**Workspace Object Aggregation for RiverWare 6.5 / Requirements**

Workspace Object Aggregation is a new capability of the RiverWare Workspace which allows arbitrary sets of simulation objects to appear on the workspace as a single icon.

**General Definitions and Conventions:**

1. These collections of simulation objects will be called one of the following (TBD):
   1. Object Aggregates
   2. Object Icon Groups

Note: “Object Aggregates” may be too easily confused with “Aggregate Objects” (both in code and in the user interface). Also, in regard to “Object Icon Groups”, we need to avoid confusion with “Object Display Groups”. Where the latter has been abbreviated as just “Object Groups” in the user interface, it would need to be presented fully, as “Object Display Groups”.

1. Object Icon Groups are a display-only provision; they have no effect on the model solution.
2. Object Icon Groups will be supported in the Simulation View and the Geospatial View, but not in the Accounting View.
3. An Object Icon Group will appear on the workspace as an icon, similar to the existing simulation object icons, and in the workspace object list.
4. An Object Icon Group will have a name which is displayed on the workspace under its icon.
5. Any given simulation object can be a member of only one Object Icon Group.
6. The definition of an Object Icon Group will be persistent in the RiverWare model file.
7. Each Object Icon Group will have two display states. (Note that the names of these states are *internal* and will not be used in the user interface).
   1. "Collapsed": Only the Object Group icon is shown; the group's member object icons are hidden.
   2. "Expanded": Only the group's member object icons are shown; the group’s icon is hidden.
8. The Collapsed/Expanded states will be specific to the view. For example a given group can be collapsed in the Simulation View and expanded in the Geospatial View.
9. In the Workspace’s Object List, clicking on an Object Icon Group item will select all of its member objects if the group is expanded (i.e. when the group’s object’s icons are visible).

**Operations of Object Icon Groups:**

The following general operations need to be supported:

1. Add/Move Selected Objects to New or Existing Group (with a confirmation if any of the selected objects are already a member of group).
2. Remove Selected Objects from their Groups.
3. Set the Group Name.
4. Choose an Icon for the Group: either a standard “Object Icon Group” icon OR an icon of one of the group’s member objects.
5. Show Group as Individual Object Icons (Expand Group).
6. Show Group as an Object Group Icon (Collapse Group).
7. Open the group’s dialog.
8. Open the group’s member objects’ dialogs.
9. Delete the group. (The member objects will *not* be deleted).

Object Icon Group operations will be available from these places:

1. Context Menu on Simulation Object icons
2. Context Menu on Object Icon Group icons
3. Context Menu in Workspace Object List: Object Icon Group items.
4. New “Object Icon Groups” Workspace submenu
5. New “Open Object Icon Group Dialog”

The following table indicates where the various Open Icon Group operations are supported:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | (1) Obj Ctx Menu | (2) Grp Ctx Menu | (3) Grp List Item Ctx Menu | (4) WS Menu | (5) Grp Dlg |
| Add/Move Object to New or Existing Group | X |  |  | X |  |
| Add/Move Objects using GUS Obj Selector |  |  |  |  | X |
| Remove Selected Objects from Group | X |  |  | X | X |
| Set the Group Name |  |  |  |  | X |
| Choose an Icon for the Group |  |  |  |  | X |
| Show Group as Individual Object Icons (Exp) |  | X | X |  |  |
| Show Group as Object Group Icon (Collapse) | X |  | X |  |  |
| Open the Group’s Dialog |  | X | X |  |  |
| Open the Group’s Members’ Dialogs |  | X |  |  |  |
| Delete the Group |  | X |  | X |  |
|  |  |  |  |  |  |

**Selected Object Context Menu (on Workspace Object Icons):**

Note that when several objects icons are selected, the context menu on any of those selected objects includes operations which apply to all of the selected objects.

The following operations will be added to the Object Context Menu:

1. Show as Object Icon Group\*
2. Add to Object Icon Group >> (submenu): New Group, <existing group 1>, …
3. Remove from Object Icon Group\*

\*These operations are visible only if the object selection includes objects which are currently members of an Object Icon Group.

When an Object Icon Group is “collapsed”, its member object icons are hidden. Such objects’ context menus will of course not be available. It will be necessary to expand an Object Icon Group in order to access context menu operations which are available only on the simulation object context menu, e.g. creating new links between objects.

**Object Icon Group Context Menu (NEW)**

The context menu for the new Object Icon Groups will contain the following operations. Note that an Object Icon Group’s icon is shown only when the group is in the collapsed state.

1. Show as Individual Object Icons
2. Open Object Icon Group …
3. Open Member Objects >> (submenu) …
4. Delete Object Icon Group

**Object Icon Group Workspace Object List Context Menu (NEW)**

Object Icon Groups will always have an item within the Workspace Object List, regardless of whether the group is expanded or collapsed. So both “expand” and “collapse” operations can be made available here. These workspace object list items will have the following context menu operations:

1. [Radio Button] Show as Object Icon Group
2. [Radio Button] Show as Individual Object Icons
3. Open Object Icon Group …

**Workspace Menu**

The Workspace’s “Workspace” menu currently starts with these two submenus:

* Objects >> …
* Slots >> …

A new “Object Icon Groups” submenu will be added below these two for operations on the workspace selections. These operations will be conditionally enabled based on the selection.

1. Add Selected Objects to Object Icon Group >> (submenu): New Group, <existing group 1>, …
2. Remove Selected Objects from Object Icon Groups
3. Delete Selected Object Icon Groups

Object Group icons will have a set of context menu operations different from those of the [simulation object context menu](http://cadswes2.colorado.edu/%7Ephilw/2014/WsObjAgg/AnalysisImages/ObjCtxMenus.png). This is an extensive menu, it should probably also be in the menu bar. Unless otherwise noted, the following operations are presented as context menu operations on the Object Group icon:

**Additional Display Provisions:**

1. The tooltip on the Object Icon Group Icon will list the member simulation objects.
2. The simulation object icon tooltip (which currently shows just the name of the object) will also include, in parentheses, the name of the Object Icon Group of which it is a member (if it is a member of a group).
3. When an Object Icon Group is collapsed:
   1. Its individual member object icons are hidden.
   2. Links between the group's objects and other objects (not in the group) are drawn to the Object Icon Group icon.
   3. Links between the group's objects are not drawn (of course).
4. Objects in the group maintain their workspace position information
5. Object list on workspace shows object groups. When selected the group icon is highlighted (usual behavior). If expanded, all the objects in the group are highlighted.
6. When an object name is selected on list, if the object is in a group that is collapsed, the group object is highlighted. If the group is not collapsed, the usual behavior exists.

**Additional Behavioral Provisions:**

1. Object Group icons will be **selectable,** and can visually be part of a multiple simulation object selection. Multiple simulation object and Object Group selections can be dragged to reposition them on the workspace.

**"Open Object Icon Group" Dialog**

Double clicking on, or selecting the “Open” operation on an Object Icon Group’s icon will show a new “Open Object Icon Group” dialog. This dialog will be similar to an Open Object Dialog is some minor ways: It will …

* Show the group’s current icon.
* Show the group’s name in an editable line entry field.

Additionally, this dialog will show a list of the group’s member objects. The list items (member objects) will be selectable. Objects can be added to the list using the GUS object selector. Also cut, copy and paste will be implemented on the slot items (using the RiverWare Slot Clipboard).

Two buttons will be provided to set the group’s icon:

* Use Default Icon
* Use Selected Object’s Icon.   
   … this will be enabled only when exactly one object list item is selected.