Accessibility of the National Institute of Standards and Technology's Research Outputs

Kathryn Miller

NIST Research Library

October 2023

Disclaimer

Certain commercial equipment, instruments, or materials are identified in this paper in order to specify the experimental procedure adequately. Such identification is not intended to imply recommendation or endorsement by NIST, nor is it intended to imply that the materials or equipment identified are necessarily the best available for the purpose.

OUTLINE

- Introduction
- Outreach
- Tools
- Impact

Introduction

Who is NIST and what do we do?

# NIST is a non-regulatory agency within the U.S. Department of Commerce.

Mission: To promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic security and improve our quality of life

©Robert Rathe

Credit: J Burrus/NIST

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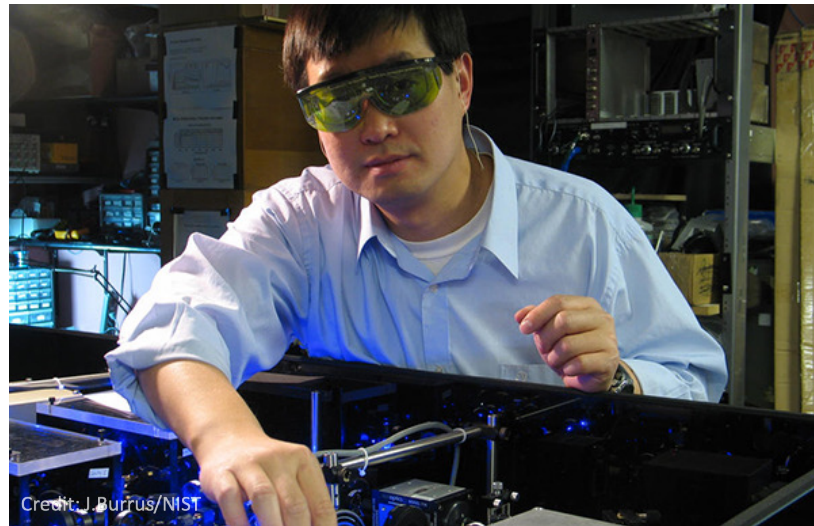
NIST Laboratory Programs

Material Measurement Laboratory
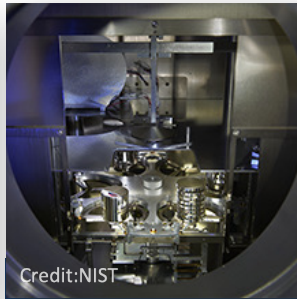
Physical Measurement Laboratory

Engineering Laboratory

Information Technology Laboratory

Communication Technology Laboratory

NIST Center for Neutron Research

Credit:NIST

Credit:NIST

Credit:Shutterstock/ Dmitry Kalinovsky

Credit:Shutterstock

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NIST Research Outputs

Number of published outputs as reported to Dept of Commerce

	FY 2020	FY 2021	FY 2022
NIST manuscripts (peer-reviewed)	1509	1419	1160
NIST Technical Series reports	232	225	290
Data & Software	132	128	123

1700 research outputs per FY need...

- Rigorous NIST review
- Author identifiers
- Section 508 compliance
- Inclusive language
- Metadata
- Public access
- Measurable impact

Outreach

How do we make sure our authors understand digital accessibility?

Internal webpages & forums

508: Did You Know? Compilation

It is up to all of us to make sure our work is accessible to every member of the public. Section 508 of the Rehabilitation of 1973 (29 USC § 794d) requires that when federal agencies develop, procure, or maintain information and communication technology, that it is accessible to persons with disabilities. This page is a compilation of "508: Did You Know?" announcements that have appeared on NIST's intranet, now organized by category.

(Did you know this is the icon used to denote accessibility?)

Table of Contents

508: Did You Know?
Compilation of short accessibility tips organized by category

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Section 508 Support

Section 508 Support

Federal agencies are responsible for ensuring their information and serv... purpose of these webpages is to explain what Section 508 is and to direc... on how to purchase, develop, and design 508-compliant and accessible...

- Section 508 and Accessibility +
- 508 and the Web Content Accessibility (WCAG) Guidelines
- Electronic Barriers to Accessibility
- Creating Accessible Microsoft Word Documents +
- Creating Accessible PowerPoint Presentations
- Micros... Checke...
- Accessi...
- Creatin...

Section 508 Support
Definitions and resources on how to purchase, develop, and design accessible products

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Wednesday, February 1

2/14 4:15 PM
Hi I have a question about accessibility. Is text in bold font (to highlight import... else can we highlight the important values in a table? Tks!

▼ Collapse all

Miller, Kathryn M. (Fed)   2/15 9:28 AM
Hi ___ - that's a great question. General best practice is not to convey... screen readers are not configured to read emphasized text (bold, italic,... sighted readers, while also indicating the important values to those wh... other ASCII character by each value). Let me know if that works in your...

👍 1

2/15 10:01 AM
Thank you so much! I think adding the * is perfect!

Staff forums
Monitored forums where staff can ask questions as issues arise

Policy

508 Action Team

- Mission
  - Build awareness
  - Evaluate resources
  - Create resources and training for staff
- Deliverables
  - Resources on internal website
  - Staff forum
  - Sponsored training
  - Library publishing improvements

Technical Series publications

- Require use of compliant template
- Encourage authors to use accessibility checklist
- Provide document accessibility reports

Editorial review

- Train reviewers on accessibility topics
- Remind authors to use color contrast analyzer tools (for accessibility and also for people who print out a B&W copy of a paper)
- Remind authors to create alt-text

2024 policy updates

- Require 508 compliance for all outputs before approval and publishing
- Require web authors to take web accessibility training

Training

External training
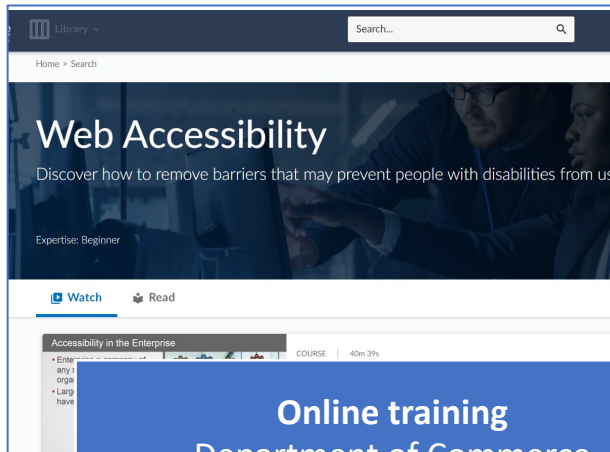
Online training
Department of Commerce

Online training
General Services Administration (GSA)
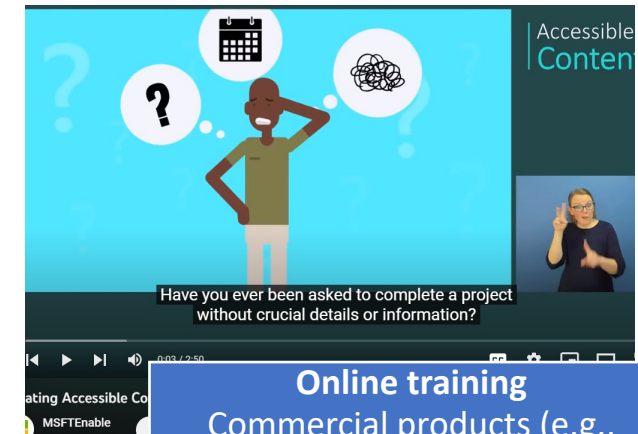
Online training
Commercial products (e.g., Microsoft, Adobe)

Internal training

Pub Corner presents

Section 508 Compliance in NIST Technical Series Publications

Accessible

NIST TechPub Sample

1:30
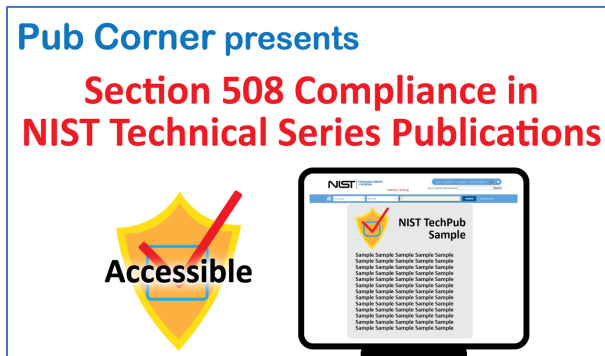
Webinars
Hosted by NIST Research Library during monthly publishing training sessions

NIST Technical Series Publication Template

Accessibility Checks

Video demos
Short videos to guide authors on how to make their documents 508 compliant

HOW TO WRITE ALT TEXT FOR SCIENTIFIC DIAGRAMS AND DOCUMENTATION

Quansight Labs

Engaging discussions
Sessions where authors share solutions and resources

Tools

What do we give our authors so they can DIY?

Research outputs

Adobe Acrobat accessibility reports

Checklist for NIST technical series publications

Microsoft Accessibility Checker

LaTeX PDF tagging

Accessible color palettes for data visualization programs

Check color contrast of text and visuals
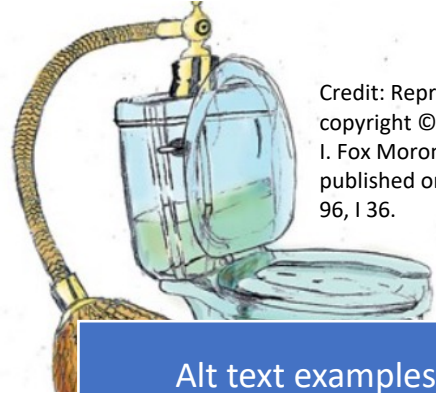
Alt text examples

Credit: Reprinted from Chemical & Engineering News, copyright © 2018 American Chemical Society/Manny I. Fox Morone. The article and image were first published on September 9, 2018 and appeared in Vol. 96, I 36.

Web authoring

Siteimprove webpage accessibility tracker

Accessibility overview

Accessibility overview

Did you know that you can set a site target and track

Score details ? | Accessibility score ?

A Level A ?	92.8 / 100	
AA Level AA ?	93.8 / 100	
AAA Level AAA ?	64.7 / 100	
ARIA WAI-ARIA authoring practices ?	67.1 / 100	
Si Accessibili		

Accessibility
88.7 /100
+0.0 ?

WCAG Checklist

WebAIM
web accessibility in mind

WCAG 2 Checklist

Principle 1: Perceivable
Web content is made available to the senses - sight, hearing, and/or touch

Guideline 1.1 Text Alternatives
Provide text alternatives for any non-text content
1.1.1 Non-text Content
A 2.0

☐ Images, image buttons, and image map hot spots have appropriate, equivalent alternative text.
☐ Images that do not convey content, are decorative, or contain content that is already conveyed in text are given empty alternative text (alt="") or implemented as CSS backgrounds. All linked images have descriptive alternative text.
☐ Equivalent alternatives to complex images are provided in context or on a separate linked page.
☐ Form buttons have a descriptive value.
☐ Inputs have associated text labels.
☐ Embedded multimedia is identified via accessible text.
☐ Frames and iframes are appropriately titled.

Guideline 1.2 Time-based Media
Provide alternatives for time-based media
NOTE: If the audio or video is designated as an alternative to web content (e.g., an audio or sign language version of a web page, for exam

1.2.1 Audio-on
A 2.0

☐ A descriptive tr
☐ A descriptive tr

GSA guide to accessible web design

GSA Section508.gov
Buy. Build. Be Accessible.

Blogs & Updates   My Agency's 508

Policy & Management | Acquisition | Content Creation | Design & Develop | Testing | Training, Tools &

Design & Develop
Developing Accessible Web Content

Design & Develop
Design +
Develop −
Develop Software and Websites
Applicability and Conformance Requirements for Developers
Develop Web Conte

Learn how to build digital tools that conform to the Revised 508 Standards. Review Sufficient Techniques for examples of how to meet Success Criteria using specific (relevant to HTML, CSS, server-side scripting, Flash, ARIA, etc.).

- How to Meet WCAG 2.0 - quick reference guide
  - Full list of sufficient techniques and common failures
- Getting started with web accessibility
- Designing for inclusion

Internal Drupal documentation

entation

Drupal Documentation

Video Instruction
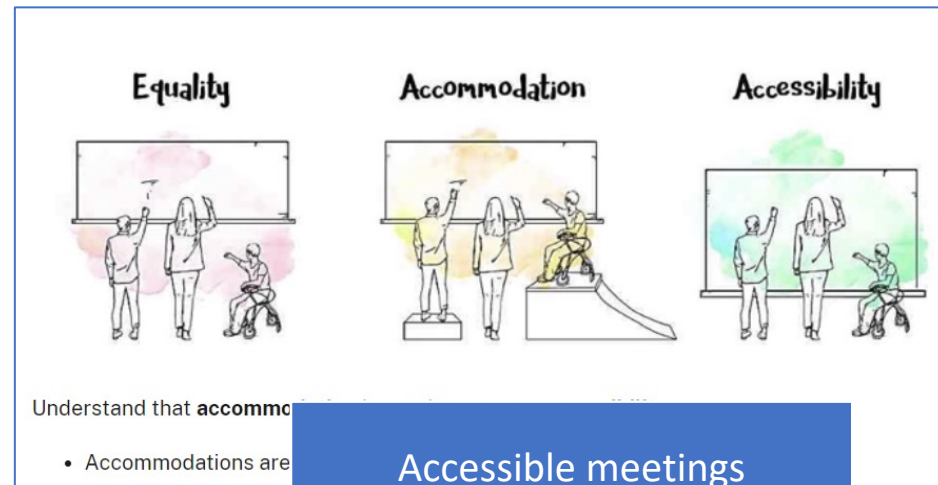- WWW Tutorial Videos - Drupal Authoring
- iNET Tutorial Videos - *coming soon*
- Site Improve Training

Useful Web Links & Best Practices
- Content Inventory Tools
  - WWW Content Inventory - *must have publisher or power user rights to use*
  - INET Content Inventory - *must have publisher rights to use*
- Users Report by Section (List of authors and roles within a section)

Author +

Supporting tools

Video captioning

Accessible meetings

Purchasing accessible electronic products & services

Impact

Where can we see improvement and growth?

In the Numbers

4000
webpage views

45% increase
in accessible
NIST TechPubs

180
authors attended
training

6000
machine-readable
articles in PMC

Accessibility & language

Inclusive language

Plain language

Inclusive and plain language make outputs accessible and welcoming to *everyone.*

Don't forget to pay attention to the language in alt text for visuals!

INSPIRED BY A PUBLIC SCHOOL STUDENT WITH DISABILITIES

© 2002 MICHAEL F. GIANGRECO, ILLUSTRATION BY KEVIN RUELLE

COULD YOU PLEASE SHOVEL THE RAMP?

ALL THESE OTHER KIDS ARE WAITING TO USE THE STAIRS. WHEN I GET THROUGH SHOVELING THEM OFF, THEN I WILL CLEAR THE RAMP FOR YOU.

BUT IF YOU SHOVEL THE RAMP, WE CAN ALL GET IN!

CLEARING A PATH FOR EVERYONE!

Credit: Giangreco, M. F. (2021). Absurdities and Realities of Special Education [Online digital archive]. University of Vermont Libraries, Center for Digital Initiatives:

Accessible outputs help everyone!

- plain language makes it easier for all readers to understand your writing

- good alt-text helps explain a complicated graph to everyone

- attributes along with color makes it possible for a reader to interpret a chart or diagram that was printed in black and white

NIST Section 508 Action Team

The Section 508 Action Team is composed of representatives from the Equal Employment Opportunity and Accessibility Office, the Research Library, the Office of Information Systems Management, the Public Affairs Office, and NIST Labs. If you would like to learn more about our work, please email us at 508@nist.gov.

Claire Barrett	Matthew Mendonca
Jennifer Barrick	Kathryn Miller
Thomas Chung	Aimee Nguyen-Generoso
Martha Heil	Patrick O'Reilly
Kathy Lynch (Co-Chair)	Katherine Sharpless (Co-Chair)
Robin Materese	

We also thank Mirta-Marie Keys, Don Bradshaw, and Chelsea Greene for their work on this committee.