CADSWES Maintenance Accomplishment Report Compilation -- February 2017
Phil Weinstein, edit 3-08-2017.

February 2017 Maintenance Highlights:

1. RiverWare 7.0.4 Patch Release (2-14-2017)
2. RiverWare 7.0.5 Patch Release (2-24-2017)
3. RiverWare 7.1 Development Snapshot (2-14-2017)
4. Eleven (11) completed bug fixes.
5. Oracle 12c Client installed on two computers for future work on the HDB DMI.
6. Starting on Visual Studio upgrade research (from VS 2010 to VS 2013 or VS 2015).
7. Ongoing: Monitoring and maintaining daily RiverWare regression tests.
8. Ongoing: Installation Process and Licensing development and administration.

Report contributors:

- Substantial content from: Jessica, David, Bill, Robynn, Patrick.
- Bug fix items from: Phil (4), Mitch (3), David (1), Bill (1), Robynn (1), Patrick (1).
- Indicated that they had no *maintenance* accomplishments to report this month: Willard.

(II) RiverWare Software Maintenance

    A. Releases, Patches and Snapshots
    B. Software Updates, Bug fixes (not associated with new development)
    C. Development tool improvements; issue tracking software; modelcomp
    D. Enhancements or changes to regression tests (not part of development tasks)
    E. Download, Install and Release Processes
    F. Updates to license software/procedures
    G. Updates to download/install/configure user documentation
    H. Modification to Web pages for downloads and installs

(II.A) Releases, Patches and Snapshots

The following releases were generated this month:

- RiverWare 7.0.4 Patch Release (2-14-2017)
- RiverWare 7.0.5 Patch Release (2-24-2017)
- RiverWare 7.1 Development Snapshot (2-14-2017).

RiverWare 7.0.4 (2-14-2017) Release Notes:

HDB Output Ensemble Names for MRM
When using HDB output ensembles for MRM, a diagnostic message is now issued at the beginning of MRM to notify the user of the names of the ensembles being used.

Impulse Response Routing for Optimization
In Optimization, the Impulse Response method can now be selected for the Routing category on Reach objects. The formulation is the same as for simulation:

- Outflow(t) = C0 Inflow(t) + C1 Inflow(t-1) + C2 Inflow(t-2) + ... + Total Gain Loss

Refer to the RiverWare Help, Objects -> Reach -> User Methods -> Routing -> Impulse Response for details about the slots associated with this method.

Bugs
The following issue was addressed:

- 5905: On certain custom Agg Series slots, the Add/Remove Column operations were missing.

RiverWare 7.0.5 (2-24-2017) Release Notes:

Canal Dispatching
Within Rulebased Simulation, reservoirs linked to a Canal object are now forced to redispatch the same method within a timestep. This change was made to address a problem where rule and slot priorities led to the reservoirs dispatching the incorrect method.

Bugs
The following issues were addressed:

- 5872: A 3D table interpolation/extrapolation could be incorrect.
- 5878: The Time Aggregation Series Slot unit column labels were incorrect after a configuration change.
- 5908: On the SCT, after switching to a different sheet, the scroll position could become out of sync.
- 5911: On SCT series sheets, the 'Go To' function did not always scroll to the correct slot divider.
- 5914: A crash could occur when starting a Multiple Run.

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

The following bugs were fixed:

1. Bug 5617: Within the SolveMB_givenEnergyInflow dispatch method, a diverging solution could occur.
2. Bug 5678: SolveTurbineRelGivenEnergyInflow exceeds the specified energy when near Hydro Capacity
3. Bug 5713: Energy input was increased to Max
4. Bug 5839: Bad error message when Energy and Turbine Release are both input.
5. Bug 5872: Turbine Release Extrapolation during Sim results in RBS interpolation error.

6. Bug 5875: Still possible to open the old Plot Page editor -- *Follow-up.*
7. Bug 5878: Time Agg Series Slot unit column label incorrect after config change, until slot re-opened.
8. Bug 5905: AggSeries Slot Add/Remove Column Operations Missing
9. Bug 5908: After switching to a different sheet, SCT scroll position can become out-of-synch.
10. Bug 5911: SCT: When 'Sheets' are used, the 'Go To' function doesn't always scroll correctly to the picked slot divider.
11. Bug 5914: Model crashes when running in MRM mode

Additionally, analysis was done on the following bug:

- Bug 5893: Uninstall leaves folder "servers" behind. *(Read more under "Download, Install and Release Processes").*

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

Oracle Database Client:

In February, Oracle 12c Client was installed on two computers for future work on the HDB DMI. The installer was a rookie installer so there was a learning curve, but the knowledge acquired will be beneficial in the future.

Visual Studio Upgrade Research (from VS 2010 to VS 2013 or VS 2015):

- Installed Visual Studio 2013 and Visual Studio 2015 on Granby
- Installed VisualAssist and GitExt plug-ins for 2013 and 2015 on Granby
- Acquired version 12.7 of CPLEX needed for VisualStudio 2013 & 15
- Began dependency analysis and compilation of code.

General development tools and procedures research:

Collaboration with CU OIT -- CADSWES staff met with Vasa Dasan of CU's Office of Information Technology (OIT) to continue our discussion about how that office might support CADSWES's software development efforts. In addition, CADSWES continued to investigate the possibility of moving the internally hosted git repositories to the BitBucket Server hosting supported by OIT.

(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.

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In February 2017, the regression tests and build machines were fixed when conflicts occurred due to changes to the git ignore file.

(II.E) Download, Install and Release Processes

- Worked on the question by Gabe Miller at TVA about how to launch the install file from the command line in silent mode, instead of using the interactive interface. Discovered the command to install from the command line silently, but the DSS Connectivity feature was not installed. Worked with Flexera support and found out how to also install DSS silently from the command line (by adding an additional INSTALLLEVEL property ADDLOCAL to =ALL). Working on if this can be set as default in the project file so user does not need to provide the ADDLOCAL option on the command line.

- Worked on Bug 5893: Uninstall leaves folder "servers" behind. Finally found the pattern - If there are more than three (3) versions of RiverWare installed, then each uninstall leaves an empty folder behind (which is the folder for holding the release files for the 2nd feature DSS_Connectivity). However, the last version of RiverWare to be uninstalled was always uninstalled clean. If there are only one or two versions of RiverWare installed on the machine, each uninstall performs a clean uninstall. Reported to Flexera Support and waiting for their response.

(II.F) Updates to license software/procedures

- Maintaining RiverWare licenses for internal development systems. This is an ongoing task.
- Created master license key template files for node-locked and floating licenses for generating the license keys. The master template files include all possible license keys to choose from. Cleaned up the folder containing too many license key template files so it is less cluttered and easier to find the desired one.
- Reprise:
    - Updated the two download zip files on the download website that contain only the license server program files to the newest RLM version 12.0.
    - Updated the two download zip files for the dongle device drivers to the new version 7.53 (released January 2017) on our download website. One is the Sentinel HASP/LDK - Windows GUI Run-time Installer and the other one is the Sentinel HASP/LDK - Command Line Run-time Installer.
    - Investigating the issue of an expired node-locked license still works. Keyvan Malek from Washington State University was able to run RiverWare on his computer with an expired node-locked license. The message in the About Dialog License Information display "Cannot determine expiration date." Reported to Reprise. Reprise was not able to help because the error message was not generated from RLM. After Keyvan updated to use the new annual license file on his machine, everything seems to be normal. My guess is he never shut down the RiverWare application on his computer.

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

None reported for February 2017.

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

None reported for February 2017.

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