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BOSS-LDG using Blue Waters for LIGO data analysis ROLAND HAAS, ELIU A HUERTA, Univ of Illinois - Urbana, EDGAR FAJARDO, UCSD, DANIEL S. KATZ, Univ of Illinois - Urbana, STUART ANDERSON, PETER COUVARES, California Institute of Technology, JOSH WILLIS, Abilene Christian University, TIMOTHY BOUVET, JEREMY ENOS, WILLIAM T. C. KRAMER, HON WAI LEONG, DAVID WHEELER, Univ of Illinois - Urbana — The expected increase in sensitivity of the LIGO/Virgo detectors in their third observation run will go hand in hand with increased needs for computer time to extract the maximum possible amount of science from the raw data. We present a novel computational framework that connects Blue Waters, the NSF-supported, leadership-class supercomputer operated by NCSA, to the LIGO Data Grid via Open Science Grid technology. To enable this computational infrastructure, we configured, for the first time, a LIGO Data Grid Tier-1 Center that can submit heterogeneous LIGO workflows using Open Science Grid facilities. In order to enable a seamless connection between the LIGO Data Grid and Blue Waters via Open Science Grid, we utilize Shifter to containerize LIGOs workflow software. This new framework has been used in the last several weeks of LIGOs second discovery campaign to run the most computationally demanding gravitational wave search workflows on Blue Waters, and accelerate discovery in the emergent field of gravitational wave astrophysics.

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