**Phil Weinstein / Accomplishments -- Dec 2017 -- 12-28-2017 (b)**

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| **Sponsored Development Accomplishments** |

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[I.A] New/Enhanced Software  
   USBR UC 1A: Software Enhancements  
   Object and Slot Viewer Revisions  
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Usability enhancements for the Object Viewer (introduced in RiverWare 7.1) and Slot Viewer (new to RiverWare 7.2) identified last month were completed in December.

In December, these Slot Viewer enhancements and fixes were completed:

1. File >> "Undock Slot" is now available for multiple-slot selections, with dynamic text, "Undock Selected Slot" or "Undock Selected Slots".
2. New Operation: "Remove Selected Slots", both in the File menu and column header context menu.
3. Certain special SeriesSlots now initially open in their own Open Slot dialog: (a) MultiSlots with two or more subslots, (b) Expression SeriesSlots, and (c) Series Slots with Periodic Input in Periodic Input Mode.
4. Slot Dialog Display Preferences are applied to the Slot Viewer based on the first added slot.
5. The Slot Viewer now closes when dragging off the last slot.

In December, these Object Viewer enhancements were completed:

1. The Object Viewer's set of simulation object tabs is now persistent within the RiverWare session. The Object Viewer can be closed, and reopened using a new "Object Viewer" button on the bottom of the RiverWare workspace. When reopening the Object Viewer, it will have the same set of object tabs it had when the viewer was closed (unless any of those simulation objects have been deleted).
2. With the separation of "life cycles" of an Object Dialog (or an Object in the Object viewer) and the Slot Dialogs for the slots on that object, those Slot Dialogs (or series slots shown in the new Slot Viewer) remained open when the simulation object was closed. Now (for RiverWare 7.2), when closing an object, a "Close Slots Too?" query popup dialog is shown asking if the object's slots should also be closed. This query dialog includes a "Don't ask again in this RiverWare session" checkbox; turning this on causes the user's response to be applied to future object-close operations.

The Object Viewer enhancements are described further in this document:

* **Object Viewer Revisions for RiverWare 7.2 / Dec 2017**  
  R:\doc\openObject\2017\ObjViewerRevForRw72.docx

See also this related Object Viewer bug, also addressed in December:

* Bug 5999: Object Viewer: Switching obj tabs: Loss of vertical scroll position.

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[I.A] New/Enhanced Software  
   BOR ABQ 8: Workspace enhancement: Use middle mouse button to pan  
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The RiverWare workspace views can now be panned by pressing and dragging the middle mouse button (which is typically a scroll wheel). This is supported in all three RiverWare workspace views (Simulation, Geospatial and Accounting), and in the new RiverWISE application's workspace viewer panel.

See this feature document:

* **BOR ABQ 8: Workspace enhancement: Use middle mouse button to pan / RiverWare 7.2**  
  R:\doc\workspace\2017\MidButHandDrag\BorAbq8-MidButtonPan-Feature.docx

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| **Maintenance Accomplishments / December 2017** |

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[I.B] New/Enhanced Software / Unfunded Software Development   
New NaN Option for Time Aggregation Functions for RiverWare 7.2  
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A new option for the treatment of NaNs (or NaNs and Output values) in the course of time-aggregation of values on a series slot has been added for RiverWare 7.2. The new option is now available for these three RiverWare features:

1. The "Set Run Timestep" script action's "Aggregate Input Data to New Timestep" function.
2. The Run Control dialog's "Synchronize Slots with Run Parameters" function.
3. The Time Aggregation Series Slot\*

Those features now provide these three options for handling NaNs (or NaNs and Output values).  The 2nd option is new, added to address a new requirement identified in Gnats 6036.

1. Ignore NaN/Output values
2. Do not aggregate intervals having NaN/Output values
3. Error on NaN (excluding pre-simulation timesteps)

\*Note: This special undefined-value handling for the Time Aggregation Series Slot applies only to NaNs, and not to Output-flagged values.

See this feature document:

* Set Timestep Size, Synchronize Slots, New NaN Option for RiverWare 7.2 / Dec 2017  
  R:\doc\runControl\InputAggregation\SetTstepSize-SyncSlotsNanOptions-RW72-Enh.docx

Also a change to the third option was made for RiverWare 7.2, documented as the following bug specific to the "First timestep" and "Last timestep" time-aggregation functions:

* Bug 6053: Series Aggregation "Error on NaN" option shouldn't consider unused timesteps.

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[II] RiverWare Software Maintenance / Software Updates / Bug Fixes  
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The following bugs were fixed:

1. Bug 5781: (revisited): RPL set editor 'saved with model' icon visible state
2. Bug 5898: <Alt>+<Print Scrn> buffer error eliminates much of screen shot
3. Bug 5929: Modal dialogs don't always stay on top\*
4. Bug 5999: Object Viewer: Switching obj tabs: Loss of vertical scroll position
5. Bug 6036: Treatment of NaN values in time aggregation function/script action\*
6. Bug 6039/5937: Plotting: Error reported on time axis, esp. zooming out
7. Bug 6053: Series Agg 'Error on NaN' shouldn't consider unused timesteps
8. Bug 6057: No way to add custom slots to elements of an aggregate object
9. Bug 6059: Slot Viewer Import Paste does not expand the time range
10. Bug 6062: Can't delete custom slots from elements of an aggregate object
11. Bug 6063: Global Time Scroll ignored opening slots in the Slot Viewer

Additionally, analysis was done for this bug:

1. Bug 6041: Configure Existing Slots dialog doesn't allow Apply operation.

\*Bug 5929, more information: Through perhaps unusual operations in the Windows task bar, it was possible to obscure RiverWare's modal dialog with other RiverWare windows. It was also found to be problematic that a modal RiverWare dialog could be obscured by windows of other applications. Both of these problems were solved by explicitly re-raising RiverWare's modal dialog (when one is active) based on application-state change and focus change notifications from the Qt Application instance AND based on a repeating one-second timer made to run while a RiverWare modal dialog is active.

\*Bug 6036: See also the "New NaN Option for Time Aggregation Functions for RiverWare 7.2" maintenance enhancement description in a previous section.

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