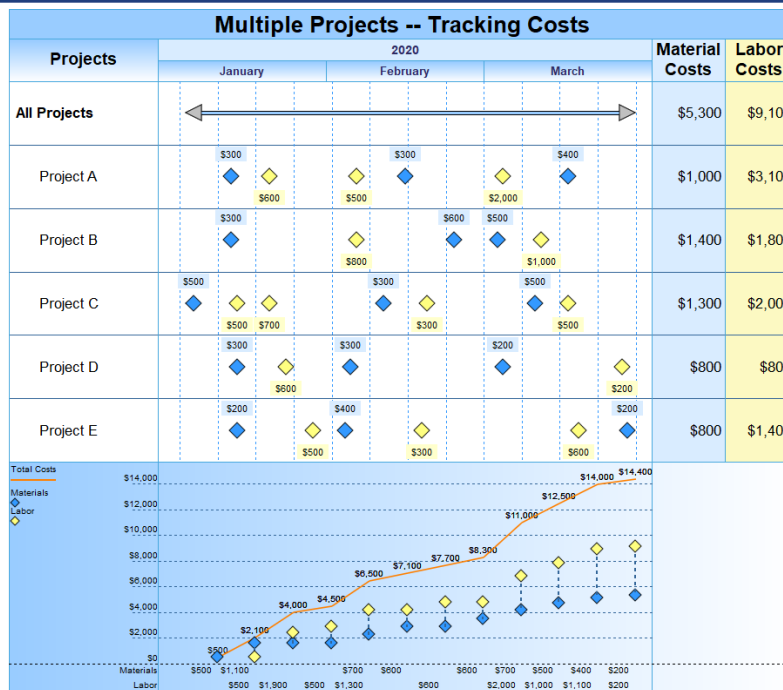


# Milestones PROFESSIONAL<sup>®</sup> TUTORIALS

## Lesson 12 - More ValueSets and DataGraphs

### In this lesson you will learn how to:

- Create two Type 4 ValueSets (Use Values from Symbols)
- Create a Type 5 ValueSet (Total of other ValueSets)
- Create 2 DataGraphs. Overlay one to display 3 ValueSets on 1 DataGraph
- Create ValueSet SmartColumns
- Enter Material and Labor ValueSet values for symbols
- Add a Substitutable text string to display entered Material and Labor values as symbol text



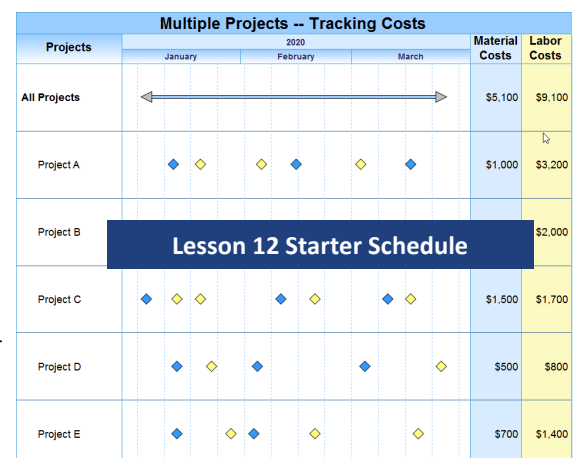
Numerical information can be shown along with a schedule. These numerical values are contained in ValueSets. Up to 9 ValueSets can be added to a schedule. These 9 ValueSets can be graphed on up to 3 DataGraphs, a maximum of 8 ValueSets per DataGraph. ValueSets values are attached to symbols (e.g. each yellow symbol contains a Labor cost, each blue symbol contains a Material cost). The values on the symbols can also be totaled in a special ValueSet SmartColumn (e.g. Labor Costs column and Material Costs column).

Type 4 ValueSet values are attached to symbols. When the symbol moves, the values move with them. If the symbols move to a new time period then the DataGraph changes. If any values, attached to the symbols, increase or decrease, then the column values and DataGraph values also change.

A Type 5 ValueSet can total up to 8 other ValueSets (e.g. Material cost ValueSet is added with Labor Cost ValueSet to get Total Cost ValueSet which can be graphed).

### Open the schedule for this lesson.

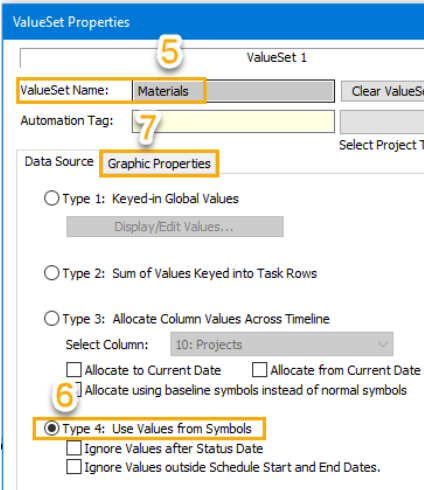
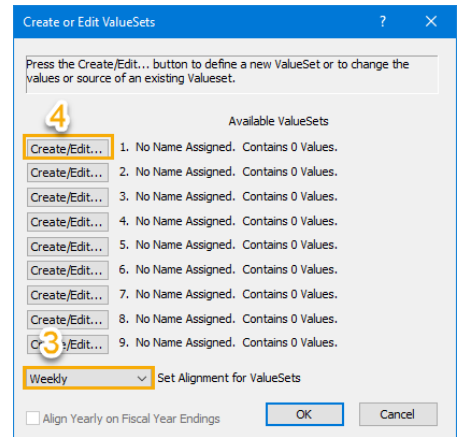
1. On the toolbar, choose **File**.
2. In the **Files and Templates: Open and Save Options** section select **Open Samples or Lessons**. The **Open a Sample Chart** dialog displays.
3. Under **Select a Folder below to Open**, select **Lessons**. The Lesson schedules will display in the window to the right.
4. Pick **Lesson 12 Starter Schedule.mj**.
5. Save the schedule to an accessible folder on your computer. Choose the **File** tab. In the **Files and Templates: Open and Save Options** section, choose **Save As....** In the menu that displays choose **Chart**. Name, then save the schedule.



## Create a Materials and a Labor ValueSet as Type 4: Use Values from Symbols

### Material ValueSet

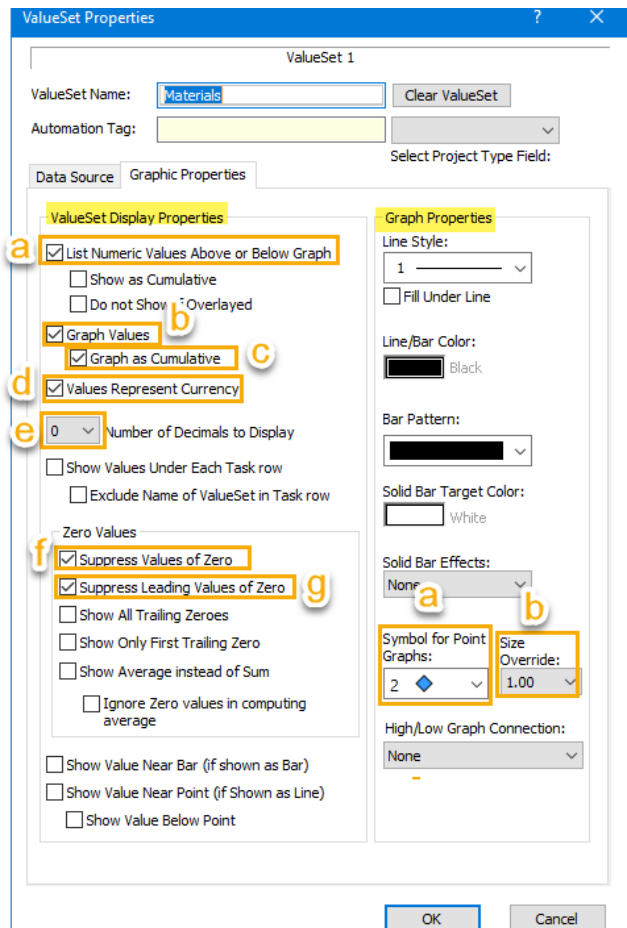
1. Click the **Tools** tab.
2. In the **Graph Options** section, choose **Set Up ValueSets**. The **Create or Edit ValueSets** dialog box displays.
3. Choose **Weekly** as the time period to align the values.
4. Click the **Create/Edit** button to the left of **1: No Name Assigned**. The **ValueSet Properties** dialog box displays.



5. For **ValueSet Name** enter **Materials**.

6. Under the **Data Source** tab, choose **Type 4: Use Values from Symbols** as the ValueSet type.

7. Click the **Graphic Properties** tab to set the **ValueSet Display Properties** and **Graph Properties**.



#### UNDER ValueSet Display Properties

- a. Check on **List Numeric Values above or Below Graph** to have numeric ValueSet values display in each time increment above the graph for Materials.
- b. Check on **Graph Values** to graph the Materials ValueSet values in the DataGraph.
- c. Check on **Graph as Cumulative** to have Materials ValueSet values add together to create the graph.
- d. Check on **Values Represent Currency** and the \$ will display on all values for the Materials ValueSet in the DataGraph.
- e. Select **0** for **Number of Decimals to Display**. Numbers will be shown as whole numbers.
- f. Check on **Suppress Values of Zero** to have zeros not be listed or graphed.
- g. Check on **Suppress Leading Values of Zero** to have graph not start at zero and not list a starting zero.

#### UNDER Graphic Properties

- a. Material ValueSet values are going to be graphed as points (symbols). Under **Symbol for Point Graphs**: select **2 (a blue diamond)**. The list of symbols available for points is a reflection of the toolbox. See tutorial Lesson 4 for more information on setting up symbols in the toolbox.
- b. For **Size Override** select **1.00**. Use this option to override the schedule's default symbol size for just symbols in the DataGraph.

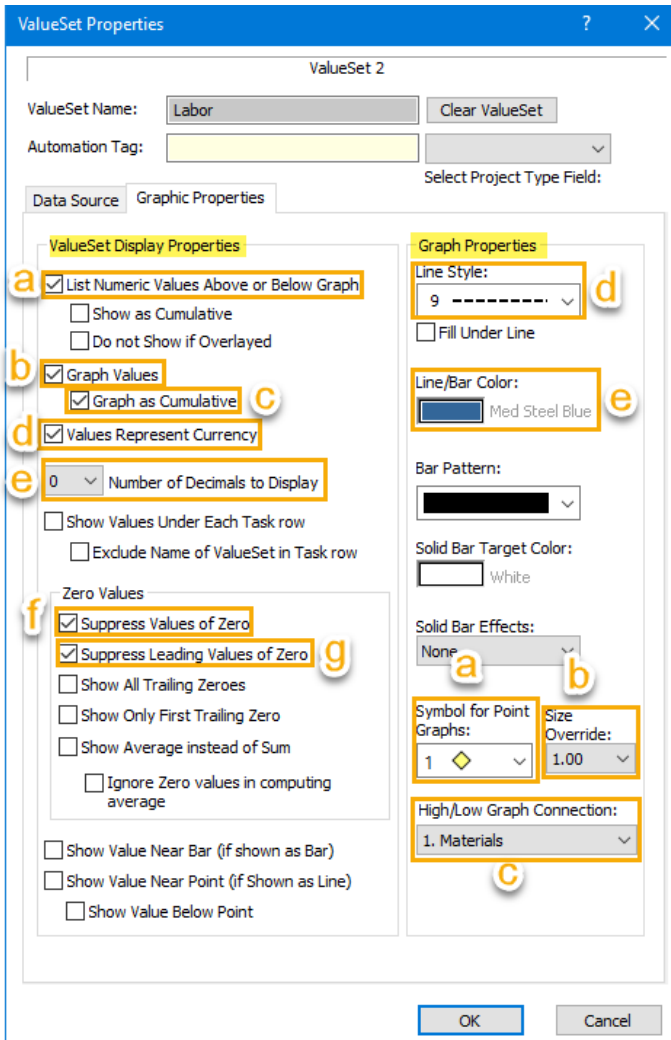
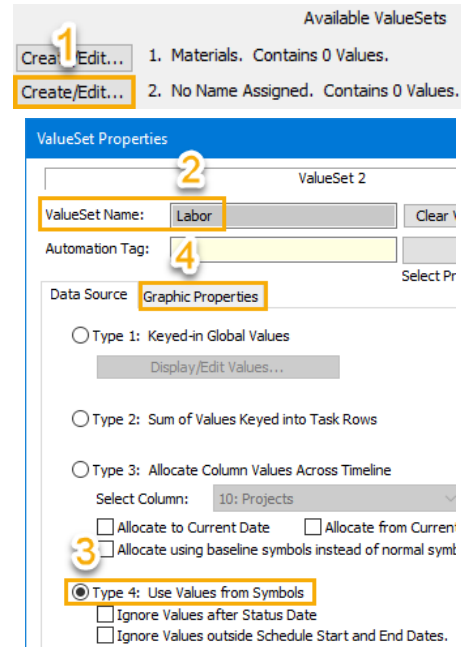
8. Click **OK** to return to the **Create or Edit ValueSets** dialog box (keep this dialog box open for the next set of instructions.)

The schedule's default **Symbol Size** option is found on the **Format** tab in the **Frame, Highlights** section.

## Create a Materials and a Labor ValueSet as Type 4: Use Values from Symbols (continued)

### Labor ValueSet

1. Click the **Create/Edit** button to the left of **2: No Name Assigned**. The **ValueSet Properties** dialog box displays.
2. For **ValueSet Name** enter **Labor**.
3. Under the **Data Source** tab, choose **Type 4: Use Values from Symbols** as the ValueSet type.
4. Click the **Graphic Properties** tab to set the **ValueSet Display Properties** and **Graph Properties**.



### UNDER ValueSet Display Properties

- a. Check on **List Numeric Values above or Below Graph** to have numeric ValueSet values display in each time increment above the graph for Labor.
- b. Check on **Graph Values** to have Labor ValueSet values graph as bars, lines, or points in the DataGraph.
- c. Check on **Graph as Cumulative** to have Materials ValueSet values add together to create the graph.
- d. Check on **Values Represent Currency** and the \$ will display on all values for the Labor ValueSet in the DataGraph.
- e. Select **0** for **Number of Decimals to Display**. All Values for the Labor ValueSet will not show any decimal values.
- f. Check on **Suppress Values of Zero** to have zeros not be listed or graphed.

- g. Check on **Suppress Leading Values of Zero** to have graph not start at zero and not list a starting zero.

### UNDER Graphic Properties

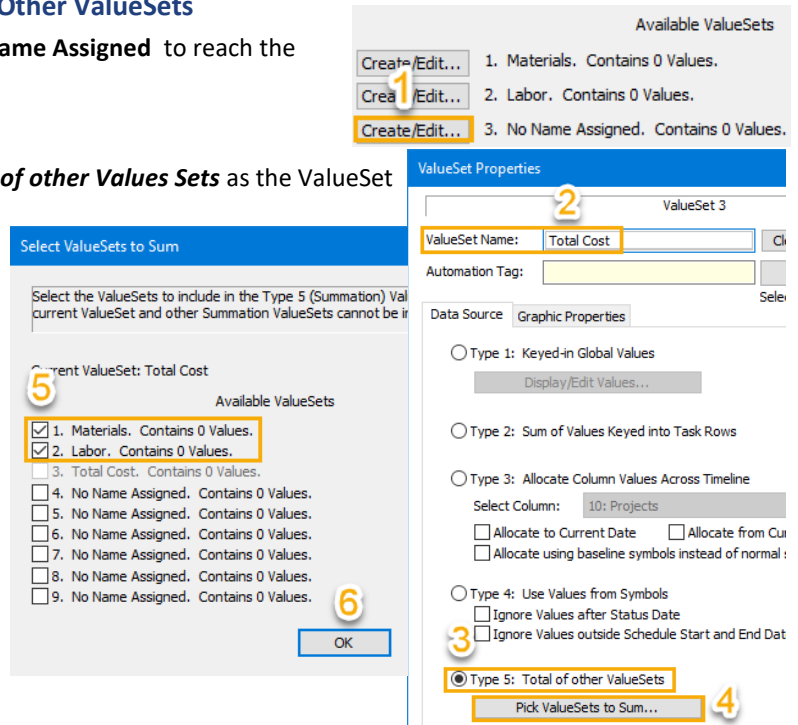
- a. Labor ValueSet values are going to be graphed as points (symbols). Under **Symbol for Point Graphs**: select **1** a **yellow diamond**. The list of symbols available for points is based on the toolbox. See tutorial Lesson 4 for more information on setting up symbols in the toolbox.
- b. For **Size Override** select **1.00**. Use this option to override the schedule's default symbol size for symbols in the DataGraph.
- c. Under **High/Low Graph Connection** select **Materials** to have a line connect Labor and Materials points.
- d. Select a **Lines Style** of **9 (dashed line)** for the line that connects the Labor and Materials points.
- e. Select **Line/Bar Color** of **Medium blue** to color the line between the Labor and Materials points.

The schedule's default **Symbol Size** option is found on the **Format** tab in the **Frame, Highlights** section.

5. Click **OK** to return to the **Create or Edit ValueSets** dialog box (keep this dialog box open for the next set of instructions.)

## Create Total Cost ValueSet as Type 5: Total of Other ValueSets

1. Click the **Create/Edit** button to the left of **3: No Name Assigned** to reach the **ValueSet Properties** dialog box.
2. For **ValueSet Name** enter **Total Cost**.
3. Under the **Data Source** tab, choose **Type 5: Total of other Values Sets** as the ValueSet type.
4. Click the **Pick ValueSets to Sum** button. The **Select ValueSets to Sum** dialog box displays.
5. In the **Select ValueSets to Sum** dialog box check on **1. Material** and check on **2. Labor**.
6. Click **OK**.



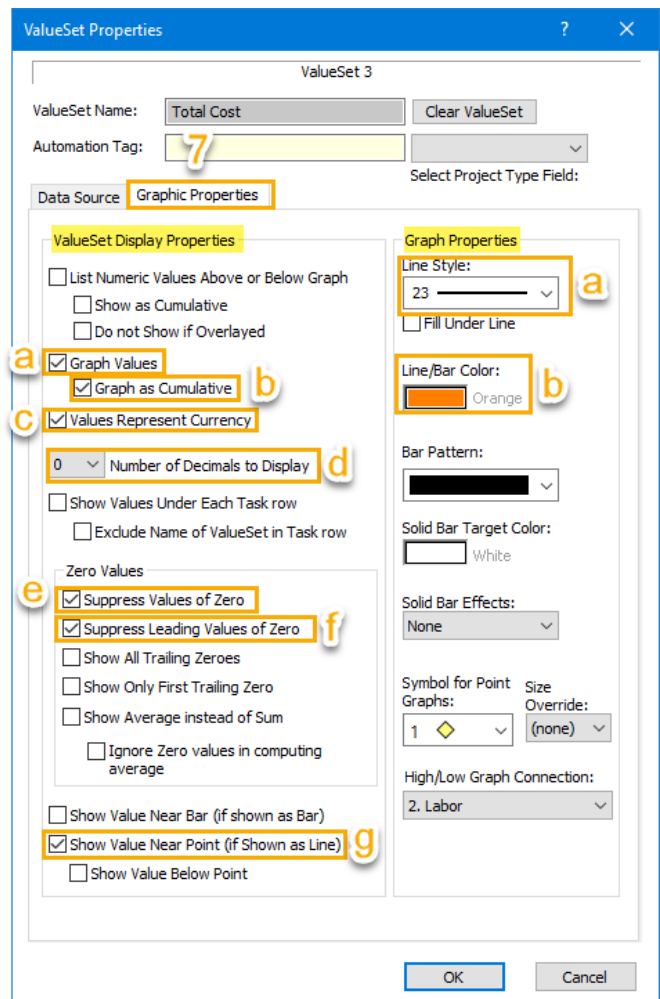
7. Click the **Graphic Properties** tab to Set the **ValueSet Display Properties** and **Graph Properties**.

### UNDER ValueSet Display Properties

- a. Check on **Graph Values** to have Labor ValueSet values graph as bars, lines, or points in the DataGraph.
- b. Check on **Graph as Cumulative** to have Materials ValueSet values add together to create the graph.
- c. Check on **Values Represent Currency** and the \$ will display on all values for the Labor ValueSet in the DataGraph
- d. Select **0** for **Number of Decimals to Display**. All Values for the Labor ValueSet will not show any decimal values.
- e. Check on **Suppress Values of Zero** to have zeros not be listed or graphed.
- f. Check on **Suppress Leading Values of Zero** to have graph not start at zero and not list a starting zero.
- g. Total Cost is going to be a line graph, check on **Show Value Near Point (if shown as Line)** to have the Total Cost ValueSet values display at weekly time increments along the line that graphs.

### UNDER Graphic Properties

- a. Since Total Cost will be a line graph select **Lines Style 23**
- b. For **Line/Bar Color** select **orange** for the color of the Total Cost line graph.



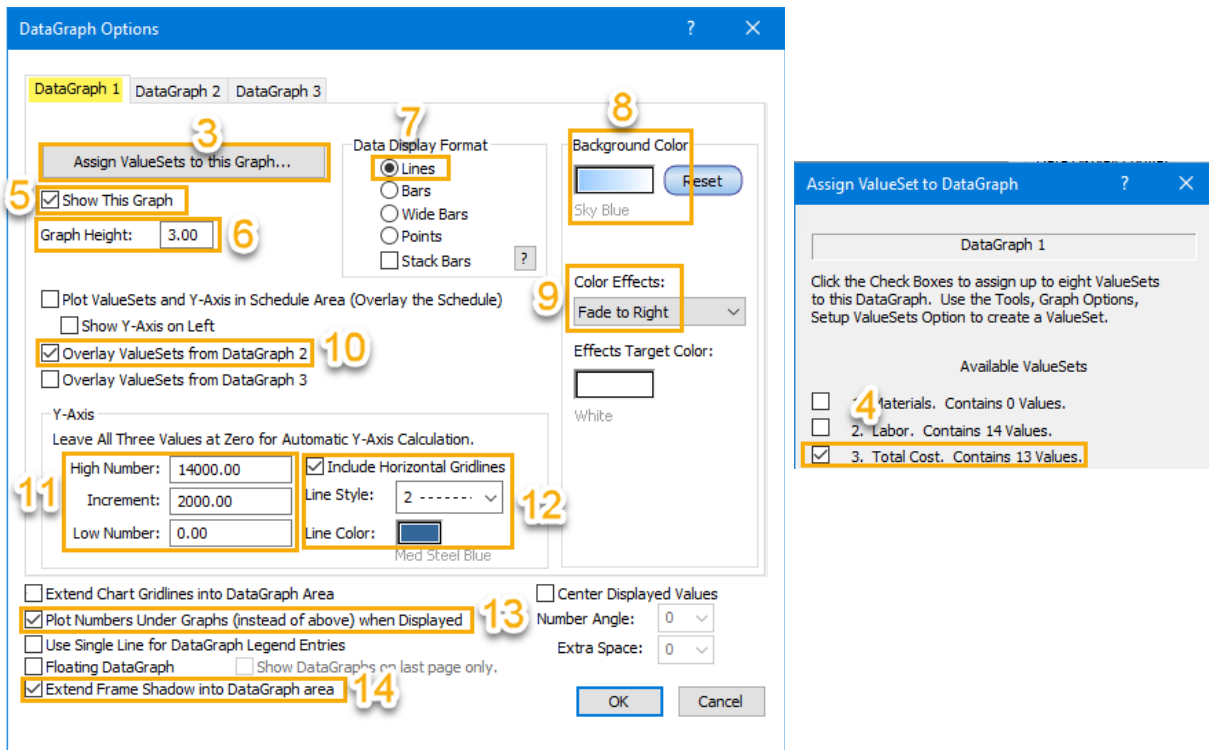
8. Click **OK** to return to the **Create or Edit ValueSets** dialog box. You now have two Type 4 ValueSets and one Type 5 ValueSet, none of which contains values. Choose **OK** to exit. Nothing visible will be changed on the schedule.

## Create 2 DataGraphs overlaying one to display 3 ValueSets on 1 DataGraph

DataGraph 1 will contain the Total Cost ValueSet values graphed as a line while DataGraph 2 will overlay DataGraph 1 and will contain Labor and the Materials ValueSet values graphed as points.

### DataGraph 1

1. Select the **Tools** tab.
2. In the **Graph Options** section choose **Setup DataGraph**. The **DataGraph Options** dialog box displays.



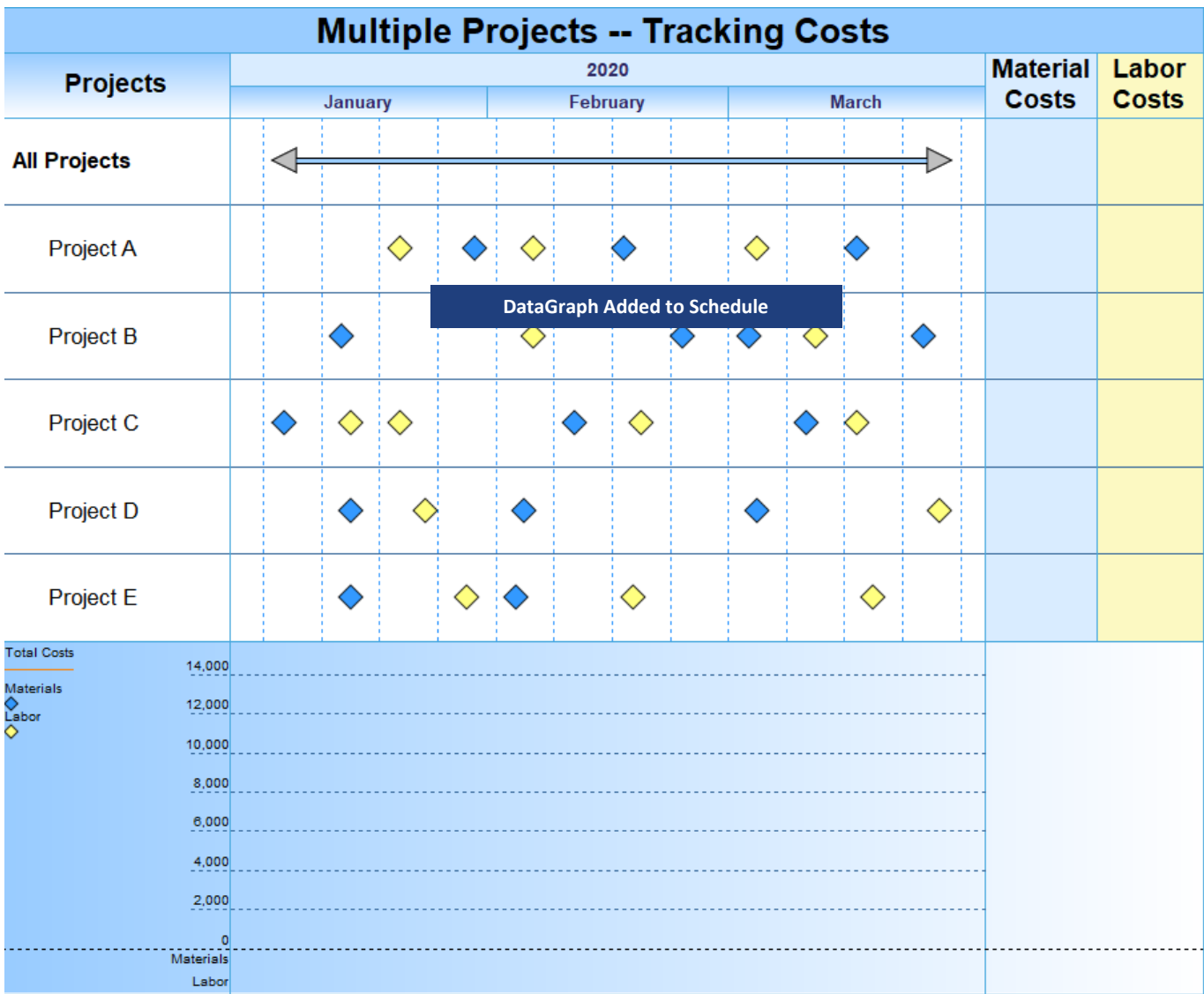
3. Under the **DataGraph 1** tab select **Assign ValueSets to this Graph** button. The **Assign ValueSet to DataGraph** dialog displays.
4. Check on **3. Total Cost**, then click **OK**.
5. Check on **Show this Graph** to have the DataGraph display on the schedule.
6. Give a **Graph Height** of **3.00**. Minimum height is .2
7. Total Cost is to be a line graph therefore under **Data Display Format** choose **Lines**.
8. For **Background Color** of the Graph choose **light blue**.
9. **Color Effect** for the background choose **Fade to Right**.
10. To combine two graphs of different Display Formats (in this tutorial, line for Total Cost and points for Labor and Materials) check on **Overlay ValueSets from DataGraph 2**.
11. Under Y-Axis you can select values for High Number, Increment and Low Number. These values build the Y-axis values of the DataGraph. For **High Number** enter **14000**. For **Increment** enter **2000**. Leave **Low Number** at **0**.
12. Under Y-Axis check on **Include Horizontal Gridlines**. For **Line Style** select **2**. For **Line Color** select **medium blue**.
13. Check on **Plot Numbers Under Graph (instead of above) when Displayed** because Materials and Labor ValueSets values were set to have the Weekly numeric values displayed. Now the values will display below the DataGraph.
14. Check on **Extend Frame Shadow into DataGraph area** because the starter schedule has a shadow. Keep this dialog open for the next part of this tutorial.

**DataGraph 2**

1. Select **DataGraph 2** tab.
2. Under the **DataGraph 2** tab select **Assign ValueSets to this Graph** button. The **Assign ValueSet to DataGraph** dialog displays.
3. Check on **1. Materials** and **2. Labor**, then click **OK**.
4. Check on **Show this Graph** to have the DataGraph display on the schedule.
5. Material and Labor values are to be points on the DataGraph therefore under **Data Display Format** choose **Points**.

No formatting for the DataGraph 2 looks needs to be chosen because in DataGraph 1 the option **Overlay ValueSets from DataGraph 2** was selected. Thus the information from ValueSets Material and Labor will be overlaid onto DataGraph 1. Two DataGraphs are being used to distinguished the **Data Display Format**, for Total Costs the data will display as a line, as selected. Material and Labor data will display as points, as selected.

6. Click **OK** to return to the schedule, the DataGraph will display without any values. Values will be added in the following pages.

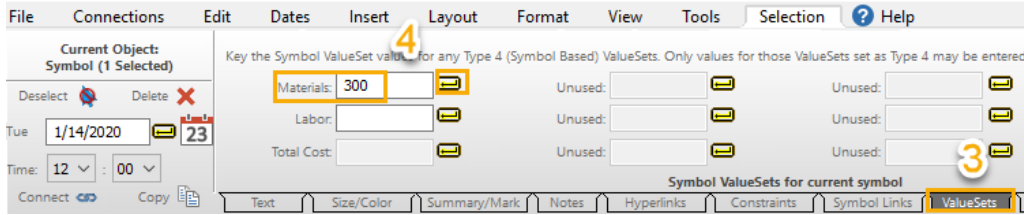







## Enter Material and Labor ValueSet values for symbols

For each symbol, you can enter a value for **Material** ValueSet and/or **Labor** ValueSet. In this lesson, you will enter Labor cost values on the yellow symbols, and enter **Material** cost values on the blue symbols, in keeping with the color scheme of the columns and DataGraph.

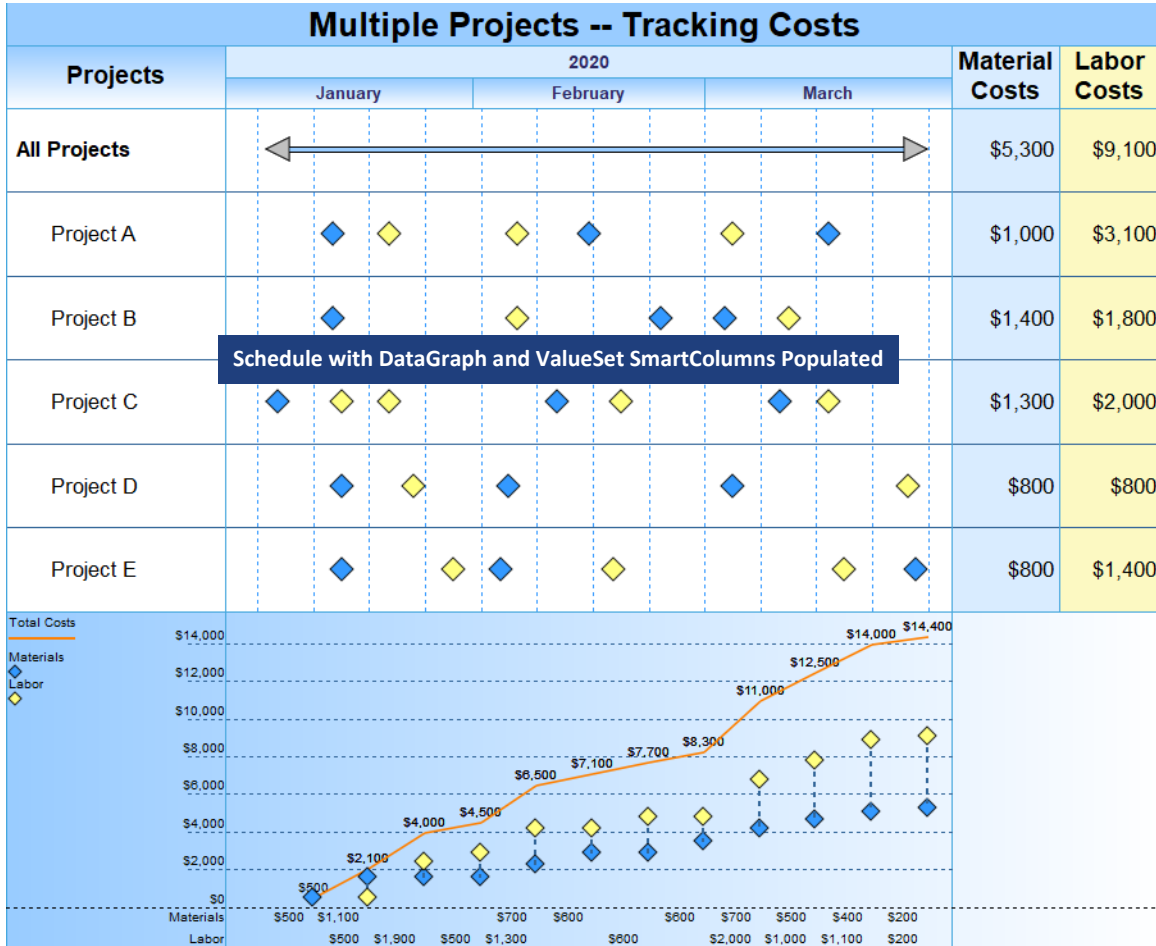
1. Click the ( $\curvearrowright$ ) **Arrow** tool in the Toolbox.
2. On the **Project A** task row select *the first blue symbol*, the toolbar changes to the **Selection** tab with **Current Object: Symbol**



3. At the bottom of the toolbar choose the **ValueSets** tab.
4. In the **Material** slot enter **300** as the value for this symbol, press the  **apply** button.
5. On the **Project A** task row select the next symbol which is yellow. You will not have to reselect the **ValueSets** tab it will stay active.
6. In the **Labor** slot enter **600** as the value for this symbol, press the  **apply** button.
7. Continue adding values using the matrix below. Enter **Material** cost values on the blue symbols. Enter **Labor** cost values on the yellow symbols. IMPORTANT, after entering a value choose the  **apply** button.

Project A <b>Materials:</b> 300, 400 <b>Labor:</b> 500, 2000	Project B <b>Materials:</b> 300, 600, 500 <b>Labor:</b> 800, 1000	Project C <b>Materials:</b> 500, 300, 500 <b>Labor:</b> 500, 700, 300, 500	Project D <b>Materials:</b> 300, 300, 200 <b>Labor:</b> 600, 200	Project E <b>Materials:</b> 200, 400, 200 <b>Labor:</b> 500, 300, 600
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As each value is entered the DataGraph and the column values change.

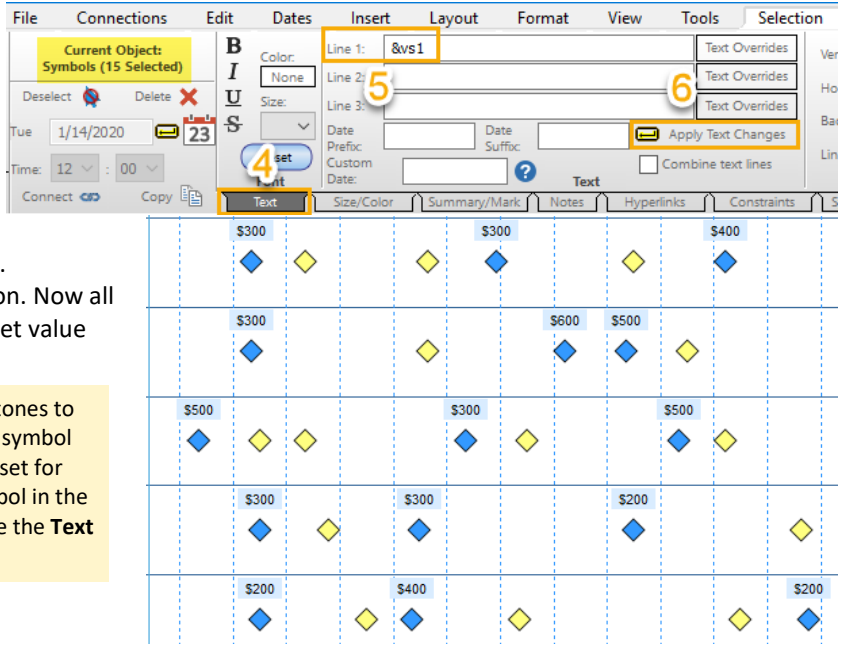




**Add a Substitutable Text String to symbols to display entered Material and Labor values as symbol text.**

1. Click the (↶) **Arrow** tool in the Toolbox.
2. On the **Project A** task row right click **the first blue symbol**.
3. On the menu that displays select, **Select all Instances of this Symbol Type**. All blue symbols will highlight with a box around them and the toolbar will change to the **Selection** tab **Current Object: Symbols (15 Selected)**.
4. At the bottom of the toolbar select the **Text** tab.
5. In the **Text** section next to **Line 1**: enter **&vs1**.
6. Then press the **Apply Text Changes** button. Now all blue symbols will have their Materials ValueSet value displayed as symbol text.

&vs1 is a substitutable text string that tells Milestones to add the values for the specified ValueSet (1-9) as symbol text. The background look of the symbol text is set for each symbol in the toolbox. Double click the symbol in the toolbox. Select the **Text/Date Properties** tab. See the **Text Background Box** selections.



7. On the **Project A** task row right click **the first yellow symbol**.
8. On the menu that displays select, **Select all Instances of this Symbol Type**. All yellow symbols will highlight with a box around them and the toolbar will change to the **Selection** tab **Current Object: Symbols (14 Selected)**.
9. At the bottom of the toolbar select the **Text** tab.
10. In the **Text** section next to **Line 1**: enter **&vs2**.
11. Then press the **Apply Text Changes** button. Now all yellow symbols will have their Labor ValueSet value displayed as symbol text.

