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Building an Open Source Modeling Community for EPANET

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Building an Open Source Modeling Community for EPANET

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Abstract: Over the past 4 years alone, there have been over 3000 peer reviewed papers regarding the extension of EPANET's modeling capabilities and using the current modeling tools in novel ways. Countless professionals outside of academia also use EPANET as part of their regular workflow, building and analyzing water distribution networks in urban settings. The US Environmental Protection Agency (EPA) recognizes that the success of EPANET since its first stable release in 2008 is largely due to active participation from regulatory, academic, consulting, owner/operator, vendors, and other institutional partners. We are involved in creating web based platform and collaborative environment to support this model user community where these individuals and entities can collaborate and share methods and ideas that will accelerate the advancement of the technology and the application thereof. Providing a central model repository is an integral part of building a software community. We are using HydroShare as the core component of this model repository to archive and share EPANET model implementations together with complete metadata to allow third party users to explore and learn from other's EPANET model setups. We are using the Tethys Platform web application development framework to create a user interface to allow users to search the HydroShare repository of models and quickly visualize model design (i.e. a pipe/node network) and its associated metadata. This presentation will discuss the design and development of the EPANET community web portal together with the adaptation of HydroShare as an EPANET model repository and our Tethys Platform based web app for exploring, visualizing, and accessing existing models stored in the model repository. Our Tethys-HydroShare integration for this purpose serves as a potentially insightful example of integration of web services based architectures to facilitate communities of modelling experts.

Keywords: EPANET; Tethys; Hydroshare; Modelling;