Altair

HyperWorks

Altair HyperGraph 2D 2019 Tutorials

HG-4000: Creating an Export Template

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In this tutorial, you will learn about:

- Export template language
- How to register the template
- How to export plot data to a file

Tools

Export Template: is a file that contains instructions for exporting curve data into files. The instructions contained in an Export Template file are in an uncompiled type of programming language called Export. An Export Template tells the program in which format the data should be written into the file.

Templex and Export Template Language Statements

The language of Export Templates follows a mixture of Templex commands plus some additional special statements. For the export of curves only a few statements are needed:

Templex Commands

`indexofmin(i)`	Index of the minimum of a vector (not the minimum itself)
`numpts(x)`	Dimension of the vector X
`table()`	Export of vectors organized in columns
`for – endloop`	Loop
`if – else – endif`	Logics

Special Export Commands

`cr()`	New line
`curvex(i)`	X vector of curve i
`curvey(i)`	Y vector of curve i
`curvelabel(i)`	Export of the legend of curve i
`list`	Export of vectors in rows
`margins(0,30)`	Length of a line
`numcurves()`	Number of curves in a window
`;`	End of a command (except loops and logics)

Registering an export template:

The format selection list in the **Export Curves…** panel contains, by default, ten formats. Via the preferences file, registered templates are added to this list. Registration is done using the preferences file or via the **Tools** menu.

1. Go to `<installation directory>\hw\prefinc`.

2. Open `preference_plot.mvw` and add the following command that registers an export template with a session.

```
*BeginDefaults()

    *BeginPlotDefaults()

        *AddExportFormat(par1,/homes/.../_madymo_export.tpl,par2)

    *EndPlotDefaults()

*EndDefaults()
```

Above is a small sample of a `preference_plot.mvw` file that registers a new template (`madymo_export.tpl`) with a session.

- This file allows the user to customize sessions by specifying defaults or defining external files that should be able to interact with the user's session.

Note: The content of the parameter par1 is the name that shows up in the selection list. The parameter `par2` specifies the extension of the files that is used for exporting the data: export.par2.

Exercise: Export Template Example for MADYMO

Step 1: Create a Template that makes a file format for a function in MADYMO

1. Add the commands below to a text file named `madymo_export.tpl`.

   The statement on the right is an explanation of the command.

Command	Explanation
`{`	
`Row_1="!vehicle acceleration";`	Set variable for the comment in line1
`nc = numcurves();`	Set number of curves
`lc = nc - 1`	
`for (i = 0; i < nc; i++)`	Loop for the number of curves
`x = curvex(i);`	Set the x-vector of curve i
`y = curvey(i);`	Set the y-vector of curve i
`t = numpts(x);`	Set the number of points
`if (!numpts(x))`	If curve is switched off don't export
`else`	
`Row_1; cr();`	Output for Line 1, label
`t, %5i; cr();`	Output for Line 2, number of points
`table(x, y, "%10.6f %11.6f", 0, t - 1);`	Output Line 3 to t-1 with the table command
`endif`	
`if (i != lc)`	After every exported curve set an empty line
`cr();`	
`endif`	
`endloop`	
`}`	

Step 2: Register the Export Template.

1. From **Tools** menu, select ***Readers, Writers, and Functions…***.

2. Go to ***Export Templates*** tab.

3. Browse the template created for Madymo.

4. Give the Template a name.

5. Click **Register...** and **OK**.
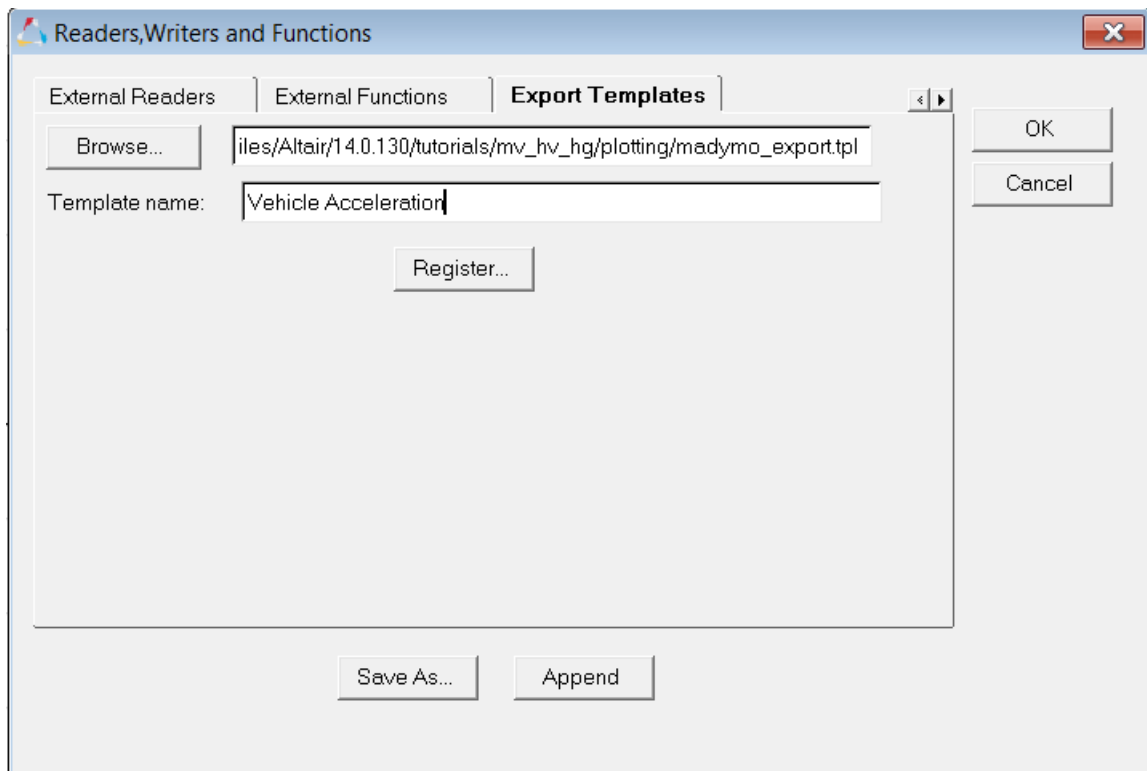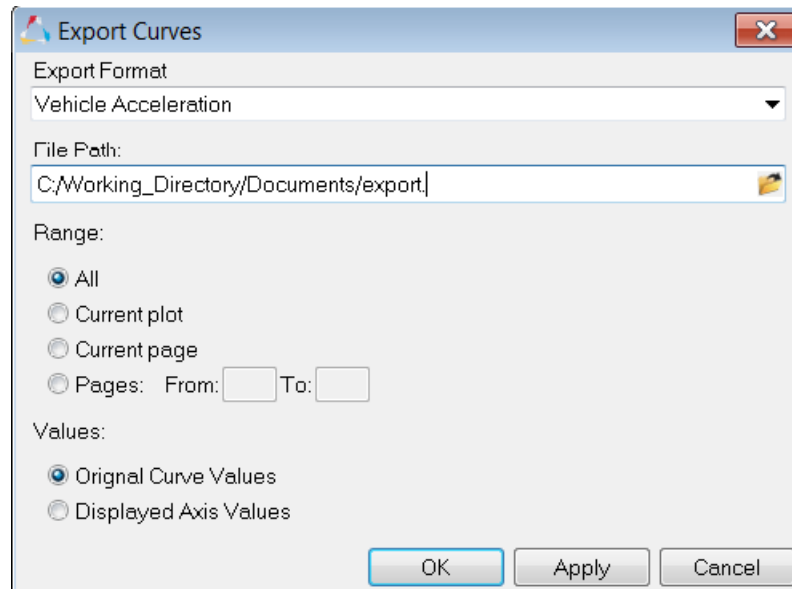
Step 3: Export plot data:

1. From the **File** menu, select *Export > Curves*.

2. Enter a file name for the destination file.

   -Or -

   Select an existing file using the file browser.

3. For **Format**, select the file you just registered.

4. Specify a range of pages.

5. Click *Apply*.

   Plot data from the specified pages are exported to the file.

RESULT:

The below data file is created after exporting curves in this Madymo format:

```
!vehicle acceleration
  151
  0.000000    13.591910
  1.000000    12.144580
  2.000000    10.850770
  3.000000    10.180930
  4.000000     9.921851
  5.000000     9.995111
  6.000000    10.342690
  7.000000    11.209030
...
...
147.000000  132.563400
148.000000  130.487300
149.000000  129.073800
150.000000  127.332800
```