StochSS: An Integrated Development Environment for Simulation and Analysis of Discrete Stochastic Biochemical Models

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We present StochSS: Stochastic Simulation as-a-Service, an integrated development environment for modeling and simulation of deterministic and discrete stochastic biochemical systems. An easy to use WebUI enables researchers to quickly develop and simulate biological models on a desktop or laptop, which can then be expanded or combined to incorporate increasing levels of complexity. As the demand for computational power increases, StochSS is able to seamlessly scale by deploying cloud or cluster computing resources. It is also possible to deploy StochSS as a multi-user software as-a-service (SaaS) environment with the possibility to share and exchange models via a public model repository. StochSS currently supports simulation of ordinary differential equations and well-mixed discrete stochastic models, as well as parameter estimation of discrete stochastic models and simulation of spatial stochastic models. StochSS is available for download at [www.StochSS.org](http://www.StochSS.org). It is also possible to try out StochSS in the cloud at <try.stochss.org>.