



Altair

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**HyperWorks**

Altair HyperGraph 2D 2019 Tutorials

HG-5010: Customizing the Environment

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## HG-5010: Customizing the Environment

In this tutorial, you will learn how to customize the program using the preference file.

### Tools

#### The Preference File:

A preference file is a script file that is read each time the program is started. It specifies default user settings such as the order in which colors are assigned, the default printer, default page layout, the auto save interval, and so on. A standard preference file can be created in the program installation directory which is executed every time a license is activated. An additional preference file can be created in your working directory that contains personal settings that either overwrite the standard preference file or are added to the existing settings in the standard preference file.

The HyperWorks installation contains two preference files located under `$ALTAIR_HOME/hw:`

- All HyperWorks desktop products, except HyperStudy: `preferences.mvw`
- HyperStudy only: `preferences_hst.mvw`

Seven include preference files are contained in the installation. These include preference files must be included in the main preference file, as they cannot be used as independent preference files. They are located under `$ALTAIR_HOME/hw/prefinc.`

#### Organization of the Preference File

The following describes the standard structure of the preferences file, containing five principal blocks.

```
*BeginDefaults()  
*EndDefefaults()  
  
*BeginDefinitions()  
*EndDefinitions()  
  
*BeginStatsTemplates()  
*EndStatsTemplates()  
  
*BeginPlotMacros()  
*EndPlotMacros()  
  
*BeginTemplexFunctions()  
*EndTemplexFunctions()
```

The `*BeginDefaults()` block is unique to a preference file while the `*BeginDefintions()`, `*BeginStatsTemplates()`, `*BeginPlotMacros()`, and `*BeginTemplexFunctions()` blocks are the same as those found in script files.

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The following are general concepts for each of these sections:

**\*Id statement**

The syntax for the \*Id statement is: \*Id("Release") where the release gives the program name and version.

For example: \*Id("HyperGraph v8.0")

**The \*BeginDefaults - \*EndDefaults block**

The \*BeginDefaults() block is comprised of general defaults and seven subordinate statement blocks. The general defaults are declared first, and then as many sub-blocks as required. Each sub-block has the same structure as the main block. This means there is a \*Begin statement, followed by the necessary statements, and closing the block with an \*End statement.

**General defaults**

General defaults include the autosave interval, bubble help status, and default printer settings. The block is delimited by these statements:

```
*BeginDefaults()
```

```
*EndDefaults()
```

**Model defaults**

Model defaults are used to customize the model tool bar and to add MDL defaults for submitting mechanical system models to a solver. The block is delimited by these statements:

```
*BeginModelDefaults()
```

```
*EndModelDefaults()
```

**Graphic defaults**

Graphic preferences such as model orientation and the part attributes are specified in the graphics default block. The block is delimited by these statements:

```
*BeginGraphicDefaults()
```

```
*EndGraphicDefaults()
```

**Plot defaults**

Plotting preferences for curves including colors, fonts, and note defaults are specified in the plotting defaults block. The block is delimited by these statements:

```
*BeginPlotDefaults()
```

```
*EndPlotDefaults()
```

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**TextEditor defaults**

TextEditor preferences including text and background color and font settings are specified in the text editor defaults block. The block is delimited by these statements:

```
*BeginTextEditorDefaults()  
*EndTextEditorDefaults()
```

**Page header defaults**

Page headers are specified in the page header block. The block is delimited by these statements:

```
*BeginHeader()  
*EndHeader()
```

**Page footer defaults**

Page footers are specified in the page footer block. The block is delimited by these statements:

```
*BeginFooter()  
*EndFooter()
```

To help you avoid compile problems, when you begin each block, start with the \*Begin and \*End block statements, then enter the remaining statements between the block delimiters.

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## Exercise: Changing the default setting through the preference file.

### Step 1: Set the auto save default.

1. Select **TextView** window mode.
2. From the menu bar, select **File > Open > Document** and open the `autosave_bubble_help.mvw` file, located in the `preferences` folder.
3. After the `*BeginDefaults()` line, add the following preference statement

```
*SetAutoSaveInterval(2)
```

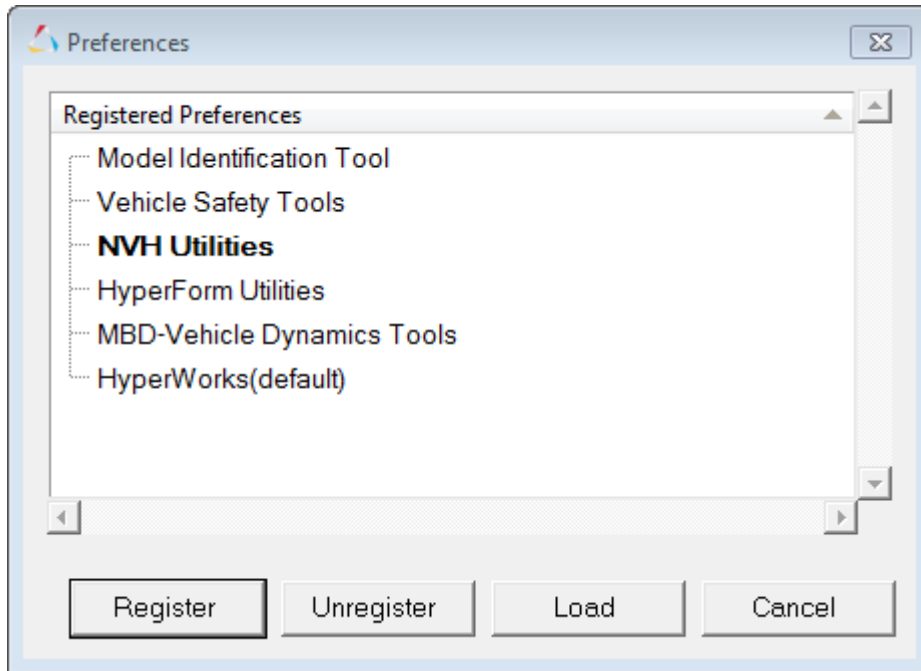
This sets the autosave interval to two minutes. If this statement does not appear in the `preferences.mvw` file, the program sets the autosave interval to 10 minutes.

4. Save the new preference file to your home directory as `new_autosave_bubble_help.mvw` by selecting **File > Save As > Document** from the menu bar.

**Step 2: Observe the updated AutoSave default.**

1. Start the program.
2. Set the preference file by selecting **File > Load > Preference File**.

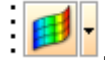
This opens a window which lists all the registered preference files.



3. Click **Register** and then browse for the file `new_autosave_bubble_help.mvw`.
4. Select `new_autosave_bubble_help.mvw` from the list of **Registered Preferences** and then click **Load** to load the preference file. Click the red **X** in the upper right corner to close the window
5. Wait for approximately two minutes and then list the contents of your working directory.

A new file `autosave.mvw` will be present and contain a back up of the current session.

### Step 3: Set the curve defaults.



1. Open **TextView** from the client selector,
2. From the menu bar, select **File > Open > Document** and open the `curve_defaults.mvw` file, located in the `preferences` folder.
3. After the `*BeginPlotDefaults()` line, add the `*ResetCurveDefaults()` statement to ignore all previous `*SetCurveDefaults()` statements.
4. After the `*ResetCurveDefaults()` line, add the following preference statements to set the curve defaults:

```
*SetCurveDefaults(1, 7, 0, 0, 0)
```

```
*SetCurveDefaults(3, 16, 1, 0, 0)
```

```
*SetCurveDefaults(5, 24, 2, 0, 0)
```

```
*SetCurveDefaults(2, 32, 3, 0, 0)
```

```
*SetCurveDefaults(4, 40, 0, 0, 0)
```

```
*SetCurveDefaults(5, 48, 1, 0, 0)
```

A plotting preference block can contain several `*SetCurveDefaults()` statements. The program assigns curve attributes sequentially.

5. Save the new preference file to your home directory as `new_curve_defaults.mvw` by selecting **File > Save As > Document** from the menu bar.

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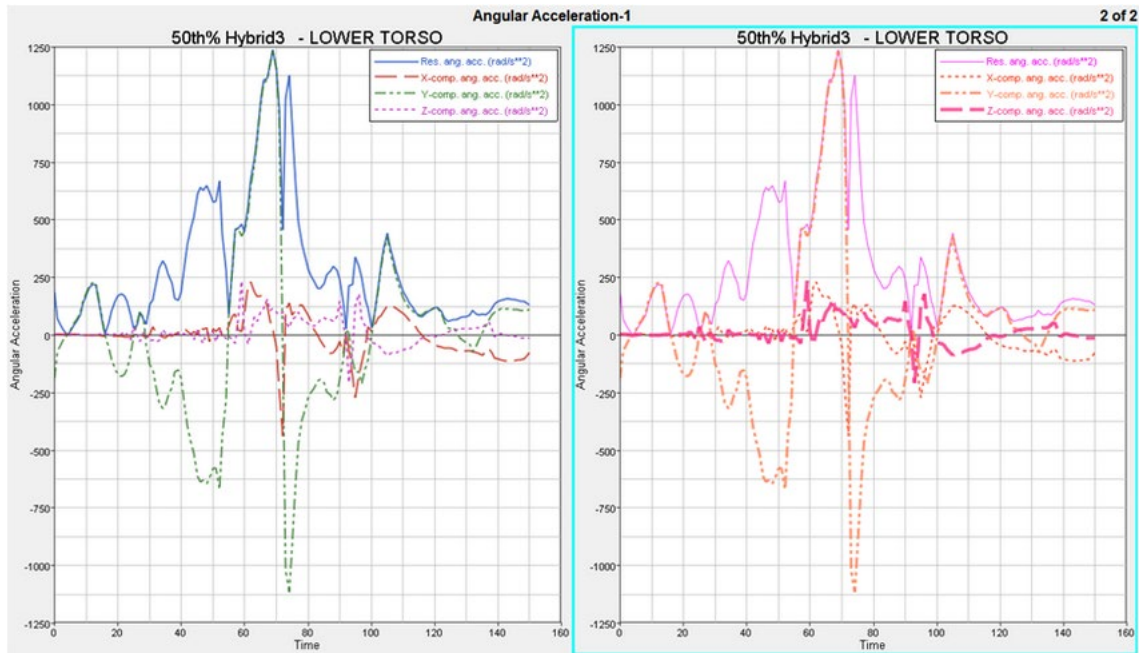
**Step 4: To observe the updated curve default settings:**

1. Click **Add Page**, , to add a new page to the current session.
2. Select **HyperGraph 2D** from the **Select Application** menu.
3. Change the **Page Window Layout** to two windows per page, .
4. Click **Build Plots** on the plotting toolbar.
5. Open a plotting file:
  - Click the file browser.
  - Select the file `ANGACC`, located in the `plotting` folder.
  - Click **Open**.
6. Select the data components and channels to plot:
  - Select **Angular Acceleration** from the **Y Type** list.
  - Select **50th% Hybrid3 – LOWER TORSO** from the **Y Component** list.
  - Select the **All** button from the **Y Channel** list.
7. Click **Apply**.
8. Set the file `new_curve_defaults.mvw` as the preference file by selecting **File > Load > Preference File**.
9. Select **Register** and then browse for the file `new_curve_defaults.mvw`.  
This automatically loads `new_curve_defaults.mvw` file as the preference file.
10. Select `new_curve_defaults.mvw` from the list and click **Load**. Then click the red **X** in the upper right corner to close the window.
11. If prompted to “Update all plots current default colors”, select **No**.
12. Click on the second plot window on this page.
13. Click **Build Plots** from the plotting toolbar.



14. Click **Apply**.

The color and line styles follow the defaults defined in the `new_curve_defaults.mvw` file instead of the program system defaults.

**Step 5: To set the default plot colors:**

1. Add a new page and select the **TextView** window mode.
2. From the menu bar, select **File > Open > Session** and open the `plot_colors.mvw` file, located in the `preferences` folder.
3. After the `*BeginPlotDefaults()` line, add the following preference statements to set the default plot colors:
 

```
*SetBackgroundColor(9)
*SetGridlineColor(6)
*SetZerolineColor(2)
*SetFrameColor(7)
*SetAxisColor(4)
*SetHeaderColor(0)
*SetFooterColor(3)
```
4. Save the new preference file as `new_plot_colors.mvw` in your working directory. You cannot save files back to the default directory.

### Step 6: To observe the updated default plot colors:

1. Click **Add Page** on the toolbar to add a new page to the current session.
2. Select **HyperGraph 2D** from the **Select Application** menu.
3. Create header and footer text.
4. **Register** and **Load** the preference file `new_plot_colors.mvw`. If prompted to "Update all plots current default colors", click **No**.
5. Add a new page, which will activate the new settings.
6. Create header and footer text.

**Note:** The colors of the various areas of the plot window reflect the defaults defined in the file `new_plot_color.mvw` rather than the program system defaults.

### Step 7: To set the default fonts for the plot area:

1. Add a new page and select the **TextView** window mode.
2. From the file browser on the toolbar, open the file `font_defaults.mvw`, located in the preferences folder.
3. After the `*BeginPlotDefaults()` line, add the following preference statements:

```
*SetAxisLabelFont("Times New Roman", 1, 0, 8)
```

```
*SetAxisTicFont("Times New Roman", 0, 1, 18)
```

The first placeholder sets the font name.

The second placeholder sets the **font weight**. 0 = normal (default), 1 = bold.

The third placeholder sets the **slant**, or **font style**. 0 = normal (default), 1 = italic.

The fourth placeholder sets the **font size**, 8, 10, 12, 14, 18, or 24 points.

**Note:** If the suggested font is not available on your system, use the name of a font available on your system.

4. After the `*SetAxisTicFont()` line, add the following preference statements to set the font defaults for the header and footer text:

```
*SetLine1HeaderFont("Verdana",0,0,8)
```

```
*SetLine2HeaderFont("Verdana",1,0,10)
```

```
*SetLine3HeaderFont("Verdana",0,1,12)
```

```
*SetLine1FooterFont("Tahoma",0,0,8)
```

```
*SetLine2FooterFont("Tahoma",0,1,10)
```

```
*SetLine3FooterFont("Tahoma",1,0,12)
```

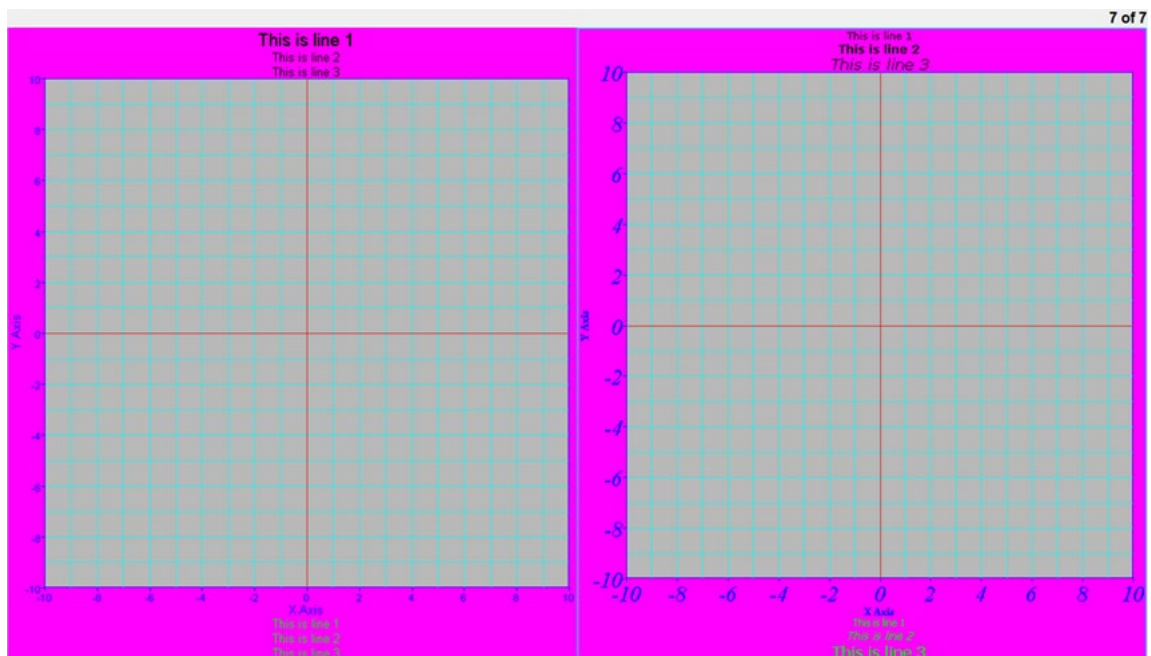
**Note:** If the suggested font is not available on your system, use the name of a font available on your system.

5. Save the new preference file as `new_font_defaults.mvw`.

**Step 8: To observe the updated default plot fonts:**

1. Click **Add Page** on the toolbar to add a new page to the current session.
2. Select **HyperGraph 2D** from the **Select Application** menu.
3. Create a three-line header and footer on the plot.
4. **Register** and **Load** the file `new_font_defaults.mvw`. If prompted to update to the current defaults, select **No**.
5. Change **Page Layout** to two windows per page.
6. Click on the second plot window on the current page.
7. Create a three line header and footer on the plot.

The fonts in the plot window reflect the defaults defined in the `new_font_defaults.mvw` file, including each line of the header and footer area, rather than the program system defaults.



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**Step 9: Set the note defaults.**

1. Add a new page and select the **TextView** window mode.
2. From the file browser on toolbar, select the file `notes_legends.mvw`, located in the preferences folder.
3. After the `*BeginPlotDefaults()` line, add the following preference statement to set the default font type, style and size for notes:

```
*SetNoteFont("Tahoma", 1, 1, 10)
```

4. After the `*SetNoteFont()` line, add the following preference statements to set the default for note attachment, text alignment, and color:

```
*SetNoteAttachment(View)
```

```
*SetNoteAlignment(Left)
```

```
*SetNoteColor(5)
```

5. Save the new preferences file as `new_notes_legends.mvw`.

**Step 10: To set the legend defaults:**

1. Select the file `new_notes_legends.mvw` from the file browser in **TextView** window mode.
2. After the `*SetNoteColor()` line, add the following preference statements to set the defaults for legend font and legend placement:

```
*SetLegendFont("Tahoma", 1, 1, 24)
```

```
*SetLegendPlacement(TopRight)
```

3. Save the new preference file as `new_notes_legends.mvw`.

**Step 11: To observe the updated default plot fonts:**

1. Click **Add Page** on the toolbar to add a new page to the current session.
2. Select **HyperGraph 2D** from the **Select Application** menu.
3. Change page layout to two windows per page.
4. Add a curve to the current plot.
5. Add a note to the current plot.
6. **Register** and **Load** the file `new_notes_legends.mvw`. If prompted to update to current defaults, select **No**.
7. Click on the second plot window on the current page.
8. Add a curve to the current plot.

9. Add a note to the current plot.

The note and legend displayed on the plot reflect the defaults defined in the `new_notes_legends.mvw` file. To view the note attachment update, translate the curves using the view control arrows located in the lower left of the program window.

## Step 12: Update note and legend defaults.

1. Add a page and select **TextView** from the **Select Application** menu.
2. From the file browser on the toolbar, open file `headers_footers.mvw`, located in the `preferences` folder.
3. After the `*BeginDefaults()` line, add the following preference statements to define the `*BeginHeader()` block:

```
*BeginHeader()  
*EndHeader()
```

4. After the `*BeginHeader()` line, add the following preference statements to define portion of the available header area:

```
*BeginRegion(400, 0, 600, 300)  
*EndRegion()
```

5. Region descriptions use a coordinate system. The arguments in the region statement represent: the minimum X coordinate, the minimum Y coordinate, the maximum X coordinate and the maximum Y coordinate.

If the region you were describing was the entire header area your `*BeginRegion` statement would be: `*BeginRegion(0,0,1000,1000)`.

6. After the `*BeginRegion()` line, add the following preference statements to set the text font, alignment and border for the region (update the path below to reflect where your installation is located):

```
*Font("Times",0,1,12)  
*Alignment(Center)  
*BorderWidth(1,1,1,1)
```

7. After the `*BorderWidth()` line, add the following preference statement to define the text in the header region:

```
*Text("Project Title")
```

8. Save the new preference file as `new_headers_footers.mvw`.

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### Step 13: Add a page footer.

1. Your file should be `new_headers_footers.mvw`. If not, open the file `new_headers_footers.mvw` from **TextView** window mode.
2. After the `*EndHeader()` line, add the following preference statements to define the `*BeginFooter()` block:
3. After the `*BeginFooter()` line, add the following preference statements to define and set up one region in the footer:

```
*BeginFooter()  
*EndFooter()  
  
*BeginRegion(700, 0, 1000, 1000)  
*Font("Times",0,1,12)  
*Alignment(Center)  
*BorderWidth(1,1,1,1)  
*EndRegion()
```

The footer region's coordinate system is similar to the header region: minimum X coordinate is 0 at the left and maximum X coordinate is 1000 at the right. The minimum Y coordinate is 0 at the base of the footer and its maximum coordinate is 1000.

4. After the `*BorderWidth()` line, add the following preference statement to place text in the region:
5. After the `*EndRegion()` line, add the following preference statements to define and set up a second region within the page footer:

```
*Text("Your Name")  
*Text("{time()} on {date()}")  
*Text("Page: {pagenum}/{numpages}")  
  
*BeginRegion(700, 0, 1000, 1000)  
*BorderWidth(1,1,1,1)  
*EndRegion()
```

6. After the `*BorderWidth()` line, add the following preference statement to put an image in the region:

```
*Image("<install_directory>/tutorials/mv_hv_hg/preferences/Altair_logo.gif")
```

Images, such as company logos, can be added to any region within the header or footer of a plot. The image type must be either GIF (format 87), JPG or BMP. Images are fitted vertically and centered horizontally.

7. Save the new preference file as `new_headers_footers.mvw`.

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**Step 14: To observe the new page header and footer:**

1. **Register** and **Load** the preference file `new_headers_footers.mvw`.
2. If a printer is installed, you can select **Print** and then click **OK**. These headers and footers will be seen when the session or page is printed.

**Step 15: To set the text editor defaults:**

1. Add a page and select **TextView** from the **Select Application** menu.
2. From file browser on the toolbar, select the file `text_editor.mvw`, located in the preferences folder.
3. After the `*BeginTextEditorDefaults()` line, add the following preference statement to set the default font type, style, and size for the text editor:  

```
*Font("Times", 0, 1, 12)
```
4. After the `*Font()` line, add the following preference statement to set the default text color for the text editor window:  

```
*TextColor(6)
```
5. After the `*TextColor()` line, add the following preference statement to set the default background color for the text editor window:  

```
*BackgroundColor(23)
```
6. Save the new preference file as `new_text_editor.mvw`.

**Step 16: To observe the updated default plot fonts:**

1. **Register** and **Load** the file `new_text_editor.mvw`.
2. Click the **Add Page** icon on the toolbar to add a new page to the current session.  
The updated default for the background color is displayed
3. Click in the text window and enter text to view changes to text defaults.