CADSWES Maintenance Accomplishment Report Compilation -- January 2014  
(Edit 2-11-2014, Phil Weinstein).

This compilation includes the (7) individual maintenance accomplishments reports from: Jessica, Bill, Neil, David, Patrick, Mitch, and Phil.

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| (II) RiverWare Software Maintenance   1. Releases, Patches and Snapshots 2. Software Updates, Bug fixes (not associated with new development) 3. Development tool improvements; issue tracking software; modelcomp 4. Enhancements or changes to regression tests (not part of development tasks) 5. Download, Install and Release Processes 6. Updates to license software/procedures 7. Updates to download/install/configure user documentation 8. Modification to Web pages for downloads and installs |

**(II.A) Releases, Patches and Snapshots**

These releases were generated in January 2014 -- *see details below.*

* RiverWare 6.4 Patch Releases:
  + 6.4.3 (Jan 6)
  + 6.4.4 (Jan 17)
  + 6.4.5 (Jan 31).
* RiverWare 6.5 Development Snapshots:
  + Jan 16
  + Jan 30

**RiverWare 6.4.3** was released on January 6, 2014.

Bug 5433 was fixed. Under certain situations, the Peak Power Equation with Off Peak Spill method was producing different results than in 6.3.   
  
**Power Reservoir**   
On the power reservoirs, the Power Plant Cap Fraction can now be greater than 1.0. This reverts to the behavior available in 6.3. The non-negative constraint introduced in 6.4 will remain in place.  
  
**Salinity Modeling**  
The Reach's Simple Well-Mixed Salinity methods were enhanced for better handling of salt mass for flows near zero. Also, the methods allow Diversion Salt Mass to be greater than Inflow Salt Mass to accommodate modeling techniques employed by some users.

**RiverWare 6.4.4** was released on January 17, 2014.

The following bugs were fixed:

* 5408: In Multiple Run Management, index sequential configurations with a non-zero offset and an interval other than one weren't taking the interval into account when computing the index sequential offset or input DMI traces.
* 5430: In certain situations, the periodic slot access was inconsistent based on the order of slot configuration.
* 5435: For the accounting Water Rights solver, the Storage account is now allowed to solve into the future through the local timestep offset, as defined on a sibling passthrough account.
* 5436: On Series Slots with Expressions, the terminology was corrected for the Evaluation Time when the Simulation controller is selected. It now correctly says End of Timestep and Beginning of Timestep instead of Block.
* 5437: A crash occurred when using the plot dialog's Scale to Specified Time Range.

**Kinematic Reach Routing:** On the Reach Routing category, there are now two versions of the Kinematic method:

* Kinematic: This hydraulic routing method is identical to the 6.3.3 kinematicRouting method. Use this method to reproduce results from 6.3.3.
* Kinematic Improved: This modified version of the Kinematic method allows a smaller computational element length and reduces the mass balance error. Note, this method matches the behavior of the Kinematic method in 6.4 through 6.4.3.

The methods are described in the Objects section of the help, section 20.1.1.8 and 20.1.1.9.

**RiverWare 6.4.5** was released on January 31, 2014.

The following bugs were fixed:

* 5438: RPL breakpoints in Object Level Accounting Methods were not correctly saved and reloaded.
* 5442: In the SCT, right clicking in an empty SCT led to a crash.
* 5443: Renaming a copied slot with a name that ends in a number could cause a crash.
* 5444: In the SCT, unintentional data changes could occur due to the numeric entry edit field becoming active. This could happen when switching the views, changing the axis or adjusting aggregation details.
* 5445: A crash could occur if errors were reported in a popup window while loading an SCT file.

**(II.B) Software Updates, Bug fixes (not associated with new development)**

The following bugs were analyzed and closed without changes:

* Bug 0793: Units file needs improvement
* Bug 0888: TableSlots implementation is inefficient
* Bug 0956: Callbacks for slot name change
* Bug 1008: Upon exit, user should always be offered chance to save model.
* Bug 1251: The check for initial conditions is based on index, not dateTime.
* Bug 1841: Depth to Flow Manning Trapezoid uses poor iteration setup
* Bug 2011: Add thermal object information to the dispatch dialog
* Bug 2548: Dispatch slots for water quality solving
* Bug 2592: Conflict lists could be unnecessary
* Bug 2653: Architecture for adding methods to controllers
* Bug 2903: Input Outflow Adjustment methods are no longer needed now that we have physical constraint flags

The following bugs were fixed:

* Bug 0626: Diagnostics Output Message Dialog: Wrap tooltip text on very long message lines.
* Bug 1834: maximum iterations
* Bug 2574: GetSlotVals returns incorrect monthly values
* Bug 2826: There is a need for additional dispatch diagnostics
* Bug 2699: Impulse response routing method does not balance mass if an Inflow value changes. (*Closed without source code changes; clarifying information was added to Online Help*).
* Bug 5408: Index Sequential (IS) with a non-zero offset and an interval other than one wasn't taking the interval into account when computing either the IS initial offset or the input DMI trace number. The problem was exposed when BOR configured a distributed multiple run with an interval of 60 timesteps (5 years). The first simulation had an offset of zero and was worked correctly. All other simulations had a non-zero offset and failed.
* Bug 5424: "File >> Save Model" problem in new RiverWare session when no model file path is defined
* Bug 5430: Periodic slot lookup failure caused by inconsistent internal configuration state
* Bug 5435: Storage account is not solving for timesteps in the future when there are lags in the accounting system.
* Bug 5436: Open Expression Slot Dialog: Evaluation Time submenu item text problem
* Bug 5437: Crash operating the Plot Dialog's 'Scale to Specified Time Range'
* Bug 5438: Crash during load when saved with OLAM breakpoint
* Bug 5439: Right clicking on object (to show context menu) no longer selects the object. (*See also Workspace selection enhancement*).
* Bug 5442: SCT crash: right-clicking in empty area of series table with no cell selection.
* Bug 5443: Crash renaming copied slot with name ending in space and number
* Bug 5444: SCT: unintentional data changes could occur due to the numeric entry edit field becoming active.
* Bug 5445: SCT: crash can occur if errors are reported in a popup window while loading an SCT file.

Power Reservoir Method Change

Functionality to allow a Plant Power Cap Fraction greater than 1 was restored. This returns functionality from RiverWare 6.3.3 before the initial fix to bug 5433.

Client/Server Port to Qt4

During testing of the MRM ensemble work, it was noticed that the HDB server is getting spurious commands across the socket from the RiverWare client even though RiverWare is not sending any commands. The commands appear to be the last command that the server sent being reflected back periodically across the socket to the server. This behavior looks to have started with the port of the client/server code to Qt4, which involved significant changes to the socket implementation. Preliminary debugging and testing did not uncover any fixes to the problem, so the issue was filed as a bug to be addressed before the next release (5448 – Phantom commands to HDB Server).

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

Integrate Oracle 12 into Development Environment

Rebuilding of the HDB Server with Visual Studio 2010, done as part of the MRM Ensemble task, required the use of Oracle 12 Client libraries and DLLs.  These needed to be integrated into the RiverWare development process. The libraries and DLLs from the development machine used for the ensemble work were tarred and zipped to create the 64-bit package for the win-config process that allows these to be downloaded to other 64 bit machines. Oracle 12 Client had to be installed on a 32 bit machine to create the 32-bit package for the win-config process. The win-config script was updated to include the new Oracle packages. The new libraries and DLLs were downloaded to the overnight build machines, and developers updated their individual machines. New Oracle DLLs were made available for incorporation into the RiverWare snapshot generation process.

CADSWES HDB Test Database

Connectivity to the HDB Oracle database was not working when tested in January. Debugging led to the discovery that a restart of the listener on January 5, 2014 caused a change to the service name of the database (the name had been changed months earlier, but did not take effect until the restart). Connect strings for clients connecting to the database had to be updated with the new service name.

**(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. In January, the tests were updated when routing and power methods were modified. Also the tests were modified to exercise new optimization evaporation methods and new diagnostic messages.

Three Reach objects using the new Kinematic Improved routing method were added to the reachMod regression test. The new method is tested in combination with each of the three available depthToFlow methods.

The new Opt Input Evaporation and Use Elevation Approximation Points (Evaporation Linearization Automation category) methods were added to a reservoir in the tvaOptRPL regression test.

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

* Created and configured two new InstallShield project files for generating the 6.5 snapshot 32-bit and 64-bit releases. The new project files were later updated to include the new server binary files and the new version of Oracle and QT DLL files for the server files.
* Worked with Flexera Software Product and License Center Support to update our record regarding our product support and contact people in their database.

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

* Maintaining RiverWare licenses for internal development systems. This is an ongoing task.
* Updated and tested the latest version of Sentinel HASP/LDK device driver files for RiverWare dongle.  The links on the RiverWare download page now link to the new version of the zip files.
* Reviewing and updating the RLM Configuration and Build Guide document, preparing for the new RLM version 11 release, which is scheduled to be released in February 2014.
* Tested if more than two license servers can be running on one single license server system simultaneously with two different floating license files. The result is multiple generic license server processes (rlm.exe) can be running on one system, but only one ISV server (cadswes.exe) is allowed on one license server system.
* Updated the License Record Excel file. Working on a new format that will be more efficient for generating reports. Also planning on a new Excel document specifically for recording the sponsor licenses.

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

* Updated the online Roaming License User Guide and all the related licensing email template files. The change was to remove all the references that indicating a floating license as a 5-seat license. Since we have been issuing floating licenses with different concurrent usage seat numbers, the reference of a 5-seat floating license is no longer valid. Will do a final review this month and pass it to Jim Pasquotto for posting online.

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

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