



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

UNIVERSITY OF COLORADO **BOULDER**

Scripts, DMIs, Slots and RPL

2025 RiverWare User Group Meeting

Presenter: David

Scripts

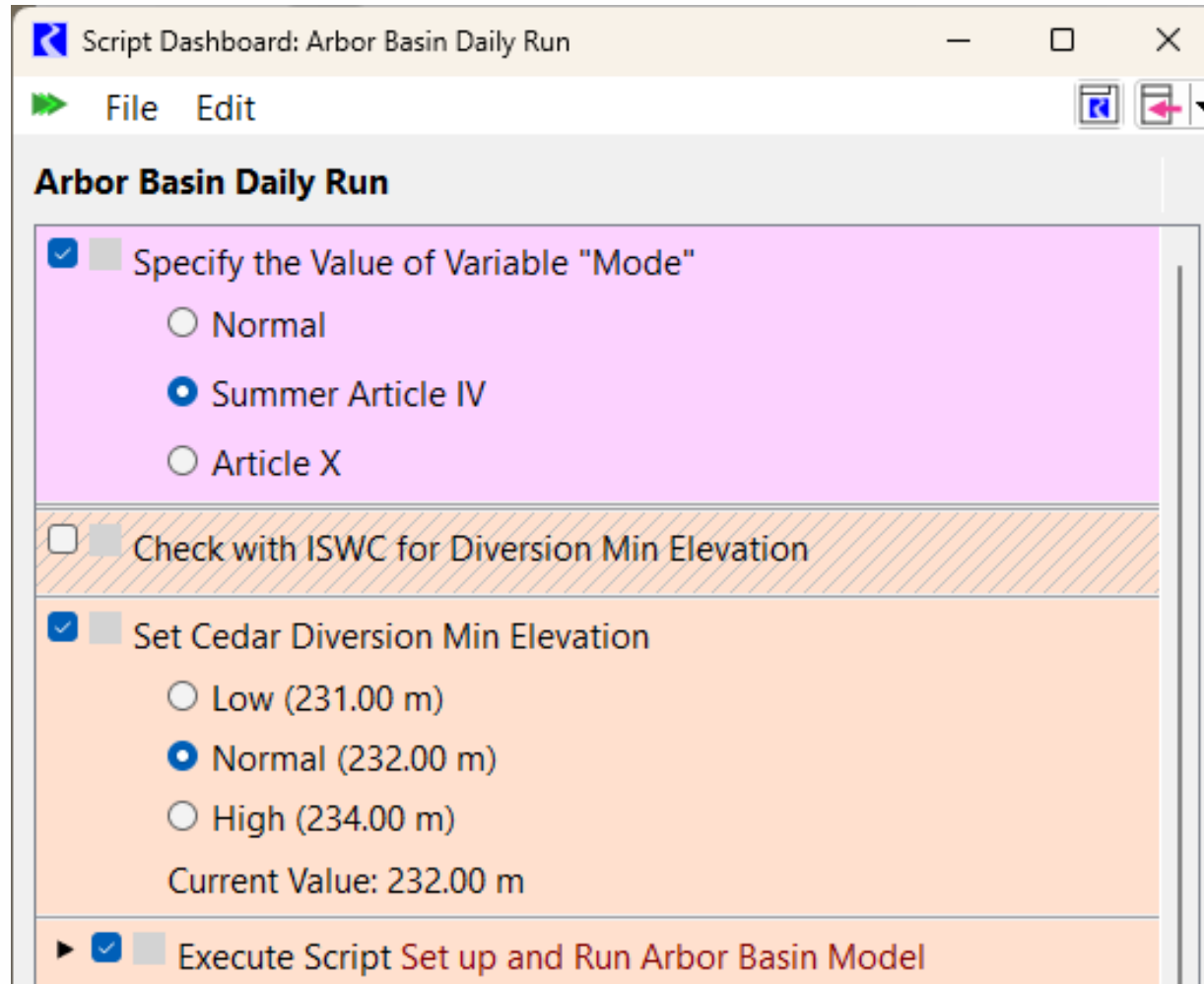


Scripts

- Organize and run sequences of actions to automate tasks
- Addresses the following requirements:
 - Repeatability – prevent errors
 - Complexity – combine many actions
 - Clarity – simplify operator interaction
 - Efficiency – save time by automating

Demo – Dashboard Background color

- Change background color for any action



Available in 9.4

Demo - Dashboard Disabled status

- A disabled action is now cross-hatched

Action is Enabled

Specify the Value of Variable "Override"
Do you want to provide any overrides?
Use:

Action will not execute due to condition

Shift Historical Hydrograph (default is Off)
 Off (0.00)
 On (1.00)

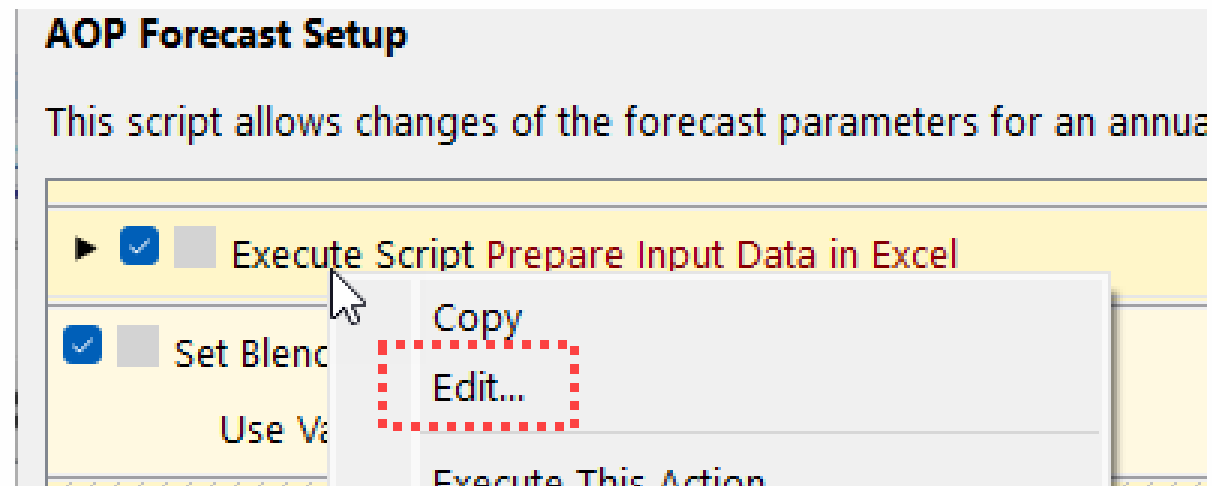
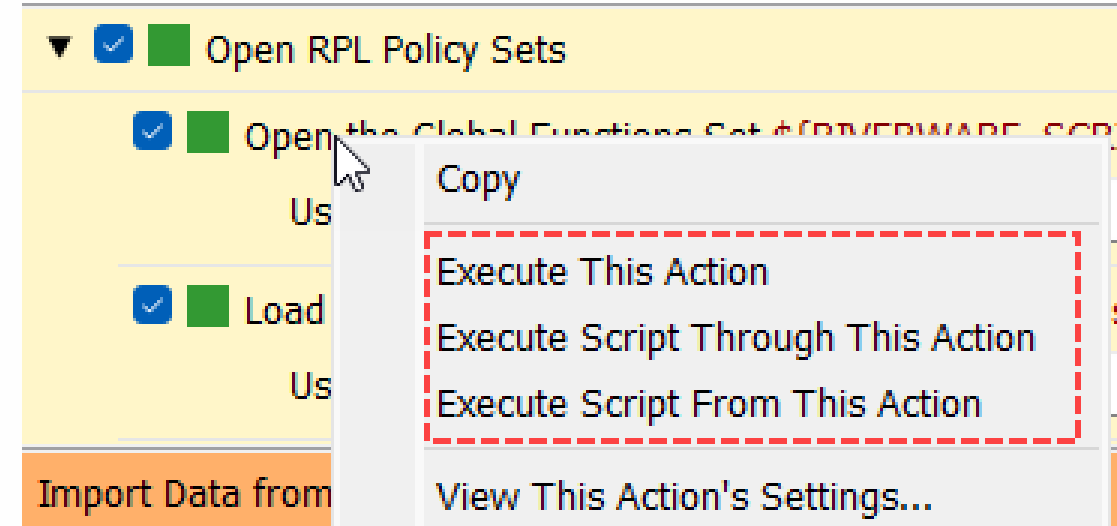
Action is Disabled

Memo: Ready to Run?
Are you sure you are ready to start a run? If so, click continue on the Script Dashboard

Available in 9.4

Demo - Dashboard Operation

- Execute Through this Action(9.2)
- Execute From/Through this Action available in subscripts (9.2)
- Initiate an Edit for an action from the dashboard (9.4)



Available in 9.4

Demo Conditional Script Execution

Script Dashboard: Arbor Basin Daily Run

File Edit

Arbor Basin Daily Run

- Specify the Value of Variable "Mode"
 - Normal
 - Summer Article IV
 - Article X
- Execute Run
 - 0%
 - Execution State: Loaded
 - Run not started
- Check with ISWC for Diversion Min Elevation
- Execute Script **Set up and Run Arbor Basin Model**
- Set Cedar Fill Target (April 30)
 - Low (234.00 m)
 - Standard (237.00 m)
 - High (241.00 m)
 - Current Value: 237.00 m
- Execute Script **Arbor Basin Post-Run**
 - Execute the **ArborOutputs DMI**

Execution

Status: script not executing Current Script: this script is not executing
Current Action: this script is not executing

Demo - Conditional Action Execution

- Three new settings have been added to the Specify Script Variable Value script action:
 - **Variable Display Type** – Show Script Variables as
 - Menu
 - Radio buttons
 - **Pause Execution and Prompt User** – prompt the user to select a value for a script variable
 - **Allow Sub-actions to Override Variable Value** – allows the Specify Script Variable Value action to override values

Available in 9.3

Actions to Set Slot Values

- Setting to change a “**Rectangular Region**” (9.2) and then “**All Cells**” (9.3) for these actions:
 - **Clear Table Slot Values**
 - **Set Table Slot Values**
 - **Set Periodic Slot Values**
- **Set Series Slot Flags** action – if setting the INPUT flag
 - New Setting: “**Behavior if no value**” (9.4) Values are:
 - Ignore
 - Issue warning or
 - Stop with an error

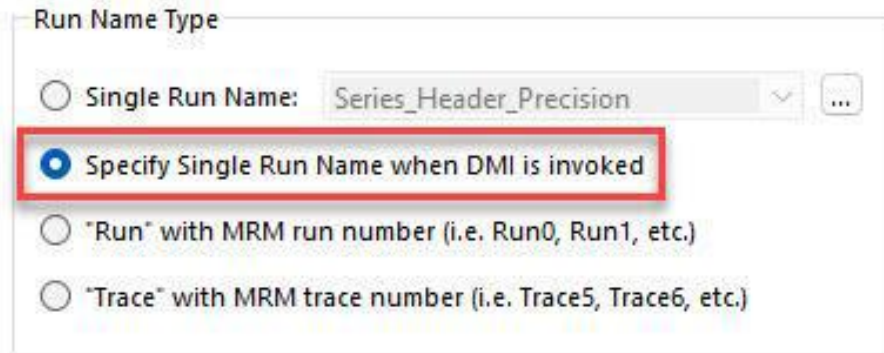
Data Management Interface (DMI)



Enhancements

Excel DMIs

- Specify Run Name at DMI Execution (9.3)



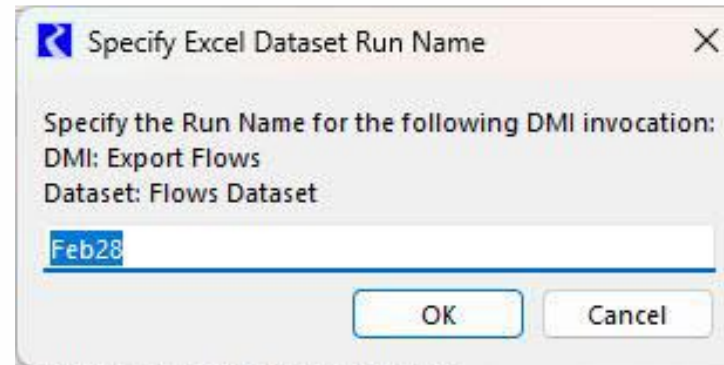
Run Name Type

Single Run Name: Series_Header_Precision

Specify Single Run Name when DMI is invoked

"Run" with MRM run number (i.e. Run0, Run1, etc.)

"Trace" with MRM trace number (i.e. Trace5, Trace6, etc.)



Specify Excel Dataset Run Name

Specify the Run Name for the following DMI invocation:
DMI: Export Flows
Dataset: Flows Dataset

Feb28

OK Cancel

Maintenance:

- Removed option to “Open Excel in the background” and replaced with “Open and Save Workbook” (9.4)
- Control how many DMI invocation records are saved in the model (9.3)

Web Service DMIs

- Web Service DMIs: Import data to RiverWare from the web
 - CDSS Surface Water - Daily
 - CWMS Data API
 - HDB Web Service
 - Reclamation Hydromet
 - USGS Daily Values

CDA Web Service DMIs

- Renamed: CWMS RADAR to CWMS Data API (CDA) (9.3)
- Updated the base URL (9.3)
- Performed maintenance after the webservice format was unexpectedly changed last fall (9.4)

- Possible Upcoming:
 - Implement design for CDA Site Map
 - Add time zone awareness - Design
 - Update to version 2 before version 1 is deprecated

Slots



New Export Copy Options

1. Data Range Options
2. Precision terminology improved
3. Optionally include/exclude Day of Week
When pasting to Excel, it works better if excluded

Available in 9.3

The screenshot shows a dialog box titled "Export to Clipboard" with a close button (X) in the top right corner. Below the title bar, it displays "365 rows, 1 column" in purple text. The dialog is divided into three sections, each with a blue number on the left:

- 1** Data Range: Contains two radio button options: "Selection" (unselected) and "Run Range" (selected).
- 2** Data Precision: Contains two radio button options: "Display" (selected) and "Extended" (unselected).
- 3** A list of checkboxes: "Export NaNs" (checked), "Include Row Headers" (checked), "Include Column Headers" (checked), and "Include Day of Week in Headers" (unchecked).

At the bottom of the dialog are two buttons: "Copy" and "Cancel".

Prevent Time Synchronization

- Optionally exclude a custom slot from time synchronization

Available in 9.4

The image shows two overlapping dialog boxes from a software application. The background dialog is 'Configure Existing Slots' and the foreground dialog is 'Configure Timeseries'.

Configure Existing Slots Dialog:

- Buttons: Add Slots..., Remove All Slots, Remove Selected Slots, 0 of 6 selected
- Table:

Object	Slot	Column	Unit Type	Conv. Value	Conv. Type	Time Sync
Aspen	Historical Inflow		Flow	0.01	Percent	Prevent
Birch	Historical Inflow		Flow	0.01	Percent	Prevent
Cedar	Historical Inflow		Flow	0.01	Percent	Prevent
Dogwood	Historical Inflow		Flow	0.01	Percent	Prevent
Elm	Historical Inflow		Flow	0.01	Percent	Prevent
Hickory	Historical Inflow		Flow	0.01	Percent	Prevent

Configuration Section:

- Convergence
- Unit Type for Custom Slots
- Rename Custom Slots
- Time Sync for Custom Slots
 - Allow Time Synchronization
 - Prevent Time Synchronization
- Update RPL Sets

Configure Timeseries Dialog:

- Object: Aspen
- Slot: Historical Inflow
- Slot Timeseries Range: Align With Run Period, Show
- Begin: December 31, 2024
- End: December 31, 2025
- Timesteps: 366, 1 Day
- Allow Time Synchronization
- Prevent Time Synchronization
- Buttons: OK, Apply, Reset, Cancel

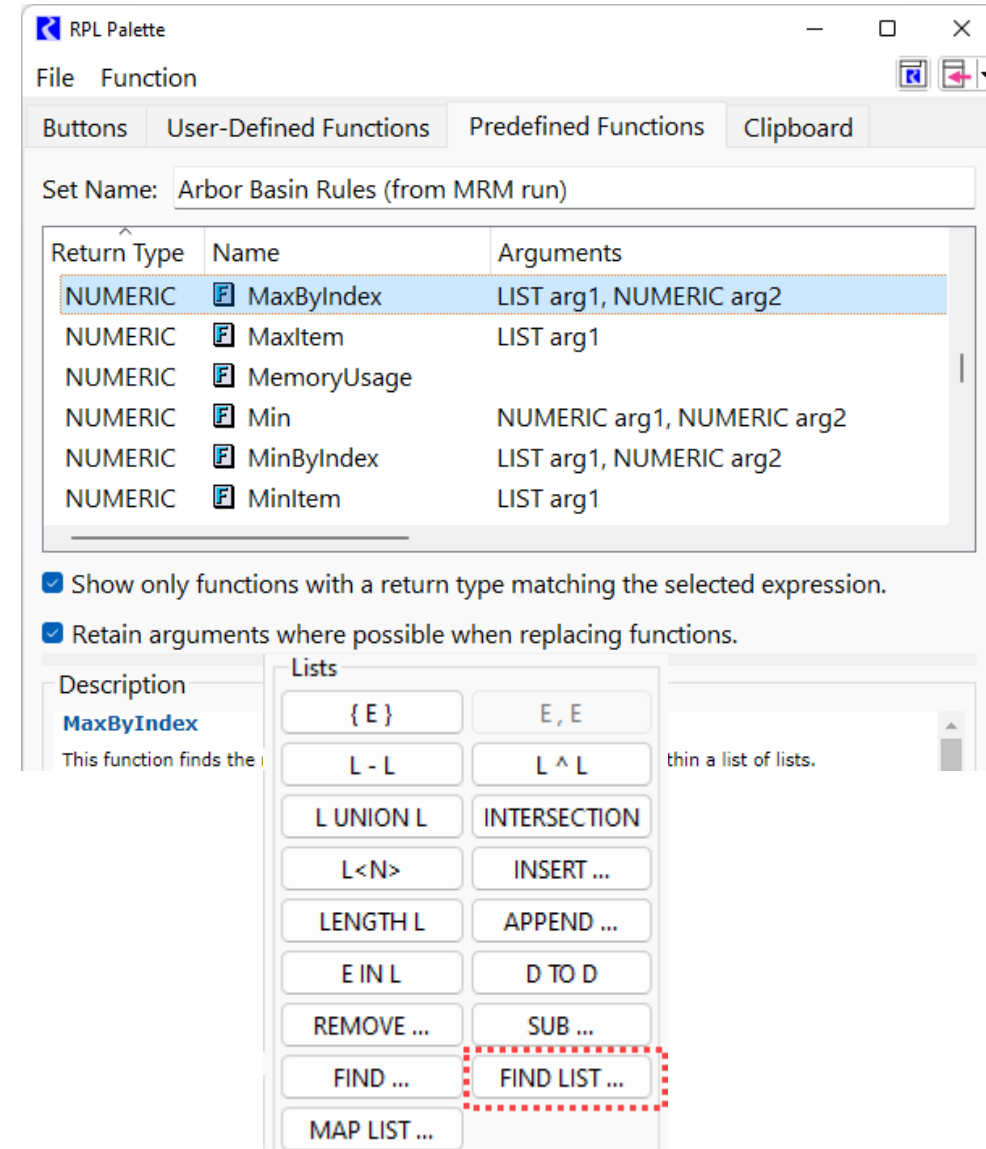
RPL



New Functions and Operator

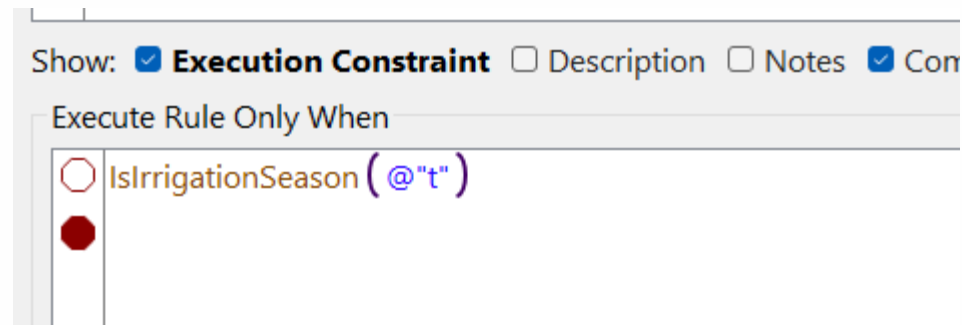
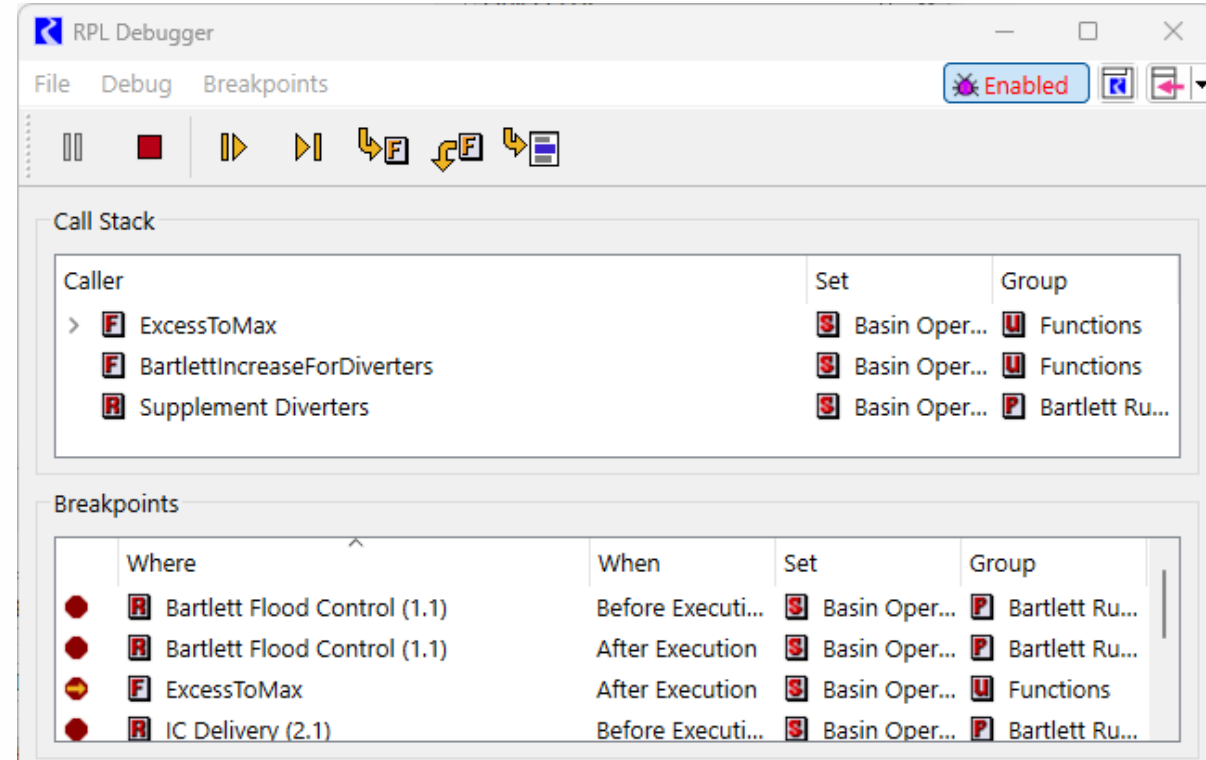
- New functions:
 - **GetEnsembleSeriesValue**: Returns the value for the given trace's slot at the given timestep
 - **MinByIndex / MaxByIndex**: Finds the min/max value at a given index in a list of lists
- New operator: **Find List**
Returns the list item from a list of lists that contains a specified value

Available in 9.3



RPL Debugging Improvements

- Improved RPL Debugger size
 - Opens taller and wider
 - Better default column widths
 - Taller Call Stack and Breakpoints panels
- Breakpoints in execution constraints



Available in 9.4

Questions / Comments?



What else do you need for Scripts, DMIs, Slots, or RPL?