Software Geometry in Simulations  TYLER ALION, University of South Carolina, BRETTL VIREN¹, Brookhaven National Laboratory, TOM JUNK², Fermilab National Laboratory, LBNE COLLABORATION³ — The Long Baseline Neutrino Experiment (LBNE) involves many detectors. The experiment’s near detector (ND) facility, may ultimately involve several detectors. The far detector (FD) will be significantly larger than any other Liquid Argon (LAr) detector yet constructed; many prototype detectors are being constructed and studied to motivate a plethora of proposed FD designs. Whether it be a constructed prototype or a proposed ND/FD design, every design must be simulated and analyzed. This presents a considerable challenge to LBNE software experts; each detector geometry must be described to the simulation software in an efficient way which allows for multiple authors to easily collaborate. Furthermore, different geometry versions must be tracked throughout their use. We present a framework called General Geometry Description (GGD), written and developed by LBNE software collaborators for managing software to generate geometries. Though GGD is flexible enough to be used by any experiment working with detectors, we present it’s first use in generating Geometry Description Markup Language (GDML) files to interface with LArSoft, a framework of detector simulations, event reconstruction, and data analyses written for all LAr technology users at Fermilab.

¹Brett is the other of the framework discussed here, the General Geometry Description (GGD).
²Tom advised on much of the efforts described here.
³The Long Baseline Neutrino Experiment (LBNE) is merging with other collaborators into a new collaboration that will be named differently.

Tyler Alion
University of South Carolina

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