



Photo credit: John Hannon, Reclamation

WTMP Model Framework

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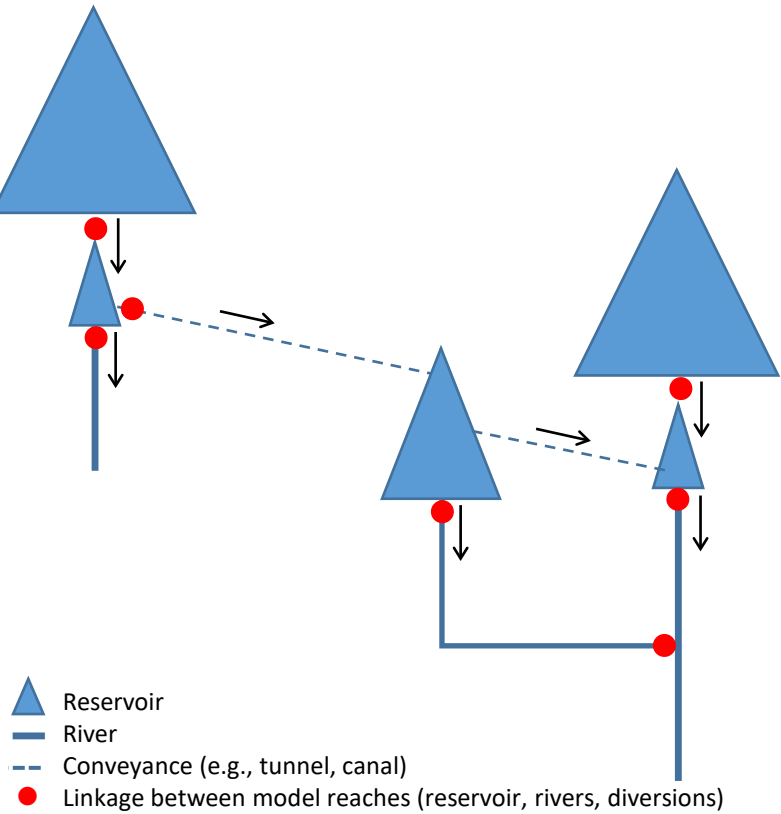
Modeling Framework

- Software application or set of applications that can be used to streamline model use and automate repetitive tasks, making the modeling process more efficient and more robust

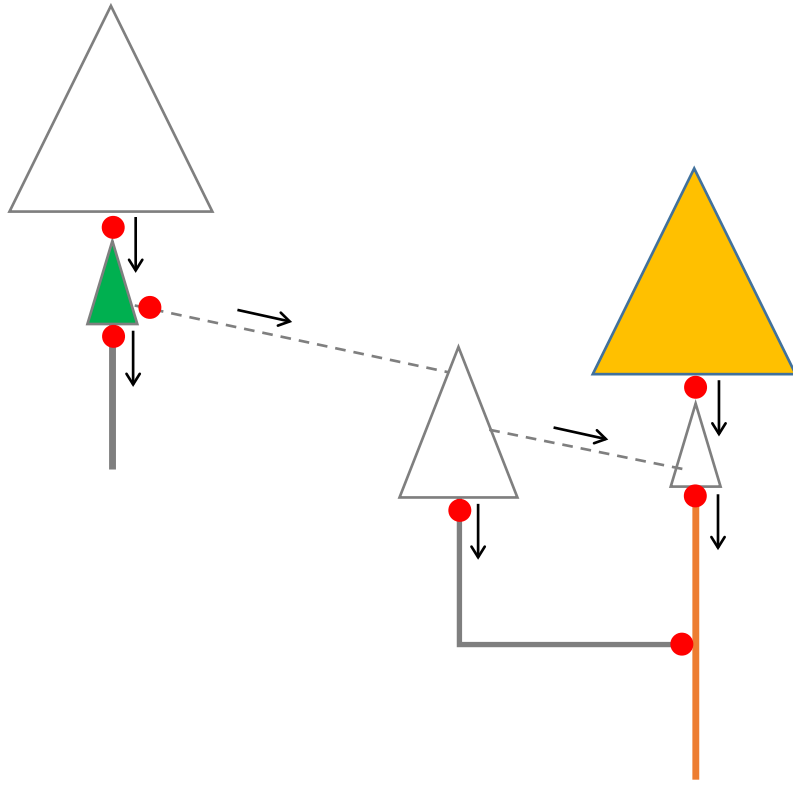


WTMP: Modeling Framework and Models

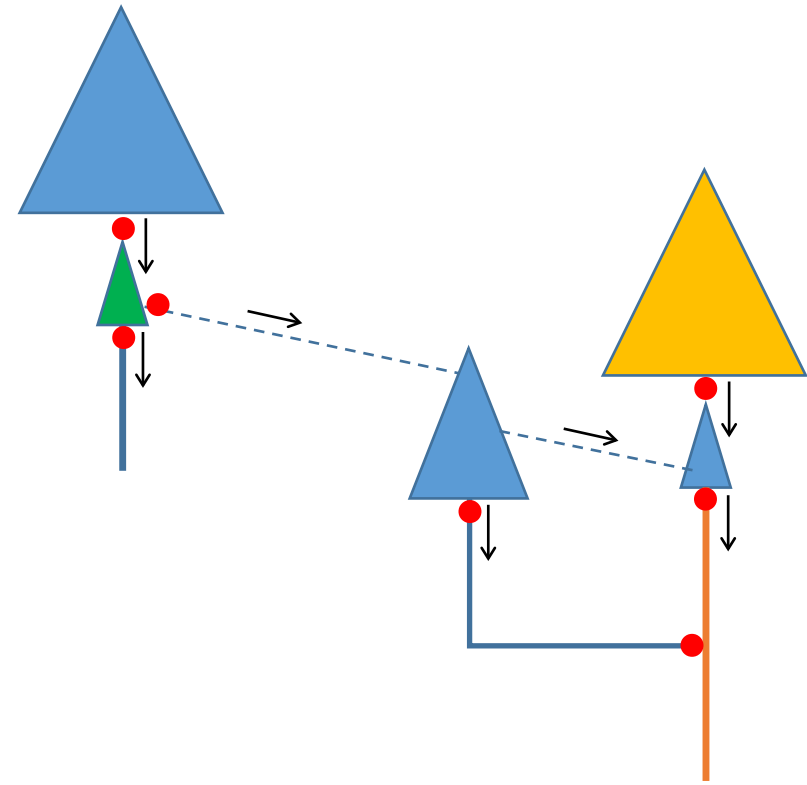
System Model



Element Model



Modeling Framework



WTMP Project: Framework Motivation

- Expect high quality
- Build trust and confidence
- Optimize flexibility
- Design for compatibilities/efficiencies
- Plan for long-term horizon
- Enhance within agency expertise



Model Framework Selection and Design Documentation

- Document Link:
 - [Model Framework Selection and Design](#)
- Technical Memorandum Status:
 - Final Draft
 - Enhancements since Mid-Term Peer Review:
 - Minor modifications based on MTC feedback
 - Minor modifications based on Panel Comments



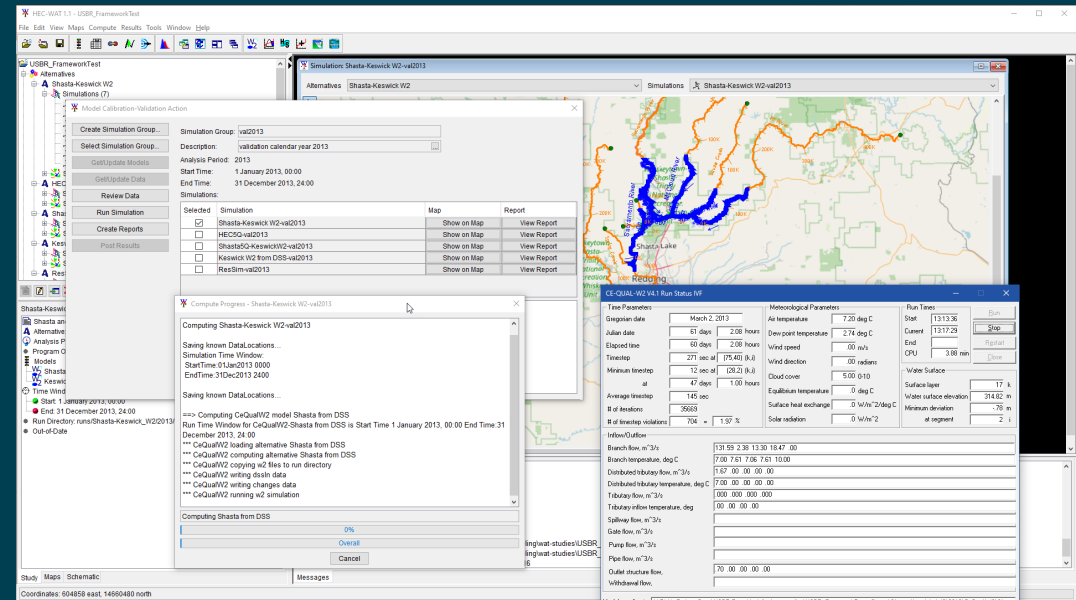
Modeling Framework Selection and Design

- Four selection steps:
 - Requirement generation
 - Selection criteria
 - Candidate frameworks
 - Framework evaluation and comparison
- Proof of concept



Recommended Framework

- HEC-Watershed Analysis Tool (HEC-WAT)
 - Product of the USACE Hydrologic Engineering Center
 - Freely Distributable
 - Supports local and Cloud based computation
 - Existing support for CE-QUAL-W2, HEC-ResSim, and HEC-RAS
 - Plug-in Application Programming Interface (API) for extension of modeling capabilities
 - Data Management
 - User Interface
 - Computational Model Support
 - Reporting



WTMP Modeling Framework: Proof of Concept

- The HEC-WAT can link and execute both system and detailed models successfully.
 - HEC5Q (Legacy Model Test)
 - CE-QUAL-W2
 - HEC-ResSim
- Initial development of a use case workflow plug-in for HEC-WAT was successful.
- Initial implementation of common reporting was successful.

