**CADSWES Maintenance Accomplishment Report Compilation -- May 2014**Edit: 6-4-2014 (Phil)

* The following CADSWES staff contributed to report: Jessica, David, Mitch, Patrick, Neil and Phil.
* Tim and Bill indicated that they had no maintenance accomplishments to report this month.

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| (II) RiverWare Software Maintenance / Contents:1. Releases, Patches and Snapshots
2. Software Updates, Bug fixes (not associated with new development)
3. Development tool improvements; issue tracking software; modelcomp
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**(II.A) Releases, Patches and Snapshots**

**The following releases were generated this month:**

* RiverWare 6.4 Patches (*see details below*):
	+ 5-02-2014:  version 6.4.8
	+ 5-14-2014:  version 6.4.9
* RiverWare 6.5 Development Snapshots:
	+ 5-27-2014

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| RiverWare 6.4.8 was released on May 2, 2014 with the following release notes:**Bugs** The following bugs were fixed:* 5465: In a Series Slot dialog with a large number of timesteps, changing the timestep size could lead to a crash.
* 5471: Diagnostic settings for predefined functions were not working in some circumstances.
* 5473: A RPL set with a large number of statements would not load.
* 5474: A model report for a three column table slot gave incorrect labels.
* 5477: A crash could occur when changing the run range with the Edit Account dialogs open.
* 5482: The slot Top of Conservation Pool is assumed to be the same across a flood control subbasin. This is now correctly enforced.
* 5484: A model aborted the first run because certain predefined functions were called before setup verification methods were executed.
* 5485: An incorrect error was issued that turbine release was greater than capacity. This was fixed by improving the convergence algorithm for the solveMB\_GivenInflowRelease dispatch method on the Level Power Reservoir.
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| RiverWare 6.4.9 was released on May 14, 2014 with the following release notes:**Bugs** The following bug was fixed:* 5486: Changing the run dates in an accounting model under certain conditions caused RiverWare to fail.
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**(II.B) Software Updates, Bug fixes (not associated with new development)**

**The following bugs were analyzed and closed without changes:**

* Bug 3771: Copy/Paste Object and Account Info (meta-data). *[See related usability enhancement analysis].*
* Bug 4425: Exporting an account loses input values from linked supplies not included in the export.
* Bug 5409: Debug only crash (no longer relevant)
* Bug 5425: Error plotting Integer Indexed series slots: (a) Same as 5441, (b) minor Qwt behavior.

**The following bugs were fixed:**

* Bug 809: User Method Categories and User Methods have bad names\*
* Bug 3015: Accounts on the Agg Diversion Site can become invalid if the link structure changes. This was fixed by adding better messages that there are invalid accounts when the link structure changes and when the model is saved.
* Bug 3274/3316: Removed "Resume Run" Feature from GUI
* Bug 4184: Account method tab: Improved default order and column sorting\*\*
* Bug 4247: Closing the console window on Windows OS crashes RiverWare\*
* Bug 5399: Cannot move rule to first position in policy group.
* Bug 5405: Diagnostics Output Window: Performance Problems, Freezing\*
* Bug 5426: GUS Slot Column Label Filter, Should operate at slot level\*\*
* Bug 5486: Assertion error after changing dates and running the model.
* Bug 5489: Crash loading model when using an SCT with Object Grid
* Bug 5490: RPL Set/Group: item drag-move confirmation cancel problem.
* Bug 5492: Columns added to an Agg Series Slot did not always have the correct timestep size.
* Bug 5493: Accounting not clearing values between runs .
* Bug 5494: In an SCT, row headers and series data could get out of vertical alignment.

\*details for these bugs are provided below.
\*\*enhancements described elsewhere in the May 2014 Accomplishments Report were made in the course of addressing this bug.

**Bug 809 Detail -- RiverWare name changes:**

Approximately 300 category and method names were modified to adhere to a standard format. This included formatting all names in title case, including spaces between all words, removing terms such as category, calculation or calc from the names and in some cases making the name more descriptive of what the method does. These changes will be available in RiverWare 6.5.

**Bug 4247 Detail -- Closing the console window on Windows OS crashes RiverWare**

Now only in very special circumstances does text sent to the RiverWare process' output streams ("standard error" and "standard out") cause a terminal window to be shown. (One particular circumstance is lack of a valid RiverWare license). This used to happen when unusual errors were detected in RiverWare or in Qt. These output streams are still useful in testing and debugging RiverWare -- they can be redirected to a file or to a console window by invoking RiverWare with one of these command line parameters:

--log <log file path>
--log console

**Bug 5405 Detail -- Diagnostics Output Window: Performance Problems, Freezing**

The Gnats 5405 bug model helped us identify and address two related performance problems with the Diagnostics Output Window handling a very large number of messages (e.g. > 100,000). With this model, a *35 second run* took *over an hour* to complete when informational diagnostics were enabled. In one case, the GUI was frozen for most of that time.

The sources of the slow execution and "frozen" (unresponsive) user interface have been substantially addressed. Now, generating many "informational" diagnostics messages slows down the run only by a small amount -- in particular when the Diagnostics Output Window is closed during the run.

This document provides background, analysis, and descriptions of changes and performance results:

* Diagnostics Output Window Performance Fixes for RiverWare 6.5
R:\doc\diagnostics\Performance\2014\DiagPerfEnh-Gnats5405.docx

Note: This document has yet to be updated with subsequent design decisions. We decided *against* disabling the window's "Minimize" function. The Diagnostics Output Window can be minimized, but doing so does not have the same performance benefit as *closing* the window. Also, in a debug build, closing (not minimizing) the window is necessary to avoid an *extremely* slow execution state which can occur. (With the implemented enhancements, we have not seen this problem in normal *release* builds).

Also, the current draft of that document does not mention the addition of a new "progress" dialog with an "Abort" button for message filtering operations. This popup dialog is now shown when a message filter operation is going to take over four seconds -- determined during the first second of filter execution.

**(II.C) Development tool improvements; issue tracking software; modelcomp**

**Troubleshooting Visual Studio 2010 performance analysis tool**

The Visual Studio 2010 performance analysis tool required an updated driver, but when the new driver was installed, the tool would abort analysis with an unhelpful error message. The problem was eventually resolved by uninstalling Symantec Endpoint Protection and replacing it with an alternative application to provide a firewall and other security measures.

**Problem Resolved: Excel Add-Ins Tab Not Visible:**

In setting up tests for the GPAT plugin in RiverSMART, it was discovered that the Add-Ins tab in Excel from which GPAT is initiated was hidden on a developer’s machine. There was no way to execute GPAT from the Excel interface. After research it was discovered that Visual Studio Tools for Excel, which is a COM Excel add-in, apparently keeps the Add-In tab from being visible when it is installed. When this Visual Studio Tools add-in was removed from Excel under the administrator account, this fixed the problem.

**(II.D) Enhancements or changes to regression tests (not part of development tasks)**

The regression tests continue to be maintained on a daily basis. This involves updating the regression tests to exercise new developments in the code. Also, as new code is added to the development area, the model comparisons performed in the nightly regression tests usually show differences (for example, because a new method category may have been added). When this occurs, the regression tests need to be updated to reflect the current state of the development area so model comparisons do not fail. In addition, every week, the daily history of each regression test is analyzed to determine if the run time or model size has significantly changed because of new development.

**(II.E) Download, Install and Release Processes**

* Worked with Flexera support to transfer our InstallShield node-locked single-user license from machine *torrent* to *danshuei*; resolved some issues regarding installing as a user without administrative privileges. Tested and verified the setup on the new machine. Tested the four newly converted InstallShield 2013 project files for 6.5 snapshots and 6.4.x releases on the new build machine. The new patch releases and snapshot releases are now built with the new IS version on the new build machine.
* Worked on setting up my new 32-bit machine *piney.* Tested the RiverWare installation files on the new machine.

**(II.F) Updates to license software/procedures**

* Maintaining RiverWare licenses for internal development systems. This is an ongoing task.
* Working on configuring and building the new version 11.0. Setting up the three developer kit files, for 32-bit, 64-bit, and Solaris platforms. In the meantime also updating the RLM for RiverWare Configuration and Build Guide document. This document is for internal use only.
* Updated document RiverWare License File Creation Guide. Reformatting the file so it is in the same style with other license/release document, and in a more readable clear format. This document is for internal use only.
* Researching Reprise Activation Pro. In the process of setting up the RLM version 11.0 build environment in order to build the tool. Studying the manual to understand more about the requirements and features.

**(II.G) Updates to download/install/configure user documentation**

* Working on updating the License Server Configuration Guide. Testing and adding new examples in the “Troubleshooting” section.

**(II.H) Modification to Web pages for downloads and installs**

* None reported for May 2014.

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