycle, it is also apparent
      that evolving life must have influenced the evolution of
      the hydrological cycle over geological time. Life, it
      appears, is simultaneously a product of the hydrological
      cycle and its cause.</p>
6     <p><a role="doc-backlink" href="water-cycle.xhtml#fig-01">
      Navigate back to page</a></p>
7   </div>
8 </body>
9
10
```


ACCESSIBLE TABLES

- Don't use an image
- Tables as series of lists
- HTML Tables
 - Careful tagging, marking headers with `<th>` or `<thead>`
 - Use **summary** element

ACCESSIBLE TABLES

- Don't use an image where text will do.
 - Avoid setting text as image
- Don't use `<table>` for layout.
- Present tabular materials differently
 - Careful tagging of HTML tables, marking headers with `<th>` or `<thead>`
 - Tables as series of lists
- If it's secondary material, not inline in the text, use `<figure>`

BUS SCHEDULE

<div><div><div>←</div><div>→</div><div>↺</div><div>ⓘ</div><div>File</div><div> </div><div>/Users/Techne/Dropbox/...</div><div>☆</div><div>🚀</div><div>JS</div><div>🌿</div><div>🔧</div><div>♻️</div><div>📀</div><div>RP</div><div>W</div><div>👤</div><div>📶</div><div>🔧</div><div>🎵</div><div>👤</div><div>⋮</div></div><div><div>📁 Apps</div><div>📁 Bills & Benefits</div><div>📁 COVID</div><div>📁 Ulowa</div><div>📁 Contests & Subs</div><div>📁 Jobs 2020</div><div>📁 NOLA</div><div>»</div><div>📁 Other Bookmarks</div></div></div>			
State & First	State & Sixth	State & Twelfth	Twelfth & Morrison
4:00	4:05	4:11	4:19

BUS SCHEDULE CODE

```
60 <table class="redTable" summary="Schedule for Route 7 going
    downtown. Service begins at 4:00 AM and ends at midnight.
    Intersections are listed in the top row. Find the intersection
    closest to your starting point or destination, then read down
    the column to find out what time the bus leaves that
    intersection.">
61     <tr>
62         <th scope="col">State & First</th>
63         <th scope="col">State & Sixth</th>
64         <th scope="col">State & Twelfth</th>
65         <th scope="col">Twelfth & Morrison</th>
66     </tr>
67     <tr>
68         <td>4:00</td>
69         <td>4:05</td>
70         <td>4:11</td>
71         <td>4:19</td>
72     </tr>
73 </table>
74 </body>
```



PAGE-LIST

- Helps Navigation
- Allows user of assistive technology to be on “the same page” as print readers.

```
<p class="body">I remember him as if it were yesterday, as he came  
plodding to the inn door, his sea-chest following behind him in a  
hand-barrow – a tall, strong, heavy, nut-brown man, his tarry  
pigtail falling over the shoulder of his soiled blue coat, his  
hands ragged and scarred, with black, broken nails, and the sabre  
cut across one cheek, a dirty, livid white. I remember him looking  
round the cover and whistling to himself as he did so, and then  
breaking out in that old sea-song that he sang so often afterwards:  
</p>  
<p class="body-block-space"><span epub:type="pagebreak" role="doc-pagebreak" id="page3" title="3"></span>“Fifteen men on the dead  
man’s chest –</p>  
<p class="body-block">Yo-ho-ho, and a bottle of rum!</p>
```


ACQUIRING EBOOKS

- Databases such as Haiti, BookShare, AccessText
- Conversion from print collection, ILL
- Request from vendor or publisher
 - Get EPUB 3.0 books if you can.
 - No reason to hold on to EPUB 2.0 books.
 - Fair use allows you to modify to make it more accessible.

RESOURCES

- Daisy Accessible Publishing Knowledge Base: <http://kb.daisy.org/publishing>
- EPUB Secrets
- #eprdctn on Twitter: <https://twitter.com/hashtag/eprdctn>
- VitalSource Bookshelf

EBOOKS & ACCESSIBILITY

<https://bit.ly/ebooksA11y>

