

## Overview

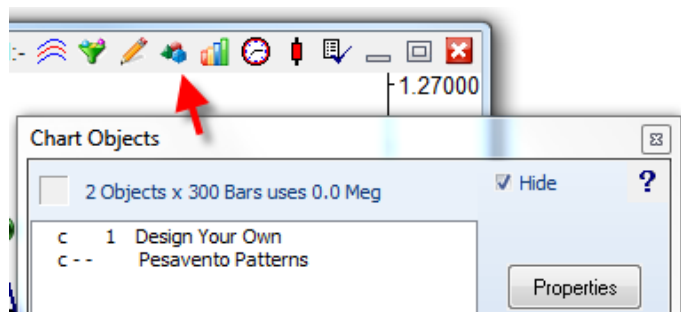
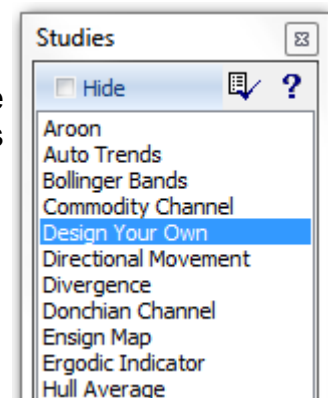
The Design Your Own (DYO) study feature can be used to implement Boolean logic and mathematical equations. The feature can be used to create and plot custom indicators, or show special visual effects. The variety and complexity of the things being created by customers with the DYO feature are truly amazing.

## Add DYO to a Chart

With a chart showing, click the Study button and select Design Your Own on the drop down list. This adds a DYO study to the chart's collection of studies, alerts and draw tools.

## DYO Property Form

Click the Chart Objects button to show the Chart Objects list. Double click on the Design Your Own entry on the list. The DYO property form will be displayed so properties can be set.

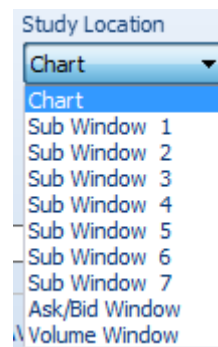


## Study Name

Change the Study Name field to give your DYO a custom name. This name will show on the Chart Objects list and be used as the label in a sub-window.

## Study Location

This selects the panel where the Markers and Labels will be displayed.



Design Your Own Study

This field can be used for a general comment.

Study Name: Net Price Marker  
 Study Location: Chart  
 Marker Location: Last  
 Label Location: Margin 3  
 Grid Tab: None

Study Scale: Chart Scale  
 Variables File: -PriceMarker  
 Message Location: None

Message Text:   
 Font:  True  False  Panel

Sound:  Silent  Beep  Voice  WAV  Sound once per bar  
 WAV File or Voice Text:  Browse

Trading System: Price: Close Quantity: 1 Commission: 0

Category	Variable	Selection #1 & #3	Op. [#]	Selection #2 & #4	Offset	Show	Marker	Color
Action	0	= if ## then marker size Offse		6.7	2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Black
A	Action	if ( True ) then marker size 2 in column 6.7	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	Black
B	Expression	[0] := Close > Open	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	Green
C	Expression	[0] := Close = Open	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	Yellow
D	Expression	[0] := Close < Open	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input type="checkbox"/>	Red
E	Action	if ( True ) then marker size 2 in column 3.1	<input checked="" type="checkbox"/>	<		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Black
F	Action	if ( True ) then marker size 2 in column 10.5	<input checked="" type="checkbox"/>	>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	Black
G			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
H			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
I			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
J			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
K			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	
L			<input type="checkbox"/>			<input type="checkbox"/>	<input type="checkbox"/>	

Default 1 2 3 4 5 6 7 8 9 10 11 12 13 14 Tab 2 Copy to Tab

## Marker Location

Each DYO row can have its own Marker, Color, Marker Location, and Label. The Marker Location selection would be Study Value to plot a curve at its calculated values.

The other positions can be used to place markers on the chart or sub-window at a particular position, such as in rows along the Top or Bottom of the panel, Above or Below the High and Low of a bar, or at vertical locations on the scale. The selections of Last, High, Low, Open, and Midpoint will use that price position on a bar.

## Label Location

The Label Location controls the horizontal position of the Label text that can be shown in the right side margin of the chart. Column 0 begins at the center of the last bar on the chart, and each column is 8 pixels to the right.

Marker Location

Last

- Study Value
- Top Row 1
- Top Row 2
- Top Row 3
- Top Row 4
- Top Row 5
- Bottom Row 1
- Bottom Row 2
- Bottom Row 3
- Bottom Row 4
- Bottom Row 5
- Last
- High
- Low
- Open
- MidPoint
- Above High 1

## Grid Tab

A DYO that is placed in a sub-window can establish the grid lines shown in the sub-window. The selection is the tab from the Grid object.

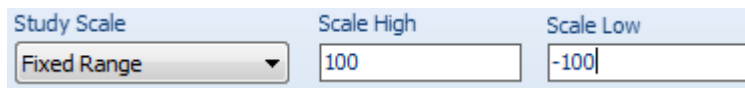
## Study Scale

Use the Study Scale selection to pick the scale that is appropriate for the data to be plotted. Chart prices plotted on the chart would typically use Chart Scale. An example would be the plotting of a moving average study.

Data plotted in an existing sub-window would typically use the sub-window's scale.

The Data Set selection will determine the scale from the data by looking for the highest high and the lowest low value in the data set. This is a common selection for plotting studies from user created formulas.

The Fixed Range selection will show additional boxes to enter a custom scale.



The image shows a control panel for 'Study Scale'. It consists of three main components: a dropdown menu labeled 'Study Scale' with 'Fixed Range' selected, a text input field labeled 'Scale High' containing the value '100', and another text input field labeled 'Scale Low' containing the value '-100'.

Data 0 Centerline will balance the scale so zero plots at the center of the panel.

Data 50 Centerline will balance the scale so 50 plots at the center of the panel. This is the selection used in the Stochastic example because this study moves on both sides of 50 in a range with zero as the minimum value and 100 as the maximum value.

0 to Max Data will use zero as the scale low and determine scale high from the data set. This would be a good selection for plotting histogram bars for volume values.

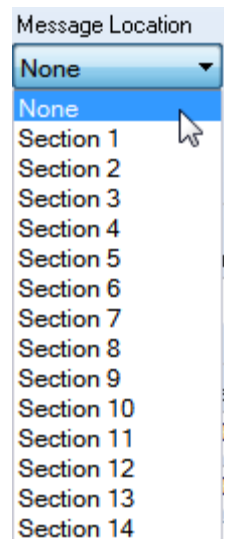
The last four selections are similar to those described. The scale range is increased to create a 5 percent margin at both the top and bottom of the range.

## Message Location

Ensign has two sub-windows at the bottom of the chart that are divided into 14 Sections. Sections 1 through 7 show on a row. Sections 8 through 14 show on a second row below the first row. This area can be used to show messages, study and chart values.

The DYO can display a message in one of the 14 Sections. Select None to disable the Message feature.

See the documentation for Section Font Size for examples of posting information to a Section using the DYO row labels.



The image shows a dropdown menu titled 'Message Location'. The menu is open, showing a list of options: 'None' (selected), 'Section 1', 'Section 2', 'Section 3', 'Section 4', 'Section 5', 'Section 6', 'Section 7', 'Section 8', 'Section 9', 'Section 10', 'Section 11', 'Section 12', 'Section 13', and 'Section 14'. A mouse cursor is pointing at the 'Section 1' option.

## Row Logic

The Row Logic selection identifies which DYO row controls the Section background color. When the Row Logic is True, the section background will use the True color. When the Row Logic is False, the background will be colored the False color. The message text will show in the Font color.

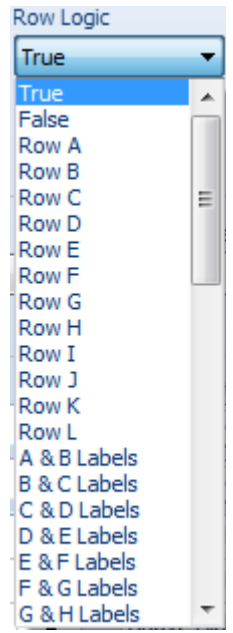
Row A through Row L can be a Boolean result that will control the Section color and the message is from the Message Text edit box.

Selections 'A & B Labels' through 'K & L Labels' will use the Boolean logic of the two rows as a pair. Which ever row of the pair was most recently True is the row whose label will be displayed in the Section as the message text. The Section background color will be the row's Show color.

'A Label True' through 'L Label True' will show the label from these rows only when the row evaluates to a true. When the row is a False, nothing is done.

'A or B or Blank' through 'K or L or Blank' will show the row's label when either row evaluates to True and use the row's Show color. When both rows are False, the Section is Blank and colored using the False color.

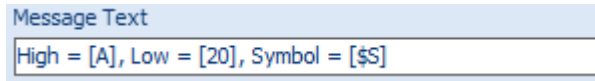
'A or B or C' through 'J or K or L' will show the row's label when one of the rows evaluates to True and use the row's Show color.



## Message Text

The Message Text can be shown in a Section at the bottom of a chart. Text to be shown on multiple lines is separated by a comma character.

The text can contain a message to show when the Row Logic is True and a message to show when the Row Logic is False. Separate the two messages with a vertical line character.



The example illustrates a 3 line message with insertions at the [...] reference tags. [A] through [K] will insert the DYO's row value. The example shows the value from row A by using [A].

[0] through [999] will insert a Variable value. The example shows the value in Variable twenty by using [20].

Boolean flags will show 'True' or 'False' by adding a \* suffix. Example: [20\*]

**Reference Tags** - Chart and Bar values can be referenced and inserted in the Message Text, a Label, and used in an expression field to return a value. The Message Text example used [\$S] to print the chart's Symbol in the Section display.

A short list of tags is shown in this table. [Appendix – Reference Tags](#) has the full list.

[\$S]	Chart symbol
[\$C], [\$H], [\$L], [\$O]	Bar Close, High, Low, Open
[\$V], [\$T]	Bar Volume, Tick Count
[\$N], [\$R]	Bar Net, Range
[\$A], [\$B]	Ask Volume, Bid Volume

### Formatting -

Character	Description	Example
\$	Add a \$ suffix to format the value as a price using the chart's scale.	[A\$]
.	Add a period suffix to format the value as an integer.	[\$V.]
.#	Add a period suffix and the number of decimals to show.	[A.2]
`	The ` will add a degree symbol. ` shares the ~ key and follows the [ ].	[A`]