

THE VISTA FRAMEWORK FOR GENERALIZED MESH COMPUTATIONS

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Vista is a data management system that is tailored for scientific computing. Vista was designed to be simple, portable, efficient, and compatible with legacy software.

Vista is built around a core data class called a View, which is a composition of an IndexSet, a Field Table, a Relation Table, A Parameter Table, and a ChildView Table. By arranging Views in a scoped hierarchy, a mesh and its subsets can be efficiently described and manipulated. Vista supports structured and unstructured meshes equally well, from standard FEM meshes to those that are arbitrary and exotic.

The Vista framework consists of generic components that are written as layers on top of Vista's core data class to handle a variety of data manipulation tasks common to all mesh applications. Components can handle tasks such as file I/O, network messaging, partitioning, load balancing, and interactions between independent problems that are each defined on their own mesh.

This talk reviews the basics of Vista's functionality and presents the author's experience with Vista within the context of ALE3D, a large parallel software application developed at Lawrence Livermore National Laboratory.

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