



Exceptional service in the national interest

WELCOME TO HPSF / TUG MEETING!

Curt Ober

Trilinos Product Owner

HPSF/TUG Meeting

March 18-19, 2026

Chicago, Illinois



TRILINOS



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

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THRUSTS FOR TUG THIS YEAR



- **Trilinos Introduction for New Users and Developers**
 - Overview of Trilinos capabilities and features
 - What is Trilinos?
 - What are its capabilities?
 - Wednesday Afternoon, March 18, 2026
 - **DevSecOps:** *How to Configure, Build, and Test Trilinos* - Samuel Browne
 - **Core Area:** *An Introduction to the Trilinos Core Products* - Roger Pawlowski
 - **Solvers Area:** *Linear Solver Capabilities in the Trilinos Project* - Jonathan Hu
 - **DnA Area:** *Overview of Trilinos Discretization and Analysis Capabilities* - Mauro Perego
 - **PyTrilinos2:** *Using Trilinos from Python* - Christian Glusa
- **Traditional Trilinos Users/Developers Meeting (TUG)**
 - A forum for users and developers to collaborate
 - Discuss current challenges and share experiences
 - Explore future directions and research opportunities
 - Thursday, March 19, 2026
 - Updates on Trilinos areas and packages
 - User presentations and shared experiences
 - Open Discussion

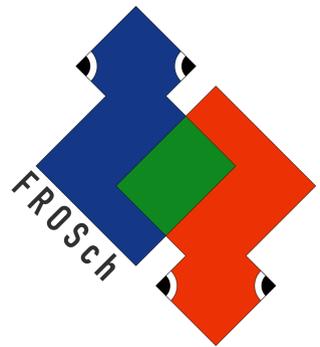
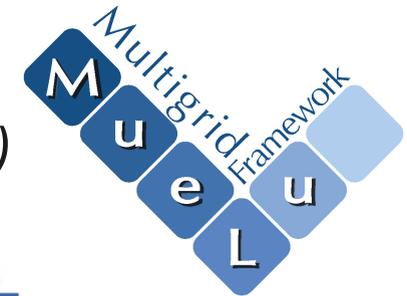
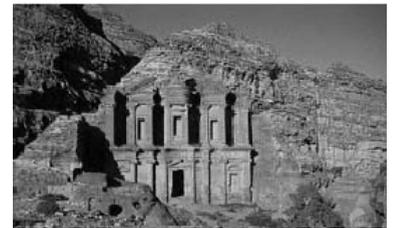


TRILINOS IS ...



... a collection of capabilities to provide a framework for the solution of large-scale, complex multi-physics engineering and scientific problems.

- **Performance Portability** ([Kokkos](#), [Kokkos Kernels](#), [Tpetra](#))
- **Linear Solvers** ([Belos](#), [Amesos2](#), [ShyLU](#), [Adelus](#), [Anasazi](#))
- **Preconditioners** ([Ifpack2](#), [FROSch](#), [MueLu](#), [Teko](#))
- **Discretization Utilities** ([Intrepid2](#), [Panzer](#), [Phalanx](#), [Compadre](#))
- **Nonlinear, Transient, and Optimization Solvers** ([NOX](#), [LOCA](#), [Tempus](#), [ROL](#))
- **Automatic Differentiation** ([Sacado](#))
- **Uncertainty Quantification** ([Stokhos](#))
- **Partitioning and Load Balancing** ([Zoltan](#), [Zoltan2](#))
- **Mesh and Geometry Tools** ([PAMGEN](#), [SEACAS](#), [STK](#), [Percept](#), [Shards](#), [Krino](#))
- **Interfaces and Adapters** ([Stratimikos](#), [PyTrilinos2](#), [Piro](#), [Thyra](#), [RTOp](#))
- **Utilities** ([Teuchos](#), [Galeri](#), [MiniTensor](#))



TRILINOS LEADERSHIP TEAM AND WORKING GROUPS



Technical Steering Committee



Curtis Ober



Christian Glusa



Jim Willenbring

Responsible for Trilinos-wide decisions.

Continuous Integration Working Group



Anderson Chauphan



Sam Browne



Jim Willenbring

Bring together multiple efforts to create a CI service for HPC projects.

Operational Leadership



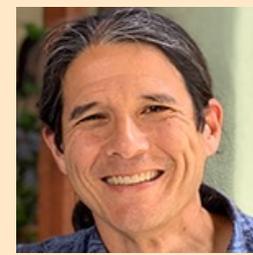
Curtis Ober
Lead



Sam Browne
DevSecOps



Roger Pawlowski
Core Area



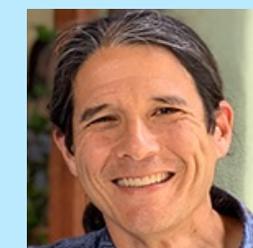
Jonathan Hu
Solvers Area



Mauro Perego
Discretization
and Analysis Area

Support package leads and developers, maintain day-to-day operations, interaction with stakeholders, and help plan Trilinos development over the next two years.

Benchmark Working Group



Jonathan Hu



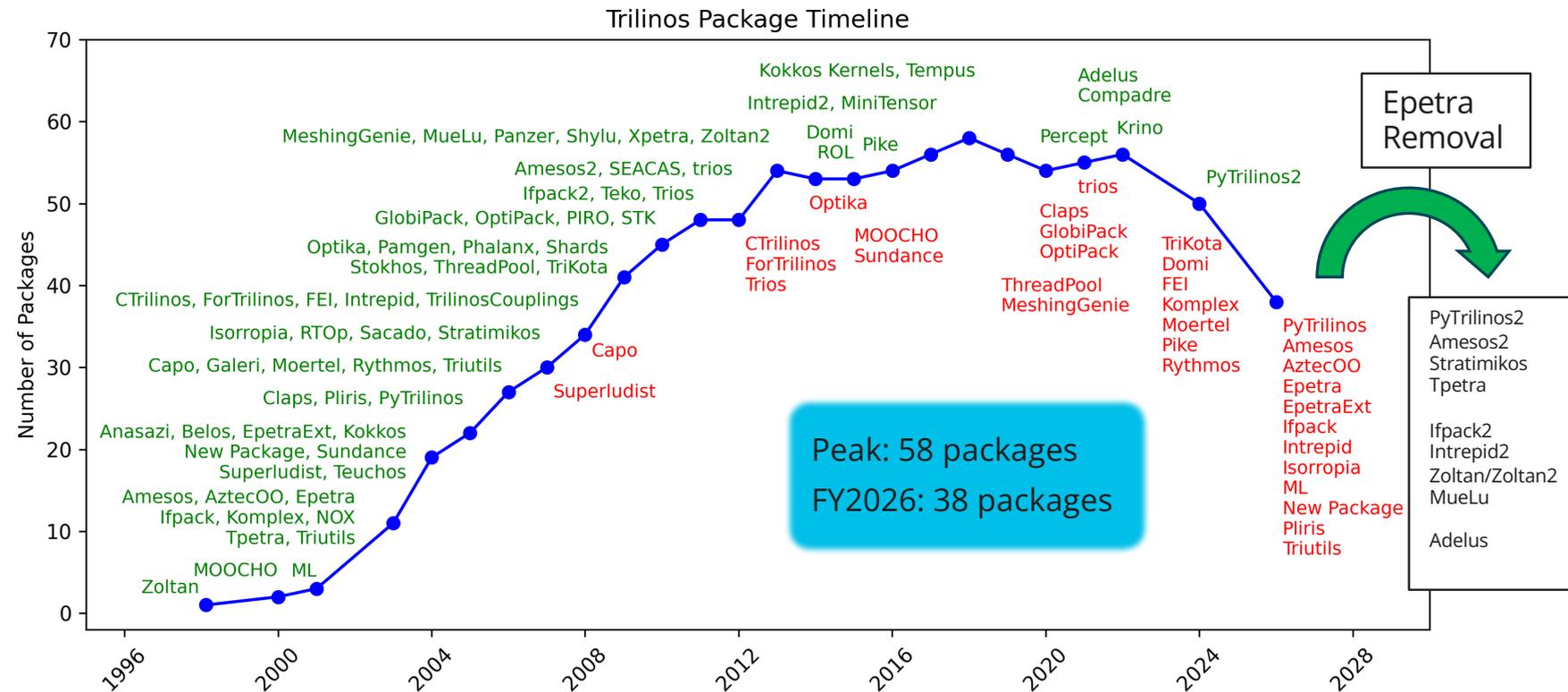
Chris Siefert

Create an automated way to continuously test the performance of evolving HPC software stacks.

TRILINOS 17.0 RELEASE

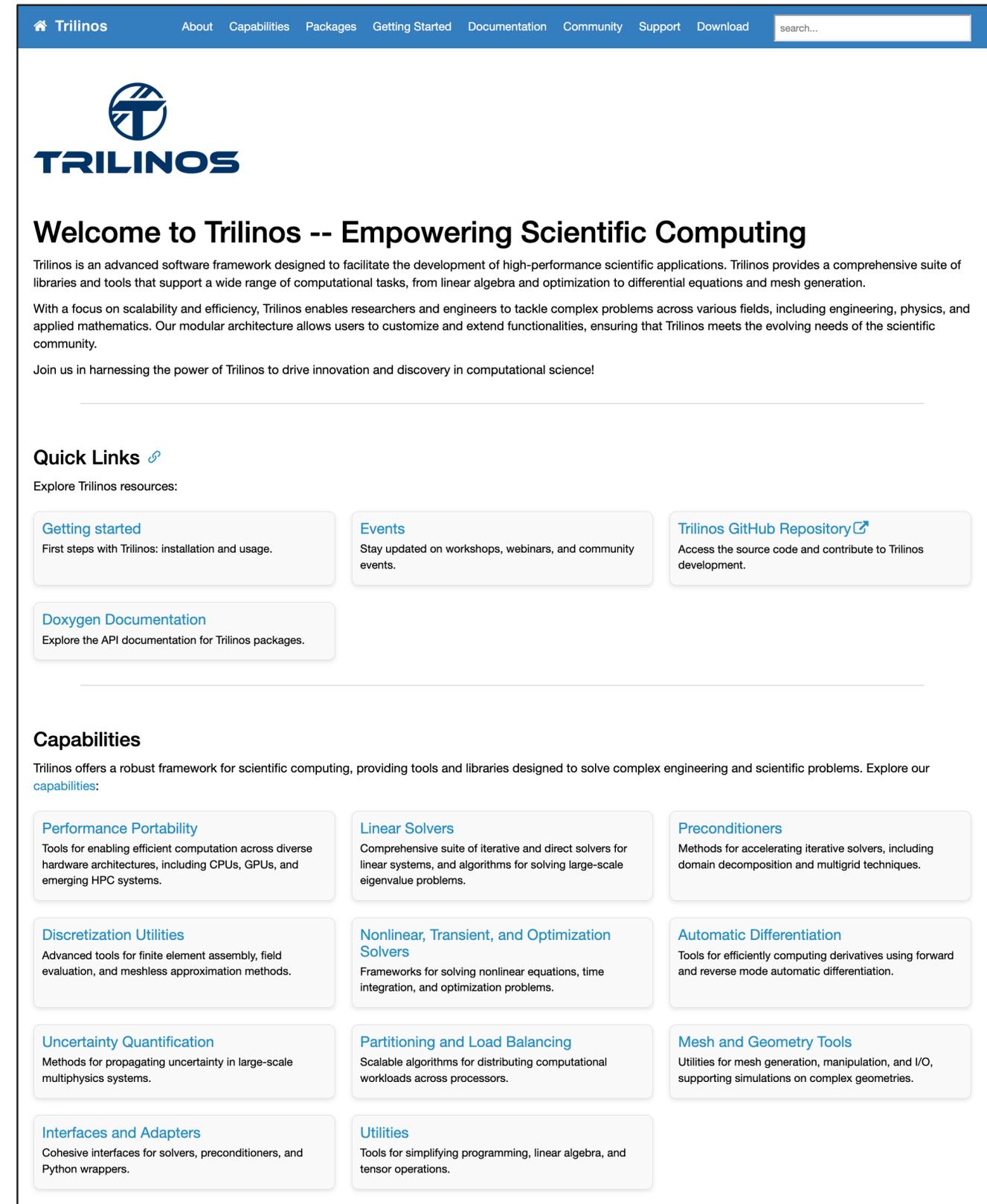


- Released 2026/02/10
- Epetra Removal
 - 15 Epetra stack packages!
- Requires
 - C++20 compatible compiler
 - CMake 3.27 or newer
- Kokkos 5.0
- In-source Gtest package has been removed
- Plan to match major and minor releases with Kokkos.
 - Kokkos 5.1 is coming!



TRILINOS HOME PAGE

- Refresh of the Trilinos Home Page!
 - <https://trilinos.org>
- More Capabilities focused
 - Friendlier for new users/developers
- Links to package documentation
 - <https://trilinos.github.io/packages-by-area.html>
- Still making improvements
 - Canonical examples
 - Applications page
 - Feel free to make suggestions, and add content.



The screenshot shows the Trilinos website home page. At the top, there is a navigation bar with links for 'Trilinos', 'About', 'Capabilities', 'Packages', 'Getting Started', 'Documentation', 'Community', 'Support', and 'Download'. A search bar is located on the right side of the navigation bar. Below the navigation bar is the Trilinos logo, which consists of a stylized 'T' inside a circle, followed by the word 'TRILINOS' in a bold, sans-serif font. The main heading is 'Welcome to Trilinos -- Empowering Scientific Computing'. Below this heading is a paragraph of text describing Trilinos as an advanced software framework designed to facilitate the development of high-performance scientific applications. It mentions that Trilinos provides a comprehensive suite of libraries and tools that support a wide range of computational tasks, from linear algebra and optimization to differential equations and mesh generation. The text also highlights Trilinos' focus on scalability and efficiency, enabling researchers and engineers to tackle complex problems across various fields, including engineering, physics, and applied mathematics. A call to action at the end of the paragraph invites users to join in harnessing the power of Trilinos to drive innovation and discovery in computational science. Below the main text is a 'Quick Links' section with the heading 'Explore Trilinos resources:'. This section contains four cards: 'Getting started' (First steps with Trilinos: installation and usage.), 'Events' (Stay updated on workshops, webinars, and community events.), 'Trilinos GitHub Repository' (Access the source code and contribute to Trilinos development.), and 'Doxygen Documentation' (Explore the API documentation for Trilinos packages.). Below the 'Quick Links' section is a 'Capabilities' section with the heading 'Trilinos offers a robust framework for scientific computing, providing tools and libraries designed to solve complex engineering and scientific problems. Explore our capabilities:'. This section contains nine cards arranged in a 3x3 grid: 'Performance Portability' (Tools for enabling efficient computation across diverse hardware architectures, including CPUs, GPUs, and emerging HPC systems.), 'Linear Solvers' (Comprehensive suite of iterative and direct solvers for linear systems, and algorithms for solving large-scale eigenvalue problems.), 'Preconditioners' (Methods for accelerating iterative solvers, including domain decomposition and multigrid techniques.), 'Discretization Utilities' (Advanced tools for finite element assembly, field evaluation, and meshless approximation methods.), 'Nonlinear, Transient, and Optimization Solvers' (Frameworks for solving nonlinear equations, time integration, and optimization problems.), 'Automatic Differentiation' (Tools for efficiently computing derivatives using forward and reverse mode automatic differentiation.), 'Uncertainty Quantification' (Methods for propagating uncertainty in large-scale multiphysics systems.), 'Partitioning and Load Balancing' (Scalable algorithms for distributing computational workloads across processors.), 'Mesh and Geometry Tools' (Utilities for mesh generation, manipulation, and I/O, supporting simulations on complex geometries.), 'Interfaces and Adapters' (Cohesive interfaces for solvers, preconditioners, and Python wrappers.), and 'Utilities' (Tools for simplifying programming, linear algebra, and tensor operations.).

TRILINOS AGENDA

Thursday, March 19



Wednesday, March 18

1:45pm CDT

✓ **Welcome to HPSF / TUG Meeting! - Curtis Ober, Sandia National Laboratories**
OHIO RIVER

1:55pm CDT

✓ **How to Configure, Build, and Test Trilinos - Samuel Browne, Sandia National Laboratories**
OHIO RIVER

2:25pm CDT

✓ **An Introduction to the Trilinos Core Products - Roger Pawlowski, Sandia National Laboratories**
OHIO RIVER

2:55pm CDT

✓ **Linear Solver Capabilities in the Trilinos Project - Jonathan Hu, Sandia National Laboratories**
OHIO RIVER

3:50pm CDT

✓ **Overview of Trilinos Discretization and Analysis Capabilities - Mauro Perego, Sandia National Laboratories**
OHIO RIVER

4:20pm CDT

✓ **PyTrilinos2: Using Trilinos from Python - Christian Glusa, Sandia National Laboratories**
OHIO RIVER

9:00am CDT

✓ **Trilinos DevOps/CI Updates 2026 - Samuel Browne, Sandia National Laboratories**
OHIO RIVER

9:20am CDT

✓ **An Update on the Trilinos Core Products - Roger Pawlowski, Sandia National Laboratories**
OHIO RIVER

9:40am CDT

✓ **Recent Developments in Trilinos Linear Solvers - Jonathan Hu, Sandia National Laboratories**
OHIO RIVER

10:00am CDT

✓ **An Update on Trilinos Discretization and Analysis Capabilities - Mauro Perego, Sandia National Laboratories**
OHIO RIVER

10:45am CDT

✓ **Tracking Trilinos Performance - Chris Siefert, Sandia National Laboratories**
OHIO RIVER

11:05am CDT

✓ **WARDEN: A New Software for Visualizing Subtimer Data - Dane Camacho, Sandia National Laboratories**
OHIO RIVER

11:25am CDT

✓ **Lets Make 40 Trilinos Spack Packages? - Joe Frye, Sandia National Laboratories**
OHIO RIVER

11:40am CDT

✓ **Block-based Algebraic Multigrid Preconditioners in Trilinos/Teko - Malachi Phillips, Sandia National Laboratories**
OHIO RIVER

1:35pm CDT

✓ **Scalability and Performance of the Empire Plasma Physics Code on the El Capitan Platform - Roger Pawlowski, Sandia National Laboratories**
OHIO RIVER

2:00pm CDT

✓ **Enabling Scalable Predictive Circuit Simulation Using Trilinos - Heidi Thornquist, Sandia National Laboratories**
OHIO RIVER

2:25pm CDT

✓ **Leveraging Trilinos Scientific Computing Library for Computational Fluid Dynamics Applications - Marco Delchini, Oak Ridge National Laboratory**
OHIO RIVER

2:50pm CDT

✓ **Trilinos in deal.II - Daniel Arndt, Oak Ridge National Laboratory**
OHIO RIVER

3:40pm CDT

✓ **Multigrid Solvers for Maxwell's Equations in Trilinos - Christian Glusa, Sandia National Laboratories**
OHIO RIVER

4:05pm CDT

✓ **Trilinos Open Discussion - Curtis Ober, Sandia National Laboratories**
OHIO RIVER

OPEN DISCUSSION

Google Docs for
Open Discussion
QR Code



4:05-5:00pm Thursday, March 19th

- **Feature Requests:** What feature(s) would you like to see in Trilinos?
- **Challenges:** What has really tripped you up and you wish someone would change it?
- **Success Stories:** Do you have a success story to share?
- **Pain Points:** What are your main pain points?
 - How can we make it easier for the wider Trilinos community to contribute to Trilinos?
 - How can we make Trilinos easier to configure and build for first-time users?
 - Are the current distribution mechanisms (source code & Spack) sufficient? If not, what is missing (e.g., containers, packages)?
- **CI Coverage:** Are there use cases that the Trilinos CI process currently does not cover?
- **Performance Tracking:** Would you find having access to internal Sandia performance tracking data useful?
- **Your ideas:** Add your own discussion point!

QUESTIONS?