



Center for Advanced Decision Support for
Water and Environmental Systems (CADSWES)

UNIVERSITY OF COLORADO **BOULDER**

Upcoming Features and Enhancements

2023 RiverWare User Group Meeting
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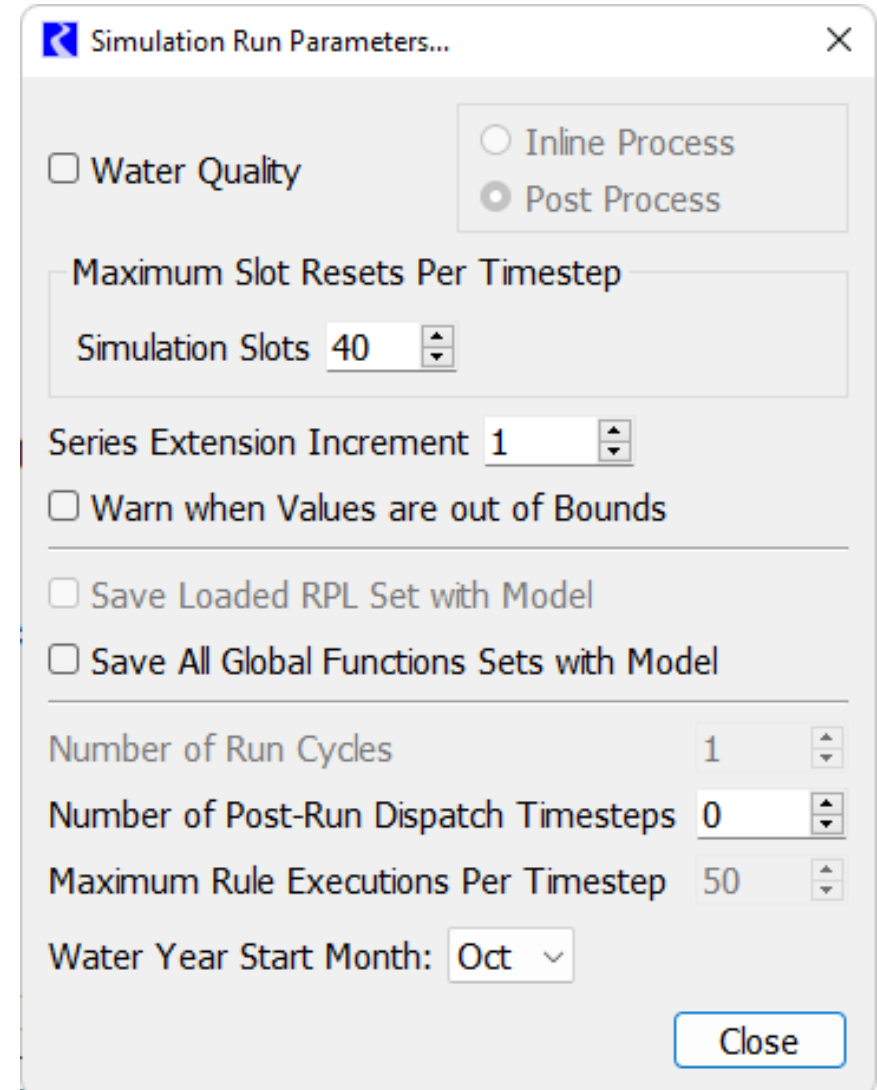
Outline

1. Settings Manager
2. Data Extractor
3. SCT – improved conditional formatting
4. Statistical slot calculations
5. Snapshot enhancements
6. Series slot note improvements

See handout for list of planned enhancements.

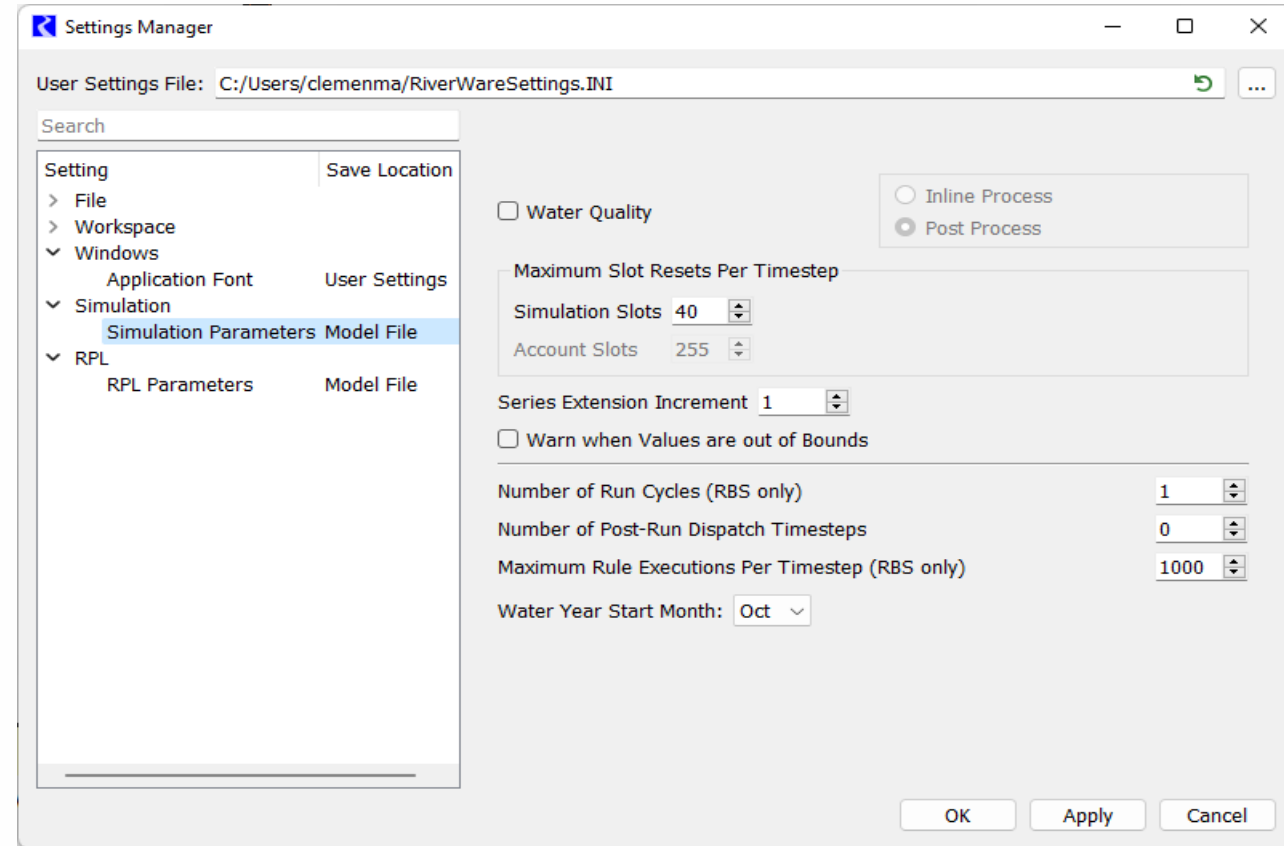
Settings Manager Need

- Settings/preferences/options are:
 - Scattered in the interface = hard to find
 - Saved in various locations:
 - per-user in the registry or
 - in the model file
 - Hard to share or move



Settings Manager Plan

- Create a central **Settings Manager** to see and edit settings.
- Provide search functionality
- Store the user and some model-level settings in a separate **configuration file**
- Migrate or reimplement settings in the manager as much as possible



Data Extractor Tool



Motivation

- Since 8.1, you can save a model after each MRM trace.
- For example, a 1000 trace MRM = 1000 model files
- How do you get data out of those 1000 models?

Data Extractor Tool (DET)

Date Extractor Tool – Mockup

- Access from with RiverWare
- Specify MRM configuration
- Select models
- Specify RDF and Excel options
- Run and it will automatically:
 - Create and execute batch script
 - Open the model and RDF file
 - Write the slot data to the RDF files.
 - Close the RDF file and model.

The mockup shows a software interface for the Date Extractor Tool. It is divided into several sections:

- MRM Configuration:** A dropdown menu is set to "PCNF".
- Per-Trace Model Files:** A section with a "Directory:" label set to "C:/BasinStudy/PCNF". Below it is a list of files with checkboxes:
 - PCNF-00001.mdl.gz
 - PCNF-00002.mdl.gz
 - PCNF-00003.mdl.gz
 - PCNF-00004.mdl.gz
 - PCNF-00005.mdl.gz
 - PCNF-00006.mdl.gz
- RDF Options:** Includes a "Control File:" text box with "C:/BasinStudy/PCNF/RDF.ctf" and a folder icon. Below it is a "Data File:" text box with a folder icon. There is a "Timesteps:" dropdown set to "Must Match" and a checked checkbox for "Allow Spaces In File Paths".
- Excel Options:** Includes a checked checkbox for "Generate Excel Workbooks From RDF", a "Delete RDF Files" checkbox, a "Slot Names:" dropdown set to "Short", and a "Configuration:" dropdown set to "Timesteps / Runs / Slots".

DET Status

- Funding this year to extract data from MRM runs as RDF files
- Future ideas:
 - Specify any set of models
 - Select slots from the interface (not by control file)
 - Other types of outputs

SCT Conditional Formatting



More Flexible SCT Conditional Formatting

- Use a different Reference Slot

SCT Color Alert Configuration -- Slot: SoHolston.Special Ops Info

Condition Type: Intervals Functions

Reference Slot: SoHolston.Special Ops Info Select slot:

Interval Label	Interval Color	Sample	Upper Threshold Va
Normal	<default>	-21.123	<input checked="" type="radio"/> 0
Recreation	LtBlue	-21.123	<input type="radio"/> 0
Special Operation	LtGreen	-21.123	<input type="radio"/> 0
Multiple Operations	Pink	-21.123	<input type="radio"/> 0
Outage	Brown	-21.123	<input type="radio"/> 0
Other	Peachy	-21.123	<input type="radio"/> 0

- Color one slot based on another slot's value

These changes will be in 9.2

- Use functions for the condition

SCT Color Alert Configuration -- Slot: Aspen.Outflow

Condition Type: Intervals Functions

Reference Slot: Aspen.Outflow Select slot:

Condition Label	Condition Color	Sample	Condition Function
Max Violation	MaxViol	-21.123	OutflowMaxViolation
Min Violation	MinViol	-21.123	OutflowMinViolation
Outflow Equals Max	Equals Max	-21.123	OutflowEqualsMax
Outflow Equals Min	Equals Min	-21.123	OutflowEqualsMin
Outflow Equals Target	Equals Target	-21.123	OutflowEqualsTarget

- Global functions evaluate to true/false
- “Prioritized order”
- Arguments: Obj, Slot, Value, Timestep

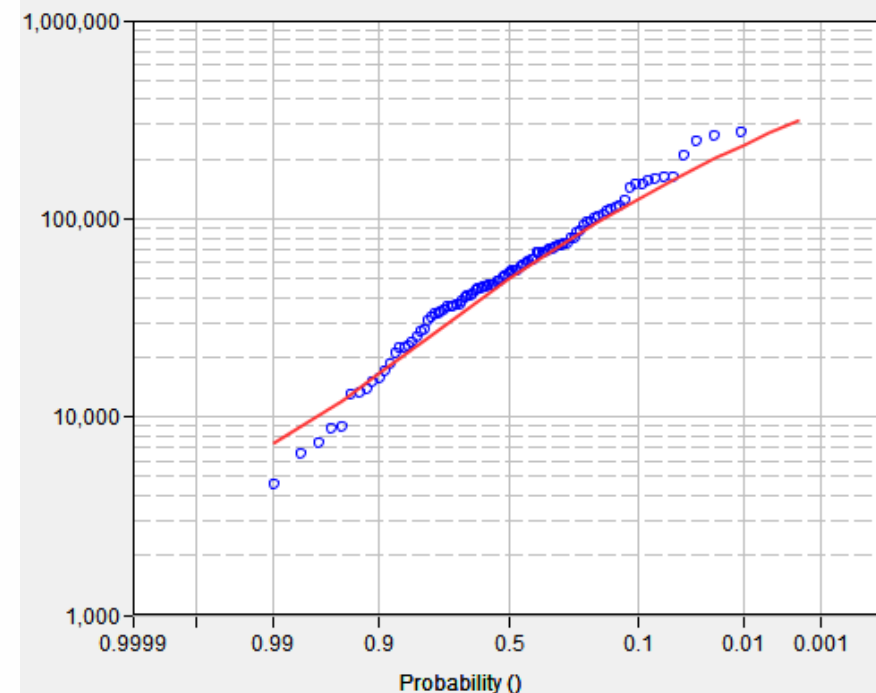
Statistical Slot Enhancements



Statistical Table Slots

- Add water year options
- Add alternative probability calculations, Weibull, Hazen, and Median plotting positions, for duration and frequency functions.
- Add a Log-Pearson Type III Distribution statistical slot function, i.e. the red line in the plot
- Design enhancements for regressions comparing series data.

- Calendar Year (Jan through Dec)
- Water Year* (Oct through Sep)

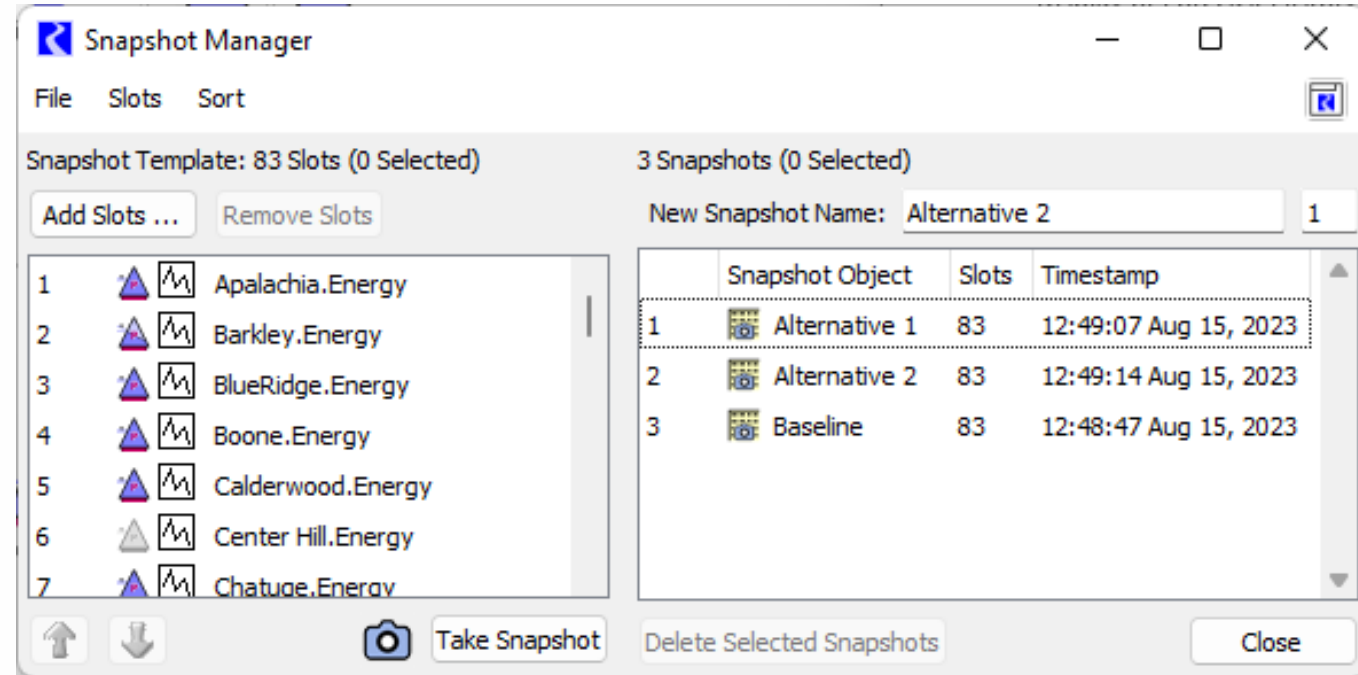


Snapshot Enhancements



Snapshot Enhancements

- Snapshots preserve slot values between runs
- Particularly useful in operations to see how values change over the last few runs, shifts, and so on.
- Select from the list of snapshots and easily show values on the:
 - SCT – Add rows (or columns) with snapshot slots
 - Plots – Add curves representing snapshot slots
- Auto-name with timestamp
- Auto-delete out-of-date snapshots
- Apply input values in snapshots back to the source slots

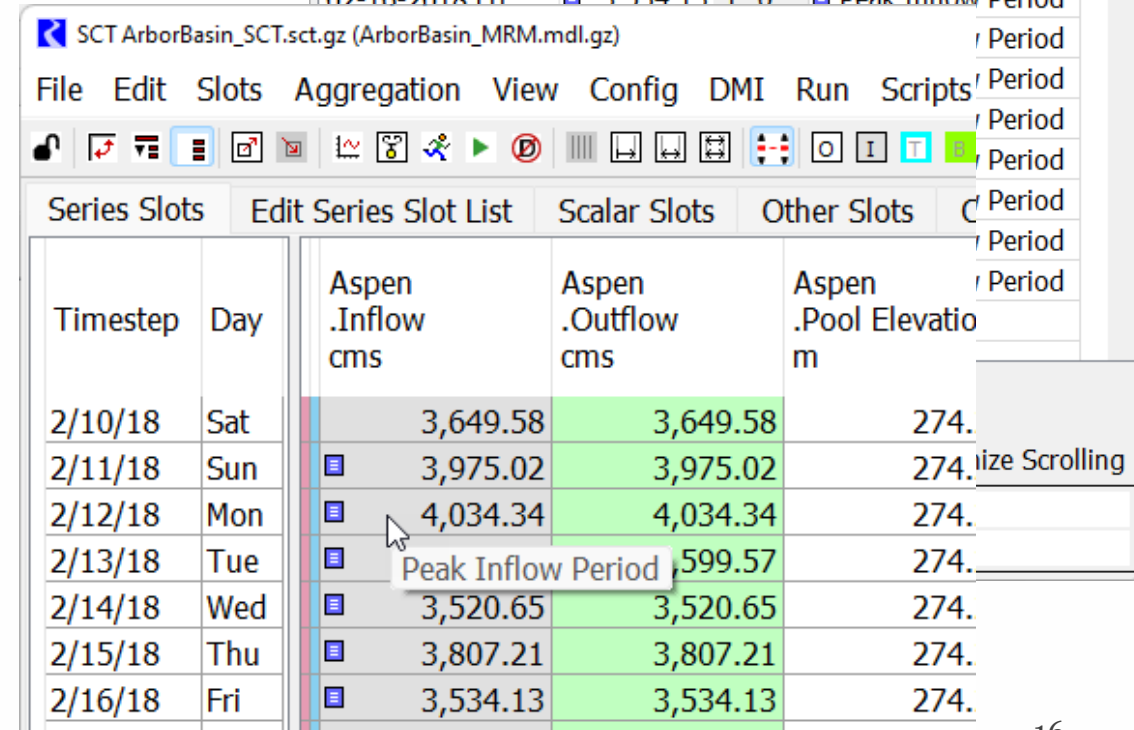
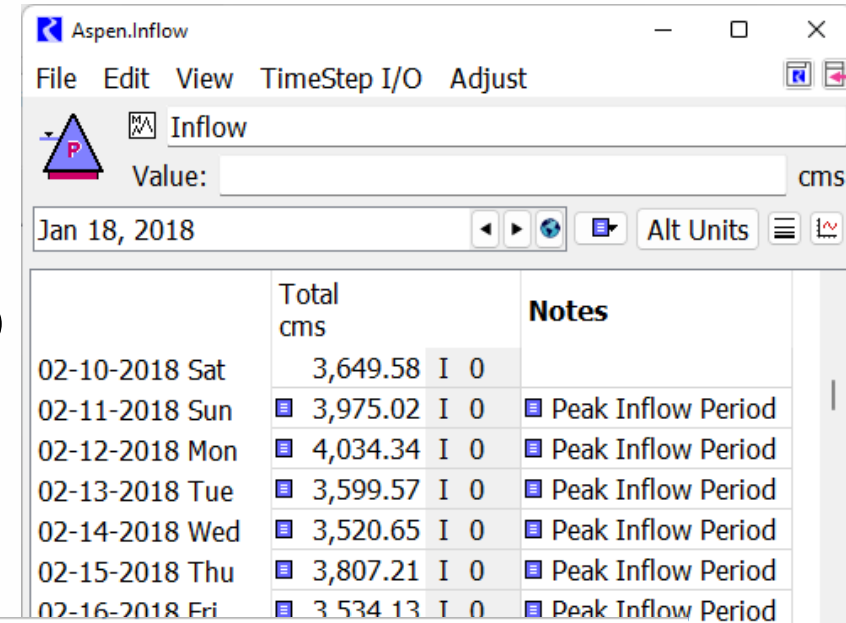


Series Slot Note Enhancements



Series Slot Notes

- Provide comments on a slot at a timestep
- Useful to add comments, questions, thoughts on particular values and share with others.
- Plan: Make it much easier to add or edit notes: one click to add or edit.



Feedback and Open Mic



Open Mic

- Tell us about other applications or new projects
- Questions on any topic presented early
- Unmet modeling or processing needs
- Issues with the software
- Requests for enhancements
- Anything else you would like to share

Some Questions to Consider

- If you could have one new enhancement, what would it be?
- In your office, what is the big buzz word? How could/should RiverWare be involved?
- Where do you see RiverWare modeling in 5 years, 10 years, 20 years?

Major topics you might want to discuss

- Databases and data management
- Windowing
- Data visualization
- New physical process modeling
- Connections to other models or frameworks