HiBeam Screen Builder

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HiBeam-Screen Builder

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Table of Contents

HiBeam **Screen Builder**

The **HiBeam** Screen Builder is the environment where you create screens, i.e., graphical user interfaces consisting of pages with Java applets, from which you can monitor or run control processes either from a local computer or a remote location, i.e., via a network or the Internet. You link these screens with control projects created in the Workbench. An application operated by the applet can consist of several screens linked together using hot link buttons.

You build screens using graphic objects arranged together in a document and linked to Workbench variables. You can attach animation effects to these objects. Two types of graphic objects in a document: static objects and animated objects. You can group objects to form a single object then attach animations to the group. For example, you can animate a car, made up of a group of objects, to move and its wheel objects to rotate. You can also reuse objects by sending them to the library.

You view screens using a Java technology-enabled browser, i.e., Internet Explorer, Netscape Navigator.

You need to install one or more data servers to relay data between screens and running resources. These data servers are installed separately. You port data servers for use on various operating systems using the **HiBeam** Development Toolkit.

A web server provides access to the HTML pages making up your ScreenBuilder projects. You can use any standard web server. You can also port a basic web server available with the **HiBeam** Development Toolkit for use on an operating system where one is not available.
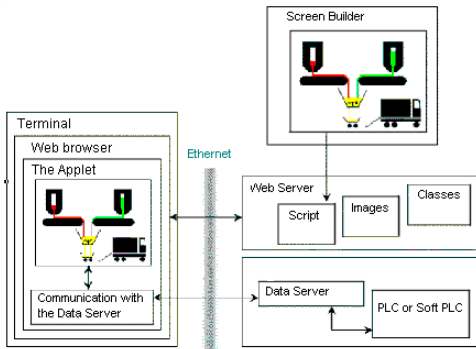
Appearance

You can customize many aspects of the Screen Builder environment such as displaying toolbars, a project browser, rulers, a status bar, and a grid. You can also choose to display the output window.

title bar
menu bar
tool bars

project browser and workspace

output window

HiBeam 1.21- Screen Builder
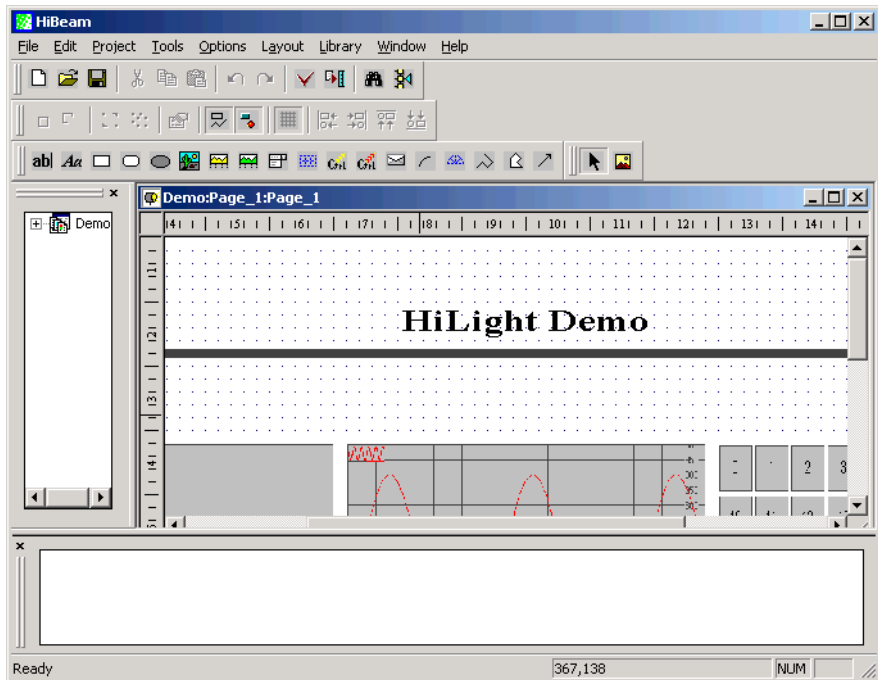
Project Browser

The project browser enables you to navigate between all open projects and their individual screens.
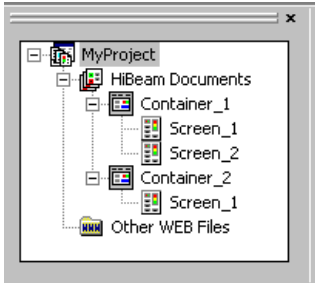
To display the project browser

1. From the Options menu, choose **Toolbars**.

2. In the Layout editor, check **Projects Tree** then click **OK**.

Rulers

You can choose to display rulers along the upper an left edge of the workspace. Rulers are scaled according to the horizontal and vertical spacing of grid points.

To display rulers

1. From the Options menu, choose **Toolbars**.

2. In the Layout editor, check **Rulers** then click **OK**.

Status Bar

The status bar, appearing at the bottom, displays different types of information:

! the current mouse position

! the size and position of objects selected in the workspace

To display the status bar

1. From the Options menu, choose **Toolbars**.

2. In the Layout editor, check **Status Bar** then click **OK**.

Grid

You can choose to display grid points in the workspace. You can specify the horizontal or vertical spacing between grid points. You can also choose to enable the Snap to Grid option making objects connect to the nearest point on the grid.

To display the grid

1. From the Options menu, choose **Grid**.

   The Grid editor appears.

2. To change the horizontal or vertical spacing of the grid points, enter a value in the respective field.

3. To have objects connect to the nearest grid point, check **Snap to Grid**.

4. Click **OK**.

Output Window

The output window displays two types of information:

!   messages from the document compiler

!   results of the Find Variable and Cross References options

For the Find Variable and Cross references options, results in the output window consist of three types of information:

!   the name of the variable

!   the type of animated graphic object attached to the variable

!   the coordinates (in grid units) in the document

To display the output window

➤   From the Window menu, choose **Show Output Window**.

To clear the contents of the output window

➤   From the Window menu, choose **Clear Output Window**.

Menu Bar

You can execute some menu options using keyboard commands.

File	New	Ctrl+N	creates a new document
	Open	Ctrl+O	opens an existing document
	Close		closes the current document
	Save	Ctrl+S	saves the current document
	Save As		saves the current document using another name
	Save All		saves all open documents
	Exit		leaves the Screen Builder
Edit	Undo	Ctrl+Z	cancels the last action
	Redo	Ctrl+Y	restores the last cancelled action
	Cut	Ctrl+X	removes the selected item and places it on clipboard
	Copy	Ctrl+C	takes a copy of the selected item and places it on the clipboard
	Paste	Ctrl+V	inserts the contents of the clipboard
	Delete	DEL	removes the selected item from the selected item
	Select All	Ctrl+A	selects all items in the active document
	Edit Object		
	Properties	Alt+Enter	accesses the properties box for the selected object

Edit (cont)	Public Properties	accesses the public properties box for the selected object. This option is only available for individual objects belonging to a group.
	Lock Properties	locks the properties of the selected object. This option is only available for individual objects belonging to a group.
Project	Settings	accesses the Project window where you define the project settings
	Compile	compiles the current animated document
	Send to Server	accesses the Download-Send to Server editor
Tools	Find Variable	searches the current document for all occurrences of a variable and displays the results in the output window
	Cross References	searches the document for all variables and displays the results in the output window
	Multiple Variable Selectors	accesses the Multiple Variable Selectors editor
	Logbook Editor	accesses the Logbook editor
Options	Toolbars	accesses the Layout editor where you specify whether to display toolbars, rulers, and a status bar
	Static Parts	enables the manipution of static parts
	Animated Parts	enables the manipulation of animated parts
	Image Attributes	accesses the Image Attributes editor where you can change the main settings of the graphic document

Options (cont)	Grid	accesses the Grid editor where you can change the appearance of the grid and specify whether items snap to the grid
	Animation Effects	enables the movement and rotation of items selected in the workspace
	Display Objects IDs	displays the identifiers assigned to objects. The same identifier appears in the title bar of the properties box for the object.
Layout	Order	enables the moving of selected objects to the back or to the front of others
	Grouping	enables the grouping, ungrouping, and regrouping of selected objects
	Align	enables the alignment of selected objects with the object the left, right, top, and bottom. The object located closest to the chosen direction serves as reference.
Library	Open	accesses the Library browser where objects are stored for reuse
	Close	closes the Library browser
	Send to Library	sends the selected object to the library. This option is only available when the library is opened.
Window	Cascade	sets the different views of the project to appear in a cascading manner
	Tile	sets the different views of the project to appear in a tiled manner
	Show Output Window	displays the output window below the workspace
	Clear Output Window	clears the contents of the output window

Help	Contents	accesses the online help
	Search Help On	accesses the online help
	About	displays product and version information

Toolbars

Screen Builder includes four toolbars from which you can perform various tasks:

!   Main Toolbar

!   Drawing Toolbar

!   Animated Parts Toolbar

!   Static Parts Toolbar

To display toolbars

1.   From the Options menu, choose **Toolbars**.

     The Layout editor appears.

2.   Check the toolbars to display, then click **OK**.

The selected toolbars appear.

Main Toolbar

The main toolbar enables you to perform tasks also available as menu options.

creates a new document

opens an existing document

saves the current document

removes the selected item and places it on clipboard

takes a copy of the selected item and places it on the clipboard

inserts the contents of the clipboard

cancels the last action

restores the last cancelled action

compiles the document

accesses the Download-Send to Server window

accesses the Find Variable dialog box

searches the document for all variables and displays the results in the output window

Drawing Toolbar

The drawing toolbar enables you to perform various operations on object selected in the workspace.

brings the object to the front

sends the object to the back

groups the selected objects

ungroups the selected grouped object

accesses the properties editor for the selected object

switches the document to the background layout editing mode. Selecting both background and animated layout modes at the same time switches the document to the free editing mode.

switches the document to the animated layout editing mode. Selecting both animated and background layout modes at the same time switches the document to the free editing mode.

displays the grid in the workspace

aligns the left side of selected objects

aligns the right side of selected objects

| | aligns the top edge of selected objects |
| | aligns the bottom edge of selected objects |

Animated Parts Toolbar

The Animated Parts toolbar enables you to insert various objects in the workspace.

	inserts a text input object in the workspace
	inserts a push button / text display object in the workspace
	inserts a rectangle in the workspace
	inserts a round rectangle in the workspace
	inserts an ellipse in the workspace
	inserts an image in the workspace
	inserts a trend graph in the workspace
	inserts a selection box in the workspace
	inserts a rectangular slider (catch mouse position) in the workspace

inserts a basic operation in the workspace	
	inserts a pre-registered text in the workspace
	inserts an email item in the workspace
	inserts an arc in the workspace
	inserts an elliptical slider in the workspace
	inserts a polyline in the workspace
	inserts a polygon in the workspace
	inserts a line in the workspace

Static Parts Toolbar

enables the selection and manipulation of existing objects. When activated, you cannot insert new objects in the document.

inserts an image in the background layout of an animated document

Creating Animated Documents

ScreenBuilder projects are made up of one or more containers, i.e., HTML pages, each holding one or more screens. These projects are stored in files having the .HAD extension. You link ScreenBuilder projects to Workbench projects. The container displays its defined screens. You can create links between screens belonging to the same container. When creating a container, you need to specify the size of the screens it will hold. You can choose to apply a HTML template to the container (HTML page).

The screens are built with static and animated parts. These pages are made up of two graphic layouts: a background picture and a dynamic image. You can switch between editing modes where you can manipulate different parts of a screen.

A background picture is made up of static graphic parts. Whereas, a dynamic image is made up of animated graphic parts. Animated parts are always displayed in front of the background picture.

You view screens in a Java technology-enabled browser by entering the IP address of the node on which you downloaded the compiled document and its name (HTML). You can also create a default screen that automatically opens when you enter only the IP address of a node. This default screen must be called default.html.

You can perform many management tasks for animated documents:

! Setting the Project Properties

! Switching Editing Modes

! Creating a Background

! Inserting Animated Objects

! Editing Objects

! Defining Animation Effects for Objects

! Selecting Variables

! Customizing the HTML Template

! Using Multiple Variable Selectors

! Using the Graphic Objects Library

To create a ScreenBuilder project

1. From the File menu, choose **New**.

2. Type a name for the project and choose a location in which to store it.

   The new project structure appears in the project browser holding one container (HTML page) and one screen.

3. To add a container to the project:

   a) In the project browser, select an existing container, then right-click.

   b) From the contextual menu, choose **New**.

   A new container structure appears in the browser holding one screen.

4. To add a screen to a container:

   a) In the project browser, select an existing screen, then right-click.

   b) From the contextual menu, choose **New**.

   A new screen appears below the container.

5. Save changes to the project.

Setting the Project Properties

When setting the properties of projects, you may need to perform the following tasks:

! Linking screens (animated documents) to Workbench projects

! Defining administrative and user passwords

! Defining data servers

! Modifying data server connections

Linking a Project

You link animated documents to the Workbench project having the variable data to display. You define three properties when linking projects:

! Type, the type of project. Possible types are ISaGRAF 3.X, ISaGRAF PRO, and PLC import file.

! Path, the location of the project associated with the screen

! Extra files folder, the folder holding extra files, e.g., images, used by the animated documents making up the Screen Builder project. **Note:** The names of files placed in the Extra Files folder must not contain spaces, for example, an accetable name is *my_file.gif*.

When you change the project path, you need to update the connection information.

To link a project

1. From the Project menu, choose **Settings**.

2. In the Project window, select the Project tab.
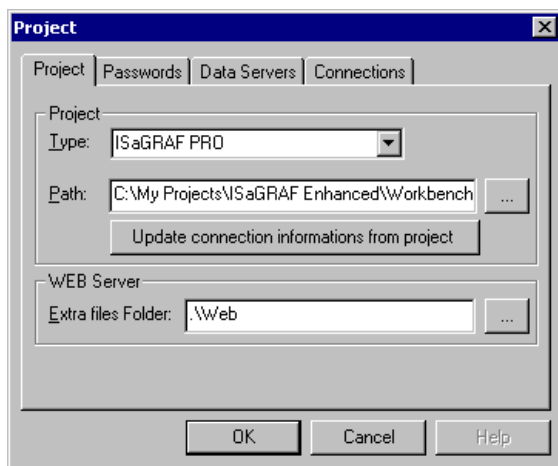
3. Enter the required information in the fields, then click **OK**.

Defining Passwords

You can choose to change the administrative and user password automatically set for **HiBeam**. The administrative password is required to configure the data server when downloading a Screenbuilder project. The user password is required to enable the connection between the Java applet running on a screen and the data server in order to update the values of variables being read and written.
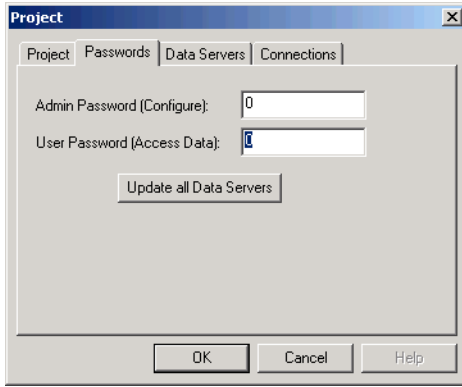
To change the Administrative password for all data servers

You change the Administrative password for all data servers associated with a screen project. A screen project uses the same administrative password for all data servers.

1. From the Project menu, choose **Settings**.

2. In the Project window, select the Passwords tab.

Note: Before changing the administrative password, make sure to remember the original password. When performing the next download, you will be prompted to provide the original password.

3. In the Admin Password (Configure) field, enter the new password.

4. Click Update all Data Servers.

To change the user password

1. From the Project menu, choose **Settings**.

2. In the Project window, select the Passwords tab.

3. In the User Password (Access Data) field, enter the new password.

4. Click Update all Data Servers.

5. In the animated document, create an input box into which the user can enter the new password:

    a) Insert a text input object.

    b) In the object's Properties window, select the Variables tab.

    c) Set the Command (output) parameter to use the SYS_PASSWORD system variable.
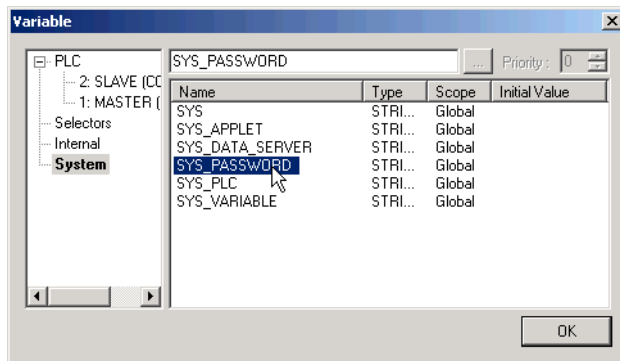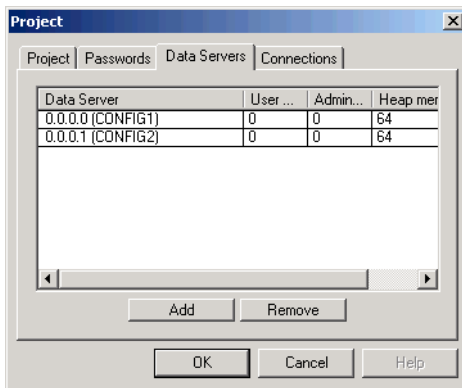
Defining Data Servers

You may need to modify the data server list to indicate the actual list of data server locations. When you link a screen to a Workbench project, **HiBeam** identifies all IP addresses of configurations connected to the ETCP network as data server locations. You need to remove all IP addresses where no data server is installed to prevent errors when downloading. You also need to add all IP addresses for data servers located on computers connected via a different network, i.e., HSD. When a resource uses a data server located at a different IP address, you may need to modify the resource's data server connection. For details on modifying resource data server conections, see page 22.

To add or remove a data server location

1.   From the Project menu, choose **Settings**.

2.   In the Project window, select the Data Servers tab.

3.   To add a data server location, click **Add**, then in the IP Address Selection dialog, enter the IP address of the data server and click **OK**.

     The IP address is added to the data server list.

4.   To remove a data server location, select the data server from the list and click **Remove**.

   The IP address is removed from the data server list.

Modifying Data Server Connections

You may need to modify data server connections for resources using a data server located at a different IP address. When you link a screen to a Workbench project, **HiBeam** automatically identifies all resources defined in the Workbench project and sets them to use a data server running on the same IP address as the configuration to which they are attached. Therefore, when a resource needs to use a data server located at a different IP address, you need to manually modify the connection to indicate the correct data server location.

Note: You need to add data servers running on networks other than ETCP to the data server list to make them available for use in a resource to data server connection. For details on adding data servers, see page 21.

To modify a connection

1. From the Project menu, choose **Settings**.

2. In the Project window, select the Connections tab.
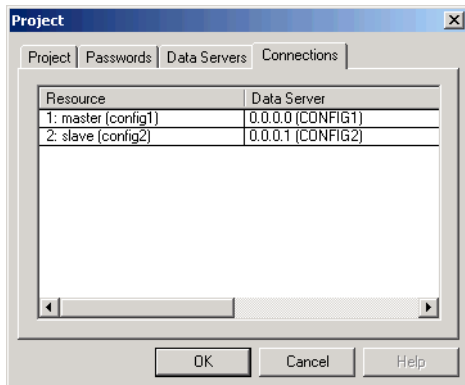
3. Double-click the Data Server field of the resource connection to modify, then select a data server location from the list of available ones.
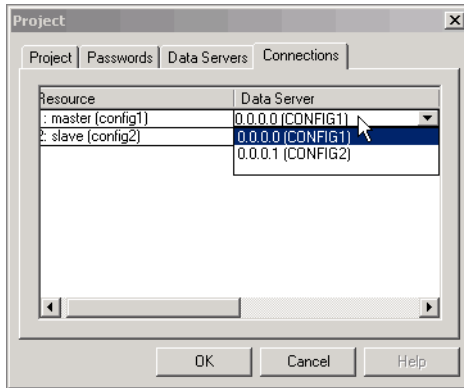
Switching Editing Modes

You can switch between one of three editing modes:

! Background layout, enables the manipulation of static parts of the document

! Animated layout, enables the manipulation of animated parts of the document

! Free, enables the manipulation of both static and animated parts of the document

In the background layout editing mode, the Animated Parts toolbar is unavailable. In this mode, only static items can be selected and manipulated. You use this mode to prepare or update the background layout without risking the modification of animated parts.

In the animated layout editing mode, the Static Parts toolbar is unavailable. In this mode, items of the static layout are visible but cannot be selected, manipulated, or changed. Animated items can be selected and manipulated. You use this mode to build the animated layout over the background picture with no risk of modification in static parts.

To switch to the background layout editing mode

➤ From the Options menu, choose **Static Parts**.

Or

➤ From the Drawing toolbar, click .

To switch to the animated layout editing mode

➤ From the Options menu, choose **Animated Parts**.

Or

➤ From the Drawing toolbar, click .

To switch to the free editing mode

➤ From the Options menu, choose **Static Parts** and **Animated Parts**.

Or

➤ From the Drawing toolbar, click and .

Creating a Background

You can place images as static parts of a background layout. You create a background while in either the background layout or free editing mode. The Static Parts toolbar holds all items available for use in the background layout. The background layout editing mode displays only items making up the background layout of the document.

To place an image in the background

1. From the Static toolbar, click   .

   In the workspace, the cursor appears as cross hairs.

2. In the workspace, place the cursor where you want the image frame to start.

3. Click and hold the mouse button.

4. Move the cursor to where you want the frame to end then release the mouse button.

   An empty frame appears with the message No Image Loaded.

5. Double click anywhere inside the frame.

   The properties editor appears.

6. In the editor, enter the required information.

Inserting Animated Objects

You can insert many graphic objects as animated parts of the animated layout. You insert these objects while in animated layout or free editing mode. The Animated Parts toolbar holds all items available for use in the animated layout:

! Text Input

! Button

! Rectangle

! Round Rectangle

! Ellipse

! Image

! Trend Graph

! Selection Box

! Rectangular Slider

! Basic Operation

! Pre Registered Text

! Email

! Arc

! Elliptical Slider

! Polyline

! Polygon

! Line

Text Input

The text input box consists of a text input field and a frame. The frame style can be shadowed. The Frame Width is limited under the value that is the half of minus the font size from minimum length of height or width of the boundary of the object.

In the text input's Properties window, you can define properties for Styles, Variables, Move, and Aspect.

To insert a text input box

1. In the Animated Parts toolbar, click **ab** .

2. In the drawing area, position the cursor where you want to start the text input box.

3. Drag towards the opposite corner of the text input box.

Styles

Frame Style	The style of shadow of the object. Possible values are Simple, Shadow, and Inverted Shadow.
Frame Width	The width of the frame
Text	The text strings displayed by the object. These strings only appear in the Screen Builder and not in the browser.
Font	The font of the text strings. When a font is unavailable on the computer browsing a document, the computer's default font is used.
Text Style	The font style of the text strings. Possible styles are plain, bold, and italic.
Text Size	The font size of the text strings. When a font size is unavailable on the computer browsing a document, the computer's default font size is used.
Max Number of Digits	The maximum number of digits or characters of input text that can be entered in the text input object. The minimum number of characters is one.

Variables

Enable   If the value of the variable linked to this item is true, then it is
                  allowed to input text with keyboard after clicking on that object.

Command   When text has been entered in the object and the ENTER key is
                  pressed, the corresponding value is sent to this variable.

Button

The button object has a rectangular shape, text, and some animation on animated documents. This text display consists of texts, a frame, and a fill part. The Frame Style can be shadowed, and the rectangle may have a three-dimensional effect when used as a push button. The Frame Width is limited under the value that is the half of minus the font size from minimum length of height or width of the boundary of the object.

In the button's Properties window, you can define properties for Styles, Variables, Move, Aspect, and Action.

To insert a button

1. In the Animated Parts toolbar, click $\boxed{Aa}$.

2. In the drawing area, position the cursor where you want to start the button.

3. Drag towards the opposite corner of the button.

Styles

Text	The text strings displayed by the object. When Input text animation is active, the text strings can be changed according to the variable.
Font	The font of the text strings. When a font is unavailable on the computer browsing a document, the computer's default font is used.
Text Style	The font style of the text strings. Possible styles are Plain, Bold, and Italic.
Text Size	The font size of the text strings. When a font size is unavailable on the computer browsing a document, the computer's default font size is used.
Horizontal text location	The location on the horizontal plane of the text within the object rectangle. Possible values are Center, Left, and Right.

Vertical text location	The location on the vertical plane of the text within the object rectangle. Possible values are Center, Down, and Up.
Text Direction	The direction of the text displaying. Possible directions are Horizontal and Vertical.
Frame Style	The style of shadow of the object. Possible shadow styles are Simple, Shadow, and Inverted Shadow.
Frame Width	The width of the frame
Button style	The style of the frame when the box acts as a push button. Possible styles are 3D and flat.
Concat. text and value	When set to TRUE, the displayed text is the concatenation of the Text property with the value of the Input.

Variables

Input text	This animation makes the object display the value of a variable. Possible types of variable are BOOL, SINT, DINT, REAL, TIME, and STRING.

Rectangle

A rectangle can represent, for example, pipes indicating a flow from one object to another with a change of color or a container displaying a changing quantity of liquid as it flows to or from another object. The rectangle consists of a frame and a fill part. When Frame Style is Shadow, the object has shadow at its right-bottom side and when Frame Style is Inv.Shadow, it has the shadow at its left-top side. Frame Width is limited under the value that is the half of minimum length of height or width of the rectangle.

In the rectangle's Properties window, you can define properties for Styles, Variables, Move, Aspect, Action, Resize, and Rotate.

To insert a rectangle

1. In the Animated Parts toolbar, click .

2. In the drawing area, position the cursor where you want to start the rectangle.

3. Drag towards the opposite corner of the rectangle.

Styles

Frame Style	The style of shadow of the object. Possible values are: Simple, Shadow, Inv. Shadow.
Frame Width	The width of the frame.
Fill Back Color	The back color of the inside part of the object when the Fill animation is active.
Fill Destination	The direction of the Fill animation when the Fill animation is active. Possible values are UP, DOWN, LEFT, and RIGHT.
Var value (min fill)	The minimum value of the variable linked to the Fill when the Fill animation is active.
Var value (max fill)	The maximum value of the variable linked to the Fill when the Fill animation is active.

Variables

Fill (input)   This animation makes the object fill the inside part of the
                          object by Fill Color.

Round Rectangle

The round rectangle object is a rectangular shape having its corners rounded. This round rectangle consists of a frame and a fill part. When **Frame Style** is **Shadow**, the object has shadow on right-bottom side and when **Frame Style** is **Inv.Shadow**, it has the shadow on left-top side.

In the round rectangle's Properties window, you can define properties for Styles, Move, Aspect, Action, and Resize.

To insert a round rectangle

1. In the Animated Parts toolbar, click .

2. In the workspace, position the cursor where you want to start the round rectangle.

3. Drag towards the opposite corner of the round rectangle.

Styles

Frame Style	The style of shadow of the object. Possible values are Simple, Shadow, and Inv. Shadow.
Frame Width	The width of the frame

Ellipse

An ellipse can represent, for example, a container displaying a changing quantity of liquid as it flows to or from another object.

In the ellipse's Properties window, you can define properties for Styles, Move, Aspect, Action, and Resize.

To insert an ellipse

1. In the Animated Parts toolbar, click .

2. In the workspace, position the cursor where you want to start the bounding box of the ellipse.

    Note: The bounding box is the smallest rectangle in which the ellipse fits.

3. Drag towards the opposite corner of the bounding box of the ellipse.

Styles

Frame Style	The style of shadow of the object. Possible values are Simple, Shadow, and Inv. Shadow.
Frame Width	The width of the frame

Image

The image object has a frame of rectangular shape and a fill part. The image object can hold GIF, transparent GIF, animated GIF, and JPEG files. You cannot rotate image objects.

In the ellipse's Properties window, you can define properties for Styles, Move, Aspect, Action, and Resize.

To insert an image

1. In the Animated Parts toolbar, click .

2. In the workspace, position the cursor where you want to start the image object.

3. Drag towards the opposite corner of the image object.

Styles

Image File   The file name and the path of the image

Trend Graph

The Trend Graph object displays the real-time values of Workbench variables in the form of curves. This object consists of graph lines, plot points, a frame, a fill part, and a background. You can choose to view real-time or historical values. For real-time values, you need to set the value of the History Position parameter to 0. For historical values, you need to set Run to false and set the value of the History Position parameter to a negative value. A trend graph chart can display up to eight trends at the same time.

In the trend graph's Properties window, you can define properties for Styles, Variables, Move, and Aspect.

To insert a trend graph

1. In the Animated Parts toolbar, click .

2. In the workspace, position the cursor where you want to start the trend graph.

3. Drag towards the opposite corner of the trend graph.

Styles

Error color	The color used to draw the part of the curve where an error occurred
Overlap multiple curve	When set to TRUE, all curves use the same axis as reference. When set to FALSE, a separate area on the Y axis is reserved for each trend.
Display axis	When set to TRUE, the X and Y axes are drawn on the trend graph
Refresh time	The time interval between each redraw of the trends displayed in the trend graph object
Time display instances	The number of time stamp instances displayed at the bottom of the Trend Graph object
Rec1..Rec8 – Variable	The variable to trend. The Trend Graph Pro can display a maximum of eight trends.

Rec1..Rec8 – Plot style	The style of the plotted point in the graph. Possible styles are None, Circle, and Square. You define a style for each trend.
Rec1..Rec8 – Line color	The color of the line representing the trend. You define a color for each trend.
Rec1..Rec8 – Display plot error	The display action taken where an error occurs. Possible values are: None, no special action Display Line, use alternate color for line Display Area, fill trend area with error color
Rec1..Rec8 – Min bound value	The minimum value of the data for the trend. You define a minimum value for each trend.
Rec1..Rec8 – Max bound value	The maximum value of the data for the trend. You define a maximum value for each trend.

Note: The Min bound value and Max bound value properties must be the same for all trend instances from Rec1 to Rec8.

Variables

Time view range	The range of time, in minutes, displayed in the trend graph
History position	The time period, in minutes, of the trend values to display: current or historical. A value of 0 sets the current values to be displayed. A negative value sets historical values to be displayed.
Y-axis zoom	*Not yet implemented*
Y-axis percent offset	*Not yet implemented*
Rec1..Rec8 - Visible (input)	The indication of whether the corresponding trend curve is visible. TRUE sets the trend curve to be visible.
Run (input)	The indication of whether the values are updated in the trend graph. TRUE sets the display values to be updated. FALSE sets the trend graph to hold the current display values.

Selection Box

The selection box object has the function of inputting a value into a variable. This object has a rectangular shape, texts, and some animations on the animated documents. This selection box consists of the selection texts and the selection area, list down button, the frame and the fill part. The number of visible choices when the list is open, is Select Number. The index of the selected item is output to the variable linked to Command, when the value of the variable linked to Enable is true.

In the selection box's Properties window, you can define properties for Styles, Variables, Move, and Aspect.

To insert a selection box

1. In the Animated Parts toolbar, click .

2. In the workspace, position the cursor where you want to start the selection box.

3. Drag towards the opposite corner of the selection box.

Styles

Font	The font of the text strings. If the PC browsing this system does not have this font, the font becomes the default "System" font.
Text Style	The font style of the text strings. Possible styles are plain, bold, and italic.
Select Number	The number of items that can be selected. The minimum value is 1.
Text0 .. Text9	The text strings displayed by the object to be selected.

Variables

Enable   This animation makes the object allow to output a value by a mouse click when the value of the variable linked to this item is true.

Command   This animation makes the object output the value according to the selected item to the variable linked to this item after a mouse click.

Rectangular Slider

The rectangular slider object reads the position of the cursor within its perimeter then sends a value associated to the position to mapped variables. At run time, the slider is not visible. You can define the accuracy of position readings by increasing or decreasing the number of horizontal and vertical divisions within the slider. Typical uses of the slider object consist of implementing scroll bars or linear potentiometers.

In the rectangular slider's Properties window, you can define properties for Styles, Variables, Move, and Resize.

To insert a rectangular slider

1. In the Animated Parts toolbar, click .

2. In the workspace, position the cursor where you want to start the rectangular slider.

3. Drag towards the opposite corner of the slider.

Styles

Action Style	The mouse event triggering the reading of the cursor's position
Left Limit Value	The value associated to the left-most limit of the rectangle
Right Limit Value	The value associated to the right-most limit of the rectangle
Number of Horizontal Divisions	The number of equal parts into which the X-axis of the slider is divided. The number of divisions directly affects the accuracy of readings of the cursor's position. The minimum number of divisions is 1.
Bottom Limit Value	The value associated to the lower limit of the rectangle

Up Limit Value	The value associated to the upper limit of the rectangle
Number of Vertical Divisions	The number of equal parts into which the Y-axis of the slider is divided. The number of divisions directly affects the accuracy of readings of the cursor's position. The minimum number of divisions is 1.

Variables

Horizontal Drag	This variable is forced to the horizontal position pointed to by the mouse while dragging (when the mouse is pressed).
Horizontal Click	This variable is forced to the horizontal position pointed to by the mouse when a selected event occurs.
Vertical Drag	This variable is forced to the vertical position pointed to by the mouse while dragging (when the mouse is pressed).
Vertical Click	This variable is forced to the vertical position pointed to by the mouse when a selected event occurs.
Enable	This animation makes the object allow to output when the value of the variable linked to this item is true.

Basic Operation

The basic operation object has only functions and no shape on the browser. This object executes the operation with First Input and Second Input according to the Operation Kind property when the value of the variable linked to Enable is set to true.

In the basic operation's Properties window, you can define properties for Styles and Variables.

To insert a basic operation

1. In the Animated Parts toolbar, click **Ctrl** .

2. In the drawing area, click where you want to place the basic operation.

Styles

Operation Kind	The type of operation performed when the value of the variable linked to First Input or Second Input is changed.
Target page	The target page to jump to, when the **Operation kind** is **Other page (HAD)** and the event occurs.
Target Web Page	The Web page to jump to, when the **Operation kind** is **Other WEB document (html...)** and the event occurs.
Sig min value	The minimum value of the generated signal. This value will be used when the corresponding Sig min value variable (same name) is not defined.
Sig max value	The maximum value of the generated signal. This value will be used if the corresponding Sig max value variable is not defined.
Signal period	The period of the generated signal. This value will be used if the corresponding Signal period variable is not defined.
Sampling period	The sampling period of the generated signal. This value will be used if the corresponding Sampling period variable is not defined.

Variables

First input	This animation makes the object input the value as the first parameter for the operation according to the **Operation Kind** when the value of the variable linked to **Enable** is true.
Second input	This animation makes the object input the value as the second parameter for the operation according to the **Operation Kind** when the value of the variable linked to **Enable** is true.
Command	This animation makes the object output the result of the operation with **First Input** and **Second Input** according to the **Operation Kind** when the value of the variable linked to **Enable** is true.
Enable	This animation makes the object allow to operate when the value of the variable linked to this item is true.
Operation statement	This animation makes the object output the result of the operation itself. When this value is -1, operation result is overflow. If this value is -2, the result is a division by zero. According to the type of the variable linked to **Command**, the threshold of overflow is changed.
Sig min value (input)	This animation sets the minimum value of the generated signal. The corresponding Sig min value style is not used when the variable is connected.
Sig max value (input)	This animation sets the maximum value of the generated signal. The corresponding Sig max value style is not used when the variable is connected.
Signal period (input)	This animation sets the period of the generated signal. The corresponding Signal period style is not used when the variable is connected.
Sampling period (input)	This animation sets the sampling period of the generated signal. The corresponding Sampling period style is not used when the variable is connected.
Sinus	Generated signal (if the variable is connected): sine wave signal.
Cosinus	Generated signal (if the variable is connected): cosine wave signal.
Tangent	Generated signal (if the variable is connected): tangent signal.

Ramp up	Generated signal (if variable connected): ramp up signal. It is rising up to **Sig max value**, and when it reaches it, it changes to **Sig min value**.
Ramp down	Generated signal (if variable connected): ramp down signal. It is rising down to **Sig min value**, and when it reaches it, it changes to **Sig max value**.
Triangle	Generated signal (if variable connected): triangle signal.
Square	Generated signal (if variable connected): square signal.
Random	Generated signal (if variable connected): random value between **Sig min value** and **Sig max value**.
Execution time	Generated signal (if variable connected): an integer equal to the execution time of the applet in milliseconds.

Operation Kind

+, -, *, /, %, and, or, xor, nand, nor, nxor, <, <=, =, >, =>, !=	This parameter indicates the kind of operation when the value of the variable linked to **First Input** or **Second Input** is changed.
not	This parameter indicates the kind of operation when the value of the variable linked to **First Input** is changed.
Go to back page	Goes back to the previously displayed page in case of a multiple page document when the value of the variable linked to **First Input** is rising edge.
Go to forward page	Goes to the following displayed page in case of a multiple page document when the value of the variable linked to **First Input** is rising edge.
Go to first page	Goes to the first page of a multiple page document (home page) when the value of the variable linked to **First Input** is rising edge.

Other page (HAD)   Displays another page of a multiple page document when the value of the variable linked to **First Input** is rising edge. The target page is identified by the **Target Page** parameter, and identifies the pathname of another HAD document.

Other WEB document (html...)   Jumps to another WEB page identified by another URL when the value of the variable linked to **First Input** is rising edge. The URL of the target page must be specified in the **Target Web Page** parameter.

Pre Registered Text

The pre-registered text object has only functions and no shape on the Browser. This object outputs the strings to the variable linked to Command according to the value of the variable linked to the Input added the value of Offset value when the value of the variable linked to Enable is true.

In the pre-registered text's Properties window, you can define properties for Styles and Variables.

To insert a pre-registered text

1. In the Animated Parts toolbar, click .

2. In the drawing area, click where you want to place the pre-registered text.

Styles

Text0 .. Text9   The text strings when the value of the variable linked to Enable is true.

Offset value   The offset value that is added to the value of the variable linked to Input. For example, if the offset is 3 and value 1, the Text4 input is selected.

Variables

Input   This animation makes the object input the value as the pointer to the text 0-9 when the value of the variable linked to Enable is true.

Command   This animation makes the object output the text that is pointed by the value of the variable linked to Input when the value of the variable linked to Enable is true.

Enable   This animation makes the object allow to output when the value of the variable linked to this item is true.

Email

The email object has only functionality and does not appear in the browser. This object sends an email message to a specified email recipient. The email includes a return email address, a subject line, and up to two lines of text in the body.

In the email's Properties window, you can only define properties for Variables.

Note: Internet browsers, i.e., Internet Explorer, accessing screens having email objects must set the Java permissions to enable unsigned content permissions across the network. For information on setting the Java permissions of a browser, refer to the *Using* HiBeam *Screens* application note, located in the documentation folder after installation.

To insert an email element

1. In the Animated Parts toolbar, click .

2. In the drawing area, click where you want to place the email element.

Variables

SMTP server	The name or IP address of the mail server
Domain	The domain name of the sender
Return address	The complete email address of the message sender, for example, jsmith@company.com
Destination	The complete email address of the message recipient
Subject	The text appearing in the email message's subject line
Text 1	The first line of text appearing in the email message's body
Text 2	The second line of text appearing in the email message's body
Send	Sends the email message when the value switches from FALSE to TRUE
Ready	The indication of whether the email object is ready to send. TRUE indicates that it is ready.

Error   The indication of whether the last email transmission was successful:
                    TRUE indicates that the email transmission was successful
                    FALSE indicates that the email transmission failed

Status   Displays the status message for the last email transmission

Arc

An arc is any unbroken part of the circumference of a circle. An arc can represent, for example, a container displaying a changing quantity of liquid as it flows to or from another object. An arc object is made up of a start angle and an arc angle:
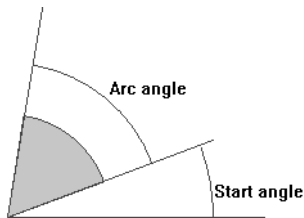
You can convert an arc to a fan, i.e., an arc having a frame around its angle. A fan includes a fill part.

In the arc's Properties window, you can define properties for Styles, Variables, Move, Resize, Aspect, and Action.

To insert an arc or a fan

1. In the Animated Parts toolbar, click .

2. In the workspace, draw a circle having its center at the same position as the center of the arc.

    The circumference of the circle appears red with the radius in black. The cursor appears as cross hairs outside the circumference at the end of the radius.

3. Move the crosshairs along the circumference to where you want to set the start angle of the arc then click.

4. Move the crosshairs clockwise or counterclockwise to set the other end of the arc's angle then click.

The arc object appears in the workspace.

5. To insert a fan, double-click the arc object to access its Properties box, then in the Arc or Fan field from the Styles tab, select **Fan**.

Styles

Fan or Arc	The drawing style of the object. Possible values are Arc and Fan.
Frame Style	The style of shadow of the object. Possible values are Simple, Shadow, and Inverted Shadow.
Frame Width	The width of the frame
Start Angle	The start angle of the object
Arc Angle	The arc angle of the object
Min Start Angle Limit	The minimum start angle of the object
Max Start Angle Limit	The maximum start angle of the object
Var Value (Min start)	The minimum value of the variable linked to Start Angle (input) when Change Start Angle animation is active
Var Value (Max start)	The maximum value of the variable linked to Start Angle (input) when Change Start Angle animation is active
Min Arc Angle Limit	The minimum arc angle of the object
Max Arc Angle Limit	The maximum arc angle of the object
Var Value (min angle)	The minimum value of the variable linked to Arc Angle (input) when Change Arc Angle animation is active
Var Value (max angle)	The maximum value of the variable linked to Arc Angle (input) when Change Arc Angle animation is active

Variables

Start Angle (input)	This variable changes the start angle of the object
Arc Angle (input)	This variable changes the arc angle of the object

Elliptical Slider

The elliptical slider object reads the position of the cursor within a circular area then sends a value associated to the position to mapped variables. At run time, the slider is not visible. Typical use of the slider object consist of implementing a potentiometer.

In the elliptical slider's Properties window, you can define properties for Styles, Variables, Move, and Resize.

To insert an elliptical slider

1. In the Animated Parts toolbar, click .

2. In the drawing area, position the cursor where you want to start the bounding box of the elliptical slider then click.

   Note: The bounding box is the smallest rectangle in which the elliptical slider fits.

3. Drag towards the opposite corner of the bounding box of the slider, then click.

Styles

Start Angle	The start angle of the elliptical slider
Arc Angle	The arc angle of the object
Action Style	The mouse event triggering the reading of the cursor's position
Var Value (start angle)	The minimum value of the variable linked to output **Drag** and **Click** variables
Var Value (start+arc angle)	The maximum value of the variable linked to output **Drag** and **Click** variables

Number of Divisions	The number of equal parts into which the area of the slider is divided. The number of divisions directly affects the accuracy of readings of the cursor's position. The minimum number of divisions is 1.
Ratio Inner Radius	The circular area within the slider that is not active. This area starts at the center of the elliptical slider and is defined as a percentage of the radius.

Variables

Enable	This animation makes the object allow to output when the value of the variable linked to this item is true.
Drag	This variables is forced to the angle pointed to by the mouse while dragging (when the mouse is pressed).
Click	This variables is forced to the angle pointed to by the mouse when a selected event occurs.

Polyline

A polyline is made up of one or more connected lines that form an open figure. A polyline can remain static or be used to display animation.

In the polyline's Properties window, you can define properties for Styles, Move, Resize, Rotate, Aspect, and Action.

To insert a polyline

1. In the Animated Parts toolbar, click .

2. In the workspace, position the cursor where you want the first line of the polyline to begin then click.

3. Move the cursor in the direction of the line's endpoint.

4. Click when the cursor reaches the line's endpoint.

    This position becomes the starting point of the next line.

5. Repeat steps 3 and 4 for every line of the polyline.

6. To end the polyline, double-click.

Styles

Line Style	The style of the line. Possible values are Normal, Dash, and Dot.
Line Width	The width of the line
Arrow Style	The style of the arrow head used with the polyline object. Possible values are None, Filled, Thin, and Thin Filled.
Arrow Location	The location of the arrow head. Possible values are End, Begin, and Both.

Polygon

A polygon is made up of three or more connected straight lines that form a closed figure. Each line is called a *segment*. A polygon can remain static or be used to display animation.

In the polyline's Properties window, you can define properties for Styles, Move, Resize, Rotate, Aspect, and Action.

To insert a polygon

1. In the Animated Parts toolbar, click   .

2. In the workspace, position the cursor where you want to start the polygon then click.

3. Move the cursor in the direction of the line's endpoint.

4. Click when the cursor reaches the line's endpoint.

    This position becomes the starting point of the next line.

5. Repeat steps 3 and 4 for every line of the polygon.

6. To end the polygon, double-click.

Styles

Var Value (min fill)	The minimum value of the variable linked to the Fill when the Fill animation is active
Var Value (max fill)	The maximum value of the variable linked to the Fill when the Fill animation is active.
Fill Back Color	The background color of the inside part of the object when the Fill animation is active
Fill Destination	The direction of the Fill animation when the Fill animation is active. Possible values are Up, Down, Left, and Right.

Frame Style	The style of shadow of the object. Possible values are Simple, Shadow, and Inverted Shadow.
Frame Width	The width of the frame around the object

Variables

Fill (input)	This variable is used to fill the inside part of the object by Fill Color.

Line

You can insert three types of lines: normal, dashed, and dotted. You can also choose to have arrowheads at either end or both ends. A line's width cannot exceed the value that is half of minimum length of height or width of the boundary of the object.

In the line's Properties window, you can define properties for Styles, Move, Resize, Rotate, and Aspect.

To insert a line

1. In the Animated Parts toolbar, click .

2. In the drawing area, position the cursor where you want to start the line then click.

3. Move the cursor in the direction of the line's endpoint.

4. Click when the cursor reaches the line's endpoint.

Styles

Line Style	The style of the line. Possible values are Normal, Dash, and Dot.
Line Width	The width of the line
Arrow Style	The style of arrow head used with the line. Possible values are None, Filled, Thin, and Thin Filled.
Arrow Location	The location of the arrow heads on the line. Possible values are End, Begin, and Both.

Editing Objects

You can perform many editing tasks on objects:

! Selecting Objects

! Editing the Properties of Objects

! Cutting, Copying, and Pasting Objects

! Deleting Objects

! Moving Objects

! Resizing Objects

! Grouping Objects

! Aligning Objects

! Moving Objects to the Front and Back

Selecting Objects

Selecting objects is required as a first step for all editing functions. When the "Selection" button is depressed in the Static Parts toolbar, you cannot insert graphic objects in the workspace; you can only select existing objects. You can choose to select one or more objects at the same time.

The position and size of a selected object is displayed in the status bar.

Left,Top:60,35   Width,Height:110,80

To select a single object

1. In the Static Parts toolbar, click .

2. In the workspace, click the desired object.

To select multiple objects

You can select multiple objects either by selecting individual objects or by dragging the cursor to enclose them. When dragging, an invisible rectangle shows the enclosed area.

1. In the Static Parts toolbar, click .

2. Do one of the following steps:

    ▪   Hold down the Shift key while clicking the desired objects one after the other.

    ▪   Position the cursor to the left and above the desired objects, then drag to enclose them.

Deselecting objects

► To deselect objects selected in the workspace, do one of the following:

  ▪ Click on an empty space in the workspace.

  ▪ Press the ESCAPE key.

In the object list, you can use the TAB and SHIFT+TAB keys to select the next or previous objects.

When an object is selected, you can move it by dragging it with the mouse. You can adjust its location using the arrow keys.

Editing the Properties of Objects

You can change the properties of objects. Two types of properties exist: static and dynamic. For static properties, you enter a value or choose from the available options. You enter this information in the Value fields. For dynamic properties, you select variables to which you bind them. You enter this information in the Variable fields. The Origin field shows the type of the selected variable. You can also define animation effects for objects. For details on defining animation effects, see page 73.
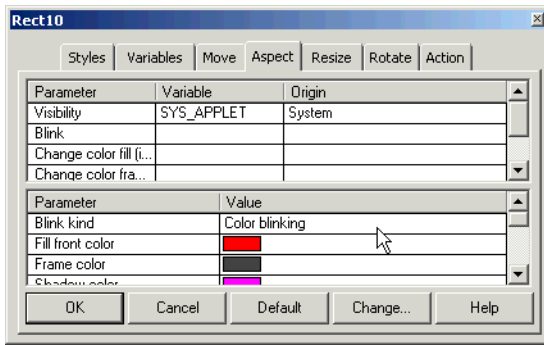
To edit the properties of an object

1. Double-click the object.

    The properties window for the object appears.

2. In each of the tabs, for the individual properties, enter the required information.

    ▪   For the static properties, enter a value or choose from the drop-down list of available options.

    ▪   For the dynamic properties, select the variables.

Cutting, Copying, and Pasting Objects

Once you select an object, you can choose to perform these operations using the icons in the Main toolbar, the commands from the Edit menu, or the commands from a contextual menu. To use the contextual menu, right-click a selected object.

To cut objects

1. Select the desired object.

2. Do one of the following:

    ▪   From the Main toolbar, click   .
    ▪   From the contextual menu, choose **Cut**.

The object is removed from the workspace and a copy of it is placed on the clipboard.

To copy objects

1. Select the desired object.

2. Do one of the following:

    ▪   From the Main toolbar, click   .
    ▪   From the contextual menu, choose **Copy**.

A copy of the object is placed on the clipboard.

To paste objects

You can insert the contents of the clipboard into the workspace.

▶ In the workspace, click where you want to insert the object, then do one of the following:

  ▪ From the Main toolbar, click .

  ▪ From the contextual menu, choose **Paste**.

The contents of the clipboard is inserted in the workspace.

Deleting Objects

Once you select an object, you can choose to delete it using the commands from the Edit menu, or from the contextual menu. To use the contextual menu, right-click the selected object.

To delete objects

1. Select the desired object.

2. Do one of the following:

   ▪ From the Edit menu, choose **Delete**.

   ▪ From the contextual menu, choose **Delete**.

The object is removed from the workspace.

Moving Objects

You can move objects within the workspace.

To move objects

► Select one or more objects then do one of the following:

- Drag the objects to their new position
- Press the arrow keys

Resizing Objects

You can resize objects in the workspace. However, you need to select objects before resizing them.

To resize an object

1. Select the desired object.

2. Click a handle (a small black square on the outer edge of the selected object) then move it in the appropriate direction.

Grouping Objects

You can group individual objects in a document to form a unique object. You can also group individual groups of objects. When objects are grouped, you cannot resize, move, delete, or copy them individually. You can change the properties of individual objects belonging to a group as well as those properties of grouped objects. When groups contain only static items, they are considered part of the static layout. When groups contain one or more animated items, they are considered part of the animated layout.

Groups can have some animation effects (move, resize, rotate...) other than those effects attached to the grouped items. Groups can be selected for designing their animation area or entering related animation variables in their property dialog box.

Once you select objects, you can choose to group and ungroup them using the commands from the Layout menu or using the icons from the Drawing toolbar. You can also choose to regroup ungrouped objects.

To group objects

1. Select the desired objects.

2. Do one of the following:

    - From the Drawing toolbar, click .

    - From the Layout menu, choose **Grouping**, then **Group**.

To ungroup objects

1. Select the desired grouped object.

2. Do one of the following:

    - From the Drawing toolbar, click .

    - From the Layout menu, choose **Grouping**, then **Dissociate**.

To regroup objects

1. Select the desired ungrouped (dissociated) objects.

2. From the Layout menu, choose **Grouping**, then **Regroup**.

Aligning Objects

You can align objects relative to their left side, right side, top edge, or bottom edge.

Once you select objects, you can choose to align them using the commands from the Layout menu or using the icons from the Drawing toolbar:

aligns the left side of selected objects

aligns the right side of selected objects

aligns the top edge of selected objects

aligns the bottom edge of selected objects

To align and position objects

1. Select the desired objects.

2. Do one of the following:

    ▪ In the Drawing toolbar, click the desired icon.

    ▪ From the Layout menu, choose **Align**, then the desired direction.

Moving Objects to the Front and Back

You can move objects to the front or to the back of each other. However, animated parts are always displayed on the front.

Once you select objects, you can choose to move them using the commands from the Layout menu or using the icons from the Drawing toolbar.

To bring an object to the front

1. Select the object.

2. Do one of the following:

    ▪   From the Drawing toolbar, click .
    ▪   From the Layout menu, choose **Order**, then **Bring to Front**.

To send an object to the back

1. Select the object.

2. Do one of the following:

    ▪   From the Drawing toolbar, click .
    ▪   From the Layout menu, choose **Order**, then **Send to Back**.

Defining Animation Effects for Objects

You can define many animation effects for objects:

! Action

! Aspect

! Move

! Resize

! Rotate

Action

Any object or group can act as a push button. The styles and variables of the "Action" tab allow you to define a push button-like behavior of the object. Below are the styles and variables grouped in the "Action" tab when editing the properties of an object.

The Action animation effects apply to the following objects: Arc, Line, Button, Rectangle, Round Rectangle, Ellipse, Image, Polyline, and Polygon.

Styles

Action Style	The mouse events that drive the action
Action Kind	This parameter indicates the kind of action of the object when the event occurs. See the Possible Types of Action table below for possible values.
Pushed value	This parameter indicates the value when the Action Kind is **Pushed / released values** and **Action Style** is **Down**.
Released value	This parameter indicates the value when the Action Kind is **Pushed / released values** and **Action Style** is **Up**.
Target Screen	This parameter indicates the Target Screen to jump to, when the Action Kind is **Other Screen** and the event occurs.
Target Web Page	This parameter indicates the Web Page to jump to, when the Action Kind is **Other WEB document** and the event occurs.
Increment value	Step used for increasing the value when action kind is **Auto increment value**.
Increment slow time	Period used for first increment when action kind is **Auto increment value**.
Increment fast time	Period used for repeating increment when action kind is **Auto increment value**.

Display highlight	If this parameter is TRUE, the object is highlighted (with a special border) and mouse pointer changes when object is pointed to by the mouse.
Information	Text to be displayed in the status bar when object is pointed to by the mouse.

Possible Types of Action

Auto Increment value	The value of the **input** variable (see description below) is increased whilst the button is pushed. The elapsed time before first increment is the value of **increment slow time**. After that, the increment is repeated with a period of **increment fast time**. After 20 steps, the increment value is multiplied by 5.
Go to previous screen	Go back to the previously displayed screen in case of a multiple screen document. This action only becomes available after moving from the initial screen to another using an action such as **Other screen**.
Go to next screen	Go to the next displayed screen in case of a multiple screen document. This action only becomes available after using the **Go to previous screen** action.
Go to first screen	Go to the first screen of a multiple screen document (home page).
No action	Button has no action.
Other screen	Display another screen of a multiple screen document. The target screen is identified by the **Target Screen** parameter.
Other WEB document (html)	Jumps to another WEB page identified by another URL. The URL of the target page must be specified in the **Target Web Page** parameter.
Pushed / released values	Set the **Command** variable (see description below) to the value specified in **Pushed value** when the button is pressed, and to the value specified in **released value** when the button is released.

| **Reverse input** | Force **Command** to the negation of the **input** variable. |
| **Value input** | Force **Command** to the value of the **input** variable**.** |

Variables

Enable	The "Action" animation is enabled when the value of the variable linked to this item is true.
Input	Input value used for **Value input** or **Reverse input actions**.
Command	The object updates the value of this variable on a mouse click when the Action Kind is **Pushed / released values, Reverse input** or **Value input.**

Aspect

The Aspect animation properties have Styles and Variables propeties.

The Aspect animation effects apply to the following objects: Arc, Line, Text Input, Button, Rectangle, Round Rectangle, Ellipse, Image, Selection Box, Selection Box, Polyline, and Polygon.

Styles

Blink Kind	The type of Blink when the object is blinking
Line Color	The color of a line object
Fill Color	The inside color of the object
Frame Color	The color of frame of the object
Text Color	The color of the text in the object
Shadow Color	The color of the shadow when the frame style is not simple
Swap Line Color	The color of the object when the animation of **Change Color Line** or Blink (change color) is active
Swap Fill Color	The color of inside part of the object when the animation of **Change Color Fill** or Blink (change color) is active
Swap Frame Color	The color of frame of the object when the animation of **Change Color Frame** or Blink (change color) is active
Swap Text Color	The color of the text of the object when the animation of **Change Color Text** or Blink (change color) is active
Var value (line color)	When the **Change Color Line** variable reaches this value, the **Line Color** style is applied. For greater values, the applied color is a mixing of the **Line Color** and the **Swap Line Color**, with a coloring depending on the value.
Var value (swap line color)	When the **Change Color Line** variable reaches this value, the **Swap Line Color** style is applied. For lower values, the applied color is a mixing of the **Line Color** and the **Swap Line Color**, with a coloring depending on the value.
Var value (fill color)	Same as **Line Color** except for filling the object

Var value (swap fill color)	Same as **Swap Line Color**, for filling the object
Var value (frame color)	Same as **Line Color**, for the frame of the object
Var value (swap frame color)	Same as **Swap Line Color**, for the frame of the object
Var value (text color)	Same as **Line Color**, for the text inside the object
Var value (swap text color)	Same as **Swap Line Color**, for the text inside the object

Variables

| **Visibility** | Sets the object to appear or disappear on the screen according to the real time boolean value of PLC data. When the value of the variable linked to **Visible** is true, the object appears, i.e., is visible. When the value is false, the object disappears from the screen, i.e., is invisible. **Caution:** When objects belong to a group, the visibility animation of individual objects depends on the visibility state of the group. When the group object is visible, the visibility animation of each object is effective. When the group object is invisible, the visibility animation of each object is not effective. |
Blink	Sets the object to blink on the screen according to the real time boolean value of data. The **Blink Kind** style indicates the kind of blinking: **Change Color Blink** or **Visible Blink**. When the value of the variable linked to **Blink** is true, the object appears and disappears frequently with **Visible Blink**, or the object changes the color to the swap colors (for Line, Fill, Frame and Text colors) frequently. When the value is false, the object keeps its normal state.
Change Color Fill	Sets the object to change the **Fill Color** to the color defined for **Swap Fill Color**
Change Color Frame	Sets the object to change the **Frame Color** to the color defined for **Swap Frame Color**

| **Change Color Text** | Sets the object to change the **Text Color** to the color defined for **Swap Text Color** |
| **Change Color Line** | Sets the object to change the **Line Color** to the color defined for **Swap Line Color** |

Move

The Move animation effect indicates the movement, i.e., translation, of an object along the X-axis and Y-axis according to the real time integer or float value of PLC data. Before setting the Move effect properties, you need to define the area throughout which the object can move. You define this area by dragging a red frame that surrounds the object, available when you select **Animation Effects** from the Options menu:
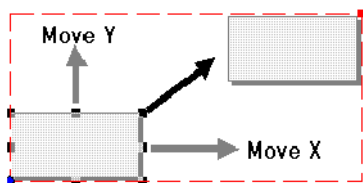
The Move animation effects apply to the following objects: Arc, Elliptical Slider, Line, Text Input, Button, Rectangle, Round Rectangle, Ellipse, Image, Selection Box, Selection Box, Rectangular Slider, Polyline, and Polygon.

The properties for the Move animation effect are:

Horizontal move	The variable to which the translation along the X-axis is linked
Vertical move	The variable to which the translation along the Y-axis is linked
Var value (left limit)	The minimum value of the variable linked to **Horizontal move**
Var value (right limit)	The maximum value of the variable linked to **Vertical move**
Var value (bottom limit)	The minimum value of the variable linked to **Horizontal move**
Var value (up limit)	The maximum value of the variable linked to **Vertical move**

For the Horizontal move property, when the linked variable's value is equal to Var value (left limit), the object is at its original point. Whereas, when the linked variable's value is equal to Var value (right limit), the object is at the other end of the defined area. For the Vertical move property, when the linked variable's value is equal to Var value (bottom limit), the object is at its original point (bottom of the defined area). Whereas, when the linked variable's value is equal to Var value (up limit), the object is at the top of the defined area.
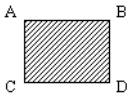
Resize

The resize animation effect indicates the resizing on the screen according to the real time integer or float value of PLC data. With Horizontal resize, the object can resize along the X-axis. The Horizontal resize resizes the object from Left limit ratio up to Right limit ratio. When the value of the PLC variable is equal to Var value (left limit) the width of the object is Left limit ratio % of the original size. Right limit ratio can be bigger than 100%. The same applies to Vertical resize, with top and bottom limits.

The default implementation of the Resize effect resizes the object according to its bottom/left corner. It means that the bottom / left point of the object is fixed. You can select another fixed point by setting the Reverse horizontal resize effects and/or Reverse vertical resize effects styles.

The Resize animation effects apply to the following objects: Arc, Elliptical Slider, Line, Rectangle, Round Rectangle, Ellipse, Image, Rectangular Slider, Polyline, and Polygon.

Warning: You cannot use the Reverse horizontal resize effects and/or Reverse vertical resize effects styles if a "Move" animation is defined for the object.

You can perform many combinations of resizing:

| Fixed point	Reverse Horizontal	Reverse Vertical
A	FALSE	TRUE
B	TRUE	TRUE
C	FALSE	FALSE
C	TRUE	FALSE

Rotate

The rotate animation effect indicates the rotation of an object, around its center of rotation center, on the screen according to the real time integer or float value of PLC data. A positive value rotates the element in a counterclockwise direction and a negative value, in a clockwise direction. The rotation is performed around the the object's center of rotation. You define the center of rotation by dragging a blue dot appearing on the object, available when you select **Animation Effects** from the Options menu.

The Resize animation effects apply to the following objects: Line, Rectangle, Round Rectangle, Ellipse, Image, Rectangular Slider, Polyline, and Polygon objects.

The properties for the Rotate animation effect are:

Rotation	The variable to which the rotation effect is linked
Min angle limit	The angle of rotation when the value of the variable linked to **Rotation** equals **Var value (min angle limit)**
Max angle limit	The angle of rotation when the value of the variable linked to **Rotation** equals **Var value (max angle limit)**
Var value (min angle limit)	The minimum value of the variable linked to **Rotation**
Var value (max angle limit)	The maximum value of the variable linked to **Rotation**
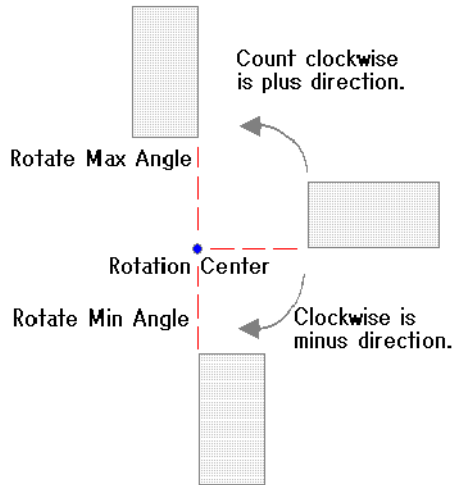
If **Var value (min angle limit)** equals 0 and this value equals **Min angle limit**, then the object is at its point of origin. If **Var value (max angle limit)** equals 90 and this value equals **Max angle limit**, then the object rotates 90 degrees. When the value of **Min angle limit** is greater than **Max angle limit**, the object can rotate clockwise if the value is increasing.

Note: When objects for which rotation does not apply belong to a group having rotation, these objects follow the group's behavior.

Selecting Variables

The dynamic properties of objects use constants or variables to define their behavior at runtime. You can choose variables from one of four origins:

! PLC Data

! Selectors, *not yet documented*

! Internal Variables

! System Variables

All possible origins for variables are listed in the browser on the left. For a selected origin, the list box shows the available data for these variables:

! Name, identifier for the variable. It can be a system information provided by the generic applet or by the embedded Data Server. The name can also be any constant value or memory variable used internally in the document or the tag for PLC data.

! Type of the variable. The possible types are DINT, SINT, REAL, TIME, and STRING.

! Scope of the variable. The possible values are Local or Global.

! Initial value of the variable
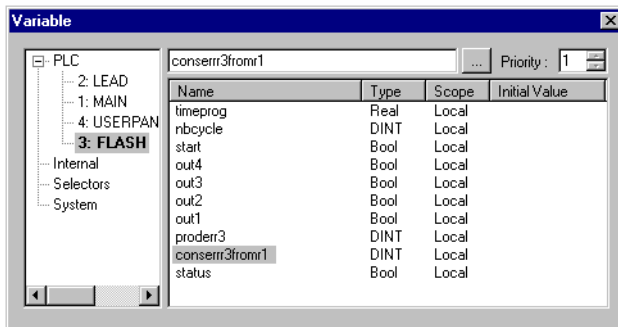
When using a variable, typing the variable name directly in the edit field automatically launches a search for the variable throughout all possible origins. If found, all variables belonging to its origin appear in the list with the matching variable selected. If matches from different origins are found, the origins appear bolded in the tree.

You can map variables of any data type to any parameter. The system ensures automatic data type conversion in all cases. However, warning messages may appear during compilation if the variable selection leads to a possible loss of accuracy.

To use a constant value

➤ In the Variable field for an object's property, type the value.

To select a variable

1. In the Variable field for an object's property, click ⬚.

   The Variable window appears.

2. In the browser, at the left, select the origin of the variable.

   The available variables for the selected origin appear in the list at the right.

3. From the list, select the desired variable, then click **OK**.

The variable and its origin appear in the property's Value and Origin fields.

PLC Data

When the origin is a PLC, the "..." runs a PLC dependent box for browsing variables. The example below shows the box used for **ISaGRAF PRO** resources, enabling the selection of parts of complex data such as structures and arrays:
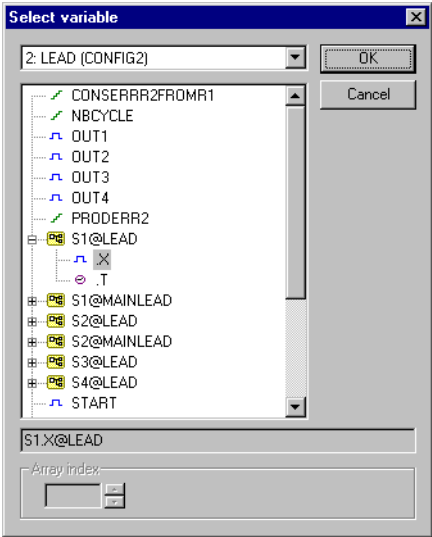
Internal Variables

Internal variables are created and managed by the applet. They have no relationship with PLC data. Internal variables are used to establish direct links between graphic objects of a screen. For example, if you want a push button to act directly on the state of a LED display, you can map an internal variable from the button to the LED, without having to refer to any PLC data.
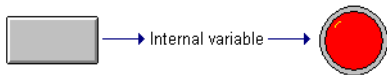
Internal variables must be defined with a name and a data type. The following data types are available:

BOOL	Bit value.
SINT	Short signed integer on 8 bits.
DINT	Long signed integer on 32 bits.
REAL	Single precision floating value on 32 bits.
TIME	Time value (less than 24 hours).
STRING	Character strings with variable length (maximum length is 255 characters).

Internal variables can be local or global:

! Local variables are created when the screen is displayed, and destroyed when the screen is replaced by another, in the case of a multiple page application.

! Global variables are created when the first screen is created, and are kept alive during the time the applet runs in the Internet browser. The value of a global variable is not affected by the applet when the active screen changes.

System Variables

The following variables are available from the "**System**" origin. They contain useful diagnostic information about possible errors detected by the applet or the data server.

SYS	STRING	Global error report.
SYS_APPLET	STRING	Error detected by the applet.
SYS_VARIABLE	STRING	Communication error detected by the embedded Data Server and related to a variable (for example the variable cannot be read in PLC).
SYS_PLC	STRING	Communication error detected by the embedded Data Server and related to one PLC (typically there is a communication problem between Data Server and PLC).
SYS_DATA_SERVER	STRING	Error reported by the embedded Data Server about its own behavior (overload, memory low...).

Note: When the System origin is selected in the tree, the ⋯ button is not available.

Customizing the HTML Template

The HTML template defines the size of the screens displayed in a container (HTML page) as well as the look of the container displaying them. The default template sets containers to the same size as the screens they display. You can choose to resize the screens for a container. You can also choose to use a different template for a container.

To resize screens in a container

1. In the project browser, select the container holding the screens to resize, then right-click.

2. From the contextual menu, choose **Properties**.

    The Image Attributes dialog appears.

3. In the width and height fields, enter the new dimensions and click **OK**.

All existing and new pages for the container will have the new dimensions.

To use another HTML template for a container

1. In the project browser, select the container to use the new template, then right-click.

2. From the contextual menu, choose **Properties**.

    The Image Attributes dialog appears.

3. In the HTML Template field, enter the location of the template to use and click **OK**.

Using Multiple Variable Selectors

You can associate a set of specific variables, called Labels, to a specific set of PLC variables or constants. You associate these labels in the Multiple Variable Selectors (MVS) window.

The Multiple Variable Selector consists of a list of labels and a list of variable configurations that you can associate. Using the selector, you choose a particular configuration. For example, you can have a generic WEB page for a factory assembly line and switch between different sets of variables used to animate the screen. You could also have a configuration for a factory in France and another for a similar factory in Germany. The basic variables and objects remain the same, only their values change.

Example

The example below shows how the properties of a graphic object (a gauge here) can be associated to a Label in a Multiple Variable Selector. For this example, the height of the red part of the gauge varies according to the numeric value of the Tank_Level label. The Selector has a value of 2, therefore, Tank_Level is associated with the PLC variable Tank_Volume.
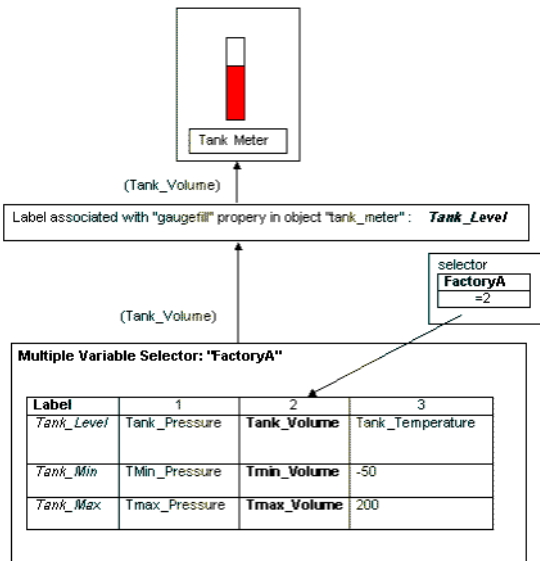
Editing Multiple Variable Selectors

You edit multiple variable selectors in the Multiple Variable Selectors editor.
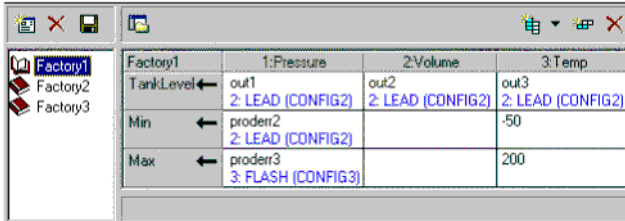
The Multiple Variable Selector editor consists of two parts, the list of available selectors, to the left, and the grid, to the right, where you enter the labels and variables or constants for the selector's configuration.

The selectors appearing in the list are those defined for the current document. You can perform the following management tasks for selectors:

! create selectors

! delete selectors

! save the contents of selectors

You can also choose to hide or display the selectors list.

In the grid area, you can perform the following management tasks relating to the labels and variables associated with a selector:

! add columns

! add rows

! append columns

! delete

To access the Multiple Variable Selectors editor

➤ From the Tools menu, choose **Multiple Variable Selectors**.

Creating Selectors

When creating selectors, you need to insert at least one column and one row in the grid.

To create a selector

1. From the Tools menu, choose **Multiple Variable Selectors**.

   The Multiple Variable Selectors window appears.

2. In the toolbar, click .

   A book appears in the list of selectors.

3. Give the book a meaningful name.

Deleting Selectors

To delete a selector

1. From the Tools menu, choose **Multiple Variable Selectors**.

   The Multiple Variable Selectors window appears.

2. From the list of available selectors, select one to remove.

3. In the toolbar, click .

The selector is removed from the list.

Saving the Contents of a Selector

You can save changes made to a currently selected selector.

To save the contents of a selector

➤   In the toolbar, click ![save icon] .

Hiding or Displaying the Selectors List

You can choose to hide or display the selectors list when using the Multiple Variable Selector editor.

To hide or display the selectors list

➤   In the toolbar, click ![icon] .

Adding and Inserting Columns

You can add columns after existing columns. You can also choose to insert columns between existing ones.

To add columns to the grid area

1.   From the toolbar above the grid area, click ![add column icon] .

       The Add a Column dialog box appears.

2.   Enter an index number and name to appear in the column label, then click **OK**.

To insert columns

1. In the grid area, select the column to follow the new one.

2. From the toolbar above the grid area, click ▼ .

3. From the menu options, choose **Insert Column**.

   The Add a Column dialog box appears.

4. Enter an index number and name to appear in the column label, then click **OK**.

Adding Rows

When adding rows, you need to define the label for the row. Cells will automatically appear for all existing columns.
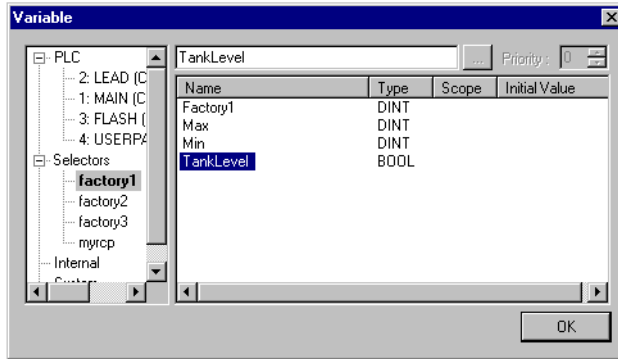
To add rows to the grid area

1. From the toolbar above the grid area, click .

   The Select Variable editor appears.

2. Enter the information to appear for the row label, then click **OK**.

Associating Labels with Objects

You can associate labels created for multiple variable selectors with objects in animated documents.

To associate a label with an object in an animated document

1. In the workspace, double-click the object.

    The Properties window for the object appears.

2. Select a variable then press change.

    The Variable window appears.

3. In the browser, to the right, double-click **Selectors**.

    The available multiple variable selectors appear in the tree-like hierarchy.

4. In the browser, select the desired selector.

5. From the list of available labels, to the right of the browser, select a label.

6. Click **OK**.

Using the Graphic Objects Library

You can reuse individual objects or groups of objects between documents by sending objects to the library. You can also create hyper-objects to send to the library.

The library holds these objects in individual HAD files in the \LIB folder.
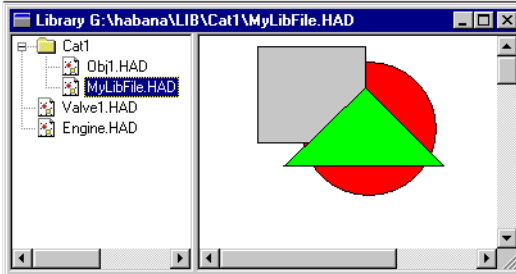
The Library window is divided into a browser and a viewing area. The browser displays the folders and files contained in the library. The viewing area displays the contents of the file selected in the browser.

When the Library window is active, you can access the options for the Library menu.

To access the library

► From the Library menu, choose **Open Library**.

Sending Objects to the Library

Before sending objects to the library, you need to open the library and create a library file to which to send the object.

To send an object to the library

1. From the Library menu, choose **Open**.

    The Library window appears.

2. In the library browser, select the folder in which to place the library file.

3. From the File menu, choose **New**.

4. In the New Library dialog box, choose the File option and enter a name for the file, then click **OK**.

5. From the Window menu, switch to the animated document holding the object to send.

6. From the Library menu, choose **Send to Library**.

The object is imported in the library file.

When the animated document and Library window are visible in the workspace, you can also send an object to the library by holding the Ctrl key depressed then dragging the object from the animated document to the library's viewing area.

Inserting Objects from the Library

Before inserting objects from the library, you need to open the library.

To insert an object from the library

1. From the Library menu, choose **Open**.

   The Library window appears.

2. In the library browser, select the library file holding the object to insert.

   The contents of the library file appear in the library window's viewing area.

3. In the viewing area, select then right-click the object.

4. From the contextual menu, choose **Copy**.

5. In the animated document, click where you want to insert the object.

6. Right-click, then from the contextual menu choose **Paste**.

When the animated document and Library window are visible in the workspace, you can also insert an object by holding the Ctrl key depressed then dragging the object from the library's viewing area to the animated document.

Creating Hyper-Objects

A hyper-object is a group of objects, having a customized property sheet. You customize the property sheet of a hyper-object in order to hide some fixed properties in the grouped objects and to assign original names to useful properties. You typically send hyper-objects to the library for reuse throughout documents.

A hyper-object is a group of objects. The grouped objects have original properties (Styles, Animation variables, and Effects). The group also has its own properties (Effects).
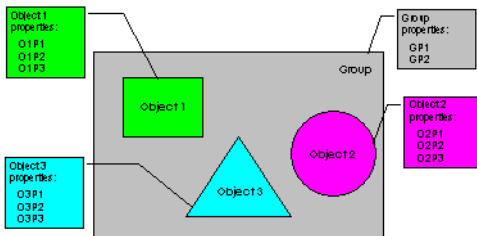
A public property is a property that can be accessed when an object becomes part of a group. You can specify which properties to make public for these individual objects. You define which properties of a selected object are visible in the group's property sheet in the Public Properties editor for the object by choosing Public Properties from the Edit menu.
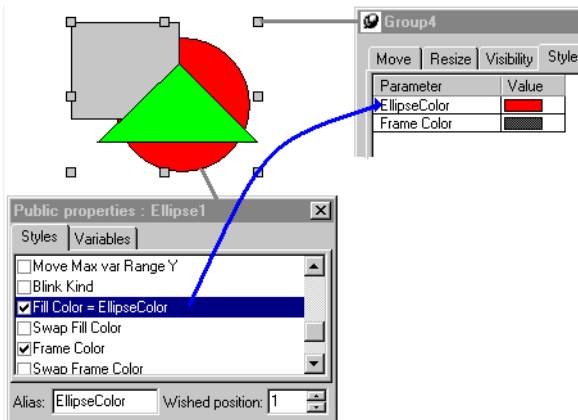
The properties checked in an object's Public Properties editor are visible in the group's property sheet. You can also enter an alias for the property in order to give it an original name within the group property sheet and a wished position in the property sheet of the group.

You can lock the properties of an object, i.e., deny direct modification of an its properties; allow only modifications from the group's property sheet.

To lock an object's properties

You can only lock the properties of objects belonging to a group.

1. In the workspace, select the object.

2. From the Edit menu, choose **Lock Properties**.

Viewing Screens

You can view screens on any platform running a Java technology-enabled browser, i.e., Internet Explorer, Netscape. You view the screens by entering the IP address of the node where the screen is located and its name (HTML) in the browser. You can also create a default screen that automatically opens when only the IP address of the node is entered in the browser.

To view a screen using Internet Explorer

The computer on which you view screens must have a TCP/IP connection to the node where the data server runs and the screen was downloaded.

1. Start a Java-technology enabled browser.

2. In the Address field, enter the following line:
    http://*IP_address_of_target_node*/*screen_name*.html

3. Click **OK**.

The screen appears in the browser.

Linking Screens

You can build a multiple page application by linking screens belonging to the same container (HTML page). To create such an application, in a container, you build individual screens then link them together using special animated parts. The Screen Builder environment enables you to edit many screens at the same time in the workspace. You create links between the screens using Push Button objects:

A button having the Action Kind style set to Other page (HAD). When the operator presses it, the animated area is replaced by the other document. This type of button can hold text and can be used to create an association of several screens with browsing capabilities within the same application. The connection to the data server remains when the visible screen changes due to such a link.

A button having the Action Kind style set to Other WEB document (HTML), establishing a link with another WEB page. When the operator activates such a link, the animation of the current screen stops and the other WEB page replaces the screen in the WEB browser.

Compiling and Loading Documents

You need to compile animated documents into HTML pages then send them to a web server where they can be viewed in a browser, connected to a data server providing real-time data. The compiler performs three tasks:

! checks all references to PLC data

! checks links to other documents

! builds an HTML page, when no errors are detected

You can view compilation messages in the Output window.

To compile an animated document

➤ From the Main toolbar, click .

OR

➤ From the Project menu, choose **Compile**

To send an HTML page to a web server

1. Do one of the following steps:

    ▪ From the Main toolbar, click .

    ▪ From the Project menu, choose **Send to Server**.

    The Download-Send to Server window appears.

2. In the FTP section, enter the IP address of the web server and a password (if applicable).

3. Click **Load**.

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