

TRUE

TEMPORAL REASONING UNIVERSAL ELABORATION

True System dynamics software

MANUAL Part 07

Charts

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I - CHARTS

A) Period for a chart

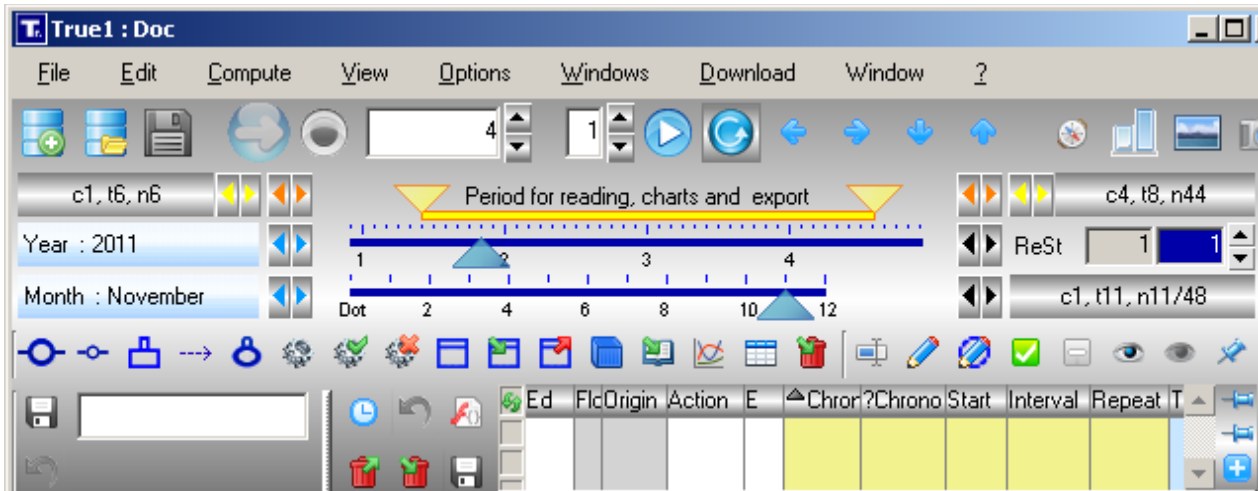
Charts usually display the values of stocks and flows for a given period, which is calculated while computing.

The period is selected with the sliders cycle and time of the model, before creating a chart.

1. Initializing the period

- ❑ Consult the chapter 'Read a model' from the 'Manual Part 02 - Model'
- ❑ Note : use the yellow sliders to initialize the beginning and ending of the period

The yellow sliders define the beginning and ending of a period



B) Creating a chart

1. Creating a chart with the left toolbar

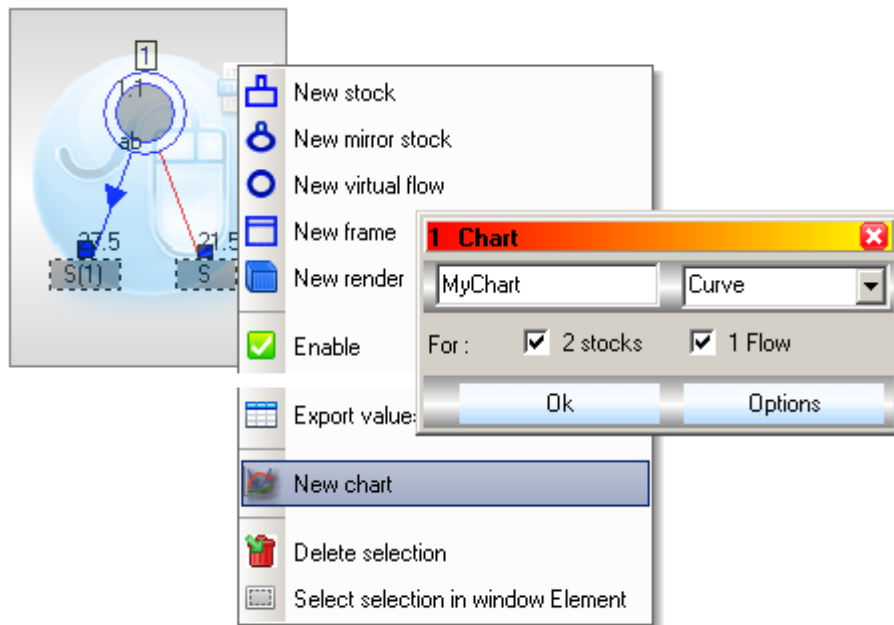
- ❑ Click on the 'New chart' button from the toolbar
- ❑ Click on the one which is selected
or :
- ❑ Select one or more elements (lasso method) and click on the rectangle of selection

Left toolbar and the 'New chart' button



2. Creating a chart with the popup menu

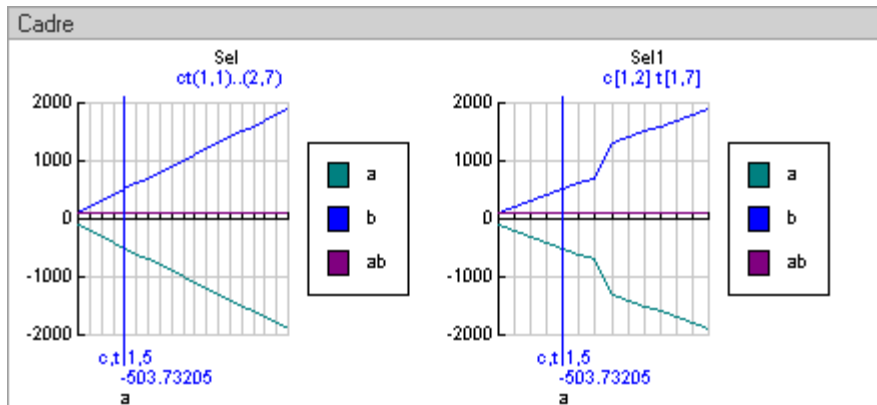
- ❑ Select one or more elements in the model
- ❑ Select the 'New chart' option from the popup menu of the rectangle of selection
- ❑ In the 'Chart' window
 - Enter the name, select the type of the chart and check the types of the elements for the chart
- ❑ Click on the 'OK' button or 'Options' button to initialize more parameters



- Note : the boxes for selecting the type of elements are displayed if elements with this types are selected in the model

3. Title of a chart

Two charts, two types of period



The title contains the name and the period of the chart :

- ❖ chart : Sel ct (1,1)..(2,7)
 - name : 'Sel'
 - period : from the unit of time 1 of the cycle 1 to the unit of time 7 of the cycle 2
 - ❖ chart : Sel1 c[1,2] t [1,7]
 - name : 'Sel1'
 - period : from the unit of time 1 to the unit of time 7 of the cycles 1 to 2
- Note : the list of the charts is displayed in the 'Elements' window

4. Cursor of a chart

The position of a chart on the x-axis is a function of the current cycle and time, which are displayed below it.

The current value of an element is displayed under the cursor :

- ❖ c,t 1,5 : cycle=1, time=5
- ❖ value of the element 'a' = -503.73205

5. Captions in a chart

- The captions are displayed on the right side of a chart
- They display the name of the element, followed by 'P' letter and the number of passage when it is above 1
- ❖ example of caption : 'StockP2'
'Stock' element for the second passage
- If the passage of the element is higher than the last passage of the model, the name of the element will be in parentheses
- ❖ example of caption : '(StockP2)'
'Stock' element for the second passage, but the model has been compiled for only one passage

C) Moving, resizing a chart

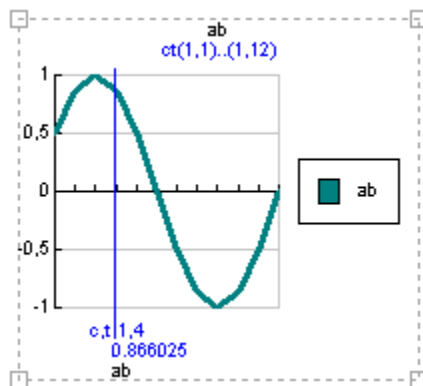
1. Moving a chart

- ❑ Click on the chart
- ❑ Drag-and-drop it with the mouse or use the 'Move, setup elements' window
- ❑ Consult the 'Move elements' chapter from the 'Manual Part 03 -Elements'

2. Resizing a chart

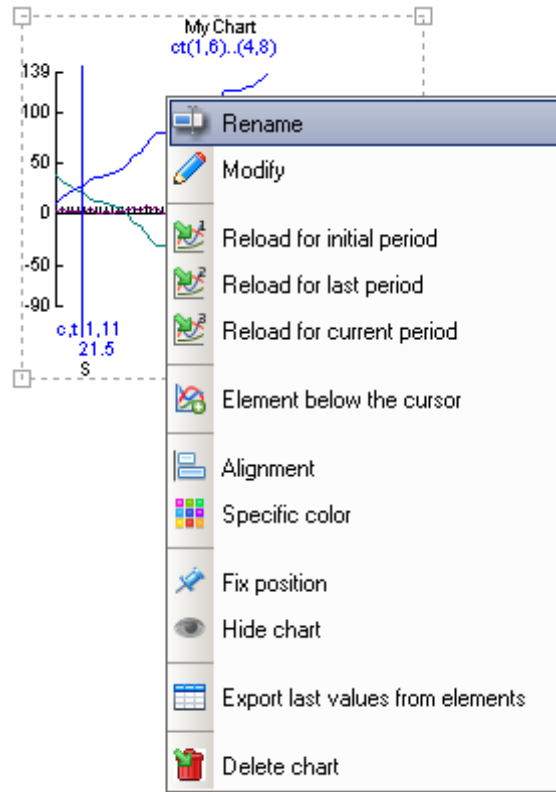
- ❑ Select the chart
- ❑ Drag-and-drop the handles or use the 'Move, setup elements' window
- ❑ Consult the 'Move elements' chapter from the 'Manual Part 03 -Elements'

Resizing a chart with its handles



D) Popup menu

Popup menu



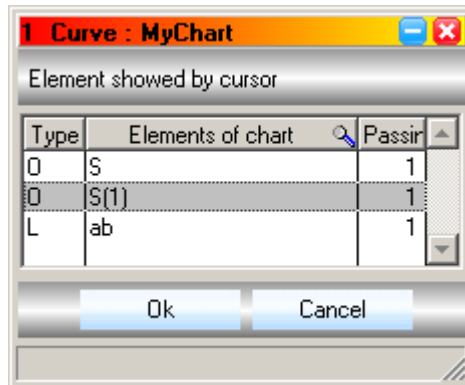
1. Options for the popup menu

- ❑ 'Rename' (or press the 'F2' key, or click on the 'Rename' button from the toolbar, then click on the chart)
Opens the window to rename the chart
- ❑ 'Modify' (or press the 'F3' key, or click on the 'Edit' button from the toolbar, then click on the chart)
Opens the window to modify the chart, consult the 'Modify a chart' chapter
- ❑ 'Reload for initial period'
Reloads the chart for the defined period when creating the chart
- ❑ 'Reload for last period'
Reloads the chart for the last period before the last modifying
- ❑ 'Reload for current period'
Before selecting this option, modifies the display period

2. The displayed element below the cursor

- ❑ Select the displayed element below the cursor in this window :

Window for selecting the displayed element below the cursor



3. Alignment

- ❑ Select at least two charts to align
- ❑ Select this option from the context menu of the chart of reference (or use the popup menu from the 'Elements' window)
- ❑ Select the parameter you want to align (X, Y, Height,...) in the 'Charts alignment' window
- ❑ Save

Charts alignment window (the title displays the name of the chart of reference)

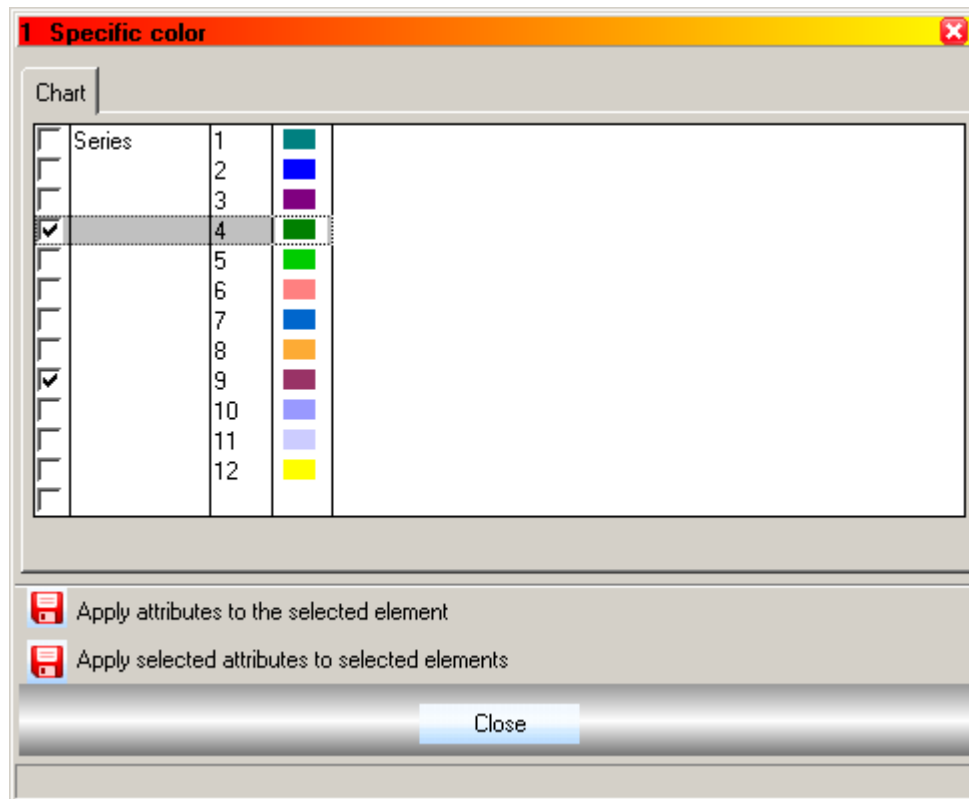


4. Specific color

Open the 'Specific color' window :

- Select one or more chart
- Select the 'Specific color' option from the context menu of one of the selected charts, or
- Click on the 'Color' button from the toolbar, then click on the selected charts

'Specific color' window



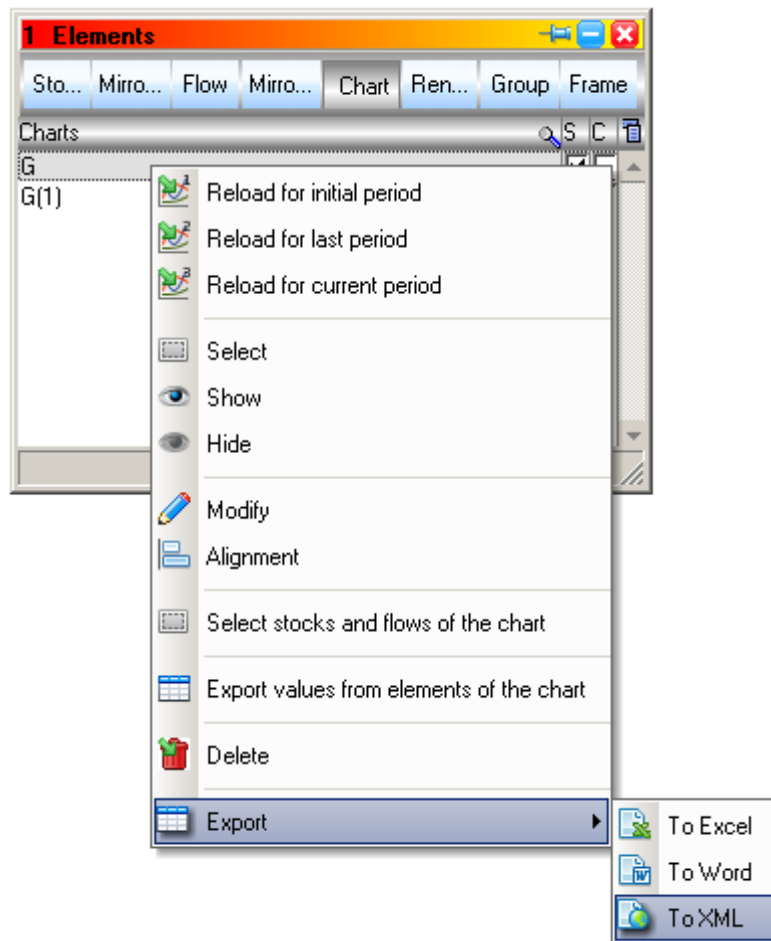
- Select a serie : a serie corresponds to the curve of an element
- Click on a color to initialize it
- Tick the boxes to apply the color to the other selected charts
- Save with the 'Apply...' buttons

E) Popup menu in the 'Elements' window

Open the 'Elements' window (or press 'E' key) and display the context menu of the chart

- ❑ Select the 'Elements' option of the 'Windows' menu
- ❑ Click on the 'Chart' button to display the plan of the charts
- ❑ Select one or more charts from the table
- ❑ Right-click on one of the selected charts to open the context menu

Context menu of the charts



1. Options

- ❑ 'Select stocks and flows of the chart'
- selects the elements of the chart in the model

2. Columns of the table of charts

- ❑ 'S' : shows or hides the chart
- ❑ 'C' : enables or disables the specific color

F) Modifying a chart

Open the window to modify a chart :

- ❑ Select a chart
- ❑ Press the 'F3' key F3 or
- ❑ Double-click on the chart or

- ❑ Select one or more charts
- ❑ Select the 'Modify' option from the popup menu of one of the selected charts or

- ❑ Select one or more charts in the 'Elements' window
- ❑ Select the 'Modify' option from the popup menu of the table of charts or

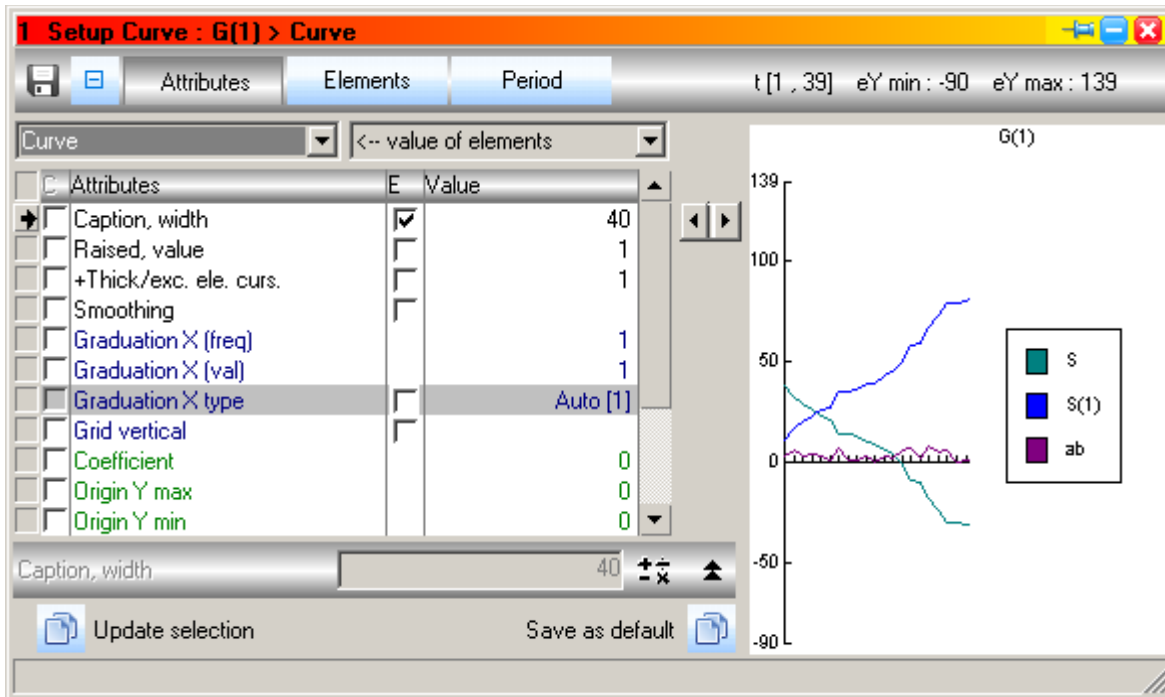
- ❑ Click on the 'Edit' button in the right side of the toolbar, then click on the chart

'Edit' button in the right side of the toolbar



1. 'Attributes' plan

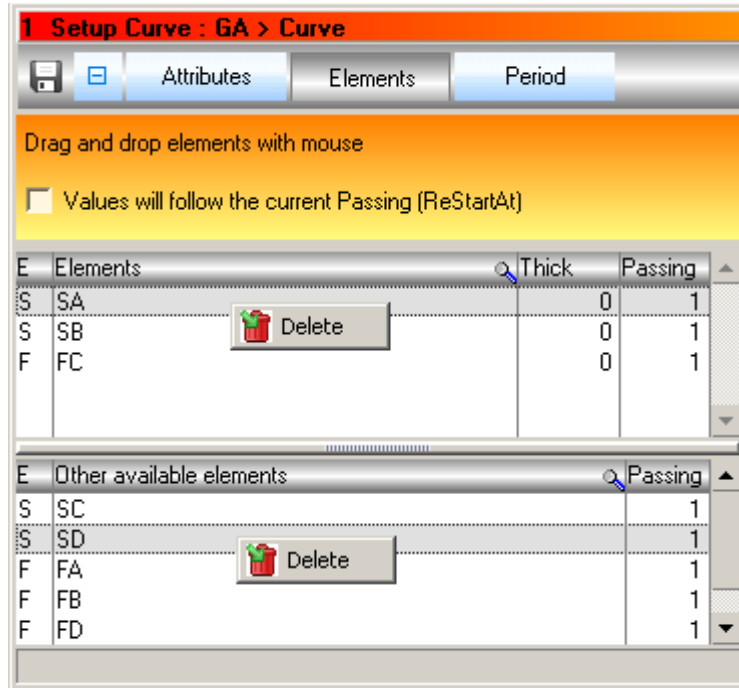
'Modification' window, 'Attributes' plan



- Select the type of chart from the left combo
- Select the type of values to be displayed in the chart from the right combo :
 - values of the elements or values from a set of test
- Tick the boxes from the 'E' column
- Initialize the values of the attributes in the 'Value' column :
 - according to the attributes, use the spins to set the value or enter the value in the field
- Save changes with the 'Save' button in the upper left
- Tick the boxes from 'C' column for the parameters to be applied to the other selected charts
- Click on the 'Update selection' button to apply the selected attributes to the other selected charts :
 - if other charts are selected
- Click on the 'Save as default' button to set this parameters as the default parameters for new charts

2. 'Elements' plan

'Elements' plan



'Value will follow the current Passing (ReStartAt)' interrupt

If this interrupt is checked, the values of the elements in the chart will change to match the current selected Passing.

Passings are generated by the function **ReStartAt()**, see man05-Actions.

The current Passing can be selected in the window 'ReStartAt()' or with the spin on right of the main window.

If in the chart there are many elements with more than one Passing, the chart will not change when selecting a new current Passing.

'Elements' table

This table contains the list of the elements displayed in the chart

Columns :

- ❑ 'E' : type of the element: 'S' - stock, 'F' - flow
- ❑ 'Elements' : name of the elements
- ❑ 'Thick' : thickness of the element curve

- ❑ 'Passing' : number of the displayed passing for the element

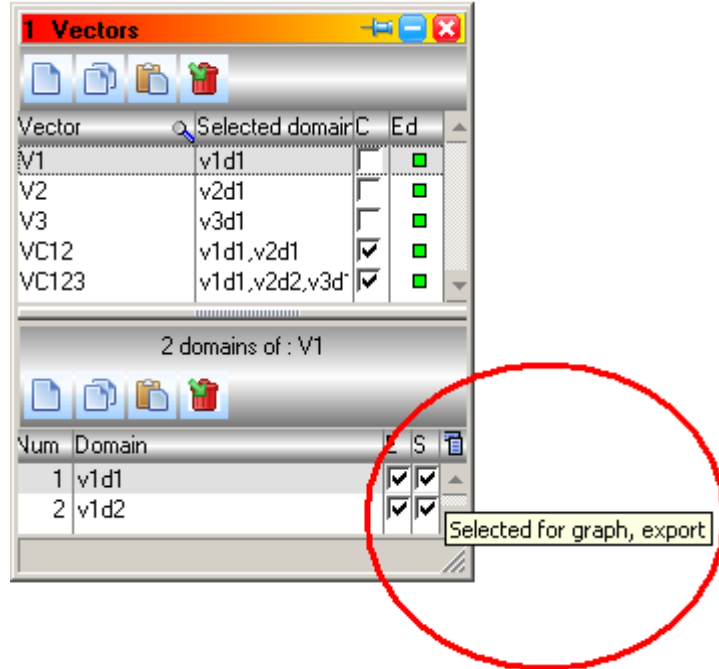
The selected element in this table will be displayed under the cursor of the chart, the thickness of the curve is initialized in the 'Attributes' plan, unless the thickness in this table is different from zero.

- ❑ Drag-and-drop the elements up or down, to order them
- ❑ Drag-and-drop the elements in the 'Other available elements' table if you do not want to display them in the chart

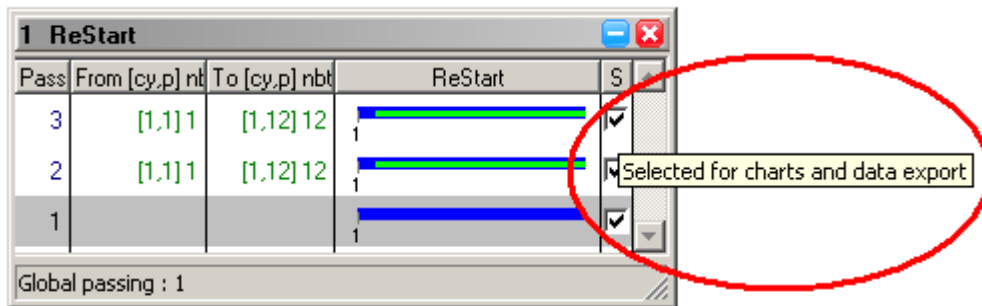
'Other available elements' table

This table contains either elements related to the elements displayed in the chart

- When they are vectorized and if the corresponding boxes are checked in the window **Vectors**



- When there are several passages generated by the function **ReStartAt()** and if the corresponding boxes are checked in the window **ReStart**



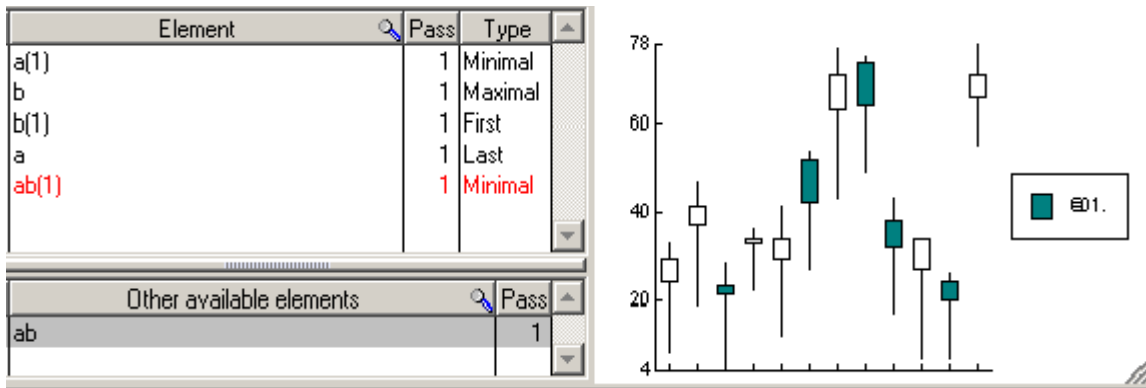
Columns of the table:

- 'E' : type of elements : 'S' - stock, 'F' - flow
- 'Other available elements' : name of the elements
- 'Pass' : number of displayed passing for the element
- Drag-and-drop the elements in the table above to display them in the chart

Adding other elements in the chart

- ❑ Select one or more elements from the model or from the 'Elements' window
- ❑ Drag-and-drop these elements in the 'Element' table

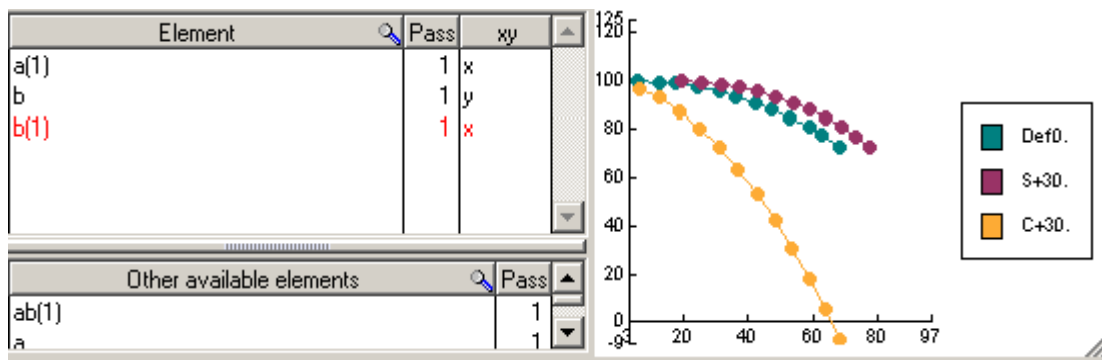
'Elements' plan for a 'CandleStick, Barcharts, Minmax' chart



'Elements' table :

- ❑ 'Type' column : indicates the type of the element value :
 - Minimal, Maximal, First, Last
- ❑ Element in red :
 - means the serie is not complete, the element will not be displayed in the chart

'Elements' plan for a 'Scatter' chart

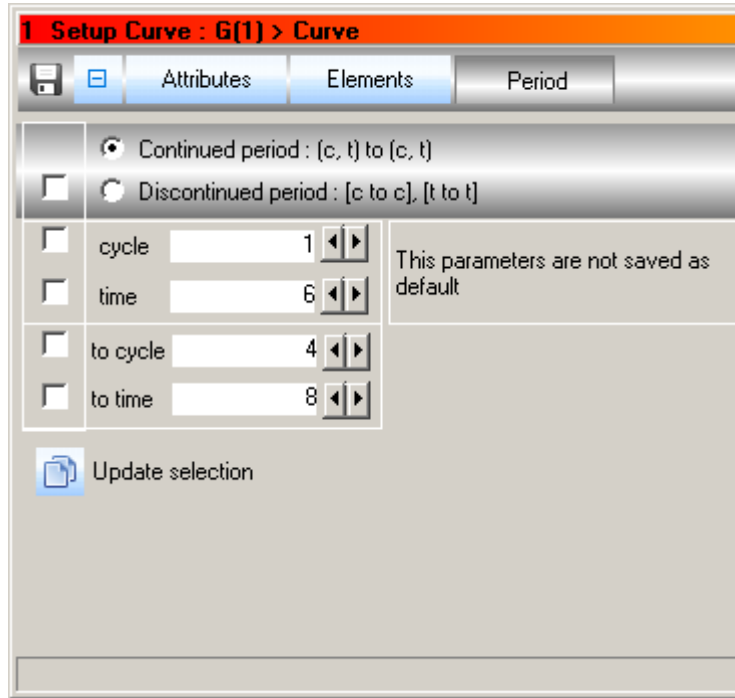


'Element' table :

- ❑ 'Type' column : indicates the type of element value : x or y
- ❑ Element in red :
 - means the serie is not complete, the element will not be displayed in the chart

3. 'Period' plan

'Period' plan



Selecting the type of period :

- consult the chapter 'Read a model', 'Period for reading' from the 'Manual Part 02 -Model'.

- Continued period
- Discontinued period
- Initialize the cycles and the time unit for the selected period
- Note : set the start time to zero to display in the chart the initial values of the stocks
- Note : set the start time to 1 to have cycles with the same width, because the time unit 0 doesn't exist for cycles >1, therefore setting the grid will be easier

If other charts are selected in the model :

- Tick the boxes to select the parameters which have to be applied to the other selected charts
- Click on the 'Update selection' button to apply the selected parameters to other selected charts

'Period' plan for a 'Pie' chart

1 Setup Curve : G(1) > Pie

Attributes Elements **Period** t [1 , 39] eY min : -90 eY max : 38

Continued period : (c, t) to (c, t)
 Discontinued period : [c to c], [t to t]

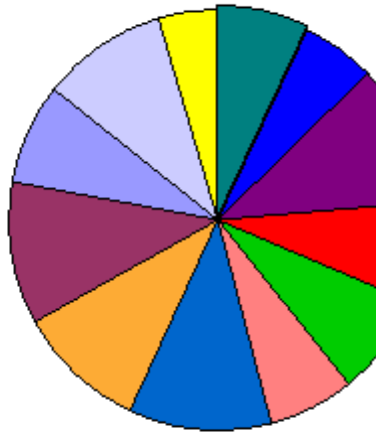
cycle
 time

to cycle
 to time

Update selection

This parameters are not saved as default

!
Pie chart shows elements average for the period.
Only positive values are displayed



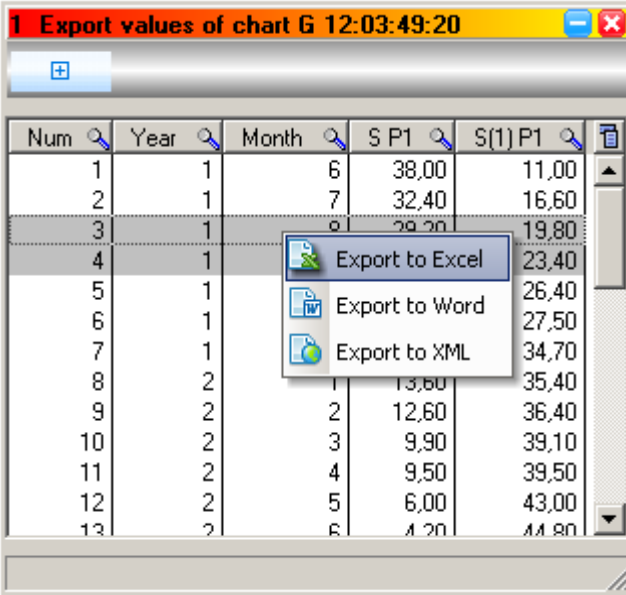
G) Exporting the values of the elements from the charts

Consult the 'Export data' chapter from the 'Manual Part 02 -Model'.

1. Reminding

- Select the 'Export last values from the elements' option from the context menu of a chart in the model or in the 'Elements' window
- or
- Click on the 'Export' button in the left side of the toolbar and select one or more charts

Export values of chart' window



The screenshot shows a window titled "Export values of chart G 12:03:49:20". Inside the window is a table with the following data:

Num	Year	Month	S P1	S(1) P1
1	1	6	38,00	11,00
2	1	7	32,40	16,60
3	1	8	29,20	19,80
4	1	9	23,40	23,40
5	1	10	26,40	26,40
6	1	11	27,50	27,50
7	1	12	34,70	34,70
8	2	1	35,40	35,40
9	2	2	12,60	36,40
10	2	3	9,90	39,10
11	2	4	9,50	39,50
12	2	5	6,00	43,00
13	2	6	4,20	44,80

A context menu is open over row 4, showing the following options:

- Export to Excel
- Export to Word
- Export to XML