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Improving general relativistic astrophysics workflows with ADIOS[1] TANJA BODE, MAGDALENA SLAWINSKA, Georgia Institute of Technology, JEREMY LOGAN, University of Tennessee, MICHAEL CLARK, MATTHEW KINSEY, MATTHEW WOLF, Georgia Institute of Technology, SCOTT KLASKY, Oak Ridge National Lab, PABLO LAGUNA, Georgia Institute of Technology — There are many challenges in analyzing and visualizing data from current cutting-edge general relativistic astrophysics simulations. Many of the associated tasks are time-consuming, with large performance degradation due to the magnitude and complexity of the data. The Adaptable IO System (ADIOS) is a componentization of the IO layer that has demonstrated remarkable IO performance improvements on applications running on leadership class machines while also offering new in-memory "staging" operations for transforming data in situ. We have incorporated ADIOS staging technologies into our Maya numerical relativity code based on Cactus infrastructure and Carpet mesh refinement. We present results that demonstrate how ADIOS yields significant gains on IO performance while utilizing leveraged investments in ADIOS plugins for visualization tools such as VisIt.

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