DIY Accessibility

Whitney Kotlewski (Sr. UX Designer)

What is accessibility?

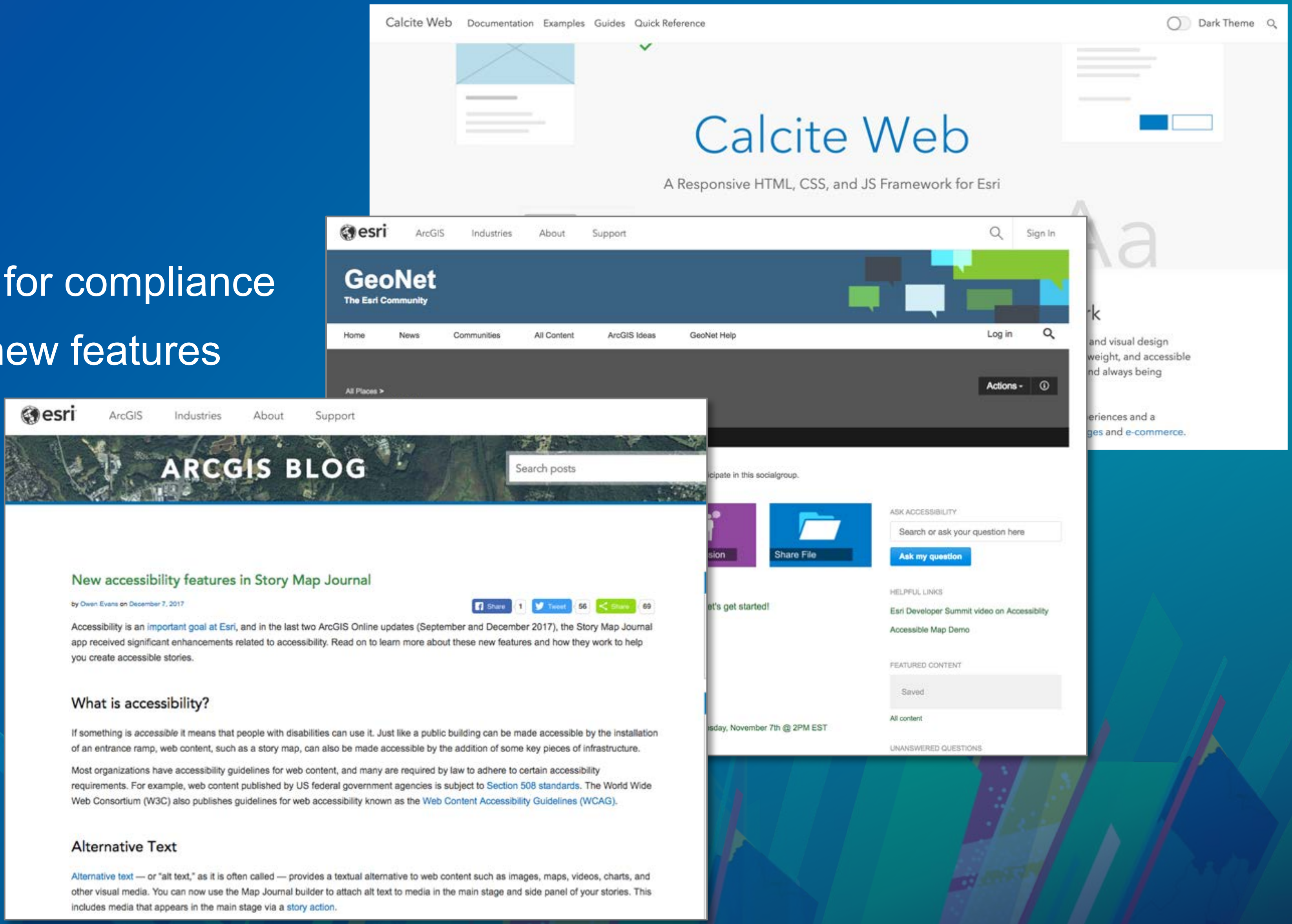
- Make content usable by as many people as possible
- About 15% of world population lives with some form of disability: **1 billion** people
- In the US, 1 in 5 adults has a disability
- Disabilities could be long term, temporary or situational

Why is accessibility important?

- People with disabilities deserve equal rights
- The ADA and Section 508 rules and regulations
- Accessible interface is about good design and coding practice
- Good accessibility is good user experience

What are we doing?

- Better knowledge sharing
- Review products internally for compliance
- Working accessibility into new features



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et's get started!

sday, November 7th @ 2PM EST

New accessibility features in Story Map Journal

by Owen Evans on December 7, 2017

Accessibility is an important goal at Esri, and in the last two ArcGIS Online updates (September and December 2017), the Story Map Journal app received significant enhancements related to accessibility. Read on to learn more about these new features and how they work to help you create accessible stories.

What is accessibility?

If something is *accessible* it means that people with disabilities can use it. Just like a public building can be made accessible by the installation of an entrance ramp, web content, such as a story map, can also be made accessible by the addition of some key pieces of infrastructure.

Most organizations have accessibility guidelines for web content, and many are required by law to adhere to certain accessibility requirements. For example, web content published by US federal government agencies is subject to Section 508 standards. The World Wide Web Consortium (W3C) also publishes guidelines for web accessibility known as the Web Content Accessibility Guidelines (WCAG).

Alternative Text

Alternative text — or "alt text," as it is often called — provides a textual alternative to web content such as images, maps, videos, charts, and other visual media. You can now use the Map Journal builder to attach alt text to media in the main stage and side panel of your stories. This includes media that appears in the main stage via a story action.

What we will cover today

- Background
- Automated test
- Keyboard test (web, desktop)
- Screen reader test
- Color accessibility

Why accessibility testing?

- Accessibility is about the *experience* of all users.
- Testing is the only way to ensure the experience is accessible.

Functional test

Specification	WCAG 2.0 Success Criteria
Goal	Verify how well web content functions as WCAG 2.0 specified

Less subjective compared to usability testing

Anyone can do the test!

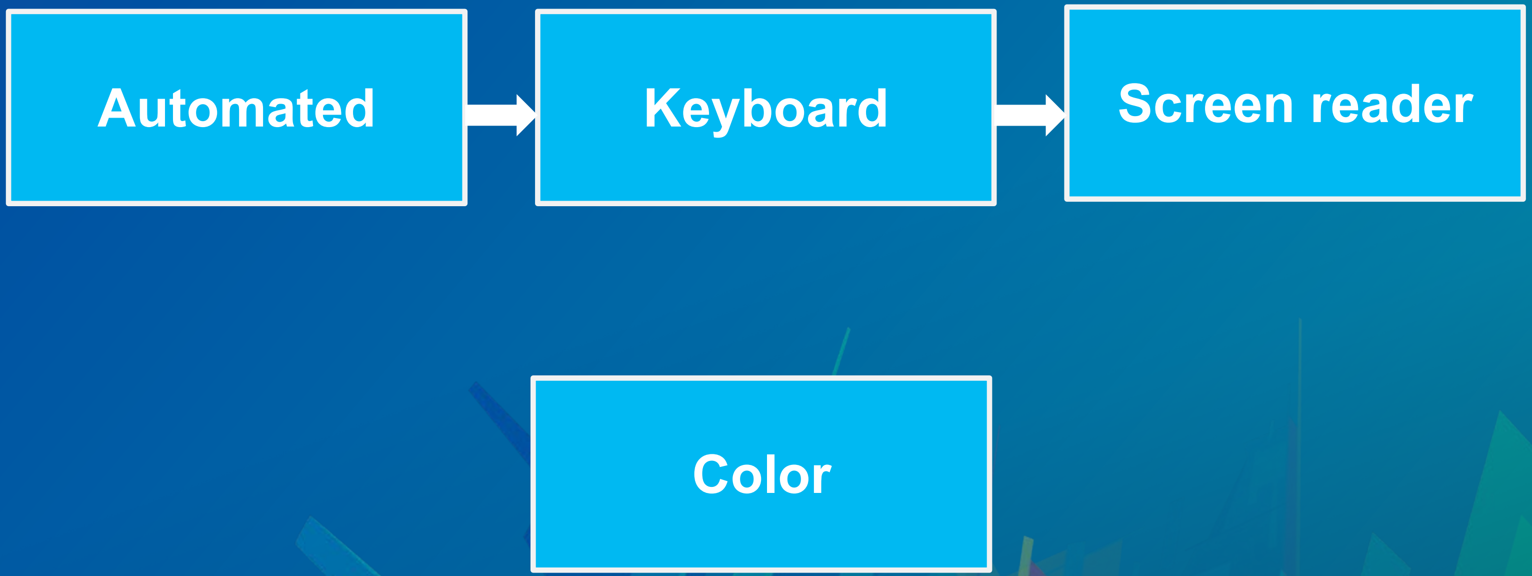
Overview of WCAG 2.0

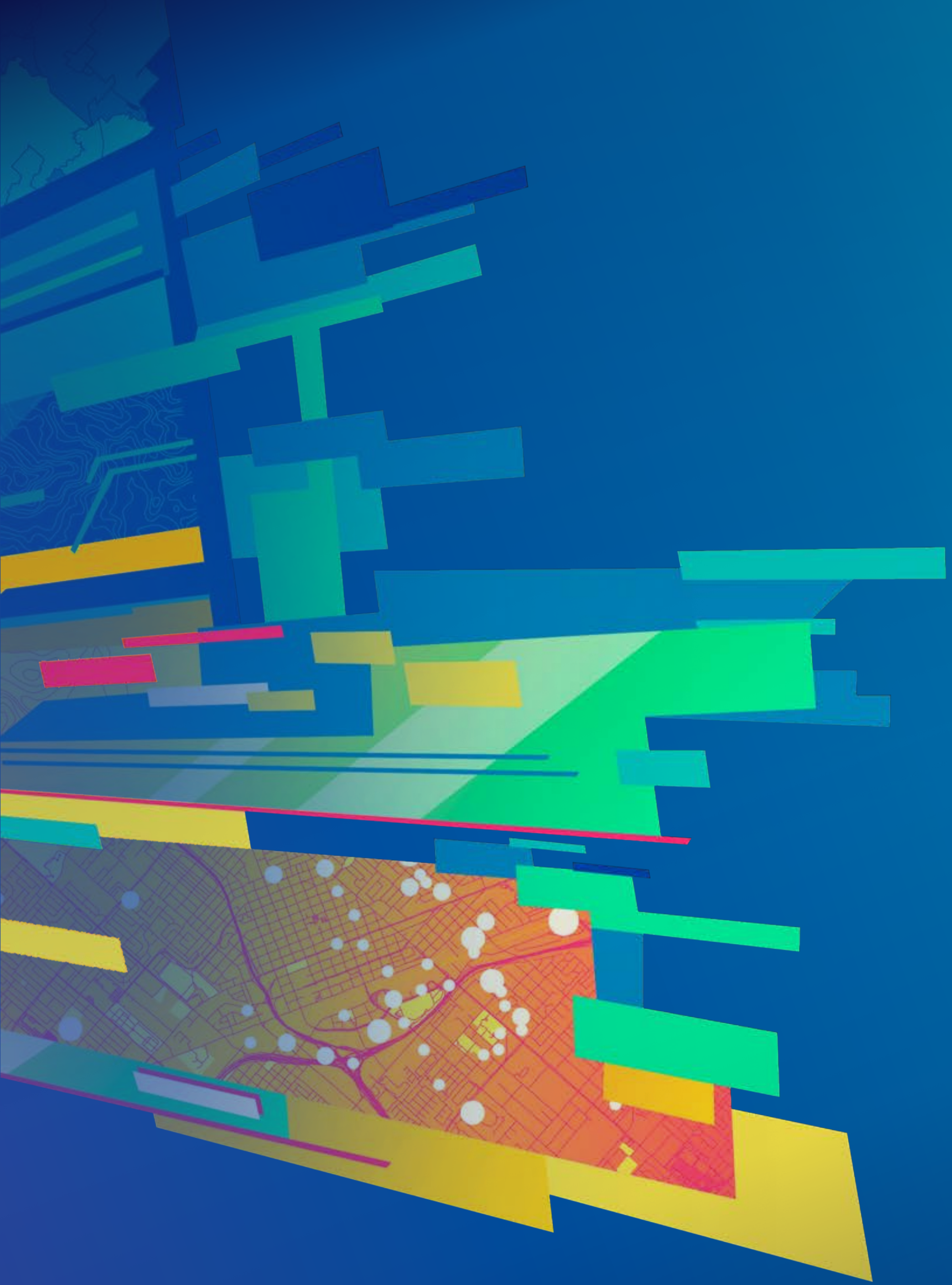
Principles	Success Criteria	Level A	Level AA	Level AAA
1. Perceivable	1.1 Text Alternatives	1.1.1		
	1.2 Time-based Media	1.2.1 – 1.2.3	1.2.4 – 1.2.5	1.2.6 – 1.2.9
	1.3 Adaptable	1.3.1 – 1.3.3		
	1.4 Distinguishable	1.4.1 – 1.4.2	1.4.3 – 1.4.5	1.4.6 – 1.4.9
2. Operable	2.1 Keyboard Accessible	2.1.1 – 2.1.2		2.1.3
	2.2 Enough Time	2.2.1 – 2.2.2		2.2.3 – 2.2.5
	2.3 Seizures	2.3.1		2.3.2
	2.4 Navigable	2.4.1 – 2.4.4	2.4.5 – 2.4.7	2.4.8 – 2.4.10
3. Understandable	3.1 Readable	3.1.1	3.1.2	3.1.3 – 3.1.6
	3.2 Predictable	3.2.1 – 3.2.2	3.2.3 – 3.2.4	3.2.5
	3.3 Input Assistance	3.3.1 – 3.3.2	3.3.3 – 3.3.4	3.3.5 – 3.3.6
4. Robust	4.1 Compatible	4.1.1 – 4.1.2		

Overview of WCAG 2.0 as it applies to mobile

Principles	Success Criteria	Level A	Level AA	Level AAA
1. Perceivable	2.1 Small Screen Size			
	2.2 Zoom/Magnification		1.4.4 Resize txt	
	2.3 Contrast			1.4.6 Contrast
2. Operable	3.1 Keyboard for Touch	2.1.1.- 1.2, 2.4.3		
	3.2 Touch Targets/Spacing			
	3.3 Touchscreen Gestures			
	3.4 Manipulation Gestures	2.1.1 Keyboard		
3. Understandable	4.1-4.2 Orientation/Layout		3.2.3, 3.2.4	
	4.3-4.4 Elements	2.4.4 links	2.4.9 links	
	4.5-4.6 Order and Actions	3.3.1 – 3.3.2	3.3.3 , 3.3.4	3.3.5 – 3.3.6
4. Robust	5.1-5.2 Virtual Keyboard			

Test process



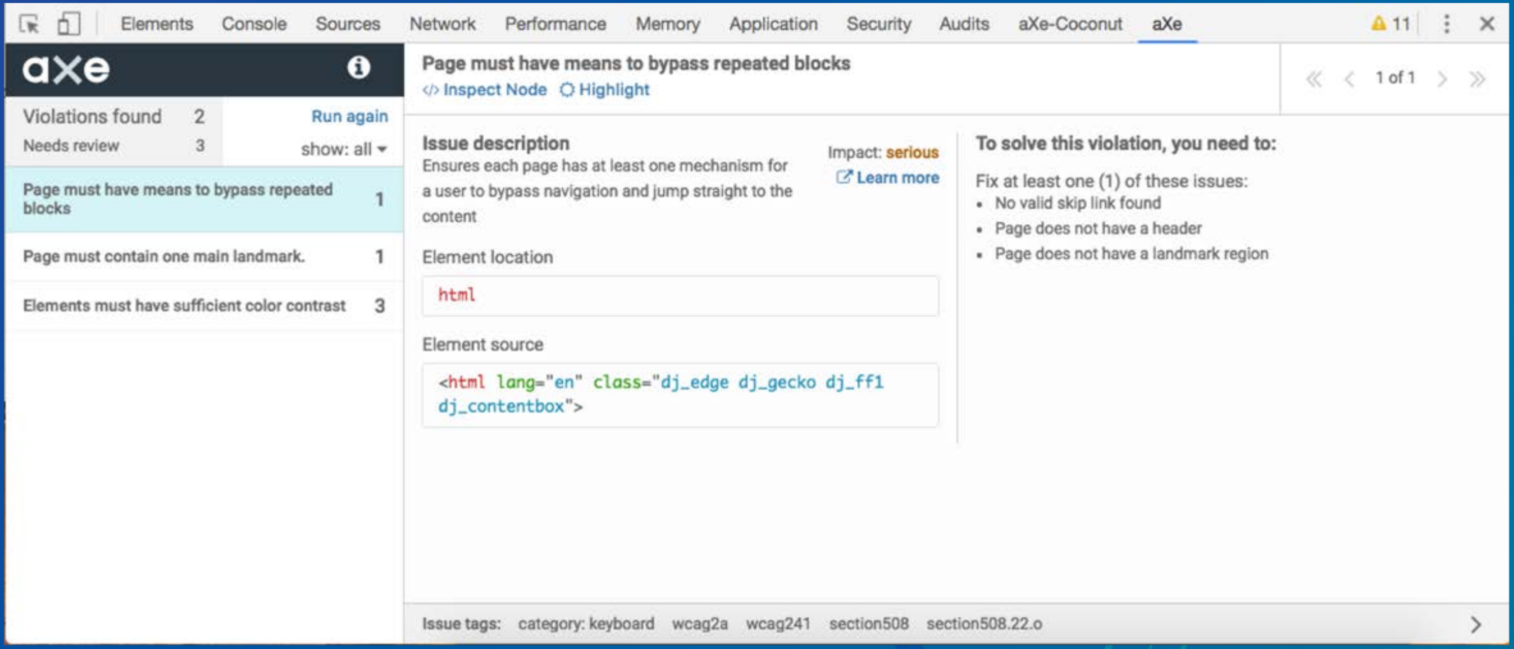


Automated test

Automated test

- No automated test tools can definitely prove conformance with any given WCAG Success Criterion.
- Automated test is good starting point but cannot detect all accessibility issues.
- Run automated test of each page state.

aXe



Violations found	2
Needs review	3
Page must have means to bypass repeated blocks	1
Page must contain one main landmark.	1
Elements must have sufficient color contrast	3

Page must have means to bypass repeated blocks

Issue description
Ensures each page has at least one mechanism for a user to bypass navigation and jump straight to the content

Impact: serious
Learn more

Element location

```
html
```

Element source

```
<html lang="en" class="dj_edge dj_gecko dj_ff1
dj_contentbox">
```

To solve this violation, you need to:

Fix at least one (1) of these issues:
- No valid skip link found
- Page does not have a header
- Page does not have a landmark region

Issue tags: category: keyboard wcag2a wcag241 section508 section508.22.o

- Tests rendered browser DOM
- Aims at no false positives
- Accessible
- Helpful documentation

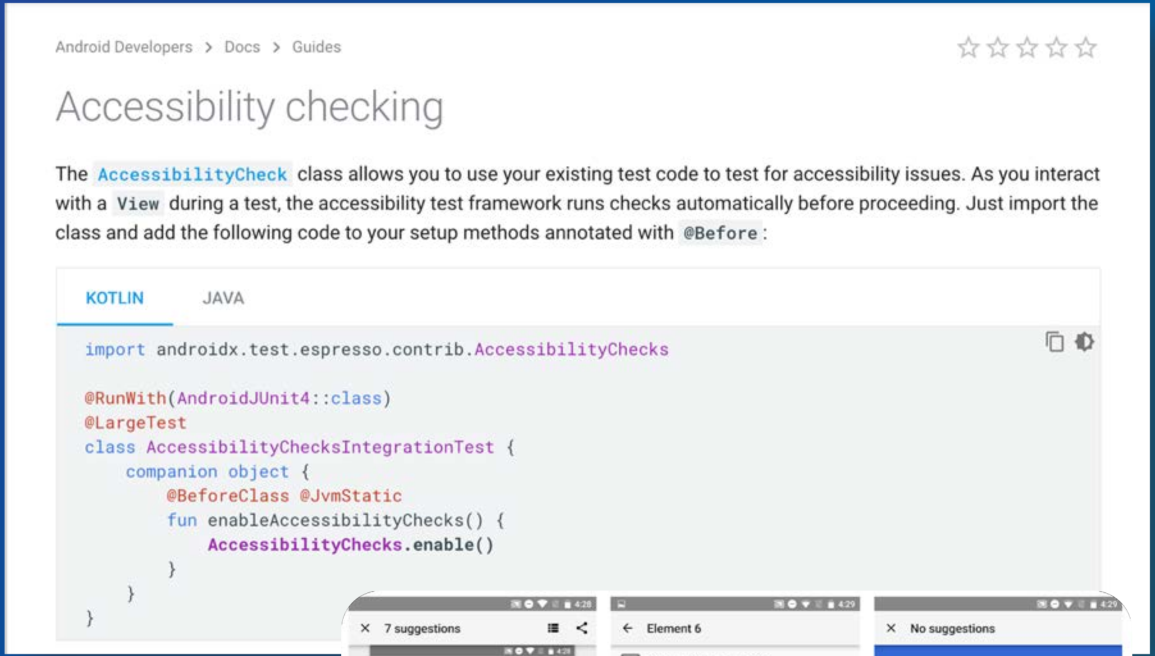
Practice aXe

Park Locator

http://arcg.is/05DzDX

Other Automated Accessibility Checks

Android and IOS



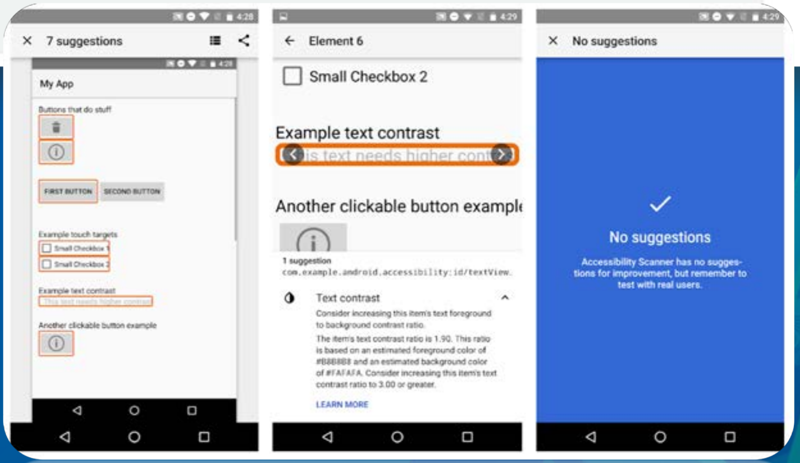
Android Developers > Docs > Guides

Accessibility checking

The `AccessibilityCheck` class allows you to use your existing test code to test for accessibility issues. As you interact with a `View` during a test, the accessibility test framework runs checks automatically before proceeding. Just import the class and add the following code to your setup methods annotated with `@Before`:

KOTLIN JAVA

```kotlin
import androidx.test.espresso.contrib.AccessibilityChecks

@RunWith(AndroidJUnit4::class)
@LargeTest
class AccessibilityChecksIntegrationTest {
    companion object {
        @BeforeClass @JvmStatic
        fun enableAccessibilityChecks() {
            AccessibilityChecks.enable()
        }
    }
}
```



1 suggestion
com.example.android.accessibility:id/textView.

Text contrast

Consider increasing this item's text foreground to background contrast ratio.

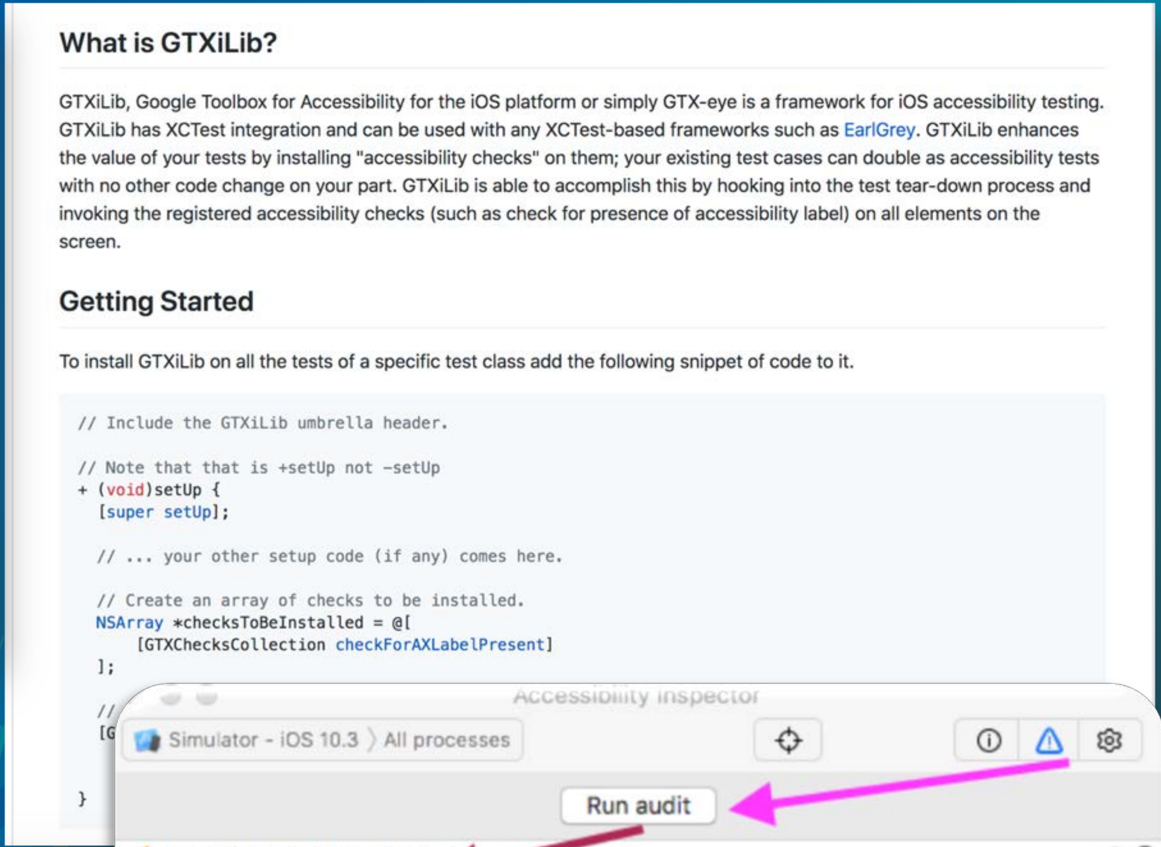
The item's text contrast ratio is 1.90. This ratio is based on an estimated foreground color of #B8B8B8 and an estimated background color of #FAFAFA. Consider increasing this item's text contrast ratio to 3.00 or greater.

LEARN MORE

No suggestions

Accessibility Scanner has no suggestions for improvement, but remember to test with real users.

Google Play: **Accessibility Scanner**



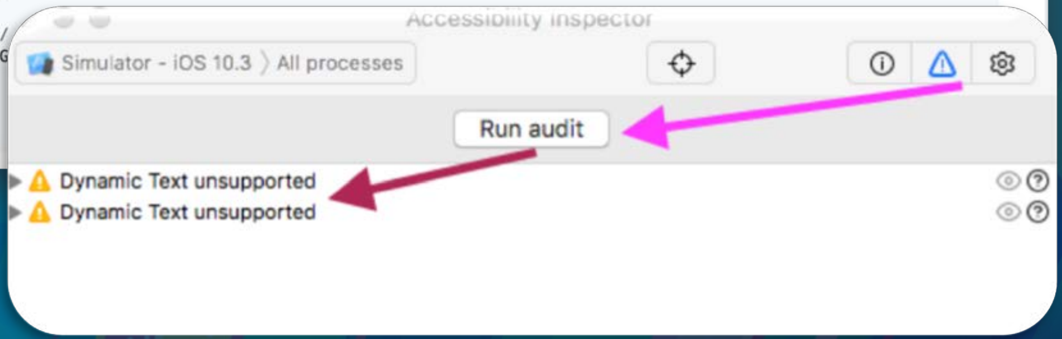
What is GTXiLib?

GTXiLib, Google Toolbox for Accessibility for the iOS platform or simply GTX-eye is a framework for iOS accessibility testing. GTXiLib has XCTest integration and can be used with any XCTest-based frameworks such as EarlGrey. GTXiLib enhances the value of your tests by installing "accessibility checks" on them; your existing test cases can double as accessibility tests with no other code change on your part. GTXiLib is able to accomplish this by hooking into the test tear-down process and invoking the registered accessibility checks (such as check for presence of accessibility label) on all elements on the screen.

Getting Started

To install GTXiLib on all the tests of a specific test class add the following snippet of code to it.

```objc
// Include the GTXiLib umbrella header.

// Note that that is +setUp not -setUp
+ (void)setUp {
  [super setUp];

  // ... your other setup code (if any) comes here.

  // Create an array of checks to be installed.
  NSArray *checksToBeInstalled = @[
      [GTXChecksCollection checkForAXLabelPresent]
  ];

  //
  [G

}
```



Xcode: **Accessibility Inspector**

One size ***doesn’t*** always fit all…choose the best tool for you.

Keyboard test

Keyboard navigation (Web/Desktop)

tab / shift tab	**Move keyboard focus**
enter	**Click links**
enter / space	**Click buttons**
↑ ← → ↓	**Menus and some form controls**

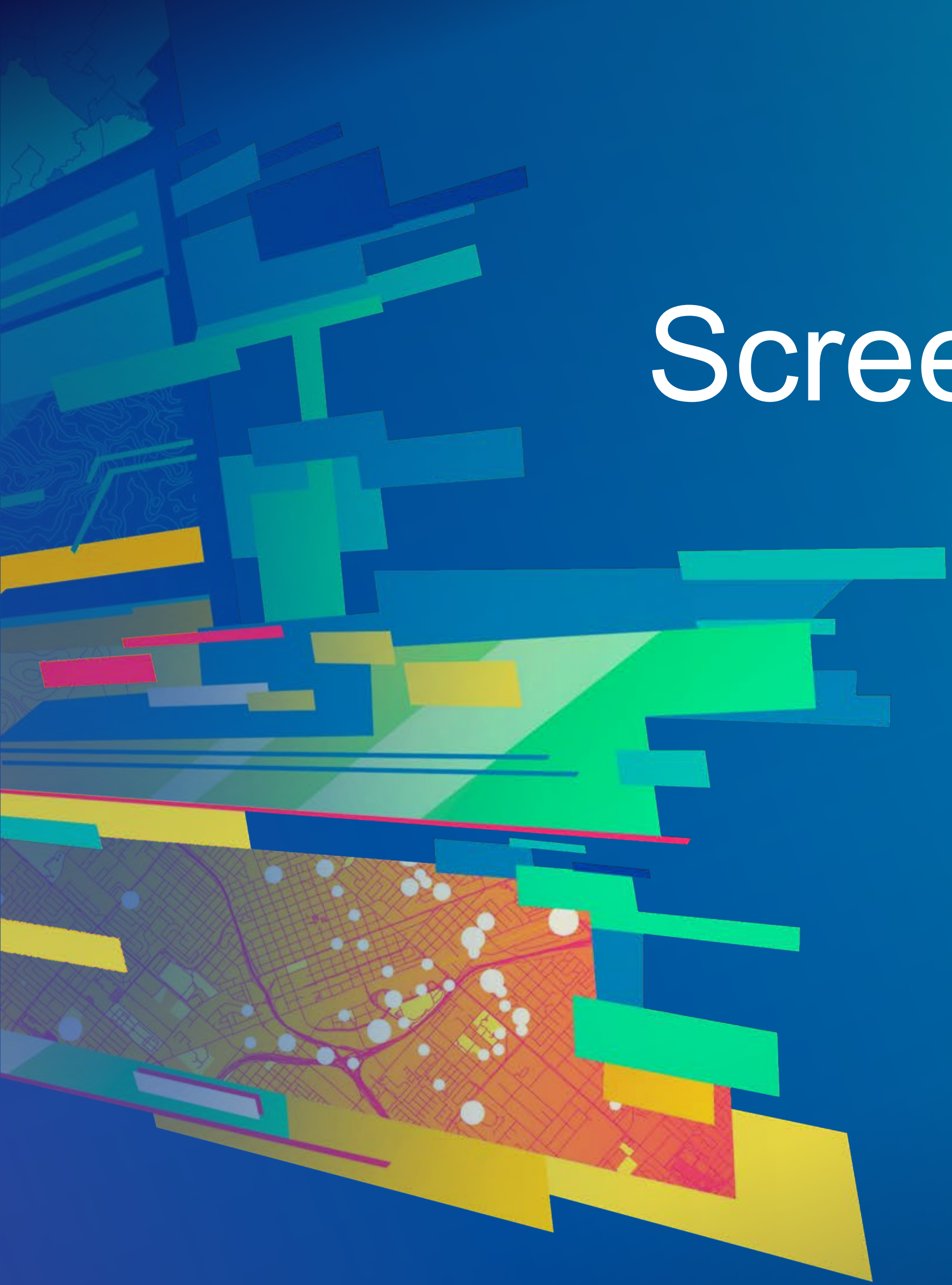
Expected outcomes

- 2.1.1: Interact with all controls, links, and menus using only keyboard.
- 2.4.7: See what item has focus at all times.
- 2.4.3: Visual focus order matches intended interaction order.
- 2.1.2: No keyboard trap.
- Off-screen content (e.g., responsive navigation) should not receive focus when invisible.

Practice keyboard test

Test cases

- Park Locator
- Enhanced focus (http://arcg.is/19muKy)



Screen reader test

Screen reader

Recommended combinations:

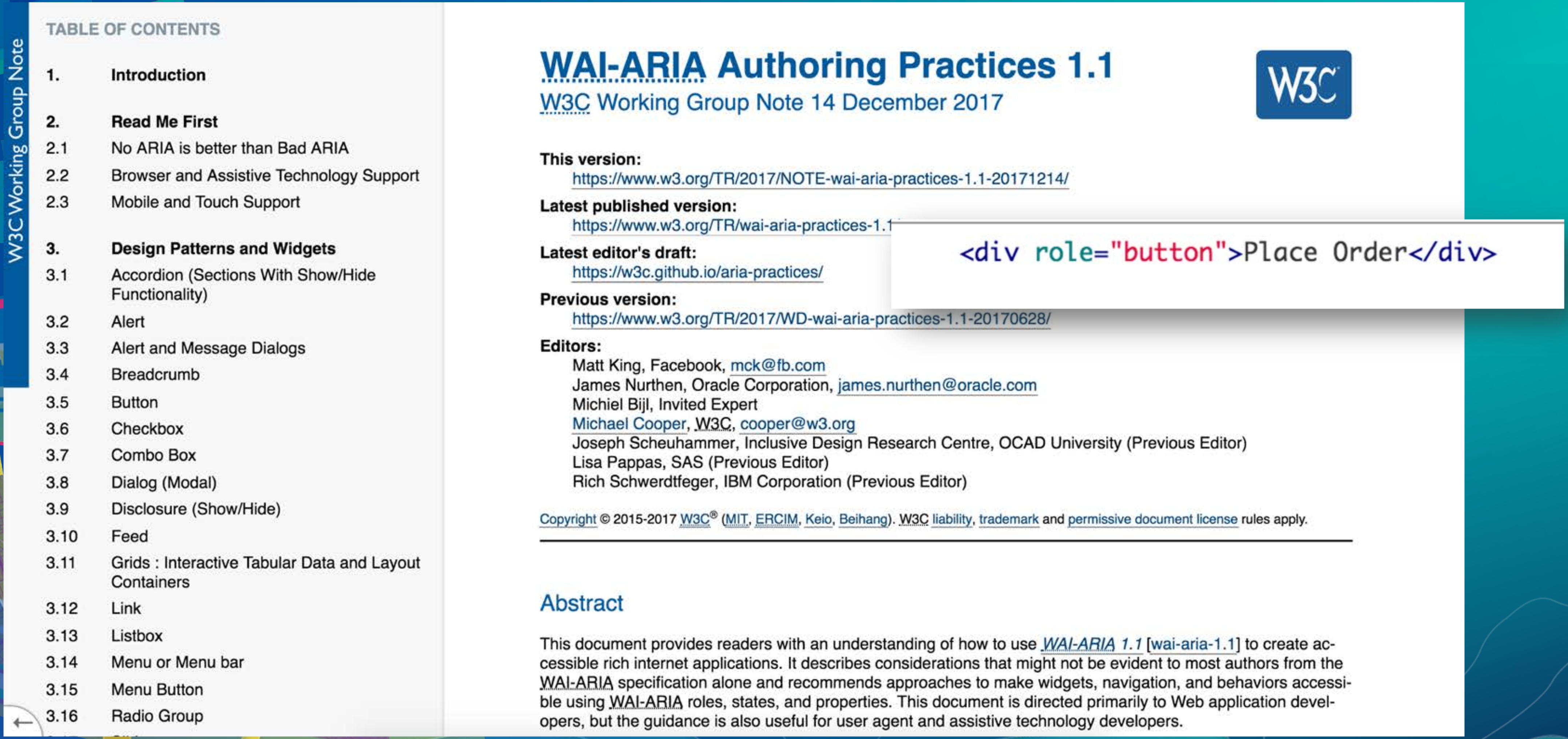
OS	Screen reader	Browser
MacOS	VoiceOver	Safari
Windows	NVDA	Firefox
Windows	JAWS	IE/Edge

Screen reader

	Turn on	Stop	Modifier key
VoiceOver	Command + F5	Command + F5	Control + Option
NVDA	Control + Alt + N	NVDA + Q	Numpad Insert
JAWS	Control + Alt + J	Insert + F4	Numpad Insert

Modifier key: Enter screen reader commands by pressing modifier key and one or more other keys

WAI-ARIA Authoring Practices



W3C Working Group Note

TABLE OF CONTENTS

WAI-ARIA Authoring Practices 1.1

W3C Working Group Note 14 December 2017

This version:
https://www.w3.org/TR/2017/NOTE-wai-aria-practices-1.1-20171214/

Latest published version:
https://www.w3.org/TR/wai-aria-practices-1.1

Latest editor's draft:
https://w3c.github.io/aria-practices/

Previous version:
https://www.w3.org/TR/2017/WD-wai-aria-practices-1.1-20170628/

```
<div role="button">Place Order</div>
```

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Lisa Pappas, SAS (Previous Editor)
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Abstract

This document provides readers with an understanding of how to use WAI-ARIA 1.1 [wai-aria-1.1] to create accessible rich internet applications. It describes considerations that might not be evident to most authors from the WAI-ARIA specification alone and recommends approaches to make widgets, navigation, and behaviors accessible using WAI-ARIA roles, states, and properties. This document is directed primarily to Web application developers, but the guidance is also useful for user agent and assistive technology developers.

https://www.w3.org/TR/wai-aria-practices-1.1/

Screen reader testing coverage

Navigation

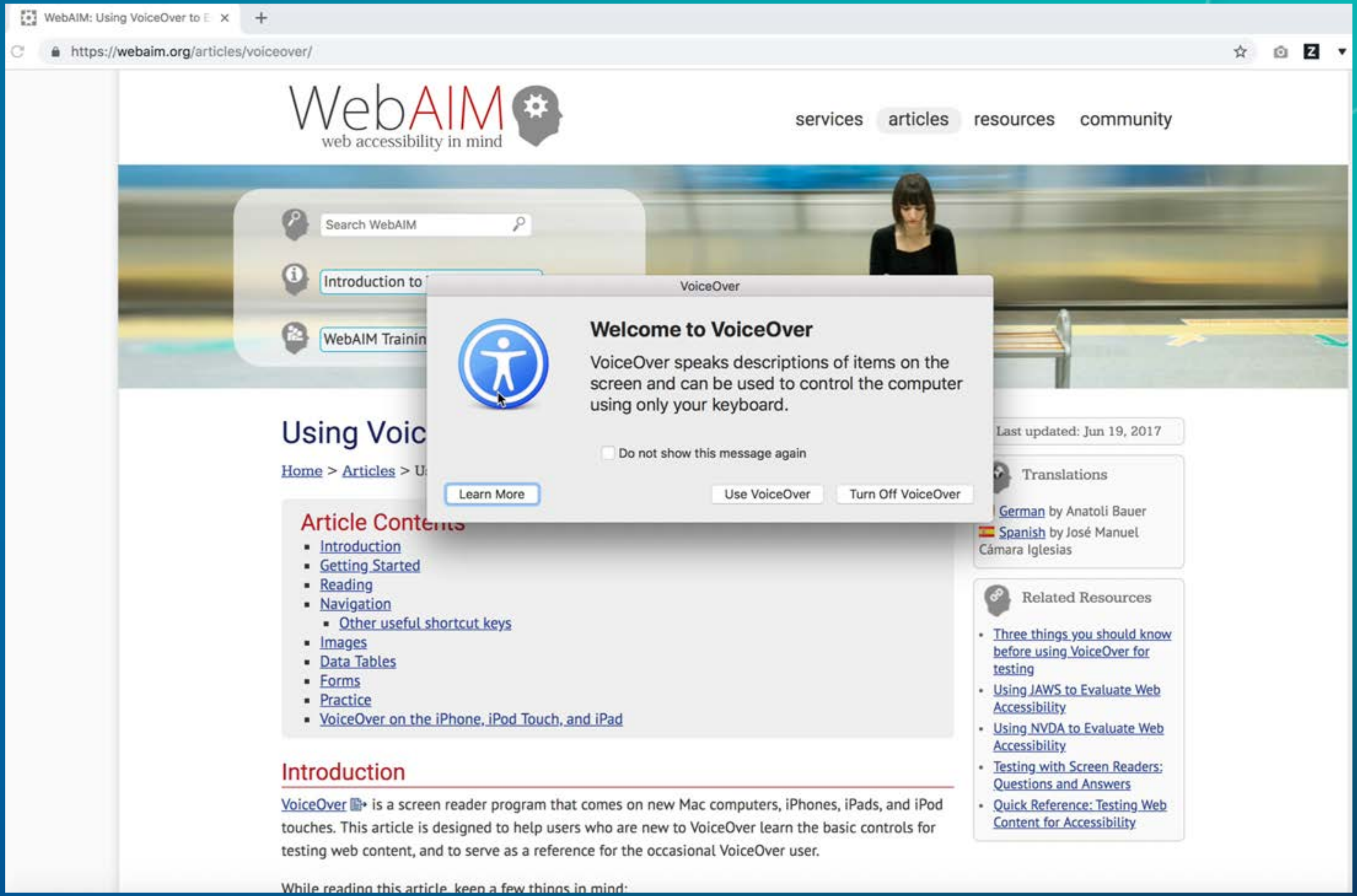
Headings
Links
Landmarks
Menus

Content

Alt text
Tables
Charts

Interaction

Forms
Messages
Dialogs
Widgets



WebAIM: Using VoiceOver to E
https://webaim.org/articles/voiceover/

WebAIM
web accessibility in mind

services articles resources community

Search WebAIM
Introduction to
WebAIM Trainin

VoiceOver

Welcome to VoiceOver

VoiceOver speaks descriptions of items on the screen and can be used to control the computer using only your keyboard.

Do not show this message again

Learn More
Use VoiceOver
Turn Off VoiceOver

Using Voic

Home > Articles > U

Last updated: Jun 19, 2017

Translations

German by Anatoli Bauer
Spanish by José Manuel Cámara Iglesias

Article Contents

- Introduction
- Getting Started
- Reading
- Navigation
  - Other useful shortcut keys
- Images
- Data Tables
- Forms
- Practice
- VoiceOver on the iPhone, iPod Touch, and iPad

Related Resources

- Three things you should know before using VoiceOver for testing
- Using JAWS to Evaluate Web Accessibility
- Using NVDA to Evaluate Web Accessibility
- Testing with Screen Readers: Questions and Answers
- Quick Reference: Testing Web Content for Accessibility

Introduction

VoiceOver is a screen reader program that comes on new Mac computers, iPhones, iPads, and iPod touches. This article is designed to help users who are new to VoiceOver learn the basic controls for testing web content, and to serve as a reference for the occasional VoiceOver user.

While reading this article, keep a few things in mind:

VoiceOver commands (Web, Desktop)

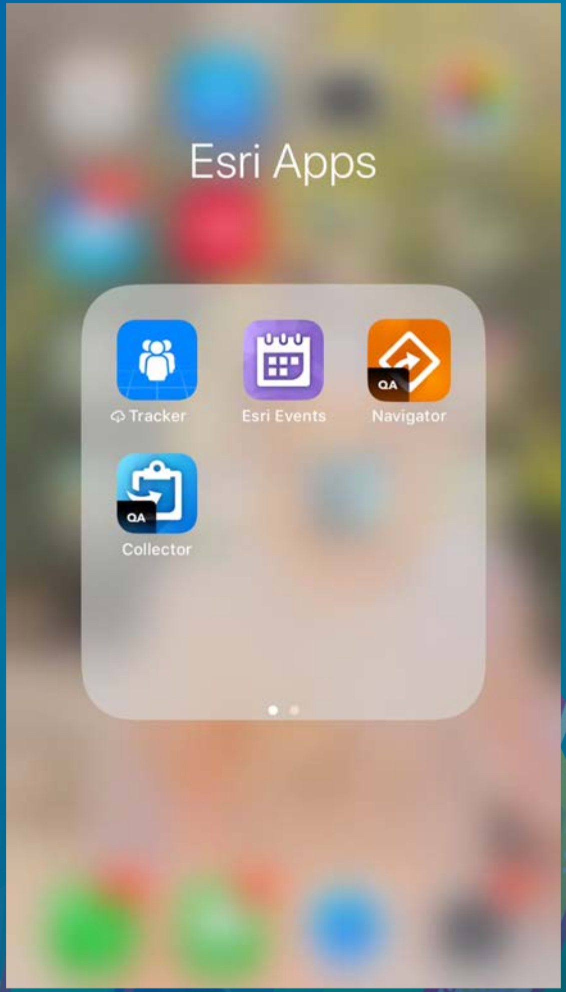
VO + right/left arrow	Read next/previous item
Control	Stop reading
VO + space	Click link, button, form controls
VO + u	Open rotor (Navigational menu for screen reader)

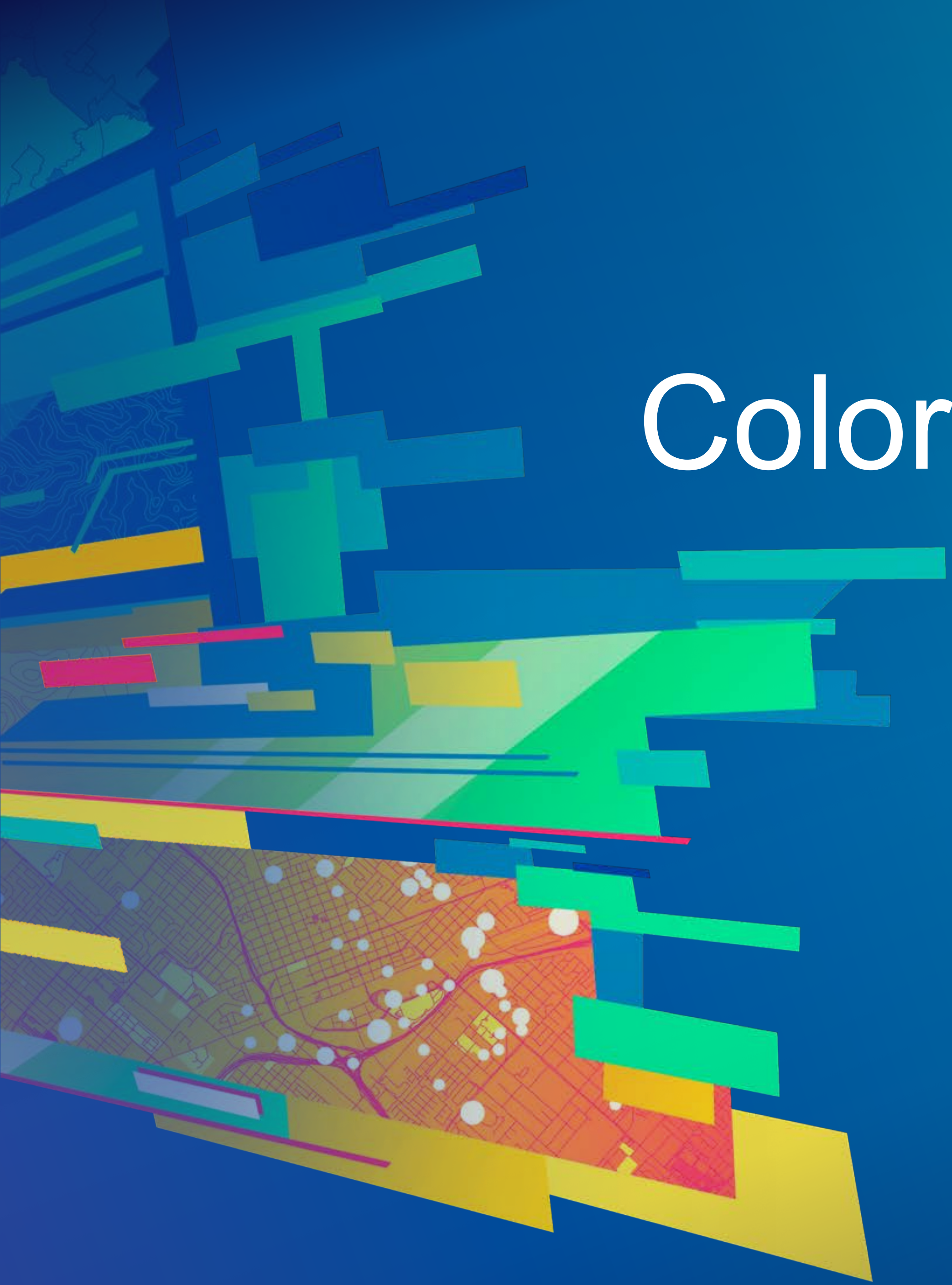
* VO = control + option

VoiceOver commands (Mobile)

iOS

- **Read the entire page:** Swipe two fingers upward
- **Stop reading:** Tap with two fingers
- **Read through individual page elements:** Swipe left or right
- **Change the type of item to navigate via the Rotor:** Twist two fingers on the screen (like rotating a dial)
  - Once selected, swipe up or down to cycle through the available elements
- **Read from current location:** Swipe downward with two fingers
- **Select an element:** Tap an item, drag finger to an item, or navigate to an item using another navigation gesture
- **Activate an item:** Double tap
- **Zoom:** Triple tap





Color test

Expected outcomes

- 1.4.1: Not use presentation that relies solely on color.
- 1.4.3: Color contrast ratio is at least 4.5:1 (regular) and 3:1 (large).

Practice color test

Test cases

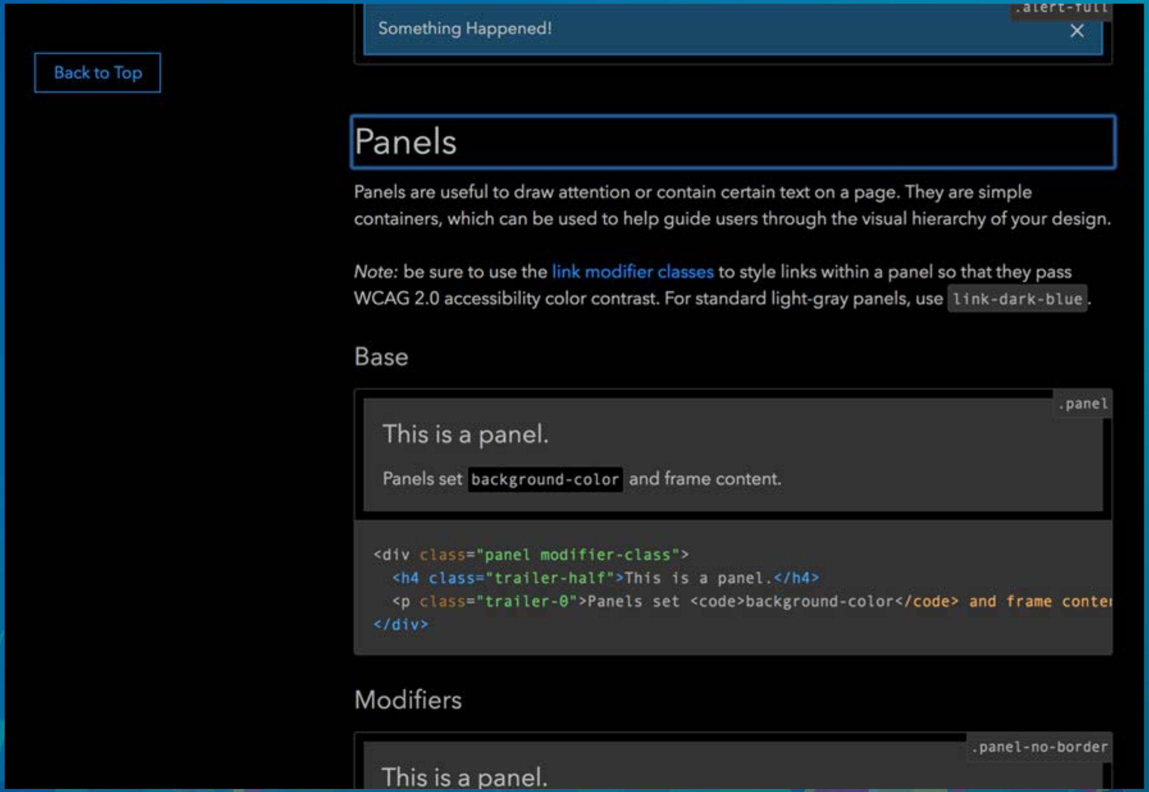
- Esri.com

Tools

- WebAim Contrast Checker
- Contrast ratio calculator (http://arcg.is/1m44TW)

Summary

- Start with automated test, then do keyboard, screen reader, and color test.
- Need to understand WCAG 2.0 Success Criteria.
- Get familiar with ARIA for widgets.
- Try to use native accessible components.



.alert-full

Something Happened! ✕

Back to Top

Panels

Panels are useful to draw attention or contain certain text on a page. They are simple containers, which can be used to help guide users through the visual hierarchy of your design.

Note: be sure to use the link modifier classes to style links within a panel so that they pass WCAG 2.0 accessibility color contrast. For standard light-gray panels, use `link-dark-blue`.

Base

.panel

This is a panel.

Panels set `background-color` and frame content.

```
<div class="panel modifier-class">
  <h4 class="trailer-half">This is a panel.</h4>
  <p class="trailer-0">Panels set <code>background-color</code> and frame conte
</div>
```

Modifiers

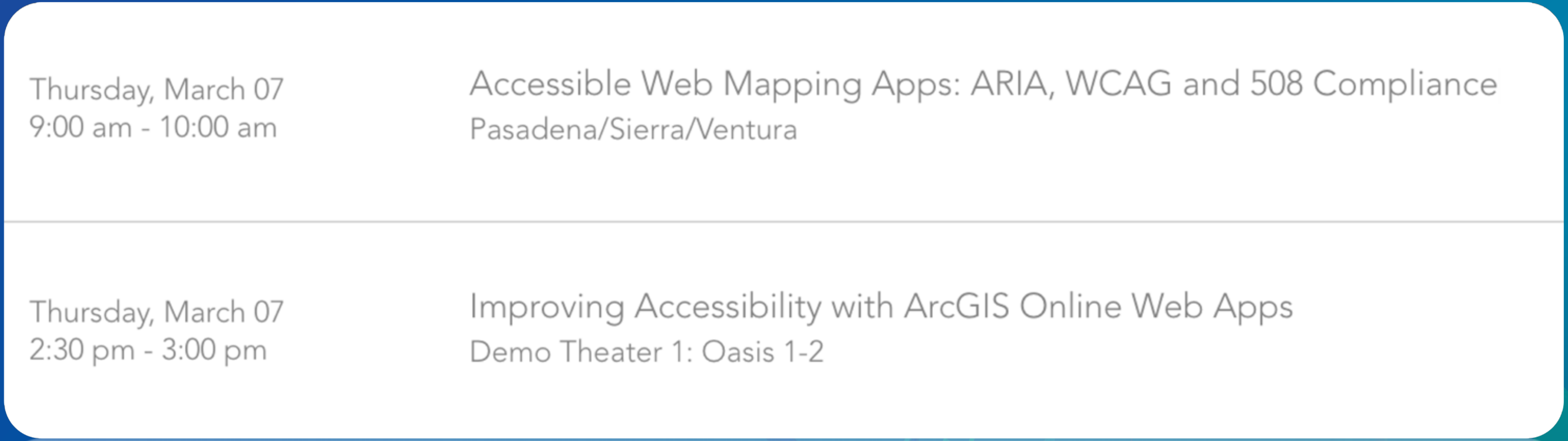
.panel-no-border

This is a panel.

The ultimate decision-maker about whether or not something is accessible, is whether or not people can use it.

Want to learn more about **accessibility**?

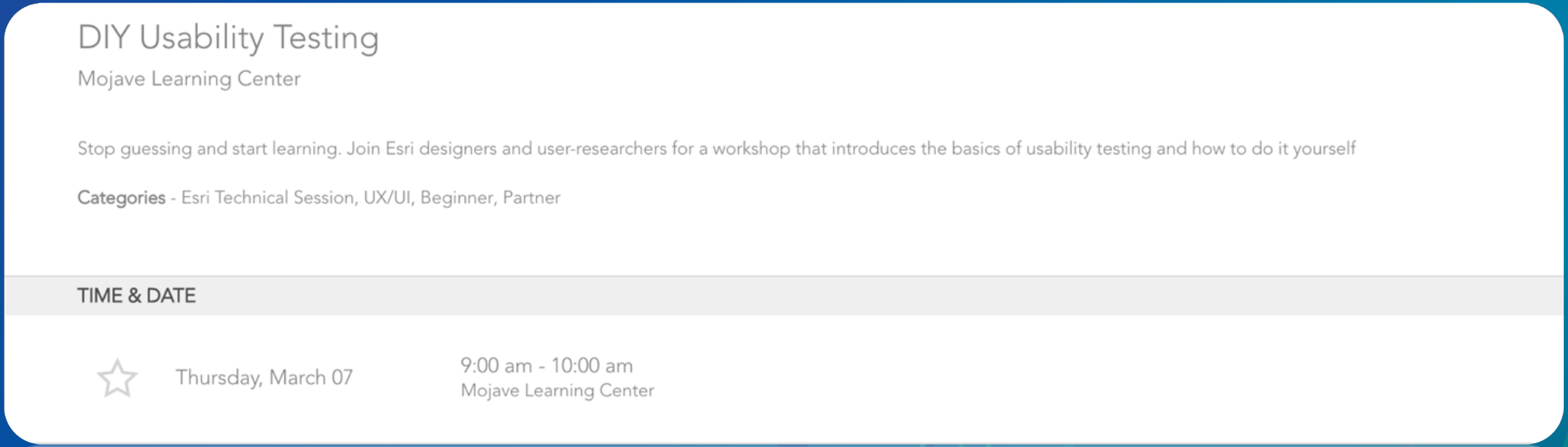
Presenters: Kelly Hutchins, Tao Zhang



Thursday, March 07 9:00 am - 10:00 am	Accessible Web Mapping Apps: ARIA, WCAG and 508 Compliance Pasadena/Sierra/Ventura
Thursday, March 07 2:30 pm - 3:00 pm	Improving Accessibility with ArcGIS Online Web Apps Demo Theater 1: Oasis 1-2

Want to learn more about **usability testing**?

Presenters: Brian Rosenberg, Kyle Jones



DIY Usability Testing

Mojave Learning Center

Stop guessing and start learning. Join Esri designers and user-researchers for a workshop that introduces the basics of usability testing and how to do it yourself

Categories - Esri Technical Session, UX/UI, Beginner, Partner

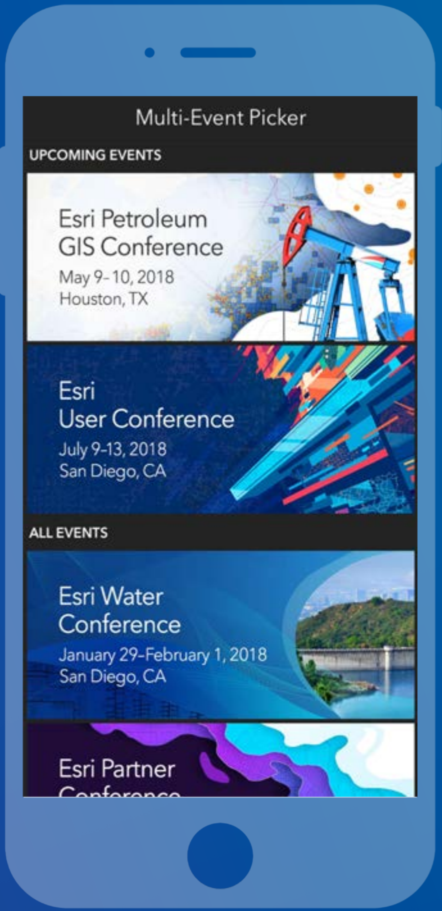
TIME & DATE

Thursday, March 07

9:00 am - 10:00 am
Mojave Learning Center

Please Take Our Survey on the App

Download the Esri Events app and find your event



Multi-Event Picker

UPCOMING EVENTS

Esri Petroleum GIS Conference
May 9-10, 2018
Houston, TX

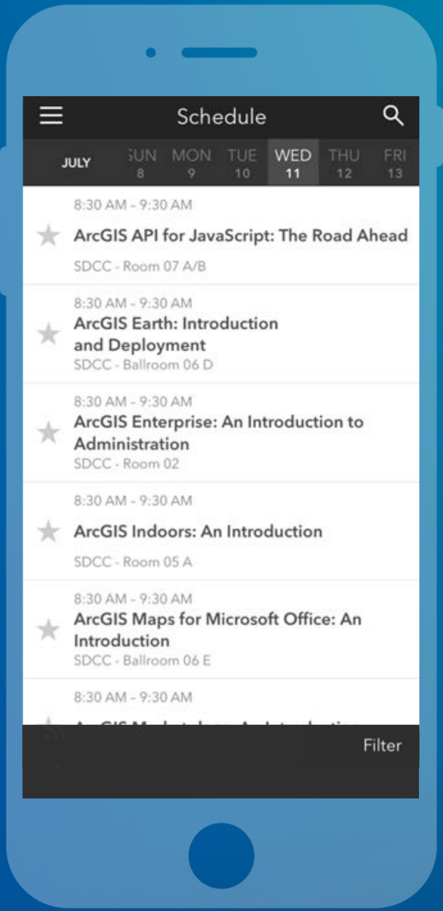
Esri User Conference
July 9-13, 2018
San Diego, CA

ALL EVENTS

Esri Water Conference
January 29-February 1, 2018
San Diego, CA

Esri Partner Conference

Select the session you attended



Schedule

JULY SUN 8 MON 9 TUE 10 WED 11 THU 12 FRI 13

8:30 AM - 9:30 AM
ArcGIS API for JavaScript: The Road Ahead
SDCC - Room 07 A/B

8:30 AM - 9:30 AM
ArcGIS Earth: Introduction and Deployment
SDCC - Ballroom 06 D

8:30 AM - 9:30 AM
ArcGIS Enterprise: An Introduction to Administration
SDCC - Room 02

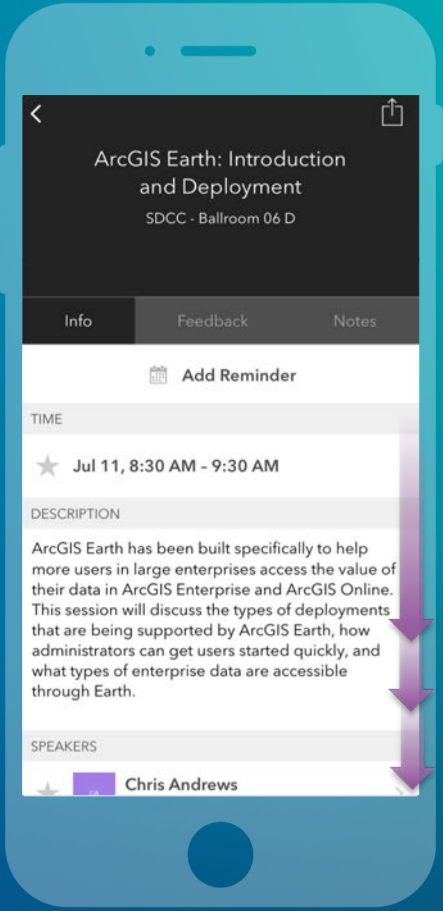
8:30 AM - 9:30 AM
ArcGIS Indoors: An Introduction
SDCC - Room 05 A

8:30 AM - 9:30 AM
ArcGIS Maps for Microsoft Office: An Introduction
SDCC - Ballroom 06 E

8:30 AM - 9:30 AM

Filter

Scroll down to find the feedback section



ArcGIS Earth: Introduction and Deployment
SDCC - Ballroom 06 D

Info | Feedback | Notes

Add Reminder

TIME

Jul 11, 8:30 AM - 9:30 AM

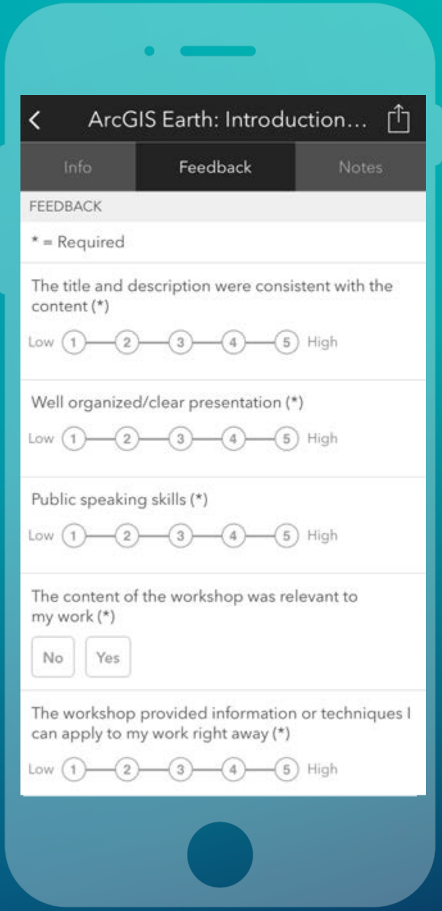
DESCRIPTION

ArcGIS Earth has been built specifically to help more users in large enterprises access the value of their data in ArcGIS Enterprise and ArcGIS Online. This session will discuss the types of deployments that are being supported by ArcGIS Earth, how administrators can get users started quickly, and what types of enterprise data are accessible through Earth.

SPEAKERS

Chris Andrews

Complete answers and select "Submit"



ArcGIS Earth: Introduction...

Info | Feedback | Notes

FEEDBACK

* = Required

The title and description were consistent with the content (*)
Low 1 2 3 4 5 High

Well organized/clear presentation (*)
Low 1 2 3 4 5 High

Public speaking skills (*)
Low 1 2 3 4 5 High

The content of the workshop was relevant to my work (*)
No Yes

The workshop provided information or techniques I can apply to my work right away (*)
Low 1 2 3 4 5 High

esri

THE SCIENCE OF WHERE