Phil Weinstein / Accomplishments -- April 2014 -- 5-05-2014

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| **General Development Accomplishments** |

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[I.A] New/Enhanced Software / BOR IDIQ 19 (Alb Enhancements to RPL)
   Design for improved access to RPL documentation
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The analysis and design for displaying certain components of the RPL documentation within RiverWare drafted in March was reviewed and revised by the software team in April. This proposal focuses on two components:

1. RPL Predefined Functions (currently 214 functions in 191 function sections).
2. RPL Operators / Buttons in the RPL Palette (currently 60 in 8 categories).

The April revisions incorporated:

1. A new "Executive Summary" section.
2. Identification of two distinct development levels:
	1. Access to existing RPL documentation
	2. Improvements to RPL documentation
3. Recognition of the fact that some RPL Predefined Function descriptions currently apply to two or three similar functions.

This is the revised document:

* "RiverWare: Improved Access to RPL Documentation / Analysis and Design" (4-15-2014, 29 pp.)
* R:\doc\RPL\EmbedRplDoc\2014\EmbedRplDoc-Design2014-Final-04-15a.docx
* R:\doc\RPL\EmbedRplDoc\2014\EmbedRplDoc-Design2014-Final-04-15.pdf

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[I.A] New/Enhanced Software / BOR Truckee
   March Enhancements Documentation
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This document about the enhancements developed in March 2014 was written in April:

* RiverWare: BOR Truckee Enhancements / March 2014
* R:\doc\Truckee\2014\BorTruckeeEnhMarch2014-PhilFeatures.docx
* R:\doc\Truckee\2014\BorTruckeeEnhMarch2014-PhilFeatures-02.pdf

The described enhancements are:

1. Save with Model File:
	1. Workspace Background Colors.
	2. RiverWare Window Icon Selection.
2. Date/Time Spinner: Context Menu with "Global Time Scroll".
3. Table Row/Column Label Editor: Support Tabular Copy and Paste.
4. Printing Plots: User Configurable Headers and Footers.

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[I.A] New/Enhanced Software / BOR Truckee
   Additional Date/Time Spinner Enhancements
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Also in April, as an extention of Date/Timer Spinner done for this contract last month, these two additional Date/Time Spinner enhancements were implemented:

1. Date/Time Spinner: Forward and Backward "step" icon buttons were changed from "up and down" to "left and right".
2. Date/Time Spinner: Popup menu icon button with Global Time Scroll. This menu button is shown only on date/time spinners used for *time navigation* (rather than for timestep configuration).

These features required rearchitecting the RiverWare "DateTimeQtSpinner" class. The old implementation had been a basic specialization of Qt4 QSpinBox. This class supported only vertical arrangement of the two step buttons showing *up* and *down* triangle-arrows or "+" and "-" signs. The DateTimeQtSpinner redesign incorporates sub-widgets for the spin box and the three icon buttons.

These enhancements and the architectural changes are described further in this document:

* **Date/Time Spinner Redesign for RiverWare 6.5**
* R:\doc\guiGeneral\DateTimeSpinner\2014\DtSpinRedesign-April2014.docx
* R:\doc\guiGeneral\DateTimeSpinner\2014\DtSpinRedesign-April2014-Phil-5-01.pdf

A related Date/Time Spinner enhancement -- developed in the context of Pie Chart Enhancements -- supports the addition to any date/time spinner a slider and other controls supporting timestep *animation.* See the "New/Enhanced Software / COE-SWD #5" section in this accomplishments report.

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[I.A] New/Enhanced Software / COE-SWD #5
   Pie Chart Enhancements, including Timestep Animation
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These Pie Chart (output device) enhancements were developed in April:

1. Timestep Animation / Slide-Show Support. This is implemented with a new reusable software component -- an add-on to the RiverWare Date/Time Spinner.

	* **DateTimeSpinSlider** is a new composite slider control with two icon buttons which can be "attached" to any RiverWare date/time (timestep) spinner.  The slider thumb provides an alternative way of changing the timestep value, and also graphically conveys the timestep value with respect to the full time-series range.  This widget is also an "animation generator" which periodically advances the date/time (timestep) spinner. Included is a Play/Pause button and a popup slider control to select the animation speed. The placement of the DateTimeSpinSlider within a widget layout is up to the client (dialog box) -- so it could be *next to* the date/time spinner instead of *below it* (as it is in the Pie Chart dialog).
2. New Display Options:
	* Background Color for Display (on-screen)
	* Background Color for Image Export and Print
	* Bolded Label Option (for date label, slice labels and optional summary data).
3. Other Display Changes
	* Numbers in the pie chart are conditionally shown with comma separators (depending on RiverWare's global "Show Commas in Numbers" setting).
	* Radial scale circles (25%, 50%, 75%) are now dashed -- not solid lines.
	* Optional summary statistics are now horizontally centered, rather than being shown in the bottom left corner.
4. Dialog Management and Geometry Improvements, including:
	* Only one pie chart dialog is shown for any particular pie chart (output device) *instance.* Clicking "Generate" or "Apply" from the output manager or a pie chart configuration dialog just updates the corresponding pie chart dialog -- instead of showing a redundant one.
	* The pie chart dialog's visibility (e.g. "minimized" state) is now independent from the output manager and pie chart configuration dialogs.
	* The pie chart's auto-sizing and centering has been improved. Better image "stability" was needed especially for the new animation feature.

These enhancements are described further in this document:

* **Pie Chart Enhancements / April 2014 / RiverWare 6.5**
* R:\doc\Output\PieCharts\2014\PieChartEnhancements\_April2014.docx
* R:\doc\Output\PieCharts\2014\PieChartEnhancements\_April2014\_Phil-05-01.pdf

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[I.B] New/Enhanced Software / Unfunded Development
   Plot Dialog: Option to apply scale to all open plots
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The Plot Dialog's "Scale To Time Range" operation now includes an option (a checkbox) to apply the entered time range (specified with two date/time spinners) to *all* open Plot Dialogs.

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[III] User Support / Sponsored
   COE-ABQ / URGWOM: Analysis and Estimates for three tasks.
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Analysis and Estimates were prepared for these three future URGWOM development tasks:

* (5.5) Model Run Analysis for Water Quality Modeling:
	+ **Task Description:** Develop Model Run Analysis for Water Quality: Add the ability to display the status of water-quality solutions (dispatch methods) to the Run Analysis window. The Run Analysis window indicates if simulation objects are solved or not; however, water-quality functionality is currently not included.
* (5.7) Multiple-Column Slots: Reorder Columns (Table Slots, AggSeries Slots):
	+ **Task Description:** Table Slot Columns: Add capability to insert a column to a table slot and reorder columns in a table slot**.** This applies to all types of multiple column slots on data objects -- *except* for multiple-column slots with Numeric Headers. ("Rearrange the columns with the arrow buttons used elsewhere, but horizontal rather than vertical").
* (5.15) Smart Zooming:
	+ Simulation Object icons and their attached labels are to be scaled only when zooming out to see a broader view of the model. When zooming *in* beyond the standard zoom level, icons and labels remain their natural size (instead of becoming larger) for the purpose of exposing more detail around closely clustered objects.

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[III] User Support / Sponsored
   TVA: SCT Usability Review Meeting
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CADSWES and TVA staff participated in a one-hour video conference where use of the RiverWare SCT by TVA operators was reviewed in order to identify better use of existing SCT features and possible software enhancements. Participating CADSWES staff for this April 9 meeting were Phil Weinstein and Tim Magee.

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| **Maintenance Accomplishments / April 2014** |

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[II] RiverWare Software Maintenance / Software Updates / Bug Fixes
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The following bugs were analyzed and closed without changes:

* Bug 3864: RiverWare workspace environment not constant

The following bugs were fixed:

* Bug 5460: Followup: Unable to Insert a Column in an AggSeries Slot
* Bug 5465: RiverWare crash changing series slot timestep in large model
* Bug 5466: RPL set analysis tool doesn't remember column order
* Bug 5471: Diagnostic settings for predefined functions is not working
* Bug 5474: Model report: three column table slot, incorrect labels
* Bug 5475: Run Analysis - Window maximize issues
* Bug 5477: Assertion failure, Edit Account Dialog when run range is changed
* Bug 5483: Crash deleting PieChart Device when its Configuration Dialog is open

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