RiverSMART Updates

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RiverWare Study Manager and Research Tools (RiverSMART)

Facilitates large studies with many combinations of inputs by organizing and executing scenarios

- Develop Scenarios that consist of combinations of alternative
  - Ensembles of Hydrologies
  - Demands
  - Operating Policies
  - Infrastructure
- Provide Graphical Representation
- Manage Execution
- Organize Outputs
- Archive the study
Released Enhancements

• Release 1.5.1
  o Run Range Event

• Release 1.6.0
  o Cloud Computing

• Release 1.7.0
  o Improved Scenario Set Management
  o Improved Validation

• Release 1.7.2
  o Improved Scenario List Performance
  o Improved Simulate Scenarios Confirmation Dialog
Run Range Event

- Configure a study in which scenarios have different run ranges
- Configure a “regular” series of run ranges and then execute R Script code to adjust the series to match policy

- Twelve run ranges with a monthly timestep
- Beginning with each month from 1980-01 through 1980-12
- Run duration of 24 months, with the exception that run ranges extend through at least May of the end year
Run Range Event

- Preview
Run Range Event

- Scenarios
Run Range Event

• DMIs
  - In DMI configurations the keyword %RunRange% is replaced with the run range name, for example “ESP-1980-03”
  - This allows run ranges to have different initial conditions
Cloud Computing

• A large study can consist of hundreds, if not thousands, of scenarios with tens of thousands of traces to simulate

• One way to simulate the traces quickly is to simulate them in the cloud

• This feature introduces three operational modes to facilitate cloud computing
Cloud Computing

- Full Study mode (on Earth)
Cloud Computing

• Save simulation package files (on Earth)
Cloud Computing

- Simulation Master mode (on Earth)
Cloud Computing

• Simulation Study mode (in the Cloud)
Cloud Computing

• Simulation Study mode (in the Cloud)
Cloud Computing

• Simulation Study mode (in the Cloud)
Cloud Computing

• Simulation Master mode (on Earth)
Improved Scenario Set Management

- RiverSMART supports grouping scenarios in sets, typically for analyzing simulation results.
- Original scenario set manager dialog didn’t scale well to a large number of scenarios.
- Re-implemented the dialog using the same architecture as the generate / simulate / post-process scenario dialogs.
Improved Scenario Set Management
Improved Scenario Set Management

Scenario Set Manager

- Scenario Sets:
  - Demand A
  - Demand B
  - Demand UCRC

- Scenarios:
  - Demand: A, B
  - Policy: NA, IG, BR
  - Alternatives: RTCD, SASF, CDAS, RTCD_2, MLFF, YRSF
  - MRM Config: DNF_21, LTEMP
  - Model: [Folder Icon]

- Check:
  - A
  - B

- View:
  - Ascending A-Z

- Mode: View, Edit

48 Scenarios, 16 Scenarios in the Set
Improved Validation

• Initially validation presented one error at a time, in a modal dialog
• Improved validation presents all errors in a non-modal dialog
Improved Scenario List Performance

- RiverSMART is following RiverWare’s path – studies are getting larger
- Large studies expose performance issues
- Re-implemented scenario list – common operations which took minutes now take seconds