How to programmatically show/hide individual items in an Array of Clusters.

We all know it is easy to show/hide the individual items in a Cluster using the items’ “Visible” property nodes. However when the Cluster is now inside an Array (Array of Clusters), this may not have the desired effect. You could still use the “Visible” property nodes, but now this will take effect on all elements in the Array. You cannot Show/Hide the Cluster’s items in only one or a few elements of the array. This is because the property nodes affect all elements of the Array in the same way.

Suppose you want to create a User Interface containing an Array of Clusters, (for example a Sequence where each element is a Step in the Sequence). You want to show only relevant items in the Cluster, and hide the rest, but on an Array element by element basis. This procedure shows with an example, how to do just that.

EXAMPLE

In this example, I have a 1-D Array of Clusters. The Cluster has the following items:

1. **Element Type** e-num control (Enum: Numeric, String, Boolean, Path, Combo Box)
2. **Numeric** control
3. **String** control
4. **Boolean** control
5. **Path** control
6. **Combo Box** control (choices: Next, Previous, First, Last)

Based on the user selection of the **Element Type** control, I want to show only the corresponding item and hide the other items. So if user selects “Path” in the **Element Type**, I want to show only the **Path** control item and hide all other items. The user can select a different value for **Element Type** in each element of the Array, and accordingly only the corresponding item in the element’s Cluster will be shown. For example:

1. Array Index 0: Element Type = Numeric
2. Array Index 1: Element Type = Path
3. Array Index 2: Element Type = Boolean
4. Etc...

**Step 1: Create Cluster**

Create the Cluster as shown below.

The choices in the **Element Type** e-num control are Numeric, String, Boolean, Path, Combo Box.

Choices in the Combo Box are Next, Previous, First, Last.

Color the background light purple.

**Step 2: Create Show buttons for each Item in the Cluster**

1) Open the Controls Palette, and get a Flat Square Button from Classic>Classic
2) Ensure that Boolean Text is not visible (by default it is invisible).
3) Right-click and select Properties:
   - Keep the Off state Color as default White.
   - Change the On state Color to Transparent (T).
4) Make copies of the Flat Square Button for each Item in the cluster you want to show/hide. In this case I made 5 copies, because I have 5 items in my cluster that I want to show/hide based on the user selection of the Element Type enum.
5) Rename the copies as Show <Item Name> as shown below:
Step 3: Create Decorations to use in the False face of the Show buttons
1) Open the Controls Palette, and get a Flat Box from Modern>Decorations. (you could also use Silver or any other theme you like).
2) Change the color of the Flat Box decoration to match that of the Cluster’s background. I used light purple to illustrate the point.
3) Make copies of the Flat Box for each Item in the cluster you want to show/hide. In this case I made 5 copies.
4) Re-size each copy so that it is same size as the Item it is meant to show/hide, as shown below:

Step 4: Make the False face of the Show buttons using the Decorations
1) Select the Decoration meant for the Numeric item with the mouse pointer. Then copy it to clip-board (Ctrl+C).
2) Select the Boolean meant for the Numeric control. Then navigate to Menu Bar, select Edit>Customize Control.

The False face of the Show Numeric boolean should change like this.

3) Navigate to the Menu Bar, and select File>Apply Changes. This will update the original control in the VI. Close the Control without saving changes.
4) Repeat Steps 1-3 for the other Decorations and Booleans. When done, all your Decorations should be on the False face of the corresponding Booleans as shown below.

5) Click on each Boolean and confirm that the True face is transparent.
Step 5: Overlay the Items with the Corresponding Show Booleans
1) Make all the Labels/Captions invisible on all the Items and the Booleans.
2) Simply place each Show Boolean on top of the corresponding Item in the Cluster. Then align it so that it completely covers the Item. (You can re-size the Boolean as needed). When done, the Cluster should look like this with all Items except the Element Type covered by the Booleans.

![Overlay Items with Corresponding Show Booleans](image)

Step 6: Create the Array using the Cluster
1) Create an Array container and put the Cluster inside it.
2) Expand the Array to show a few elements.

Step 7: Program using Event Structure
1) See enclosed VI “Array of Clusters Example1.vi”.
2) Use the Array’s Value Change event. If the Value Change event is caused by the Element Type control, set the corresponding Item’s Show Boolean to True, and set the other Show Booleans to False.

Step 8: Run the VI
1) Run the VI “Array of Clusters Example1.vi”.
2) You can now experiment by changing the Element Type. Only the selected Item should be visible in each row. In addition, you should be able to control the visible item and change its value.

![Run the VI](image)