## Workspace Object Icon Aggregation for RiverWare 6.5 / Requirements

Workspace Object Icon 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. An arbitrary set of simulation objects can be grouped together into an "Object Cluster," represented as a single icon on the workspace.
- 2. Object Clusters are a display-only provision; they have no effect on the model solution.
- 3. Object Clusters have a global name (in the same name space as simulation objects).
- 4. Each Object Cluster has a configurable "simulation-object-like" icon: either a standard "Object Cluster" icon or the icon of one of its member objects.
- 5. Object Clusters will be supported in the Simulation View and the Geospatial View, but not in the Accounting View.
- 6. Each Object Cluster appears:
  - a. on the workspace as an icon circumscribed with a rectangular frame, plus its name text.
  - b. in the workspace object list (with a small icon and name text).
- 7. Any given simulation object can be a member of only one Object Cluster.
- 8. Each Object Cluster has 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 Cluster icon is shown; the cluster's member object icons are hidden.
  - 2. "Expanded": Only the cluster's member object icons are shown; the cluster's icon is hidden.
- 9. The Collapsed/Expanded states will be specific to the view. For example a given cluster can be collapsed in the Simulation View and expanded in the Geospatial View.
- 10. In the Workspace's Object List, clicking on an Object Cluster item will select all of its member objects if the cluster is expanded (i.e. when the cluster's objects' icons are visible).
- 11. Object Clusters' configurations are persistent in the RiverWare model file.

# **Operations of Object Clusters:**

The following general operations need to be supported:

- 1. Add/Move Selected Objects to New or Existing Cluster (with a confirmation if any of the selected objects are already a member of cluster).
- 2. Remove Selected Objects from their Clusters.
- 3. Set the Cluster Name.
- 4. Choose an Icon for the Cluster: either a standard "Object Cluster" icon OR an icon of one of the cluster's member objects.
- 5. Show Cluster as Individual Object Icons (Expand Cluster).

- 6. Show Cluster as an Object Cluster Icon (Collapse Cluster).
- 7. Open the cluster's dialog.
- 8. Open the cluster's member objects' dialogs.
- 9. Delete the cluster. (The member objects will not be deleted).

Object Cluster operations will be available from these places:

- 1. Context Menu on Simulation Object icons
- 2. Context Menu on Object Cluster icons
- 3. Context Menu in Workspace Object List: Object Cluster items.
- 4. New "Object Clusters" Workspace submenu
- 5. New "Open Object Cluster Dialog"

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

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

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

Note that when several objects icons are selected on the workspace, 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 Cluster\*
- (2) Add to Object Cluster >> (submenu): New Cluster, <existing cluster 1>, ...
- (3) Remove from Object Clusters\*

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

When an Object Cluster 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 Cluster in order to access context menu operations which are available only on the <u>simulation object</u> <u>context menu</u>, e.g. creating new links between objects.

### **Object Cluster Context Menu (NEW)**

The context menu for the new Object Clusters will contain the following operations. Note that an Object Cluster's icon is shown only when the cluster is in the collapsed state.

- (1) Show as Individual Object Icons
- (2) Open Object Cluster ...
- (3) Open Member Objects >> (submenu) ...
- (4) (Tentative) Set Icon >> (submenu): reset, member object items.
- (5) Delete Object Cluster

### **Object Cluster Workspace Object List Context Menu (NEW)**

Object Clusters will always have an item within the Workspace Object List, regardless of whether the cluster 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) Open...
- (2) [Radio Button] Show as Object Cluster
- (3) [Radio Button] Show as Individual Object Icons
- (4) Delete Object Cluster ... (with confirmation).

As with ordinary simulation object list items, double clicking on an Object Cluster's list item opens its Open Object Cluster dialog.

An Object Cluster's Workspace Object List item will support (treeview-) child items for each of its member objects. Those "member" items will be similar to the top-level items for those objects, with one additional context menu operation:

- 1. Open
- 2. Remove from Cluster

Double clicking on a member item will show its Open Object dialog.

#### Workspace Menu

The Workspace's "Workspace" menu currently starts with these two submenus:

- Objects >> ...
- Slots >> ...

A new "Object Clusters" submenu will be added between these two for operations on the workspace selections. These operations will be conditionally enabled based on the selection.

- (1) Add Selected Objects to Cluster >> (submenu): New, <existing cluster 1>, ...
- (2) Remove Selected Objects from Clusters
- (3) Delete Selected Object Clusters

### **Additional Display Provisions:**

- 1. The tooltip on the Object Cluster Icon lists the member simulation objects.
- 2. The simulation object icon tooltip (which currently shows just the name of the object) also includes, in parentheses, the name of the Object Cluster of which it is a member (if it is a member of a cluster).
- 3. Simulation object icons for object within a cluster will have a minor ornament indicating that the object is in a cluster.
- 4. When an Object Cluster is collapsed:
  - Its individual member object icons are hidden.
  - Links between the cluster's objects and other objects (not in the cluster) are drawn to the Object Cluster icon.
  - Links between the cluster's objects are not drawn (of course).
- 5. Objects in the cluster maintain their workspace position information
- 6. Selecting a cluster within the workspace object list depending on the cluster's expanded/collapsed state -- causes either the cluster icon or all of its member object icons to become selected (highlighted).
- 7. When an object item is selected on workspace object list, if the object is in a cluster that is collapsed, the cluster object is selected (highlighted). If the cluster is expanded, the usual behavior occurs: the object's icon is selected.

### **Additional Behavioral Provisions:**

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

# "Open Object Cluster" Dialog

Double clicking on, or selecting the "Open" operation on an Object Cluster's icon or object list item shows a new "Open Object Cluster" dialog. This dialog is similar to an Open Object Dialog is some basic ways: It ...

- Shows the cluster's current icon.
- Shows the cluster's name in an editable line entry field.

Additionally, this dialog presents a list of the cluster's member objects. The list items (member objects) are selectable. Objects can be added to the list using the GUS object selector. Also "Remove Selected Objects" is implemented.

The Open Object Cluster dialog's menubar supports these operations:

- File
  - o Show Workspace...
  - Close Window (Ctrl+W)
- Objects
  - Open Object...
  - Add Objects... (shows GUS Object Selector)
- Icon
  - o Use Default Icon
  - o Use Selected Object's Icon

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