



Altair

HyperWorks

Altair HyperGraph 2D 2019 Tutorials

HG-1021: Modifying Plots with the Plot Browser

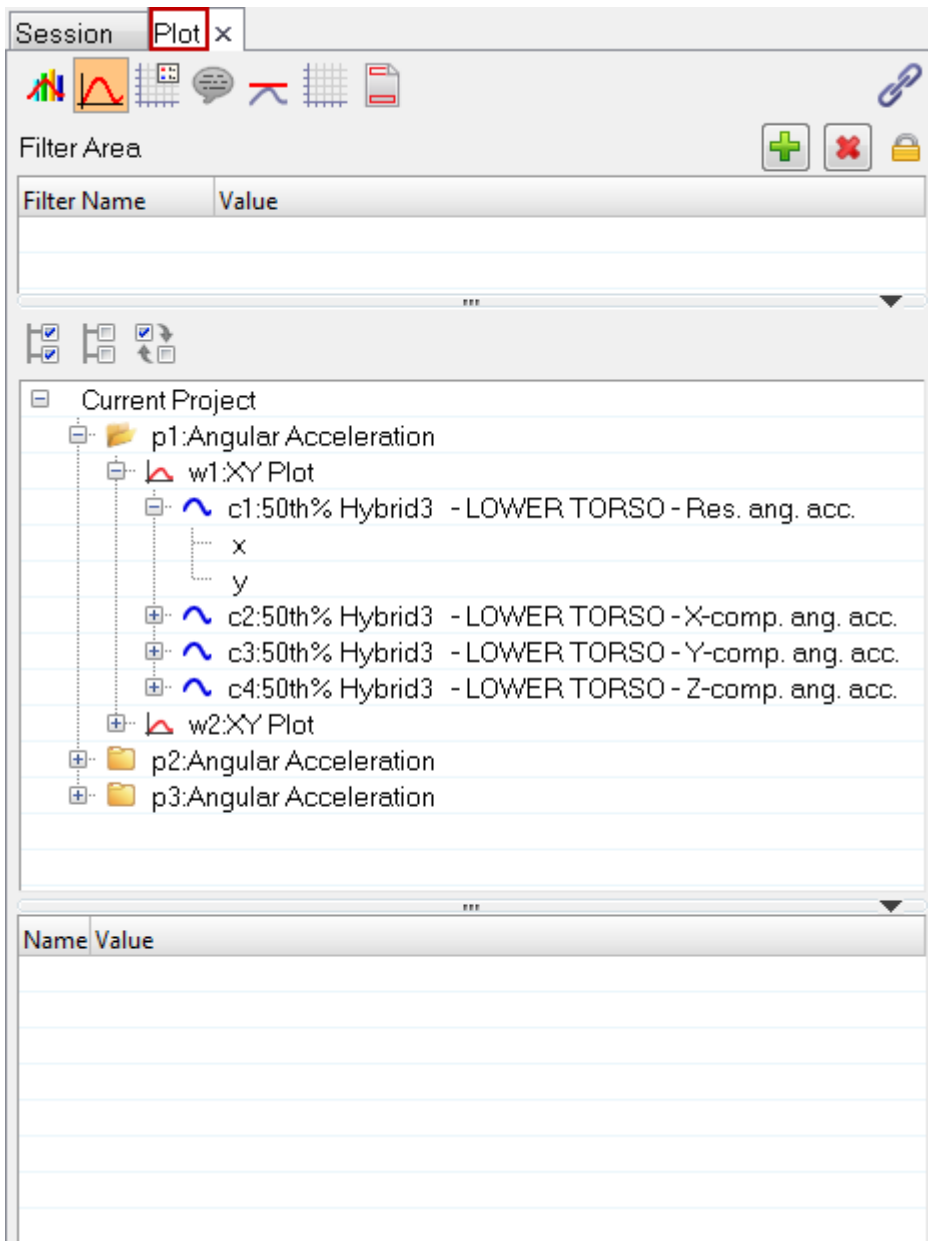
HG-1021: Modifying Plots with the Plot Browser

In this tutorial you will learn how to use the **Plot Browser** to perform the following tasks:

- Modify the following plot attributes
 - Header font size
 - Legend position and font size
 - Axis fonts
- Modify the following curve attributes
 - Curve name and prefix
 - Line style
 - Color
- Add notes attached to curves
 - Modify notes in the **Notes** panel
 - Apply these changes to all notes using the Plot Browser

Tools

The HyperGraph 2D Plot Browser resides on a tab in the **Tab Area** sidebar and allows you to view the HyperGraph 2D plot structure.



The **Plot Browser** can be turned on or off using the **View > Browsers > HyperGraph 2D > Plot** menu options. A check mark indicates that the HyperGraph 2D Plot Browser is activated for display in the Tab Area.

You can use the Plot Browser tools to search, display and edit entities and their properties within the current session.

Exercise: Modify the Plot and Curve Attributes

Step 1: Open Session File `demo_browser.mvw`.

1. From the **File** menu click **Open > Session**.
2. From the `plotting` folder, select the `demo_browser.mvw` file and click **Open**.

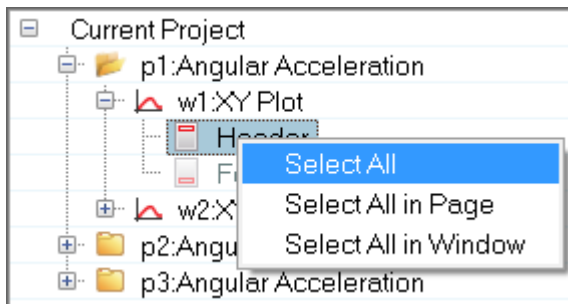
Step 2: Modify the header font size.

1. From the Plot Browser tab, click the **Headers/Footers** icon, , from the top of the browser.

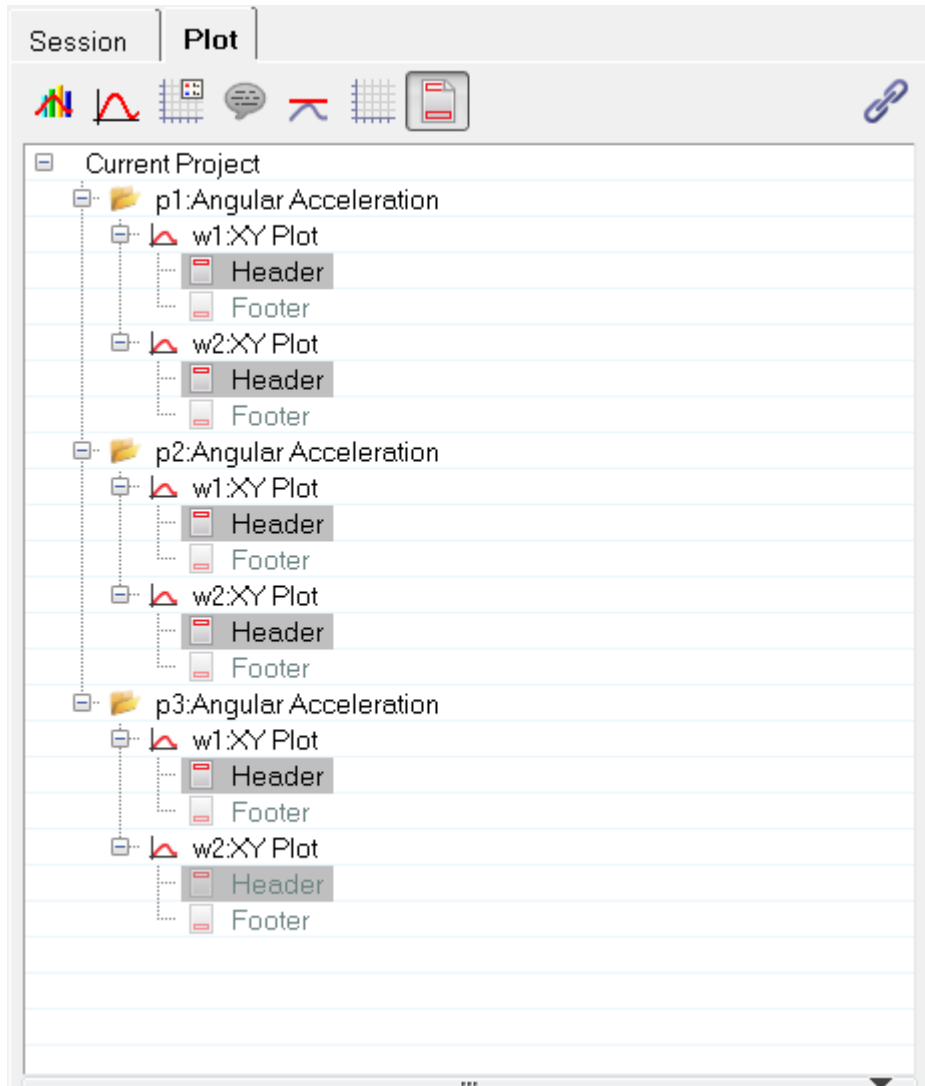


These icons allow you to filter the data that is displayed in the Plot browser. For example, by clicking the **Headers/Footers** icon, only the header and footer information for each curve in your session is displayed in the browser.

2. Expand the folders for page 1 (**p1: Angular Acceleration**), window 1 (**w1:XY Plot**) and **Header** by clicking the plus button next to each folder.
3. Right-click on **Header** and select **Select All**.



This action selects all the headers for each curve listed in the plot browser. By doing this, you can modify a header attribute only once, but it will be applied to all headers.



- From the **Properties Table** at the bottom of the Plot Browser, select the font setting field next to **Primary Font Settings**.

Name	Value
Standard	
Text	###
Visibility	<input type="checkbox"/>
Type	###
Display	
Primary Font Settings	{Arial} 10 regular normal
Secondary Font Settings	{Arial} 10 regular normal
Tertiary Font Settings	{Arial} 10 regular normal
Alignment	Center
Color	■

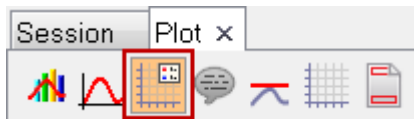
The **Font Selector** dialog is displayed.

- Change the **Font Size** to 20 and click **OK**.

The font size change is applied to all headers.

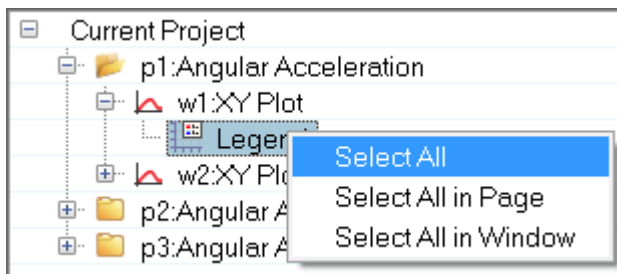
Step 3: Modify the legend font size and change the legend position.

- From the Plot Browser tab, click the **Legends** icon, , from the top of the browser.

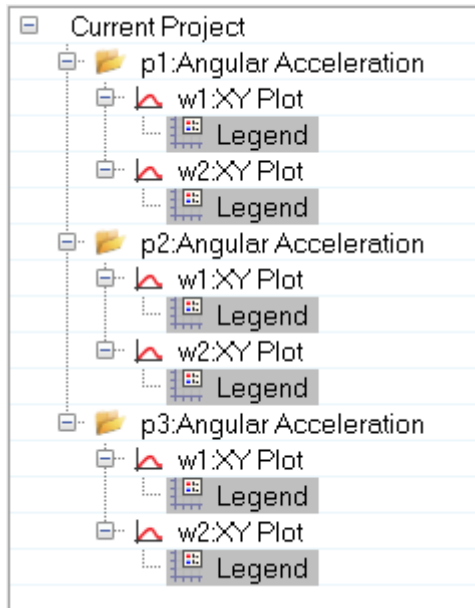


These icons allow you to filter the data that is displayed in the Plot Browser. For example, by clicking the **Legends** icon, only the legend information for each curve in your session is displayed in the browser.

- Expand the folders for page 1 (**p1: Angular Acceleration**) and window 1 (**w1:XY Plot**) by clicking the plus button next to each folder.
- Right-click on **Legends** and select **Select All**.



This action selects all legends for each curve listed in the plot browser. By doing this, you can modify a legend attribute only once, but it will be applied to all curve legends.



- From the **Properties Table** at the bottom of the Plot Browser, select the **Font Settings** field.

Name	Value
Standard	
Visibility	<input checked="" type="checkbox"/>
Legend Placement	###
Display	
Border Style	—
Border Color	■
Font Settings	{Arial} 8 regular normal
Leader Position	Left

The **Font Selector** dialog is displayed.

- Change the **Font Size** to 12 and click **OK**.
The font size change is applied to all legends.
- Next, we will change the legend placement in the graphics window.
- From the **Legend Placement** drop-down menu, select **Inside-Right-Bottom corner**.

The legend is moved to that position.

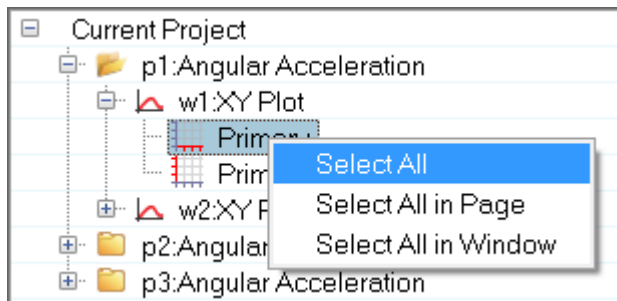
Step 4: Modify the axis font size.

1. From the Plot Browser tab, click the **Axes** icon, , from the top of the browser.

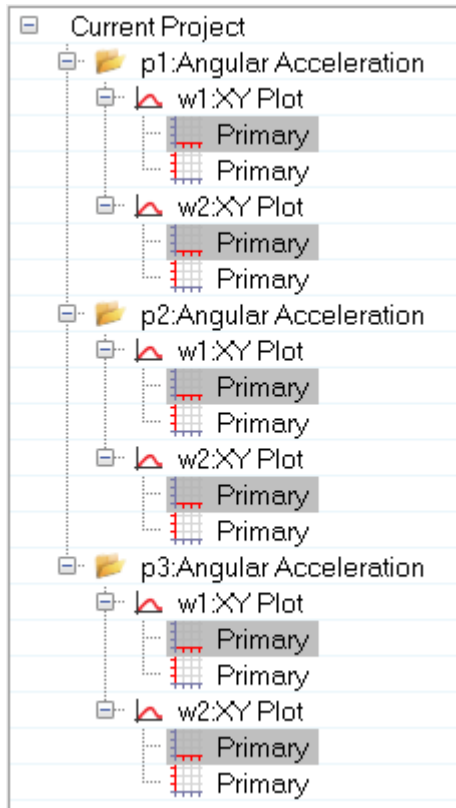


These icons allow you to filter the data that is displayed in the Plot Browser. For example, by clicking the **Axes** icon, only the axes information for each curve in your session is displayed in the browser.

2. Expand the folders for page 1 (**p1: Angular Acceleration**) and window 1 (**w1:XY Plot**) by clicking the plus button next to each folder.
3. Right-click on the icon for the horizontal primary axis and select **Select All**.



This action selects all horizontal axes for each curve listed in the plot browser. By doing this, you can modify a horizontal axis attribute only once, but it will be applied to all horizontal axes.



4. From the **Properties Table** at the bottom of the Plot Browser, select the setting next to the **Font Settings** field.

The **Font Selector** dialog is displayed.


5. Change the **Font Size** to 12 and click **OK**.

The font size change is applied to all horizontal axes.

6. Repeat steps 1-5 for the primary vertical axis.





The font size change is applied to all vertical axes.

Step 5: Modify the curve name.

1. From the filter icons at the top of the Plot Browser, select the **Curves** icon, .
2. Expand the folders for page 1 (**p1: Angular Acceleration**) and window 1 (**w1:XY Plot**) by clicking the plus button next to each folder.
3. Right-click on the curve name **c1:50th% Hybrid 3 - LOWER TORSO -Res ang** and select **Select All**.

All curve names in the Plot Browser are selected.





The curve names contain the request and component information.

 50th% Hybrid3 - LOWER TORSO - Res. ang. acc.
 50th% Hybrid3 - LOWER TORSO - X-comp. ang. acc.
 50th% Hybrid3 - LOWER TORSO - Y-comp. ang. acc.
 50th% Hybrid3 - LOWER TORSO - Z-comp. ang. acc.

Next, remove the Y Request from the curve name.





4. From the **Properties Table**, click the **Label** drop-down menu and deselect the **Y Request** option.

The curve names shown in the graphics area now only contain the Y Component name.

 Res. ang. acc.
 X-comp. ang. acc.
 Y-comp. ang. acc.
 Z-comp. ang. acc.


5. Activate **Show Label Prefix**.
6. In the **Label Prefix** field, enter `Test 17`.

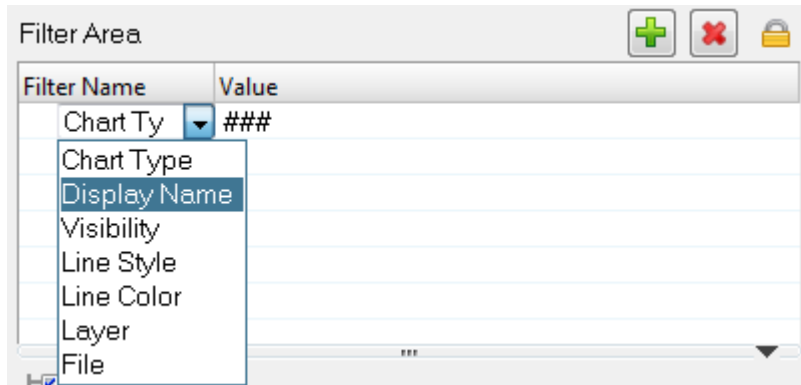
The prefix **Test 17** is added to the curve name label for all plots.

 Test 17 - Res. ang. acc.
 Test 17 - X-comp. ang. acc.
 Test 17 - Y-comp. ang. acc.
 Test 17 - Z-comp. ang. acc.

Step 6: Modify the curve line style and color.

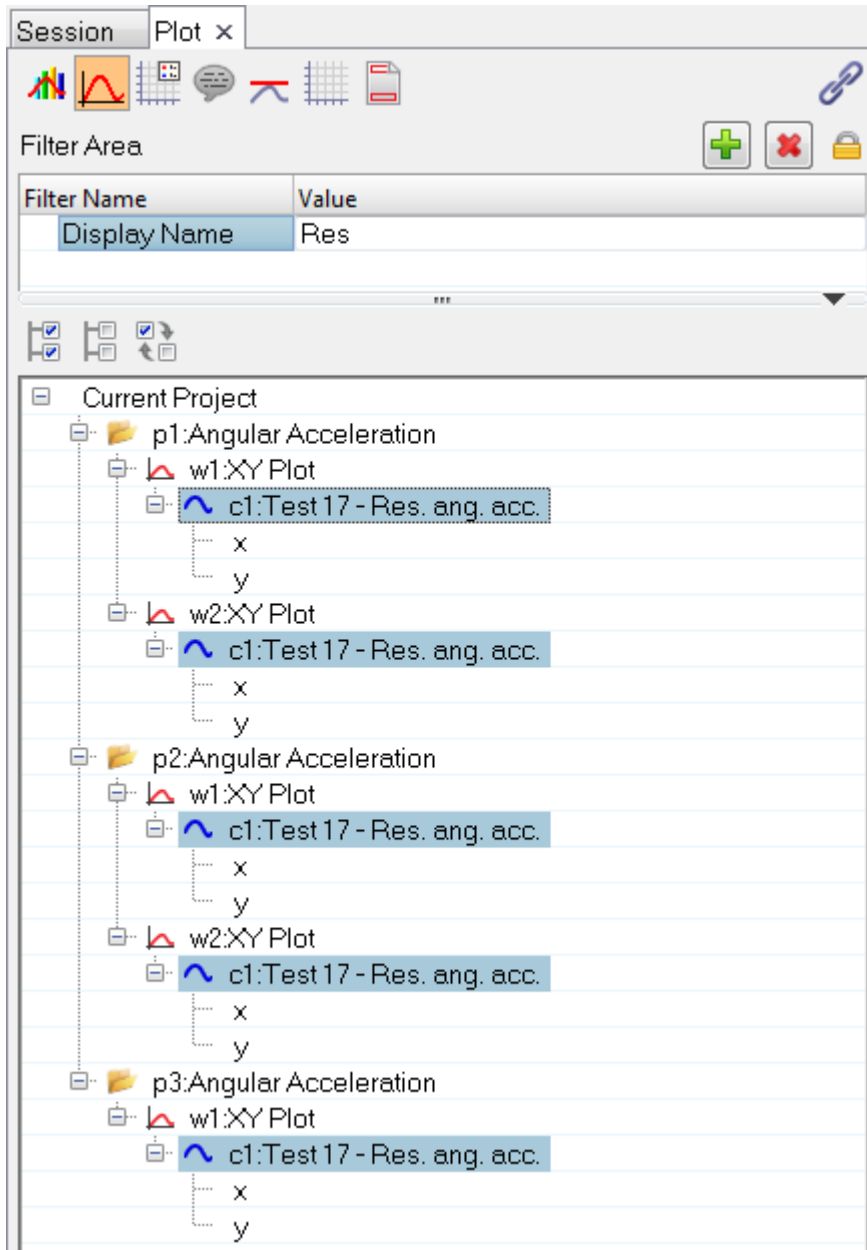
In this step, you will change the curve line style for all curves that contain the components XYZ.


1. Keep the **Curves** icon selected at the top of the Plot Browser.
2. Click the **Add Filter** icon, , to add a filter to the **Filter Area**.
3. From the **Filter Name** drop-down menu, select **Display Name**.



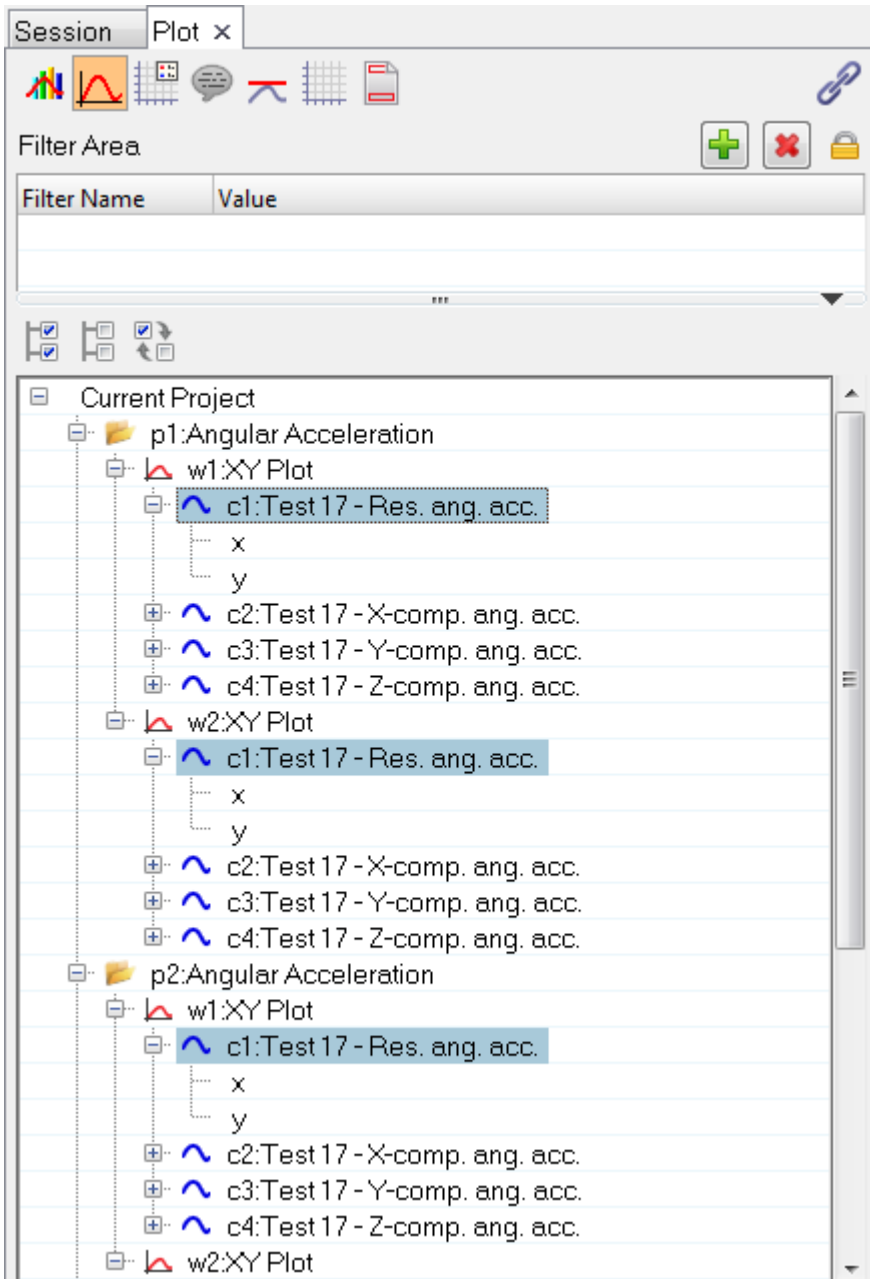
4. In the **Value** column, enter Res.


HyperGraph searches for all the curve names that contain a resultant and display only those in the Plot Browser.

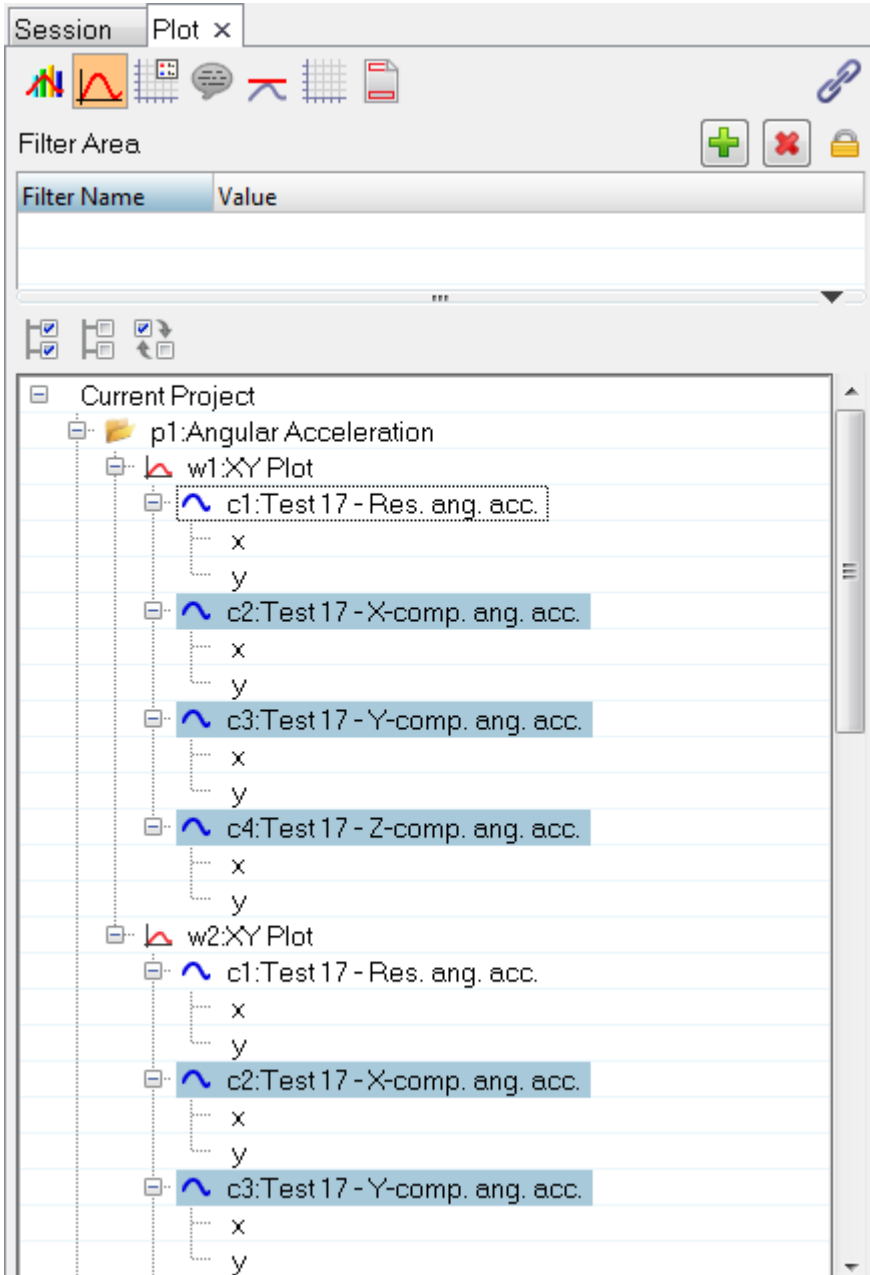


5. Right-click on the first curve listed in the Plot Browser and select **Select All**.
6. Delete the filter you just added by clicking the **Delete Filter** icon, .

The Plot Browser displays all the other curve names that contain something other than a resultant.




7. Click the **Select Reverse** icon, , to deselect the curves with resultant in the name and SELECT the curves with component in the name.

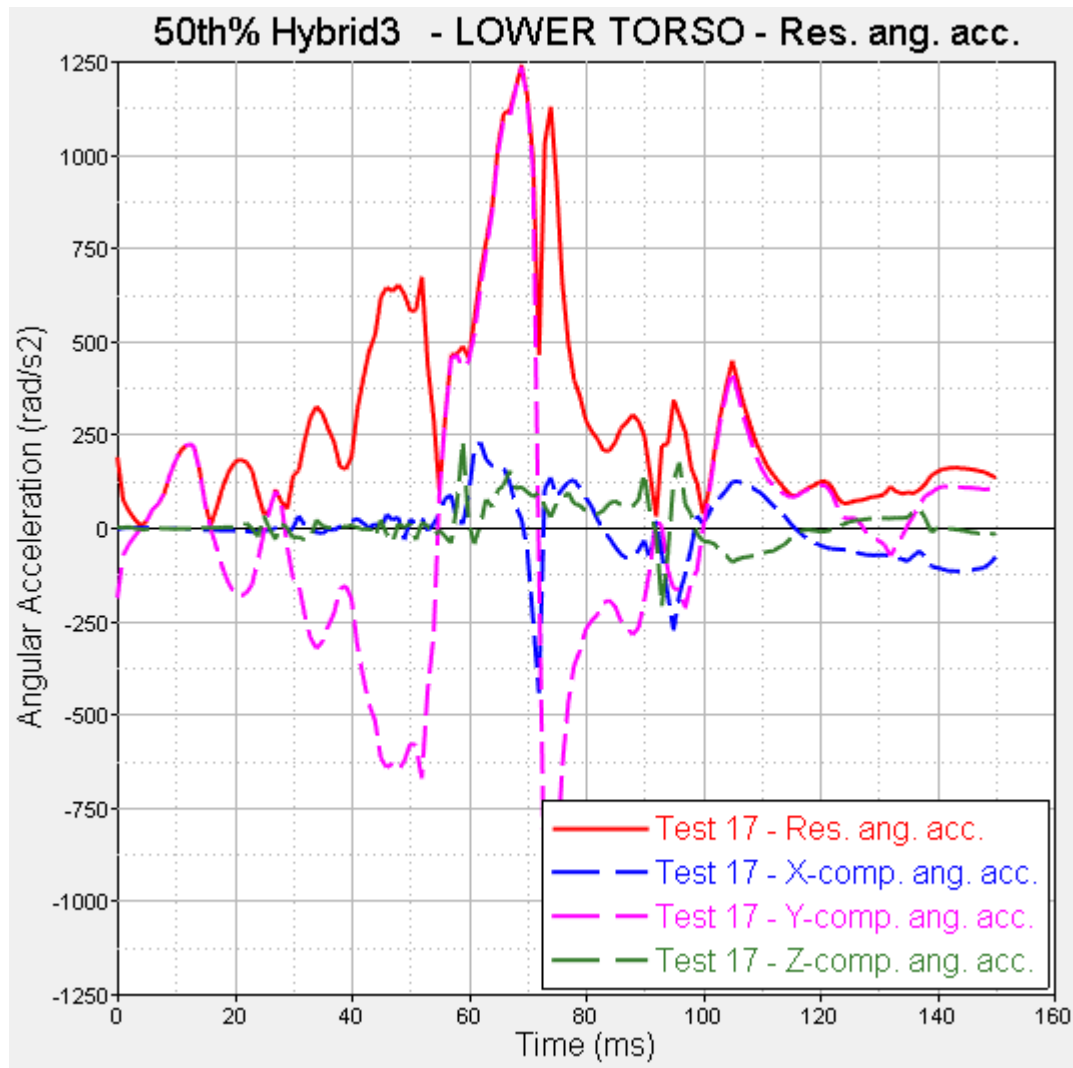



8. From the **Properties Table**, select the **Line Style** drop-down menu and select the dashed line style.

Name	Value
Label Prefix	Test 17
Show Label	<input checked="" type="checkbox"/>
Label	{y.HWComponent}
Show Label Suffix	<input type="checkbox"/>
Label Suffix	
Line Attributes	
Line Style	—
Line Color	<input checked="" type="checkbox"/>
Line Thickness	—
Shade Area	<input type="checkbox"/>
Shade Style	Zero
Symbol Attributes	
Symbol Style	None
Symbol Color	<input checked="" type="checkbox"/>
Symbol Frequency	1

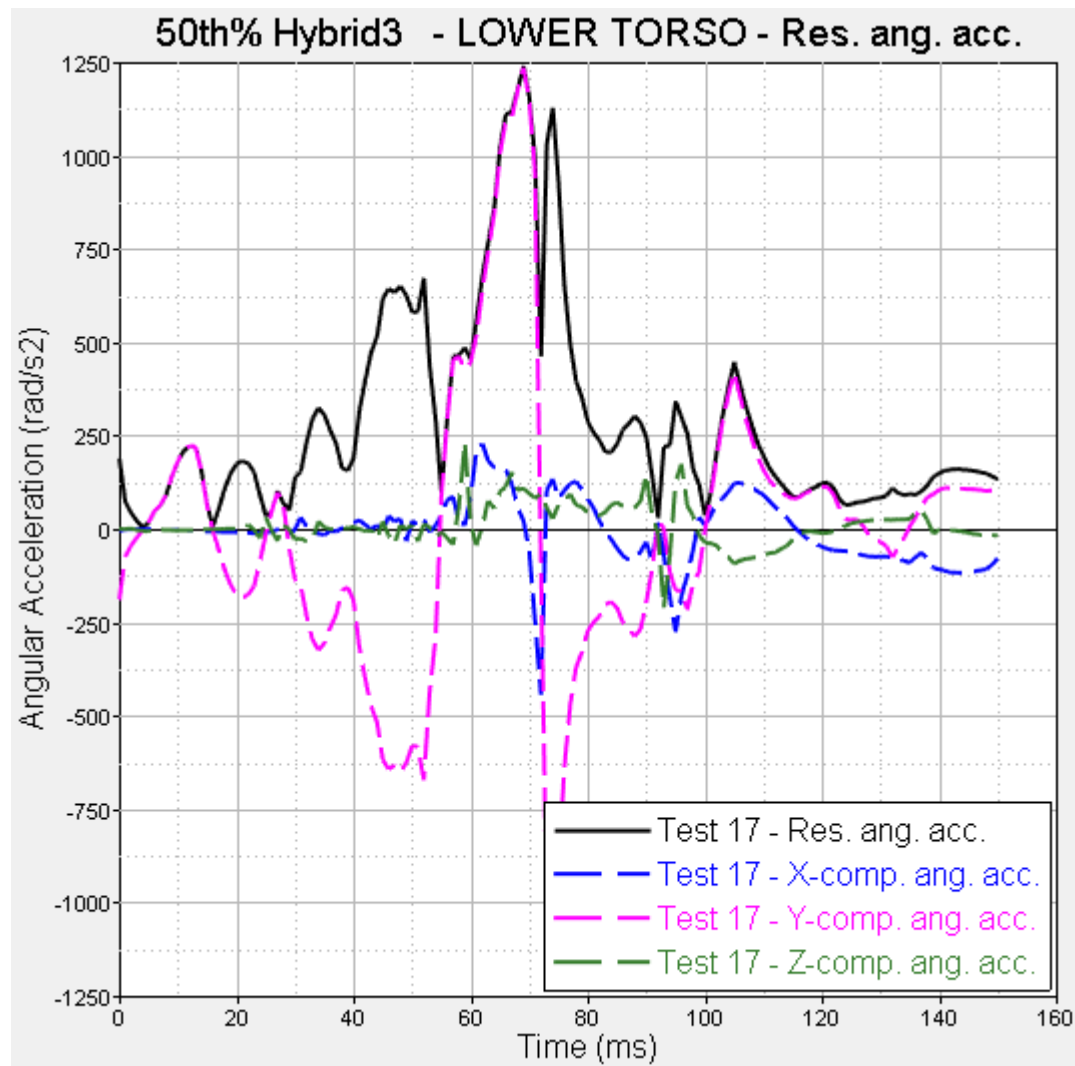


The line style is changed to a dashed line style for all curves with component in the curve name. The curve name that contains the resultant remains a solid line.



9. To change the line color of only the resultant curve, click the **Select Reverse** icon again, , to deselect the component curves from the Plot Browser and select the resultant curve.
10. From the **Properties Table**, select the **Line Color** color square and select the color black from the color palette.

Only the resultant curve changes to black.



Step 7: Add and modify notes.

1. Keep the **Curves** icon selected at the top of the Plot Browser.

2. Click the **Add Filter** icon, , to add a filter to the **Filter Area**.

3. From the **Filter Name** drop-down menu, select **Display Name**.

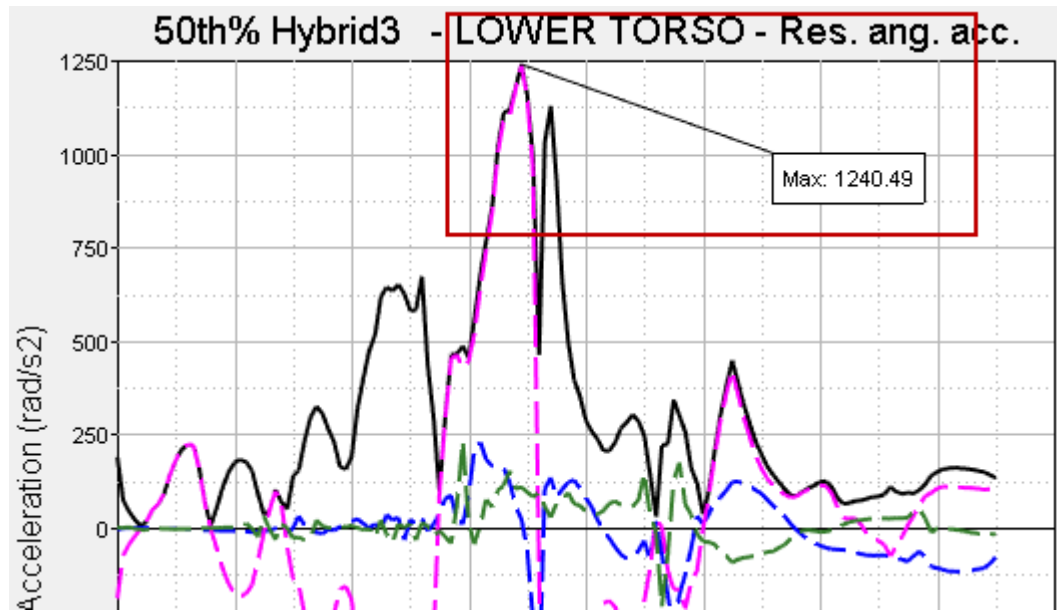
5. In the **Value** column, enter *Res.*

The Plot Browser displays only the curve names with resultant in the name.


5. Right-click on the first curve name listed in the Plot Browser and select **Select All** to select all the resultant curves in the Plot Browser.

6. Again, right-click on the first curve listed in the Plot Browser and select **Single Curve Math > Max Note**.

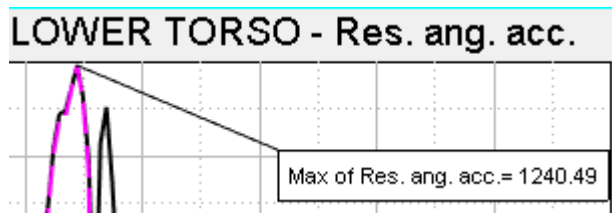
This adds a note to the maximum value of each curve in the session.



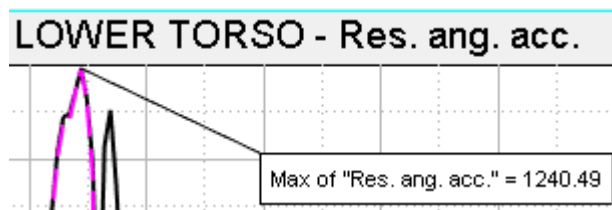
Next, you will use the **Notes** panel to modify the note.

7. From the toolbar, click the **Notes** icon, .
8. In the **Text** tab, change **Max:{Y}** to this: `Max of {label} = {Y}` and click **Apply**.

The note now displays the label information.



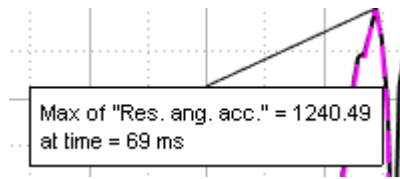
9. You can further edit the note display by added quotes around {label}, like this: `Max of "{label}" = {Y}`. Click **Apply**.



10. Edit the note one more time by adding the time to it, like this:

Text	Attributes	Attach To
<pre>Max of "{label}" = {Y} at time = {x} ms</pre>		

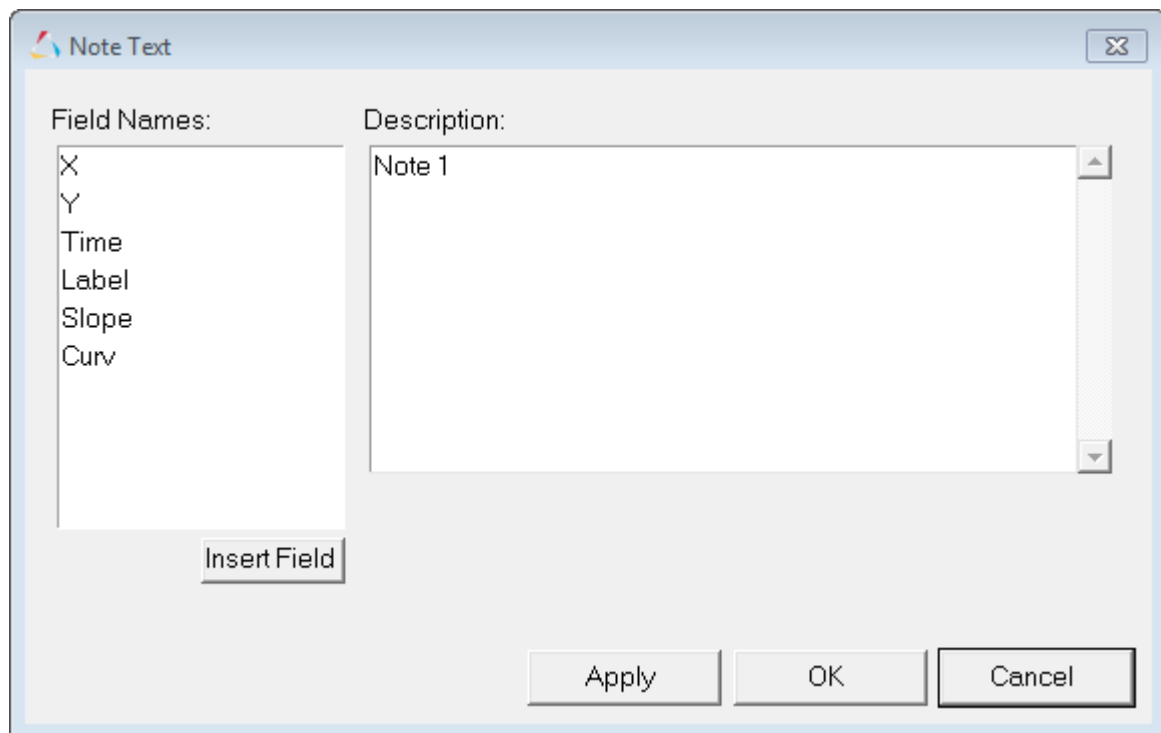
The "ms" displays the time in milliseconds.



Next, you will apply the note text to all the curves in the session using the Plot Browser.

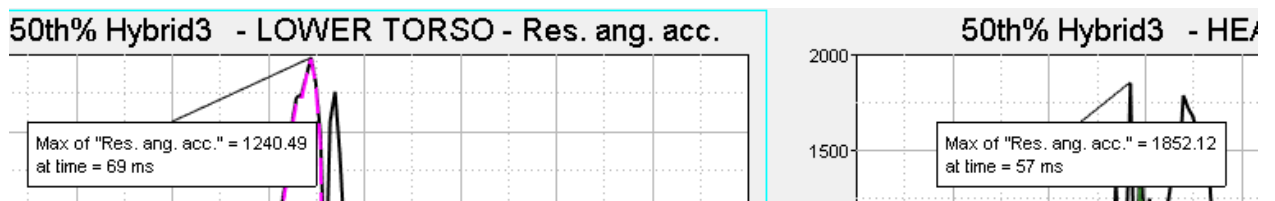
11. From the **Notes** panel, highlight the note text and press CTRL+C to copy the text.
12. Click the **Notes** icon on the Plot Browser.
13. Right-click on **Note 1** and select **Select All** to select all notes in the session.
14. From the **Properties Table**, click in the **Text** field.

The **Note Text** dialog is displayed.



16. Press CTRL+V to insert the text you copied from the **Notes** panel and click **OK**.

All max notes now have the same text string applied to them.



17. Click the **Font Settings** font icon and change the note font size to 12.

All notes in the session are displayed with the same note attributes.