**CADSWES Maintenance Accomplishment Report – October 2017**  
Robynn Balduf

**October 2017 Maintenance Highlights:**

In October 2017, CADSWES staff addressed the following RiverWare defects:

* **Gnats 6015 - RPL Viewer - closing a rule also closes the rule to the right**TheRPL Viewer Dialog is a tabbed dialog for viewing and editing RPL Blocks and RPL Functions on individual tabs. When closing a single tab, the tab to the right was also closing. It was discovered that the tabCloseRequested(index) signal was being sent twice also causing closure of the tab on the right right as it inherited the previously closed tab's index. This was fixed by removing a duplicated signal connection statement in RplViewer::initConnections().
* **Gnats 6017 - Crash when unloading RPL sets with a script**

When a script was configured to unload the loaded RPL Set, running the script would cause the script to crash. This was fixed by correcting a duplicate callback on the set object that wasn’t being properly deleted and, instead was called during destruction of the set object causing the crash.

* **Gnats 6023 – Investigation: Crash with large memory usage from numerous diagnostic messages**

When a model with many slots and many timesteps has informational diagnostics enabled for all slots, millions of diagnostic messages may be generated. As a result, RiverWare crashes when allocating memory for the data structure that holds the messages.

Two items were investigated: 1) Why does RiverWare crashe when the memory usage is not yet at the machine limit, and 2) What can we do to show a warning message and exit gracefully before a crash like this occurs.

**Item 1**: RiverWare is adding a large chunk of messages all at the same time to the diagnostic window during a run state called INIT\_SUSPENDED. In order to do this, Qt must resize the QVector (internal to QTreeView) that holds the messages. QVector requires contiguous memory and if there is no available chunk of contiguous memory, Qt throws a fatal error. While current memory use is not yet at the machine limit, the request for a large contiguous amount of memory fails because the contiguous space is not available.

**Item**2: A possible way to prevent the crash might be to use a configurable max number of diagnostic messages with a default of, say, one million. If this threshold is detected, RiverWare would stop displaying diagnostic messages and present a pop-up window indicating the max number of diagnostic messages has been reached and that no more would be written. This would allow the run to continue.

* **Move method rwSetting::resolveSymbolicDateTime to a more appropriate location.**

During the project to introduce symbolic dates to expression slots, it came to light that a utility method designed to resolve date strings was residing within the rwSettings class. This location was not appropriate for a date-time utility method, and the method was relocated to the Date\_Time class. Related code changes were made within the DateTimeQtSpinner, SlotQtDialog, Workspace, UberSymbolDateTimeEdit, RplApplication, ModelReportItem, and Slot classes.