better scientific software

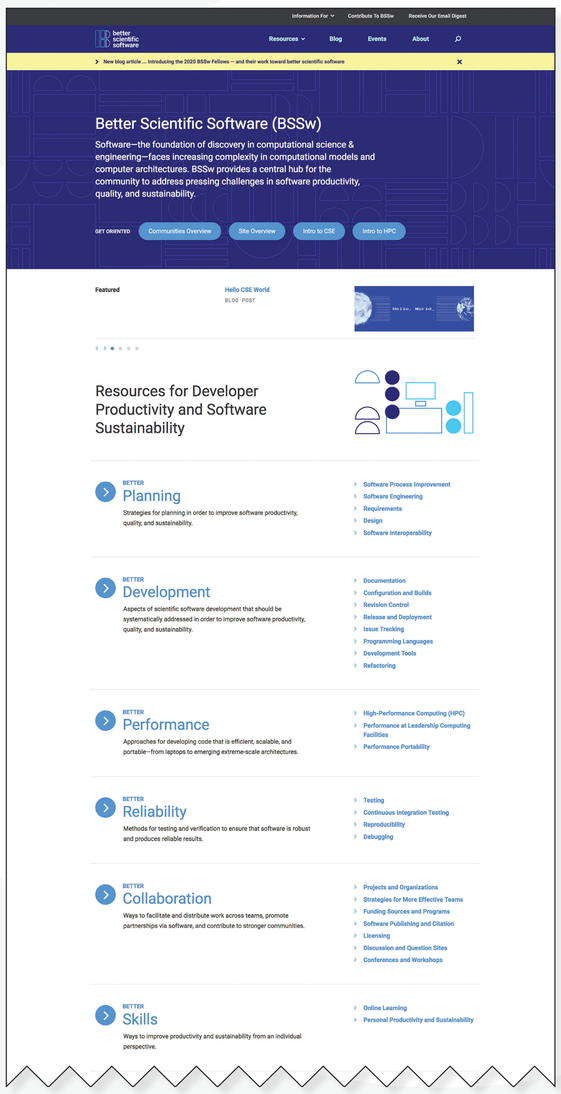
HTTPS://BSSW.IO

SO YOUR CODE WILL SEE THE FUTURE

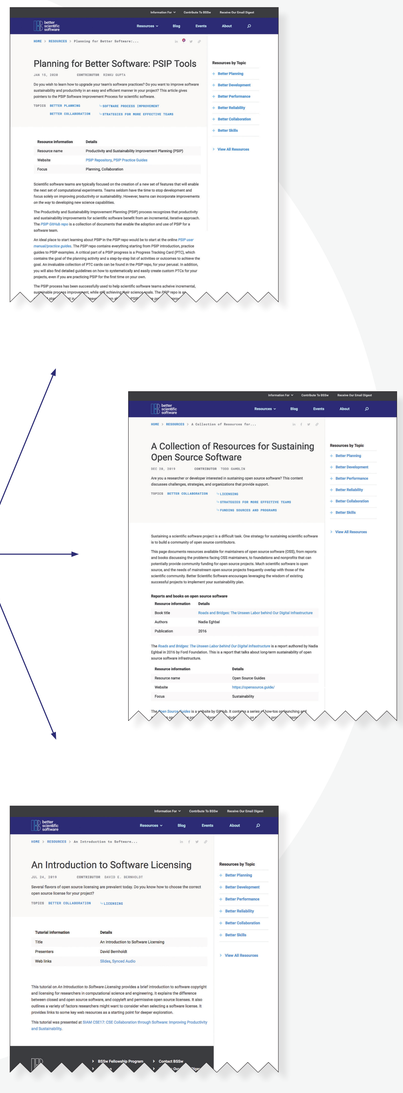
BSSw Resources

The BSSw site features curated content, experiences, and reasoned insights on topics related to software productivity and sustainability for computational science and engineering (CSE).

Home Page



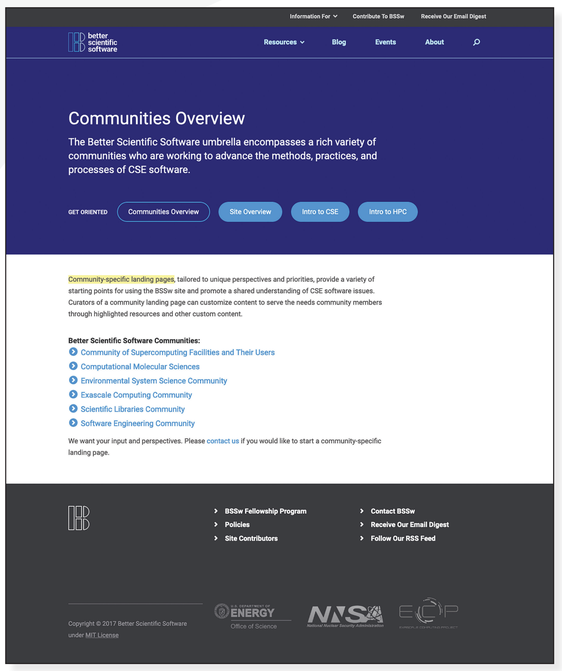
Example Resource Pages



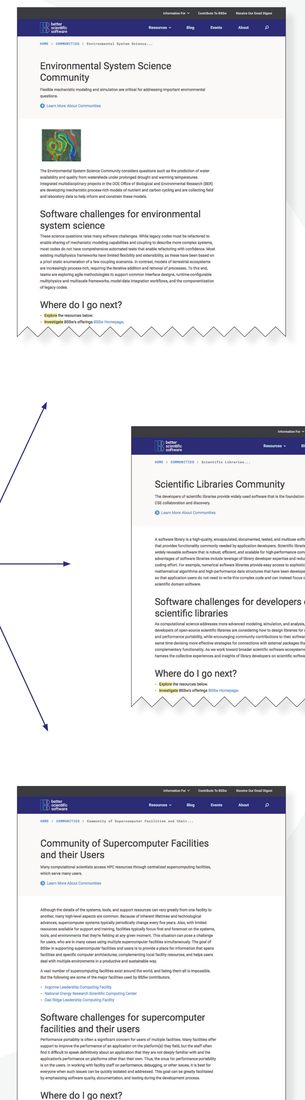
BSSw Communities

The BSSw umbrella encompasses a rich variety of communities who are working to advance the methods, practices, and processes of CSE software.

Communities Overview



Example Community Pages



What is BSSw?

A community-based resource for scientific software improvement.

What is BSSw?

A central hub for sharing information on practices, techniques, experiences, and tools to improve developer productivity and software sustainability for CSE.

BSSw Topics

Better Planning
- Software Process Improvements
- Software Engineering
- Requirements
- Design
- Software Interoperability

Better Development
- Documentation
- Configuration And Builds
- Revision Control
- Release and Deployment
- Issue Tracking
- Programming Languages
- Development Tools
- Refactoring

Better Performance
- High Performance Computing (HPC)
- Performance at Leadership Computing Facilities
- Performance Portability

Better Reliability
- Testing
- Continuous Integration Testing
- Reproducibility
- Debugging

Better Collaboration
- Projects And Organizations
- Strategies for More Effective Teams
- Funding Sources And Programs
- Software Publishing And Citation
- Licensing
- Discussion and Question Sites
- Conferences and Workshops

Better Skills
- Online Learning
- Personal Productivity and Sustainability

What are the goals of BSSw?
- Raise awareness of the importance of good software practices to scientific productivity and to the quality and reliability of computationally-based scientific results.
- Raise awareness of the increasing challenges facing CSE software developers as high-end computing heads to extreme scales.
- Help CSE researchers increase effectiveness as well as leverage and impact.
- Facilitate CSE collaboration via software in order to advance scientific discoveries.

How can you use the BSSw site?
- Find information on scientific software topics.
- Contribute new resources based on your experiences.
- Create content tailored to the unique needs and perspectives of a focused scientific domain.

The BSSw Fellowship Program

Gives recognition and funding to leaders and advocates of high-quality scientific software.

Goal: Foster and promote practices, processes, and tools to improve developer productivity and software sustainability of scientific codes.

Awards: We select at least three Fellows per year and honorable mentions as appropriate. Each Fellow will receive up to $25,000 for an activity that promotes better scientific software. Activities can include organizing a workshop, preparing a tutorial, or creating content to engage the scientific software community.

Applications: We will begin accepting applications for 2021 BSSw Fellowships during September 2020. Sign up for email updates at https://bssw.io.

Site platform

Component Technology	Backend: GitHub	Frontend: Ruby on Rails
Location	Public GitHub Organization: https://github.com/betterscientificsoftware	Site: https://bssw.io
Purpose	Content creation, refinement, and management: - Site history and revision control - Content packaging for use with bssw.io	User-facing portal: - Polished backend content - Custom Ruby on Rails content management system automatically imports, updates, and formats content from GitHub
Contributors	Community subject matter experts, BSSw staff	BSSw staff, web development experts
Content Notes	Content managed in GitHub repos using Markdown	Content from BSSw backend

Contributions

Join us in building the site into a vibrant resource. We need your content contributions!

What to contribute: content types

Curated links: Brief article that highlights other web-based articles or content.

"What Is" document: Define terms and concepts in a particular topic area.

"How To" document: Describe a process for improving productivity and sustainability.

Original experience: An original article to inform the CSE community about how to improve developer productivity and software sustainability.

Blog article: An original article in the form of a blog of 500-1500 words. We will solicit contributions from thought leaders in the community and welcome proposals from anyone.

Event: A brief description of an event relevant to better scientific software.

What to contribute: content scope

In-scope content:
- General issues in productivity and sustainability that overlap with common challenges faced in the CSE software community.
- General tools for productivity and sustainability that can be widely used by CSE developers.
- Characterization of challenges and solutions that may be particularly valuable to the CSE community.

Highlight connections to CSE: Address how your topic intersects with themes of particular interest to CSE, such as MPI, Fortran, C++, architectures, modeling and simulation.

Ease of adoption and use: Address how easy or hard it is to benefit from your topic. Address who would be particularly interested in the topic.

How to contribute

If you have experience or expertise that can help other scientific software teams, we encourage you to contribute. See https://bssw.io and click on "Contribute to BSSw".

Is your content a good fit?: Before writing your entire contribution, please submit the gist of your proposed contribution using the BSSw.io website. A member of the BSSw editorial board will help refine your idea to fit into BSSw.

Create your contribution: Once you and the editor converge, create your contribution and do a GitHub pull request. After review by our editorial board, we'll post your contribution on BSSw.

Note that GitHub has a convenient web-based Markdown editor that makes it easy to create your content online in a fork of the repository.

Quickly submit your topic ideas

Scan the QR code to connect to a Google form (also available at https://tinyurl.com/BSSwTopicIdea). Provide a brief description of your idea, and we will contact you to begin the process.

U.S. DEPARTMENT OF ENERGY | Office of Science

NNSA National Nuclear Security Administration

ECP EXASCALE COMPUTING PROJECT

BSSw Partnership

IDEAS project team: Conceived of the site and oversaw its creation and production; continue to improve and update the site experience and curate site content, with growing participation from the broader CSE community.

Sandbox Studio, Chicago: Established visual brand, interface design, and site strategy; continue to maintain, support, and improve the site experience and site operation. Sandbox Studio is an interactive design, UX, branding, and web development firm. Chad Tracy assists Sandbox in frontend development.

Parallactic Consulting: Established the custom content management system and GitHub integration developed with Ruby on Rails; continue to support, maintain, and improve the site. Parallactic is a small web development & data architecture company.