

# RplSet Management Usability Issues

## RiverWare 5.2

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This document describes some usability problems with the management of RplSets in RiverWare 5.1, and proposes some design changes.

#### 0.1 Document Status

- 7-12-2009: Ready for review.

#### 0.2 Contents

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## 1.0 Problems with the current design

This section describes some of the inconvenient or confusing aspects of the management of RplSets within a RiverWare session.

### 1.1 Association of the RplSet life-cycle with its dialog is undesirable

For RplSets not saved within the RiverWare model, closing the RplSet dialog also removes the RplSet from the RiverWare session. The inconsistency of this effect -- i.e. not also applying to RplSets which are saved in the RiverWare model -- is confounding. But also, some users would rather close the dialog to get it out of the way, instead of minimizing it. Minimizing RplSet dialogs adds to clutter in the Windows Taskbar (or, with certain X11 window managers, on the Desktop). It would be better to divorce the life-cycle of the RplSet within the RiverWare session from the showing of the RplSet's dialog -- similar to the relationship of Simulation Objects in the Workspace and their corresponding Open Object dialogs.

### 1.2 Reshowing an open RplSet by “restoring” a minimized icon is undesirable

Related to the prior item, re-showing and raising the dialog for an open RplSet via an icon in the Windows Taskbar (or Desktop) is undesirable. Some users would prefer re-showing and raising dialogs for open RplSets via GUI controls represented within the RiverWare GUI -- both in the RiverWare Workspace and in SCTs.

Note that this is already partially implemented in RiverWare 5.1 -- via the RiverWare Workspace's Policy menu's “Show” submenus for Rulesets, Optimization Policy Sets and Global Function Sets. See the section: Existing “5.1” Feature: Workspace Policy “Show” Menus.

### 1.3 Automatic Opening of a Model's “Optimization Policy Set” is undesirable

As a special feature, when a RiverWare model having an internally stored Optimization Policy Set is loaded, the dialog for that RplSet is automatically shown. One particular sponsor anticipates that operators will invariably minimize (or attempt to close) that RplSet dialog as a first step. It would be better to not automatically show that dialog, but instead provide convenient ways to show the dialog from both the RiverWare Workspace and from SCTs.

### 1.4 Association of the Loaded RplSets with the RiverWare Model is not retained

Other than the special RplSets actually stored within a RiverWare model, there is currently no recorded association between the model and the RplSets used with the model -- in particular, the external RplSets with which the model was last run. This is especially significant when loading a model containing model run results (outputs) for two reasons:

- The policy corresponding to the run results is not documented.
- Attempting to re-run a model with modified inputs is error prone since different RplSets may be inadvertently used.

It would be necessary to save RplSet associations (file system “paths” to RplSet files) for the following RplSets:

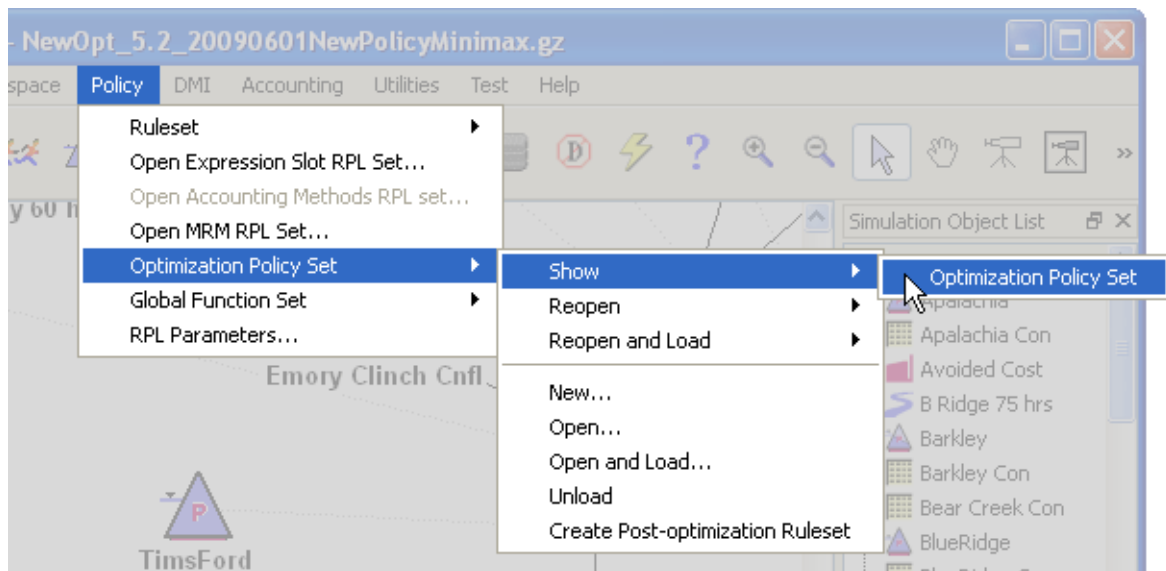
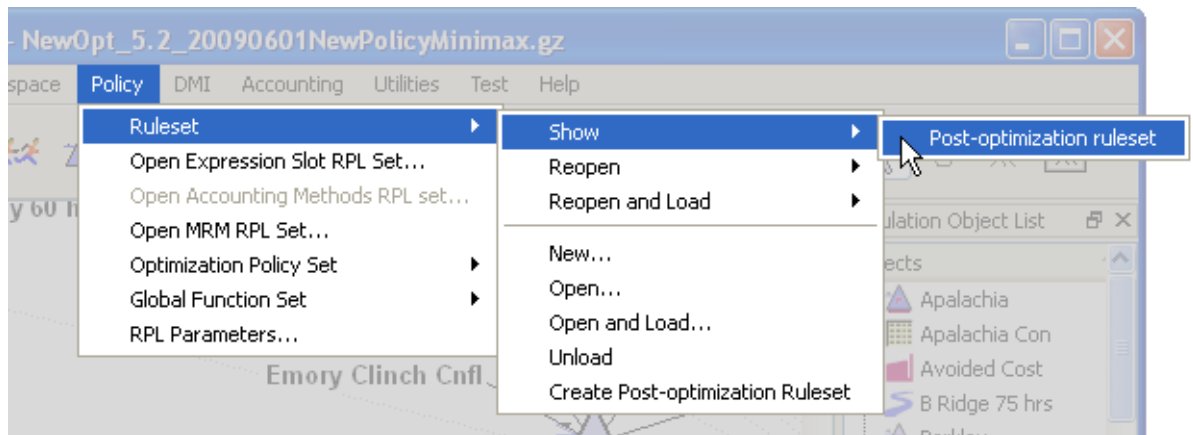
- The single “Loaded” Ruleset
- The single “Loaded” Optimization Policy Set -- if a RplSet other than the internally saved Optimization Policy Set is being used.
- Each of the open Global Function Sets

## 2.0 Existing “5.1” Feature: Workspace Policy “Show” Menus

RiverWare 5.1 supports menus to “restore” (show and raise to the top) minimized open RplSet dialogs.

Note: a fix was applied to RiverWare 5.1.2 to have these submenus include also the RplSets not saved as a RplSet File, e.g. the special RplSets associated with the new RiverWare Optimization architecture.

See the following two images. Not represented below is a similar “Show” menu for the open Global Function Sets.



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## 3.0 Proposed Changes

The following changes are proposed to address the problems described in section 1.

### 3.1 Separate external RplSet life-cycle from the corresponding RplSet dialogs

As suggested in section 1.1 (“Association of the RplSet life-cycle with its dialog is undesirable”), closing a RplSet dialog should not remove the RplSet from the RiverWare session. Users could still have the option of “minimizing” a RplSet dialog (so that it is represented as an icon in the Windows Taskbar or Desktop).

In RiverWare 5.1, RplSet dialogs for Rulesets and Optimization Policy Sets have the following operation under the File menu:

- Close (and Unload) Set ... .. [Ctrl+W]

In the revised design, the File menu would instead have these two operations:

- Remove Set [*or: Close and Remove Set*]
- Close Dialog ... .. [Ctrl+W]

### 3.2 Additional Controls to Show RplSets

As described in section 2, RiverWare 5.1 already provides a way of showing (and raising to the top) -- from the RiverWare Workspace -- dialogs for RplSets which are already part of the RiverWare session -- both those RplSets saved in the model and RplSets loaded from an external RplSet file.

Any or all of the following solutions can be considered.

#### 3.2.1 Adding a simplified Policy menu to the SCT

A “flatter” Policy menu could be added to the SCT to show dialogs for any of the open RplSets, and to open and show dialogs for the RplSet references saved with the model (a new proposed feature).

The menu would include items for the special RplSet’s saved in the model file as well as external RplSets. Here is an example:

- Show Ruleset: Z:\models-src\tva\NewOpt\_5.1\_20090521\_BWLambda.rls.gz ...
- Show Ruleset: Post-optimization ruleset (generated) ...
- Generate and Show Post-Optimization Ruleset ...  
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- Show Optimization Policy Set (saved with model) ...
- Show Optimization Policy Set: NewOpt\_5.2\_20090601NewPolicyMinimax.rls.gz ...  
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- Show Accounting Methods RPL Set ...
- Show Expression Slot RPL Set ...
- Show MRM RPL Set ...  
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- RPL Parameters ...

The items which refer to a RplSet (in the example above: all but the last item) can be preceded by the small “S” icon used to indicate RplSets. For the Rulesets and Optimization Policy Sets, the menu items for the *loaded* RplSet (of which there can be only of one for each of these two types) can have icons with a leading “bullet” (dot) -- to distinguish that *loaded* RplSet from the other *open* RplSets of the same type.

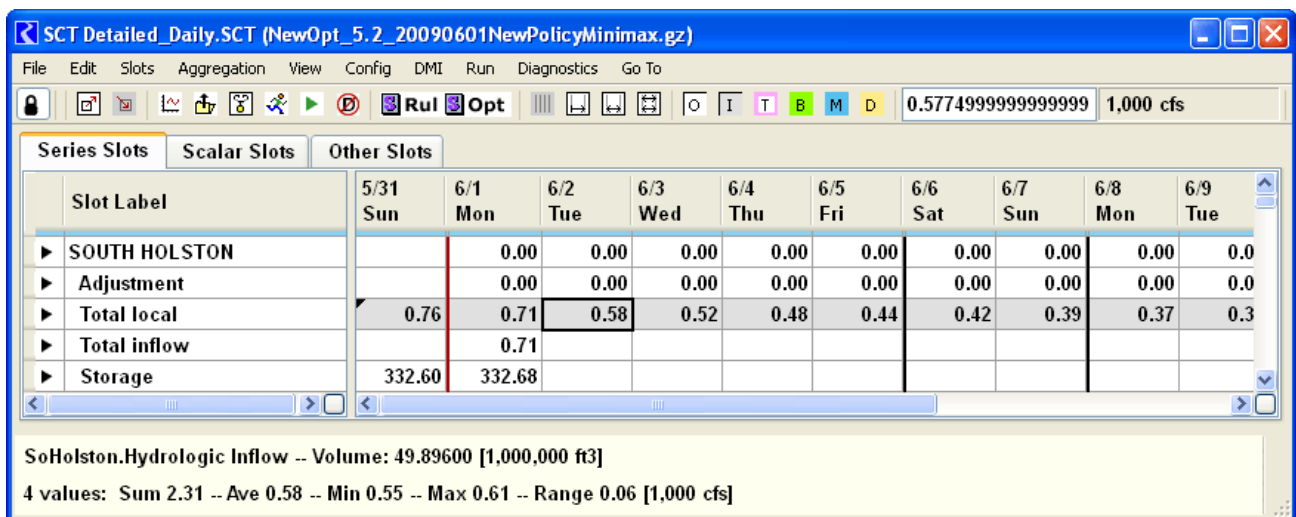
**Alternative:** In our earlier thinking about a GUI control to show RplSet dialogs for open RplSets, we thought that RplSet items (similar to those illustrated above in the proposed SCT Policy Menu example) would be arranged in a *ListView* instead of in a menu -- similar to the Simulation Object List in the RiverWare Workspace. Such a *List-View* would be showable in both the SCT and in the RiverWare Workspace (perhaps docked under the Simulation Object List). To maximize the use of horizontal space in such a list, RplSets named with a full file path would indicated with only the filename part of that path. However, using a menu is much simpler to implement and manage, and doesn’t consume any screen real estate when not in use.

### 3.2.2 SCT Toolbar: Adding Toolbar Buttons to show the Loaded Ruleset and Opt Set

Two optional toolbar buttons can be added to the SCT to show the dialog for the *loaded Ruleset* and the *loaded Optimization Policy Set*. These could be individually shown in the SCT according to a persistent SCT Configuration setting (on the Toolbar tab of the SCT Configuration dialog). Also, we could choose to have them shown only when a relevant Controller is selected. The buttons would be disabled (having a grey appearance) if no corresponding RplSets are *loaded*.



Below is a mockup image of an SCT with these two toolbar buttons.



### 3.3 Refrain from Automatically Showing a model’s internal Optimization Policy Set

With the additional controls to more easily show the model’s Optimization Policy Set, it would be very reasonable to refrain from automatically showing that RplSet upon loading the model.

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### 3.4 Associate the Loaded RplSets with the RiverWare Model

When the model is saved, references to the *loaded* Ruleset and the *loaded* Optimization Policy Set could be saved in the model file. If the referenced RplSet is external -- i.e. defined in a RplSet file as opposed to saved within the RiverWare model -- then the reference would be the file path to the RplSet file. This should be represented as a *relative path* with respect to the model file.

Upon loading a model file having RplSet references, an attempt would be made to load those RplSets, possibly after a confirmation by the user (if in interactive mode).

**Question:** Might it be preferable to instead retain references to the RplSets which were loaded *at the time of the most recent run start* -- i.e. instead of those which were loaded at the time of the model save operation?

## 4.0 Development Estimates

Revision: 7-12-2009 (Phil)

| Task    | Estimate (Days) | Description / Notes  |
|---------|-----------------|--|
| 3.1     |                 | Separate external RplSet life-cycle from the corresponding RplSet dialogs  |
| 3.1 (a) | 1.50            | RplDlgMgr changes. See esp. RplDlgMgr::closeRplSet (RplObj*).  |
| 3.1 (b) | 0.25            | RplSet dialog menu changes   |
| 3.2     |                 | Additional Controls to Show RplSets  |
| 3.2.1   | 1.25            | Adding a simplified Policy menu to the SCT, including some icon work   |
| 3.2.2   | 1.50            | SCT Toolbar: Adding Toolbar Buttons to show the Loaded Ruleset and Opt Set, including icon work and Flex/Bison parsing for persistence of preferences to show or hide these buttons. |
| 3.3     | negl.           | Refrain from Automatically Showing a model's internal Optimization Policy Set.   |
| 3.4     | 2.00            | Associate the Loaded RplSets with the RiverWare Model. Tcl processing, relative file path munging, loading user query, error handling and reporting, testing.                        |
|         |                 |  |
| TOTAL   | 6.50            | [Days]   |

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