



## **Welcome to iGrafx Professional 2000**

Welcome and thank you for buying iGrafx Professional 2000. iGrafx Professional is an intelligent business diagramming and modeling solution designed for knowledge workers, managers, and IT professionals. With the intuitive ease of use of iGrafx Professional, it has never been easier to create free-form, structured, network, process, software, and presentation diagrams.

### **iGrafx Professional Features**

- Intelligent Departments
- Automatic Connectors
- Automatic Off-page Connectors
- Unlimited Page Size
- Powerful Graphics Engine
- Powerful, Flexible Shape Numbering
- Automatic Fit-to-Text
- Crossovers and Intersection Dots
- Multiple Text Areas
- Multiple Fonts, Interline Spacing, Paragraphs, Bullets within Shapes
- Visual Basic for Applications 6.0 Support
- VBA iShapes
- Integrated VBA Programming Interface
- Web Support (HTML and Java)
- 20+ filters, including: CGM, DWG, and Visio®.

## **System Requirements**

The minimum system requirements for installing and running iGrafx Professional are listed below.

- Pentium processor
- Windows 95, 98, or Windows NT 4.0 or higher
- 16 MB RAM for Windows 95 and 98; 32 MB RAM for NT
- At least 50 MB of hard drive space
- 640x480 256 color monitor (800x600, 16-bit color recommended)
- CD-ROM drive
- Mouse or other pointing device

## Technical Support

Getting the most out of your investment is central to your success. That is why we have developed a fee-based support program for registered users in the U.S. and Canada that delivers fast, flexible, and comprehensive service for the Micrografx products you own. This program is backed by our commitment and all the resources necessary to provide you with the service you expect.

Our staff of experienced technical advisors are specialists in the critical areas and applications important to you. Our experts can assist callers quickly and efficiently.

## Complimentary Support

As a registered iGrafx *Professional* customer, you are entitled to thirty days of complimentary support following your first call to our technical support staff.

You can receive technical support from a technical support advisor between the hours of 7:00 a.m. and 5:00 p.m. (Central time), Monday - Friday.

To contact technical support during this time, call (972) 234-2694.

You can fax your questions to (972) 644-3688.

Contact Micrografx through the Internet as follows:

<http://www.mgxsupport.com>

Thereafter, whether you want full-service coverage or occasional support for your Micrografx products, you will like the flexibility of choosing only those services you need.

## **Using Online Documentation**

Online documentation, found in Adobe® Acrobat® PDF format, contains all reference materials found in Help and information found in the user's guide. Access the PDF documentation by clicking the Start button, pointing to Programs, iGrafx, and then Documentation. The PDF documentation is also located on the Application CD-ROM as uncompressed files.

## Learning About Help

To use iGrafx *Professional* more effectively, we designed an integrated online help system using the familiar Windows 95 help system with the three tabs, Contents, Index, and Find. You access this help system through the Help menu on the application.

In addition, help information for iGrafx *Professional* is accessible through context-sensitive online help. The help system is designed so that you can easily find the information you want—from conceptual topics, to specific procedures, to detailed information on buttons, tools, and dialog boxes—with just a few mouse clicks.

The most up-to-date information regarding iGrafx *Professional* can be found in the Readme.txt on the root of the CD.

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{button Related Topics,PI('',`profess\_\_rtf\_1085362')}

[Using Help](#)

## Using Help

{button Tell me how...,PI(';',`profess\_\_rtf\_1085381')}

The iGrafx *Professional* online help contains many useful features for finding, copying, and printing Help topics. When used together, these features help you find topics faster. The ability to print hardcopy from the Help also helps keep a record of concepts and procedures that you are likely to use most.



[To find a topic in Help](#)

[To copy information from a Help topic](#)

[To print a Help topic](#)

**To find a topic in Help**

- 1 Click the Contents tab to browse through topics by category.
- 2 Click the Index tab to see a list of index entries: either type the word you're looking for or scroll through the list.
- 3 Click the Find tab to search for words or phrases that may be contained in a Help topic.

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{button Related Topics,PI('',`profess\_\_rtf\_1085405')}

[To copy information from a Help topic](#)

[To print a Help topic](#)

[Using Help](#)

[Learning About Help](#)

### To copy information from a Help topic

- 1 In the Help topic window, click the Edit menu or the Options button, and then click Copy.
- 2 You can also use the right mouse button to click inside the topic or pop-up window.
- 3 In the document where you want the information to appear, click the place where you want to put the information.
- 4 On the Edit menu, click Paste.

**Tip**

If you want to copy only part of a topic, select the part you want to copy before you click the Copy command.

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{button Related Topics,PI('`,`profess\_\_rtf\_1085435')}

[To find a topic in Help](#)

[To print a Help topic](#)

[Using Help](#)

[Learning About Help](#)

### To print a Help topic

- ▶ In the Help topic you want to print, click the Print button or the Options button, and then click Print Topic. You can also use your right mouse button to click inside the Help window, and then click Print Topic.

**Tip**

You can print a group of related topics by clicking a book in the Help Contents and then clicking Print.

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{button Related Topics,PI('`,`profess\_\_rtf\_1085463')}

[To find a topic in Help](#)

[To copy information from a Help topic](#)

[Using Help](#)

[Learning About Help](#)





## Using Toolbars and Tool Palettes

{button Tell me how...,PI('','using\_ig\_rtf\_1090851')}

iGrafx *Professional* uses toolbars and tool palettes to provide much of its functionality. Toolbars contain icons that provide a set of related tools. For example, the Formatting toolbar contains tools for formatting elements of the diagram or model. With Tool palettes, you can select from a palette of styles or colors. For example, there is an Arrowheads tool palette for selecting the direction of an arrow or style of an arrowhead. There are color palettes for text, lines, and fills.

You can display the following toolbars:

- Standard
- Formatting
- Toolbox
- Draw
- Preset Styles
- Data
- iDiagram
- Visual Basic
- Connector Line Tool
- Zoom
- Controls
- Arrange
- Model
- Trace

[To create a new toolbar](#)

[To rename a toolbar](#)

[To reset a toolbar](#)

[To delete a toolbar](#)

[To make a toolbar a floating palette](#)


















[To dock a floating toolbar](#)

[To create a floating palette from a toolbar tool](#)

[To show or hide toolbars](#)

















## Standard Toolbar

The Standard toolbar contains tools that help you perform basic functions in iGrafx *Professional*. Most of these functions appear as commands in the File and Edit menus.

Tool	Name	Description
	New	Creates a new diagram.
	Open	Opens a previously existing diagram.
	Save	Saves the active diagram.
	Print	Prints the active diagram.
	Print Preview	Shows the diagram as it looks when you print it.
	Spelling	Checks the spelling of text in your diagram.
	Cut	Removes the selected item and places it on the Clipboard.
	Copy	Copies the selected item and places it on the Clipboard.
	Paste	Places the contents of the Clipboard on the diagram.
	Format Painter	Copies the formatting of the selected text, shapes, or lines to other text, shapes, or lines.
	Undo	Undoes an action or change.
	Redo	Reverses the last undo you made.
	View Shape Palettes	Shows or hides the Shape palette.
	Draw	Opens the Draw Toolbar.
	Properties	Opens the Properties dialog box.
	Zoom Control	Magnifies the diagram by the percentage you select or enter.
	Help	Displays information about the item you click next.

## Formatting Toolbar

The Formatting toolbar gives you easy access to the options you use to define the way text, lines, and shapes look in your diagrams. Additional formatting options are available on the Format menu.

Tool	Name	Description
	Font Name	Displays and changes the name of the current font.
	Font Size	Shows the current point size.
	Bold	Turns text bold (or removes bold, if it is already bold).
	Italic	Turns text italic (or removes italic, if it is already italic).
	Underline	Underlines text (or removes underline, if it is already underlined).
	Opaque	Makes the text's background transparent.
	Text Color	Applies color to text.
	Vertical Align	Specifies Top, Middle, or Bottom alignment. Click the tool and then choose from the menu.
	Horizontal Align	Specifies Left, Center, or Right alignment. Click the tool and then choose from the menu.
	Insert Field	Inserts a new field into a shape.
	Bullets	Makes selected text a bulleted list.
	Decrease Indent	Moves paragraph to the left.
	Increase Indent	Moves paragraph to the right.
	Increase Line Spacing	Increases line spacing in selected text.
	Decrease Line Spacing	Decreases line spacing in selected text.
	Rotate Text Left	Rotates text 90 degrees to the left.



Rotate Text  
Right

Rotates text 90 degrees to  
the right.

### **Tips**

You also can use the commands on the Format menu to specify formats, text color, fill color, line color, line styles, line weight, styles for filled lines, arrowhead styles, crossover styles, shadows, and 3D effects.








There are also shortcut keys for vertically aligning shapes: Top (CTRL+SHIFT+4), Middle (CTRL+SHIFT+6), Bottom (CTRL+SHIFT+8).

There are also shortcut keys for horizontally aligning shapes: Left (+3), Center (CTRL+SHIFT+5), Right (CTRL+SHIFT+7).

When you click the down arrow next to a color tool, a palette of colors opens. If you click a color, the program applies it to the next shape or currently selected shapes. To set a custom color, click More Colors, and the Color dialog box opens.

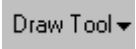









## Toolbox Toolbar

The Toolbox toolbar gives you easy access to the tools you use most to create and change diagrams.

Tool	Name	Description
	Selector	Selects, moves, and resizes drawn elements.
	Insert Department	Adds, edits, or deletes department attributes.
	Shapes	Places shapes in a diagram and selects shape attributes and properties. You can use different shapes to represent steps, documents, events, and other information in diagrams.
	Connector Line	Connects shapes with different types of lines. Choose from Direct, Right Angle, Curved, Org Chart, Cause and Effect, and Lightning Bolt lines.
	Text	Enters and changes text, types text blocks, types text on lines, and changes text. (It is not necessary to select the Text tool to add text to a selected shape.)
	Shape Numbering	Numbers shapes.
	Zoom Control	Changes the view percentage.

## Draw Toolbar

The Draw toolbar contains tools that align, flip, rotate, reorder, replace, and otherwise arrange objects. Objects include shapes, text, and lines. You cannot perform all operations on all types of objects. For example, you can only rotate or flip shapes.

Tool	Name	Description
	Draw	Draws shapes in a diagram.
	Selector	Selects, moves, and resizes drawn elements.
	Rotate	Rotates selected objects.
	Edit Points	Edits the connect points in the graphic.
	Rotate Right	Rotates the selected objects 90 degrees to the right.
	Rotate Left	Rotates the selected objects 90 degrees to the left.
	Flip Horizontal	Flips the selected objects horizontally.
	Flip Vertical	Flips the selected objects vertically.
	Arrange	<p>Opens a list of Arrange commands for modifying objects in the diagram. The Arrange commands are:</p> <ul style="list-style-type: none"><li>• Align - aligns shapes vertically and horizontally.</li><li>• Make Same Size - makes selected shapes same size.</li><li>• Even Spacing - spaces selected shapes evenly.</li><li>• Order - moves objects in your diagram.</li><li>• Group - groups selected objects.</li><li>• Ungroup - ungroups selected grouped object.</li></ul>
	Combine	<p>Opens a list of Combine commands so you can connect and disconnect closed and open objects. You can also form shapes from different combinations of operations. The Combine commands are:</p> <ul style="list-style-type: none"><li>• Connect Open - connects the selected, closed objects.</li><li>• Connect Closed - connects the selected open objects and closes</li></ul>

them.

- Disconnect - disconnects the selected connected objects.
- Join - creates a new shape by joining the selected objects together.
- Intersect - creates a new shape from the intersection of the selected shapes.
- Outline - creates a new shape from the outline of the selected shapes.
- Slice - slices the selected closed shape with the selected open shape.



Layer Manager

Opens the Layer Manager. In Layer Manager, you can change the visible, print, and lock properties of layers. Also, Layer Manager selects the current layer; adds, deletes, and renames layers; changes the order of layers; and specifies whether you want to change the current or all layers.



Fill Color

Specifies the color for a shape.



Line Color

Applies color to lines, line endings, and shape borders.



Text Color

Applies color to text.



Line Style

Changes the style (solid, dashed, dotted) for lines and shape borders. You can select from several line styles, such as solid and dotted, which are also used to define the border styles for shapes.



Line Weight

Determines line weight, or thickness. Click the tool and then use the arrows to adjust the weight. It is also used to set the border weight for shapes.



Arrowheads

Sets the arrowhead styles for the selected line. When you click the tool, a list of the most commonly used arrowheads opens. For a wider selection of arrowhead styles, click More at the bottom of the list.

**Note**

You cannot change arrowhead styles on filled lines.



Crossovers

Changes the crossover style for the currently selected line. To change the crossover style for the entire diagram, use the Connector Line command on the Format menu.





Shadow

Places a drop shadow on the current shape.

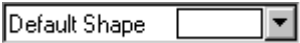










3D

Gives the shape a 3-dimensional appearance.







## Preset Styles Toolbar

The Preset Styles toolbar stores and accesses the styles that you use most frequently for text, shapes, and lines.

Tool	Name	Description
	Shape Style box	Shows the current styles for shapes, including the border and shadow style and width, fill pattern, and color. The styles are applied to the next shape you place in your diagram.
	Add Shape Style tool	Adds the current shape style to the Shape Style list.
	Edit Shape Styles tool	Renames or removes the selected item from the Shape Style list.
	Line Style box	Shows the current styles for lines, including the line and arrow styles, widths, and colors. The styles are applied to the next line you draw.
	Add Line Style tool	Adds the current line style to the Line Style list.
	Edit Line Styles tool	Renames or removes the selected item from the Line Style list.
	Text Style box	Shows the current styles for text, including the font, size, style, and color. The styles are applied to the next character you type.
	Add Text Style tool	Adds the current text style to the Text Style box.
	Edit Text Styles tool	Renames or removes the selected item from the Text Style list.







## iDiagram Toolbar

The iDiagram toolbar contains tools that help you set up and run iDiagrams.

Tool	Name	Description
	Insert Entity	Inserts an entity into the selected shape.
	Entity Manager	Shows or hides the Entity Manager.
	Execute	Runs the diagram.
	Stop	Stops the execution of an iDiagram.
	Pause/Resume	Pauses or resumes the execution of an iDiagram.
	Step	Runs the diagram one step at a time.















## Visual Basic Toolbar

Use the Visual Basic toolbar to add or edit Visual Basic properties and code to iGrafx *Professional* shapes.

Tool	Name	Description
	Visual Basic Editor	Displays the Visual Basic Editor.
	Design/Run Mode	Switches between the Design and the Run modes.
	Properties	Displays properties for the selected object.
	Edit Code	Edits the code for the object.
	Code Assistant	Adds code to the object.
	Controls	Displays controls options.

## Model Toolbar

The Model toolbar contains all the tools needed for modeling functions. Most of the tools on this toolbar also appear as commands in the Model menu. Use these tools with iGrafx Process.

Tool	Name	Description
	Start/Resume	Starts or resumes the model simulation.
	Pause	Pauses the model simulation.
	Stop	Stops running the model simulation.
	Trace	Traces execution of the simulation.
	Run Setup	Modifies run setup data.
	Generators	Modifies generator attributes.
	Resources	Creates or modifies resources used for the simulation.
	Schedules	Creates or modifies schedules used for the simulation.
	Events	Creates or modifies events used for the simulation.
	Attributes	Creates, modifies, or initializes attributes used for the simulation.
	Functions	Creates or modifies functions used for the simulation.
	Monitors	Creates, modifies, or finds monitors used for the simulation.
	Components	Opens the Components dialog box for adding and modifying components.
	View Scenario	Displays the current scenario.



View Report

Displays the report of the current scenario.

### To create a new toolbar

- 1 On the View menu, click Toolbars.
- 2 Click New.
- 3 Type a name for the new toolbar, and click OK.
- 4 Drag the tools you want from the Customize dialog box to your new toolbar.

#### **Tips**

You can open the Tools menu and click Customize. With the Customize dialog box open, press CTRL, drag a tool from a toolbar and drop it into empty space to create a new toolbar.

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{button Related Topics,PI('',`using\_ig\_rtf\_1083983')}

[To rename a toolbar](#)

[To reset a toolbar](#)

[To delete a toolbar](#)

[To make a toolbar a floating palette](#)

[To dock a floating toolbar](#)

[To create a floating palette from a toolbar tool](#)

[To show or hide toolbars](#)

[Using Toolbars and Tool Palettes](#)



### To rename a toolbar

- 1 On the View menu, click Toolbars.
- 2 Click the toolbar you want to rename.
- 3 Click Rename.
- 4 Type a new name for the toolbar.

#### Note

You cannot rename an iGrafx Professional toolbar. You can rename only the toolbars that you create.

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{button Related Topics,PI('`,`using\_ig\_rtf\_1080344')}

[To create a new toolbar](#)

[To reset a toolbar](#)

[To delete a toolbar](#)

[To make a toolbar a floating palette](#)

[To dock a floating toolbar](#)

[To create a floating palette from a toolbar tool](#)

[To show or hide toolbars](#)

[Using Toolbars and Tool Palettes](#)

### To reset a toolbar

- 1 On the View menu, click Toolbars.
- 2 Click the toolbar you want to reset.
- 3 Click Reset.

#### Notes

Resetting the toolbars returns them to the default, installed setting. This removes any tools that you added and adds tools that were originally on the toolbars.

Resetting the toolbars only affects those tools added or removed through the Customize feature in the Toolbars dialog box or Customize command on the Tools menu.

Only the selected toolbar is reset.

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{button Related Topics,PI('','using\_ig\_rtf\_1080371')}

[To create a new toolbar](#)

[To rename a toolbar](#)

[To delete a toolbar](#)

[To make a toolbar a floating palette](#)

[To dock a floating toolbar](#)

[To create a floating palette from a toolbar tool](#)

[To show or hide toolbars](#)

[Using Toolbars and Tool Palettes](#)

### To delete a toolbar

- 1 On the View menu, click Toolbars.
- 2 Click the toolbar you want to delete.
- 3 Click Delete.

**Note**

You cannot delete an iGrafx Professional toolbar. You can delete only the toolbars you create.

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{button Related Topics,PI('',`using\_ig\_rtf\_1080390')}

[To create a new toolbar](#)

[To rename a toolbar](#)

[To reset a toolbar](#)

[To make a toolbar a floating palette](#)

[To create a floating palette from a toolbar tool](#)

[To show or hide toolbars](#)

[Using Toolbars and Tool Palettes](#)

**To make a toolbar a floating palette**

- 1 Click in a blank area of the toolbar.
- 2 Hold down the mouse button and drag the toolbar from its position.

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{button Related Topics,PI('`,`using_ig_rtf_1080450')}
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[To create a new toolbar](#)

[To rename a toolbar](#)

[To reset a toolbar](#)

[To make a toolbar a floating palette](#)

[To create a floating palette from a toolbar tool](#)

[To show or hide toolbars](#)

[Using Toolbars and Tool Palettes](#)



**To dock a floating toolbar**

- 1 Click in a blank area of the toolbar.
- 2 Drag the toolbar to any side of the program's window.
- 3 When the border changes from thick to thin, you can drop the toolbar into position.

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{button Related Topics,PI('','using\_ig\_rtf\_1080466')}

[To create a new toolbar](#)

[To rename a toolbar](#)

[To reset a toolbar](#)

[To delete a toolbar](#)

[To make a toolbar a floating palette](#)

[To create a floating palette from a toolbar tool](#)

[To show or hide toolbars](#)

[Using Toolbars and Tool Palettes](#)

### To create a floating palette from a toolbar tool

- 1 Click one of the following tools. (These tools are on the Draw toolbar).



Text Color



Fill Color



Line Color



Line Style



Line Weight



Arrowheads



Crossovers



Shadow



3D

- 2 Drag the palette off the tool.
- 3 If you want, you can close the Draw toolbar. The floating palette remains open until you close it.

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{button Related Topics,PI('`using\_ig\_rtf\_1084150')}

[To create a new toolbar](#)

[To rename a toolbar](#)

[To reset a toolbar](#)

[To delete a toolbar](#)

[To dock a floating toolbar](#)

[To show or hide toolbars](#)

[Using Toolbars and Tool Palettes](#)

**To show or hide toolbars**

- 1 On the View menu, click Toolbars.
- 2 Select the toolbars you would like to view, or clear the toolbars you no longer want to view.
- 3 Click OK.

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{button Related Topics,PI('','using\_ig\_rtf\_1086097')}

[To create a new toolbar](#)

[To rename a toolbar](#)

[To reset a toolbar](#)

[To delete a toolbar](#)

[To make a toolbar a floating palette](#)

[To create a floating palette from a toolbar tool](#)

[To show or hide toolbars](#)

[Using Toolbars and Tool Palettes](#)

Customize dialog box

{button Tell me how...,PI("`using\_ig\_rtf\_1091387")}

Element	Description
Categories	Menu and toolbar names in the application.
Tools	Available for assigning to existing menus and toolbars, or new toolbars.

To create a new toolbar



## **Using Color Palettes**

With iGrafx Professional, you can color text, lines, and fills. You can change default color and create as many as 33 custom colors.

### To create a custom color

- 1 Click the Fill Color, Line Color, or Text Color tool on the Draw toolbar.



- 2 Click More Colors.
- 3 Click or drag anywhere in the large color window to select a color.
- 4 Click OK. The color becomes the selected color for the fill, text, or line. It also appears in the color palette.

#### **Tips**

Move the vertical scroll bar on the right to adjust the amount of white and black in your color.

For finer control, you can type the values you want in the text boxes. Values must be between 0 and 255.

When the custom color palette is full, you can still add more colors. When you do, the first custom color (in the upper left corner) is removed and your new color is added in the lower right corner of the palette.

If you are using Windows-standard VGA (16 colors), certain colors appear different when drawing lines and typing text, because of the limitations of your display driver.

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{button Related Topics,PI('`,`using\_ig\_rtf\_1087689')}

To color an existing line

To color fill

To color existing text

### To color an existing line

- 1 Click the line that you want to apply color to.
- 2  Click the Line Color tool.
- 3 Click the color you want.


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{button Related Topics,PI('','using\_ig\_rtf\_1087715')}

To color fill

To color existing text

### To color fill

- 1 Click the shape that you want to apply color to.
- 2  Click the Fill Color tool.
- 3 Click the color you want.


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{button Related Topics,PI('','using\_ig\_rtf\_1087742')}

To color an existing line

To color existing text

### To color existing text

- 1 Click the text that you want to apply color to.
- 2  Click the Text Color tool.
- 3 Click the color you want.

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{button Related Topics,PI('','using\_ig\_rtf\_1087769')}



To color an existing line

To color fill

## Using ToolTips

ToolTips are short messages that appear in bubble text. These messages help explain the name of the tool or button and, in some cases, what the tool or button does.

**To show or hide ToolTips**

- 1 On the View menu, click Toolbars.
- 2 Click Show ToolTips.

*or*

Clear the Show ToolTips box.

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{button Related Topics,PI('`,`using\_ig\_rtf\_1095766')}

To use ToolTips

### To use ToolTips

- 1 On the View menu, click Toolbars.
- 2 Make sure the Show ToolTips box is checked.
- 3 Point to a tool or button in the window, and hold the mouse still for a short time. A short message (bubble) appears, explaining the tool or button.

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{button Related Topics,PI('`,`using\_ig\_rtf\_1084229')}

To show or hide ToolTips

## Using Menus and Commands

For more information about commands in iGrafx Professional, click on the following menus:

[File menu](#)

[Edit menu](#)

[View menu](#)

[Insert menu](#)

[Format menu](#)

[Tools Menu](#)

[Arrange menu](#)

[Model menu](#)

[Window menu](#)

[Help menu](#)

## File menu

{button Tell me how...,PI('`,`using\_ig\_rtf\_1078057')}

The File menu contains the following commands:

Command	Description
New	<p>On the File menu, point to New and click one of the three commands.</p> <p>You can create a new document as:</p> <ul style="list-style-type: none"><li>• A Basic Diagram</li><li>• Process</li><li>• A new document based on a template</li></ul>
Open	<p>Opens an existing diagram or workspace.</p> <p>You can open these file types:</p> <ul style="list-style-type: none"><li>• Documents (file names ending with an IGX, FLO, ABC, AF3, AF2, PFD).</li><li>• Templates (file names ending with the IGT extension).</li><li>• Workspaces (file names ending with the IGW extension).</li></ul> <div><b>Tip</b> The shortcut key is CTRL+O.</div>
Close	Closes the active document.
Close All	Closes all documents.
Save	<p>Stores a document or template as a file.</p> <p>The first time you save a new document choose where you want to store the file. Afterwards, each time you choose the Save command, your changes are saved in that file. You also can save templates for use with new documents.</p>
Save As	Makes a copy of the document under a new name or in another location, so that you have both the original document and a copy.
Save Workspace	<p>Saves the names of open documents and their window arrangement in a file.</p> <p>When you open a workspace file, the document files open and restore the arrangement.</p>
Save as Web Page	Saves a iGrafx <i>Professional</i> file with related HTML format or Java applets, including graphics, for publication on the



Web. This feature also converts links to the diagram to HTML format. When the diagrams are viewed on the Internet or an intranet and if you converted the links, clicking on a linked shape opens the associated diagram.

**Components** Manages diagrams and diagram components by listing them in a hierarchical, or outline, view. This makes it easy to add new diagrams, rename or edit existing diagrams, and delete diagrams you are no longer using.

**Shape Library** Adds shapes to the Toolbox toolbar. After you add a shape, you can change its size, line width, and color. You can also duplicate or add Visual Basic functionality to a shape(s).

**Template** Provides information on the template associated with the document.

**Page Setup**

- Sets the size of the page.
- Sets the orientation of the page (portrait or landscape)
- Sets the scaling to fit diagrams on pages
- Sets the size of the page margins (borders)
- Sets custom headers and footers
- Sets the order in which pages are printed

If you change your page margin, the objects on the page also move. The default page size is determined by the selected printer.

**Print Preview** Previews how the diagram looks when you print it.

**Print** Prints your diagrams and adds them to presentations and reports.

You can print all the pages, a range of pages, or only selected objects in the diagram.

**Tip**

You can also use the shortcut key: CTRL+ P

**Send** Creates an e-mail message with the current document as an attachment.

**Note**

This feature works with any MAPI E-mail system. MAPI e-mail systems include Microsoft Mail, Microsoft Exchange, and Lotus cc:Mail.

**Recent File** Lists the last four documents you opened or saved. Quickly opens documents you recently changed. The complete path name appears for documents outside the

current directory.

A number appears beside each documents name. You can type the number to open the documents or click the document name.

Exit

Closes open documents and the program. Use this command when you finish working with the program, or when you want to free memory to work in another program.

To create a new document using the New command

To create a new template

To create a document from a template

To open a DRW file

To save a document or template

To save a diagram as a Web page

To add a shape to the Toolbox toolbar

To insert a predefined header or footer

To print a diagram

To send a document as an e-mail attachment

## Edit menu

{button Tell me how...,PI("`using\_ig\_rtf\_1089501")}

The Edit menu contains the following commands:

Command	Description
Undo	Reverses the last action or change on a diagram. If an action cannot be reversed, Can't Undo appears on the menu.
Redo	Reverses the last undo you made. A description of the action to be redone follows the Redo command. For example, Redo Move indicates that Redo can redo a move action.  If the program cannot reverse the most recent undo, Redo is not available.
Cut	Removes the selected objects from a diagram and places them on the Clipboard.
Copy	Copies the selected objects in a diagram and places them on the Clipboard.
Paste	Places the contents of the Clipboard into the active diagram.
Paste Special	Pastes information from the Clipboard in various formats.
Select	Specifies the shapes, lines, text blocks, or OLE objects that you want selected in a diagram.
Select All	Selects all objects in a diagram.
Clear	Deletes the selected objects from a diagram.  The Clear command deletes objects permanently. They are not placed on the Clipboard. Use the Undo command to recover a cleared object.
Duplicate	Duplicates the selected objects.
Find	Searches for text in the diagram. You can search the diagram (including shapes, lines, and master Items), in notes, in data fields, or in all of these elements. You can look for the text as a whole word and search for the text exactly as you have entered its case.
Replace	Searches for and replaces text in shapes, lines, notes, and the entire diagram.  You cannot replace shape numbers.
OLE Links	Opens a list of the objects linked to the active diagram.  Use this command to update the object with changes made in the source file, open the source file, change the

source file or item, or break the link to the source file.

You can only change the links of linked objects. For example, you cannot break a link of an inserted object.

Object	Opens the object application so you can change the linked or embedded object.
Properties	Displays the Properties dialog box for setting or modifying properties of selected objects.

To undo an action

To redo (reverse) your last undo

To cut objects

To copy objects

To paste objects

To select diagram components

To delete objects

To duplicate objects

To find text

To replace text in a diagram

## View menu

{button Tell me how...,PI("`using\_ig\_rtf\_1079316")}

The View menu contains the following commands:

Command	Description
Normal	Displays the diagram graphically.
Tabular	Displays the diagram as a table with associated data for each shape.
Full Screen	Displays all of the elements of your diagram on the screen without menus or tools. Press ESC to return to the previous view.
Master Page	Displays the items that appear on every page. For example, if you place a shape in the bottom left-hand corner of the master page, this shape appears in the same place on every page.
Toolbars	Displays or hides toolbars. You can also customize the toolbars, reset toolbars, create new toolbars, delete custom toolbars, choose large or small tool sizes, choose color or black and white tools, and show or hide ToolTips using this command.
Status Bar	Displays or hides the status bar.
Output	Displays or hides the output window.
Gallery	Displays or hides the gallery.
Note	Displays or hides the Note window.
Hidden Lines	Displays or hides hidden lines.
Page Breaks	Displays or hides page breaks.
Rulers	Displays or hides the rulers.
Zoom	Changes the magnification of a diagram. To zoom in means to magnify. To zoom out means to reduce the magnification.

To use Normal view

To use Full Screen view

To view the Master Page

To show or hide toolbars

To use the Status Bar

To open the Output window

To show or hide the Gallery

To open the Note window

To turn page breaks on or off

To turn rulers on or off

To choose a zoom percentage



## Insert menu

{button Tell me how...,PI("`using\_ig\_rtf\_1085179")}

The Insert menu contains the following commands:

Command	Description
Link	Inserts a link from a shape to another diagram, file, or URL.
Department	Inserts a new department.
Picture	Inserts pictures from other files, iGrafx 3D files, and iGrafx Image files.
iGrid	Inserts an iGrid.
SPC Chart	Inserts SPC charts.
OLE Object	Inserts objects from other applications.

[To link a shape to a new diagram](#)

[To link a shape to a file or Web page](#)

[To insert a department](#)

[To insert a SPC chart in a diagram](#)

# Format menu

{button Tell me how...,PI("`using\_ig\_rtf\_1079337")}

The Format menu contains the following commands

Command	Description
Font	Sets the font, size, color, and orientation for diagram text.
Text Alignment	Selects between horizontal or vertical alignment, and sets text orientation and tab size.
Text Layout	Sets text and subtext area sizes for shapes.
Fields	Creates or edits shape fields.
Numbering	Displays or hides shape numbers, automatically or manually rennumbers shapes, and sets the next shape number.
Fill	Sets shape fill styles as solid, pattern, or gradient.
Line and Border	Sets line size, style, and color.
Shadow/3D	Chooses shadow or 3D styles for shapes.
Callout Line	Chooses callout line sizes, styles, and colors.
Diagram	Edits the properties for departments.

[To choose text styles](#)

[To rotate text with a shape](#)

[To add secondary text areas to a shape](#)

[To add a field to a shape](#)

[To connect a callout line to a shape from a graphic](#)

[To edit text in department headers](#)

## Tools Menu

{button Tell me how...,PI("`using\_ig\_rtf\_1079722")}

The Tools menu contains the following commands:

Command	Description
Spelling	Checks the spelling of any text included in documents. You can check the spelling of all the text in the document, or only selected text.
Protect Diagram	Sets or removes password protection to protect your diagram from unauthorized changes.
Change Diagram Type	Changes a Process diagram to a Basic Diagram, or changes a Basic Diagram to a Process diagram.
iDiagram	Runs an iDiagram, assigns a starting entity to a shape, and opens the Entity Manager.
Visual Basic	Uses the Visual Basic Editor to edit codes, views VB shape properties, and assign VB macros to shapes.
Custom Data	Manipulates custom data, inserts legends, creates, displays, and updates custom data.
Export Diagram	Exports a diagram to another file.
Customize	Customizes the program toolbars and the Toolbox.
Options	Sets options for shape spacing and alignment, line spacing, spell checking, displaying the Finished button, displaying the Welcome dialog, and setting the number of Undos and Redos.

[To check spelling](#)

[To protect a diagram](#)

[To run an iDiagram](#)

[To add custom data fields to a shape](#)

[To insert an iGrid](#)

## Arrange menu

{button Tell me how...,PI("`using\_ig\_rtf\_1080042")}

The Arrange menu contains the following commands:

Command	Description
Align	Aligns shapes vertically and horizontally.
Make Same Size	Makes selected shapes the same size.
Space Evenly	Spaces selected shapes evenly.
Grid	Snaps a selected object to the grid, displays or hides grid dots, or snaps all objects to the grid.
Guidelines	Displays or hides vertical or horizontal guidelines or snaps selected objects to the guidelines.
Connect Shapes	Uses a connector line to connect selected shapes.
Replace Shape	Replaces the selected shape(s) with the shape in the Shape Library, Shared Media, or the Clipboard.
Reverse Ends	Reverses the ends of the selected line. This changes the direction of the flow for that line.
Fit to Text	Resizes the selected object or objects based on their text.
Rotate/Flip	Rotates or flips the selected object.
Order	Moves objects in your diagram. You can send objects to the back, bring objects to the front, send an object one level backward, or bring an object one level forward.
Layers	Provides a submenu of commands that opens the Layer Manager, edits all layers, adds layers, selects a layer to move to, moves the layer back one layer, and moves the layer forward one layer.
Convert To	Converts a shape to a graphic or a graphic to a shape.
Combine	Connects and disconnects closed and open objects. Also, forms new shapes from different combinations of operations that you can perform with shapes.

To snap objects to the grid

To add a horizontal guideline

To add a vertical guideline

To connect two shapes using the Connect Shapes command

To replace shapes

To reverse line ends between shapes

To fit shapes to text

To group objects



## Model menu

The Model menu contains the following commands. Use these commands with iGrafx Process.

Command	Description
Run	Runs a check, or test, on the simulation. You can also start, stop, or trace a simulation.
Run Setup	Modifies run setup data.
Generators	Modifies generator attributes.
Resources	Creates or modifies resources used for the simulation.
Schedules	Creates or modifies schedules used for the simulation.
Events	Creates or modifies events used for the simulation.
Attributes	Creates, modifies, or initializes attributes used for the simulation.
Functions	Creates or modifies functions used for the simulation.
Monitors	Creates, modifies, or finds monitors used for the simulation.
Types	Defines the types associated with the simulation.
Transaction Groups	Defines the transaction groups associated with the simulation.
Find Start	Finds the start point for your simulation.

## Window menu

The Window menu contains the following commands:

Command	Description
New Window	Creates a new window for the active diagram.
Tile Vertically	Tiles windows vertically.
Tile Horizontally	Tiles windows horizontally.
Cascade	Cascades windows for minimizing or maximizing.
Split	Divides the active window into four panes. You can then view more than one window at the same time.
Window List	Displays the names of the windows open currently. The numbers indicate the order in which the windows were opened. A check mark indicates which window is active.

## Help menu

The Help menu contains the following commands:

Command	Description
iGrafx <i>Professional</i> Help	Displays the help file for finding specific information about using the program.
Learn About Help	Describes the advantages of using help.
Tip of the Day	Displays program tips.
Using Help	Describes how to use the help file.
iGrafx <i>Professional</i> Home Page	Displays the home page for the iGrafx <i>Professional</i> product in the Micrografx Internet site.
Micrografx Home Page	Displays the Micrografx Internet home page.
About iGrafx <i>Professional</i>	Displays the program's version number, copyright, and licensing information.



## Creating New Documents

{button Tell me how...,PI('','getting\_\_rtf\_1133870')}

This manual refers to both documents and diagrams. These concepts are different because:

Documents are containers—They can be a single component such as a Basic Diagram or a Process, or contain more than one Basic Diagram or Process. When you create a document, it includes one diagram by default. You create, open, save, and distribute documents.

Diagrams are components of the document—In diagrams, you can place shapes and draw graphics. You can also view, edit, print, and link diagrams to other diagrams in a document. Collecting and linking multiple diagrams to one document keeps corresponding information in one place.

iGrafx *Professional* offers two ways to create documents. You can create documents using:

- Welcome dialog
- New command on the File menu

### Welcome dialog

The Welcome dialog is the first entry point into iGrafx *Professional*. This dialog offers a graphical point of reference for creating new documents and opening existing ones.

#### Note

You can bypass the Welcome dialog by clicking the Don't Show This Startup Screen Again box in the lower left-hand corner of this dialog.

If you decide later that you want to see the Welcome dialog, use the Options command on the Tools menu to make this change.

### New command

The New command creates a new document with or without using a template. You can use the New command on the File menu during any part of your session, including startup.

iGrafx *Professional* includes a manager for templates. Clicking Template on the File menu opens the Template dialog box. Use this box to apply templates, check the dates of template updates, and synchronize an opened document with the most up-to-date template.

To create a new document from the Welcome dialog

To create a new document using the New command

To create a document from a template

To create a new template

**To create a new document from the Welcome dialog**

- 1 On the Windows Start menu, point to iGrafx, and click Professional.
- 2 In the Welcome Dialog, click New Document, and then click Process or Basic Diagram.

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{button Related Topics,PI('`,`getting\_\_rtf\_1133888')}

To create a new document using the New command

To create a document from a template

Creating New Documents



**To create a new document using the New command**

- 1 On the Windows Start menu, point to iGrafx, and click Professional.
- 2 On the File menu, click New. You can select:
  - Process to open a process diagram with a default department lane.
  - Basic Diagram to open a new, blank diagram window.
  - From Template to open the New dialog box to select a template file.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1133910')}

[To create a new document from the Welcome dialog](#)

[To create a document from a template](#)

[To create a new template](#)

[Creating New Documents](#)

**To create a document from a template**

- 1 On the File menu, point to New, and click From Template.
- 2 Click the template you want.
- 3 Click OK.
- 4 On the File menu, click Save As.
- 5 In the Save as type box, select *iGrafx Professional (\*.igx)*.
- 6 Save the document under a new name.

---

{button Related Topics,PI('','getting\_\_rtf\_1133936')}

[To create a new template](#)  
[Creating New Documents](#)

### To create a new template

- 1 On the File menu, point to New, and click Basic Diagram.
- 2 Make changes to the document settings and styles.
- 3 On the File menu, click Save As.
- 4 In the Save as type box, select iGrafx *Professional* Template (\*.igt).
- 5 Give a name to the template in the File name text box.
- 6 In the Save in box, click the drive where you want to save the template.
- 7 Select the folder where you want to save the template.
- 8 Click Save.

**Note**

You cannot use templates created in iGrafx *Professional* in FlowCharter 7. Instead you must save them as FLO files and convert them to templates within FlowCharter 7.

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{button Related Topics,PI('`,`getting\_\_rtf\_1133954')}

To create a document from a template  
Creating New Documents

## Templates dialog box

{button Tell me how...,PI('`,`getting\_\_rtf\_1133995')}

Element	Description
Template	Browse for the template you want to use.
Update Status	Date template was last updated - Lists the date of the last template update.  Date of template to which this document type is synchronized - Lists the date to which the document type is synchronized.
Notification	Notifies when the template is updated.
Options button	Opens the Options dialog box where you can change the template path.

[To create a document from a template](#)

[To create a new template](#)



## Opening Documents

{button Tell me how...,PI(``,`getting\_\_rtf\_1134017`)}

iGrafx *Professional* offers two ways to open documents:

- Welcome dialog- Use the Welcome dialog to open documents that you have already created.
- File menu- Use the Open command on the File menu.

To open a document using the Welcome dialog

To open a document using the Open command

**To open a document using the Welcome dialog**

- 1 On the Windows Start menu, point to iGrafx, and click Professional.
- 2 On the Welcome Dialog, click New Document, and then click Process or Basic Diagram.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134035')}

[To open a document using the Open command](#)

[To open a FLO file](#)

[To open a PFD file](#)

[To open a DRW file](#)

[Opening Documents](#)

### To open a document using the Open command

- 1 On the File menu, click Open.
- 2 In the Look in box, choose the drive where the document resides.
- 3 Double-click on the folders to open the folder where your document resides.
- 4 If necessary, choose the type of file you want to open in the Files of type box.
- 5 Click the document you want to open.

#### **Tips**



You can also use the shortcut key: CTRL+O or the Open button on the Standard toolbar.

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{button Related Topics,PI("'",`getting\_\_rtf\_1134065')}

[To open a document using the Welcome dialog](#)

[To open a FLO file](#)

[To open a PFD file](#)

[To open a DRW file](#)

[Opening Documents](#)

## Importing Other Formats

{button Tell me how...,PI('`,`getting\_\_rtf\_1134099')}

You can take a FlowCharter chart, an Optima file, or an Optima Express file, and convert the data into an iGrafx Professional document.

Shapes and lines are automatically converted along with text and graphical information. All linked FlowCharter subcharts can be imported optionally so that the design maintains the hierarchy of processes.

## FlowCharter Charts

When importing FlowCharter charts, you may notice a few things:

- Horizontal swimlanes are converted automatically to iGrafx Professional departments, and their shapes are converted into activities within the appropriate departments.
- If iGrafx Professional finds links to other FlowCharter charts in the file, you will receive an Import Options message.
  - If you choose Yes, the shapes are converted to Process activities and the contents of the linked files are converted into subprocesses.
  - If you choose No, the documents remain separate.

The following table will help you understand the conversion of Process elements:

Element	Description
Shapes	During conversion, any shape that is connected by a line to another shape is automatically converted to an activity.
Graphics and lines	Any shape that is not connected to another shape is converted to a graphic. Also, any line that does not connect shapes is converted to a graphic. Any line that connects shapes is automatically converted to a connection line.
Decisions and Splits	A shape that has more than one labeled output is converted to a Decision activity. A shape that has more than one unlabeled output, and is not a diamond shape, is converted to an implicit Split activity.
Text	Any text object, other than text that labels an output line from a symbol, is converted to a text graphic.
OLE	Any OLE object is converted to an OLE graphic.

[To open a FLO file](#)

[To open a PFD file](#)

[To open a DRW file](#)



**To open a FLO file**

- 1 On the File menu, click Open.
- 2 In the Look in box, choose the drive where the file resides.
- 3 In the box, double-click the folders until you open the folder where your file resides.
- 4 In the Files of type box, click Micrografx FlowCharter 7.0 File (FLO).
- 5 Click the FLO file you want to open.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134121')}

[To open a PFD file](#)

[To open a DRW file](#)

[Importing Other Formats](#)

**To open a PFD file**

- 1 On the File menu, click Open.
- 2 In the Look in box, choose the drive where the file resides.
- 3 Double-click the folders to open the folder where your file resides.
- 4 Click the PFD file you want to open.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134143')}

[To open a FLO file](#)

[To open a DRW file](#)

[Importing Other Formats](#)

**To open a DRW file**

- 1 On the File menu, click Open.
- 2 In the Look in box, choose the drive where the file resides.
- 3 Double-click on the folders to open the folder where your file resides.
- 4 In the Files of type box, click Micrografx Draw 6.0 File (DRW).
- 5 Click the DRW file you want to open.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134165')}

[To open a FLO file](#)

[To open a PFD file](#)

[Importing Other Formats](#)

## Viewing Diagrams

{button Tell me how...,PI('`,`getting\_\_rtf\_1134191')}

iGrafx *Professional* offers several ways to view new diagrams you are creating, or view documents you have already created. Before using a view, ask yourself the following questions:

- What type of diagram do I want to create?
- How will I be using a diagram already created?

### Normal View

Normal is the most popular view for editing diagrams. In Normal view you work with a diagram space, or the area containing shapes, graphics, text, and lines. This space is set by default at 100%. Use the Zoom Control to change the view percentage to view more or less of the diagram space.

### Tabular View

The Tabular view can be used for viewing data contained within the diagram. This includes departments, shapes, and connector lines.

#### Note

You can edit data in both the Normal and Tabular view.

### Full Screen View

Use the Full Screen view to show someone the diagram and do a chalk talk about it. While in full-screen mode, draw on the screen. When you finish, press ESC to return to the previous view. In the Full Screen view, use the mouse buttons to draw using different colors.

- To draw in red, click the left mouse button and drag.
- To draw in green, click the right mouse button and drag.
- To draw in yellow, click both mouse buttons and drag.
- You can use the following keys when working in Full Screen view.
  - DEL, Spacebar, E - Erase diagram annotations
  - TAB, PAGE DOWN, N - Go to the next diagram window
  - SHIFT+TAB, PAGE UP, P - Go to the previous diagram window

### Master Page View

Master Page view shows you what elements appear on the Master Page. Anything placed on the Master Page appears on every page of the diagram when printing or using the Print Preview command.

[To use Normal view](#)

[To use Tabular view](#)

[To use Full Screen view](#)

[To view the Master Page](#)



## To use Normal view

► On the View menu, click Normal.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134217')}

[To use Tabular view](#)

[To use Full Screen view](#)

[To view the Master Page](#)

[Viewing Diagrams](#)

## To use Tabular view

► On the View menu, click Tabular.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134243')}

[To use Normal view](#)

[To use Full Screen view](#)

[To view the Master Page](#)

[Viewing Diagrams](#)

**To use Full Screen view**

- 1 On the View menu, click Full Screen.
- 2 To draw in red, click the left mouse button and drag.

*or*

To draw in green, click the right mouse button and drag.

*or*

To draw in yellow, click both mouse buttons and drag.

- 3 Click ESC to leave the full-screen view.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134269')}

[To use Normal view](#)

[To use Tabular view](#)

[To view the Master Page](#)

[Viewing Diagrams](#)

## To view the Master Page

► On the View menu, click Master Page.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134295')}

[To use Normal view](#)

[To use Tabular view](#)

[To use Full Screen view](#)

[Viewing Diagrams](#)



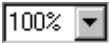
## Zooming Diagrams

{button Tell me how...,PI(``,`getting\_\_rtf\_1137332`)}

Changing the zoom percentage on a diagram helps you get a better view of a shape or a group of shapes. Zoom in to see text and notes on a few shapes, or zoom out to see the layout of all shapes.

To choose a zoom percentage

### To choose a zoom percentage

- 1 Click the object you want centered in the window.
- 2  Click the down arrow in the Zoom box on the Standard toolbar.
- 3 Click the viewing percentage at which you want to view the diagram.
- 4 To scale the diagram to fit in the current window, use Best Fit.

or

To always view the entire diagram, use View All.

#### **Tips**

You can also use the Zoom command on the View menu to change the zoom percentage.

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{button Related Topics,PI('',`getting\_\_rtf\_1134321')}

## Viewing Diagrams

**Zoom dialog box**

{button Tell me how...,PI('',`getting\_\_rtf\_1134349')}

Element	Description
Zoom To	Select how large or small the diagram should appear as a percentage of its normal size.
Percent box	Type a percentage between 5 and 1600.

To choose a zoom percentage

## Using iGrafx Professional Tools

{button Tell me how...,PI('','getting\_\_rtf\_1134367')}

Several tools and commands exist in iGrafx *Professional* to help you change the appearance of diagram components, give you information about performing tasks, and split up the visible diagram space.

These tools include:

- Gallery
- Notes
- Output Window
- Status Bar
- Rulers, Page Breaks, and Hidden Lines
- Window commands

[To show or hide the Gallery](#)

[To place a shape using the Shape Library](#)

[To place a shape using the Gallery](#)

[To attach a note to a shape](#)

[To open the Output window](#)

[To use the Status Bar](#)

[To turn rulers on or off](#)

[To turn page breaks on or off](#)

[To turn hidden lines on or off](#)



## To show or hide the Gallery

► On the View menu, click Gallery.

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```
{button Related Topics,PI('`,`getting__rtf_1134413')}
```

## Using iGrafx Professional Tools

**To open iGrafx Share Media**

- ▶ On the Windows Start menu, point to iGrafx, and click Share Media.

## To open the Note window

► On the View menu, click Note.

### Tip

You can press F6 to open and close the Note window.

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{button Related Topics,PI('`,`getting\_\_rtf\_1134511')}

[To attach a note to a shape](#)

[To delete text in the Note window](#)

[To print a note](#)

[Using iGrafx Professional Tools](#)

**To attach a note to a shape**

- 1 If the Note window is not displayed, click Note on the View menu.
- 2 Select the shape to which you want to attach a note.
- 3 Click in the Note window, and type the information you want.
- 4 Close the Note window.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134537')}

[To open the Note window](#)

[To delete text in the Note window](#)

[To print a note](#)

[Using iGrafx Professional Tools](#)

**To delete text in the Note window**

- 1 If the Note window is not displayed, click Note on the View menu.
- 2 Select the shape to which the note is attached.
- 3 Point inside the Note window. The pointer changes to the I-beam pointer.
- 4 Select the text you want to delete.
- 5 On the Note menu, click Clear or press the DELETE key.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134563')}



[To open the Note window](#)

[To attach a note to a shape](#)

[To print a note](#)

[Using iGrafx Professional Tools](#)

**To print a note**

- 1 On the View menu, click Note.
- 2 Select the shape to which the note is attached.
- 3 On the Note menu, click Print.
- 4 Choose Current Note.
- 5 Choose the print options you want.
- 6 Click OK.

**Tip**

In the Note window, wrapped text moves onto one line. To rewrap the text, point to the Note window border, press and hold the left mouse button, and drag the border out until the entire line of text appears (or drag the window border out and back to its former size).

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{button Related Topics,PI('`,`getting\_\_rtf\_1134589')}

[To open the Note window](#)

[To attach a note to a shape](#)

[To delete text in the Note window](#)

[Using iGrafx Professional Tools](#)

### **To choose indicators for shapes**

- 1 On the Format menu, click Diagram.
- 2 In the Format Diagram dialog box, click the Indicators tab.
- 3 To set the indicator type for a shape with a link, click the down arrow in the Link area, and click the type you want to use.
- 4 If you want to use a text symbol to indicate a shape with a link, type up to three characters in the box in the Note area.
- 5 If you want to use a shadow to indicate a shape with a note, click the Shadow check box.
- 6 If you want to change the indicator style for nodes or intersections, choose a new style and color.
- 7 Click OK.

---

{button Related Topics,PI('','getting\_\_rtf\_1134634')}

## Using iGrafx Professional Tools

### To open the Output window

► On the View menu, click Output.

---

```
{button Related Topics,PI('`,`getting__rtf_1134664')}
```

## Using iGrafx Professional Tools

## To use the Status Bar

- ▶ Move the cursor over any toolbar tool or menu command.  
A description of the tool or command appears in the lower left-hand corner of the iGrafx *Professional* window.

---

{button Related Topics,PI('','getting\_\_rtf\_1134703')}



## Using iGrafx Professional Tools

## To turn rulers on or off

► On the View menu, click Rulers.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134732')}

[To turn page breaks on or off](#)

[To turn hidden lines on or off](#)

[Using iGrafx Professional Tools](#)

**To turn page breaks on or off**

► On the View menu, click Page Breaks.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134754')}

[To turn rulers on or off](#)

[To turn hidden lines on or off](#)

[Using iGrafx Professional Tools](#)

### To turn hidden lines on or off

► On the View menu, click Hidden Lines.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134776')}

[To turn rulers on or off](#)

[To turn page breaks on or off](#)

[Using iGrafx Professional Tools](#)

## To tile windows vertically or horizontally

► On the Window menu, click Tile Vertically or Tile Horizontally.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134814')}



[To cascade windows](#)

[To split windows](#)

[Using iGrafx Professional Tools](#)

## To cascade windows

► On the Window menu, click Cascade.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134836')}

[To tile windows vertically or horizontally](#)

[To split windows](#)

[Using iGrafx Professional Tools](#)

## To split windows

► On the Window menu, click Split.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134858')}

To tile windows vertically or horizontally

To cascade windows

Using iGrafx Professional Tools

## Editing Diagrams

{button Tell me how...,PI('`,`getting\_\_rtf\_1134884')}

You can find most of the editing functions in iGrafx *Professional* on the Edit menu. On this menu, you can do things like duplicate objects and find text. Editing is different from formatting in that you are working with existing components, and not changing the size, or applying new colors, lines, and text.

Through editing, you can do things like:

- Change an open diagram and save it under a new name. This saves you from creating a new one.
- Paste special text and graphics from other applications into iGrafx *Professional*.
- Find text occurrences in diagram shapes or notes, and replace them with a different word or phrase.

[To undo an action](#)

[To redo \(reverse\) your last undo](#)

[To cut objects](#)

[To paste objects](#)

[To use the Paste Special command](#)

[To select diagram components](#)

[To delete objects](#)

[To duplicate objects](#)

[To find text](#)

[To replace text in a diagram](#)

[To check spelling](#)

[To protect a diagram](#)

## To undo an action

- ▶ On the Edit menu, click Undo.  
or



Click the Undo tool.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134942')}



To redo (reverse) your last undo  
Editing Diagrams

### To redo (reverse) your last undo

- ▶ On the Edit menu, click Redo.  
or



Click the Redo tool.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1134960')}

To undo an action

Editing Diagrams

### To cut objects

- 1 Select the object or objects to cut.
- 2 On the Edit menu, click Cut.

or



Click the Cut tool.

#### Tips

The keyboard shortcut for cutting an object is CTRL+X.

Shapes or text cut or copied from the diagram window cannot be pasted into the Note window.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135000')}

To copy objects

To paste objects

To use the Paste Special command

Editing Diagrams

### To copy objects

- 1 Select the object or objects you want to copy.
- 2 On the Edit menu, click Copy.

or



Click the Copy tool.

#### **Tips**

You can also press CTRL+C to copy a selected object.

Shapes or text copied or cut from the diagram window cannot be pasted into the Note window.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135026')}

To cut objects

To paste objects

To use the Paste Special command

Editing Diagrams

## To paste objects

- ▶ On the Edit menu, click Paste.  
or



Click the Paste tool.

### Tips

You can also press CTRL+V to paste the object.

You can paste notes into the active diagram window using the Paste command. Before you can paste something from the Note window, you must select a shape or click the left mouse button on the active diagram.

---

{button Related Topics,PI('','getting\_\_rtf\_1135052')}



To cut objects

To copy objects

To use the Paste Special command

Editing Diagrams

**To use the Paste Special command**

- 1 Select the object(s) or text in another application.
- 2 On the Edit menu, click Paste Special.
- 3 Select the paste type (as text, picture) from the list.
- 4 Click OK.

**Note**

If you have copied a linked object or text from another application, the Paste Link option is selected on the Paste Special dialog box. This keeps this object or text linked back to its original application.

---

{button Related Topics,PI('','getting\_\_rtf\_1135078')}

[To cut objects](#)

[To copy objects](#)

[To paste objects](#)

[Editing Diagrams](#)

### To select diagram components

- 1 On the Edit menu, click Select.
- 2 Click one or more of the check boxes to select all objects of that type.

#### **Tips**

In the Name box, you can click a shape name to select all shapes of that kind.

You can also select all objects using the Select All command on the Edit menu.

You can select multiple objects. Press and hold SHIFT as you click each object.

---

{button Related Topics,PI('',`getting\_\_rtf\_1135120')}

To delete objects

To duplicate objects

Editing Diagrams

## Select dialog box

{button Tell me how...,PI('`,`getting\_\_rtf\_1135173')}

Element	Description
Shapes check box	Click to select shapes.
Name list	Choose the name of a shape you want to select.
Lines check box	Click to select lines.
Text and Graphics check box	Click to select text and graphics.
OLE Objects check box	Click to select OLE Objects.
All and None buttons	Click All to select all diagram objects.
	Click None to clear all check boxes.

To select diagram components

To delete objects

To duplicate objects

### To delete objects

- 1 Select the object you want to delete.
- 2 On the Edit menu, click Clear.

#### **Tips**

You can also press DELETE to delete the selected object.

When you choose the Clear command, objects are deleted permanently. They are not placed on the Clipboard.

Use the Undo command to recover a cleared object.

---

{button Related Topics,PI('','getting\_\_rtf\_1135195')}



To select diagram components

To duplicate objects

Editing Diagrams

### To duplicate objects

- 1 Select the object or objects you want to duplicate.
- 2 On the Edit menu, click Duplicate.

**Note**

You can also press and hold the CTRL key and drag the selected objects to duplicate them.

---

{button Related Topics,PI('','getting\_\_rtf\_1135217')}

To select diagram components

To delete objects

Editing Diagrams

**To find text**

- 1 On the Edit menu, click Find.
- 2 Enter the text to find.

**Note**

The search finds text only in the diagram. It cannot search inserted OLE objects from other programs. To find text in inserted objects, open the object and search for the text within its program.

**Tip**

You can search the diagram (including shapes, lines, and master items), in notes, in data fields, or in all of these elements.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135255')}

To replace text in a diagram  
Editing Diagrams

## Find dialog box

{button Tell me how...,PI(``,`getting\_\_rtf\_1135302`)}

Element	Description
Find what box	Type the text
Match whole word only box	Finds only whole words. For example, if you type computer in the Find what box, the search does not find computerized.
Match case box	Finds variations of the case. For example, if you type computer in the Find what box, the search finds computerized.
Look in list	Diagram- Searches for text in the diagram only.
	Custom Data- Searches for text in custom data fields.
	Notes- Searches for text in notes attached to shapes.
	All- Searches for all three of the above instances.
Find Next button	Click to find the next occurrence of the word.

To find text

To replace text in a diagram

### **To replace text in a diagram**

- 1 In the Edit menu, click Replace.
- 2 Type the text you want to find in the Find box.
- 3 Type the text you want to use as replacement text in the Replace box.

---

```
{button Related Topics,PI('','getting__rtf_1135320')}
```



To replace text in a diagram  
Editing Diagrams

## Replace dialog box

{button Tell me how...,PI('`,`getting\_\_rtf\_1135379')}

Element	Description
Find what box	Type the text you want to find.
Replace with	Type the text that you want to replace the found text.
Match whole word only box	Finds only whole words. For example, if you type computer in the Find what box, the search does not find computerized.
Match case box	Finds variations of the case. For example, if you type computer in the Find what box, the search finds computerized.
Look in list	Diagram- Searches for text in the diagram only.  Custom Data- Searches for text in custom data fields.  Notes- Searches for text in notes attached to shapes.  All- Searches for all three of the above instances.
Find Next button	Finds the next occurrence of the word.
Replace button	Replaces the word.
Replace All button	Replaces all occurrences of the searched word with the text in the Replace with box.

To find text

To replace text in a diagram

**To choose spelling options**

- 1 On the Tools menu, click Options.
- 2 Click the Spelling tab.
- 3 Type the path and file name of the dictionary to be used for spell checking.
- 4 To ignore words with numbers, click Ignore Words with Numbers.
- 5 Click OK.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135416')}

To check spelling  
Editing Diagrams

## To check spelling

- 1 Select the elements you want to spell check. If no elements are selected, the entire diagram is spell checked.
- 2 On the Tools menu, click Spelling.

or



Click the Spelling tool.

### Note

Misspelled words are displayed in the Not in Dictionary box. A suggested replacement is shown in the Change To box.

- 3 You can type in a replacement or choose another replacement from the list.
- 4 To correct the word, click Change or Change All.
- 5 If the word is not misspelled, click Add to add the word to the user dictionary and continue, or click Ignore or Ignore All to ignore the word or every instance of the word.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135434')}

To choose spelling options

Editing Diagrams

## Spelling dialog box

{button Tell me how...,PI('','getting\_\_rtf\_1135490')}

Element	Description
Not in Dictionary	Non-editable field that shows the word that is in your diagram, but is not in the dictionary being used by the program.
Change To	Type the word you want to replace the word displayed in the Not in Dictionary field.
Suggestions	List of suggested spellings for the word displayed. If no words are suggested, "(No Suggestions)" appears.
Ignore and Ignore All buttons	Ignore allows this occurrence of the word as spelled in the diagram. Ignore All allows all occurrences of the word as spelled in the diagram.
Add button	Adds the word to the dictionary used by the program. Useful if you are using an acronym or an industry-specific term
Info button	Provides additional information on the word, for example, that the word is not found in the dictionary.
Change and Change All buttons	Change replaces this occurrence of the word in the diagram with the word you typed in the Change To field. Change All replaces all occurrences of the word in the diagram with the word you typed in the Change To field.
Options button	Opens the Options dialog box to the Spelling tab.



To check spelling

### To protect a diagram

- 1 On the Tools menu, click Protect Diagram.
- 2 In the Password field, type a password.
- 3 In the Verify field, type the same password again.
- 4 Click OK.

**Note**

If you open a protected diagram a message reminds you that you have to type the password before you can make changes to the diagram.

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{button Related Topics,PI('','getting\_\_rtf\_1135521')}

[To unprotect a diagram](#)

[Editing Diagrams](#)

### To unprotect a diagram

- 1 On the Tools menu, click Unprotect Diagram.
- 2 Type the correct password.
- 3 Click OK.

**Note**

If you enter the wrong password, a message appears telling you that the password is incorrect. Click OK and enter the correct password. If you do not know the password, click Cancel. You can change the diagram after you enter the correct password.

---

{button Related Topics,PI('','getting\_\_rtf\_1135543')}

To protect a diagram

Editing Diagrams

## Protect Document dialog box

{button Tell me how...,PI(``,`getting\_\_rtf\_1135576`)}

Element	Description
Password box	Type a password in the Password text box. The password is not case-sensitive. For example, flowchrt is recognized as the same password as FlowChrt. As you type, the password appears as a series of asterisks (****).
Verify box	Type the password in the Verify text box exactly as you typed it in the Password text box.

[To protect a diagram](#)

[To unprotect a diagram](#)

## **Unprotect Document dialog box**

To unprotect the document, type your password in the Password box, and click OK.



## Printing Diagrams

{button Tell me how...,PI('`,`getting\_\_rtf\_1135598')}

When you print a diagram, you can choose several options such as including or excluding diagram components, queuing just the active diagram or the entire document set, or printing to a file. You can also choose the option to print all of the diagrams and components within a document.

Check the following commands and dialog boxes for printing options:

- The Print command on the File menu. This opens the Print dialog box where you can select or change options.
- The Page Setup command on the File menu. This opens the Page Setup dialog box where you can select the Options tab to find other print options.

[To print a diagram](#)

[To see a print preview of your diagram](#)

### To print a diagram

- 1 On the File menu, click Print. Information about the printer appears at the top of the dialog box. (The printer information applies to the printer to which the next print job is sent.) You can also choose another printer.
- 2 Choose a Print Range option.
- 3 In the Copies text box, type the number of copies you want.
- 4 In the Print What box, select the active diagram or the entire document.
- 5 To send the output to a file instead of a printer, click the Print to File box if you want.
- 6 Click OK.

#### **Tips**

You can also use the shortcut key: CTRL+P.

If you choose the Print to File option, a dialog box opens. Type the file name you want and click OK. The diagram information is saved in a file in the current directory.

To print Notes or blank pages, choose the print order, and fit the diagram to the page, click Page Setup on the File menu, then click the Print Options tab.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135616')}

[To see a print preview of your diagram](#)  
[Printing Diagrams](#)

### To see a print preview of your diagram

► On the File menu, click Print Preview.

#### Tip

You can zoom in by clicking the diagram area you want to see in more detail.

---

{button Related Topics,PI('',`getting\_\_rtf\_1135634')}

[To print a diagram](#)  
[Printing Diagrams](#)

## Saving and Closing Documents

{button Tell me how...,PI('`,`getting\_\_rtf\_1135656')}

You can save a document by naming it or renaming it, and clicking the following commands on the File menu:

- Save and Save As - Save a document as an iGrafx *Professional* document or template, older FLO files, or a DRW file.
- Save Workspace - Saves your document as an iGrafx *Professional* Workspace (\*.igw)
- Save as Web Page - Saves your document(s) for publishing on the Web.

If you plan on distributing documents to others, save them as Web pages or as older FLO files. Before sharing these documents with others, ask if they have a Web browser or an older version of FlowCharter installed.

You can close a document or documents using the Close, Close All, or Exit commands on the File menu.

[To save a document or template](#)

[To save a copy of a document](#)

[To save a workspace](#)

[To save documents in FlowCharter 7 format](#)

[To save a diagram as a Web page](#)



### To save a document or template

- 1 On the File menu, click Save. If you are saving a file for the first time, the Save As dialog box opens. If you have already saved the file, your changes are saved in the file you named earlier.
- 2 Type the file name in the File Name box.
- 3 Choose the drive and directory in which you want to store the file.
- 4 Choose the file format (document or template) in the Save as type box.

#### **Tips**

You can also use the shortcut key: CTRL+S.

A template includes all document settings and styles.

You cannot use templates created in iGrafx *Professional* in earlier versions of FlowCharter. Instead you must save them as FLO or AF3 files and convert them to templates within those applications.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135686')}

[To save a copy of a document](#)

[To save a workspace](#)

[To save documents in FlowCharter 7 format](#)

[To save a diagram as a Web page](#)

[Saving and Closing Documents](#)

**To save a copy of a document**

- 1 On the File menu, click Save As.
- 2 Type a file name for the document copy. Use a different name to distinguish between the copy and the original.
- 3 Choose the drive and directory in which you want to store the copy.
- 4 Click OK.

---

{button Related Topics,PI('',`getting\_\_rtf\_1135716')}

[To save a document or template](#)

[To save a workspace](#)

[To save documents in FlowCharter 7 format](#)

[To save a diagram as a Web page](#)

[Saving and Closing Documents](#)

**To save a workspace**

- 1 On the File menu, click Save Workspace.
- 2 Type a name for the workspace file in the File Name text box.
- 3 Choose the drive and directory in which you want to store the workspace file.
- 4 Click OK.

**Note**

Only saved documents are included in the workspace file. If any of the documents in the workspace have not been saved, the Save File dialog box opens to save them.

---

{button Related Topics,PI('',`getting\_\_rtf\_1135762')}

To reopen the workspace

Saving and Closing Documents

**To reopen the workspace**

- 1 On the File menu, click Open.
- 2 Choose Workspace in the Files of Type box.
- 3 Choose the drive and directory that contain the workspace file you want.
- 4 Click the file you want to open.
- 5 Click OK.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135780')}

To save a workspace

Saving and Closing Documents



**To save documents in FlowCharter 7 format**

- 1 On the File menu, click Save As.
- 2 Choose the Micrografx FlowCharter 7.0 File (FLO) format in the Save as type box.
- 3 Type the file name you want in the File name box.
- 4 Choose the drive and directory where you want to store the file.
- 5 Click OK.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135814')}

## Saving and Closing Documents

**To save a diagram as a Web page**

- 1 On the File menu, click Save as Web Page.
- 2 Choose the folder location to save the page(s).
- 3 Select the diagram(s) and components to save.
- 4 Choose if you want to output diagrams as Java applets.
- 5 Click OK.

The Save As Web Page- Finished dialog opens.

- 6 Click Close or click View to view the page(s) in your Web browser.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135862')}

## Saving and Closing Documents

## Save as Web Page dialog box

{button Tell me how...,PI('`,`getting\_\_rtf\_1135908')}

Element	Description
Save to Folder	Type the folder name where the files for the page are to be stored.
Diagram Select list	<p>All Components. Choose from an alphabetically ordered list of all the diagrams in the file.</p> <p>Diagram Hierarchy. Choose from a tree describing the relationships between different diagrams. If you check or clear a parent diagram, all of its children are checked or cleared. You can override this by holding Shift when clicking an item.</p> <p>Diagrams, by Contained Departments. Choose from the list of diagrams arranged by departments that are used within the set. This helps determine all the processes that involve a given department. The departments are shown for organizational purposes only and cannot be edited.</p>
Scale Diagrams by percent	Changes the diagrams HTML output by the percentage you type.
Output charts as Java applets	Converts the diagram into a Java applet that you can use in a browser.
All button	Checks all diagrams and diagram components in the selected view.
None button	Clears all diagrams and diagram components in the selected view.

[To save a diagram as a Web page](#)

## Distributing Documents

{button Tell me how...,PI('',`getting\_\_rtf\_1135926')}

Distributing documents to team members, departments, and even other companies is a great way to communicate ideas and tasks. With iGrafx *Professional*, you have three ways to do this:

- Using iGrafx *Share*
- Sending documents as e-mail attachments
- Sending documents as HTML or Java applets

[To open iGrafx Share Viewer](#)

[To send a document as an e-mail attachment](#)



## To open iGrafx Share Viewer

► On the Windows Start menu, point to iGrafx, and click Share Viewer.

---

{button Related Topics,PI('`,`getting\_\_rtf\_1135969')}

## Distributing Documents

**To send a document as an e-mail attachment**

- 1 Open the document to attach to an e-mail message.
- 2 On the File menu, click Send.
- 3 Address the e-mail and create a message as you usually do.

**Notes**

This feature works with any MAPI E-mail system. MAPI e-mail systems include Microsoft Mail, Microsoft Exchange, and Lotus cc:Mail.

If the mail system is not running, it starts when you click the Send command.

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{button Related Topics,PI('','getting\_\_rtf\_1136002')}

## Distributing Documents

Options dialog box - Alignment tab

{button Tell me how...,PI('',`getting\_\_rtf\_1136035')}

Element	Description
Snap to Grid check box	Select to snap shapes and lines to the grid.
Grid Spacing	Select a measurement in inches. This is the amount of space appearing between grid dots.
Channel Alignment	Horizontal Spacing - Select the minimum space for shapes dropped or placed above or below one another.  Vertical Spacing - Select the minimum space for shapes dropped or placed next to one another.

To turn on grid snapping  
To snap objects to the grid

Options dialog box - Connector Lines tab

{button Tell me how...,PI(``,`getting\_\_rtf\_1136077`)}

Element	Description
Line Spacing	Horizontal - Space between lines appearing above or below one another.
	Vertical - Space between lines appearing next to one another.
Default Line Text Style	On the line -Text appears on the connector line.
	Next to the line - Text appears next to the connector line.
Allow lines to connect to other lines check box	Connector lines can connect to other connector lines.
Allow unconnected lines check box	Connector lines can remain separate from other connector lines.

[To add manual off-page connectors to a line](#)

[To set the line spacing between shapes and lines](#)

[To format lines](#)



## Options dialog box - Spelling tab

{button Tell me how...,PI('`,`working\_\_rtf\_1138001')}

Element	Description
User Dictionary	The path where the custom dictionary is stored.
Ignore Words with Numbers check box	Select if you want the dictionary to ignore words with numbers.

To choose spelling options

To check spelling

# Options dialog box - Files tab

{button Tell me how...,PI(``,`getting\_\_rtf\_1136139')}

Element	Description
File Types	Shows both Templates and Documents.
Locations	Where these files are stored on your hard disk.

[To create a document from a template](#)

[To create a new template](#)

## Options dialog box - General tab

Element	Description
General	Display Finished button - Check to always display the Finished button.  Display Welcome dialog - Check to always display the Welcome dialog.
Undos and Redos possible	Type the number of undos and redos possible. The maximum number of undos and redos possible is 50.
Reset button	Turns on or off the Don't Display This Message Again message boxes.



## Setting Up the Diagram Page

{button Tell me how...,PI('','setting\_\_rtf\_1085428')}

With almost unlimited diagram space on the screen, you can create very large, in-depth diagrams without getting a clear idea of where page breaks occur, the placement of headers and footers, or the size of your margins.

This becomes important when you need to print diagram pages. Use the Page Setup dialog box to adjust page options such as scaling and page order so a diagram prints correctly.

[To define the page setup](#)

[To select the diagram orientation](#)

[To set diagram scaling](#)

[To set the paper size](#)

[To set page margins](#)

[To set diagram titles](#)

[To set the Print Notes option](#)

[To set the page order for printing](#)



**To define the page setup**

- 1 On the File menu, click Page Setup.
- 2 Click each tab, and select the page setup options you want.
- 3 Click OK.

---

{button Related Topics,PI('','setting\_\_rtf\_1085498')}

## Setting Up the Diagram Page

**To select the diagram orientation**

- 1 On the File menu, click Page Setup.
- 2 Select Portrait or Landscape.
- 3 Click OK.

---

{button Related Topics,PI('','setting\_\_rtf\_1081274')}

[To set diagram scaling](#)

[To set the paper size](#)

[Setting Up the Diagram Page](#)

**To set diagram scaling**

- 1 On the File menu, click Page Setup.
- 2 Select Adjust to, and type a percentage in the normal size box.

or

Select Fit to, and type a number of pages wide by a number of pages tall.

- 3 Click OK.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1081281')}

[To select the diagram orientation](#)

[To set the paper size](#)

[Setting Up the Diagram Page](#)

**To set the paper size**

- 1 On the File menu, click Page Setup
- 2 Select a paper size from the Paper Size list.

or

Type a paper width in the Width box, and a paper height in the Height box.

- 3 Click OK.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1081302')}

[To select the diagram orientation](#)

[To set diagram scaling](#)

[Setting Up the Diagram Page](#)



### To set page margins

- 1 On the File menu, click Page Setup.
- 2 Click the Margin tab.
- 3 Select each of the Margin boxes individually and type the margin you want.
- 4 Click OK.

#### Notes

iGrafx Professional rounds the numbers to the nearest hundredth of an inch or tenth of a centimeter. To switch between inches and centimeters, right mouse click on the ruler, and click either Inches or Centimeters.

---

{button Related Topics,PI('','setting\_\_rtf\_1089604')}

## Setting Up the Diagram Page

**To set diagram titles**

- 1 On the File menu, click Page Setup
- 2 Click the Options tab.
- 3 To print out large multi-page diagrams that you can cut and tape together, select Per Diagram, and set the overlap for extra taping room.

or

To print out multi-page diagrams that you can bind in a book, select Per Page.

---

{button Related Topics,PI('','setting\_\_rtf\_1081436')}

[To set the Print Notes option](#)

[To set the page order for printing](#)

**To set the Print Notes option**

- 1 On the File menu, click Page Setup.

Notes print after the pages of the diagram print. Notes use shape numbers to reference back to shapes in the diagram.

- 2 Click the Options tab.
- 3 Select the Notes box.
- 4 Click OK.

---

{button Related Topics,PI('','setting\_\_rtf\_1081441')}

[To set diagram titles](#)

[To set the page order for printing](#)

[Setting Up the Diagram Page](#)

**To set the page order for printing**

- 1 On the File menu, click Page Setup.
- 2 Click the Options tab.
- 3 Select Down, Then Across to print top to bottom and left to right.

or

Select Across, Then Down to print left to right and top to bottom.

- 4 Click OK.

---

{button Related Topics,PI('','setting\_\_rtf\_1081448')}

[To set diagram titles](#)

[To set the Print Notes option](#)

[Setting Up the Diagram Page](#)



Page Setup dialog box - Page tab

{button Tell me how...,PI('`setting\_\_rtf\_1085295')}

Element	Description
Orientation	Portrait - Prints diagram pages vertically.
	Landscape - Prints diagram pages horizontally.
	<div><div>Tip</div><div>To fit your diagram on the fewest pages, click Portrait if your diagram is vertically oriented or Landscape if your diagram is horizontally oriented.</div></div>
Scaling	Adjust to - Sets the diagram size to a zoom percentage.
	Fit to - Sets diagram pages and their components to a number wide by a number tall.
Paper Size	Prints the diagram on a paper size of your choice. Many popular paper sizes are provided, including letter (8 1/2" x 11"), legal (8 1/2" x 14"), tabloid (11" x 17"), and C sheet (17" x 22").
Width and Height	To set the width and height for your print page, type the page dimensions you want (in inches or centimeters, depending upon your measure choice).

[To define the page setup](#)

[To set the paper size](#)

[To select the diagram orientation](#)

[To set diagram scaling](#)

## Page Setup dialog box - Margins tab

{button Tell me how...,PI(``,`setting\_\_rtf\_1078410`)}

Element	Description
Top select	Type or select a value (in inches) for the top margin.
Bottom select	Type or select a value (in inches) for the bottom margin.
Left select	Type or select a value (in inches) for the left margin.
Right select	Type or select a value (in inches) for the right margin.

[To set page margins](#)

Page Setup dialog box - Options tab

{button Tell me how...,PI('','setting\_\_rtf\_1078572')}

Element	Description
Titles	Per Diagram - Prints out large multi-page diagrams that you can to cut and tape together.
	Overlap - Sets the amount of overlap per page.
	Per Page - Prints out multi-page diagrams that you can bind in a book.
	<div><b>Note</b> This option is for printing and storyboarding. By setting the overlap at a quarter inch or more, you can print diagram pages and tape them together with headers and footers visible on each page.</div>
Print Department Headers on Every Page	Shows department headers on every page.
Print	Frame - Prints Frames.
	Notes - Prints Notes appearing on shapes.
Page Order	Down, Then Across - Prints top to bottom and left to right.
	Across, Then Down - Prints left to right and top to bottom.

[To set diagram titles](#)

[To set the Print Notes option](#)

[To set the page order for printing](#)

## Using Headers and Footers

{button Tell me how...,PI(``,`setting\_\_rtf\_1086685')}

Headers and footers help you and those who view your diagrams:

- Get information about a diagram using names and page numbers.
- Keep up with revisions and diagram opening and saving using date and time stamps.

With iGrafx *Professional*, you can insert default header and footer information or create custom headers and footers.

[To insert a predefined header or footer](#)

[To create a custom header or footer](#)



**To insert a predefined header or footer**

- 1 On the File menu, click Page Setup
- 2 Click the Header/Footer tab.
- 3 Select a style and position combination from the Header list.
- 4 Select a style and position combination from the Footer list.
- 5 Click OK.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1078855')}

To create a custom header or footer  
Using Headers and Footers

### To create a custom header or footer

- 1 On the File menu, click Page Setup.
- 2 Click the Header/Footer tab.
- 3 Click Custom Header or Custom Footer.
- 4 To insert the header or footer information you want in each section, click inside Left Section, Center Section, or Right Section, and then click the buttons.

**Note**

To add additional text to the header or footer, enter the text in the Left Section, Center Section, or Right Section box.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1078881')}

To insert a predefined header or footer  
Using Headers and Footers

Page Setup dialog box - Header/Footer tab

{button Tell me how...,PI(``,`setting\_\_rtf\_1078958`)}

Element	Description
Header list	Sets header formatting and position combinations from this list.
Footer list	Sets footer formatting and position combinations from this list.
Custom Header and Footer buttons	Sets your own custom header and footer combinations.

[To insert a predefined header or footer](#)

[To create a custom header or footer](#)

## Using Guidelines and Grids

{button Tell me how...,PI('`,`setting\_\_rtf\_1082751')}

You can use guideline and grid options in iGrafx Professional to improve the look of your diagram.

### Guidelines

You can use guidelines to align objects. When you drag a shape near a guideline, the shape's sides and center snap into alignment with the guideline. Guidelines help you align shapes of different sizes to achieve an attractive, organized look. Guidelines do not appear in the printed diagram.

### Grids

Grids also help you with alignment by snapping shapes to a series of snap points on the diagram space. When grid snapping is turned on, every shape that you move locks on to these points. If you open a diagram and see that objects are not organized and neat, this could be an indication that grid options were not used. Use the Snap Objects to Grid command on the Arrange menu to organize these objects in the diagram.

[To add a horizontal guideline](#)

[To add a vertical guideline](#)

[To move a guideline](#)

[To delete a guideline](#)

[To turn on grid snapping](#)

[To show grid dots](#)

[To snap objects to the grid](#)



### To add a horizontal guideline

- ▶ On the Arrange menu, point to Guidelines, and click Add Horizontal Guideline.  
or

Click the horizontal ruler, and drag a guideline down to the desired position in the diagram.

#### Tip

You can add a guideline with a right-mouse click. Right-mouse click in the ruler area, and click Add Horizontal Guideline.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1082459')}

[To add a vertical guideline](#)

[To move a guideline](#)

[To delete a guideline](#)

[Using Guidelines and Grids](#)

### To add a vertical guideline

- ▶ On the Arrange menu, point to Guideline, and click Add Vertical Guideline.  
or

Click the vertical ruler, and drag a guideline across to the desired position in the diagram.

#### Tip

You can add a guideline with a right-mouse click. Right-mouse click in the ruler area, and click Add Vertical Guideline.

---

{button Related Topics,PI('',`setting\_\_rtf\_1082453')}

[To add a horizontal guideline](#)

[To move a guideline](#)

[To delete a guideline](#)

[Using Guidelines and Grids](#)

**To move a guideline**

- 1 Point to the guideline you want to move.
- 2 Press and hold the left mouse button, and drag the guideline where you want it.
- 3 When you are finished, release the mouse button.

---

{button Related Topics,PI('','setting\_\_rtf\_1080621')}

[To add a horizontal guideline](#)

[To add a vertical guideline](#)

[To delete a guideline](#)

[Using Guidelines and Grids](#)

**To delete a guideline**

- 1 Click the guideline you want to delete.
- 2 Press and hold the left mouse button.
- 3 Drag horizontal guidelines to the horizontal ruler, or off the bottom edge of the window. Drag vertical guidelines to the vertical ruler, or off the right edge of the window.
- 4 When the guideline pointer is positioned over the appropriate ruler, release the mouse button.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1080702')}

[To add a horizontal guideline](#)

[To add a vertical guideline](#)

[To move a guideline](#)

[Using Guidelines and Grids](#)



### To turn on grid snapping

► On the Arrange menu, point to Grid, and click Snap to Grid.

---

{button Related Topics,PI('','setting\_\_rtf\_1082868')}

[To show grid dots](#)

[To snap objects to the grid](#)

[Using Guidelines and Grids](#)

### To show grid dots

► On the Arrange menu, point to Grid, and click Show Grid Dots.

---

{button Related Topics,PI('','setting\_\_rtf\_1082857')}

[To turn on grid snapping](#)

[To snap objects to the grid](#)

[Using Guidelines and Grids](#)

## To snap objects to the grid

- ▶ On the Arrange menu, point to Grid, and click Snap Objects to the Grid.

### Tip

To set the grid spacing, click the Options command on the Tools menu, and then click the Alignment tab.

---

{button Related Topics,PI('',`setting\_\_rtf\_1082861')}

[To turn on grid snapping](#)

[To show grid dots](#)

[Using Guidelines and Grids](#)

## Setting Up Departments

{button Tell me how...,PI('',`setting\_\_rtf\_1086700')}

You can use departments to display the flow of information and materials between different roles, groups or organizational units. In process diagramming, departments help show how tasks flow through groups such as manufacturing and customer service toward a final outcome or creation of a product. Many processes contain subprocesses that appear in their own departments.

Shapes behave the same in departments as they do on a normal diagram page. You can still connect lines, edit points, size, move, delete, change the text, or change the color of shapes. In addition, you can:

- Name departments
- Set the vertical or horizontal orientation of departments
- Expand or shrink departments
- Reorder departments
- Move the location of department names

When you create departments for the first time in a diagram, you can set the department orientation and text orientation for headers. After you have created your departments, you edit them in the diagram space.

<b>Note</b>
-------------

When you create a process diagram, iGrafx Professional inserts one department and a starting point by default.
--

[To insert a department](#)

[To edit text in department headers](#)

[To delete a department](#)

[To reorder departments](#)

[To set the lane orientation of departments](#)

[To set the text orientation of department labels](#)

[To move the location of department names](#)

[To add a color, pattern, or gradient to departments](#)

[To add borders and dividers to department lanes](#)

[To change lane margins and minimum lane size](#)



### To insert a department

1 On the Insert menu, click Department.

or



Click the Department tool.

2 In the Insert Departments dialog box, click Add.

3 In the Insert Department dialog box, type a name for the department in the New Department Name field.

4 Click OK.

---

{button Related Topics,PI('','setting\_\_rtf\_1083013')}


[To edit text in department headers](#)

[To delete a department](#)

[To reorder departments](#)

[Setting Up Departments](#)

### To set the lane orientation of departments

- 1  Click the Department tool.
- 2 Under Department Orientation, select Horizontal or Vertical.
- 3 Click OK.

#### Note

You can only set the lane orientation of departments the first time you add departments to a diagram.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1089659')}

[To set the text orientation of department labels](#)

[To move the location of department names](#)


[To add a color, pattern, or gradient to departments](#)

[To add borders and dividers to department lanes](#)

[To change lane margins and minimum lane size](#)

[Setting Up Departments](#)

### To set the text orientation of department labels

- 1  Click the Department tool.
- 2 Under Text Orientation, select Horizontal or Vertical.
- 3 Click OK.

#### Note

You can only set the text orientation of department labels the first time you add departments to a diagram.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1089699')}

[To set the lane orientation of departments](#)

[To move the location of department names](#)

[To add a color, pattern, or gradient to departments](#)

[To add borders and dividers to department lanes](#)

[To change lane margins and minimum lane size](#)

[Setting Up Departments](#)

**To move the location of department names**

- 1 In an active diagram, click a department label.
- 2 Click the right mouse button, and click Format Diagram.
- 3 In the Process tab, select a name location from the Department Name Area list.
- 4 Click OK.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1089736')}

[To add a color, pattern, or gradient to departments](#)

[To set the lane orientation of departments](#)

[To set the text orientation of department labels](#)

[To add borders and dividers to department lanes](#)

[To change lane margins and minimum lane size](#)

[Setting Up Departments](#)



**To add a color, pattern, or gradient to departments**

- 1 In an active diagram, click a department label.
- 2 In the Gallery, click the Fill tab, select Fill Color, Fill Pattern, or Fill Gradient, and then click a color, pattern, or gradient.
- 3 Repeat the same procedure for lines and shadows/3D.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1089772')}

To move the location of department names

To set the lane orientation of departments

To set the text orientation of department labels

To add borders and dividers to department lanes

To change lane margins and minimum lane size

Setting Up Departments

**To add borders and dividers to department lanes**

- 1 In an active diagram, click a department label.
- 2 Click the right mouse button, and click Format Diagram.
- 3 Click the Borders and Dividers tab, and select the area you would like to apply borders or dividers from the list.
- 4 Select from the various line types, styles, widths, and colors available.
- 5 Click OK.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1089810')}

[To set the lane orientation of departments](#)

[To set the text orientation of department labels](#)

[To move the location of department names](#)

[To add a color, pattern, or gradient to departments](#)

[To change lane margins and minimum lane size](#)

[Setting Up Departments](#)

**To edit text in department headers**

- 1 Click the department header.

The cursor changes to a text cursor.

- 2 Delete the text, and type a new name.

---

```
{button Related Topics,PI('','setting__rtf_1083061')}
```

[To insert a department](#)  
[To delete a department](#)  
[To reorder departments](#)  
[Setting Up Departments](#)

### To delete a department

► Click the department header, and press DELETE.

---

{button Related Topics,PI('','setting\_\_rtf\_1079376')}

[To insert a department](#)

[To edit text in department headers](#)

[To reorder departments](#)

[Setting Up Departments](#)



### To reorder departments

- 1 Click the department header that you want to move.
- 2 Click any area between the black squares.

The cursor changes to four arrows.

- For horizontal departments, drag the department up or down to the desired position.
- For vertical departments, drag the department left or right to the desired position.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1083145')}

[To insert a department](#)

[To edit text in department headers](#)

[To delete a department](#)

[Setting Up Departments](#)

**To change lane margins and minimum lane size**

- 1 In an active diagram, click a department label.
- 2 Click the right mouse button, and click Format Diagram.
- 3 Click the Lanes tab, and change the bottom margin, end margin, and minimum lane size.
- 4 Click OK.

---

{button Related Topics,PI('`,`setting\_\_rtf\_1079523')}

[To set the lane orientation of departments](#)

[To set the text orientation of department labels](#)

[To move the location of department names](#)

[To add a color, pattern, or gradient to departments](#)

[To add borders and dividers to department lanes](#)

[Setting Up Departments](#)

## Insert Departments dialog box

{button Tell me how...,PI('',`setting\_\_rtf\_1083829')}

Element	Description
Department Orientation	Horizontal -Select to display departments left to right.
	Vertical - Select to display departments up and down.
Text Orientation	Horizontal -Select to display text left to right in the department header.
	Vertical - Select to display text bottom to top.
Departments box	Displays the names of existing departments.
Add, Remove, and Edit buttons	Use to add or remove departments, and edit department names.
Move Up and Move Down buttons	Use to move a selected department up or down.

[To insert a department](#)

[To edit text in department headers](#)

[To delete a department](#)

[To set the lane orientation of departments](#)



Insert Department dialog box

{button Tell me how...,PI('','setting\_\_rtf\_1083540')}

Element	Description
New Department Name	Type a new department name here.
Departments box	Displays the names of existing departments.



To insert a department

## Format Diagram dialog box - Process tab

{button Tell me how...,PI('',`setting\_\_rtf\_1079775')}

Element	Description
Department Name Area	Sets the department names to appear on the left, right, or both sides.
Process Fill Style	None - Department lanes are white.
	Solid - Fills department lanes with a selected foreground color.
	Pattern - Fills department lanes with selected foreground and pattern colors.
	Gradient - Fills departments with selected foreground and end colors.
Pattern and Gradient Style	Adds patterns or gradients to your departments. Use the Sample window to view various styles.

To move the location of department names

To add a color, pattern, or gradient to departments

## Format Diagram dialog box - Borders and Dividers tab

{button Tell me how...,PI('',`setting\_\_rtf\_1079818')}

Element	Description
Apply to	Department Frame - The area around all of the departments.  Department Divider - The line dividing department headers from lanes.  Lane Divider - The lines dividing one lane from another.
Line Type	None - Sets diagram so no lines appear in the location you selected in the Apply to list.  Hairline - Shows hairlines.  Wideline - Shows Widelines.
Line Style	Sets line style when choosing Hairline or Wideline.
Line Width	Sets line width.
Line Color	Sets line color.

To add borders and dividers to department lanes

**Format Diagram dialog box - Lanes tab**

{button Tell me how...,PI('',`setting\_\_rtf\_1089799')}

Element	Description
Bottom Margin	Lets you enter a bottom margin size in inches.
End Margin	Lets you enter an end margin size in inches.
Minimum Lane Size	Lets you enter a minimum lane size in inches.

To change lane margins and minimum lane size

## Format Diagram dialog box - Off-Page Connectors tab

Element	Description
Automatic Connectors	Inserts a connector when a line crosses a page boundary.
Shared Destination Connector	Inserts a connector if more than one line is connected to the same attachment point on a symbol.
View Page Breaks	Shows page breaks.
Directional Symbols	Points to a corresponding connection.
Include Page Numbers	Prints page numbers with connectors.
Reference Numbering	Shows Numeric references as numbers.
	Shows Alphabetic references as letters.



## Format Diagram dialog box - Indicators tab

{button Tell me how...,PI('',`setting\_\_rtf\_1086948')}

Element	Description
Link	Field that lets you know there is a link. The box to the right sets the type of indicator you want to appear when there is a link.
Note	The text box lets you set text symbols (up to three) to indicate there is a note. Clicking the Shadow box to indicate a shape with a note.
Nodes or Intersections	Style - sets the style for a node or intersection. Color - sets the color of a node or intersection.

To choose indicators for shapes

**Format Diagram dialog box - Defaults tab**

{button Tell me how...,PI(``,`setting\_\_rtf\_1087780')}

Element	Description
Select Defaults For	Selects the object types that you want to set defaults for.
Format	Sets styles.

To set shape and line defaults using the Defaults tab

To set text defaults using the Defaults tab



## Using the Shape Library

{button Tell me how...,PI('`working\_\_rtf\_1131665')}

The Shape Library is a custom collection of shapes that you can select. In the Shape Library, you can store shapes that you use most often. By default, the Shape Library has the Process shape already in it.

In the Shape Library you can:

- Add additional shapes
- Modify the properties of the shapes
- Remove shapes
- Duplicate shapes
- Change the order of the shapes (move up or down)
- Update shape properties

Any shapes defined with attributes and formatting that you add to a diagram become part of the Shape Library. Shapes that you add to the Shape Library using the Toolbox toolbar are also unique to each diagram. Saving a diagram saves the shapes that you add to the Library. Also, saving a diagram as a template is a good way to use an extensive Library more than once.

### Tip

You can always copy shapes to the Shape Library directly from Share Media.

As you work with a saved diagram, you might find that you use some shapes more than others. In this case, you can have these shapes appear in the most convenient areas of the Shape Library. You also might want to organize related shapes together in the Library. You can easily arrange shapes any way you want by moving them up or down.

After you have added shapes to the Library, you can modify them by editing connect points, adding text layouts, adding VBA code, adding modeling properties, and changing default formats and fields.

To add a shape to the Shape Library

To add a shape to the Toolbox toolbar


To remove a shape from the Shape Library

To edit a shape in the Shape Library

To duplicate a shape in the Shape Library

To arrange shapes in the Shape Library

## To add a shape to the Shape Library

- 1  On the Toolbox toolbar, click the More Shapes tool , and then click the arrow to display other shapes in the More Shapes flyout menu.

### Note

This tool appears under the last shape you added in the Toolbox toolbar.

- 2 To open the Shape Library dialog box, click the Shape Library command.
- 3 In the Shape Library box, click Add.
- 4 Select a subject from the Share Media list.
- 5 Click the Shape Palette.
- 6 Use the scroll bar in the Share Media area to scroll through the shapes in the subject.
- 7 Click the shape you want to add, and then click Add.
- 8 To add more shapes, repeat steps 2 through 5.
- 9 Click Close.

---

{button Related Topics,PI('','working\_\_rtf\_1131695')}



[To remove a shape from the Shape Library](#)

[To edit a shape in the Shape Library](#)

[To duplicate a shape in the Shape Library](#)

[To arrange shapes in the Shape Library](#)

[Using the Shape Library](#)

**To add a shape to the Toolbox toolbar**

- 1 On the File menu, click Shape Library.
- 2 In the Shape Library dialog box, click the box to the left of the shape you want to add to the Toolbox toolbar.
- 3 Click Close.

---

{button Related Topics,PI('','working\_\_rtf\_1131729')}

To add a shape to the Shape Library

To remove a shape from the Shape Library

To edit a shape in the Shape Library

To duplicate a shape in the Shape Library

To arrange shapes in the Shape Library

Using the Shape Library

### To remove a shape from the Shape Library

- 1 On the File menu, click Shape Library.
- 2 In the Shape Library, click the shape you want to remove.
- 3 Click Remove.
- 4 Click Close.

#### Notes

You can only remove a shape from the Shape Library if it is not being used by the document.

---

{button Related Topics,PI('`,`working\_\_rtf\_1131767')}

[To add a shape to the Shape Library](#)

[To edit a shape in the Shape Library](#)

[To duplicate a shape in the Shape Library](#)

[To arrange shapes in the Shape Library](#)

[Using the Shape Library](#)

### To edit a shape in the Shape Library

- 1 On the File menu, click Shape Library.
- 2 In the Shape Library, click the shape you want to edit.
- 3 Click Edit.

**Tip**

After you have added shapes to the Library, you can modify them by editing connect points, adding text layouts, adding VBA code, adding modeling properties, and changing default formats and fields.

- 4 In the Edit Shape dialog box, click Symbol.
- 5 In the Edit Symbol dialog box, click the tabs and make the changes.
- 6 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1131801')}

[To add a shape to the Shape Library](#)

[To remove a shape from the Shape Library](#)

[To duplicate a shape in the Shape Library](#)

[To arrange shapes in the Shape Library](#)

[Using the Shape Library](#)

### **To duplicate a shape in the Shape Library**

- 1 On the File menu, click Shape Library.
- 2 In the Shape Library, click the shape you want to duplicate.
- 3 Click Duplicate.

You can duplicate shapes to edit the attributes and formatting so shapes that might look similar behave differently.

- 4 Click Close.

---

{button Related Topics,PI('','working\_\_rtf\_1131836')}



[To add a shape to the Shape Library](#)

[To remove a shape from the Shape Library](#)

[To edit a shape in the Shape Library](#)

[To arrange shapes in the Shape Library](#)

[Using the Shape Library](#)

**To arrange shapes in the Shape Library**

- 1 Click the shape you want to move.
- 2 Click Move Up or Move Down.
- 3 Repeat steps 1 and 2 until the shapes are in the order you want.
- 4 Click Close.

---

{button Related Topics,PI('`,`working\_\_rtf\_1131870')}

To add a shape to the Shape Library

To remove a shape from the Shape Library

To edit a shape in the Shape Library

To duplicate a shape in the Shape Library

Using the Shape Library

## Shape Library dialog box

{button Tell me how...,PI('`,`working\_\_rtf\_1131931')}

Element	Description
Shape box	Contains shapes that you add from Share Media subjects.
Edit button	Makes changes to shape formats, fields, symbols, properties, and VBA code.
Duplicate button	Duplicates the selected shape in the Shape box. For example, you might want to create two Process shapes that look similar, but perform different functions.
Move Up and Move Down buttons	Changes the order of shapes in the Shape box.
Update Shapes	Updates shapes containing VBA code. For example, if you change the VBA code for one Process shape in the diagram, clicking Update Shapes updates the code for similar Process shapes stored in Share Media.

To add a shape to the Shape Library

To remove a shape from the Shape Library

To edit a shape in the Shape Library

To duplicate a shape in the Shape Library

To arrange shapes in the Shape Library

## Edit Shape dialog box

Element	Description
Shape Defaults	Displays the formatting and field defaults for the current shape. To change the default settings, clear the boxes and click Format or Field.
Symbol button	Opens the Edit Symbol dialog box so you can change the format, edit the text layout, and edit the connect points for a shape.
Add VBA button	Opens Visual Basic.
Properties button	Opens the Format Shape dialog box where you can change shape information stored in Shape Media.

## Edit Symbol dialog box - Graphic tab

{button Tell me how...,PI('`,`working\_\_rtf\_1132010')}

Element	Description
Fill Protect box	Protects the selected shape from any global formatting changes.
Line Protect box	Protects lines originating from the selected shape from any global line changes.
Replace Graphic button	Opens the Replace Graphic dialog box. In this box, you can replace the current shape with another shape from Share Media, the Shape Library, or a shape copied to the Clipboard.
Width and Height boxes	Changes the size of the selected shape.

To replace shapes



## Edit Symbol dialog box - Text Layout tab

{button Tell me how...,PI('`,`working\_\_rtf\_1132040')}

Element	Description
Shape Margins	Sets the distance from the edges of text to the edge of the shape as a fixed measure or a percentage.
Selected Text Area	Sets the fill, border, and font for text appearing in the selected shape.
Secondary Text Area	Sets or removes secondary text areas inside the selected shape.
Size box	Sets the size of added secondary text areas.

To set text margins inside shapes

To add secondary text areas to a shape

To delete secondary text areas from a shape

## Edit Symbol dialog box - Connect Points tab

{button Tell me how...,PI('`,`working\_\_rtf\_1132068')}

Element	Description
Mode	Select mode moves any of the four default points on the selected shape.  Add mode places new connect points on the shape displayed in the box.
Actions	Delete removes a selected connect point from the shape.  Reset returns the connect points to their original default settings.
Snap to Grid	Snaps the selected shape to the diagram grid.

To edit connect points between shapes

## Placing Shapes in a Diagram

{button Tell me how...,PI('`,`working\_\_rtf\_1141009')}

Because you use many shapes when creating a diagram, several methods exist for placing shapes.

- Placing multiple shapes of the same type—You can place multiple shapes of the same type without having to select the same shape in the Shape Library again. To do this, place a shape in the diagram space, click anywhere in the diagram, and then place another shape.
- Placing multiple types of shapes—You can select each shape in the Shape Library one at a time to place in the diagram space.

You can place shapes in a diagram two ways:

- Using the Shape Library
- Using the Share Media Subject tabs

<p><b>Note</b> Double-clicking on a shape in the Toolbox toolbar lets you place multiple shapes of the selected type without having to place a shape, click in the diagram space, and then place another shape. You can point and click. This also makes the Finished button appear.</p>
--

## Shape Library

Placing shapes using the Shape Library requires using two toolbars:

Toolbox toolbar- This toolbar contains the process shape by default and any shapes you designated in the Shapes Library dialog box to appear on the toolbar. Click the arrow below the last shape to open the More Shapes flyout menu.

More Shapes toolbar- This toolbar contains the rest of the shapes you added to the diagram using the Shape Library dialog box. It also contains the Shape Library command for opening the Shape Library dialog box.

## Share Media Subject tabs

The Gallery contains Share Media Subject tabs. You can place shapes in a diagram using these tabs. After you open Share Media and select a subject to create a tab, click the shapes and drag them to the diagram space. To open the Share Media, click the Shape Palettes tool on the Standard toolbar.



To place a shape using the Shape Library

To place a shape using the Gallery

**To place a shape using the Shape Library**

- 1 Click the shape on the Toolbox toolbar or the More Shapes flyout menu that you want to place.
- 2 Click in the diagram where you want to place the shape.

---

{button Related Topics,PI('`,`working\_\_rtf\_1132100')}

[To place a shape using the Gallery](#)

[To add a shape to the Toolbox toolbar](#)

[To add a shape to the Shape Library](#)

[Placing Shapes in a Diagram](#)



**To place a shape using the Gallery**

- 1 Click a Share Media Subject tab in the Gallery.
- 2 Click a shape in the palette.
- 3 Click in the diagram.

---

{button Related Topics,PI('','working\_\_rtf\_1132126')}

[To place a shape using the Shape Library](#)

[To add a shape to the Toolbox toolbar](#)

[To add a shape to the Shape Library](#)

[Placing Shapes in a Diagram](#)

## Connecting Shapes with Lines

{button Tell me how...,PI('','working\_\_rtf\_1140842')}

The type of line that you draw is indicated by the Connector Lines tool selected in the Toolbox toolbar. Select the line type that you want to draw by clicking the arrow under the Connector Lines tool, and then selecting the line from the flyout menu.

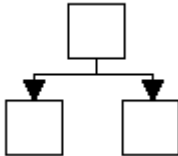
You can use any of the six line (routing) tools to connect shapes:

- Direct Line
- Right Angle Line
- Curved Line
- Org Chart Line
- Cause and Effect Line
- Lightning Bolt Line

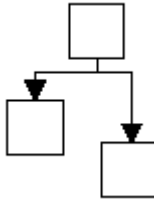
You can connect lines by dragging or clicking, and connect two shapes with a line. When you connect the shapes with a line, the end points of the line snap to the nearest connect points in the shapes.

### Using Connector Lines

Connector lines automatically display and snap to points on closed shapes. After placing a connector line, you can easily detach it and reattach it at a different snap point. When you attach connector lines to a shape, you can move the shape and the lines remain attached.



*The boxes in this chart are connected with connector lines.*



*The line remains connected to the box when the box is moved.*

### Setting Off-Page Connectors on Connector Lines

When working with large diagrams spanning many pages, you might want to use off-page connectors to keep shapes and lines organized. You can add an off-page connector to a line manually by using a right mouse on the line, and then clicking the Format command. In the Format Line dialog box, click the Arrows and Crossovers tab, and select the Connectors box.

<b>Note</b> In the Format Line dialog box, you can change the color and line style for a selected line.
--

You can also set automatic off-page connectors for all lines that break between pages. On the Format menu, click the Format command, and then click the Off-Page Connectors tab. In the Off-Page Connectors tab, you can set automatic connectors and choose options such as directional symbols and page numbering.

[To connect two shapes by dragging](#)

[To connect two shapes by clicking](#)

[To connect two shapes using the Connect Shapes command](#)

[To choose line routing types](#)

[To reverse line ends between shapes](#)

[To add a vertex to a line](#)

[To restore automatic line routing](#)

[To add manual off-page connectors to a line](#)

### To connect two shapes by dragging



- 1 Make sure that you select the desired connector line tool in the Toolbox toolbar.
- 2 Point inside the first shape, press and hold the left mouse button, then drag the pointer to the side of the first shape where you want the line to begin.
- 3 Trace the path you want the line to follow by dragging the pointer to the side of the second shape where you want the line to end.
- 4 Release the mouse button.

#### Note

Double-clicking on a line in the Toolbox toolbar lets you connect multiple lines of the selected type without having to click a line, connect a line, and then connect another line. You can point and draw. This also makes the Finished button appear.

You can also draw lines that connect to other lines or lines that remain unconnected. On the Tools menu, click Options, and then click the Connector Lines tab. Select the Allow lines to connect to other lines box and Allow unconnected lines box.

---

{button Related Topics,PI('','working\_\_rtf\_1132186')}

[To connect two shapes by clicking](#)

[To connect two shapes using the Connect Shapes command](#)

[To choose line routing types](#)

[To add manual off-page connectors to a line](#)

[Connecting Shapes with Lines](#)

### To connect two shapes by clicking



- 1 Click the Connector Lines tool.
- 2 Click the side of the shape from which you want to start the line.
- 3 Without clicking the mouse, move the pointer to a connect point on the shape to which you want to connect the line.
- 4 Click the connect point.

A red box on both shapes indicates the connect points that you selected on each shape.

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{button Related Topics,PI('','working\_\_rtf\_1132216')}



[To connect two shapes by dragging](#)

[To connect two shapes using the Connect Shapes command](#)

[To choose line routing types](#)

[To add manual off-page connectors to a line](#)

[Connecting Shapes with Lines](#)

**To move a line end from one connect point to another on a shape**

- 1 Select a line connected to a shape.

Two red boxes appear on each end of the line.

- 2 Move the cursor over the line end that you would like to move to another point.
- 3 Click and hold the left mouse button down, and then move the line end to a new connect point
- 4 Release the left mouse button.

---

{button Related Topics,PI('`,`working\_\_rtf\_1140823')}

To edit connect points between shapes

Connecting Shapes with Lines

**To edit connect points between shapes**

- 1 In the Shape Library dialog box, select the shape you want to edit.
- 2 Click Edit.
- 3 Click Symbol.
- 4 In the Edit symbol dialog box, click the Connect Points tab.
- 5 Use the Mode or Actions options to add or delete connect points.

---

{button Related Topics,PI('`,`working\_\_rtf\_1132242')}

[To connect two shapes by dragging](#)

[To connect two shapes by clicking](#)

[To connect two shapes using the Connect Shapes command](#)

[Connecting Shapes with Lines](#)

**To connect two shapes using the Connect Shapes command**

- 1 Click and hold the left mouse button down, and draw a bounding box around the shapes you want to connect.
- 2 Click the line type you want.
- 3 On the Arrange menu, click Connect Shapes.

---

{button Related Topics,PI('','working\_\_rtf\_1132272')}

[To connect two shapes by clicking](#)

[To choose line routing types](#)

[To add manual off-page connectors to a line](#)

[Connecting Shapes with Lines](#)

### **To reverse line ends between shapes**

- 1 Click and hold the left mouse button down, and draw a bounding box around the shapes with a line you want to reverse.
- 2 On the Arrange menu, click Reverse Ends.

---

{button Related Topics,PI('','working\_\_rtf\_1132297')}




[To choose line routing types](#)

[To add manual off-page connectors to a line](#)







[Connecting Shapes with Lines](#)

**To choose line routing types**

- 1



Click the Connector Lines tool.
- 2

Click the type of line you want. There is a tool for each type.
- |   |   |   |
|---|---|---|
|  |  |  |
| Direct Line   | Right Angle Line  | Curved Line   |
|  |  |  |
| Org Chart Line  | Cause and Effect Line   | Lightning Bolt Line   |

**Tip**

To define a frequently used line type and style combination, add a preset style.

{button Related Topics,PI('',`working\_\_rtf\_1139541')}

[To connect two shapes by clicking](#)

[To connect two shapes by dragging](#)

[To add a preset shape style](#)

[Connecting Shapes with Lines](#)

### To add a vertex to a line

- 1 Click either the direct line or the right angle line between two shapes.
- 2 Click the right mouse button, and then click Add Vertex.

An X appears on the line.

- 3 Slide the X on the line to the position you want.
- 4 Click the line.

A black box appears at the vertex point.

- 5 To create the new line bend, click and move the black box.
- 6 Release the left mouse button.

#### Note

If you move connector lines manually, you can also restore them automatically to their original position. To move lines back to their original position, use a right mouse click on the line, and then click Route Line.

---

{button Related Topics,PI('','working\_\_rtf\_1144728')}

[To connect two shapes by dragging](#)

[To connect two shapes by clicking](#)

[To connect two shapes using the Connect Shapes command](#)

[To choose line routing types](#)

[To reverse line ends between shapes](#)

[To restore automatic line routing](#)

[To add manual off-page connectors to a line](#)

[Connecting Shapes with Lines](#)

**To restore automatic line routing**

- 1 Right mouse click the right angle connector line.
- 2 Click Route Line.
- 3 To finish the line move, click in the diagram space.

---

{button Related Topics,PI('','working\_\_rtf\_1144797')}

[To connect two shapes by dragging](#)

[To connect two shapes by clicking](#)

[To connect two shapes using the Connect Shapes command](#)

[To choose line routing types](#)

[To reverse line ends between shapes](#)

[To add a vertex to a line](#)

[To add manual off-page connectors to a line](#)

[Connecting Shapes with Lines](#)

### To add manual off-page connectors to a line

- 1 Click on a line.
- 2 Click the right mouse button, and click Format.
- 3 In the Format Line dialog box, click the Arrows and Crossovers tab, and then select the Connectors box.
- 4 Click OK.

**Note**

You can also set automatic off-page connectors for all lines that break between pages. On the Format menu, click the Diagram command. In the Format Diagram dialog box, click the Off-Page Connectors tab to set automatic connectors and choose options such as directional symbols and page numbering.

---

{button Related Topics,PI('','working\_\_rtf\_1144873')}



[To connect two shapes by dragging](#)

[To connect two shapes by clicking](#)

[To connect two shapes using the Connect Shapes command](#)

[To choose line routing types](#)

[To reverse line ends between shapes](#)

[To add a vertex to a line](#)

[To restore automatic line routing](#)

[Connecting Shapes with Lines](#)

## Formatting Shapes and Lines

{button Tell me how...,PI('`,`working\_\_rtf\_1136388')}

Using the formatting options in iGrafx Professional helps you create diagrams that look professional and communicate the message that you are trying to send.

Formatting options for shapes and lines appear on the Format menu, the Formatting toolbar, and the Gallery. You can also use the Shape Library, Share Media, and the Defaults tab on the Format Diagram dialog box to set formatting options. [See Working with Default and Preset Shape and Line Styles on page 188.](#)

---

{button Related Topics,PI('`,`working\_\_rtf\_1121856')}

[Applying Fill Formats](#)

[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)

[Applying Shadow/3D Formats](#)

[Using iGrafx Professional Tools](#)

To add a color, pattern, or gradient to a shape fill

To format lines for shape borders

To format lines

To choose arrowhead styles

To choose a line crossover

To add a shadow or 3D effect to a shape

## Applying Fill Formats

{button Tell me how...,PI('`,`working\_\_rtf\_1136589')}

You can use different colors and fill patterns to differentiate flows and to identify individual shapes. For example, you could use a cross-hatched gray fill to identify incomplete processes and a solid yellow fill to identify completed processes.

---

{button Related Topics,PI('`,`working\_\_rtf\_1136532')}

[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)

[Applying Shadow/3D Formats](#)

[Formatting Shapes and Lines](#)

To add a color, pattern, or gradient to a shape fill

### To add a color, pattern, or gradient to a shape fill

- 1 Click the shape you want to fill in.
- 2 On the Format menu, click Fill.
- 3 In the Format Shape dialog box, click the Fill tab.
- 4 Select a solid, pattern, or gradient from the available styles.
- 5 Click OK.

**Tip**

You can also use the Gallery to apply colors and styles.

---

{button Related Topics,PI('','working\_\_rtf\_1136520')}



[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)

[Applying Shadow/3D Formats](#)

[Formatting Shapes and Lines](#)

Format Shape dialog box - Fill tab

{button Tell me how...,PI('`,`working\_\_rtf\_1136806')}

Element	Description
Fill Style	None - Shapes have no fill.
	Solid - Fills shapes with a selected foreground color.
	Pattern - Fills shapes with selected foreground and pattern colors.
	Gradient - Fills shapes with selected foreground and end colors.
Pattern and Gradient Style	Adds patterns or gradients to your shapes. Use the Sample window to view various styles.

---

{button Related Topics,PI('`,`working\_\_rtf\_1136801')}

## Formatting Shapes and Lines

To add a color, pattern, or gradient to a shape fill

## Applying Line and Border Formats for Shapes

{button Tell me how...,PI('`,`working\_\_rtf\_1136716')}

You can choose different line styles for shape outlines. Shape lines include not only the outside part of a shape, but also any interior lines used in the shape and any exterior lines connected to a shape. There are many useful line styles for outlines, including solid, dashed, and center lines.

---

{button Related Topics,PI('`,`working\_\_rtf\_1136658')}

[Applying Fill Formats](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)

[Applying Shadow/3D Formats](#)

[Formatting Shapes and Lines](#)

To format lines for shape borders

### To format lines for shape borders

- 1 In an active diagram, click the shape you want to format.
- 2 On the Format menu, click Line and Border.
- 3 Select from the various line types, styles, widths, and colors available.
- 4 Click OK.

**Tip**

You can also use the Gallery to apply lines and borders.

---

{button Related Topics,PI('','working\_\_rtf\_1136877')}



[Applying Fill Formats](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)

[Applying Shadow/3D Formats](#)

[Formatting Shapes and Lines](#)

## Format Shape dialog box - Line and Border tab

{button Tell me how...,PI('`,`working\_\_rtf\_1137658')}

Element	Description
Line Size	Sets the line size. You must enter a number between 0 and 5.
Line Style	Sets the line style.
Line Color	Sets the color for the line.
Rounding	Sets the style for the corners of the shape.
Sample	Shows a sample of the selected choices to view before accepting them.

---

{button Related Topics,PI('`,`working\_\_rtf\_1137664')}

To format lines for shape borders

## Formatting Shapes and Lines

# Applying Line Formats for Lines

{button Tell me how...,PI('`,`working\_\_rtf\_1137996')}

You can use a number of styles for lines, including solid and dashed lines. Line styles are commonly used in flowcharts to convey the following information:

Line Style	Meaning
Solid lines with arrows	Show data flow
Dashed lines	Represent multiple transitions and optional steps
Center lines	Heavier weight lines that represent enclosure outlines or draw attention to a specific diagram element

You can choose different line weight and colors for each line and arrowhead. Varying line weights distinguish data flows and draw attention to certain transitions or data transfers in a diagram.

---

{button Related Topics,PI('`,`working\_\_rtf\_1137963')}

Applying Fill Formats

Applying Line and Border Formats for Shapes

Applying Arrow and Crossover Formats

Applying Shadow/3D Formats

To format lines

**To format lines**

- 1 In an active diagram, click the line you want to format.
- 2 On the Format menu, click Line and Border.
- 3 Select from the various line types, styles, widths, and colors available.
- 4 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1138021')}



Applying Fill Formats

Applying Line and Border Formats for Shapes

Applying Arrow and Crossover Formats

Applying Shadow/3D Formats

Formatting Shapes and Lines

## Applying Arrow and Crossover Formats

{button Tell me how...,PI('','working\_\_rtf\_1138286')}

Arrowheads help indicate direction. iGrafx Professional provides two ways to use directional line arrows:

- Source Arrows
- Destination Arrows

Many beginning and ending arrow styles exist for both source and destination ends. Try using color to enhance your diagram. You could use one color for all beginning arrowheads and another for all ending arrowheads.

With crossovers, you can set the style and size when lines cross over each other. You can choose from five different styles of crossovers. If you do not choose a crossover style, the lines cross with no indication, which can make it difficult to tell which lines connect to which shapes.



Bunny hops

If the line is on top, it shows the hop; if it is on the bottom, it shows as a solid line.



Broken lines

If the line is on top, it shows as a solid line; if it is on the bottom, it shows as a broken line.



Solid lines

If the line is on top, it shows as a solid line; if it is on the bottom, it shows as a solid line. These cross with no indication.

You can specify the crossover style of individual lines. If you have a bunny-hop line over a broken line, both the bunny hop and the gap appear. If you have a bunny-hop line under a broken line, two solid lines appear. In general it is best to use one crossover style throughout your diagram.

### Tip

When you draw a line that crosses any existing lines or shapes it goes over the lines or shapes. To send the line to the back, click it, click the Arrange tool on the Draw toolbar, point to Order, and then click Send To Back.

You set the style and size of crossovers by clicking Line and Border on the Format menu, clicking the Arrows and Crossovers tab, and then selecting the type and size you want. You also can choose the crossovers style by clicking the Crossovers tool on the Draw toolbar, and then clicking the type you want.



{button Related Topics,PI('','working\_\_rtf\_1138166')}

[Applying Fill Formats](#)

[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Shadow/3D Formats](#)

To choose arrowhead styles

To choose a line crossover

### To choose arrowhead styles

- 1 Click the line you want to add arrowheads to.
- 2 On the Format menu, click Line and Border.
- 3 In the Format Line dialog box, click the Arrows and Crossovers tab.
- 4 Choose either a Source Arrow line end, a Destination Arrow line end, or both.
- 5 Click OK.

**Note**

You cannot change arrowhead styles on filled lines.

---

{button Related Topics,PI('','working\_\_rtf\_1138389')}

To choose a line crossover

Applying Fill Formats

Applying Line and Border Formats for Shapes

Applying Line Formats for Lines

Applying Shadow/3D Formats

Formatting Shapes and Lines

**To choose a line crossover**

- 1 Click the line you want to cross over another line.
- 2 On the Format menu, click Line and Border.
- 3 In the Format Line dialog box, click the Arrows and Crossovers tab.
- 4 Select a crossover style and size.
- 5 Click OK.

---

{button Related Topics,PI('`,`working\_\_rtf\_1138272')}

[To choose arrowhead styles](#)

[Applying Fill Formats](#)

[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Shadow/3D Formats](#)

[Formatting Shapes and Lines](#)



## Format Shape dialog box - Arrows and Crossovers tab

{button Tell me how...,PI('`,`working\_\_rtf\_1137658')}

Element	Description
Source Arrow box	Sets the starting arrow.
Destination Arrow box	Sets the ending arrow.
Crossover Box	Selects the crossover style.
Repeat on each segment box	Select to repeat the crossover style on each line segment.
Connectors box	Adds connector ends to each line.

---

{button Related Topics,PI('`,`working\_\_rtf\_1137664')}

To format lines for shape borders

## Formatting Shapes and Lines

## Applying Shadow/3D Formats

{button Tell me how...,PI('`,`working\_\_rtf\_1139058')}

You can use shadows and 3D formats as indicators for shapes. For example, shapes with shadows can indicate that a linked diagram exists from a shape. You can choose over ten positions for the 3D appearance of your shape.

---

{button Related Topics,PI('`,`working\_\_rtf\_1139049')}

[Applying Fill Formats](#)

[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)

To add a shadow or 3D effect to a shape

To color a shadow

To change a shadow depth

To change a shadow direction

### To add a shadow or 3D effect to a shape

- 1 Click the shape you want to add an effect to.
- 2 On the Format menu, click Shadow/3D.
- 3 Select Shadow or 3D.
- 4 Select from the various styles, depths, and colors available.
- 5 Click OK.

**Tip**

You can also use the Gallery to apply shadows and 3D effects.

---

{button Related Topics,PI('','working\_\_rtf\_1138993')}

[To color a shadow](#)

[To change a shadow depth](#)

[To change a shadow direction](#)

[Applying Fill Formats](#)

[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)



**To color a shadow**

- 1 Click a shape.
- 2 On the Format menu, click Shadow/3D.
- 3 Select Shadow.
- 4 Select a color from the Color list.
- 5 Click OK.

**Tip**

Click Apply to see the results of your changes without closing the dialog box.

---

{button Related Topics,PI('','working\_\_rtf\_1132383')}

To add a shadow or 3D effect to a shape

To change a shadow depth

To change a shadow direction

Applying Fill Formats

Applying Line and Border Formats for Shapes

Applying Line Formats for Lines

Applying Arrow and Crossover Formats

### To change a shadow depth

- 1 Click a shape.
- 2 On the Format menu, click Shadow/3D.
- 3 Select Shadow.
- 4 Select a new depth from the Depth list.
- 5 Click OK.

#### Tip

Click Apply to see the results of your changes without closing the dialog box.

---

{button Related Topics,PI('','working\_\_rtf\_1132405')}

[To add a shadow or 3D effect to a shape](#)

[To color a shadow](#)

[To change a shadow direction](#)

[Applying Fill Formats](#)

[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)

### To change a shadow direction

- 1 Click a shape.
- 2 On the Format menu, click Shadow/3D.
- 3 Select Shadow.
- 4 Scroll through the Style box and select a new direction.
- 5 Click OK.

#### **Tips**

Click Apply to see the results of your changes without closing the dialog box.

You also can use the Shadow tool on the Draw toolbar to change the shadow direction.

---

{button Related Topics,PI('','working\_\_rtf\_1132427')}

[To add a shadow or 3D effect to a shape](#)

[To color a shadow](#)

[To change a shadow depth](#)

[Applying Fill Formats](#)

[Applying Line and Border Formats for Shapes](#)

[Applying Line Formats for Lines](#)

[Applying Arrow and Crossover Formats](#)

Format Shape dialog box - Shadow/3D tab

{button Tell me how...,PI('`,`working\_\_rtf\_1139333')}

Element	Description
Effect	None - Sets no effect for the shape.
	Shadow - Sets a shadow for the shape.
	3D - Sets a 3D look for the shape.
Style	Sets the style for the effect.
Color	Sets the color for the effect.
Depth	Sets the depth for the effect. Enter a number between 1 and 5.
Sample	Shows a sample of the selected choices to view before you accept them.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133192')}

## Formatting Shapes and Lines



To add a shadow or 3D effect to a shape

To color a shadow

To change a shadow depth



## Manipulating Shapes and Lines Together

{button Tell me how...,PI('`,`working\_\_rtf\_1133504')}

iGrafx Professional uses several commands to organize the look and position of shapes in a diagram. You can find the following commands on the Arrange menu and in the Draw toolbar.

- Align command
- Make Same Size command
- Space Evenly command
- Rotate/Flip command
- Order command
- Combine command

The Arrange menu also contains time-saving commands that turn multiple step operations into one step.

Command	Description
Connect Shapes	Connects selected shapes with a connector line.
Replace Shapes	Replaces a selected shape with a shape from Share Media or the Shape Library.
Reverse Ends	Reverses the line ends between two selected shapes.
Fit to Text	Fits a select shape to text typed in the shape.

To connect two shapes using the Connect Shapes command

To replace shapes

To reverse line ends between shapes

To fit shapes to text

### To replace shapes

- 1 Click the shapes in the diagram you want to replace.
- 2 On the Arrange menu, click Replace Shapes.
- 3 In the Replace Shape dialog box, find and click the shape you want to use as a replacement.
- 4 Click Replace.
- 5 Click OK.

#### Notes

Any manually resized shape or shape that has been fitted to text must be resized after you replace the shape.

When you replace shapes, the new shapes connect to the lines on the old shapes. The program automatically chooses the closest connect point on the new shapes.

iGrafx Professional automatically preserves shape numbers, colors, borders, patterns, and text size when it replaces the shape.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133530')}

To connect two shapes using the Connect Shapes command

To reverse line ends between shapes

To fit shapes to text

Manipulating Shapes and Lines Together

# Replace Shape dialog box

{button Tell me how...,PI('`,`working\_\_rtf\_1133593')}

Element	Description
Paste from Clipboard button	Pastes a copied shape to the Clipboard.
Copy button	Copies a selected Shape from Share Media or the Shape Library.
Share Media tab	Choose a shape from Share Media.
Shape Library tab	Choose a Shape from the Shape Library.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133587')}

## Manipulating Shapes and Lines Together



To replace shapes

**To fit shapes to text**

- 1 Click the text block or the shape that contains the text.
- 2 On the Arrange menu, click Fit to Text.

**Tip**

Press F8 to fit a shape or a text block to text.

To connect two shapes using the Connect Shapes command

To replace shapes







To reverse line ends between shapes

To fit shapes to text

Manipulating Shapes and Lines Together

# Align command

{button Tell me how...,PI('`,`working\_\_rtf\_1133652')}

Command	Draw toolbar	Description
Left		Aligns the selected object or objects vertically based on their left edges.
Center		Aligns the selected object or objects vertically based on their centers.
Right		Aligns the selected object or objects vertically based on their right edges.
Top		Aligns the selected object or objects horizontally based on their top edges
Middle		Aligns the selected object or objects horizontally based on their centers.
Bottom		Aligns the selected object or objects horizontally based on their bottom edges.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133646')}

## Manipulating Shapes and Lines Together

To align objects

## To align objects

- 1 Click the objects you want to align.
- 2 On the Arrange menu, point to Align, and click Left, Center, Right, Top, Middle, or Bottom.

### **Tips**

You can use the following shortcut keys for aligning shapes: Align Top (CTRL+SHIFT+4), Align Middle (CTRL+SHIFT+6), Align Bottom (CTRL+SHIFT+8), Align Left (CTRL+SHIFT+ 3), Align Center (CTRL+SHIFT+ 5), and Align Right (CTRL+SHIFT+ 7).

You can also use the align tools (Align Left, Align Center, Align Right, Align Top, Align Middle, or Align Bottom) on the Draw toolbar.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133666')}

Manipulating Shapes and Lines Together





Align command



# Make Same Size command

{button Tell me how...,PI('`,`working\_\_rtf\_1133698')}

:

Command	Draw toolbar	Description
Width		Makes the selected object(s) the same size based on their width.
Height		Makes the selected object(s) the same size based on their height.
Both		Makes the selected object(s) the same size based on their width and height.
Fit to Text		Makes the selected object(s) the same size based on their text.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133692')}





## Manipulating Shapes and Lines Together

To make objects the same size

**To make objects the same size**

- 1 Click the objects you want to make the same size.
- 2 On the Arrange menu, point to Make Same Size, and click Width, Height, Both, or Fit to Text.





You can also use the Make Same Size tools on the Draw toolbar.

Tool	Description
	Makes the selected object(s) the same size based on their width.
	Makes the selected object(s) the same size based on their height.
	Makes the selected object(s) the same size based on their width and height.
	Makes the selected object(s) the same size based on their text.

Manipulating Shapes and Lines Together  
Make Same Size command

# Space Evenly command

{button Tell me how...,PI('`,`working\_\_rtf\_1133744')}

Command	Draw toolbar	Description
Across, Centers		Spaces the selected object or objects evenly across the diagram based on their centers.
Down, Centers		Spaces the selected object or objects evenly down the diagram based on their centers.
Across, Edges		Spaces the selected object or objects evenly across the diagram based on their edges.
Down, Edges		Spaces the selected object or objects evenly down the diagram based on their edges.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133738')}

## Manipulating Shapes and Lines Together

To space objects evenly



**To space objects evenly**

- 1 Click the objects you want to space evenly.
- 2 On the Arrange menu, point to Space Evenly, and click Across, Centers; Down, Centers; Across, Edges; or Down, Edges.

You also can use the Space Evenly Across, Centers; Space Evenly Down, Centers; Space Evenly Across, Edges; and Space Evenly Down, Edges tools.

**Tool Description**



Spaces the selected object or objects evenly across the diagram based on their centers.



Spaces the selected object or objects evenly down the diagram based on their centers.



Spaces the selected object or objects evenly across the diagram based on their edges.








Spaces the selected object or objects evenly down the diagram based on their edges.

Manipulating Shapes and Lines Together  
Space Evenly command

# Rotate/Flip command

{button Tell me how...,PI('`,`working\_\_rtf\_1133790')}

Command	Draw toolbar	Description
Rotate Right		Rotates the selected object or objects 90 degrees to the right.
Rotate Left		Rotates the selected object or objects 90 degrees to the left.
Angle		Selects the angle and direction for the object you want to rotate.
Flip Horizontal		Flips the selected object or objects horizontally.
Flip Vertical		Flips the selected object or objects vertically.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133784')}

## Manipulating Shapes and Lines Together

To rotate an object

To rotate an object by angle

To select the angle and direction for rotating an object

To flip an object

### To rotate an object

- 1 Click the object you want to rotate.
- 2 On the Arrange menu, point to Rotate/Flip, and click either Rotate Right or Rotate Left.

You can also rotate the object by clicking the Rotate Right tool or the Rotate Left tool on the Draw toolbar.

Tool	Description
------	-------------



Rotates the selected object or objects 90 degrees to the right.



Rotates the selected object or objects 90 degrees to the left.

---

{button Related Topics,PI('',`working\_\_rtf\_1133816')}

To rotate an object by angle

To select the angle and direction for rotating an object

To flip an object

Manipulating Shapes and Lines Together

Rotate/Flip command

**To rotate an object by angle**

- 1 Click the object you want to rotate.
- 2 On the Arrange menu, point to Rotate/Flip, and click Angle.

---

{button Related Topics,PI('`,`working\_\_rtf\_1133846')}



To rotate an object

To select the angle and direction for rotating an object

To flip an object

Manipulating Shapes and Lines Together

Rotate/Flip command

**To select the angle and direction for rotating an object**

- 1 On the Arrange menu, point to Rotate/Flip, and click Angle.
- 2 Type a number to determine how much your object is rotated.
- 3 Select either clockwise or counter-clockwise for the rotation direction.
- 4 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1133876')}

To rotate an object

To rotate an object by angle

To flip an object

Manipulating Shapes and Lines Together

Rotate/Flip command

### To flip an object

- 1 Click the object you want to flip.
- 2 On the Arrange menu, point to Rotate/Flip, and click either Flip Horizontal or Flip Vertical.

On the Draw toolbar, click either the Flip Horizontal tool or the Flip Vertical tool.

Too	Description
-----	-------------

--	--



Flips the selected object or objects horizontally.
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Flips the selected object or objects vertically.
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---

{button Related Topics,PI('','working\_\_rtf\_1133906')}

To rotate an object

To rotate an object by angle

To select the angle and direction for rotating an object

Manipulating Shapes and Lines Together

Rotate/Flip command

## Rotate by Angle dialog box

{button Tell me how...,PI('`,`working\_\_rtf\_1133951')}

Element	Description
Angle	Enter the number of degrees that you want to rotate the object.
Direction	Clockwise - Rotates the object clockwise by the angle selected. Counter-Clockwise - Rotates the object counter-clockwise by the angle selected.





To rotate an object

To rotate an object by angle

To select the angle and direction for rotating an object

# Order command

{button Tell me how...,PI('`,`working\_\_rtf\_1133987')}

Command	Draw toolbar	Description
Bring to Front		Moves the selected object or objects in front of other objects in the diagram.
Send to Back		Moves the selected object or objects behind other objects in the diagram.
Send Backward		Moves the currently selected object one level toward the back.
Bring Forward		Moves the currently selected object one level toward the front.



## Manipulating Shapes and Lines Together

To bring an object to the front

To send an object to the back

### To bring an object to the front

- 1 Click the object you want to bring to the front.
- 2 On the Arrange menu, point to Order, and click Bring to Front.
- 3 The selected object appears in front of all overlapping objects.

#### Tips

To select an object that is beneath other objects, press and hold CTRL, and click the top object. As you continue to click, the objects below the top object are selected.

You can also bring the object to front by clicking the Bring to Front tool on the Draw toolbar.



---

{button Related Topics,PI('`,`working\_\_rtf\_1134005')}

To send an object to the back

Manipulating Shapes and Lines Together

Order command

### To send an object to the back

- 1 Click the object you want to move to the back.
- 2 On the Arrange menu, point to Order, and click Send to Back. The selected object appears behind all overlapping objects.

#### Tips

To select an object that is beneath other objects, press and hold CTRL, and click the top object. As you continue to click, the objects below the top object are selected.

You can also send the object to back by clicking the Send to Back tool on the Draw toolbar.



---

{button Related Topics,PI('`,`working\_\_rtf\_1134027')}










To bring an object to the front

Manipulating Shapes and Lines Together

Order command

# Combine command

{button Tell me how...,PI('`,`working\_\_rtf\_1134055')}

Command	Draw toolbar	Description
Group		Groups selected objects.
Ungroup		Ungroups selected objects
Connect Closed		Connects the selected closed objects.
Connect Open		Connects the selected open objects and closes them.
Disconnect		Disconnects the selected connected objects.
Join		Creates a new shape by joining the selected objects together.
Intersect		Creates a new shape from the intersection of the selected objects.
Outline		Creates a new shape from the outline of the selected shapes.
Slice		Slices the selected closed shape with the selected open shape.

## Manipulating Shapes and Lines Together



[To group objects](#)

[To ungroup objects](#)

[To connect closed objects](#)

[To connect open objects](#)

[To disconnect objects](#)

[To join objects](#)

[To outline objects](#)

[To intersect objects](#)

[To slice objects](#)

**To group objects**

- 1 Click the shapes you want to group.
- 2 On the Arrange menu, point to Combine, and click Group.

---

{button Related Topics,PI('`,`working\_\_rtf\_1134101')}

To ungroup objects

Manipulating Shapes and Lines Together

Combine command

**To ungroup objects**

- 1 Click the shapes you want to ungroup.
- 2 On the Arrange menu, point to Combine, and click Ungroup.

---

{button Related Topics,PI('`,`working\_\_rtf\_1134123')}

To group objects

Manipulating Shapes and Lines Together

Combine command

**To connect closed objects**

- 1 Click the closed objects you want to connect.
- 2 On the Arrange menu, point to Combine, and click Connect Closed.

**Tip**

You can also use the Connect Closed tool on the Draw toolbar.



---

{button Related Topics,PI('`,`working\_\_rtf\_1134145')}

To connect open objects

To disconnect objects

To join objects

To outline objects

To intersect objects

To slice objects

Manipulating Shapes and Lines Together

Combine command

**To connect open objects**

- 1 Click the open objects you want to connect.
- 2 On the Arrange menu, point to Combine, and click Connect Open

**Tip**

You can also use the Connect Open tool on the Draw toolbar.



---

{button Related Topics,PI('`,`working\_\_rtf\_1134187')}



To connect closed objects

To disconnect objects

To join objects

To outline objects

To intersect objects

To slice objects

Manipulating Shapes and Lines Together

Combine command

### To disconnect objects

- 1 Click the object you want to disconnect.
- 2 On the Arrange menu, point to Combine, and click Disconnect.

#### Tip

You can also use the Disconnect tool on the Draw toolbar.



---

{button Related Topics,PI('`,`working\_\_rtf\_1134229')}

To connect closed objects

To connect open objects

To join objects

To outline objects

To intersect objects

To slice objects

Manipulating Shapes and Lines Together

Combine command

### To join objects

- 1 Click the objects you want to join.
- 2 On the Arrange menu, point to Combine, and click Join.

#### Tip

You can also use the Join tool on the Draw toolbar.



---

{button Related Topics,PI('','working\_\_rtf\_1134271')}

To connect closed objects

To connect open objects

To disconnect objects

To outline objects

To intersect objects

To slice objects

Manipulating Shapes and Lines Together

Combine command

**To outline objects**

- 1 Click the objects you want to use to form your outline.
- 2 On the Arrange menu, point to Combine, and click Outline.

**Tip**

You can also use the Outline tool on the Draw toolbar.



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{button Related Topics,PI('`,`working\_\_rtf\_1134313')}

[To connect closed objects](#)

[To connect open objects](#)

[To disconnect objects](#)

[To join objects](#)

[To intersect objects](#)

[To slice objects](#)

[Manipulating Shapes and Lines Together](#)

[Combine command](#)

**To intersect objects**

- 1 Click the objects you want to intersect.
- 2 On the Arrange menu, point to Combine, and click Intersect.

**Tip**

You can also use the Intersect tool on the Draw toolbar.



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{button Related Topics,PI('','working\_\_rtf\_1134355')}



[To connect closed objects](#)

[To connect open objects](#)

[To disconnect objects](#)

[To join objects](#)

[To outline objects](#)

[To slice objects](#)

[Manipulating Shapes and Lines Together](#)

[Combine command](#)

### To slice objects

- 1 Click the open object and the closed object you want to use for the slice process.
- 2 On the Arrange menu, point to Combine, and click Slice.

#### Note

The Slice command is used only when you are using an open object to slice through a closed object. The Slice command is not available if you select two open objects.

#### Tip

You can also use the Slice tool on the Draw toolbar.



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{button Related Topics,PI('','working\_\_rtf\_1134397')}

[To connect closed objects](#)

[To connect open objects](#)

[To disconnect objects](#)

[To join objects](#)

[To outline objects](#)

[To intersect objects](#)

[Manipulating Shapes and Lines Together](#)

[Combine command](#)

### To set the line spacing between shapes and lines

- 1 On the Tools menu, click Options.
- 2 If necessary, click the Connector Lines tab.
- 3 Click the Horizontal box, and enter the distance you want between the shape and the first right angle of a horizontal line.
- 4 Click the Vertical box, and enter the distance you want between the shape and the first right angle of a vertical line.

#### **Tips**

The measurements used (inches or centimeters) are displayed next to the box. These measurements apply to the whole diagram. To change the type of measurement used, click the ruler with your right mouse button, select Measurement, and click the measurement type you want.

You can also create a toolbar with the inches and centimeters buttons. To do this, click Tools, click Customize, and click the View category. Click the buttons, drag them outside of the Customize dialog box, and drop them. (When you drop the second button, be sure it is more or less on top of the first button. That way, it gets added to the same toolbar instead of creating a second toolbar with one button in it.) Now that you have a toolbar with the inches and centimeter buttons, you can click them to change the unit of measurement.

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{button Related Topics,PI('`,`working\_\_rtf\_1137211')}

## Manipulating Shapes and Lines Together

## Working with Default and Preset Shape and Line Styles

{button Tell me how...,PI('`,`working\_\_rtf\_1134540')}

As you create diagrams, you can reuse the same shape and line styles. For example, you can use the same border style and fill pattern for decision shapes in a certain flow. You can choose the styles you want to reuse and store them in a list. These styles are called preset styles. After saving new preset shape and line styles, you can open them by clicking the Shape Style or Line Style lists on the Preset Styles toolbar.

You can set and apply shape and line defaults three ways:

- Defaults tab on the Format Diagram dialog box
- Preset shape and line styles
- Shape Library and Share Media

This list is arranged in order of override capabilities: Preset shape and line styles you create using the Preset Styles toolbar override shape and line settings you create using the Defaults tab. Defaults you create for individual shapes appearing in the Shape Library and Share Media override styles you create using the Preset Styles toolbar and defaults you create using the Defaults tab.

[To set shape and line defaults using the Defaults tab](#)

[To add a preset shape style](#)

[To choose a preset shape style](#)

[To rename a preset shape style](#)

[To delete a preset shape style](#)

[To add a preset line style](#)

[To choose a preset line style](#)

[To rename a preset line style](#)

[To delete a preset line style](#)

[To set shape and line defaults using the Shape Library](#)

[To set shape and line defaults using Share Media](#)

### To set shape and line defaults using the Defaults tab

- 1 On the Format menu, click Diagram, and then click the Defaults tab.

**Note**

You can set several defaults in this tab. This procedure explains how to set one type.

- 2 Click the Shapes box, and then click Fill.
- 3 In the Format Fill dialog box, choose a fill style or a foreground color.
- 4 Click OK.
- 5 In the Defaults tab, click OK.

All shapes that you place in the diagram appear with the fill style and color you selected.

---

{button Related Topics,PI('','working\_\_rtf\_1146871')}




[To set shape and line defaults using the Shape Library](#)

[To set shape and line defaults using Share Media](#)

[Working with Default and Preset Shape and Line Styles](#)

### To create a new preset shape style

- 1  Click the Edit Shape Styles tool on the Preset Styles toolbar.
- 2 In the Preset Styles dialog box, click New
- 3 In the Format Fill dialog box, select the shape options that you want.
- 4 Click OK.
- 5 In the Preset Styles dialog box, click Rename.
- 6 Type a new name for the shape style.
- 7 Click OK.
- 8 Click OK.

---

{button Related Topics,PI('`,`working\_\_rtf\_1148776')}


[To rename a preset shape style](#)

[To choose a preset shape style](#)

[To delete a preset shape style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To add a preset shape style

- 1 Click the shape in the diagram.
- 2  Click the Add Shape Style tool on the Preset Styles toolbar.

The shape is added to the Shape Style list.

#### **Tips**

Click Toolbars on the View menu, and then click Preset Styles to display the Preset Styles toolbar.

---

{button Related Topics,PI('','working\_\_rtf\_1134582')}

[To create a new preset shape style](#)

[To rename a preset shape style](#)

[To choose a preset shape style](#)

[To delete a preset shape style](#)

[Working with Default and Preset Shape and Line Styles](#)

**To choose a preset shape style**

- 1 Select the shape(s) to which you want to apply the style.
- 2 Click the Shape Styles list on the Preset Styles toolbar.
- 3 Click the shape style you want.

**Note**

If no shape is selected, the preset style appears in the Sample tool and becomes the current shape style.

If you select a shape before you choose a shape style, the style is applied to the selected shape and to future shapes.

**Tip**

Click Toolbars on the View menu, and then click Preset Styles to display the Preset Styles toolbar.

---

{button Related Topics,PI('','working\_\_rtf\_1134608')}

[To create a new preset shape style](#)


[To add a preset shape style](#)

[To rename a preset shape style](#)

[To delete a preset shape style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To rename a preset shape style

- 1  Click the Edit Shape Styles tool on the Preset Styles toolbar.
- 2 In the Preset Styles dialog box, click the preset shape style you want to rename, and click Rename
- 3 Type a new name.
- 4 Click OK.
- 5 Click OK.

#### Tip

Click Toolbars on the View menu, and then click Preset Styles to display the Preset Styles toolbar.

---

{button Related Topics,PI('',`working\_\_rtf\_1134634')}



[To create a new preset shape style](#)


[To add a preset shape style](#)

[To choose a preset shape style](#)

[To delete a preset shape style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To delete a preset shape style

- 1  Click the Edit Shape Styles tool on the Preset Styles toolbar.
- 2 In the Preset Styles dialog box, click the shape style you want to delete.
- 3 Click Remove.
- 4 Click OK.

#### Tip

Click Toolbars on the View menu, and then click Preset Styles to display the Preset Styles toolbar.

---

{button Related Topics,PI('','working\_\_rtf\_1134660')}

[To create a new preset shape style](#)


[To add a preset shape style](#)

[To rename a preset shape style](#)

[To choose a preset shape style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To create a new preset line style

- 1  On the Preset Styles toolbar, click the Edit Line Style tool.
- 2 In the Preset Styles dialog box, click the Line tab.
- 3 Click New.
- 4 In the Format Line dialog box, select the line options that you want.
- 5 Click OK.
- 6 In the Preset Styles dialog box, click Rename.
- 7 Type a new name for the line style.
- 8 Click OK.
- 9 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1148614')}

[To add a preset line style](#)


[To choose a preset line style](#)

[To rename a preset line style](#)

[To delete a preset line style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To add a preset line style

- 1 Click the line in the diagram.
- 2  Click the Add Line Style tool on the Preset Styles toolbar.

The line style is added to the Line Style list.

---

{button Related Topics,PI('','working\_\_rtf\_1134686')}

[To create a new preset line style](#)

[To choose a preset line style](#)

[To rename a preset line style](#)

[To delete a preset line style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To choose a preset line style

- 1 Select the line(s) to which you want to apply the style.
- 2 Click the Line Styles drop down list on the Preset Styles toolbar.
- 3 Click the line style you want.

#### **Tips**

If no line is selected, the preset style becomes the current line style.

If you select a line before you choose a line style, the style is applied to the selected line and to future lines.

You can also apply a new line style using the Preset Styles command on the Format menu.

---

{button Related Topics,PI('`,`working\_\_rtf\_1134708')}



[To create a new preset line style](#)


[To add a preset line style](#)

[To rename a preset line style](#)

[To delete a preset line style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To rename a preset line style

- 1  On the Preset Styles toolbar, click the Edit Line Style tool.
- 2 In the Preset Styles dialog box, click the Line tab, and then click the preset style you want to rename.
- 3 Click Rename
- 4 Type a new name.
- 5 Click OK.
- 6 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1134734')}

[To create a new preset line style](#)


[To add a preset line style](#)

[To choose a preset line style](#)

[To delete a preset line style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To delete a preset line style

- 1  Click the Edit Line Styles tool on the Preset Styles toolbar
- 2 In the Preset Styles dialog box, click the line style that you want to remove.
- 3 Click Remove.
- 4 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1134760')}

[To create a new preset line style](#)

[To add a preset line style](#)

[To choose a preset line style](#)

[To rename a preset line style](#)

[Working with Default and Preset Shape and Line Styles](#)

### To set shape and line defaults using the Shape Library

- 1 On the File menu, click Shape Library.
- 2 In the Shape Library dialog box, select a shape in the Shapes list.
- 3 Click Edit.
- 4 In the Edit Shape dialog box, clear the Use Diagram Default Format box under Shape Defaults.
- 5 Click Format.

**Note**

You can select several formatting options in the Format Shape dialog box. This procedure explains how to set one type.

- 6 On the Fill tab, select a fill style, and then click OK.
- 7 In the Edit Shape dialog box, click OK.
- 8 In the Shape Library, click Close.

---

{button Related Topics,PI('','working\_\_rtf\_1146950')}

[To set shape and line defaults using Share Media](#)

[To set shape and line defaults using the Defaults tab](#)

[Working with Default and Preset Shape and Line Styles](#)

**To set shape and line defaults using Share Media**

- 1 Click on a Share Media subject tab in the Gallery.
- 2 Right mouse click on a shape, and then click Properties.
- 3 In the Shape Properties dialog box, click Edit.
- 4 In the Edit Shape dialog box, clear the Use Diagram Default Format box under Shape Defaults.
- 5 Click Format.
- 6 On the Fill tab, select a fill style, and then click OK.
- 7 In the Edit Shape dialog box, click OK.
- 8 In the Shape Properties dialog box, click OK.

---

{button Related Topics,PI('`,`working\_\_rtf\_1147056')}



[To set shape and line defaults using the Shape Library](#)

[To set shape and line defaults using the Defaults tab](#)

[Working with Default and Preset Shape and Line Styles](#)

**Preset Styles dialog box - Shape tab**

{button Tell me how...,PI('`,`working\_\_rtf\_1134807')}

Element	Description
New button	Opens the Format Fill dialog box where you can select new options for a preset shape.
Remove button	Removes the selected style from the Preset Shape Styles list.
Rename button	Opens the Rename Style dialog box where you can rename the selected shape style.

[To add a preset shape style](#)

[To choose a preset shape style](#)

[To rename a preset shape style](#)

[To delete a preset shape style](#)

**Preset Styles dialog box - Line tab**

{button Tell me how...,PI('`,`working\_\_rtf\_1134851')}

Element	Description
New button	Opens the Format Line dialog box where you can select new options for a preset line.
Remove button	Removes the selected style from the Preset Line Styles list.
Rename button	Opens the Rename Style dialog box where you can rename the selected line style.

[To add a preset line style](#)

[To choose a preset line style](#)

[To rename a preset line style](#)

[To delete a preset line style](#)

## Working with Shape Fields

```
{button Tell me how...,PI('`,`working__rtf_1145164')}
```

In iGrafx Professional you can use shape fields to expand the power of any selected shape. Inserting a field in a shape helps you attach extra functionality to a shape. It also helps users of your diagram understand that shapes with fields included give more information or perform special functions.

A shape field can be something simple like a date and time, or something more complex, like a Visual Basic expression. The New Field dialog box contains all the field type functions that you can include with a shape. This dialog box is dynamic. Depending on what field type you choose, more information appears on the right side of the dialog for selecting or changing. After choosing a field type, you can also position it at different places inside the shape or outside the shape's border.

[To add a field to a shape](#)

[To move a shape field in or around a shape](#)

[To include a shape field description with a shape](#)

[To set the text orientation for a shape field](#)

[To set advanced shape field options](#)

[To delete a shape field](#)

**To add a field to a shape**

- 1 Click the shape you want to add a field to.
- 2 On the Format menu, click Fields.
- 3 In the Shape Fields dialog box, click New Field.
- 4 In the Field Type list, click the plus signs next to the field types, and click the field you want to insert.
- 5 Click OK.
- 6 In the Shape Fields dialog box, move the mouse pointer over the Location box. A black dot follows the pointer.
- 7 Click the field box within the outline of the shape.
- 8 While holding the left mouse button down, move the field box to the desired position.
- 9 Release the left mouse button.
- 10 Click OK.

---

{button Related Topics,PI(';',`working\_\_rtf\_1145207')}



[To move a shape field in or around a shape](#)

[To include a shape field description with a shape](#)

[To set the text orientation for a shape field](#)

[To set advanced shape field options](#)

[To delete a shape field](#)

**To move a shape field in or around a shape**

- 1 Click the shape that contains the shape field.
- 2 On the Format menu, click Fields.
- 3 In the Shape Fields dialog box, move the mouse pointer over the Location box. A black dot follows the pointer.
- 4 Click the field box within the outline of the shape.
- 5 While holding the left mouse button down, move the field box to the desired position.
- 6 Release the left mouse button.
- 7 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1145243')}

[To add a field to a shape](#)

[To include a shape field description with a shape](#)

[To set the text orientation for a shape field](#)

[To set advanced shape field options](#)

[To delete a shape field](#)

**To include a shape field description with a shape**

- 1 Click the shape that contains the shape field.
- 2 On the Format menu, click Fields.
- 3 In the Shape Fields dialog box, select Include Description.

This places the name of the shape field you use before the actual shape field. For example, if you include a field code for page number, PageNumber: appears prior to the page number with the selected shape.

- 4 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1145277')}

[To add a field to a shape](#)

[To move a shape field in or around a shape](#)

[To set the text orientation for a shape field](#)

[To set advanced shape field options](#)

[To delete a shape field](#)

**To set the text orientation for a shape field**

- 1 Click the shape that contains the shape field.
- 2 On the Format menu, click Fields.
- 3 In the Shape Fields dialog box, select one of the text orientations under the Location box.
- 4 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1145310')}

[To add a field to a shape](#)

[To move a shape field in or around a shape](#)

[To include a shape field description with a shape](#)

[To set advanced shape field options](#)

[To delete a shape field](#)

**To set advanced shape field options**

- 1 Click the shape that contains the shape field.
- 2 On the Format menu, click Fields.
- 3 In the Shape Fields dialog box, click Advanced.
  - To wrap the shape field description, select Limit Text Width and change the Width.
  - To hide the shape field from view in or around the shape, select Hide Text.
  - To prevent moving the shape field text from its set position in or around the shape, select Freeze Text.

---

{button Related Topics,PI('','working\_\_rtf\_1145345')}



[To add a field to a shape](#)

[To move a shape field in or around a shape](#)

[To include a shape field description with a shape](#)

[To set the text orientation for a shape field](#)

[To delete a shape field](#)

**To delete a shape field**

- 1 Click the shape that contains the shape field.
- 2 On the Format menu, click Fields.
- 3 In the Shape Fields dialog box, click Delete.

---

{button Related Topics,PI('','working\_\_rtf\_1145377')}

[To add a field to a shape](#)

[To move a shape field in or around a shape](#)

[To include a shape field description with a shape](#)

[To set the text orientation for a shape field](#)

[To set advanced shape field options](#)

[To delete a shape field](#)

# Shape Fields dialog box

{button Tell me how...,PI('','working\_\_rtf\_1145463')}

Element	Description
Current Fields	Provides the name of any current field assigned to the selected shape.
Location	Sets the location of the field information within the shape. Move the mouse pointer over this box. A black dot follows the pointer.
New Field button	Opens the New Field dialog box where you can choose and insert a new field code.
Delete Field button	Removes the selected field.
Include Description box	<p>Includes field code descriptions with the field code.</p> <p>For example, if you include a field code for page number, PageNumber: 1 appears with the selected shape.</p>
Field Alignment options	Sets the text orientation for inserted field codes.
Font button	Lets you change the field code font options.
Advanced button	<p>Opens the Advanced Options dialog box.</p> <ul style="list-style-type: none"><li>• Select Limit Text Width and change the Width to wrap the shape field description.</li><li>• Select Hide Text to hide the shape field from view in or around the shape.</li><li>• Select Freeze Text to prevent moving the shape field text from its set position in or around the shape.</li></ul>

## Working with Shape Fields

[To add a field to a shape](#)

[To move a shape field in or around a shape](#)

[To include a shape field description with a shape](#)

[To set the text orientation for a shape field](#)

[To set advanced shape field options](#)

[To delete a shape field](#)

## New Field dialog box

{button Tell me how...,PI('`,`working\_\_rtf\_1145521')}

Element	Description
Field Type	Select the field type by clicking the plus signs next to a category.
Description	Click a field type to see its description

---

{button Related Topics,PI('`,`working\_\_rtf\_1145515')}

## Working with Shape Fields



To add a field to a shape

## Advanced Field Options dialog box

{button Tell me how...,PI('`,`working\_\_rtf\_1145603')}

Element	Description
Limit Text Width box	Limits the text width of the shape field, allowing it to wrap.
Hide Text box	Hides shape field text from view in or around the shape.
Freeze Text box	Prevents moving the shape field text from its set position in or around the shape.

---

{button Related Topics,PI('`,`working\_\_rtf\_1145556')}

## Working with Shape Fields

[To set advanced shape field options](#)

## Numbering Shapes

{button Tell me how...,PI('`,`working\_\_rtf\_1134899')}

iGrafx Professional has several options for numbering and renumbering shapes in a diagram. You can apply numbering commands to individual shapes, all shapes in a diagram, new shapes that you place, or existing shapes in a diagram.

Using numbering commands you can:

- Show or hide shape numbers
- Automatically number shapes
- Manually number shapes
- Change the default number format
- Set an area in a shape where you would like the number to appear

**Note**

Shape numbering is turned off by default. Before you can make any changes to shape numbers, you must select a shape and show its shape number, or for all shapes, show all shape numbers.

To show or hide numbers on selected shapes

To show or hide numbers on all shapes

To renumber selected shapes automatically

To renumber all shapes automatically

To renumber shapes manually

To set the default number format for new shapes

To change the number format for existing shapes

To set the numbering position in a shape

## To show or hide numbers on all shapes

► On the Format menu, point to Numbering, and click Show All Shape Numbers or Hide All Shape Numbers.

### Note

This feature only affects shapes numbered with the Numbering feature. If you type a number as text in the shape, the number will not be shown or hidden using this method.

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{button Related Topics,PI('',`working\_\_rtf\_1145668')}

[To show or hide numbers on selected shapes](#)

[To renumber selected shapes automatically](#)

[To renumber all shapes automatically](#)

[To renumber shapes manually](#)

[To set the default number format for new shapes](#)


[To change the number format for existing shapes](#)

[To set the numbering position in a shape](#)

[Numbering Shapes](#)



### To show or hide numbers on selected shapes

- 1 Select the shapes whose number you want to show or hide.
- 2  On the Toolbox toolbar, click the Shape Numbering tool.
- 3 Click Show Shape Number or Hide Shape Number.

---

{button Related Topics,PI('','working\_\_rtf\_1134941')}

To show or hide numbers on all shapes

To renumber selected shapes automatically

To renumber all shapes automatically

To renumber shapes manually

To set the default number format for new shapes

To change the number format for existing shapes

To set the numbering position in a shape

Numbering Shapes

**To renumber all shapes automatically**

- 1 On the Format menu, point to Numbering, and click Auto Renumber.
- 2 In the Automatic Renumber dialog box, select All Shapes.
- 3 Type a starting number in the Starting Number dialog box.
- 4 Select a renumber style.
- 5 Click OK.

---

{button Related Topics,PI('`,`working\_\_rtf\_1145771')}

[To show or hide numbers on selected shapes](#)

[To show or hide numbers on all shapes](#)

[To renumber selected shapes automatically](#)

[To renumber shapes manually](#)

[To set the default number format for new shapes](#)

[To change the number format for existing shapes](#)

[To set the numbering position in a shape](#)

[Numbering Shapes](#)

**To renumber selected shapes automatically**

- 1 Select the shapes in the diagram you want to renumber.
- 2 On the Format menu, point to Numbering, and click Auto Renumber.
- 3 In the Automatic Renumber dialog box, select Selected Shapes.
- 4 Type a starting number in the Starting Number box.
- 5 Click OK

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{button Related Topics,PI('`,`working\_\_rtf\_1135025')}

[To show or hide numbers on selected shapes](#)

[To show or hide numbers on all shapes](#)

[To renumber all shapes automatically](#)

[To renumber shapes manually](#)

[To set the default number format for new shapes](#)

[To change the number format for existing shapes](#)

[To set the numbering position in a shape](#)

[Numbering Shapes](#)

**To renumber shapes manually**

- 1 On the Format menu, point to Numbering, and click Manual Renumber. The pointer changes to the Number pointer when you move it into the drawing area.
- 2 In the Renumber dialog box, type the next number you want displayed.
- 3 Click the first shape in the diagram you want to renumber.
- 4 Click the other shapes in the order you want them renumbered.
- 5 In the Renumber dialog box, click Finished.

---

{button Related Topics,PI('','working\_\_rtf\_1135117')}

[To show or hide numbers on selected shapes](#)

[To show or hide numbers on all shapes](#)

[To renumber selected shapes automatically](#)

[To renumber all shapes automatically](#)

[To set the default number format for new shapes](#)

[To change the number format for existing shapes](#)

[To set the numbering position in a shape](#)

[Numbering Shapes](#)



### To set the default number format for new shapes

- 1 On the Format menu, point to Numbering, and click Default Number Format.
- 2 In the Shape Fields dialog box, click Format.
- 3 In the Numbering Format dialog box, select a new example number from the Example Number list.

**Note**

You can also type your own numbering schemes directly in this list.

- 4 If you selected a two-part example number, click either the left or right number or letter to increment.
- 5 Click OK to close the Numbering Format dialog box.
- 6 Click OK.

---

{button Related Topics,PI('','working\_\_rtf\_1135159')}

[To show or hide numbers on selected shapes](#)

[To show or hide numbers on all shapes](#)

[To renumber selected shapes automatically](#)

[To renumber all shapes automatically](#)

[To renumber shapes manually](#)

[To change the number format for existing shapes](#)

[To set the numbering position in a shape](#)

[Numbering Shapes](#)

**To change the number format for existing shapes**

- 1 On the Format menu, point to Numbering, and click Number Format.
- 2 In the Shape Fields dialog box, click Format.
- 3 In the Numbering Format dialog box, select a new example number from the Example Number list.
- 4 If you selected a two-part example number, click either the left or right number or letter to increment.
- 5 Click OK to close the Numbering Format dialog box.
- 6 Click OK.

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{button Related Topics,PI('','working\_\_rtf\_1135209')}

[To show or hide numbers on selected shapes](#)

[To show or hide numbers on all shapes](#)

[To renumber selected shapes automatically](#)

[To renumber all shapes automatically](#)

[To renumber shapes manually](#)

[To set the default number format for new shapes](#)

[To set the numbering position in a shape](#)

[Numbering Shapes](#)

**To set the numbering position in a shape**

- 1 On the Format menu, point to Numbering, and click Default Number Format.
- 2 In the Shape Fields dialog box, move the mouse pointer over the Location box. A black dot follows the pointer.
- 3 Click the field box within the outline of the shape.
- 4 While holding the left-mouse button down, move the field box to the desired position.
- 5 Release the left-mouse button.
- 6 Click OK.

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{button Related Topics,PI('','working\_\_rtf\_1135259')}

To show or hide numbers on selected shapes

To show or hide numbers on all shapes

To renumber selected shapes automatically

To renumber all shapes automatically

To renumber shapes manually

To set the default number format for new shapes

To change the number format for existing shapes

To set the numbering position in a shape

Numbering Shapes

## Automatic Renumber dialog box

{button Tell me how...,PI('`,`working\_\_rtf\_1135329')}

Element	Description
Renumber	All Shapes - Renumbers all shapes in the active diagram.  Selected Shapes - Renumbers only those shapes selected.
Starting Number	Type the number you that you want to use to begin the renumbering.
Renumber Style	By Flow Through Diagram - Renumbering follows the flow in the active diagram.  Left to Right by Department - Renumbering follows the departments in the active diagram.

To renumber selected shapes automatically

To renumber all shapes automatically



Numbering Format dialog box

{button Tell me how...,PI('`,`working\_\_rtf\_1135361')}

Element	Description
Example number	<div>Type the number that you want to use to begin numbering shapes. <b>Note</b> You can also type your own numbering schemes directly in this list.</div>
Increment which part	If you selected a two-part number or letter, select the left or right for incrementing.

To set the default number format for new shapes

To change the number format for existing shapes



## Creating and Manipulating Text

{button Tell me how...,PI('`,`workinga\_rtf\_1102313')}

Five types of text exist in iGrafx Professional:

- Shape - Text that you type directly in a shape. As you type text, the shape automatically resizes to fit the text. You can use the shape text to describe only that shape.
- Department Name - Text that you type directly in department headers.
- Connector Line
  - Decision - Text generated from selections in the Properties dialog box. You cannot delete this text in the diagram space.
  - Direct - Text that you create by selecting a line and typing on it.
- General
  - Graphic - Text that you type directly in graphic.
  - Direct - Text that you create by clicking the Text tool on the Toolbox toolbar, clicking in the diagram space, and then typing.
- Field - Text that appears as a field in or around a shape.

You can:

- Create freeform text, shape text, and text on lines.
- Create and format callout lines.
- Set the formatting style for text.
- Set the alignment of a text block.
- Create and set tab sizes.
- Set the text orientation.
- Align text.
- Make text a bulleted list and set the bullet style and spacing.
- Rotate text.
- Make text opaque.
- Set tab spacing.
- Modify line spacing between paragraphs, and set the spacing units.
- Increase or decrease text indentation.

## New Text Features

iGrafx Professional includes the following new text manipulation features:

- Shapes automatically adjust to the text you type.
- When you click a shape, you can automatically begin entering text into the shape.
- You can add multiple text fields to a shape.
- You have more formatting options for text in a diagram. You can:
  - Make the text a bullet list.

- Set tab spacing.
- Modify line spacing between paragraphs.
- Increase or decrease text indentation.
- Set the text orientation.
- You have more formatting features that you access directly from the Formatting toolbar. You can:
  - Rotate text blocks.
  - Make text opaque.
  - Increase and decrease indents and line spacing in text blocks.

[To create shape text](#)

[To edit text in department headers](#)

[To create text in the diagram space](#)

[To add text to a graphic](#)

[To create text on lines](#)

[To select text](#)

[To place the text cursor in text](#)

[To select text by dragging](#)

[To move the text cursor using the keyboard](#)

[To select text using the keyboard](#)

[To delete text](#)

**To create shape text**

- 1 Click within the shape that you want to add text to.
- 2 Type the text you want in the shape. To start a new line, press ENTER.
- 3 When you finish typing, click outside the shape.

---

{button Related Topics,PI('','workinga\_rtf\_1102368')}

[To edit text in department headers](#)

[To create text in the diagram space](#)

[To add text to a graphic](#)

[To create text on lines](#)

[Creating and Manipulating Text](#)



**To edit text in department headers**

- 1 Click the department header.

The pointer changes to a text cursor.

- 2 Delete the text, and type a new name.

---

```
{button Related Topics,PI('','workinga_rtf_1102398')}
```

[To create shape text](#)


[To create text in the diagram space](#)

[To add text to a graphic](#)

[To create text on lines](#)

[Creating and Manipulating Text](#)

### To create text in the diagram space

- 1  Click the Text tool on the Toolbox toolbar.
- 2 Click in the diagram space, and type.
- 3 When you finish typing, click away from the text.

---

{button Related Topics,PI('','workinga\_rtf\_1102428')}

[To create shape text](#)

[To edit text in department headers](#)

[To add text to a graphic](#)

[To create text on lines](#)

[Creating and Manipulating Text](#)

### To add text to a graphic

- 1 Double-click the graphic.
- 2 Type the text in the graphic.
- 3 To make the text appear in the graphic, click outside of the text box.

**Tip**

You can also use the right mouse menu and click Add Text.

---

{button Related Topics,PI('`,`workinga\_rtf\_1102458')}

[To create shape text](#)

[To edit text in department headers](#)

[To create text in the diagram space](#)

[To create text on lines](#)

[Creating and Manipulating Text](#)

### To create text on lines

- 1 Select the line.
- 2 Type the text you want in the text block. To start a new line, press ENTER.
- 3 When you finish typing, click outside the text block.

**Note**

You can have text appear next to lines instead of on lines. On the Tools menu, click Options, and then click the Connector Lines tab. Under Default Text Line Style, click Next to the line. Text typed on a line will appear next to it.

---

{button Related Topics,PI('','workinga\_rtf\_1102488')}

[To create shape text](#)

[To edit text in department headers](#)

[To create text in the diagram space](#)

[To add text to a graphic](#)

[Creating and Manipulating Text](#)



## To select text

- ▶ Click the shape or text block you want.

### **Tips**

To select more than one object, Press SHIFT and click.

GrafX Professional applies any text options you choose to all the text in the selected objects.

---

{button Related Topics,PI('','workinga\_rtf\_1102518')}

To place the text cursor in text

To select text by dragging

To move the text cursor using the keyboard

To select text using the keyboard

To delete text

Creating and Manipulating Text

**To place the text cursor in text**

- 1 Click the shape (including the text block) that contains the text you want to change.
- 2 Point the cursor inside the text you want to change.

---

{button Related Topics,PI('`,`workinga\_rtf\_1102552')}

[To select text](#)

[To select text by dragging](#)

[To move the text cursor using the keyboard](#)

[To select text using the keyboard](#)

[To delete text](#)

[Creating and Manipulating Text](#)

**To select text by dragging**

- 1 Click the shape (including the text block) that contains the text you want to change.
- 2 Click at the beginning of the text you want to select.
- 3 Click and hold the left mouse button, and drag across the text you want. To select multiple lines of text, drag up or down.
- 4 Release the mouse button when you are finished.

---

{button Related Topics,PI('`,`workinga\_rtf\_1102586')}

To select text

To place the text cursor in text

To move the text cursor using the keyboard

To select text using the keyboard

To delete text

Creating and Manipulating Text

**To move the text cursor using the keyboard**

- 1 Select the object containing the text.
- 2 Click to place the text cursor where you want.
- 3 Press the right or left arrow keys to move the text cursor one character at a time. Press CTRL+ right arrow or CTRL+left arrow to move the cursor one word at a time. To move the cursor one line, press the up or down arrow keys.

---

{button Related Topics,PI('`,`workinga\_rtf\_1102620')}

To select text

To place the text cursor in text

To select text by dragging

To select text using the keyboard

To delete text

Creating and Manipulating Text



**To select text using the keyboard**

- 1 Select the object containing the text.
- 2 Click to place the text cursor at the beginning of the text you want.
- 3 Press and hold the SHIFT key.
- 4 Press the right or left arrow keys to select one character at a time. Press CTRL+right arrow or CTRL+left arrow to select one word at a time. To select one line up or down from the text cursor, press the up or down arrow keys.
- 5 Release the SHIFT key when you are finished.

---

{button Related Topics,PI('','workinga\_rtf\_1102654')}

To select text

To place the text cursor in text

To select text by dragging

To move the text cursor using the keyboard

To delete text

Creating and Manipulating Text

**To delete text**

- 1 Select the object containing the text.
- 2 Click to place the text cursor where you want to begin deleting text.
- 3 To delete text to the left of the text cursor, press BACKSPACE. To delete text to the right of the cursor, press DELETE.

---

{button Related Topics,PI('`,`workinga\_rtf\_1102688')}

To select text

To place the text cursor in text

To select text by dragging

To move the text cursor using the keyboard

To select text using the keyboard

Creating and Manipulating Text

## Formatting Text

{button Tell me how...,PI('`,`workinga\_rtf\_1102726')}

You can choose styles for text in a diagram. Diagram text consists of anything you type in the diagram space, in a shape, in a department, in a graphic, or on a line.

### Text Appearance

Formatting text includes changing the way the text looks. By changing a font size or color, you change the way text appears on the screen or in a printed diagram.

### Text Functionality

Formatting text also determines how text relates to other text. Adding bullets and line indents to a text block helps it look different from other text in a diagram. Secondary text areas in shapes create space for separate pieces of information.

Text formatting commands appear on the Format menu. You can also find formatting tools and options on the Formatting toolbar and in the Gallery.

To choose text styles

To set bullet styles for text

To set the line spacing for text

To set text margins inside shapes

To add secondary text areas to a shape

To delete secondary text areas from a shape

To align text blocks

To set text orientation

To rotate text without the shape

To rotate text with a shape

### To choose text styles

- 1 Select the text you want to change.
- 2 On the Format menu, click Font.
- 3 In the Format Text dialog box, scroll through the font list, and select the font you want.
- 4 To change the font size, scroll through the size list and select the size you want.
- 5 To turn text effects on or off, select the box next to Bold, Italic, Underline, and Strikethrough. (You can select more than one.)
- 6 To change the text color, select the Color list and select a color.
- 7 To set the background of the text to opaque, select the Opaque box.
- 8 Click OK.

**Note**

To format field text, click the Fields command on the Format menu, select the field, and click Font.

---

{button Related Topics,PI('','workinga\_rtf\_1102776')}

[To set bullet styles for text](#)

[To set the line spacing for text](#)

[To set text margins inside shapes](#)

[To add secondary text areas to a shape](#)

[To delete secondary text areas from a shape](#)

[To align text blocks](#)

[To set text orientation](#)

[To rotate text without the shape](#)

[To rotate text with a shape](#)

[Formatting Text](#)



### To set bullet styles for text

- 1 On the Format menu, click Text Alignment.
- 2 In the Format Text dialog box, click the Paragraph tab, and select the bullet style from the Bullet Style list.
- 3 Type the number of tabs for the bulleted text list to move to the right in the Indents box.

#### Notes

You can also use the Bullets tool on the Formatting toolbar.



Bullets Tool

Set the tab spacing (size) in the Block tab.

- 4 Click OK.

---

{button Related Topics,PI('`,`workinga\_rtf\_1102826')}

[To choose text styles](#)

[To set the line spacing for text](#)

[To set text margins inside shapes](#)

[To add secondary text areas to a shape](#)

[To delete secondary text areas from a shape](#)

[To align text blocks](#)

[To set text orientation](#)

[To rotate text without the shape](#)



[To rotate text with a shape](#)

[Formatting Text](#)

### To set the line spacing for text

- 1 On the Format menu, click Text Alignment.
- 2 In the Format Text dialog box, click the Paragraph tab.
- 3 Under Interline Spacing, select the number of lines to space in the Spacing box, and select Lines or Points from the Spacing Units list.
- 4 Click OK.

You can also use the Decrease Line Spacing and Increase Line Spacing tools on the Formatting toolbar.

Tool	Description
	Decreases the spacing between lines of text.
	Increases the spacing between lines of text.

---

{button Related Topics,PI('','workinga\_rtf\_1102876')}

[To choose text styles](#)

[To set bullet styles for text](#)

[To set text margins inside shapes](#)

[To add secondary text areas to a shape](#)

[To delete secondary text areas from a shape](#)

[To align text blocks](#)

[To set text orientation](#)

[To rotate text without the shape](#)

[To rotate text with a shape](#)

[Formatting Text](#)

**To set text margins inside shapes**

- 1 Click the shape.
- 2 On the Format menu, click Text Layout.
- 3 Select Shape Default, Fixed, or Percentage from the Shape Margins list.
- 4 Type the shape margins for the top, bottom, left, and right.
- 5 Click OK.

---

{button Related Topics,PI('`,`workinga\_rtf\_1102926')}

To choose text styles

To set bullet styles for text

To set the line spacing for text

To add secondary text areas to a shape

To delete secondary text areas from a shape

To align text blocks

To set text orientation

To rotate text without the shape

To rotate text with a shape

Formatting Text

### To add secondary text areas to a shape

- 1 Click the shape.
- 2 On the Format menu, click Text Layout.
- 3 In the Format Text Layout dialog box, click Add.
- 4 Click Left, Top, Right, or Bottom.

The secondary text area is highlighted in blue in the preview shape.

- 5 In the Size box, select the size of the text area.
- 6 Click OK.

**Note**

Note: You can also format secondary areas in the Format Text Area dialog box by clicking Format under Selected Text Area.

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{button Related Topics,PI('','workinga\_rtf\_1102976')}

To choose text styles

To set bullet styles for text

To set the line spacing for text

To set text margins inside shapes

To delete secondary text areas from a shape

To align text blocks

To set text orientation

To rotate text without the shape

To rotate text with a shape

Formatting Text



**To delete secondary text areas from a shape**

- 1 Click the shape.
- 2 On the Format menu, click Text Layout.
- 3 In the Format Text Layout dialog box, click the secondary text area in the preview shape you want to remove.
- 4 Click Remove.
- 5 Click OK.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103026')}

To choose text styles

To set bullet styles for text

To set the line spacing for text

To set text margins inside shapes

To add secondary text areas to a shape

To align text blocks

To set text orientation

To rotate text without the shape

To rotate text with a shape

Formatting Text

**To align text blocks**

- 1 On the Format menu, click Text Alignment.
- 2 In the Format Text dialog box, click the Block tab
- 3 To change the horizontal block alignment, click Left, Center, or Right.
- 4 To change the vertical block alignment, click Top, Middle, or Bottom.
- 5 Click OK.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103076')}

To choose text styles

To set bullet styles for text

To set the line spacing for text

To set text margins inside shapes

To add secondary text areas to a shape

To delete secondary text areas from a shape

To set text orientation

To rotate text without the shape

To rotate text with a shape

Formatting Text

**To set text orientation**

- 1 On the Format menu, click Text Alignment.
- 2 In the Format Text dialog box, click the Block tab.
- 3 Under Text Orientation, click the direction you want your text oriented.
- 4 Click OK.

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{button Related Topics,PI('`,`workinga\_rtf\_1103126')}

To choose text styles

To set bullet styles for text

To set the line spacing for text

To set text margins inside shapes

To add secondary text areas to a shape

To delete secondary text areas from a shape


To align text blocks

To rotate text without the shape

To rotate text with a shape

Formatting Text

**To rotate text without the shape**

- 1 Click the text block or shape that contains the text you want to rotate.
- 2  Click the Rotate Text Left or Rotate Text Right tool on the Formatting toolbar.
- 3 Repeat step 2 to continue rotating the text until it is in the position you want.
- 4 Click outside the text area.

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{button Related Topics,PI('','workinga\_rtf\_1103176')}

[To choose text styles](#)

[To set bullet styles for text](#)

[To set the line spacing for text](#)

[To set text margins inside shapes](#)

[To add secondary text areas to a shape](#)

[To delete secondary text areas from a shape](#)

[To align text blocks](#)

[To set text orientation](#)

[To rotate text with a shape](#)

[Formatting Text](#)



**To rotate text with a shape**

- 1 Select the text you want to rotate.
- 2 On the Arrange menu, click Rotate/Flip, and then click Rotate Right, Rotate Left, or Angle.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103226')}

To choose text styles

To set bullet styles for text

To set the line spacing for text

To set text margins inside shapes

To add secondary text areas to a shape

To delete secondary text areas from a shape

To align text blocks

To set text orientation

To rotate text without the shape

Formatting Text

## Working with Default and Preset Text Styles

{button Tell me how...,PI('`,`workinga\_rtf\_1103280')}

As you create diagrams, you can reuse the same text defaults and styles. For example, you can set a default for text appearing only in shapes, and another default for text appearing on connector lines. Setting defaults for different types of text helps the creator and users of a diagram understand that text can be used for more than labeling purposes.

You can set and apply text defaults three ways:

- Defaults tab on the Format Diagram dialog box
- Preset text styles
- Shape Library and Share Media

This list is arranged in order of override capabilities: Preset text styles you create using the Preset Styles toolbar override text settings you create using the Defaults tab. Defaults you create for individual shapes appearing in the Shape Library and Share Media override styles you create using the Preset Styles toolbar and defaults you create using the Defaults tab.

[To set text defaults using the Defaults tab](#)

[To add a preset text style](#)

[To apply a preset text style](#)

[To delete a preset text style](#)

[To rename a preset text style](#)

[To set text defaults using the Shape Library](#)

[To set text defaults using Share Media](#)

### To set text defaults using the Defaults tab

- 1 On the Format menu, click Diagram, and then click the Defaults tab.

**Note**

You can set several defaults in this tab. This procedure explains how to set one type.

- 2 Click the Shapes box, and then click Font.
- 3 In the Format Text dialog box, choose a font from the Font list.
- 4 Click OK.
- 5 In the Defaults tab, click OK.

All new shapes created will have the default font style applied.

---


{button Related Topics,PI('','workinga\_rtf\_1103318')}

[To set text defaults using the Shape Library](#)

[To set text defaults using Share Media](#)

[Working with Default and Preset Text Styles](#)

### To add a preset text style

- 1 Select the text with the styles you want (font, size, style, and color).
- 2  On the Preset Styles toolbar, click the Add Text Style tool.

#### **Tips**

To display the Preset Styles toolbar, use a right mouse click in a toolbar area, and click Preset Styles.

---

{button Related Topics,PI('',`workinga\_rtf\_1103340')}

[To apply a preset text style](#)

[To rename a preset text style](#)

[To delete a preset text style](#)

[Working with Default and Preset Text Styles](#)



**To apply a preset text style**

- 1 Select the text you want to apply the style to.
- 2 On the Preset Styles toolbar, select a style from the Text Styles list.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103366')}


[To add a preset text style](#)

[To rename a preset text style](#)

[To delete a preset text style](#)

[Working with Default and Preset Text Styles](#)

### To rename a preset text style

- 1  Click the Edit Text Style tool on the Preset Styles toolbar.
- 2 In the Preset Styles dialog box, click the style you want to rename.
- 3 Click Rename.
- 4 In the Rename Style dialog box, type the new name.
- 5 Click OK.
- 6 In the Preset Styles box, click OK.

---

{button Related Topics,PI('','workinga\_rtf\_1103392')}


[To add a preset text style](#)

[To apply a preset text style](#)

[To delete a preset text style](#)

[Working with Default and Preset Text Styles](#)

### To delete a preset text style

- 1  Click the Edit Text Style tool on the Preset Styles toolbar.
- 2 In the Preset Styles dialog box, click the text style you want to delete.
- 3 Click Remove.
- 4 Click OK.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103418')}

[To add a preset text style](#)

[To apply a preset text style](#)

[To rename a preset text style](#)

[Working with Default and Preset Text Styles](#)

### To set text defaults using the Shape Library

- 1 On the File menu, click Shape Library.
- 2 In the Shape Library, select a shape in the Shapes list.
- 3 Click Edit.
- 4 In the Edit Shape dialog box, clear the Use Diagram Default Format box under Shape Defaults.
- 5 Click Format, and select Font.

**Note**

You can select several formatting options in the Format Text dialog box. This procedure explains how to set one type.

- 6 On the Font tab, select a font from the Font list, and then click OK.
- 7 In the Edit Shape dialog box, click OK.
- 8 In the Shape Library, click Close.

**Note**

Note: New shapes added to the diagram space using this shape will default to this text style.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103444')}

[To set text defaults using Share Media](#)

[To set text defaults using the Defaults tab](#)

[Working with Default and Preset Text Styles](#)



### To set text defaults using Share Media

- 1 Click on a Share Media subject tab in the Gallery.
- 2 Right mouse click on a shape, and then click Properties.
- 3 In the Shape Properties dialog box, click Edit.
- 4 In the Edit Shape dialog box, clear the Use Diagram Default Format box under Shape Defaults.
- 5 Click Format, and select Font.
- 6 On the Font tab, select a font from the Font list, and then click OK.
- 7 In the Edit Shape dialog box, click OK.
- 8 In the Shape Properties dialog box, click OK.

**Note**

Note: New shapes added to the diagram space using this shape will default to this text style.

---

{button Related Topics,PI('','workinga\_rtf\_1103466')}

[To set text defaults using the Shape Library](#)

[To set text defaults using the Defaults tab](#)

[Working with Default and Preset Text Styles](#)

# Format Text dialog box - Font tab

{button Tell me how...,PI('`,`workinga\_rtf\_1103528')}

Element	Description
Font	Displays available fonts for text.
Size	Displays the font sizes available for the selected font.
Font Style	Lets you pick a font attribute for your text.
Color	Displays the colors you can use for your text.
Background	Lets you make the background for your text opaque or transparent.
Preview	Displays what the text will look like with the changes.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103522')}

Formatting Text

To choose text styles

Format Text dialog box - Block tab

{button Tell me how...,PI('`,`workinga\_rtf\_1103575')}

Element	Description
Block Alignment	Horizontal - Aligns the text horizontally within the shape or text block. You can have the text in the center or flush left or right.
	Vertical - Aligns the text vertically within the shape or text block. You can have the text in the middle or at the top or bottom of the text block.
Text Orientation	Sets the text to appear horizontally, vertically to the left or right, or upside down.
Tabs	Sets the tab size for your text.
Preview	Displays what the text will look like with the changes.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103569')}

Formatting Text

To align text blocks

To set text orientation



## Format Text dialog box - Paragraph tab

{button Tell me how...,PI('','workinga\_rtf\_1103626')}

Element	Description
Paragraph Alignment	Alignment - Sets the paragraph alignment for the center of the text block or the right or left side.
Interline Spacing	Spacing - Sets the spacing between lines based on the units you set in the Spacing Units field.  Spacing Units - Sets the spacing units to use lines or points.
Bullets	Bullet Style - Displays the available bullet style.  Indent - Sets the tab spacing between the bullet and following text.
Preview	Displays what the text will look like with the changes.

---

{button Related Topics,PI('','workinga\_rtf\_1103620')}

Formatting Text

To set bullet styles for text

To set the line spacing for text

**Preset Styles dialog box - Text tab**

{button Tell me how...,PI('`,`workinga\_rtf\_1103675')}

Element	Description
Preset Style List	Lists all preset text styles and includes a preview of the text.
New button	Creates a new preset text style.
Remove button	Removes the selected preset text style.
Rename button	Renames the selected preset text style.

---

{button Related Topics,PI('`,`workinga\_rtf\_1103669')}

## Working with Default and Preset Text Styles

[To add a preset text style](#)

[To rename a preset text style](#)

[To delete a preset text style](#)

# Format Text Layout dialog box

{button Tell me how...,PI('`,`workinga\_rtf\_1103729')}

Element	Description
Shape Margins	Shape Default - Applies no margins.
	Fixed - Applies shape margins as a fixed, inch measurement.
	Percentage - Applies shape margins as a percentage.
Selected Text Areas	Click the Format button to change the border, fill, and font.
Secondary Text Areas	Add button - Adds secondary text areas to the left, top, right, and bottom of the selected shape.
	Delete button - Removes added secondary text areas to a selected shape.
	Size box - Sets the size of the secondary text area.

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{button Related Topics,PI('`,`workinga\_rtf\_1103723')}

Formatting Text



To set text margins inside shapes

To add secondary text areas to a shape

To delete secondary text areas from a shape



## Understanding Differences between Graphics and Shapes

Understanding the differences between a graphic and a shape helps you use shapes more effectively. In iGrafx Professional, graphics and shapes serve different purposes: Shapes are intelligent and graphics serve as helpers.

The following table describes some differences between graphics and shapes:

<b>Graphics</b>	<b>Shapes</b>
Draw using Draw Tool options.	Place using the Toolbox toolbar or the Gallery.
Do not use connector lines. Use callout lines to attach graphics to other objects.	Use connector lines to connect between shapes. Connect lines from other shapes to them.
Not intelligent. Cannot add fields, custom data, VBA code, and other shape properties.	Intelligent. Add fields, custom data, and VBA code.

Things you can do with graphics include:

- Adding text
- Reshaping
- Rotating
- Attaching to shapes using callout lines
- Converting to a shape

As helpers, graphics can add value to shapes by describing what the shape is and why it is in the diagram. For example, you can use callout lines to attach a note (a graphic with text) to a shape. Callout lines attached to shapes from graphics move together as one unit. If you move the shape, the graphic moves with it.

## Drawing Graphics

{button Tell me how...,PI('`,`drawing\_\_rtf\_1097962')}

iGrafx Professional contains several options for drawing graphical shapes and lines. These options include:

- Square
- Rounded Square
- Rectangle
- Rounded Rectangle
- Circle
- Ellipse
- Polygon
- Smoothed Polygon
- Jointed Line
- Curved Line

All graphics have the same attributes. After drawing a graphic, handles (black boxes) appear around it and a red square appears inside of it.

To open the Draw toolbar, click the Draw tool on the Standard toolbar.



To view drawing options, click the Draw Tool on the Draw toolbar.

Draw Tool ▼


When you click a graphic option from the Draw Tool, the pointer changes to intersecting lines with a small icon of the graphic. You can draw as many graphics as you want while the pointer is displayed.

### Tip

You can also tear off the Draw Tool and move it into the diagram space by clicking the Draw Tool and moving the pointer to the gray bar at the top of the flyout. When the bar changes from gray to your system-defined color, click and hold down the left mouse button and drag the flyout to the diagram space. After you tear off the Draw tool, you can double click a graphic to draw multiple graphics of the same type. When you finish drawing the graphics, click the Finished button.

To draw a graphic

### To draw a graphic

- 1  On the Draw toolbar, click the Draw Tool.
- 2 Click a draw option.
- 3 Move the pointer to the diagram space, press the left mouse button and drag down and to the right.
- 4 Release the left mouse button.

---

{button Related Topics,PI('`,`drawing\_\_rtf\_1097976')}

## Drawing Graphics

## Manipulating Graphics

{button Tell me how...,PI('`,`drawing\_\_rtf\_1097994')}

After drawing a graphic, you can move it or resize it. You can also arrange and combine a series of graphics. Graphics share some of the same features as shapes such as adding text and rotating. You can also reshape a graphic using points and convert a graphic to a shape.



[To add text to a graphic](#)

[To move a graphic](#)

[To resize a graphic](#)

[To rotate a graphic](#)

[To reshape a graphic](#)

[To convert a graphic to a shape](#)

### To add text to a graphic

- 1 Double-click the graphic.
- 2 Type the text in the graphic.
- 3 To make the text appear in the graphic, click outside of the text box.

**Tip**

You can also use the right mouse menu and click Add Text.

---

{button Related Topics,PI('`,`drawing\_\_rtf\_1098028')}

[To move a graphic](#)

[To resize a graphic](#)

[To rotate a graphic](#)

[To reshape a graphic](#)

[To convert a graphic to a shape](#)

[Manipulating Graphics](#)

**To move a graphic**

- 1 Click the graphic.
- 2 Move the pointer to the gray hatched area surrounding the graphic.

The pointer changes to four arrows.

- 3 Click the gray hatched area and drag the graphic to a new position.
- 4 Release the mouse button.

---

{button Related Topics,PI('`,`drawing\_\_rtf\_1098062')}

[To add text to a graphic](#)

[To resize a graphic](#)

[To rotate a graphic](#)

[To reshape a graphic](#)

[To convert a graphic to a shape](#)

[Manipulating Graphics](#)

### To resize a graphic

- 1 Click the graphic.
- 2 Click any of the black squares surrounding the graphic.

**Note**

To resize the graphic proportionally, click any one of the corner squares.

- 3 Without releasing the mouse button, drag the square.
- 4 Release the mouse button.
- 5 Click outside of the graphic.

---

{button Related Topics,PI('','drawing\_\_rtf\_1098096')}

[To add text to a graphic](#)

[To move a graphic](#)

[To rotate a graphic](#)

[To reshape a graphic](#)

[To convert a graphic to a shape](#)

[Manipulating Graphics](#)

### To rotate a graphic

1 Click the graphic.

2  On the Draw toolbar, click the Rotate tool.

The pointer changes to four arrows in a circle and four green circles appear on each corner of the graphic.

3 Click one of the green circles.

4 Without releasing the left mouse button, rotate the graphic to the desired position.

5 Release the left mouse button, and then click the Finished button.

---

{button Related Topics,PI('','drawing\_\_rtf\_1098130')}



[To add text to a graphic](#)

[To move a graphic](#)

[To resize a graphic](#)


[To reshape a graphic](#)

[To convert a graphic to a shape](#)

[Manipulating Graphics](#)

### To reshape a graphic

1 Select the graphic.

2  On the Draw toolbar, click the Reshape tool.

The pointer changes to a white arrow. When you move the pointer over a reshape point (white circle), it changes to a black arrow.

3 Click one of the white circles.

4 Without releasing the left mouse button, drag the reshape point to a new position.

5 Release the left mouse button, and then click the Finished button on the Reshape toolbar.

#### Note

When you click the Reshape tool, the Reshape toolbar opens. You can use the tools on the Reshape toolbar to edit the curve of the shape, add reshape points to the shape, or remove reshape points from the shape.

---

{button Related Topics,PI('','drawing\_\_rtf\_1098164')}

[To add text to a graphic](#)

[To move a graphic](#)

[To resize a graphic](#)

[To rotate a graphic](#)

[To convert a graphic to a shape](#)

[Manipulating Graphics](#)

### To convert a graphic to a shape

- 1 Click the graphic.
- 2 On the Arrange menu, point to Convert to, and click Shape.

**Note**

You can also convert a shape to a graphic. When you convert a shape to a graphic, any data attached to the shape, such as field codes VBA, or other shape properties, is lost.

---

{button Related Topics,PI('`,`drawing\_\_rtf\_1098198')}

[To add text to a graphic](#)

[To move a graphic](#)

[To resize a graphic](#)

[To rotate a graphic](#)

[To reshape a graphic](#)

[Manipulating Graphics](#)

## Drawing Callout Lines

{button Tell me how...,PI('`,`drawing\_\_rtf\_1098236')}

Graphics used as notes or descriptions help highlight important information about shapes in a diagram. You can attach graphics as notes to shapes using callout lines. You can also attach graphics to connector lines or other graphics. After you attach a graphic to a shape using a callout line, its position is relative to the shape. If you reposition the shape in the diagram, the graphic moves with it.

[To connect a callout line to a shape from a graphic](#)

[To format a callout line](#)

**To connect a callout line to a shape from a graphic**

- 1 Click the graphic.
- 2 Move the pointer over the red square in the graphic

The pointer changes to a white arrow.

- 3 Click the red square.
- 4 Without releasing the left mouse button, drag the line from the red box to the shape.
- 5 Release the left mouse button.

A red box appears on the shape where the callout line is connected.

- 6 Click outside of the shape.

---

{button Related Topics,PI('`,`drawing\_\_rtf\_1098254')}



[To draw a graphic](#)

[To format a callout line](#)

[Drawing Callout Lines](#)

**To format a callout line**

- 1 Click the graphic with a callout line attached to it.
- 2 On the Format menu, click Callout Line.
- 3 In the Format Callout Line dialog box, select formatting options in the Line tab.
- 4 To add an arrow to the line and change arrow formatting, click the Arrow tab.
- 5 Click OK.

**Tip**

If you want to view lines connecting graphics to shapes, click Hidden Lines on the View menu.

---

{button Related Topics,PI('','drawing\_\_rtf\_1098276')}

To connect a callout line to a shape from a graphic

To draw a graphic

Drawing Callout Lines



## Working with Diagram Types and Components

{button Tell me how...,PI('','organizi\_rtf\_1089205')}

Creating multiple components and saving them in a document is a good way to organize, package, and store similar information. You can create three separate component types using iGrafx Professional:

- Diagrams
  - Basic Diagrams contain shapes, lines, graphics, and text describing ideas or functions.
  - Process Diagrams contain shapes, connector lines, departments, other graphics and text. In process diagrams you can add modeling data that can be used with iGrafx Process when simulating a process.
- Scenario- Contains set up information for simulating a process using iGrafx Process.
- Report- Contains the results of simulating a process using iGrafx Process.

### **Note**

Scenario and Report components are used with iGrafx Process. If you used iGrafx Process to run a simulation, you can select and view scenario and report data in iGrafx Professional.

For any diagram, you can create or add, view, delete, rename or copy/paste components. You can also add a component using a saved template.

[To create a new component](#)

[To create a new component from a template](#)

[To view a component](#)

[To delete a component](#)

[To rename a component](#)

[To copy and paste a component from one document to another](#)

[To convert a basic diagram to a process](#)

**To create a new component**

- 1 On the File menu, click Components.
- 2 In the Components dialog box, click New, and click Process, Basic Diagram, Scenario, or Report.
- 3 Note You can only create a scenario or report if you have one process in your document.
- 4 Click Close.

---

{button Related Topics,PI('`,`organizi\_rtf\_1089243')}

To create a new component from a template

To view a component

To delete a component

To rename a component

To copy and paste a component from one document to another

To convert a basic diagram to a process

Working with Diagram Types and Components



**To create a new component from a template**

- 1 On the File menu, click Components.
- 2 In the Components dialog box, click New, and click New From Template.
- 3 In the New Component From Template dialog box, browse for the template you want to use.
- 4 In the Template Component box, click the component.
- 5 If necessary, type a new name in the Name box, and then click OK.
- 6 In the Components dialog box, click Close.

---

{button Related Topics,PI('','organizi\_rtf\_1089281')}

[To create a new component](#)

[To view a component](#)

[To delete a component](#)

[To rename a component](#)

[To copy and paste a component from one document to another](#)

[To convert a basic diagram to a process](#)

[Working with Diagram Types and Components](#)

### To view a component

- 1 On the File menu, click Components.
- 2 In the Components dialog box, click All Components, Diagram Hierarchy, or Diagrams by Contained Departments.
- 3 In the tree hierarchy, click the "+" symbol to expand the components.
- 4 Click the component you want to view.
- 5 Click View.
- 6 Click Close.

#### Tip

All Components lists diagrams, reports, and scenarios. Diagram hierarchy lists only diagrams. Diagrams by Contained Departments lists diagrams within departments.

---

{button Related Topics,PI('`,`organizi\_rtf\_1089319')}

[To create a new component](#)

[To create a new component from a template](#)

[To delete a component](#)

[To rename a component](#)

[To copy and paste a component from one document to another](#)

[To convert a basic diagram to a process](#)

[Working with Diagram Types and Components](#)

**To delete a component**

- 1 On the File menu, click Components.
- 2 In the Components dialog box, click All Components, Diagram Hierarchy, or Diagrams by Contained Departments.
- 3 If necessary, click the "+" symbol to expand the components.
- 4 Click the component you want to delete.
- 5 Click Delete.
- 6 Click Close.

---

{button Related Topics,PI('`,`organizi\_rtf\_1089357')}

[To create a new component](#)

[To create a new component from a template](#)

[To view a component](#)

[To rename a component](#)

[To copy and paste a component from one document to another](#)

[To convert a basic diagram to a process](#)

[Working with Diagram Types and Components](#)

### **To rename a component**

- 1 On the File menu, click Components.
- 2 In the Components dialog box, click All Components, Diagram Hierarchy, or Diagrams by Contained Departments.
- 3 If necessary, click the "+" symbol to expand the components.
- 4 Click the component you want to rename.
- 5 Click Rename.
- 6 Type the new name over the existing name.
- 7 Click outside of the text box.
- 8 Click Close.

---

{button Related Topics,PI('','organizi\_rtf\_1089395')}

[To create a new component](#)

[To create a new component from a template](#)

[To view a component](#)

[To delete a component](#)

[To copy and paste a component from one document to another](#)

[To convert a basic diagram to a process](#)

[Working with Diagram Types and Components](#)



### To copy and paste a component from one document to another

- 1 On the File menu, click Components.
- 2 In the Components dialog box, click All Components, Diagram Hierarchy, or Diagrams by Contained Departments.
- 3 In the tree hierarchy, click the "+" symbol to expand the components.
- 4 Click the component you want to copy, and then click Copy.

**Note**

You can select multiple components for copying by pressing SHIFT and clicking the components.

- 5 Click Close.
- 6 On the File menu, click Open, navigate to another document, and then click OK.
- 7 On the File menu, click Components.
- 8 In the Components dialog box, click Paste.

The original copied components now appear in the dialog box.

- 9 Click Close.

---

{button Related Topics,PI('','organizi\_rtf\_1089433')}

[To create a new component](#)

[To create a new component from a template](#)

[To view a component](#)

[To delete a component](#)

[To rename a component](#)

[To convert a basic diagram to a process](#)

[Working with Diagram Types and Components](#)

## To convert a basic diagram to a process

► With a basic diagram open, point to Change Diagram Type on the Tools menu, and click Process.

### Note

If you convert a process to a basic diagram, you will lose modeling data.

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{button Related Topics,PI('','organizi\_rtf\_1089471')}

[To create a new component](#)

[To create a new component from a template](#)

[To view a component](#)

[To delete a component](#)

[To rename a component](#)

[To copy and paste a component from one document to another](#)

[Working with Diagram Types and Components](#)

## Components dialog box

{button Tell me how...,PI('','organizi\_rtf\_1089544')}

Element	Description
Diagram Select list	All Components-Alphabetically orders all the components (diagrams, reports, and scenarios) in the active file.  Diagram Hierarchy- Alphabetically orders only the diagram components in the active file.  Diagrams by Contained Departments-Alphabetically orders the diagram components by departments in the active file.
New	Creates a new component in the same file.
View	Displays the selected component.
Delete	Deletes the selected component.
Rename	Renames an existing component.
Copy	Makes a copy of the selected component.
Paste	Pastes the contents of the copied component into a new component.

[To create a new component](#)

[To view a component](#)

[To delete a component](#)

[To rename a component](#)

[To copy and paste a component from one document to another](#)

**New Component dialog box**

{button Tell me how...,PI(``,`organizi\_rtf\_1089591`)}

Element	Description
Template	Browse the template that you want to use.
Template Component box	Select the component from the browsed template file.
Name box	Type a new name for the template component.

[To create a new component](#)

[To create a new component from a template](#)



## Working with Layers

{button Tell me how...,PI('','organizi\_rtf\_1089613')}

With iGrafx Professional, you can organize your diagrams in layers. You can place some objects on one layer and others on another layer such as layering several overhead transparencies.

Layers help you do the following:

- Manage complex diagrams with many overlapping objects.
- Categorize objects that logically belong together by layer.
- View certain objects in your drawing while hiding others.
- Easily select and change objects.
- Protect objects from accidental changes.
- Trace from a template on another layer.
- Print certain objects only.

By default, each diagram has one layer. The default name of each layer is Layer1, Layer2, and so forth. Layer1 is the back layer.

The Layers command on the Arrange menu contains the following commands:

- Layer Manager- Opens the Layer Manager that lists the layers defined for the active diagram and lets you perform layer operations. In Layer Manager, you can change the visible, print, and lock properties of layers. It also lets you select the current layer; add, delete, and rename layers; change the order of layers; and specify whether you want to change the current or all layers.
- Edit All Layers- Selects, moves, and changes all objects in the active diagram, regardless of the layer on which they are located. When changing all layers, you cannot move an object on a lower layer in front of an object on a higher layer.
- Add Layer- Adds a layer to the active diagram.
- Move to Layer- Moves the selected objects to another layer.
- Move Back One Layer- Moves the layer back one layer.
- Move Forward One Layer- Moves the active layer forward one layer.

The Layers command also lets you switch between changing the current layer and changing all layers. Changing all layers lets you select, move, and change all objects in the active diagram, regardless of the layer on which they are located. When changing all layers, you cannot move an object on a lower layer in front of an object on a higher layer.

At the bottom of each diagram window is a layer tab bar that shows a tab for each layer defined for that diagram. The tabs show the names of the layers and the order for the layers. A white tab indicates the current layer. When you hide or lock a layer, the name on that tab is gray. When the tab bar contains more tabs than can be shown at once, scroll arrows appear at the left of the layer tab bar.

### Note

If you add markups to a diagram using iGrafx Viewer, a markup tab appears next to other layer tabs in iGrafx Professional.

[To change the current layer](#)

[To add a layer to the active diagram](#)

[To delete a layer](#)

[To rename a layer](#)

[To change the order of a layer](#)

[To show or hide a layer](#)

[To make a layer printable or nonprintable](#)

[To lock or unlock a layer](#)

### To change the current layer

► On the layer tab bar at the bottom of the diagram window, click the tab of the layer you want to make the current layer. You may need to scroll the layer tab bar to locate the tab.

#### **Note**

When a layer is hidden or locked, the name of the layer on the tab is unavailable. You cannot make a hidden or locked layer the current layer.

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{button Related Topics,PI('`,`organizi\_rtf\_1089655')}

[To add a layer to the active diagram](#)

[To rename a layer](#)

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### To add a layer to the active diagram

- ▶ On the Arrange menu, point to Layers, and click Add Layer.  
The new layer is added in front of the current layer and becomes the new current layer.

#### **Tips**

To display a shortcut menu that lets you add a layer, click a layer tab with the right mouse button.

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{button Related Topics,PI('`,`organizi\_rtf\_1089693')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

To show or hide a layer

To make a layer printable or nonprintable

To lock or unlock a layer

Working with Layers

## To change all layers

- ▶ On the Arrange menu, point to Layers, and click Edit All Layers.  
Edit All Layers lets you select, move, and change all objects in the active diagram, regardless of the layer on which they are located. When changing all layers, you cannot move an object on a lower layer in front of an object on a higher layer.

### Note

New objects are always placed on the current layer, even when you are changing all layers.

### Tips

To switch back to changing just the current layer, clear Edit All Layers.

To display a shortcut menu that lets you edit all layers, use the right mouse button and click a layer tab.

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{button Related Topics,PI('','organizi\_rtf\_1089735')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

To show or hide a layer

To make a layer printable or nonprintable

To lock or unlock a layer

Working with Layers



### To delete a layer

- 1 On the Arrange menu, point to Layers, and click Layer Manager.
- 2 Click the name of the layer you want to delete.
- 3 Click Delete.

#### Note

When you delete a layer, all objects on the layer are deleted.

#### Tips

You also can use the Layer Manager button on the Draw toolbar.



To display a shortcut menu that lets you delete a layer, use the right mouse button and click the layer tab for the layer you want to delete.

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{button Related Topics,PI('','organizi\_rtf\_1089777')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

To show or hide a layer

To make a layer printable or nonprintable

To lock or unlock a layer

Working with Layers

### To rename a layer

- 1 On the Arrange menu, point to Layers, and click Layer Manager.
- 2 Click the name of the layer you want to rename.
- 3 Click Rename.
- 4 Type the new name.
- 5 Click OK.
- 6 Click OK.

#### Tips

You also can use the Layer Manager button on the Draw toolbar.



To display a shortcut menu that lets you rename a layer, use the right mouse button and click the layer tab for the layer you want to rename.

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{button Related Topics,PI('`,`organizi\_rtf\_1089819')}

[To change the current layer](#)

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**To change the order of a layer**

- 1 On the Arrange menu, point to Layers, and click Layer Manager.
- 2 Click the name of the layer you want to reorder.
- 3 Click Move Up or Move Down as necessary to position the layer in the list where you want it.
- 4 Click OK.

**Tip**

To display a shortcut menu that lets you change the order of the layers, use the right mouse button and click the layer tab for the layer you want to change the order of.

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{button Related Topics,PI('','organizi\_rtf\_1089857')}

[To change the current layer](#)

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### To move an object to a different layer

- 1 Click the object.
- 2 On the Arrange menu, point to Layers, and click Move To Layer.
- 3 Click the layer to which you want to move the object.
- 4 Click OK.

#### **Tips**

When you move objects to another layer, you can make that layer the current layer.

To display a shortcut menu that lets you move a selected object to another layer, use the right mouse button and click the layer tab for the layer you want to move.

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{button Related Topics,PI('','organizi\_rtf\_1089895')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

To make a layer printable or nonprintable

Working with Layers



### To move an object back one layer

- 1 Click the object.
- 2 On the Arrange menu, point to Layers, and click Move Back One Layer.

#### **Tips**

You can also press CTRL+F9 to move the selected object back one layer.

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{button Related Topics,PI('','organizi\_rtf\_1089929')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

To show or hide a layer

To lock or unlock a layer

Working with Layers

### To move an object forward one layer

- 1 Click the object.
- 2 On the Arrange menu, point to Layers, and click Move Forward One Layer.

#### **Tips**

You can also press CTRL+F10 to move the selected object forward one layer,

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{button Related Topics,PI('`,`organizi\_rtf\_1089967')}

[To change the current layer](#)

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### To show or hide a layer

- 1 On the Arrange menu, point to Layers, and click Layer Manager.
- 2 To hide a layer, clear the box under the bulb icon for the layer. To show a layer, select the box under the bulb icon for the layer.
- 3 Click OK.

#### Note

You cannot hide the current layer. If you try to hide the current layer, the Layer Manager does not close until you make the layer visible or change the current layer to a visible layer.

#### Tips

To speed up the redraw of complicated drawings, hide the layers that you are not currently working with.

To display a shortcut menu that lets you show or hide a layer, use the right mouse button and click the layer tab for the layer you want to show or hide, and then click Visible.

Hiding a layer does not affect its print property.

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{button Related Topics,PI('','organizi\_rtf\_1090001')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

Working with Layers

### To make a layer printable or nonprintable

- 1 On the Arrange menu, point to Layers, and click Layer Manager.

To make a layer nonprintable, clear the box under the printer icon for the layer.

To make a layer printable, select the box under the printer icon for the layer.

- 2 Click OK.

#### Note

You can print hidden layers unless they are also nonprintable.

#### Tips

To display a shortcut menu that lets you show or hide a layer, use the right mouse button and click the layer tab for the layer you want to make printable or nonprintable.

You also can use the Layer Manager button on the Draw toolbar.



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{button Related Topics,PI('`,`organizi\_rtf\_1090035')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

To lock or unlock a layer

Working with Layers



### To lock or unlock a layer

- 1 On the Arrange menu, point to Layers, and click Layer Manager.
- 2 To lock a layer, select the box under the lock icon for the layer.
- 3 To unlock a layer, clear the box under the lock icon for the layer.
- 4 Click OK.

When a layer is locked, it can be displayed or hidden, but it cannot be changed, reordered, or deleted.

#### Note

You cannot lock the current layer. If you try to lock the current layer, the Layer Manager does not close until you unlock the layer or change the current layer to an unlocked layer.

#### Tips

To display a shortcut menu that lets you lock or unlock a layer, use the right mouse button and click the layer tab for the layer you want to lock or unlock.

You also can use the Layer Manager button on the Draw toolbar.



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{button Related Topics,PI('','organizi\_rtf\_1090069')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

To show or hide a layer

Working with Layers

## Layer Manager dialog box

The Layer Manager dialog box lists the layers defined for the active diagram and lets you perform operations for each layer and all layers.

You can:

- Select whether a layer is hidden or visible
- Select whether a layer is printable or nonprintable
- Select whether a layer is locked or unlocked
- Edit all layers at the same time
- Add a layer
- Delete a layer
- Rename a layer
- Move a layer up
- Move a layer down

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{button Related Topics,PI('','organizi\_rtf\_1090114')}

To change the current layer

To add a layer to the active diagram

To rename a layer

To change the order of a layer

To show or hide a layer

To make a layer printable or nonprintable

To lock or unlock a layer

Working with Layers

## Name Layer dialog box

The Name Layer dialog box displays the name of the layer you selected or added. You can change this name by typing a new one in the box under the text.

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{button Related Topics,PI('','organizi\_rtf\_1090157')}

## Working with Layers



## Linking and Embedding from Other Applications

{button Tell me how...,PI('','linking\_\_rtf\_21656')}

OLE is a protocol that is used by many Windows applications to exchange information. iGrafx Professional acts as an OLE container application. You use OLE to include information from other programs into your diagrams.

When you include OLE information, you choose whether to embed or link it. The main difference between linking and embedding is where the data is stored.

### Embedding Objects

The advantage to embedding is that one diagram contains all the information. If you copy the file to a floppy disk or another computer system, all of the objects are stored within it. The disadvantage is that size and performance are affected as the number of embedded objects increases.

### Linking Objects

The advantage to linking is that you ensure that the most recent information prepared by other users or computer systems can be kept up-to-date in your file. The disadvantage is that the linked objects could be moved or become unavailable.

#### Note

You can create an OLE link to any Windows application that acts as an OLE server. To link to other iGrafx documents, use the Link command on the Insert menu.

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{button Related Topics,PI('','linking\_\_rtf\_21650')}



## Inserting an Embedded Object

To insert a new embedded object

To edit an embedded object

To convert an embedded object to a different format

To embed an object into a diagram

To use Paste Special for OLE objects

To create a link to an object

To edit linked information

## Inserting an Embedded Object

{button Tell me how...,PI('','linking\_\_rtf\_22509')}

When you create a new object, it is automatically an embedded object because there is no file to link it to. An embedded object becomes part of the iGrafx Professional diagram.

When you embed an object, you can specify either that its contents appear in the diagram or that an icon be displayed. For example, you can put the contents of a Microsoft Excel chart in the diagram, or you can display the Excel icon.

### Insert Object dialog box

Element	Description
Create New	Invokes an application and creates a new occurrence of one of its objects. For example, you can open a package like Microsoft Equation, design a formula, and insert it beneath a symbol in the diagram.
Object Type	Displays a list of all applications registered on your computer as OLE objects. The list varies from installation to installation, depending on the software that is available.
Create from File	Inserts an object that already exists. This option changes the dialog box. Type the full path name for the object or use the Browse button to locate the file. If you choose Link, the object is linked; otherwise, the object is embedded.
Display as Icon	Represents the object in the diagram as an icon. This option changes the dialog box so that it displays the current icon. You can change it by clicking on the Change Icon button.

### Convert To dialog box

Element	Description
Convert To	Permanently converts the object to the new object type, and displays a list of valid types for your computer system. For example, if the object is a graphic, then the list includes the graphic editors that recognize the current type (and therefore can be used to edit it).
Activate As	Temporarily activates all embedded objects of the selected type. For example, converts all PowerPoint drawings to a different graphic editor. When you edit the object, you use the application you choose, but changes are saved in the PowerPoint format. This option is available only if there are two or more embedded objects of the same type.
Display as Icon	Displays the object as an icon. You may want to change

the icon at this point to correlate to the new format.

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[To view as an icon](#)

### To insert a new embedded object

- 1 On the Insert menu, click OLE Object.

**Note**

The registration database is the source of information used by applications that support OLE. This is the database used by iGrafx Professional to determine which objects are registered on your computer for OLE purposes.

The database (called reg.data) is set up and maintained by Windows and Windows applications and is located in the Windows directory. If iGrafx Professional does not recognize an application object, it may be due to a problem in this database. Do not move or delete this file, since doing so may result in a loss of functionality in applications that support OLE.

- 2 In the Insert Object dialog box, select the object type, and then click OK.
- 3 When you finish creating or editing the object that you want, close the application.

**Note**

Some applications ask you to confirm that you want to close and update the diagram; others do not. If you are satisfied with the object, be sure to choose Yes or OK to update the diagram.

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{button Related Topics,PI('','linking\_\_rtf\_21744')}

[To edit an embedded object](#)

[To convert an embedded object to a different format](#)

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### To edit an embedded object

- ▶ On the Edit menu, point to [Type] Object, and click Edit.  
(The [Type] of object may appear in the menu. For example, the menu item for a document might be Document Object.)

This opens the application that created the object. For example, if you have embedded a CorelDraw drawing, you can open CorelDraw and edit the drawing by double-clicking on it in the iGrafx Professional diagram.

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{button Related Topics,PI('','linking\_\_rtf\_21782')}



To insert a new embedded object

To convert an embedded object to a different format

To embed an object into a diagram

To edit linked information

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Inserting an Embedded Object

**To convert an embedded object to a different format**

- 1 On the Edit menu, point to [Type] Object, and click Convert.

The current type of object is listed at the top of the Convert dialog box.

- 2 In the Convert dialog box, select a new object type from the list, and click OK.

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{button Related Topics,PI('','linking\_\_rtf\_21816')}

[To insert a new embedded object](#)

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## Dragging and Dropping

{button Tell me how...,PI('','linking\_\_rtf\_21846')}

If you have a source application that supports drag and drop and OLE, you can create an embedded object by copying from a source file and pasting into a diagram. You can either drag and drop a selected area or use the Paste Special menu.

## Links dialog box

Element	Description
Update Now	This updates the linked object. If the source has changed since you opened the diagram or last updated the link, this option loads the new version.
Open Source	This opens the source file in its source application.
Change Source	This opens the Change Source dialog box so you can change the source file. You can choose a different file by entering a new path or using the Network button to set the location.
Break Link	This breaks the link and disconnects from the application. When you break a link, the linked information remains in your diagram. However, it can no longer be updated. The link becomes a standard graphic. Once you break a link, you cannot reconnect it.

[To insert a new embedded object](#)

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[To convert an embedded object to a different format](#)

[To embed an object into a diagram](#)



[To use Paste Special for OLE objects](#)

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### To embed an object into a diagram

- 1 Open both the source file and the iGrafx Professional diagram, and adjust the window sizes so that both applications are fully displayed on the screen.
- 2 Select the area in the source file that you want to link.
- 3 Drag the area into the diagram.
  -  To move the area, use the mouse to drag the area into the diagram. The cursor indicates that the selected area is being moved.
  -  To copy the area, press and hold the CTRL key while you use the mouse. The cursor changes to indicate that a copy is made of the selected area.
- 4 Release the mouse button.

#### Note

If you drop an area directly over an activity symbol, the area is embedded in the symbol.

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{button Related Topics,PI('','linking\_\_rtf\_21889')}

To insert a new embedded object

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Linking and Embedding from Other Applications

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### **To use Paste Special for OLE objects**

- 1 Make sure that you save the source file before you link the information.
- 2 Open the source file and select the information that you want to link.
- 3 On the Edit menu, click Copy.
- 4 Switch to iGrafx Professional, and click Paste Special on the Edit menu.
- 5 In the Paste Special dialog box, select Paste or Paste Link.

Paste- Embeds the object.

Paste Link- Links the object.

- 6 Select the Format in the As box.
- 7 To display the link as an icon, select Display as Icon.
- 8 Click OK.

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{button Related Topics,PI('','linking\_\_rtf\_21919')}



[To insert a new embedded object](#)

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[To create a link to an object](#)

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### To create a link to an object

- 1 On the Edit menu, click OLE Object.
- 2 In the Insert Object dialog box, select Create from File.
- 3 Type the path to the object or use the Browse button to locate it.
- 4 Select the Link box.
- 5 If you want to display the contents of the object as an icon, select Display as Icon.

**Note**

If you do not display as an icon, then the contents of the object are shown. For example, the first page of a Word document is displayed.

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{button Related Topics,PI('','linking\_\_rtf\_21961')}

[To insert a new embedded object](#)

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### To edit linked information

- ▶ Click the shape, and click OLE Links on the Edit menu.  
The Links dialog box opens, and each link is displayed with its path, type, and update method.

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{button Related Topics,PI('','linking\_\_rtf\_21999')}

[To insert a new embedded object](#)

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[To control how links are updated](#)

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### To control how links are updated

- 1 On the Edit menu, click OLE Links.
- 2 Select the link that you want to update.

**Note**

You can select multiple links by holding down the CTRL key while you click each link.

- 3 For Update, select one of the following:

Automatic- Updates linked information every time there is a change in the source file.

Manual- Updates linked information only when you save the source file yourself.

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{button Related Topics,PI('','linking\_\_rtf\_22033')}

[To create a link to an object](#)

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**To view as an icon**

- 1 Click a linked object.
- 2 On the Edit menu, point to [Type] Object, and click Convert.
- 3 In the Convert dialog box, select the Display as Icon box.
- 4 To change the type of icon displayed, click Change Icon.
- 5 Click OK.

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{button Related Topics,PI('','linking\_\_rtf\_22059')}



[To insert a new embedded object](#)

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## Linking Shapes to Other Diagrams or Web Pages

{button Tell me how...,PI('','linking\_\_rtf\_22097')}

You can link shapes to other diagrams or Web pages using iGrafx Professional. Linking lets you disclose information in levels by linking shapes in one diagram to a group of related diagrams.

### Linking Shapes to Other Diagrams

Linking shapes to other diagrams helps people in organizations of all sizes deliver several diagrams from one source. For example, a diagram containing marketing goals can have linked shapes to more in-depth diagrams explaining sales divisions and the goals of each person within the division.

Use the General and Inputs tabs on the Properties dialog box to:

- Add links to a new diagram
- Add descriptions and key modifiers to linked shapes
- Edit and delete existing links
- Add advanced link settings
- Activate links

### Linking Shapes to Web Pages

Linking shapes to Web pages is another way to distribute diagrams to a larger audience. A sales manager using the example above could take the same diagram source and post it to the company Intranet page. Travelling sales people can then browse the company Intranet to get the latest information on goals and what other sales divisions are doing.

[To link a shape to a new diagram](#)

[To link a shape to a file or Web page](#)

[To edit a linked shape](#)

[To activate a linked shape](#)

[To delete a linked shape](#)

[To add advanced link settings](#)

### To link a shape to a new diagram

- 1 In the active diagram, click Components on the File menu.
- 2 In the Components dialog box, click New, and then click Basic Diagram or Process.  
  
A new Basic Diagram or Process is created.
- 3 Click Close.
- 4 On the Windows menu, click the name of your initial diagram.
- 5 Use the right mouse button to click the shape that you want to link the new diagram to, and then click Properties.
- 6 In the Properties dialog box, click the General tab, and then click New.
- 7 In the Add Link dialog box, select the new diagram from the Name box.
- 8 To add a key modifier, click the Key Modifiers box, and then press CTRL, ALT, SHIFT, or any combination of the three.

Key modifiers let you modify the linked shape without activating the link. For example, if you select CTRL as a key modifier you can do two things:

- Double-click the shape- This opens the Properties dialog box so you can edit the link.
- Press CTRL and double-click the shape- This activates the link.

#### Note

If you are using hotkeys to move around in the Add Link Dialog box, ALT will replace any key modifiers you have set.

- 9 To add a description for the link, type a description in the Description box.
- 10 Click OK.
- 11 In the Properties dialog box, click OK.

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{button Related Topics,PI('','linking\_\_rtf\_22131')}

[To link a shape to a file or Web page](#)

[To edit a linked shape](#)

[To activate a linked shape](#)

[To delete a linked shape](#)

[To add advanced link settings](#)

[Linking Shapes to Other Diagrams or Web Pages](#)

**To edit a linked shape**

- 1 Use the right mouse button to click the linked shape, and then click Properties.
- 2 In the Properties dialog box, select the link in the Links box.
- 3 Click Edit.
- 4 In the Change Link dialog box, make any changes.
- 5 Click OK.
- 6 In the Properties dialog box, click OK.

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{button Related Topics,PI('','linking\_\_rtf\_22165')}

[To link a shape to a new diagram](#)

[To link a shape to a file or Web page](#)

[To activate a linked shape](#)

[To delete a linked shape](#)

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[Linking Shapes to Other Diagrams or Web Pages](#)

### To activate a linked shape

- ▶ Double-click or use the assigned key modifier on a shape.  
or

Use the right mouse button to click the linked shape, and then click the named link at the bottom of the menu.

or

Use the right mouse button to click the linked shape. In the Properties Dialog box, click the General tab, select the link in the Links box, and then click Activate.

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{button Related Topics,PI('','linking\_\_rtf\_22199')}



[To link a shape to a new diagram](#)

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**To delete a linked shape**

- 1 Use the right mouse button to click the linked shape, and then click Properties.
- 2 In the Properties dialog box, select the link in the Links box.
- 3 Click Delete.
- 4 Click OK.
- 5 In the Properties dialog box, click OK.

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{button Related Topics,PI('','linking\_\_rtf\_22233')}

[To link a shape to a new diagram](#)

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[Linking Shapes to Other Diagrams or Web Pages](#)

### To add advanced link settings

- 1 Open the diagram that you want to link to.
- 2 Use the right mouse button to click the shape that you want to be the starting point of the diagram, and then click Properties.
- 3 In the Properties dialog box, click the Inputs tab.
- 4 Select the Start Point box, and click OK.
- 5 Open the diagram that contains the shape you want to link.
- 6 Use the right mouse button to click the shape, and then click Properties.
- 7 Click the General tab, and then select the link in the Links box.
- 8 Click Edit.
- 9 In the Change Link dialog box, click Advanced.
- 10 In the Advanced Link Settings dialog box, select Start from the Start Point box.
- 11 To accumulate custom data attached to the shape, select Accumulate Custom Data.
- 12 Click OK.
- 13 In the Change Link dialog box, click OK.
- 14 In the Properties dialog box, click OK.

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{button Related Topics,PI('','linking\_\_rtf\_22267')}

[To link a shape to a new diagram](#)

[To link a shape to a file or Web page](#)

[To edit a linked shape](#)

[To activate a linked shape](#)

[To delete a linked shape](#)

[Linking Shapes to Other Diagrams or Web Pages](#)

### To link a shape to a file or Web page

- 1 Click the shape that you want to link.
- 2 On the Insert menu, click Link.
- 3 In the Add Link dialog box, select File or Web Page.
- 4 To link a shape to a file, type the path in the Path or URL box.
- 5 To link a shape to a URL, type the relative path in the Path or URL box.
- 6 To add a key modifier, click the Key Modifiers box, and then press CTRL, ALT, SHIFT, or any combination of the three.

Key modifiers let you modify the linked shape without activating the link. For example, if you select CTRL as a key modifier you can do two things:

- Double-click the shape- This opens the Properties dialog box so you can edit the link.
- Press CTRL and double-click the shape- This activates the link.

#### Note

If you are using hotkeys to move around in the Add Link Dialog box, ALT will replace any key modifiers you have set.

- 7 To add a description for the link, type a description in the Description box.
- 8 Click OK.

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{button Related Topics,PI('','linking\_\_rtf\_22301')}

[To link a shape to a new diagram](#)

[To edit a linked shape](#)

[To activate a linked shape](#)

[To delete a linked shape](#)

[To add advanced link settings](#)

[Linking Shapes to Other Diagrams or Web Pages](#)

## Add Link dialog box

{button Tell me how...,PI('','linking\_\_rtf\_22363')}

Element	Description
Add to a buttons	Diagram- Links to a new diagram.  File or Web Page- Links to an existing diagram or URL.
Name box	Lists the name(s) of the new diagram(s) you created.
Key Modifier box	Modifies the linked shape without activating the link. For example, if you select CTRL as a key modifier you can do two things: <ul style="list-style-type: none"><li>• Double-click the shape- This opens the Properties dialog box so you can edit the link.</li><li>• Press CTRL and double-click the shape- This activates the link.</li></ul>
Description box	Adds a description to the link.
Advanced button	Opens the Advanced Link Settings dialog box where you can select a start point and accumulate data for the link.



[To link a shape to a new diagram](#)

[To link a shape to a file or Web page](#)

[To edit a linked shape](#)

[To activate a linked shape](#)

[To delete a linked shape](#)

**Advanced Link Settings dialog box**

{button Tell me how...,PI('','linking\_\_rtf\_22406')}

Element	Description
Start Point list box	Lists the name of the start point set on the Inputs tab in the Properties dialog box.
Accumulate Custom Data box	When selected, accumulates custom data attached to the shape.

[To add advanced link settings](#)



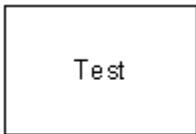
# Working with Custom Data

{button Tell me how...,PI('`,`using\_ad\_rtf\_1103842')}

iGrafx Professional lets you add custom data fields to individual shapes in a diagram. Each data field for a shape has its own name and function. For example, you can accumulate data using selections in the Setup Custom Data dialog box for a shape labeled Test. You can use this feature to analyze the cost of activities along the critical path of a process:

Field	Elements
Cost	<div>Name - Type Cost.</div> <div>Type - Select Currency.</div> <div>Format - Select \$###0.00.</div> <div>Accumulation Method - Select Sum.</div>
Duration	<div>Name - Type Duration.</div> <div>Type - Select Duration.</div> <div>Format - Select #hrs.</div> <div>Accumulation Method - Select Sum.</div>

After applying these selections, type the dollar amount for Cost and the time for Duration in the Custom Data tab on the Properties dialog box. If you have fields set up to display at the bottom of the shape, this is what the shape looks like in the diagram:



Cost: \$60.00  
Duration: 6 hrs.

**Note**  
Any information that you change in these fields at a later time will automatically update in the diagram.

[To add custom data fields to a shape](#)

[To delete custom data fields from a shape](#)

[To add advanced custom data field options to a shape](#)

[To insert a legend displaying custom data](#)

### To add custom data fields to a shape

- 1 Right mouse click the shape that you want to add fields to.
- 2 Click Properties.
- 3 Click the Custom Data tab, and then click Setup.
- 4 In the Setup Custom Data dialog box, type a name for the field in the Name box.
- 5 Select a type, format, and accumulation method for the field in each of these lists.

To add more fields, clear the Name box and repeat steps four and five.

- 6 Click OK.
- 7 In the Custom Data tab, click the field next to the name, and then type the field information.

For example, if you have a field labeled Cost, type 15.00.

- 8 Click OK.

#### Note

You can display fields in or around the shape. [See \*Working with Shape Fields\* on page 198.](#)

---

{button Related Topics,PI('`,`using\_ad\_rtf\_1103868')}

[To delete custom data fields from a shape](#)

[To add advanced custom data field options to a shape](#)

[To insert a legend displaying custom data](#)

[Working with Custom Data](#)



**To delete custom data fields from a shape**

- 1 Right mouse click the shape that you want to delete a field from.
- 2 Click Properties.
- 3 In the Custom Data tab, click Setup.
- 4 In the Setup Custom Data dialog box, click the field in the Custom Data box, and then click Delete.
- 5 Click OK.
- 6 In the Properties dialog box, click OK.

---

{button Related Topics,PI('','using\_ad\_rtf\_1103894')}

[To add custom data fields to a shape](#)

[To add advanced custom data field options to a shape](#)

[To insert a legend displaying custom data](#)

[Working with Custom Data](#)

**To add advanced custom data field options to a shape**

- 1 Right mouse click on a shape containing field(s).
- 2 Click Properties.
- 3 In the Custom Data tab, click Setup.
- 4 In the Setup Custom Data dialog box, click Options.
- 5 Edit hours per day and days per week, and then click OK.
- 6 In the Setup Custom Data dialog box, click OK.
- 7 In the Properties dialog box, click OK.

---

{button Related Topics,PI('','`using\_ad\_rtf\_1103920')}

[To add custom data fields to a shape](#)

[To delete custom data fields from a shape](#)

[To insert a legend displaying custom data](#)

[Working with Custom Data](#)

### To insert a legend displaying custom data

- ▶ On the Tools menu, point to Custom Data, and click Insert Legend.  
The Legend displays custom data added to shapes.

---

{button Related Topics,PI('','using\_ad\_rtf\_1103946')}

[To add custom data fields to a shape](#)

[To delete custom data fields from a shape](#)

[To add advanced custom data field options to a shape](#)

[Working with Custom Data](#)

# Setup Custom Data dialog box

{button Tell me how...,PI('`,`using\_ad\_rtf\_1104005')}

Element	Description
Custom Data	Displays the custom data fields you create.
Name box	Type a name for the custom data field.
Type list	Displays data types.
Format list	Displays format types.
Accumulation Method list	Displays accumulation method types.
Hidden box	Hides Custom Data assigned to shapes in the diagram.
Options button	Changes defaults for hours per day and days per week.

[To add custom data fields to a shape](#)

[To delete custom data fields from a shape](#)



Custom Data Options dialog box

{button Tell me how...,PI('`,`using\_ad\_rtf\_1104036')}

Element	Description
Hours per Day box	Changes the hours per day for data accumulation.
Days per Week box	Changes the days per weeks for data accumulation.

[To add advanced custom data field options to a shape](#)

## Working with Visual Basic for Applications

{button Tell me how...,PI('`,`using\_ad\_rtf\_1104054')}

iGrafx Professional contains Microsoft's Visual Basic for Applications (VBA), version 6.0 as its integrated development environment. VBA provides a programming interface to the powerful features that comprise iGrafx Professional. Used with iGrafx System, you get a powerful graphics engine and a development environment that lets you quickly extend the capabilities of applications. For more information on iGrafx System, see *Developing Custom Solutions with iGrafx System* included in your box.

VBA is a widely used programming language and is integrated into Microsoft's Office products. If you have any experience customizing or extending these applications, then you have a head start in developing with iGrafx System. Even without prior experience, you have the advantage of using a widely accepted and standardized development tool.

[To run a VBA macro](#)

[To open a VBA Extension Project](#)

[To modify VBA security settings](#)

### To run a VBA macro

- 1 On the Tools menu, point to Visual Basic, and click Macros.
- 2 In the Macros dialog box, select a macro from the list.
- 3 Click Run.

**Note**

This procedure assumes that you opened a document containing VBA macros. If no macros exist in the document you are creating or opening, the Macros command on the Tools menu will not be active.

---

{button Related Topics,PI('`,`using\_ad\_rtf\_1104076')}

[To open a VBA Extension Project](#)

[To modify VBA security settings](#)

[Working with Visual Basic for Applications](#)

### **To open a VBA Extension Project**

- 1 On the Tools menu, point to Visual Basic, and click Extension Projects.
- 2 Click Open.
- 3 Navigate to a iGrafx Extension Project (\*.flx), and click Open.

The project is added to list in the Extension Project dialog box.

- 4 Select the box next to the project, and click Open.

---

{button Related Topics,PI('`,`using\_ad\_rtf\_1104098')}

[To run a VBA macro](#)

[To modify VBA security settings](#)

[Working with Visual Basic for Applications](#)



### **To modify VBA security settings**

- 1 On the Tools menu, point to Visual Basic, and click Security.
- 2 In the Security dialog box, select:
  - High- Prevents any unsigned macros from automatically running.
  - Medium- Lets you choose whether or not to run macros. This is the recommended setting.
  - Low- Lets all macros run. This is not a recommended setting.
- 3 Click OK.

---

{button Related Topics,PI('','using\_ad\_rtf\_1104120')}

[To run a VBA macro](#)

[To open a VBA Extension Project](#)

[Working with Visual Basic for Applications](#)

## Working with iDiagrams

```
{button Tell me how...,PI('`,`using_ad_rtf_1104146')}
```

An iDiagram is a diagram that runs like a program. iDiagrams walk you through shapes containing VBA code, letting you make the decisions as you go. These decisions move you along a path from shape to shape where custom data is collected.

After you place shapes in an iDiagram, you can add code to them using Visual Basic. Using the iDiagram Entity Manager, you can step through, stop, and pause an iDiagram. You can also add or delete entities from shapes using the Manager.

For more information about developing custom code for use with shapes, view the help file provided with Visual Basic.

[To create a new entity](#)


[To add an entity to a shape](#)

[To delete an entity from a shape](#)

[To run an iDiagram](#)

### To create a new entity

1 On the Tools menu, point to iDiagram, and click Entity Manager.

2  Click the Add Entity tool.

---

{button Related Topics,PI('`,`using\_ad\_rtf\_1104172')}

[To add an entity to a shape](#)

[To delete an entity from a shape](#)

[To run an iDiagram](#)

[Working with iDiagrams](#)

**To add an entity to a shape**

- 1 On the Tools menu, point to iDiagram, and click Entity Manager.
- 2 Select an existing entity, or create a new entity.
- 3 Click the shape that you want to add the entity to.

---

{button Related Topics,PI('','using\_ad\_rtf\_1104198')}

[To create a new entity](#)

[To delete an entity from a shape](#)

[To run an iDiagram](#)

[Working with iDiagrams](#)



**To delete an entity from a shape**

- 1 On the Tools menu, point to iDiagram, and click Entity Manager.
- 2 Select an entity.
- 3 Press DELETE.

---

{button Related Topics,PI('','using\_ad\_rtf\_1104224')}

[To create a new entity](#)

[To add an entity to a shape](#)

[To run an iDiagram](#)

[Working with iDiagrams](#)

## To run an iDiagram

► On the Tool menu, point to iDiagram, and click Execute.

---

{button Related Topics,PI('`,`using\_ad\_rtf\_1104250')}

[To create a new entity](#)

[To add an entity to a shape](#)

[To delete an entity from a shape](#)

[Working with iDiagrams](#)

## Working with SPC Charts

{button Tell me how...,PI('`,`using\_ad\_rtf\_1104280')}

iGrafx Professional lets you create different kinds of charts that support quality and process re-engineering. To implement these processes, quality charts are needed for relaying complex data in easy to understand formats.

With SPC charts, you can:

- Identify unstable processes
- Visualize extent of variation in a process
- Improve decision-making
- Identify special cause variation in a process
- Predict progress of a process
- Determine current ability of a process
- Analyze processes over time
- Compare data
- Organize data into recognizable categories
- Set priorities of a process
- Illustrate impacts of individual affects
- Show relationship between paired data

To select and place SPC charts in a diagram, use the DataAnalyzer Chart wizard. After selecting which chart you want to use, you can type information into an active spreadsheet in the diagram space. DataAnalyzer then graphically converts the data for display in the diagram.

For more information on specific SPC chart types, select a chart in the DataAnalyzer Chart wizard, and click More. To get information on DataAnalyzer functions, view datalyzer.hlp located in iGrafx\Pro\8.0.

You can create the following charts using iGrafx Professional and DataAnalyzer:

- Process charts
- Cause-and-effect (Ishikawa or fishbone) charts
- Organization charts
- Deployment charts
- Pareto charts
- Histograms
- Run charts (trend charts)
- Control charts
- Scatter charts
- Pie charts

[To insert a SPC chart in a diagram](#)

[To add data to a SPC chart](#)

[To delete a SPC chart from a diagram](#)

**To insert a SPC chart in a diagram**

- 1 On the Insert menu, click SPC Chart.
- 2 In the DataAnalyzer Chart wizard, click Next.
- 3 Select a chart type, and click Finish.

---

{button Related Topics,PI('','using\_ad\_rtf\_1104302')}


[To add data to a SPC chart](#)

[To delete a SPC chart from a diagram](#)

[Working with SPC Charts](#)



### To add data to a SPC chart

- 1 Insert an SPC chart in the diagram.
- 2 In the active spreadsheet, type x and y axis labels in the cells.
- 3  Click the Data Import Wizard tool.
- 4 Follow the steps in the Data Import wizard.
- 5 After you have imported the data, click outside of the SPC chart.

The SPC chart is inserted in the diagram.

---


{button Related Topics,PI('','using\_ad\_rtf\_1104324')}

[To insert a SPC chart in a diagram](#)

[To delete a SPC chart from a diagram](#)

[Working with SPC Charts](#)

### To delete a SPC chart from a diagram

- 1  Click the Selector Tool on the Toolbox toolbar.
- 2 Click the SPC chart.
- 3 Press DELETE.

---

{button Related Topics,PI('','using\_ad\_rtf\_1104346')}

[To insert a SPC chart in a diagram](#)

[To add data to a SPC chart](#)

[Working with SPC Charts](#)

## Working with iGrids

{button Tell me how...,PI('`,`using\_ad\_rtf\_1104372')}

iGrids are graphical templates that you can use to diagram hierarchies, matrices, comparisons, schedules, timelines, and checklists. Each iGrid has corresponding options for adding or removing elements, sizing, placing, and aligning. After choosing from these options, the iGrid appears in the diagram space.

Depending on which iGrid you select, a Share Media subject tab will appear in the Gallery. Use the clip art in these tabs to add graphics and color to your iDiagrams

The following chart describes the iGrid templates in iGrafx Professional:

iGrid	Description
Pyramid	Shows hierarchical lists, such as those illustrating business values and goals or customer requirements.
Basic	Shows a grid of squares in the diagram. The grid enables you to place objects in precise positions.
Block	Shows a graphical matrix or gives a brief overview of a process.
Cascade	Shows items in a sequence, such as steps in a process.
Process	Shows the details of a process so that it can be readily understood.
Deployment	Shows the flow of information and materials among different organizational units.
Comparison	Shows comparisons of items in columns and rows, such as products and features. These charts can represent yes/no relationships (using check marks or thumbs up/down) or multiple-value relationships (using filled bullets).
Timeline	Shows schedules for tasks, projects, and procedures.
Circle-Spoke	Shows items in a circular arrangement, connected to a center shape. Spoke charts are useful for illustrating business principles, the key benefits of a product, or a product line.
Target	Shows concentric rings of focus, such as with increasingly focused customer groups and business objectives.
DrawBar	Shows general relationship and conceptual quantitative relationships (for example, something is smaller than or larger than something else).
Checklist	Shows single or multiple-column visual checklists.

[To insert an iGrid](#)

[To edit an iGrid in the diagram space](#)

**To insert an iGrid**

- 1 On the Insert menu, click Insert iGrid.
- 2 In the Insert iGrid dialog box, click the iGrid icon that you want to insert.
- 3 Edit the options you want to change.
- 4 Click OK.

---

{button Related Topics,PI('`,`using\_ad\_rtf\_1104390')}

To edit an iGrid in the diagram space  
Working with iGrids




### To edit an iGrid in the diagram space

1 Right mouse click the iGrid.

2 Click Edit iGrid.

Yellow sizing diamonds appear on edges of the iGrid in the diagram.

3 To change the size of the iGrid, click the diamonds and drag the iGrid to a new position.

4  To finish the positioning, click the Selector tool, and then click outside the diagram space.

---

{button Related Topics,PI('','using\_ad\_rtf\_1104408')}

To insert an iGrid  
Working with iGrids



## Modeling Activities

{button Tell me how...,PI('`,`modeling\_rtf\_542041')}

From airplanes to railroads, most of the models in everyday life are physical models. You can hold them in your hand. When we talk about models in iGrafx *Process*, we refer to a software model of a process, not a physical one.

Building a process model in iGrafx *Process* means describing a number of things about the process. This includes how long the different steps take, their inputs and outputs, operating schedules, the cost and availability of resources, and so on.

Each activity in a process diagram has several different steps associated with it, for example, all of the characteristics that can be assigned on the Properties dialog box are available.

---

{button Related Topics,PI('`,`modeling\_rtf\_541995')}

[About Process Modeling](#)

[Properties dialog box](#)

[Defining Activity Inputs](#)

[Defining Activity Resources](#)

[Defining Activity Attributes](#)

[Defining Activity Tasks](#)

[Defining Activity Outputs](#)

[Reviewing Activity Statistics Summary](#)

[Reviewing General Activity Settings](#)

[Reviewing and Defining Activity Custom Data](#)

[About Activity Processing](#)

To prepare a model

To create an activity and define the activity properties

## About Process Modeling

{button Tell me how...,PI('',`modeling\_rtf\_542105')}

Process modeling is one of the most cost-effective and rewarding ideas to come along in years. It can help identify improvements and pinpoint errors before they occur. Statistics generated by process modeling can provide accurate numbers about cycle time, costs, problem areas, and bottlenecks. Some of the benefits of having these statistics available include gaining insight into processes, facilitating change, and enhancing communication within organizations.

---

{button Related Topics,PI('',`modeling\_rtf\_542067')}

[Modeling Activities](#)

[Properties dialog box](#)

[A Process in Action](#)

[About Models](#)

[About Transactions](#)

[About the Transaction Flow](#)

[About a Transaction Family](#)

[About Queues in a Model](#)

[About Departments as Containers](#)



To prepare a model

To create an activity and define the activity properties

## A Process in Action

{button Tell me how...,PI('',`modeling\_rtf\_542173')}

If you picture a busy train station, you can imagine many of the dynamics of a process in action. As trains arrive and depart, the stationmasters are busy making routing and timing decisions. Meanwhile, passengers wait in line to buy tickets or to board.

Over time, the train operators gather and examine statistics. This includes such things as the average travel time between cities, the length of time that a train typically waits before departing, and how much fuel is used per mile. These types of statistics help guide future decisions.

When you use modeling and simulation software, you simulate several weeks or months of activities within a matter of seconds. The results can help you make decisions to improve your processes or recommend changes. Of course, you can study the same choices by direct experimentation or by building prototypes. But a computer simulation can identify potential obstacles, problems, and threats to business opportunities in an efficient and effective way.

The process diagram is a series of activities, drawn as symbols, linked together with directed lines. An activity is an individual step of a process diagram. iGrafx *Process* represents an activity as a symbol in a flowchart.

---

{button Related Topics,PI('',`modeling\_rtf\_542131')}

[Modeling Activities](#)

[Properties dialog box](#)

[About Process Modeling](#)

[About Activity Processing](#)

[About Models](#)

[About Transactions](#)

[About the Transaction Flow](#)

[About a Transaction Family](#)

[About Queues in a Model](#)

[About Departments as Containers](#)

[To prepare a model](#)

[To create an activity and define the activity properties](#)

[To find where the transaction splits and joins - Now Try This](#)

[To create a batch activity](#)

[To define a start point](#)

[To add or delete a transaction group](#)

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To set an attribute value](#)

**To prepare a model**

- 1 Create a description or graphic of the process by drawing a process diagram.
- 2 Follow the connecting lines between symbols to trace the process flow. Each symbol represents an activity.
- 3 Set the different properties for each activity using the Properties dialog box.

---

{button Related Topics,PI('','modeling\_rtf\_542219')}

About Models

To create an activity and define the activity properties

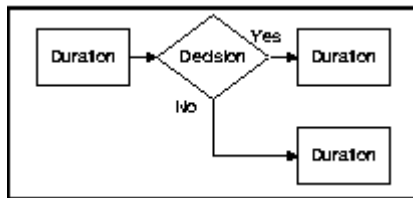
## About Models

{button Tell me how...,PI('',`modeling\_rtf\_542263')}

Process activities have many different variations. The most common process activity is a duration, or time, that the activity takes. For example, an activity may take four hours (constant duration) or between one and two days (distributed duration).

Another typical activity is a decision point. If the process branches into different paths based on some percentage or a specification or production value, you set decision outputs for the activity.

Many models contain only activities that have duration and decision criteria. Often, you do not need anything more complex. In the following example, the activities labeled Duration take a set amount of time and the Decision activity branches depending on a set percentage.



### *Simple Process Model*

You can begin with models using the basic activity categories and then progress into more complex models.

---

{button Related Topics,PI('',`modeling\_rtf\_542245')}

[Properties dialog box](#)

[A Process in Action](#)

[About the Transaction Flow](#)

[About Queues in a Model](#)



To prepare a model

## About Transactions

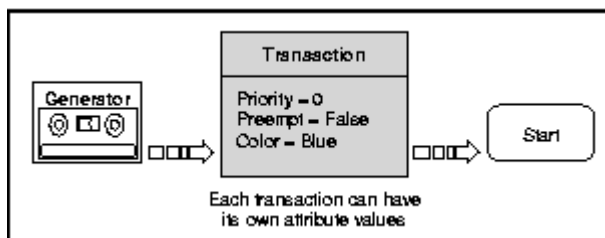
{button Tell me how...,PI('','modeling\_rtf\_542299')}

In a process, activities occur in a series of individual steps. These steps are invoked by the movement of a number of tokens called transactions. A transaction is a token or object that flows through the process.

Because a transaction is generic, it can represent any number of things, such as an application in a loan process, a component in a manufacturing line, or a customer at a restaurant.

Transactions are introduced into the process flow by means of one or more generators. A generator issues transactions at a specified rate and quantity.

A generator can also initialize attributes for each transaction. This provides the method for customizing and initializing data about each transaction. For example, a transaction attribute value can be set or evaluated at any activity.



---

{button Related Topics,PI('','modeling\_rtf\_542285')}

[Properties dialog box](#)

[Using Generators](#)

[About Transaction Attributes](#)

To find where the transaction splits and joins - Now Try This

To join the transactions - Now Try This

## About the Transaction Flow

{button Tell me how...,PI('',`modeling\_rtf\_542339')}

The path by which transactions flow through the process consists of the connection lines between activities. A transaction enters an activity through an incoming connection line. Likewise, a transaction is sent on to the next activity through the outgoing path.

A connection line is directed and has an origin and a destination. This provides an unambiguous path for transactions during simulation. However, depending on the inputs and outputs of different activities, the transaction can split down several paths, join back into one, stop, or reach a decision point. A transaction splits when an activity divides the transaction into multiple outputs that are active simultaneously. Transactions join when an activity takes multiple transactions as inputs and collects them into one transaction.

---

{button Related Topics,PI('',`modeling\_rtf\_542325')}

Modeling Activities

Properties dialog box

Using Trace Mode with Process Diagrams

To prepare a model

To call or create a subprocess

## About a Transaction Family

{button Tell me how...,PI('`,`modeling\_rtf\_542371')}

A transaction family is a set of transactions that originated from the same transaction. The family is not named. When a transaction is split, all of the newly created transactions are assigned to the same family as the original transaction. This designation lets you identify the members of a family.

After there is a family, any split in the process flow creates new members of the original transaction family. In other words, a transaction has only one family.

For example, when an order comes into an audio equipment manufacturer, one copy of the order is sent to the Shipping department and another is sent to the Order Entry department. (This splits the transactions to perform parallel work.) If the order is not approved, the corresponding shipment is halted by stopping all members of the transaction family.

### When to Use Family Designations

- Joining all family members back together (Inputs tab)
- Setting transaction attributes for all family members (Attributes tab)
- Stopping all members of a family when one member reaches an activity that stops output (Outputs tab)

Transaction attributes that have a family designation are identified by a special prefix.

---

{button Related Topics,PI('`,`modeling\_rtf\_542365')}



## Using Attribute Prefixes

To find where the transaction splits and joins - Now Try This

To join the transactions - Now Try This

## About Queues in a Model

{button Tell me how...,PI(``,`modeling\_rtf\_542419`)}

There are two categories of queues in iGrafx *Process*: resource queues and activity queues. These queues are created and managed automatically. As a result, transactions that reach any activity are processed only when the necessary resources are available and the activity constraints are met.

The queue method and the priority of each transaction determine the order in which the transactions leave the queue. Queues have the same default queue method, which is first in, first out (FIFO).

All transactions also have the same default priority. You can change the priority on an individual transaction so that it is processed ahead of other transactions.

A transaction waits in only one queue at a time.

---

{button Related Topics,PI(``,`modeling\_rtf\_542397`)}

[Properties dialog box](#)

[When to Join Inputs](#)

[Queue Methods](#)

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Queue Methods options](#)

To join inputs

## About Departments as Containers

{button Tell me how...,PI('`,`modeling\_rtf\_542451')}

A department is a container of activities. Resources can also be allocated per department. When activities request resources, the resources are acquired from resources pools allocated to that department. For example, you can compare the transaction times between two departments, or find organizational bottlenecks by monitoring activity time by department. You can use departments to represent any type of group, such as manufacturing or customer service.

---

{button Related Topics,PI('`,`modeling\_rtf\_542441')}

[Properties dialog box](#)  
[About Activity Processing](#)

[To use resources by department](#)

[To exclude departments](#)



## Defining Activity Inputs

{button Tell me how...,PI('','modeling\_rtf\_542491')}

The inputs to an activity convey transactions from other activities. Every transaction entering an activity, using one or more connecting lines, is an input to that activity. If you do not set the input collection, then the transaction continues at the activity for further processing.

You can specify two types of input collections: joining or batching.

---

{button Related Topics,PI('','modeling\_rtf\_542477')}

[About Process Modeling](#)

[Properties dialog box](#)

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[To join the transactions - Now Try This](#)

[To find where the transaction splits and joins - Now Try This](#)

[To create a batch activity](#)

[To locate the batch activities - Now Try This](#)

[To define a start point](#)

[To locate the start point](#)

[To add or delete a transaction group](#)

**To create an activity and define the activity properties**

- 1 Draw any symbol.
- 2 Double-click the symbol.

or

Select the symbol, and click Properties on the Edit menu.

The Properties dialog box appears.

---

{button Related Topics,PI('`,`modeling\_rtf\_542529')}

[Properties dialog box](#)

[To prepare a model](#)

[To create a batch activity](#)

## Properties dialog box

{button Tell me how...,PI('','modeling\_rtf\_542611')}

Use this dialog box to define the properties for an activity. Each tab in the Properties dialog box corresponds to the activity data.

The order of the tabs indicates the general order in which different aspects of the activity occur.

Tab	Description
Inputs	<p>An activity can have one or many inputs that arrive by way of incoming connection lines. The inputs are then processed or acted upon by the activity. The inputs may be handled sequentially or batched by some other scheme.</p> <p>For example, people drop interoffice memos (the inputs) into a collection box all morning. The memos stay in the box until noon, when a mail clerk collects them all (batching by time).</p>
Resources	<p>A resource is a person, machine, or other asset that may be required to perform the activity. An activity can use several resources or more than one kind of resource simultaneously.</p> <p>For example, when a new order is entered into a database of products to be shipped, it requires a worker and a computer (the resources). If either is busy, the new order is not entered until the resources are available.</p>
Attributes	<p>An attribute is a variable that keeps track of custom information. This lets you use custom terminology, calculate your own statistics, or make a decision in the flowchart depending on a custom value.</p> <p>For example, if an Inspection activity is performed, it sets an attribute named Checked to a value of True. Later in the flowchart, when a transaction has a Checked value equal to True, a decision may flow around another Inspection activity.</p>
Task	<p>The task information covers the duration the activity takes to complete, its associated costs, activity base, and schedule.</p> <p>For example, at an accounting firm that uses activity-based costing methods, an audit takes eight hours (the duration) at \$15 an hour (the cost) and is considered to be Business Value Added (the activity base).</p>
Outputs	<p>The outgoing connection lines from an activity attach to other activities for further processing. You specify how the outputs are sent, such as a decision point with multiple paths.</p> <p>For example, a company makes three types of ball-point pens: blue, black, and red (the outputs). Blue pens add an extra step. The company makes fifty percent blue pens, and twenty-five percent each of the others.</p>
Summary	<p>A summary page lets you see information about previous simulation results, as well as enter comments associated with the activity.</p> <p>For example, a summary page shows that a clothing</p>

inspection activity inspected 40 pairs of jeans.

General	The General tab displays the settings for the selected activity.
Custom Data	This tab lists the currently defined fields and data for the shapes in the process model. The order of the fields in this list shows the order in which the process model displays them.

**Tip**

This dialog box is modal, so you can keep it up on the screen while you use other menus or interact with the process diagram. For example, you can select more activities and change their data without closing the dialog box. You can also create and modify modeling information, such as schedules or attributes, by using other toolbars and menus while the Properties dialog box is open.

---

{button Related Topics,PI('`,`modeling\_rtf\_542581')}

Properties dialog box - Inputs tab: Collection Types and Other Information

Properties dialog box - Resources tab: Type of Resource

Properties dialog box - Attributes tab: Before and After Duration

Properties dialog box - Task tab

Properties dialog box - Outputs tab

Properties dialog box - General tab

Properties dialog box - Custom Data tab



To create an activity and define the activity properties

## Properties dialog box - Inputs tab: Collection Types and Other Information

{button Tell me how...,PI('',`modeling\_rtf\_542665')}

When a transaction enters an activity, depending on the type of input collection, the activity either begins processing the transaction or waits for other inputs or resources.

Element	Description
Collection Types	Joining. Collects multiple transactions into one transaction.
	Batching. Collects transactions for processing when a batch condition is met
Other Information	Queue Methods. Sets the order in which transactions wait.
	Start Point. Defines a point in the process where transactions are introduced.
	Assign to Group. Creates collections of transactions.
	Wait Time. Sets the wait time as Blocked or Inactive.

Use this tab to specify the following input collection types:

---

{button Related Topics,PI('',`modeling\_rtf\_542441')}

[Properties dialog box](#)

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Join options](#)

[Properties dialog box - Inputs tab: Batch Collection options](#)

[Properties dialog box - Inputs tab: Queue Methods options](#)

[Properties dialog box - Inputs tab: Wait Time options](#)

[Properties dialog box](#)

[To join inputs](#)

[To create a batch activity](#)

[To locate the batch activities - Now Try This](#)

[To define a start point](#)

[To locate the start point](#)

[To add or delete a transaction group](#)

## Joining

{button Tell me how...,PI('','modeling\_rtf\_542741')}

When inputs join, the system collects and combines multiple transactions into a single transaction. Joining is primarily used to merge split transactions.

### Examples

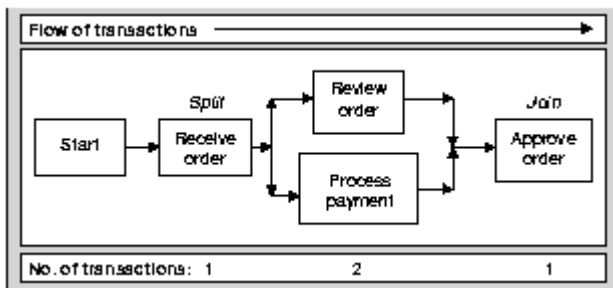
- Combine related work back together
- Submit all completed items at one time
- Collate all approved documents back into one

### When to Join Inputs

You join inputs:

- After parallel work has been performed by split outputs.
- When you want only one transaction to be considered as complete. If the split transactions represent a single product or outcome, then you join the transactions back together.

For example, at a plastic die company, an order arrives with a payment. The order is split to different workers for processing. When this work is complete, the order is approved.



- Joining inputs is different from batching that all of the transactions are joined into one and not kept separately.

---

{button Related Topics,PI('','modeling\_rtf\_542723')}

Properties dialog box

Defining Activity Outputs

Joining by Family

[To join inputs](#)

[To join the transactions - Now Try This](#)

### To join inputs

- 1 Double-click a symbol.

The Properties dialog box appears.

- 2 Choose the Inputs tab.
- 3 In the Collection area, select Join from the list.

Another list appears with options.

- 4 Select one of the join options.
- 5 To join transactions of the same family, select Same Family.

---

{button Related Topics,PI('`,`modeling\_rtf\_542775')}



[Properties dialog box](#)

[Joining](#)

[When to Join Inputs](#)

[Joining by Family](#)

[To find where the transaction splits and joins - Now Try This](#)

## Properties dialog box - Inputs tab: Join options

{button Tell me how...,PI('','modeling\_rtf\_542837')}

The Inputs Join options define the input paths, and whether the inputs are recognized as members of a family, the whole family, or members of an attribute type, and the number of transactions to join.

Element	Description
Input Paths	<p>One transaction must come from each input path (connection line) into the activity.</p> <p>Use this option if the activity has individual connection lines for each of the necessary inputs. (Use other joining options if the number of connection lines does not match the number of required joining transactions.)</p> <p>For example, an office furniture supplier sells file cabinets. Each cabinet has a custom frame, a hanging drawer, and a top file drawer. When a customer buys a cabinet, the supplier requests each component from a different area in the warehouse. When the three components have all arrived, the cabinet can be assembled.</p>
Entire Family	<p>All transactions that are members of the family are joined together.</p> <p>For example, an electronics store receives a television set for repair. Because there are several models in the shop at any time, the parts are always labeled so that they are not mixed up with some other television parts. After repairs are made, the television is reassembled.</p>
Count	<p>Sets the number of transactions to join. Enter a number (for example, 3), or use the Expression Builder toolbar.</p> <p>For example, a marketing fulfillment agency receives several boxes of blank floppy disks in the mail. Each box has 100 disks in it. A machine is set up to make promotional disks from the blank disks. Every time 100 disks are done, they are packaged back into the original boxes and sent to the warehouse.</p>
Attr Member	<p>Joins a transaction for each of the members of its attribute type. The transaction attribute must have a type other than Number because the type must have a finite list of members. If one member does not show up, the activity continues to wait.</p> <p>For example, at a loading dock, workers take a sales receipt and retrieve an item from stock. The workers need two things to complete the order: the item and the receipt. This is modeled using an attribute named Product. Its custom type has two members: Item and Receipt. If transactions are joined using the Product attribute, two transactions join: one with an Item value and another with Receipt.</p>
Same Family	<p>Further narrows the range of transactions to only family members. (The option is available if you are joining by</p>

input paths, count, or attribute member.)

For example, a family of five goes to the store. The parents split up their grocery shopping while the three kids look at toys. At the check-out stand, the parents meet back together to combine and buy their groceries. The Same Family option ensures that the parents meet their original spouse and not someone else's.

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{button Related Topics,PI('','modeling\_rtf\_542815')}

[Properties dialog box](#)

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Batch Collection options](#)

[Properties dialog box - Inputs tab: Queue Methods options](#)

[Properties dialog box - Inputs tab: Wait Time options](#)

To join inputs

To find where the transaction splits and joins - Now Try This

To join the transactions - Now Try This

## Joining by Family

{button Tell me how...,PI('',`modeling\_rtf\_542885')}

A transaction family is an unnamed set of transactions that originate from the same transaction. When a transaction is split, all of the newly created transactions are assigned to the same family as the original transaction. This designation identifies the members of a family.

After you create a family, a split in the process flow creates new members of the original transaction family. A transaction has only one family.

If you join transactions with the Same Family option, you guarantee that the same family members combine. If other transactions come through the same activity before family members, they are not joined to that family (in other words, they wait for their own family).

For example, when an order comes into an audio equipment manufacturer, one copy of the order is sent to the Shipping department and another is sent to the Order Entry department. (This splits the transactions to perform parallel work.) If the order is not approved, the corresponding shipment is halted by stopping all members of the transaction family.

---

{button Related Topics,PI('',`modeling\_rtf\_542867')}

Properties dialog box

Defining Activity Outputs

Joining

[To join inputs](#)

[To join the transactions - Now Try This](#)



## Joining - Now Try This

{button Tell me how...,PI('',`modeling\_rtf\_542933')}

A manufacturing company, CD Unlimited, produces compact discs. As part of their quality efforts, they are documenting the manufacturing process. They have created a simple process diagram and gathered information about each step.

{button Next,JI('>procedur',`modeling\_rtf\_410100')}

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{button Related Topics,PI('',`modeling\_rtf\_542915')}

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Join options](#)

[Joining](#)

[Joining by Family](#)

[To join inputs](#)

[To open the exercise data for joining - Now Try This](#)

[To find where the transaction splits and joins - Now Try This](#)

[To use trace mode to view joining - Now Try This](#)

### To open the exercise data for joining - Now Try This

{button Previous,JI('>concept','modeling\_rtf\_410047')}

- 1 On the File menu, click Open.
- 2 Select iGrafx\Pro\8.0\Exercise\Ex3join.igx, and click Open.
- 3 If necessary, click Maximize on the Ex3join - Process1 window.

During the manufacturing process, three departments work in parallel. While Customer Service is approving the work order, the Graphic Design department begins preparing the label artwork and the Laser Engraving Lab begins adding error correction codes. This parallel work is modeled by splitting the transaction.

{button Next,JI('>procedur','modeling\_rtf\_410151')}

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{button Related Topics,PI('', 'modeling\_rtf\_542976')}

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Join options](#)

[Joining](#)

[Joining by Family](#)

[To join inputs](#)

[To find where the transaction splits and joins - Now Try This](#)

[To use trace mode to view joining - Now Try This](#)

### To find where the transaction splits and joins - Now Try This

{button Previous,JI('>procedur','modeling\_rtf\_410100')}

- 1 Locate the Start activity.

(You do not need to edit it.) This is where the transaction is split. Notice the three connection lines coming out of the activity.

- 2 Locate the activity labeled Everything ready? in the Stamping Department.

This is where the transaction is joined back together. Notice the three connection lines coming into the activity.

- 3 Double-click the Everything ready? activity.

The Properties dialog box appears.

- 4 Choose the Inputs tab and verify that this is a Join activity.

(You do not need to edit it.) This activity joins input paths by family, so each individual disc project is kept separate from others.

{button Next,JI('>procedur','modeling\_rtf\_410231')}

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{button Related Topics,PI('>','modeling\_rtf\_543031')}

[About Transactions](#)

[About a Transaction Family](#)

[Joining](#)

[Joining by Family](#)

[When a Transaction Enters a Subprocess](#)

[Splitting Activity Outputs](#)

[Member Split](#)

[Stop Transaction](#)

[Transaction Flow Constraints](#)

[Options For Splitting By Member](#)

[To join inputs](#)

[To join the transactions - Now Try This](#)

[To open the exercise data for joining - Now Try This](#)

[To use trace mode to view joining - Now Try This](#)


## To use trace mode to view joining - Now Try This

```
{button Previous,JI('>procedur','modeling_rtf_410151')}
```

This exercise introduces a few basic concepts of simulation, specifically a trace simulation, to demonstrate how a transaction can be split and joined. During a trace simulation, you watch an animation of the transactions following the process flow. Furthermore, different colors are used to indicate the state of each transaction, for example, if they are working or moving.

### Note

Trace and simulation only work in iGrafx *Process* while working in a Process document.

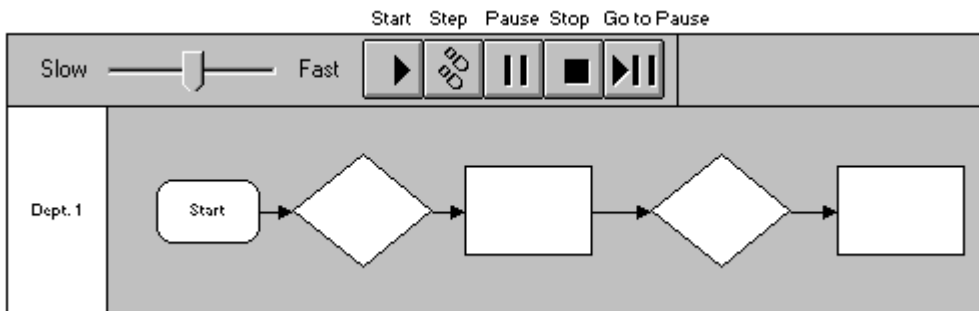
- 1  On the Model menu, point to Run, and then click Trace.

or

On the Model toolbar, click the Trace tool.

The process diagram is now in trace mode.

The Transaction window appears. While a process diagram is in trace mode, this window displays the status of the transactions as they are traced through the process diagram.



### Note


When a Trace is still in progress, the Trace tool and menu item are not active. You can have only one trace running at a time.

- 2 On the Control menu, click Trace Colors, and review the trace color settings.

### Note

The Trace Colors dialog box, defines the colors used to trace the process diagram. Review the Blocked setting. This color, usually red, appears when an activity is waiting to join transactions. The time is classified as blocked.

- 3 Click Cancel to close the Trace Colors dialog box.

- 4  On the Model toolbar, click the tool.

One transaction is run through the simulation.

When the *Everything ready* activity is blocked (a red color), this signals that the activity is waiting for all family members to arrive.

### Tip



You can use the trace tools on the Trace toolbar to step, pause, go to pause, stop, or start the simulation again.

When the trace is completed, the report window displays the results of the simulation.

**Note**

When trace model is enabled for a process diagram, several windows containing trace data appear. During a simulation, the transactions window displays the transactions, the transaction attributes, the status of the transaction, and the status of resources. The Simulator Progress window appears when a simulation starts, and displays simulation statistics. If the process diagram contains errors, the Output window appears with the error. You can also display the Pause Points window to review, add, delete, enable, and disable pause points in your process model. While in trace mode, you can display or close these windows using the commands on the View menu.

- 5 On the File menu, click Close.

This is the end of this exercise. You can save your changes.

---

{button Related Topics,PI('`,`modeling\_rtf\_543126')}

[Defining Activity Inputs](#)

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Join options](#)

[Stop Transaction](#)

[Using Trace Mode with Process Diagrams](#)

[To join inputs](#)

[To open the exercise data for joining - Now Try This](#)

[To find where the transaction splits and joins - Now Try This](#)

[To define a start point](#)

[To remove a resource from an activity](#)

[To call or create a subprocess](#)

## Batching

{button Tell me how...,PI('`,`modeling\_rtf\_543214')}

You use a batch activity to collect transactions. As transactions collect, the activity does not do any further processing until the batch condition is met. A batch job differs from joining the transactions in that the transactions remain separate.

### Examples

- Hold all money orders until they are processed once a week
- Send all orders only after twenty are accumulated
- Collect six cans into each carton

### When to Use Batching

You use batching

- To group incoming transactions and process them when a condition or timed event occurs.  
In the following illustration, invoices, packets and letters are prepared by different activities. They are put in the mailbox together, at different times, and then the mail is picked up.

#### Note

Before you create a batch activity, consider that the group of batched transactions may just as easily be modeled as a single transaction.

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{button Related Topics,PI('`,`modeling\_rtf\_543208')}

## Defining Activity Inputs

[To create a batch activity](#)

[To locate the batch activities - Now Try This](#)

**To create a batch activity**

- 1 Double-click a symbol to display the Properties dialog box.
- 2 Choose the Inputs tab.
- 3 Click the Collection drop-down list, and select batch.
- 4 Select the batch options.

---

{button Related Topics,PI('`,`modeling\_rtf\_543248')}

## Batching

To create an activity and define the activity properties

To locate the batch activities - Now Try This

## Properties dialog box - Inputs tab: Batch Collection options

{button Tell me how...,PI('','modeling\_rtf\_543302')}

The Inputs batch collection options define whether activities are collected by time, by gate, by count, or whether the entire group is collected.

Element	Description
By Time	Choose from the list of events, for example, a Weekly event processes all transactions every Monday morning of every week.

For example, a branch bank in San Francisco receives money orders from customers throughout the day. Once a week, at 4:00 pm every Friday, it sends the money orders to a central bank in Los Angeles.

By Gate	Delays processing of a transaction until a condition is met. The condition is an expression. When the expression is true, the gate is open.
---------	---

For example, at a home and garden store, vouchers are given to customers when an advertised product is not available. The customer can redeem the voucher later when the product is back in stock. A purchasing agent flags the product as *In Stock* to notify the clerks.

`5.InStock = Yes`

When the value of the InStock scenario attribute is Yes, the clerks start accepting vouchers.

A gate creates a queue as transactions are delayed. A subtle point about the queue is that it is set up differently depending on attributes. If only transaction attributes are used in the expression, the transactions go into separate queues by family. This means that transactions from several families can all be evaluated by the queue. However, if the expression has any other non-transaction attributes, all transactions are placed sequentially in one queue.

Count	Transactions are gathered until a count is reached. The number can be a constant. When the count is reached, the transactions can proceed.
-------	--

You can further modify this choice by specifying:

At Most. The count is the maximum instead of the total. Lesser amounts also gather. For example, librarians handle as many requests as they can, up to five. They take less than five if there are fewer book requests waiting.

Assign to Group. Creates a group of transactions. You can use the system default name (*Default*) or the same name for several groups of similar transactions. Available to all batch methods except By-Gate. For example, for a bottling operation, every six cans are collected into a group called Carton.



Entire  
Group

Specify if all transactions that are members of a group are batched. Choose the group name from the scrolling list.

If you choose to batch an existing group, you can assign the transactions to another group at this point. This creates a new group of transactions.

[Properties dialog box](#)

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Join options](#)

[Properties dialog box - Inputs tab: Queue Methods options](#)

[Properties dialog box - Inputs tab: Wait Time options](#)

[To create a batch activity](#)

[To locate the batch activities - Now Try This](#)

## Queue Methods

{button Tell me how...,PI('',`modeling\_rtf\_543350')}

When inputs collect, you can choose the order in which the transactions wait in line at the activity. The queue method determines the order in which transactions leave the activity queue.

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{button Related Topics,PI('',`modeling\_rtf\_543328')}

[Defining Activity Inputs](#)

[About Queues in a Model](#)

[Properties dialog box - Inputs tab: Queue Methods options](#)

[Setting a Priority on a Transaction](#)

[Setting a Preempt on a Transaction](#)

To set an attribute value

## Properties dialog box - Inputs tab: Queue Methods options

{button Tell me how...,PI('','modeling\_rtf\_543395')}

The Inputs queue methods options define the order in which the transactions are sent through the activity.

Element	Description
Resource queues	<p>If a resource is not available, the transaction waits in a queue for that resource. One reason that a required resource might be unavailable is that the resource allocation is too low to handle the rate of transactions to be processed.</p> <p>You set the number of resources required for an activity as part of its activity data.</p> <p>You set the resource allocation and the order in which transactions leave a resource queue (for example, first in, first out) as part of the scenario's resource definition.</p>
Activity queues	<p>If a transaction has to wait because of activity constraints such as joining, batching, or capacity limits, it waits in a queue for that activity.</p> <p>You set activity constraints and the order in which transactions leave the activity queue as part of the input description for the activity.</p>
First in, first out	<p>First queued transactions are sent through first.</p> <p>For example, when people arrive at a box office to purchase tickets, they wait at the back of the line.</p>
Last in, first out	<p>Last queued transactions are sent through first.</p> <p>For example, the last person to enter a crowded elevator is the first person out.</p>
Minimum of attribute	<p>Transactions that have the lowest value for the specified attribute are sent through first. The attribute can be of any type.</p> <p>For example, a printer checks the number of pages in a document by using an attribute called NumberPages. The smallest documents always print first, so if a document has a NumberPages value of 3, it is printed before a document with a NumberPages value of 10.</p>
Maximum of attribute	<p>Transactions that have the highest value for the specified attribute are sent through first. The attribute can be of any type.</p>

<b>Note</b> System transaction attributes can affect the order of transactions in the queue, regardless of queue method.
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{button Related Topics,PI('`,`modeling\_rtf\_543328')}



[Properties dialog box](#)

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Join options](#)

[Properties dialog box - Inputs tab: Batch Collection options](#)

[Properties dialog box - Inputs tab: Wait Time options](#)

To join inputs

To set an attribute value

To add a resource to an activity

## Batching - Now Try This

{button Tell me how...,PI('`,`modeling\_rtf\_543467')}

{button Previous,JI('>procedur`,`modeling\_rtf\_410231')}

An Order Reporting department submits reports throughout the day. The reports are picked up by Delivery every day at 8:30 am and delivered to Weekly Reporting. Using the data from the daily reports, they prepare another report. This report is picked up weekly by Administration. In this exercise, two batching activities are used to deliver the reports.

{button Next,JI('>procedur`,`modeling\_rtf\_412205')}

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{button Related Topics,PI('`,`modeling\_rtf\_543453')}

Batching

Properties dialog box

Properties dialog box - Inputs tab: Batch Collection options

[To open the exercise data for batching - Now Try This](#)

[To locate the batch activities - Now Try This](#)

[To look up the time that an event happens - Now Try This](#)

[To use trace mode to view batching - Now Try This](#)

[To create a batch activity](#)

**To open the exercise data for batching - Now Try This**

{button Previous,JI('>concept','modeling\_rtf\_412145')}

- 1 On the File menu, click Open.
- 2 Select iGrafx\Pro\8.0\Exercise\Ex1batch.igx, and click Open.
- 3 If necessary, click Maximize on the Ex1batch - Process 1 window.

{button Next,JI('>procedur','modeling\_rtf\_412239')}

{button Related Topics,PI('','modeling\_rtf\_543514')}

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[To locate the batch activities - Now Try This](#)

[To look up the time that an event happens - Now Try This](#)

[To use trace mode to view batching - Now Try This](#)

### To locate the batch activities - Now Try This

{button Previous,JI('>procedur','modeling\_rtf\_412205')}

- 1 Double-click the activity labeled Pick up all updates every morning in the Delivery department.
- 2 On the Properties dialog box, choose the Inputs tab, and verify that the input collections are batched, by time, on an Every\_Morning basis. Also, note that the Wait Time is Blocked; this state will show up later in the exercise.

Do not change the activity.

- 3 Without closing the Properties dialog box, select the activity labeled Pick up reports every week in the Administration department. (You may need to move the dialog box.)

The data on the Inputs tab is updated for the selected activity.

- 4 Verify that the input collections are batched, by time, on a Weekly basis. Also, note that the Wait Time is Blocked.
- 5 Click Cancel to close the Properties dialog box without making changes.

{button Next,JI('>procedur','modeling\_rtf\_412284')}

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{button Related Topics,PI('', 'modeling\_rtf\_543553')}



## Batching

[To open the exercise data for batching - Now Try This](#)

[To look up the time that an event happens - Now Try This](#)

[To use trace mode to view batching - Now Try This](#)

[To create an activity and define the activity properties](#)

### To look up the time that an event happens - Now Try This

{button Previous,JI('>procedur','modeling\_rtf\_412239')}

The time that an Every\_Morning or Weekly batching activity occurs is defined in the event schedule.

- 1 On the Model menu, click Events.

The Define Event dialog box appears.

- 2 For Existing Events, select Every\_Morning.

The Time Line indicates Standard\_Days and Morning. The calendar for Standard\_Days displays as Monday through Friday.

- 3 Under Hours (with Morning selected), click Define.

The Define Hours dialog box appears.

- 4 Check the time that is defined for Morning.

This model sets the time at 10:30 am. (The default is 8:00 am.)

- 5 Click Cancel to close the Define Hours dialog box.

- 6 For Existing Events, select Weekly and note its definition.

For this model, Weekly is defined as Fridays in the afternoon. (More precisely, the Define Hours dialog box for *Afternoon* defines it as 4:00 pm.)

- 7 Click Cancel to close the Define Event dialog box.

{button Next,JI('>procedur','modeling\_rtf\_412357')}

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{button Related Topics,PI('',`modeling\_rtf\_543600')}

[Defining Event Schedules](#)

[A Process in Action](#)

[About Transactions](#)

[About Queues in a Model](#)

[Wait Time](#)

[Start Points and Generators](#)

[When a Transaction Enters a Subprocess](#)

[Overtime Behavior](#)

[To open the exercise data for batching - Now Try This](#)

[To locate the batch activities - Now Try This](#)


[To use trace mode to view batching - Now Try This](#)

### To use trace mode to view batching - Now Try This


{button Previous,JI('>procedur','modeling\_rtf\_412284')}

This exercise uses trace mode to graphically display how transactions are collected and batched by time.

1 If necessary, click Maximize on the Ex1batch.igx - Process1 window.

2  On the Model menu, point to Run, and then click Trace.

The Ex1batch.igx - Process1 diagram is now in trace mode.

3  On the Model toolbar, click the Start tool.

Transactions enter the process every two hours. Watch for the batch activities to be blocked (indicated by red) as they wait for a batching time. When the batch activities turn green, they process the transactions. The numbers on an activity show how many transactions are waiting, and in what state.

#### Tip

You can use the trace tools on the Trace toolbar to step, pause, stop, or start the simulation again. After the run is complete, the report window appears with the results of the simulation.

4 On the File menu, click Close.

This is the end of this exercise. You can save your changes.

{button Next,JI('>concept','modeling\_rtf\_415869')}

{button Related Topics,PI('','modeling\_rtf\_543671')}

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[Using Trace Mode with Process Diagrams](#)

[About Transactions](#)

[To open the exercise data for batching - Now Try This](#)

[To locate the batch activities - Now Try This](#)

[To look up the time that an event happens - Now Try This](#)

## Wait Time

{button Tell me how...,PI('`,`modeling\_rtf\_543781')}

When transactions wait at an activity because of input collection constraints (for example, because of joining or batching), you can specify whether the waiting time is categorized as blocked or inactive for the report results. The default is blocked.

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{button Related Topics,PI('`,`modeling\_rtf\_543725')}

Using the Report Window to Review Transaction Statistics  
Delay

[To look up the time that an event happens - Now Try This](#)



## Properties dialog box - Inputs tab: Wait Time options

{button Tell me how...,PI(``,`modeling\_rtf\_543735')}

The Inputs wait time options define when the activity's wait time is blocked or inactive.

Element	Description
Blocked	Waiting time is categorized as blocked.
Inactive	Waiting time is categorized as inactive.

---

{button Related Topics,PI(``,`modeling\_rtf\_543759')}

[Properties dialog box](#)

[Properties dialog box - Inputs tab: Collection Types and Other Information](#)

[Properties dialog box - Inputs tab: Join options](#)

[Properties dialog box - Inputs tab: Batch Collection options](#)

[Properties dialog box - Inputs tab: Queue Methods options](#)

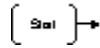
[To look up the time that an event happens - Now Try This](#)

[To call or create a subprocess](#)

[To specify a delay](#)

## Start Points

{button Tell me how...,PI('',`modeling\_rtf\_543829')}

 The terminus shape is the default start symbol. It is commonly used in flowcharting for beginning and ending symbols.

A start is a position in the process diagram where transactions are introduced. When you open a new process, a symbol labeled Start automatically appears as the first activity in Dept. 1. There is nothing unique or different about this symbol except that it has been defined as the starting point for the process (in other words, transactions enter the process at the start). You can move the start to a different department or location, or, like other symbols, you can change its text, shape, or activity data.

## Examples

- Modify the place where transactions start the process
- Specify multiple places in a process where transactions can begin
- Use one process diagram as a way of drawing multiple processes

---

{button Related Topics,PI('',`modeling\_rtf\_543811')}

[Start Points and Generators](#)

[Stopping Activity Outputs](#)

[Stop Transaction](#)

[Stop Family](#)

To define a start point

To locate the start point

To stop outputs

## To define a start point

If you have not changed the initial Start activity, the start point is already defined. But if you deleted it, you must define a new Start activity before you can simulate.

- 1 Double-click the activity that represents the start.
- 2 Choose the Inputs tab.
- 3 Click to mark the Start Point box.

This displays a list of start points that are already defined. To add a new name, type to replace the current name. If you choose a name already in use, the old start point is no longer used.

- 4 Select the name of the start point.

---

{button Related Topics,PI('`,`modeling\_rtf\_543851')}

A Process in Action

Start Points

Start Points and Generators

To locate the start point



## Start Points and Generators

{button Tell me how...,PI('',`modeling\_rtf\_543907')}

When you define a generator or create a subprocess, you choose a start point to introduce the transactions. There must be a starting point for every generator, although more than one generator can use the same starting point. When a simulation is run, each generator is checked to make sure that it is connected to a valid start point.

---

{button Related Topics,PI('',`modeling\_rtf\_543885')}

[Start Points](#)

[Using Generators](#)

[Stopping Activity Outputs](#)

[Stop Transaction](#)

[Stop Family](#)

To define a start point

To locate the start point

To stop outputs

## To locate the start point

Often the start is the first symbol in the first department, although any symbol or activity can be a start. A process can have multiple start points.

If you have previously defined the start, or if you have not cut or deleted the default start, you can verify its location with these steps.

- 1 On the Model menu, click Find Start.

The Find Start Point dialog box appears with a list of names.

- 2 Select the name of the starting point that you are verifying.
- 3 Click OK.

This selects the starting symbol.

---

{button Related Topics,PI('','modeling\_rtf\_543929')}

[Start Points](#)

[Start Points and Generators](#)

[Stopping Activity Outputs](#)

[Stop Transaction](#)

[To find where the transaction splits and joins - Now Try This](#)

[To locate the batch activities - Now Try This](#)

[To define a start point](#)

## Transaction Groups

{button Tell me how...,PI('`,`modeling\_rtf\_543981')}

A group is a named collection of transactions typically used to share a common resource. The transactions are still separate transactions, but you can identify them by a group name. You create a group name first by following these steps, and then you can assign it members when you specify a batch job.

---

{button Related Topics,PI('`,`modeling\_rtf\_543975')}

## About Transactions

To add or delete a transaction group



**To add or delete a transaction group**

- 1 On the Model menu, click Transaction Groups.

The Define Transaction Groups dialog box appears.

- 2 To create a group, type a name (up to 32 characters), and click Add.
- 3 To delete a group name, select the name from the list, and click Delete.

---

{button Related Topics,PI('`,`modeling\_rtf\_543995')}

## Transaction Groups

## Defining Activity Resources

{button Tell me how...,PI('`,`modeling\_rtf\_544067')}

A resource is a person, machine, or other asset used to process a transaction. More specifically, in an iGrafx *Process* process diagram, a resource provides the mechanism used by an activity to process transactions. When multiple transactions are processed, they can contend for resources.

You use the Resources Tab to set an activity's resource usage. An important distinction to make is that resource usage, which is specific to an activity, is different from resource allocation, which is the total number of resources available to a department.

For example, Dept. 1 has been allocated two worker resources (the default is one). To process a transaction, each activity requests some number of resources. If the resources are available, the transaction is processed. Otherwise, the transaction waits at the activity until the resources become available.

### Examples

- Acquire a laser printer to print a job
- Assign five workers to a task
- Specify that an operator is working on one job. If required equipment is not available, the operator has to wait for it.

---

{button Related Topics,PI('`,`modeling\_rtf\_544017')}

[Modeling Activities](#)

[Properties dialog box](#)

[Using Resources](#)

[If a Resource Is Not Required](#)

[If a Resource Is Not Required](#)

[Defining Activity Resources](#)

[Resource Assignment Type](#)

[Resource Quantity](#)

[Resource Behavior](#)

[Resource Schedule](#)

[Resources and Overtime](#)

[Resources Waiting](#)

[To add or delete a transaction group](#)

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

## Resource Considerations

{button Tell me how...,PI('`,`modeling\_rtf\_544139')}

- By default, one worker resource is defined for every department.

To use any resources other than workers, you first create them and then assign the resources in an activity. To create a resource, you give it a name, quantity, schedule, hourly rate, and so on.

- A resource often works on one activity and then moves to a different activity when it is needed.

The guidelines that control the movement of resources are the results of defining pools, or clusters of resources, in one or more departments.

- A resource can be requested to work on any activity in its assigned department(s).

A resource is not restricted to one activity. To restrict a resource, you can create the resource and only request it from one activity or you can place the activity in its own department.

- Each department is created with its own pool that contains one worker. This quantity is only adequate enough to process a single transaction through the department at a time.

There must always be enough workers in the pool to cover the resource quantity that is requested by an activity. An activity cannot acquire two workers if only one worker is defined in the pool.

---

{button Related Topics,PI('`,`modeling\_rtf\_544105')}

Properties dialog box - Resources tab: Type of Resource

Resource Assignment Type

Resource Quantity

Resource Behavior

Resource Schedule

Resources and Overtime

Resources Waiting

If a Resource Is Not Required

To define resource characteristics



## If a Resource Is Not Required

{button Tell me how...,PI('',`modeling\_rtf\_544161')}

When you create an activity, the system assumes one worker is needed to process a transaction for the activity. However, some activities do not require any resources. If so, remove the entry from the resource page.

---

{button Related Topics,PI('',`modeling\_rtf\_543467')}

To define resource characteristics

To add a resource to an activity

To remove a resource from an activity

**To define resource characteristics**

- 1 Choose from the list of available resources, for example, worker.
- 2 Specify if the activity uses, acquires, or releases a resource.
- 3 Specify how the model acts if the resource is unavailable.
- 4 Set the number of resources required by the activity.
- 5 Define the active times during which the activity can use the resource.
- 6 Describe the different behaviors available if a resource encounters overtime conditions.
- 7 Describe what happens if the resource has to wait, for example, for a transaction or other resources to become available.
- 8 Describe how to use resource assignments for groups of transactions.
- 9 Give a method for releasing resources for all members of a family of transactions.

---

{button Related Topics,PI('`,`modeling\_rtf\_543467')}

[Modeling Activities](#)

[Using Resources](#)

[Defining Activity Resources](#)

[Resource Assignment Type](#)

[Resource Quantity](#)

[Resource Behavior](#)

[Resource Schedule](#)

[Resources and Overtime](#)

[Resources Waiting](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

### **To add a resource to an activity**

To use workers or any of the resources that you have defined,

- 1 Double-click a symbol to display the Properties dialog box.
- 2 Choose the Resources tab.
- 3 To use an additional resource for this activity, press Add.

---

{button Related Topics,PI('`,`modeling\_rtf\_544241')}

[Defining Activity Resources](#)

[Resource Assignment Type](#)

[Resource Quantity](#)

[Resource Behavior](#)

[Resource Schedule](#)

[Resources and Overtime](#)

[Resources Waiting](#)

[To define resource characteristics](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

**To remove a resource from an activity**

- 1 Make the resource active by clicking in a field.
- 2 Press Remove.

You can use this feature to specify an activity that does not require any resources.

---

{button Related Topics,PI('','modeling\_rtf\_544291')}

[Defining Activity Resources](#)

[Resource Assignment Type](#)

[Resource Quantity](#)

[Resource Behavior](#)

[Resource Schedule](#)

[Resources and Overtime](#)

[Resources Waiting](#)

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To use resources by department](#)



## Properties dialog box - Resources tab: Type of Resource

{button Tell me how...,PI('`,`modeling\_rtf\_544393')}

The Resources tab lists workers, resources that you defined, and other resource factors.

Element	Description
Worker	<p>A predefined labor resource. By default, one worker is listed. Most activities use one worker, at a minimum, to process each transaction.</p> <p>For example, in a data entry department, one worker is used to perform and complete an activity labeled Update File.</p>
(User-defined resources.)	<p>Resources that you have defined.</p> <p>For example, a consulting engagement uses the following resources: one consultant, an overhead projector, and a laptop computer.</p>
Other	<p>Lets you break out cost independently from other resources. You can enter the cost as a value or expression.</p> <p>Use Other if you do not want to model a specific resource but want to track a resource cost. Also, if an activity crosses more than one department, use Other to further break out the costs by department.</p> <p>For example, when 1,000 copies of an in-house newspaper are published, each copy is stapled in three places and mailed. This uses a lot of staples, but, in terms of this model, it is not important to create a Staple resource. Instead, the Other category has a cost of \$5 for staples.</p>

---

{button Related Topics,PI('`,`modeling\_rtf\_544367')}

Properties dialog box

Properties dialog box - Resources tab: Assignment Type

Properties dialog box - Resources tab: Resource Behavior

Properties dialog box - Resources tab: Overtime options

Properties dialog box - Resources tab: Group option

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

### **To use resources by department**

► If an activity crosses more than one department, select either the individual department or all departments to assign the resource.

For example, at an advertising firm, a meeting is held with two account representatives from Major Accounts, one graphic designer, one writer, and the manager of the Writers department.

---

{button Related Topics,PI('`,`modeling\_rtf\_544435')}

## Using Resources

To define resource characteristics

To add a resource to an activity

To remove a resource from an activity

## Setting the Cost Category

{button Tell me how...,PI(``,`modeling\_rtf\_544537`)}

This function accumulates costs by activity base (the value-added categories).

---

{button Related Topics,PI(``,`modeling\_rtf\_544473`)}

Activity Base

Example of Setting the Cost Category

Properties dialog box - Resources tab: Cost Category

## Properties dialog box - Resources tab: Cost Category

{button Tell me how...,PI(``,`modeling\_rtf\_544531')}

The Resources cost category defines activities with various costs associated with them.

Element	Description
Base	The cost category is inherited from the activity base.
VA	Value Added. The resource is contributing to the creation or delivery of a product or service.
BVA	Business Value Added. The resource is useful to the business but does not contribute directly to the product or service.
NVA	No Value Added.

---

{button Related Topics,PI(``,`modeling\_rtf\_544505')}



Properties dialog box

Properties dialog box - Resources tab: Type of Resource

Properties dialog box - Resources tab: Assignment Type

Properties dialog box - Resources tab: Resource Behavior

Properties dialog box - Resources tab: Overtime options

Properties dialog box - Resources tab: Group option

To set a fixed cost

To set a fixed cost

## **Example of Setting the Cost Category**

For example, a recording clerk, a records administrator, and a supervisor at the Records Department are all required to record an order. The recording clerk enters the policy and records the claim. The records administrator updates the records and prepares reports. The supervisor reviews and approves each order. Although the activity itself is VA (Value Added), only the recording clerk is performing a VA activity. The records administrator is BVA (Business Value Added) and the supervisor is NVA (No Value Added).

## Resource Assignment Type

{button Tell me how...,PI(``,`modeling\_rtf\_544589')}

You can specify that a resource is used for the duration of an activity, that it is acquired, or that it is released.

---

{button Related Topics,PI(``,`modeling\_rtf\_544559')}

[Forcing From Family](#)

[Setting a Preempt on a Transaction](#)

[Resource Quantity](#)

[Resource Behavior](#)

[Resource Schedule](#)

[Resources and Overtime](#)

[Resources Waiting](#)

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

## Properties dialog box - Resources tab: Assignment Type

{button Tell me how...,PI('',`modeling\_rtf\_544651')}

The Resources assignment type defines whether the activities are acquired or released.

Element	Description
Activity	<p>Every time a transaction enters the activity, the resource is used and released. The activity uses the resource for the single task.</p> <p>For example, a worker writes a report. After the report is finished, the worker can be used by other activities.</p>
Acquire	<p>Every time a transaction enters the activity, the resource is used and remains acquired with the transaction as the transaction moves to other activities.</p> <p>This lets you get the resource and hold it until you explicitly release it later.</p> <p>A resource remains acquired until</p> <ul style="list-style-type: none"><li>• The transaction leaves an activity that releases it.</li><li>• The transaction reaches the end of the process flow.</li></ul> <p>or</p> <ul style="list-style-type: none"><li>• The transaction splits and the resource is released by other family members of the transaction.</li></ul>
Release	<p>A resource that was previously acquired is now released and can be used by other transactions.</p> <p>For example, at a print shop, the printing machine is cleaned regularly. When it is time to clean (for example, a transaction enters the activity), a worker sets up and then remains acquired until all the cleaning tasks are done. The printing machine is acquired to have its rollers cleaned and toner changed, and then both resources are released.</p> <p>In the same example, if two transactions enter the activity, then two workers and two printing machines are acquired and released. Furthermore, if a third transaction enters the activity and that transaction has previously acquired a printing machine, the third transaction still acquires and releases a worker and a printing machine. If either resource is not available, the transaction waits.</p>

---

{button Related Topics,PI('',`modeling\_rtf\_544625')}



[Properties dialog box](#)

[Properties dialog box - Resources tab: Type of Resource](#)

[Properties dialog box - Resources tab: Cost Category](#)

[Properties dialog box - Resources tab: Resource Behavior](#)

[Properties dialog box - Resources tab: Overtime options](#)

[Properties dialog box - Resources tab: Group option](#)

To create an activity and define the activity properties

## Resource Quantity

{button Tell me how...,PI(``,`modeling\_rtf\_544699`)}

An activity specifies the number, or count, of each resource that is required. Each transaction that enters the activity requires this number of resources.

The number is subtracted from the total number of available resources after each transaction enters this activity. The count can be an expression.

---

{button Related Topics,PI(``,`modeling\_rtf\_544673`)}

[Resource Assignment Type](#)

[Resource Behavior](#)

[Resource Schedule](#)

[Resources and Overtime](#)

[Resources Waiting](#)

[Using Expressions](#)

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

## Resource Behavior

{button Tell me how...,PI('',`modeling\_rtf\_544751')}

The resource behavior determines how the model acts if a resource becomes unavailable, typically for scheduling reasons.

---

{button Related Topics,PI('',`modeling\_rtf\_544733')}

Defining Activity Resources  
Resource Considerations  
If a Resource Is Not Required  
Resource Schedule

To define resource characteristics

To remove a resource from an activity

To add a resource to an activity



## Properties dialog box - Resources tab: Resource Behavior

{button Tell me how...,PI('',`modeling\_rtf\_544809')}

Element	Description
Changeable	<p>A changeable resource can be exchanged with another resource when the resource becomes unavailable. The transaction takes any resource of the same type that is available. A resource becomes unavailable if it is out of schedule, preempted, or it is not waiting.</p> <p>For example, the receiving clerks at a large university bookstore can be changeable resources. Some work part-time shifts and others work in the evenings. At the end of their work schedule, the clerks stop unpacking books and go home. The next shift of clerks comes in and continues working where the last clerks stopped.</p>
Dedicated	<p>A dedicated resource is not exchanged when it is unavailable. The transaction waits until the dedicated resource is available to finish the activity.</p> <p>For example, at the university bookstore, the purchasing agents work with their own vendors who specialize in sciences, languages, or art. When a purchasing agent goes home for the day or meets with someone, they finish the job when they return.</p>
Department (dedicated)	<p>A department resource operates like a dedicated resource, except that if an activity uses a resource in a department, all other activities in the department that the transaction goes through use the same resource.</p> <p>This resource is not exchanged with another resource when it is not available. The transaction waits until another department-dedicated resource is available.</p> <p>For example, the clerks at the Registration Department issue vehicle registrations. When a clerk takes your application, he or she looks up the record, checks your application, takes the fee, and issues the registration. In other words, a clerk always follows an application through to completion.</p>
Overtime Dedicated	<p>Behaves the same as changeable when the resource is not in overtime. Behaves like dedicated when the resource is in overtime.</p>
Out of Service	<p>A dedicated resource that accumulates time specifically as out of service. This lets you track when resources are out of service for such things as maintenance or</p>

unscheduled downtime.

The Resource behavior is defined as changeable, dedicated, or out of service.

---

{button Related Topics,PI('`,`modeling\_rtf\_544783')}

Properties dialog box

Properties dialog box - Resources tab: Type of Resource

Properties dialog box - Resources tab: Cost Category

Properties dialog box - Resources tab: Assignment Type

Properties dialog box - Resources tab: Overtime options

Properties dialog box - Resources tab: Group option

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

## Resource Schedule

{button Tell me how...,PI('',`modeling\_rtf\_544865')}

A resource's schedule is a list of times that determines when each resource is available. Every resource has its own schedule assigned to it as part of the scenario data. For example, some resources might be available only during the afternoon or evening shifts. Others can be available twenty-four hours.

Activities can also have schedules assigned to them. This lets activities take place only between certain times.

Many schedules have been defined for you. These include swing shift, night shift, or standard days with US holidays. You can choose a schedule that makes sense for each resource depending on your process. For example, you could create a schedule in which a resource is available between 8:00 am and 12:00 midnight, excluding US holidays.

If an activity tries to acquire a resource when no resource is available (for example, not in schedule), then all transactions arriving at the activity must wait until the resource is back in schedule again.

For example, a screening machine is always available daily between the hours of 8:00 am and noon. If an activity such as Print Labels uses the machine, the activity will process transactions (and therefore use the machine) only between the hours of 8:00 and 10:00 am.

---

{button Related Topics,PI('',`modeling\_rtf\_544843')}

Resource Assignment Type

Resource Quantity

Resource Behavior

Resources and Overtime

Resources Waiting

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

## Resources and Overtime

{button Tell me how...,PI('','modeling\_rtf\_544925')}

When labor or other resources are used, overtime costs and schedules often have to be addressed. The iGrafx *Process* overtime capability was designed to be very flexible to accommodate the different ways that overtime can be instituted in a company. When a resource is created, a schedule is attached to it. This schedule determines when the resource is available. Any hours or days outside the schedule are potential time frames for overtime.

The activity itself limits whether a resource is eligible for overtime. Some activities do not allow overtime at all. Other activities do, but have rules about when overtime is used and which resources are used.

If overtime is allowed on the activity, and a resource is about to go out of schedule but has not finished the activity, it can have one of several different behaviors. These are determined on an individual use basis.

---

{button Related Topics,PI('','modeling\_rtf\_544899')}



Resource Assignment Type

Resource Quantity

Resource Behavior

Resource Schedule

Resources Waiting

Defining Activity Tasks

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

Properties dialog box - Resources tab: Overtime options

{button Tell me how...,PI('`,`modeling\_rtf\_544985')}

The Resource overtime attributes are changeable, dedicated, and out of service.

Element	Description
Changeable	<p>If there are no resources to exchange with, then overtime is allowed up to the maximum overtime set for the resource currently acquired. If other resources have overtime available when the maximum overtime is reached, the resource is exchanged and uses its available overtime. This is true until there are no other resources of the same type that have overtime available.</p> <p>If another resource becomes available (that is, it comes into schedule) then the overtime resource is exchanged to avoid overtime.</p>
Dedicated and Department (Dedicated)	<p>Overtime is allowed until the maximum overtime for the resource is reached. The transaction waits until the resource comes into schedule again.</p>
Overtime Dedicated	<p>Behaves like a changeable resource until overtime is required. The resource that enters overtime is dedicated even if others become available. This happens up to the maximum overtime, then the activity waits until other resources are available.</p>
Out of Service	<p>A resource that is out of service behaves like a dedicated resource for the purposes of overtime.</p>

---

{button Related Topics,PI('`,`modeling\_rtf\_544959')}

Properties dialog box

Properties dialog box - Resources tab: Type of Resource

Properties dialog box - Resources tab: Cost Category

Properties dialog box - Resources tab: Assignment Type

Properties dialog box - Resources tab: Resource Behavior

Properties dialog box - Resources tab: Group option

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

## Resources Waiting

{button Tell me how...,PI('`,`modeling\_rtf\_545041')}

When a transaction waits to be processed by an activity, the resources already acquired by that transaction can either wait or be released until the transaction can be processed.

An activity can acquire resources for one transaction or all members of a group. A group is a set of transactions created by batching inputs.

If the first member of a group acquires a resource for the entire group, then all subsequent transactions in the group ignore the acquire request.

---

{button Related Topics,PI('`,`modeling\_rtf\_545019')}

Resource Assignment Type

Resource Quantity

Resource Behavior

Resource Schedule

Resources and Overtime

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)



## Properties dialog box - Resources tab: Group option

{button Tell me how...,PI('','modeling\_rtf\_545103')}

The Resources group options define whether a resource waits or not.

Element	Description
Wait	<p>The resource is not released while the transaction waits to be processed. Waiting time is accumulated for the resource.</p> <p>For example, a printing press requires a setup for each printing job. The setup includes information about the type of paper stock being run, its dimensions, and the ink distribution. If the paper stock has not arrived for that particular job, then the printing press must wait until the paper arrives and cannot be used for other printing jobs.</p>
Don't wait	<p>The resource is released and can work on other transactions. When this transaction can be processed, a resource is automatically acquired again.</p> <p>For example, when a sales order arrives at an Order Entry department, a copy is always made for their permanent records. If a sales order is received but the information is not correct, the copier machine can still be used to make other copies until the corrected order arrives again.</p>

---

{button Related Topics,PI('','modeling\_rtf\_545077')}

[Properties dialog box](#)

[Properties dialog box - Resources tab: Type of Resource](#)

[Properties dialog box - Resources tab: Cost Category](#)

[Properties dialog box - Resources tab: Assignment Type](#)

[Properties dialog box - Resources tab: Resource Behavior](#)

[Properties dialog box - Resources tab: Overtime options](#)

To add or delete a transaction group

## Forcing From Family

{button Tell me how...,PI('',`modeling\_rtf\_545139')}

This is used if a transaction has acquired a resource and then has been split (creating a family of transactions). In that case, the split transactions share the same resource. The Forcing From Family option forces the release for all family members.

---

{button Related Topics,PI('',`modeling\_rtf\_545125')}

[About a Transaction Family](#)

[Joining by Family](#)

[Stop Family](#)

To create split outputs

## Defining Activity Attributes

{button Tell me how...,PI('','modeling\_rtf\_545206')}

An attribute can define characteristics of transactions and other variables within a process, department, or scenario. It can be highly specific to the process that you are documenting.

### Examples

- Keep track of different quantities of two products, by name
- Check the product type and perform different steps based on the results
- Count how many times an assembly is reworked

### When to Use Attributes

Use attributes as variables in activities and to specify modeling data.

An attribute has four characteristics: its name, type, location, and value. The name must be unique for every attribute within a location. The attribute type is the range of values that the attribute can have. The location provides a scope, or boundary, for the attribute.

For example, a scenario attribute, called Items, is incremented. Every time a transaction enters the activity, the attribute value increases by one.

For example, an attribute named Burden is the total of two attributes, Workers and Overhead, added together and divided by the value of a third attribute, Rate.

---

{button Related Topics,PI('','modeling\_rtf\_545180')}

[Modeling Activities](#)

[Properties dialog box](#)

[Describing Model Behavior Using the Model Commands](#)

[Using Expressions](#)

[Setting a Priority on a Transaction](#)



To set an attribute value

To define a transaction attribute

To initialize a transaction attribute by distribution

To initialize a transaction attribute by constant value and multiple generators

### To set an attribute value

- 1 Double-click a symbol to display the Properties dialog box.
- 2 Choose the Attributes tab.
- 3 Click Add to define attribute settings before or after the task.
- 4 On the Set Attribute dialog box, select a location, select an existing attribute, and click OK.

**Note**

Click Define Attribute to add a new attribute.

- 5 On the Set Attribute value dialog box, specify the attribute value, and click OK.

---

{button Related Topics,PI('`,`modeling\_rtf\_545267')}

Defining Activity Attributes

To add a resource to an activity

## Properties dialog box - Attributes tab: Before and After Duration

{button Tell me how...,PI('`,`modeling\_rtf\_545301')}

Use this tab to define when an attribute value is set as the transaction flows through the activity.

Element	Description
Before Duration	The value is set before the duration is taken. (Note that multiple attribute settings can occur both before and after the duration.)
After Duration	The value is set after the duration is taken.

---

{button Related Topics,PI('`,`modeling\_rtf\_545291')}

Properties dialog box

[To look up the time that an event happens - Now Try This](#)

## Defining Activity Tasks

{button Tell me how...,PI('',`modeling\_rtf\_545388')}

The Task tab contains information about how transactions are processed. The type of task can be specified as work, process, or delay.

---

{button Related Topics,PI('',`modeling\_rtf\_545350')}

Modeling Activities

Properties dialog box

Work

Process

Delay

Activity Base

Capacity

Limited Schedule

Overtime Behavior



[To view a subprocess](#)

# Properties dialog box - Task tab

{button Tell me how...,PI('`,`modeling\_rtf\_545442')}

The Task tab defines the type of task, activity base, capacity, overtime behavior, and limited schedule.

Element	Description
Task Type	Work Causes transactions to be processed for a specific amount of time.
	Processes Connects the current process to another process for purposes of hierarchy or subprocessing.
	Delay Halts processing for a specific amount of time.
Activity Base	Includes a fixed cost and a value category.
Capacity	Limits the number of transactions that can be processed at one time.
Overtime Behavior	Specifies how the activity behaves if resources go out of schedule.
Limited Schedule	Specifies whether the time frame of the activity is limited to a schedule.

---

{button Related Topics,PI('`,`modeling\_rtf\_545412')}

Properties dialog box

Properties dialog box - Task tab: Work options

Properties dialog box - Task tab: Process options

Properties dialog box - Task tab: Delay options

Properties dialog box - Task tab: Cost categories

Properties dialog box - Task tab: Capacity options

Properties dialog box - Task tab: Overtime Behavior

To specify work

To call or create a subprocess

To view a subprocess

To specify a delay

## Work

{button Tell me how...,PI('',`modeling\_rtf\_545482')}

A task that is defined as a work activity has a specified duration. The duration can be in seconds, minutes, or hours, or larger units of days, weeks, months, or years. You can mix different time units on different activities (for example, one activity can take three days and another four seconds) and they will be calculated correctly. By default, the duration is zero.

## Examples

- Set the time for film to develop to one hour
- Set the time for shirts to be dry-cleaned between four and six days

---

{button Related Topics,PI('',`modeling\_rtf\_545476')}

## Options For Work

To specify work

**To specify work**

- 1 Double-click an activity to display the Properties dialog box.
- 2 Choose the Task tab.
- 3 Define the Duration and Activity Base.

---

{button Related Topics,PI('`,`modeling\_rtf\_545512')}



Properties dialog box  
Defining Activity Tasks  
Options For Work

## Options For Work

{button Tell me how...,PI('',`modeling\_rtf\_545606')}

The duration is the amount of working time required to complete the activity on a single transaction. Choose whether the duration is a constant, a distributed value, or an expression.

---

{button Related Topics,PI('',`modeling\_rtf\_545542')}

Overtime Behavior  
Work

To specify work

# Properties dialog box - Task tab: Work options

{button Tell me how...,PI('`,`modeling\_rtf\_545552')}

The Task work options define a duration as constant or distributed and enable you to set the duration as an expression.

Element	Description
Constant	Fill in a duration value and the unit of time. For example: 20 hours.
Distributed	Set the range and the unit of time (for example, between 5 and 10 weeks). In a uniform distribution, all values have an equal chance of occurring. A normal distribution follows a normal distribution curve.
Expression	Enter the expression.  For example, when an electric heat pump company plans an installation, they know it takes three hours to set up a single package and five hours for a split system. The following expression sets the duration equal to three hours if the value of Installation is SinglePackage. Otherwise, the duration equals five hours.

**Note**

If you set a duration to be the result of an expression, particularly using a distribution function, it is possible to generate a negative duration. In this case, iGrafx *Process* sets the duration to zero.

Also, any duration that is specified as a fractional second uses a floor function. For example, 1.3 seconds is 1 second; 5.6 seconds is 5 seconds.

---

{button Related Topics,PI('`,`modeling\_rtf\_545576')}

[Properties dialog box](#)

[Properties dialog box - Task tab](#)

[Properties dialog box - Task tab: Process options](#)

[Properties dialog box - Task tab: Delay options](#)

[Properties dialog box - Task tab: Cost categories](#)

[Properties dialog box - Task tab: Capacity options](#)

[Properties dialog box - Task tab: Overtime Behavior](#)

To specify work

### To exclude departments

► If the activity crosses departments, use the scrolling list to exclude one or more departments the activity applies to.

---

{button Related Topics,PI('','modeling\_rtf\_545620')}



[To use resources by department](#)  
[About Departments as Containers](#)  
[Excluding Departments](#)  
[To use resources by department](#)

## Process

{button Tell me how...,PI('',`modeling\_rtf\_545688')}

You add hierarchy or concurrence to a model by using process activities. This connects the current process to another process that can run concurrently or as a subprocess.

## Examples

- Document a maintenance cycle as part of a larger business process
- Run two different product lines at the same time
- Create multiple independent processes on the same process diagram and link them together

A good rule of thumb is to organize activities into separate processes if they have essentially different outcomes or produce different products.

---

{button Related Topics,PI('',`modeling\_rtf\_545670')}

[A Process in Action](#)

[About the Transaction Flow](#)

[When a Transaction Enters a Subprocess](#)

[Using Multiple Processes](#)

[To call or create a subprocess](#)

[To view a subprocess](#)

**To call or create a subprocess**

- 1 Double-click any symbol to display the Properties dialog box.
- 2 Click the Task tab.
- 3 Click the Work category to choose Process.
- 4 Click Sub Process to choose process type.
- 5 Choose the process.

To modify the selected process, click New Process or Rename Process.

Specify the start point that you selected.

- 6 Define the Activity Base and Capacity, and click OK.

---

{button Related Topics,PI('`,`modeling\_rtf\_545722')}

[Defining Activity Tasks](#)

[About the Transaction Flow](#)

[When a Transaction Enters a Subprocess](#)

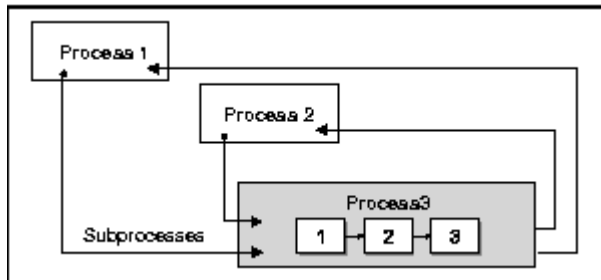
[To view a subprocess](#)

## Properties dialog box - Task tab: Process options

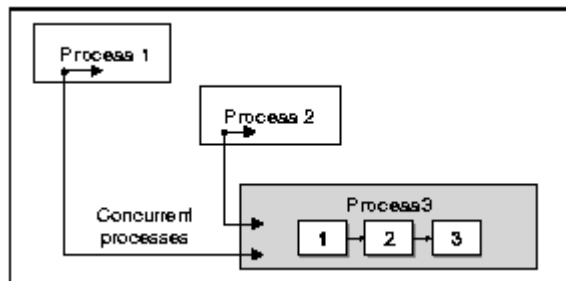
{button Tell me how...,PI('','modeling\_rtf\_545788')}

The Task process options define the subprocess, the concurrent process, and the private subprocess.

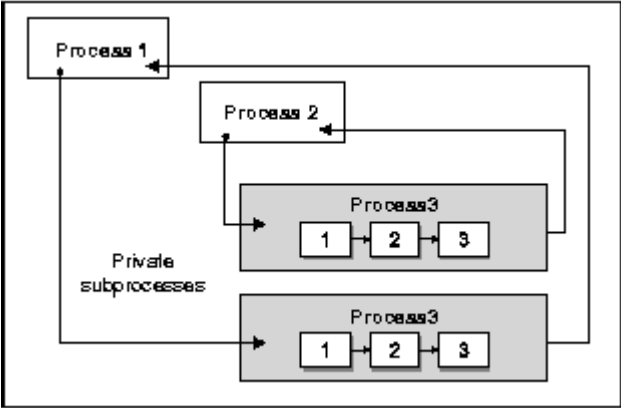
Element	Description
Subprocess	A subprocess starts and then completes, at which point the flow returns to the process that called it. A subprocess can be called by more than one process, as shown in the following illustration. Both Processes 1 and 2 share Process 3 as a subprocess, and the transactions from both processes can interact in the subprocess.



Concurrent Process	A separate process runs to the end of its own process flow. The process that called the concurrent process continues executing concurrently.
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Private Subprocess	Similar to a subprocess, in that a subprocess completes and the flow returns to the process that called it. The difference between a regular subprocess and a private subprocess is that a private subprocess keeps track of transactions from the calling processes separately.
--------------------	--





[Properties dialog box](#)

[Properties dialog box - Task tab](#)

[Properties dialog box - Task tab: Work options](#)

[Properties dialog box - Task tab: Delay options](#)

[Properties dialog box - Task tab: Cost categories](#)

[Properties dialog box - Task tab: Capacity options](#)

[Properties dialog box - Task tab: Overtime Behavior](#)

[To call or create a subprocess](#)

[To connect to a subprocess](#)

[To connect to a concurrent process](#)

[To connect to a private subprocess](#)

[To view a subprocess](#)

### To connect to a subprocess

- 1 Set the name of the process and a start point.
- 2 If the process does not exist, create it by clicking New Process.

For example, in a land-use planning agency, both the commercial and residential land-use departments must submit their permits for approval by a planning council. No additional work can happen on the permit until it has been approved or rejected. After the review is complete, the permits are returned to the original departments for further processing.

---

{button Related Topics,PI('`,`modeling\_rtf\_545818')}

[A Process in Action](#)

[About the Transaction Flow](#)

[Process](#)

[To call or create a subprocess](#)

[To connect to a concurrent process](#)

[To connect to a private subprocess](#)

[To view a subprocess](#)

**To connect to a concurrent process**

- 1 Set the name of the process and a start point.
- 2 If the process does not exist, create it by clicking New Process.

For example, several departments at an engineering firm rely on their Purchasing department to make arrangements for buying new computers. The departments give their specifications to Purchasing to place the order.

---

{button Related Topics,PI('`,`modeling\_rtf\_545856')}

[A Process in Action](#)

[About the Transaction Flow](#)

[Process](#)

[To call or create a subprocess](#)

[To connect to a subprocess](#)

[To connect to a private subprocess](#)

[To view a subprocess](#)

### To connect to a private subprocess

- 1 Set the name of the process and a start point.
- 2 If the process does not exist, create it by clicking New Process.

#### Note

Each process separately maintains any counts that are being kept (for example, an activity that collects inputs in the private subprocess) for each process. The process also keeps family designations separate, except for Join by Family. In other words, a private subprocess behaves more as if it were pasted into the process that called it, rather than as a regular subprocess.

For example, a microbrewery sells small quantities of their own brands of bottled beers. When each batch of new beer has fermented, it is sent to be bottled into six-packs. It is important for them to keep bottle counts for each batch separate.

---

{button Related Topics,PI('','modeling\_rtf\_545894')}

[A Process in Action](#)

[About the Transaction Flow](#)

[Process](#)

[To call or create a subprocess](#)

[To connect to a concurrent process](#)

[To connect to a subprocess](#)

[To view a subprocess](#)



### To view a subprocess

► Press the Shift key and double-click the activity.

---

```
{button Related Topics,PI('','modeling_rtf_545932')}
```

[A Process in Action](#)

[About the Transaction Flow](#)

[Process](#)

[To call or create a subprocess](#)

[To connect to a concurrent process](#)

[To connect to a private subprocess](#)

[To connect to a subprocess](#)

## When a Transaction Enters a Subprocess

{button Tell me how...,PI('',`modeling\_rtf\_545996')}

- A new transaction is issued into the specified process. The transaction does not have any family membership or siblings.
- The new transaction has the same attribute values as the original transaction.
- If the subprocess runs concurrently, both transactions continue along their respective paths.

If the subprocess does not run concurrently, only the subprocess transaction continues. The transaction in the main process waits until the transaction in the subprocess reaches an endpoint. An endpoint is an activity that does not have an outgoing connection line.

- Any transaction attribute values or family assignments set in a subprocess are in effect when the transaction returns from the subprocess.
- Any transaction attributes set with the Family option modifies that attribute in all siblings regardless of which process they are in.

---

{button Related Topics,PI('',`modeling\_rtf\_545978')}

[About Transactions](#)

[About a Transaction Family](#)

[Stop Transaction](#)

[Transaction Flow Constraints](#)

[To find where the transaction splits and joins - Now Try This](#)

[To call or create a subprocess](#)

[To view a subprocess](#)

## Delay

{button Tell me how...,PI('',`modeling\_rtf\_546060')}

You can use an activity to specify that transaction processing is delayed by a specific amount of time. Delay time is categorized as blocked time during simulation.

---

{button Related Topics,PI('',`modeling\_rtf\_546026')}

[Using the Report Window to Review Transaction Statistics](#)

[About Queues in a Model](#)

[Queue Methods](#)

[Wait Time](#)

[Resources Waiting](#)

[Limited Schedule](#)

[Using Expressions](#)

[Using System-Defined Functions](#)

To look up the time that an event happens - Now Try This

To specify a delay

To stop outputs



## Properties dialog box - Task tab: Delay options

{button Tell me how...,PI('`,`modeling\_rtf\_546122')}

Specifies the duration of the delay as a constant, distributed, or expression.

Element	Description
Constant	Fill in a delay value and the unit of time. For example: 10 minutes.
Distributed	Set the range and the unit of time (for example, between 1 and 4 hours). In a uniform distribution, all values have an equal chance of occurring. A normal distribution follows a normal distribution curve.
Expression	Enter the expression.

---

{button Related Topics,PI('`,`modeling\_rtf\_546092')}

[Properties dialog box](#)

[Properties dialog box - Task tab](#)

[Properties dialog box - Task tab: Work options](#)

[Properties dialog box - Task tab: Process options](#)

[Properties dialog box - Task tab: Cost categories](#)

[Properties dialog box - Task tab: Capacity options](#)

[Properties dialog box - Task tab: Overtime Behavior](#)

To specify a delay

**To specify a delay**

- 1 Double-click an activity to display the Properties dialog box.
- 2 Choose the Task tab.
- 3 Click on the task type, and select Delay.
- 4 Define the Duration and Activity Base.
- 5 Click OK.

---

{button Related Topics,PI('`,`modeling\_rtf\_546152')}

Defining Activity Tasks

Wait Time

Delay

## Excluding Departments

{button Tell me how...,PI('',`modeling\_rtf\_546188')}

If the activity crosses departments, you can use the scrolling list to exclude one or more departments the activity applies to.

---

{button Related Topics,PI('',`modeling\_rtf\_546182')}

## About Departments as Containers

[To use resources by department](#)

[To exclude departments](#)



## Activity Base

{button Tell me how...,PI('',`modeling\_rtf\_546220')}

Each activity can have a fixed cost and a value category. You can choose different colors to represent the value classes for a visual representation of which activities are designated Value Added and which are not.

The activity base is also useful for categorizing statistics. This is done after simulation by sorting the report results into different activity bases.

---

{button Related Topics,PI('',`modeling\_rtf\_546214')}

Properties dialog box - Resources tab: Type of Resource

[To assign colors to different value activity classes](#)

[To create an activity and define the activity properties](#)

[To locate the batch activities - Now Try This](#)

[To locate the decision activities - Now Try This](#)

[To review activities - Now Try This](#)

## Properties dialog box - Task tab: Cost categories

{button Tell me how...,PI('',`modeling\_rtf\_546290')}

The Task cost categories define the activity values.

Element		Description
VA	Value Added.	The activity contributes to the creation or delivery of a product or service.
BVA	Business Value Added	The activity is required by the business but does not contribute directly to the product or service.
NVA	No Value Added.	

This becomes the value base for the activity. A resource can have its own value base or inherit this base.

For example, in a manufacturing process, when materials must be reworked, the activity is labeled NVA.

---

{button Related Topics,PI('',`modeling\_rtf\_546260')}

[Properties dialog box](#)

[Properties dialog box - Task tab](#)

[Properties dialog box - Task tab: Work options](#)

[Properties dialog box - Task tab: Process options](#)

[Properties dialog box - Task tab: Delay options](#)

[Properties dialog box - Task tab: Capacity options](#)

[Properties dialog box - Task tab: Overtime Behavior](#)

To set a fixed cost

To assign colors to different value activity classes

### To set a fixed cost

- ▶ Enter a cost that is accrued each time a transaction is processed by the activity. The default is 0. For example, a Sales department has an Annual Review activity. The review has a fixed cost of \$2000.

The total cost of an activity is the sum of its fixed cost and the costs associated with resources used by the activity.

For example, you hire a limousine service to take a new client out to dinner. This incurs two costs, one for the activity and one for the resources. For the activity, the fixed cost of the dinner is \$100. For the resources, the limousine has a per-use cost of \$45 for the evening and a \$10 an hour cost for the driver. After a three-hour evening, the total cost for the activity is \$175.

---

{button Related Topics,PI('`,`modeling\_rtf\_546308')}

[Setting the Cost Category](#)

[About Resource Costs](#)

[To assign colors to different value activity classes](#)



### **To assign colors to different value activity classes**

- 1 On the View menu, click Value Class.
- 2 In the View Value Classifications dialog box, select a classification color.
  - View VA. Set a color for all Value Added activities.
  - View BVA. Set a color for all Business-Value Added activities.
  - View NVA. Set a color for all No Value Added activities.

The default color classification is white.

- 3 Click OK.

---

{button Related Topics,PI('','modeling\_rtf\_546330')}

Activity Base

To create an activity and define the activity properties

To set a fixed cost

## Capacity

{button Tell me how...,PI('',`modeling\_rtf\_546370')}

You can set the capacity of an activity to limit the number of transactions that can be processed at one time. This limit is enforced even if the necessary resources and transactions are available. The capacity can also be set to unlimited.

---

{button Related Topics,PI('',`modeling\_rtf\_546360')}

Defining Activity Tasks

Properties dialog box - Task tab: Capacity options

[To open the exercise data for Transaction Splits - Now Try This](#)

## Properties dialog box - Task tab: Capacity options

{button Tell me how...,PI(``,`modeling\_rtf\_546424`)}

The Task capacity options define a limit or specify no limit on the number of transactions that can be processed at the same time.

Element	Description
Unlimited (default)	The activity places no limits on the number of transactions that can be processed simultaneously.
Number	Enter a number for the limit on transactions.  For example, an office has four phones. The most calls the office ever handles concurrently is four, regardless of how many workers are available.

---

{button Related Topics,PI(``,`modeling\_rtf\_546394`)}

Properties dialog box

Properties dialog box - Task tab

Properties dialog box - Task tab: Work options

Properties dialog box - Task tab: Process options

Properties dialog box - Task tab: Delay options

Properties dialog box - Task tab: Cost categories

Properties dialog box - Task tab: Overtime Behavior

To create an activity and define the activity properties



## Limited Schedule

{button Tell me how...,PI('',`modeling\_rtf\_546452')}

The schedule defines the time frame in which the activity can be processed. You can choose from the many schedules that are already defined, or create a new schedule.

Although schedules can be applied to separate activities, they are more often applied to the resources used by the activities.

---

{button Related Topics,PI('',`modeling\_rtf\_546446')}

## Resource Schedule

To set an attribute value

## Overtime Behavior

{button Tell me how...,PI('',`modeling\_rtf\_546492')}

The overtime behavior specifies how the activity behaves if resources go out of schedule while the transaction is being processed. This behavior interacts with the way overtime is specified for the resource.

---

{button Related Topics,PI('',`modeling\_rtf\_546474')}

Resources and Overtime

Resources Waiting

Resource Schedule

Resource Behavior

[To look up the time that an event happens - Now Try This](#)

## Properties dialog box - Task tab: Overtime Behavior

{button Tell me how...,PI('','modeling\_rtf\_546542')}

The Task overtime behavior options define whether overtime is suspended or allowed for an activity or whether an activity is not started unless it can be completed in the scheduled time.

Element	Description
Suspend	<p>If a resource goes out of schedule, it stops work. Processing starts again when a resource is available.</p> <p>If the activity goes out of schedule, work is stopped and resumed when the activity is again in schedule.</p> <p>For example, a tax preparation service is available from 8:00 am until 8:00 pm, with a half-hour break in the afternoon. The morning shift works from 8:00 am to 2:30 pm and the afternoon shift works from 3:00 pm to 8:30 pm. The morning shift leaves at 2:30. Therefore, no work happens between 2:30 pm and 3:00 pm because resources are out of schedule. The next shift picks up until 8:30 pm. At this time, work stops for the night because the activity is out of schedule.</p>
Don't Start	<p>The activity is not started unless it can be completed in the activity schedule.</p> <p>Resources must be in schedule and available for the length of the activity.</p> <p>For example, the doctors in a community hospital perform a four-hour operation. The surgery room is available only between 7:00 am and 4:00 pm. If an operation is not started before noon, or the doctors are delayed by other activities that make them unavailable, then the patient must wait until 7:00 am the next morning, at the earliest.</p> <p>Resource availability can be affected by preemptive transactions.</p>
OK If Started	<p>The activity allows overtime for resources if the activity has started working on a transaction and a resource or activity goes out of schedule.</p> <p>For example, customers leave their cars at an automobile repair shop and return after 6:00 pm to pick them up. The mechanics work from 8:00 am to 4:00 pm. However, if a repair takes longer than expected, the mechanic can work overtime to complete the repairs</p>
Always OK	<p>Overtime is always allowed for resources when a transaction reaches this activity.</p> <p>For example, when an alarm goes off at a power substation, the emergency workers are always authorized to work overtime to locate the problem.</p>
Finish Queue	<p>The activity allows overtime for resources to finish processing all of the transactions that are currently waiting in the queue.</p>

---

{button Related Topics,PI('','modeling\_rtf\_546542')}



[Properties dialog box](#)

[Properties dialog box - Task tab](#)

[Properties dialog box - Task tab: Work options](#)

[Properties dialog box - Task tab: Process options](#)

[Properties dialog box - Task tab: Delay options](#)

[Properties dialog box - Task tab: Cost categories](#)

[Properties dialog box - Task tab: Capacity options](#)

To specify a delay

To set a fixed cost

## Defining Activity Outputs

```
{button Tell me how...,PI('',`modeling_rtf_546594')}
```

The output options on an activity controls if and how a transaction exits an activity. Every transaction leaving an activity, through a connection line, is an input to another activity; otherwise, the transaction stops.

### Examples

- Create a decision point where there is a Yes path when a proposal is approved and a No path when it is not
- Stop processing an order because its credit was not approved
- Set four different path choices depending on the type of product

---

```
{button Related Topics,PI('',`modeling_rtf_546568')}
```

Properties dialog box - Outputs tab: Case Text options

Modeling Activities

Decision

Splitting Activity Outputs

Member Split

Stopping Activity Outputs

[To locate the decision activities - Now Try This](#)

[To stop outputs](#)

[Options For Splitting By Member](#)

# Properties dialog box - Outputs tab

{button Tell me how...,PI('`,`modeling\_rtf\_546648')}

The Outputs tab defines how the transactions behave.

Element	Description
Decision	Branches the transaction into different paths based on percentages, attribute values, or expressions.
Split	Divides a transaction into multiple transactions.
Member Split	Splits the transaction into a count equal to the number of members of an attribute type.
Stop	Terminates the transaction.

---

{button Related Topics,PI('`,`modeling\_rtf\_546626')}

[Properties dialog box](#)

[Properties dialog box - Outputs tab: Case Text options](#)

[Properties dialog box - Outputs tab: Decision options](#)

[Properties dialog box - Outputs tab: Stopping Outputs options](#)

[Properties dialog box - Outputs tab: When Transactions Are Complete](#)

[To find where the transaction splits and joins - Now Try This](#)

[To create split outputs](#)

[To stop outputs](#)



## Decision

{button Tell me how...,PI('`,`modeling\_rtf\_546695')}

A decision is a point at which transactions can take one of several possible paths based on criteria that you set. The connection lines from a decision are automatically labeled in the process diagram. The first line correlates to the first decision (usually labeled No or False); the second line correlates to the second decision (Yes or True) and so on.

---

{button Related Topics,PI('`,`modeling\_rtf\_546791')}

Properties dialog box - Outputs tab: Case Text options

Modeling Activities

Using Expressions

Defining Activity Outputs

[To locate the decision activities - Now Try This](#)

## Properties dialog box - Outputs tab: Case Text options

{button Tell me how...,PI('','modeling\_rtf\_546741')}

The Output case text options define the possible outputs for a decision.

Element	Description
Yes/No	Number of cases is 2: No (equal to 0) and Yes (1).
True/False	Number of cases is 2: False (equal to 0) and True (1).
User-defined types	Custom types that you have previously defined. (The name of the actual type appears in the list.) Valid members of the type are displayed as outputs and cannot be edited.
Other	<p>Case labels can be edited. You set the # Cases to equal the number of output paths. This causes the Output list to add or subtract cases. The default is 2.</p> <p>For example, three wires are color coded red, blue, or yellow. Whenever a transaction is processed by the activity, the red wire is chosen 50% of the time, blue is chosen 11%, and yellow, 39%.</p>

---

{button Related Topics,PI('','modeling\_rtf\_546719')}

[Properties dialog box](#)

[Properties dialog box - Outputs tab](#)

[Properties dialog box - Outputs tab: Decision options](#)

[Properties dialog box - Outputs tab: Stopping Outputs options](#)

[Properties dialog box - Outputs tab: When Transactions Are Complete](#)

To create a decision

To locate the decision activities - Now Try This

**To create a decision**

- 1 Double-click any symbol to display the Properties dialog box.
- 2 Choose the Outputs tab.
- 3 Define the Case Text and Outputs.
- 4 Click Apply.

---

{button Related Topics,PI('`,`modeling\_rtf\_546759')}

Defining Activity Outputs

Decision

To locate the decision activities - Now Try This



## Properties dialog box - Outputs tab: Decision options

{button Tell me how...,PI('','modeling\_rtf\_546813')}

The Output decision options define percentages or an expression for output distribution.

Element	Description
Statistical	You set percentages for the output distribution.
Expression	<p>Enter an expression for the output distribution. The expression returns a value, for example, an attribute returns its value or the expression evaluation returns false (equal to 0) or true (1).</p> <p>A return value of 0 uses the first path; 1 uses the second path, 2 uses the third path, and so on. If the expression value is less than 0, it uses the first path. If the value is greater than the number of paths, it uses the last path. Expression values in between are rounded up to the nearest integer.</p> <p>For example, in a Quality Assurance department, three quality tests are performed, depending on the software module. To create outputs for each test, an attribute called QualityTest is created with a user-defined type called Test. Test has three members: Alpha, Beta, and Gamma. Whenever a transaction enters this activity, the QualityTest attribute is evaluated and its value determines the path.</p>

---

{button Related Topics,PI('','modeling\_rtf\_546791')}

[Properties dialog box](#)

[Properties dialog box - Outputs tab](#)

[Properties dialog box - Outputs tab: Case Text options](#)

[Properties dialog box - Outputs tab: Stopping Outputs options](#)

[Properties dialog box - Outputs tab: When Transactions Are Complete](#)

To create a decision

To locate the decision activities - Now Try This

## Decision Activities - Now Try This

{button Tell me how...,PI(``,`modeling\_rtf\_546873')}

{button Previous,JI(`>procedur`,`modeling\_rtf\_412357')}

The process diagram for a Decision Phone Tree shows the path that an incoming phone call takes. Depending on the type of call, it is routed as a voice or data call. Furthermore, the data calls are answered either by a modem or a fax line. A fax is routed as an Office, Staff, or Report fax.

For this exercise, each Decision activity is drawn using a different symbol (a diamond, box, or circle).

{button Next,JI(`>procedur`,`modeling\_rtf\_415914')}

---

{button Related Topics,PI(``,`modeling\_rtf\_546867')}

## Decision

[To open the exercise data for decision activities - Now Try This](#)

[To locate the decision activities - Now Try This](#)

[To use trace mode to view decision activities - Now Try This](#)

**To open the exercise data for decision activities - Now Try This**

{button Previous,JI('>concept','modeling\_rtf\_415869')}

- 1 On the File menu, click Open.
- 2 Select iGrafx\Pro\8.0\Exercise\Ex2dec.igx, and click Open
- 3 If necessary, click Maximize on the Ex2dec.igx - Process1 window.

{button Next,JI('>procedur','modeling\_rtf\_415956')}

{button Related Topics,PI('','modeling\_rtf\_546912')}

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[Defining Activity Outputs](#)

[Properties dialog box - Outputs tab: Case Text options](#)

[To create a decision](#)

[To locate the decision activities - Now Try This](#)

[To use trace mode to view decision activities - Now Try This](#)



### To locate the decision activities - Now Try This

{button Previous,JI('>procedur','modeling\_rtf\_415914')}

- 1 Double-click the activity labeled Incoming line.
- 2 In the Properties dialog box, choose the Outputs tab, and review the Decision text to verify that a transaction takes the Voice path 50% of the time and Data the other 50%.

Do not change the activity.

- 3 Without closing the dialog box, click to select the activity labeled Data line. (You might have to move the Properties dialog box.)

The Outputs tab is updated for the selected activity.

- 4 Review the Decision text to verify that a transaction takes the Modem 1 path 33% of the time, the Modem 2 path 33%, and the Fax path 33%.
- 5 Without closing the dialog box, click to select the activity labeled 1.
- 6 Review the Decision text to verify that a transaction takes the unlabeled path 50% of the time and the Office path the other 50%.
- 7 Without closing the dialog box, click to select the activity labeled 2.
- 8 Review the Decision text to verify that a transaction takes the Report path 50% of the time and the Staff path the other 50%.
- 9 Click Cancel.

{button Next,JI('>procedur','modeling\_rtf\_416008')}

---

{button Related Topics,PI('','modeling\_rtf\_546959')}

[Properties dialog box - Outputs tab: Case Text options](#)

[Defining Activity Outputs](#)

[Decision](#)

[To create a decision](#)


[To open the exercise data for decision activities - Now Try This](#)

[To use trace mode to view decision activities - Now Try This](#)

## To use trace mode to view decision activities - Now Try This

In this exercise, use the trace mode to graphically display how a decision activity determines the path of a transaction.


- 1 If necessary, click Maximize on the Ex2dec.igx - Process1 window.

- 2  On the Model toolbar, click the Trace tool.

or

On the Model menu, point to Run, and then click Trace.

The Ex2dec.igx - Process1 diagram is now in trace mode.

- 3  On the Model toolbar, click the Start tool.

This starts the simulation. Transactions enter the process on a regular basis whenever a resource is available to process them. Watch as a transaction enters one of the Decision activities and is routed down one of the output paths.

### Tip

Use the trace tools on the Trace toolbar to step, pause, stop, or start the simulation.

After the simulation run is complete, the report window appears with the results of the simulation.

- 4 On the File menu, click Close.

This is the end of this exercise. You can save your changes.

{button Next,JI('>concept','modeling\_rtf\_416271')}

{button Related Topics,PI('','modeling\_rtf\_547018')}

[Properties dialog box - Outputs tab: Case Text options](#)

[Defining Activity Outputs](#)

[To open the exercise data for decision activities - Now Try This](#)

[To locate the decision activities - Now Try This](#)

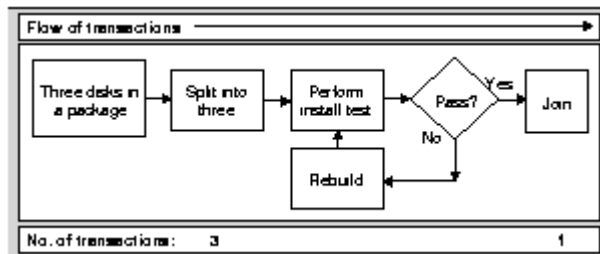
## Splitting Activity Outputs

{button Tell me how...,PI('','modeling\_rtf\_547114')}

You can split the transaction in the output of an activity to model work performed simultaneously by different departments or resources. The split transactions can be further processed and joined back together, then a single transaction can continue.

The new transactions are created with the same attribute values as the original.

For example, after a software product has been developed, it is written to three floppy disks. An installation test is performed on each disk. After all three disks have passed, the product is joined together and ready to ship.



---

{button Related Topics,PI('','modeling\_rtf\_547100')}

## Explicit and Implicit Splits

{button Tell me how...,PI('`,`modeling\_rtf\_547114')}

You can model parallel activities using an explicit Split activity, or, more commonly, you create multiple paths from any single symbol (this is called an implicit split). If you draw multiple paths from one activity to create an implicit split, you do not need to set an explicit Split activity.

---

{button Related Topics,PI('`,`modeling\_rtf\_547100')}

## When a Transaction Splits

{button Tell me how...,PI('',`modeling\_rtf\_547114')}

- One or more duplicate transactions are created.
- All of the transactions are assigned to the same family.
- The new transactions have the same attribute assignments of the original transaction. (An exception is when they are split by attribute member.)
- The new transactions share the same resource acquisitions (those that were explicitly acquired) as the original transaction.

Split transactions can be recombined by joining inputs at other activities. A join can collect the transactions by family so that only members of the same split family are joined. This ensures that members of other families are not joined with the split transactions.

---

{button Related Topics,PI('',`modeling\_rtf\_547100')}

[Options For Splitting By Count](#)  
[Member Split](#)  
[Options For Splitting By Member](#)



[To find where the transaction splits and joins - Now Try This](#)

[Properties dialog box - Outputs tab: Case Text options](#)

[To locate the decision activities - Now Try This](#)

[To create split outputs](#)

**To create split outputs**

- 1 Double-click any symbol to display the Properties dialog box.
- 2 Choose the Outputs tab.
- 3 Select Split and type in a number of transactions created by the split in the Count text box.
- 4 Click Apply.

---

{button Related Topics,PI('`,`modeling\_rtf\_547161')}

[Defining Activity Outputs](#)

[Splitting Activity Outputs](#)

[Options For Splitting By Count](#)

[Member Split](#)

[To join inputs](#)

[To find where the transaction splits and joins - Now Try This](#)

[To join the transactions - Now Try This](#)

## Options For Splitting By Count

{button Tell me how...,PI('`,`modeling\_rtf\_547225')}

The count is the number of transactions created by the split. The count can be a simple number or an expression. You can use the Expression toolbar to create the expression.

**Note**

A split is created implicitly by having multiple connection lines from one activity.

---

{button Related Topics,PI('`,`modeling\_rtf\_547207')}

[Using Expressions](#)

[Splitting Activity Outputs](#)

[Member Split](#)

[Options For Splitting By Member](#)

To find where the transaction splits and joins - Now Try This  
Properties dialog box - Outputs tab: Case Text options  
To create split outputs

## Member Split

{button Tell me how...,PI('`,`modeling\_rtf\_547313')}

An alternate method for splitting is to split the transaction into a count equal to the number of members of an attribute type. The split transactions can later be joined by attribute member.

---

{button Related Topics,PI('`,`modeling\_rtf\_547303')}

## Options For Splitting By Member

{button Tell me how...,PI('`,`modeling\_rtf\_547313')}

When an activity splits outputs by member, you choose or create an attribute to specify the count. If you choose this option, the number of transactions created is equal to the number of members in the type. Furthermore, each transaction has its own unique value set for the attribute. This option is only valid with transaction attributes whose type is other than Number, so the list of transaction attributes is limited to valid attributes.

For example, an attribute named Flag has a type of YesNo. When you split by this attribute, two transactions are created; the first has a Flag attribute set to No, the second Yes.

---

{button Related Topics,PI('`,`modeling\_rtf\_547303')}



Splitting Activity Outputs

Options For Splitting By Count

To find where the transaction splits and joins - Now Try This  
To create split outputs

## Transaction Splits - Now Try This

{button Tell me how...,PI('',`modeling\_rtf\_547385')}

{button Previous,JI('>procedur',`modeling\_rtf\_416008')}

An editor divides a document into individual chapters for review by three different reviewers. (This splits the transaction.) The reviewers work in parallel. Afterwards, the editor completes the review. In this exercise, review some of the effects when a transaction splits.

{button Next,JI('>procedur',`modeling\_rtf\_416328')}

---

{button Related Topics,PI('',`modeling\_rtf\_547367')}

[Transaction Groups](#)

[Splitting Activity Outputs](#)

[Options For Splitting By Count](#)

[Options For Splitting By Member](#)

[To review activities - Now Try This](#)

[To join the transactions - Now Try This](#)

[To run the simulation again - Now Try This](#)

**To open the exercise data for Transaction Splits - Now Try This**

{button Previous,JI('>concept','modeling\_rtf\_416271')}

- 1 On the File menu, click Open.
- 2 Select iGrafx\Pro\8.0\Exercise\Ex4split.igx, and click OK.
- 3 If necessary, click Maximize on the Ex4split.igx - Process1.

{button Next,JI('>procedur','modeling\_rtf\_416362')}

{button Related Topics,PI('','modeling\_rtf\_547424')}

---

[To review activities - Now Try This](#)

[To join the transactions - Now Try This](#)

[To run the simulation again - Now Try This](#)

## To review activities - Now Try This

{button Previous,JI('>procedur','modeling\_rtf\_416328')}

- 1 Review the activity labeled Assign reviews.

Do not change the activity.

The activity explicitly splits outputs to three departments. The three outgoing connection lines automatically split the transaction.

- 2 Review the activity labeled Compile comments.

- 3 This activity implies that the transactions are being joined, because of the incoming lines. However, there is not any implicit join so the transactions continue individually.

{button Next,JI('>procedur','modeling\_rtf\_416416')}

---

{button Related Topics,PI('','modeling\_rtf\_547476')}



Defining Activity Outputs

Activity Base

To create an activity and define the activity properties

To assign colors to different value activity classes

To locate the decision activities - Now Try This

To open the exercise data for Transaction Splits - Now Try This

To join the transactions - Now Try This

To run the simulation again - Now Try This

### To join the transactions - Now Try This

```
{button Previous,JI('>procedur','modeling_rtf_416362')}
```

- 1 On the Window menu, select Ex4split.igx - Process1.
- 2 Double-click the activity labeled Compile comments.
- 3 On the Properties dialog box, choose the Inputs tab.
- 4 For Collection, use the scrolling list to choose Join.
- 5 For the type of join, select Entire Family.
- 6 Click OK.

This changes the activity so that it joins inputs instead of processing them individually.

```
{button Next,JI('>procedur','modeling_rtf_416484')}
```

```
{button Related Topics,PI('','modeling_rtf_547535')}
```

---

[About Transactions](#)

[About a Transaction Family](#)

[Joining](#)

[When to Join Inputs](#)

[Joining by Family](#)

[When a Transaction Enters a Subprocess](#)

[Transaction Flow Constraints](#)

[To open the exercise data for Transaction Splits - Now Try This](#)


[To review activities - Now Try This](#)

[To find where the transaction splits and joins - Now Try This](#)

[To run the simulation again - Now Try This](#)

### To run the simulation again - Now Try This

{button Previous,JI('>procedur','modeling\_rtf\_416416')}

- 1  On the Model toolbar, click the Start tool.

or

On the Model menu, point to Run, then click Start.

#### Tip

You can also enable trace mode by first clicking Trace and then clicking Start.

- 2 Verify that the field containing the number of transactions has changed.

The field shows that only 1 transaction has been processed, instead of the previous 3. This is because of the Join activity.

#### Note

On the File menu, click Close.

This is the end of this exercise. You can save your changes.

---

{button Related Topics,PI('','modeling\_rtf\_547602')}

[About Activity Processing](#)

[To open the exercise data for Transaction Splits - Now Try This](#)

[To review activities - Now Try This](#)

[To join the transactions - Now Try This](#)

## Stopping Activity Outputs

{button Tell me how...,PI('',`modeling\_rtf\_547646')}

If you stop processing, this can terminate the current transaction and some or all of the transaction's family members. You can use this feature to synchronize or coordinate parallel paths.

---

{button Related Topics,PI('',`modeling\_rtf\_547636')}

Stop Transaction

Stop Family

To remove a resource from an activity

To stop outputs



## Properties dialog box - Outputs tab: Stopping Outputs options

{button Tell me how...,PI('','modeling\_rtf\_547696')}

The Stopping Outputs options define when and how transactions stop.

Element	Description
Always	Stops all transactions reaching this activity.  For example, if credit is not approved, all of the orders from that company are stopped.
Expression	Stops only transactions whose values equal this expression.  For example, in a catsup bottling plant, the catsup must be bottled and capped within twenty minutes. As each batch of catsup is processed for bottling, its preparation time is examined. If any batch is older than twenty minutes, it is stopped.

---

{button Related Topics,PI('','modeling\_rtf\_547674')}

[Properties dialog box](#)

[Properties dialog box - Outputs tab](#)

[Properties dialog box - Outputs tab: Case Text options](#)

[Properties dialog box - Outputs tab: Decision options](#)

[Properties dialog box - Outputs tab: When Transactions Are Complete](#)

To stop outputs

**To stop outputs**

- 1 Double-click any symbol to display the Properties dialog box.
- 2 Choose the Outputs tab.
- 3 Select Stop and define the criteria Always or Expression.
- 4 If necessary, click Stop Transaction or Stop Family.
- 5 Click Apply.

---

{button Related Topics,PI('`,`modeling\_rtf\_547710')}

[Defining Activity Outputs](#)

[Stop Transaction](#)

[Stop Family](#)

[To remove a resource from an activity](#)

[To create split outputs](#)

[To run the simulation again - Now Try This](#)

## Stop Transaction

{button Tell me how...,PI('`,`modeling\_rtf\_547778')}

The current transaction is stopped if it matches the criteria that you set for Always or Expression. The transaction is stopped regardless of any connection lines that might be drawn as outputs from the symbol. If this box is not checked, the current transaction continues.

For example, when a job application is submitted to an employment agency, it is evaluated by the admissions clerk. If there is not a job opening, the clerk sends a letter to the applicant and files the application. At this point, the application (the current transaction) stops.

---

{button Related Topics,PI('`,`modeling\_rtf\_547752')}

[About Transactions](#)

[About a Transaction Family](#)

[When a Transaction Enters a Subprocess](#)

[Stopping Activity Outputs](#)

[Stop Family](#)

[Transaction Flow Constraints](#)

[To find where the transaction splits and joins - Now Try This](#)

[To join the transactions - Now Try This](#)

[To stop outputs](#)



## Stop Family

{button Tell me how...,PI('`,`modeling\_rtf\_547830')}

All transaction family members are stopped if they match the criteria that you set for Always or Expression. If this box is not checked, only the current transaction can be stopped.

For example, petitions are submitted to an assembly to be placed on an upcoming docket.

A petition is rejected:

- If the signatures on the petition are not valid.
- If the petition does not meet basic criteria.
- If the petition was not circulated legally.

Different committees examine the petitions for these three criteria. If any committee rejects a petition, it is automatically pulled from consideration by the other committees.

---

{button Related Topics,PI('`,`modeling\_rtf\_547808')}

[About a Transaction Family](#)

[Joining by Family](#)

[Forcing From Family](#)

[Stopping Activity Outputs](#)

[Stop Transaction](#)

To remove a resource from an activity

To stop outputs

## Reviewing Activity Statistics Summary

{button Tell me how...,PI(``,`modeling\_rtf\_547894`)}

The summary tab contains comments and statistics about the activity.

---

{button Related Topics,PI(``,`modeling\_rtf\_547856`)}

[Modeling Activities](#)

[Properties dialog box](#)

[Reviewing Simulation Report Results](#)

[Using the Report Window to Review Transaction Statistics](#)

[Using the Report Window to Review Activity Statistics](#)

[Using the Report Window to Review Resource Statistics](#)

[Creating Custom Statistics in the Report Window](#)

[Using Department Statistics](#)

To display activity statistics

## Properties dialog box - Summary tab

{button Tell me how...,PI('`,`modeling\_rtf\_547972')}

The Properties Summary tab displays statistics about the activity. These statistics are specific to the activity you selected and are from the last simulation that you ran.

### Tip

To display selected activity statistics in the process diagram, use the Fields command on the Format menu.

---

{button Related Topics,PI('`,`modeling\_rtf\_547934')}

[Properties dialog box](#)

[Reviewing Activity Statistics Summary](#)

[About Transaction Attributes](#)

[Reviewing Simulation Report Results](#)

[Using the Report Window to Review Transaction Statistics](#)

[Using the Report Window to Review Activity Statistics](#)

[Using the Report Window to Review Resource Statistics](#)

[Creating Custom Statistics in the Report Window](#)

[Using Department Statistics](#)



To display activity statistics

**To display activity statistics**

- 1 Double-click any symbol to display the Properties dialog box.
- 2 Choose the Summary tab.
- 3 Choose Statistics from the scrolling list.

A list of available statistics is displayed. These statistics are specific to this activity for the last simulation that has been run. The statistics are only available after the model is run.

---

{button Related Topics,PI('`,`modeling\_rtf\_547986')}

## Reviewing Activity Statistics Summary

## About Activity Processing

{button Tell me how...,PI('','modeling\_rtf\_548034')}

The simulation generator sends transactions through the process at predetermined times. A transaction follows the process diagram through the paths that you draw to connect symbols.

As a transaction enters an activity, a number of actions happen. (All of these actions are optional and have smart defaults.) The actions, which always happen in the same order, are shown in the following illustration.

When a transaction arrives at an activity, the simulator performs the following actions, in order:

- 1 Acquires waiting resources

The simulator acquires the resources that are assigned to the transaction for the activity, even if the transaction has to wait for any reason.

This happens only for resources that you have defined to wait until the transaction can be processed. The resource's time can therefore be classified as waiting if the transaction is held up because of other constraints.

- 2 Receives or waits on input collection constraints

Next, the simulator waits for any input collection constraints to be met. These are collection constraints that you have set.

- 3 Acquires non-waiting resources

The simulator acquires any resources that will automatically release if the transaction has to wait for any reason. They will be reacquired when the transaction can continue.

These are called non-waiting resources because you have defined them to not wait if the transaction is held up.

- 4 Sets before duration attributes

The simulator calculates any duration expressions and sets any attribute values that you have defined to happen before the duration.

- 5 Takes duration or calls subprocess

The simulator accrues the amount of time that you set for its duration. Also at this point, it increments the cost for the activity. The cost is determined by the combination of resources used and the activity cost that you set.

- 6 Sets after duration attributes

The simulator sets any attribute values that you have defined to happen after the duration.

- 7 Releases resources

The simulator releases all resources that you have set to be released, including ones that are used only for this activity.

- 8 Sends outputs

The simulator dispatches any output transactions. At this point the transaction takes different routes depending on decision or case criteria, or it can split or stop.

- 9 Updates summary and field text

The simulator adds time, cost, and other information for this transaction into the summary page.

---

{button Related Topics,PI('`,`modeling\_rtf\_548024')}

[A Process in Action](#)

[About the Transaction Flow](#)

[To create an activity and define the activity properties](#)

[To define resource characteristics](#)

[To add a resource to an activity](#)

[To remove a resource from an activity](#)

[To use resources by department](#)

## Transaction Flow Constraints

{button Tell me how...,PI('','modeling\_rtf\_548078')}

A transaction ordinarily moves as far along the flow from activity to activity as it can. However, transactions can be held up due to any of the following conditions.

Transactions follow the process flow created by the different activities in the process diagram. Imagine that the transaction is a marker in a board game. At each turn, you move one marker with your index finger as far as that marker can go, based on the roll of the die. As long as the marker is moving, you keep your finger on it. When the marker must stop, you remove your finger and go to another marker. Transactions work the same way. Your index finger represents the simulator.

The simulator moves the transaction until one of these occurs:

- The transaction completes, or
- The transaction has work to do (at an activity, for example), or
- The transaction must wait for a resource to continue, or
- A transaction must wait for some other constraint (see above).

A transaction is complete (for example, it no longer exists) when one of these conditions is met:

- A transaction reaches an endpoint. A transaction moves until it reaches an activity that does not have any outgoing connection lines. (In the case of a transaction that is in a subprocess, the transaction returns to its original process until it reaches an endpoint.)
- The simulation time runs out. (This is the amount set in the Run Setup dialog box.) After the simulation time is over, the generator cannot create any more transactions, even if it is not finished. Any transactions left in the middle of the process flow are stopped and do not count as completed transactions in the report statistics. However, a stopped transaction is still counted as part of the statistical calculations for any activity or resource that processed it before the simulation time ran out.

---

{button Related Topics,PI('','modeling\_rtf\_548072')}



## About Activity Processing

[To join the transactions - Now Try This](#)

## Properties dialog box - Outputs tab: When Transactions Are Complete

{button Tell me how...,PI('`,`modeling\_rtf\_548124')}

The Outputs options that apply when transactions are complete define the input collection constraints, resources availability, activity schedule, and capacity.

Element	Description
Input collection constraints	These constraints include batching by time, batching by gate, and any batching or joining that collects inputs.
Resource availability	A resource can be unavailable if it has schedule or acquisition limits. This occurs when the resource is busy or out of service. If resources are unavailable, the transaction must wait until they become available again.
Activity schedule	Activity schedules provide constraints. For example, the activity can process transactions only during certain time periods.
Capacity	Capacity limits are set by the number of transactions that the activity can process at the same time. This includes physical constraints and other resources.

---

{button Related Topics,PI('`,`modeling\_rtf\_548102')}

[Properties dialog box](#)

[Properties dialog box - Outputs tab](#)

[Properties dialog box - Outputs tab: Case Text options](#)

[Properties dialog box - Outputs tab: Decision options](#)

[Properties dialog box - Outputs tab: Stopping Outputs options](#)

To find where the transaction splits and joins - Now Try This

To join the transactions - Now Try This

## **Reviewing General Activity Settings**

This tab displays general settings for the activity.

## Properties dialog box - General tab

{button Tell me how...,PI('',`modeling\_rtf\_548182')}

The General Properties tab describes the name and object ID and enables you to resize the shape and add links.

Element	Description
Name	Provides the name of the selected shape.
Object ID	Provides the uneditable, system-generated ID number for the object.
Resize Proportionally	Resizes a shape proportionally.
Grow to Fit Text	Resizes a shape as text is typed.
Links	Lets you add a link to a shape or edit, delete, or activate a link.
Subprocess	Displays links that you can assign as subprocesses to links in the Links list.

---

{button Related Topics,PI('',`modeling\_rtf\_548172')}

Properties dialog box



To create an activity and define the activity properties

## Reviewing and Defining Activity Custom Data

{button Tell me how...,PI('',`modeling\_rtf\_548230')}

This tab displays the fields and the data in the fields for the shapes in the process model. It lists the currently defined fields for diagrams.

The order of the fields in this list shows the order in which the fields are displays in the diagram.

The Custom Data displays in reports and diagrams.

---

{button Related Topics,PI('',`modeling\_rtf\_548220')}

Properties dialog box

Properties dialog box - Custom Data tab

[To set up a custom data field](#)

[To change the order of a custom data field](#)

[To change a custom data field](#)

[To delete a custom data field](#)

[To change the hours per day and days per week](#)

## Properties dialog box - Custom Data tab

{button Tell me how...,PI('`,`modeling\_rtf\_548276')}

The Custom Data tab lets you add data fields to the activities.

Element	Description
Custom data field	The data field name is provided on the left. The text box on the right lets you add or modify the data in the field.
Text in lower left corner	Shows what the data format for that field is.
Setup	Opens the Setup Custom Data dialog box to let you create or modify a data field for the selected shape.

---

{button Related Topics,PI('`,`modeling\_rtf\_548270')}

Properties dialog box

[To set up a custom data field](#)

[To change the order of a custom data field](#)

[To change a custom data field](#)

[To delete a custom data field](#)

[To change the hours per day and days per week](#)

### To set up a custom data field

- 1 On the Edit Menu, click Properties, and then click the Custom Data tab.

or

Right-click the activity, click Properties, and then click the Custom Data tab.

- 2 Click Setup.

The Custom Data dialog box appears.

- 3 Type a name in the Field Name box (for example, Cost or Cycle Time).

- 4 Click the down arrow beside the Field Type box.

- 5 Scroll through the field types, and select one.

- 6 Click the down arrow beside the Accumulation Method box.

- 7 Scroll through the methods and select one.

- 8 Click the down arrow beside the Field Format box.

- 9 Scroll through the formats and select one.

- 10 Select the Hidden Field option to hide the field in the chart.

- 11 Click Add.

- 12 Click OK.

---

{button Related Topics,PI('`,`modeling\_rtf\_548306')}



[Properties dialog box](#)

[Reviewing General Activity Settings](#)

[To change the order of a custom data field](#)

[To change a custom data field](#)

[To delete a custom data field](#)

[To change the hours per day and days per week](#)

**To change the order of a custom data field**

1 On the Edit Menu, click Properties, and then click the Custom Data tab.

or

Right-click the activity, click Properties, and then click the Custom Data tab.

2 Click Setup

3 Highlight the field name to select it, and drag the selection to its new position.

4 Click OK.

---

{button Related Topics,PI('`,`modeling\_rtf\_548340')}

[Properties dialog box](#)

[Reviewing General Activity Settings](#)

[To set up a custom data field](#)

[To change a custom data field](#)

[To delete a custom data field](#)

[To change the hours per day and days per week](#)

**To change a custom data field**

1 On the Edit Menu, click Properties, and then click the Custom Data tab.

or

Right-click the activity, click Properties, and then click the Custom Data tab.

2 Click Setup

3 Select the field name.

4 Modify the Name, Type, Format, or Accumulation Method, and click Change.

5 Click OK.

---

{button Related Topics,PI('','modeling\_rtf\_548374')}

[Properties dialog box](#)

[Reviewing General Activity Settings](#)

[To set up a custom data field](#)

[To change the order of a custom data field](#)

[To delete a custom data field](#)

[To change the hours per day and days per week](#)

**To delete a custom data field**

1 On the Edit Menu, click Properties, and then click the Custom Data tab.

or

Right-click the activity, click Properties, and then click the Custom Data tab.

2 Click Setup.

3 Select the field name.

4 Click Delete.

5 Click OK.

6 In the warning box, click Yes if you want to continue.

---

{button Related Topics,PI('`,`modeling\_rtf\_548408')}

[Properties dialog box](#)

[Reviewing General Activity Settings](#)

[To set up a custom data field](#)

[To change the order of a custom data field](#)

[To change a custom data field](#)

[To change the hours per day and days per week](#)

**To change the hours per day and days per week**

- 1 On the Edit Menu, click Properties, and then click the Custom Data tab.

or

Right-click the activity, click Properties, and then click the Custom Data tab.

- 2 Click Setup.

- 3 Click Options.

The Custom Data Options dialog box appears.

- 4 Modify the Hours Per Day and Days Per Week, and click OK.

- 5 Click OK.

---

{button Related Topics,PI('`,`modeling\_rtf\_548442')}



[Properties dialog box](#)

[Reviewing General Activity Settings](#)

[To set up a custom data field](#)

[To change the order of a custom data field](#)

[To change a custom data field](#)

[To delete a custom data field](#)



## Using the Tabular View

{button Tell me how...,PI('`,`editing\_\_rtf\_56053')}

Process diagrams can be viewed using the normal (graphical) view or the tabular view. Both views contain the same data and can be used to define a process diagram. Use the tabular view for the following:

- If you prefer entering or editing data using tables instead of graphics
- If you have a large amount of data to enter

---

{button Related Topics,PI('`,`editing\_\_rtf\_56031')}

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Connecting Symbols in Tables](#)

[Changing Styles in Tables](#)

[Moving, Copying, and Deleting Cells](#)

[To edit process data using the tabular view](#)  
[To switch to normal \(graphical\) view](#)  
[To switch to tabular view](#)  
[To choose which columns to display in the tabular view](#)  
[To create a process diagram and add data using the tabular view](#)  
[To connect symbols \(activities\) using the tabular view](#)  
[To create connections between cells - Now Try This](#)  
[To select one or more cells in the tabular view](#)  
[To move one or more cells in the tabular view](#)  
[To copy and paste a cell in the tabular view](#)  
[To cut or delete cells in the tabular view](#)  
[To change the font, fill, or border in the tabular view](#)  
[To change the line or arrow in the tabular view](#)  
[To change the line and arrow style in the tabular view](#)  
[To change the font, and add a shadow in the tabular view](#)

## About Tables in the Tabular View

{button Tell me how...,PI('`,` editing\_\_rtf\_56165')}

Select the Tabular command on the View menu to change the view of the active process diagram from normal to tabular. The tabular view consists of a process table that contains the process diagram data. A unique cell name (row name) is assigned for each department and activity) in the table. Connections to other symbols appear in the last column of the table as references to other cell names (A1 to B3).

A monitor appears in the tabular view as a small clock character to the left of the cell name. A start point appears as rounded rectangle inside the cell name.

---

{button Related Topics,PI('`,` editing\_\_rtf\_56139')}

[Using the Tabular View](#)

[Viewing Columns in Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Connecting Symbols in Tables](#)

[Changing Styles in Tables](#)

[Moving, Copying, and Deleting Cells](#)

[To edit process data using the tabular view](#)

[To switch to normal \(graphical\) view](#)

[To switch to tabular view](#)

[To choose which columns to display in the tabular view](#)

[To create a process diagram and add data using the tabular view](#)

[To connect symbols \(activities\) using the tabular view](#)

[To create connections between cells - Now Try This](#)

[To delete a connection](#)

[To move a connection](#)

[To add a department and copy in activities in the tabular view - Now Try This](#)



### To switch to normal (graphical) view

- ▶ On the View menu, click Normal.  
The process diagram is represented by symbols and directed lines.

---

{button Related Topics,PI('','editing\_\_rtf\_56215')}

[To switch to tabular view](#)

[To create a process diagram and add data using the tabular view](#)

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

### To switch to tabular view

- ▶ On the View menu, click Tabular.  
The process diagram is represented in a process table.

---

{button Related Topics,PI('','editing\_\_rtf\_56241')}

[To switch to normal \(graphical\) view](#)

[To create a process diagram and add data using the tabular view](#)

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

**To edit process data using the tabular view**

- 1 Open an existing process diagram.
- 2 On the View menu, click Tabular.

The process diagram is represented in a process table.

---

{button Related Topics,PI('','editing\_\_rtf\_56267')}

[To create a process diagram and add data using the tabular view](#)

[To select one or more cells in the tabular view](#)

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Connecting Symbols in Tables](#)

[Changing Styles in Tables](#)

[Moving, Copying, and Deleting Cells](#)

## Using the Tabular View to Add Data to a Process Diagram

{button Tell me how...,PI('',`editing\_\_rtf\_56343')}

You can create a process diagram by entering all the data in the tabular view. You can switch back and forth between the tabular and normal (graphical) views using the Normal and Tabular commands on the View menu.

---

{button Related Topics,PI('',`editing\_\_rtf\_56313')}

[Using the Tabular View](#)

[Viewing Columns in Tabular View](#)

[About Tables in the Tabular View](#)

[Connecting Symbols in Tables](#)

[Changing Styles in Tables](#)

[Moving, Copying, and Deleting Cells](#)



[To create a process diagram and add data using the tabular view](#)

[To connect symbols \(activities\) using the tabular view](#)

[To create connections between cells - Now Try This](#)

[To delete a connection](#)

[To move a connection](#)

[To switch to normal \(graphical\) view](#)

[To switch to tabular view](#)

[To add a department and copy in activities in the tabular view - Now Try This](#)

### To create a process diagram and add data using the tabular view

1 On the File menu, point to New, and click Process.

2 On the View menu, choose Tabular.

An arrow appears after the first symbol to indicate where the next activity that you create will be placed. The first cell is A1.

3 Press Enter to create a new row for an activity.

The dark border indicates that an activity is selected. The second cell is A2.

4 Enter the text that you want placed in the symbol.

5 After you finish entering text, press Enter to create a new activity.

The placement of the symbols is automatically set for a connection line between symbols. You can change the symbol placement in the normal view.

6 To edit the activity properties, double-click in the selected activity area.

7 On the Properties dialog box, change the activity type, set attributes, or specify functions in the same way as in normal view. You can switch back to normal view while you are editing.

---

{button Related Topics,PI('','editing\_\_rtf\_56385')}

## Using the Tabular View

## Using the Tabular View to Enter Model Data - Now Try This

{button Tell me how...,PI('','editing\_\_rtf\_56433')}

Friendly Bank, a small local company, has recently installed four bank machines and a central computer. They want to optimize the use of their machines so they are documenting the process. Begin by opening a blank process.

{button Next,JI('>procedur','editing\_\_rtf\_50371')}

---

{button Related Topics,PI('','editing\_\_rtf\_56411')}

[Using the Tabular View](#)

[Creating Connections Between Cells - Now Try This](#)

[Changing Fonts and Shadows - Now Try This](#)

[Using Copy and Paste in the Tabular View - Now Try This](#)

[To open a blank process, and switch to the tabular view - Now Try This](#)

[To document a process using the tabular view - Now Try This](#)

[To create a process diagram and add data using the tabular view](#)

[To switch to normal \(graphical\) view](#)

**To open a blank process, and switch to the tabular view - Now Try This**

{button Previous,JI('>concept','editing\_\_rtf\_50315')}

- 1 On the File menu, click Close to close any iGrafx *Process* files that are open.
- 2 On the File menu, point to New, and click Process.
- 3 On the View menu, choose Tabular.
- 4 On the View menu, choose Columns.

The Columns command is not available unless you are in Tabular view.

- 5 Clear any columns that are checked.

This removes optional columns and leaves the core information about the activities, their connections, and formats.

{button Next,JI('>procedur','editing\_\_rtf\_6663')}

---

{button Related Topics,PI('', 'editing\_\_rtf\_56476')}

[Viewing Columns in Tabular View](#)

[Properties dialog box](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)



### To document a process using the tabular view - Now Try This

{button Previous,JI('>procedur','editing\_\_rtf\_50371')}

- 1 Press Enter, and type this text in A2: Verify code
- 2 Press Enter and type this text in A3: Get request
- 3 Press Enter and type this text in A4: Interpret request
- 4 Press Enter and type this text in A5: Approve
- 5 On the View menu, choose Normal.

The activities have the default symbol and do not connect at this point. The default symbol is either the rectangle or a symbol that you have defined as the default symbol.

- 6 If you cannot see all of the symbols, use the Zoom tool to adjust the view (a good choice is All).
- 7 On the View menu, click Tabular to view the table again.

---

{button Related Topics,PI('','editing\_\_rtf\_56511')}

[To open a blank process, and switch to the tabular view - Now Try This](#)

## Connecting Symbols in Tables

{button Tell me how...,PI('',`editing\_\_rtf\_56559')}

You can connect symbols in a table by using the mouse to choose the source and destination symbols. The appropriate attachment point is automatically selected.

---

{button Related Topics,PI('',`editing\_\_rtf\_56533')}

[Using the Tabular View](#)

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Changing Styles in Tables](#)

[Moving, Copying, and Deleting Cells](#)

[Creating Connections Between Cells - Now Try This](#)

[To connect symbols \(activities\) using the tabular view](#)

[To delete a connection](#)

[To move a connection](#)

[To create connections between cells - Now Try This](#)

### To connect symbols (activities) using the tabular view

- 1 On the View menu, click Tabular.
- 2 Cancel the selection of any cells.

Place the arrow cursor in the source symbol.



- 3 Press and drag the mouse button to the destination symbol.



- 4 Release the mouse button.

The connection remains selected until you perform an action such as pressing Enter to create another activity.  
The attachment point and the symbol placement are automatic.

---

{button Related Topics,PI('','editing\_\_rtf\_56585')}

## Connecting Symbols in Tables

**To delete a connection**

- 1 On the View menu, click Tabular.
- 2 Click the connection that you want to delete.
- 3 On the Edit menu, click Delete.

or

Press the Delete key.

---

{button Related Topics,PI('`,`editing\_\_rtf\_56599')}



[Connecting Symbols in Tables](#)

[To move a connection](#)

[To create connections between cells - Now Try This](#)

### To move a connection

► To move a connection line, delete the old connection and create a new one.

---

{button Related Topics,PI('`,`editing\_\_rtf\_56585')}

To connect symbols (activities) using the tabular view

To delete a connection

## Creating Connections Between Cells - Now Try This

{button Tell me how...,PI('','editing\_\_rtf\_56672')}

In the previous exercise you learned about Friendly Bank's efforts to document a standard process for their new bank machines. You created a basic table to model some of the actions of the bank machine.

{button Next,JI('>procedur','editing\_\_rtf\_6723')}

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{button Related Topics,PI('','editing\_\_rtf\_56650')}

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Changing Fonts and Shadows - Now Try This](#)

[Using Copy and Paste in the Tabular View - Now Try This](#)

[To create connections between cells - Now Try This](#)

**To create connections between cells - Now Try This**

{button Previous,JI('>concept','editing\_\_rtf\_488')}

- 1 Connect the A1 cell with A2.
- 2 Connect the A2 cell with A3.
- 3 Connect the A3 cell with A4.
- 4 Connect the A4 cell with A5.
- 5 Deselect.
- 6 On the View menu, click Normal to view the connection lines.
- 7 On the View menu, choose Tabular to view the table again.

{button Next,JI('>concept','editing\_\_rtf\_32405')}

---

{button Related Topics,PI('', 'editing\_\_rtf\_56703')}

To create a process diagram and add data using the tabular view

To connect symbols (activities) using the tabular view

To move a connection

To delete a connection

To move one or more cells in the tabular view

To copy and paste a cell in the tabular view

To cut or delete cells in the tabular view



## Viewing Columns in Tabular View

{button Tell me how...,PI('','editing\_\_rtf\_56775')}

The information is stored in columns sorted by modeling topics such as inputs, outputs, and so on. Each topic can have multiple columns (for example, the Task topic display has nine columns of data). You can choose which topics to display using the Columns command on the View menu. This makes it easier to find the information that you need.

---

{button Related Topics,PI('','editing\_\_rtf\_56749')}

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Connecting Symbols in Tables](#)

[Changing Styles in Tables](#)

[Moving, Copying, and Deleting Cells](#)

[Modeling Activities](#)

[To choose which columns to display in the tabular view](#)

[To create connections between cells - Now Try This](#)

[To select one or more cells in the tabular view](#)

[To move one or more cells in the tabular view](#)

[To copy and paste a cell in the tabular view](#)

[To cut or delete cells in the tabular view](#)

## Show/Hide Columns dialog box

{button Tell me how...,PI('`editing\_\_rtf\_56843')}

Use this dialog box to choose the activity data that is displayed in the tabular view.

---

{button Related Topics,PI('`editing\_\_rtf\_56813')}

[Properties dialog box](#)

[Modeling Activities](#)

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Connecting Symbols in Tables](#)

[Changing Styles in Tables](#)

[Moving, Copying, and Deleting Cells](#)

[To choose which columns to display in the tabular view](#)

[To create connections between cells - Now Try This](#)

[To select one or more cells in the tabular view](#)

[To move one or more cells in the tabular view](#)

[To copy and paste a cell in the tabular view](#)

[To cut or delete cells in the tabular view](#)

## To choose which columns to display in the tabular view

- 1 On the View menu, choose Columns.

The Show/Hide Columns dialog box appears.

**Note**

The Columns command is not available unless you are in Tabular view.

- 2 Select the columns of tabular information that you want to view.

---

{button Related Topics,PI('',`editing\_\_rtf\_56877')}

[Viewing Columns in Tabular View](#)

[Properties dialog box](#)

[Modeling Activities](#)

[To switch to normal \(graphical\) view](#)



## Changing Styles in Tables

{button Tell me how...,PI('',`editing\_\_rtf\_56933')}

Most menus are available in either normal or tabular view, and the method for editing is usually the same after items are selected.

---

{button Related Topics,PI('',`editing\_\_rtf\_56911')}

[Using the Tabular View](#)

[About Tables in the Tabular View](#)

[Connecting Symbols in Tables](#)

[Moving, Copying, and Deleting Cells](#)

[Changing Fonts and Shadows - Now Try This](#)

To change the font, fill, or border in the tabular view

To change the line or arrow in the tabular view

To change the line and arrow style in the tabular view

To change the font, and add a shadow in the tabular view

**To change the font, fill, or border in the tabular view**

- ▶ To change the fill or border, select the cell area, click the right mouse button, and click Format.
- ▶ To change the font, select the cell area, click the right mouse button, and click Font.

---

{button Related Topics,PI('`editing\_\_rtf\_56967')}

To change the line and arrow style in the tabular view

To change the font, and add a shadow in the tabular view

**To change the line or arrow in the tabular view**

► Select the connection area., click the right mouse button, and click Format.

---

{button Related Topics,PI('','editing\_\_rtf\_56985')}

To change the font, fill, or border in the tabular view

To change the line and arrow style in the tabular view

To change the font, and add a shadow in the tabular view

**To select one or more cells in the tabular view**

- 1 Click a single cell to select it.

The heavier border indicates that the cell is selected.

or

Drag and release the mouse button to select a range of cells.

- 2 Hold the Shift key, and click to select additional cells.
- 3 To cancel a selection, click in an empty place outside the table.

---

{button Related Topics,PI('','editing\_\_rtf\_57015')}



[To create connections between cells - Now Try This](#)

**To change the line and arrow style in the tabular view**

► Select a connection area, right click the mouse button, and click Format.

---

{button Related Topics,PI('','editing\_\_rtf\_57059')}

[To change the font, fill, or border in the tabular view](#)

[To change the line or arrow in the tabular view](#)

[To change the font, and add a shadow in the tabular view](#)

---

{button Related Topics,PI('`,`editing\_\_rtf\_57085')}

To change the line or arrow in the tabular view

To change the line and arrow style in the tabular view

To change the font, and add a shadow in the tabular view

## Changing Fonts and Shadows - Now Try This

{button Tell me how...,PI('','editing\_\_rtf\_57141')}

{button Previous,JI('>concept','editing\_\_rtf\_488')}

In this exercise, your task is to change the font style and add a shadow.

{button Next,JI('>procedur','editing\_\_rtf\_30589')}

---

{button Related Topics,PI('','editing\_\_rtf\_57123')}

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Creating Connections Between Cells - Now Try This](#)

[Using Copy and Paste in the Tabular View - Now Try This](#)

To change the line and arrow style in the tabular view

**To change the font, and add a shadow in the tabular view**

{button Previous,JI('>concept','editing\_\_rtf\_32405')}

- 1 Select all the cells.
- 2 On the Format menu, click Fonts.
- 3 For Font Style, choose Italic.
- 4 For Size, choose 12, and click OK.
- 5 Without canceling the selection, on the Format menu, click Line and Border.
- 6 For Border, click Custom.
- 7 For Shadow Color, choose the light gray (the last color in the list), and click OK.
- 8 Cancel the selection by clicking outside the table.

The text is in an italic font face and the symbols have a gray shadow.

---

{button Related Topics,PI('','editing\_\_rtf\_57171')}



To change the line or arrow in the tabular view

To change the line and arrow style in the tabular view

## Moving, Copying, and Deleting Cells

{button Tell me how...,PI('`,`editing\_\_rtf\_57219')}

After you create a cell, you can move it by selecting it, and then cutting and pasting it using the Clipboard.  
Connections between symbols that are moved using the Clipboard have to be redrawn after the symbol is moved.

---

{button Related Topics,PI('`,`editing\_\_rtf\_57201')}

[Using the Tabular View](#)

[About Tables in the Tabular View](#)

[Using the Tabular View to Enter Model Data - Now Try This](#)

[Using Copy and Paste in the Tabular View - Now Try This](#)

[To move one or more cells in the tabular view](#)

[To copy and paste a cell in the tabular view](#)

[To cut or delete cells in the tabular view](#)

[To add a department and copy in activities in the tabular view - Now Try This](#)

**To move one or more cells in the tabular view**

- 1 Select the cell(s).

Selected cells have a heavier or highlighted border.

- 2 On the Edit menu, choose Cut.

- 3 Move the cursor to the cell directly above the new location and click.

- 4 On the Edit menu, choose Paste.

The cells are renumbered.

- 5 Create a new connection for the pasted cell.

---

{button Related Topics,PI('`,`editing\_\_rtf\_57245')}

To copy and paste a cell in the tabular view

To cut or delete cells in the tabular view

To select one or more cells in the tabular view

**To copy and paste a cell in the tabular view**

- 1 Select the cell.
- 2 On the Edit menu, choose Copy.
- 3 Move the cursor to the cell above the new location and click the cursor.
- 4 On the Edit menu, choose Paste.

---

{button Related Topics,PI("`editing\_\_rtf\_57267")}

To cut or delete cells in the tabular view



**To cut or delete cells in the tabular view**

- 1 Select one or more cells.
- 2 On the Edit menu, choose Cut or Delete

*or*

Press Delete.

---

{button Related Topics,PI('`,`editing\_\_rtf\_57281')}

[To copy and paste a cell in the tabular view](#)

[To move one or more cells in the tabular view](#)

[To create connections between cells - Now Try This](#)

## Using Copy and Paste in the Tabular View - Now Try This

{button Tell me how...,PI('','editing\_\_rtf\_57219')}

The program for the cash machine has two separate routines that process each request. The first routine verifies the code and the second routine interprets the request. In this exercise, your task is to create the second department and copy several activities into it.

{button Next,JI('>procedur','editing\_\_rtf\_32426')}

---

{button Related Topics,PI('','editing\_\_rtf\_57315')}

## Using the Tabular View

[To add a department and copy in activities in the tabular view - Now Try This](#)

### To add a department and copy in activities in the tabular view - Now Try This

{button Previous,JI('>concept','editing\_\_rtf\_698')}

- 1 Cancel any selection by clicking outside the table.
- 2 On the Toolbox toolbar, click the Insert Department tool.
- 3 In the Insert Department dialog box, type the name of the second department: Dept. 2
- 4 Click OK.

A new department is created below the first department.

- 5 Select the A3, A4, and A5 cells.
- 6 On the Edit menu, choose Cut.
- 7 Click in the name area (Dept. 2) for the second department.
- 8 On the Edit menu, click Paste.
- 9 Draw connections between cells B1 and B2, and cells B2 and B3.
- 10 Clear any selected items.
- 11 On the View menu, click Normal to view the process diagram.

This is the end of this exercise. You can save the process diagram.

---

{button Related Topics,PI('',`editing\_\_rtf\_57315')}

## Value Class dialog box

{button Tell me how...,PI('`,`editing\_\_rtf\_57378')}

Use this dialog box to set the cost classifications for an activity. A value class can be Value Added (VA), Business Value Added (BVA) and No Value Added (NVA).

---

{button Related Topics,PI('`,`editing\_\_rtf\_57360')}

[Activity Base](#)

[Setting the Cost Category](#)

[About Resource Costs](#)

[Properties dialog box - Resources tab: Cost Category](#)



To assign colors to different value activity classes

To create an activity and define the activity properties

To set a fixed cost



## Describing Model Behavior Using the Model Commands

Use the commands on the Model menu and the Model toolbar to add attributes, expressions, schedules, events, and functions to your model to analyze process inputs, outputs, and events.

### Tip

The commands on the Model menu are also found on the Model toolbar. On the View menu, click Toolbars to display the Toolbars dialog box. Use this dialog box to display the Model toolbar, to add, and to remove tools from the toolbar.

---

{button Related Topics,PI('`,`describi\_rtf\_1230640')}

[About Transaction Attributes](#)

[Using Global Attributes](#)

[Using Expressions](#)

[Using Functions](#)

[Using System-Defined Functions](#)

[Creating Your Own Functions](#)

[Describing Modeling Behavior - Now Try This](#)

## About Transaction Attributes

{button Tell me how...,PI('`,`describi\_rtf\_1230751')}

Transactions are the tokens that flow through a process. A transaction attribute is a variable that can have a unique value for each transaction. Each transaction can have its own set of attribute values that describe the transaction.

Transaction attribute values are similar to cells in a spreadsheet or a table column. For example, the Priority attribute, a predefined (default) attribute, can have a different value at each transaction (Priority=3 for the first transaction, Priority=1 for the second transaction, and Priority=4 for the third transaction).

---

{button Related Topics,PI('`,`describi\_rtf\_1230686')}

[Describing Model Behavior Using the Model Commands](#)

[Common Uses for Transaction Attributes](#)

[Defining a Transaction Attribute](#)

[About Transaction Attributes](#)

[Setting a Value When the Transaction Is Created](#)

[Setting a Value in the Process Flow](#)

[Common Uses for Transaction Attributes](#)

[Setting a Priority on a Transaction](#)

## Common Uses for Transaction Attributes

{button Tell me how...,PI('','describi\_rtf\_1230751')}

Transaction attributes have the following common uses:

- Setting the duration of an activity based on the specifics of a transaction.  
For example, an activity duration is measured in seconds and uses an expression that contains the attribute PageCount multiplied by 5 (if PageCount is 100, then the duration is 500 seconds).
- Controlling the flow of specific transactions through a decision output.  
For example, as each transaction is processed by the activity, the value of Color determines whether the transaction takes the Blue, Red, or Yellow path.

---

{button Related Topics,PI('','describi\_rtf\_1230737')}

[About Transaction Attributes](#)

[Defining a Transaction Attribute](#)

[Properties dialog box - Task tab](#)



To define a transaction attribute

To initialize a transaction attribute by distribution

To initialize a transaction attribute by constant value and multiple generators

# Defining a Transaction Attribute

```
{button Tell me how...,PI('`,`describi_rtf_1230751')}
```

When you define a transaction attribute, you specify its name, location, and type. For example, you can create and define transaction attributes for Color and PageCount. You can set the value for an attribute for each transaction.

	Transaction attributes	Value for first transaction	Value for second transaction	Value for third transaction
Predetermined attribute	Priority	3	1	4
User-defined attributes	Color			
	PageCount			


```
{button Related Topics,PI('`,`describi_rtf_1230737')}
```

[About Transaction Attributes](#)

[Common Uses for Transaction Attributes](#)

[Properties dialog box - Task tab](#)

## To define a transaction attribute

- 1  On the Model menu, click Attributes.

or

On the Model toolbar, click the Attributes tool.

The Define Attributes dialog box appears, and displays a list of existing attributes sorted by Location.

- 2 To view the attributes for another location, select another location.

The attributes for the selected location appear in the dialog box.

- 3 To add an attribute, click Add.

The Add New Attribute dialog box appears.

- 4 To modify an attribute, click Modify.

The Modify Attribute dialog box appears.

### Note

You can change only the attribute type or definition.

- 5 Use this dialog box to define the attribute name, type, location, initial values, and associate the attribute type departments, and processes.

- 6 To add or modify an attribute type, click Define Types.

The Define Types dialog box appears.

- 7 Type the attribute Type Name, and type the Members, and click Add or Modify.

The new or modified attribute type appears in the Existing list.

- 8 Click OK to return to the Add New Attribute dialog box.

- 9 Click OK to return to the Define Attributes dialog box.

- 10 Click OK.

---

{button Related Topics,PI('','describi\_rtf\_1230802')}

[About Transaction Attributes](#)

[Add New Attribute and Modify Attribute dialog box](#)

[Common Uses for Transaction Attributes](#)

[To define a transaction attribute](#)

[To initialize a transaction attribute by distribution](#)

[To initialize a transaction attribute by constant value and multiple generators](#)

## Add New Attribute and Modify Attribute dialog box

{button Tell me how...,PI('','describi\_rtf\_1230868')}

Use this dialog box to add or modify a transaction attribute.

Element	Description
Location	The location sets the scope, or extent, of an attribute. If you create an attribute with a Transaction location, for example, the attribute definition extends to all transactions. Each transaction can carry its own unique value for the attribute.
Attribute name	The name must be 32 characters or less, and contain alphanumeric characters. The name can contain an underscore character but no spaces.
Attribute type	The type of an attribute determines its range of possible values. A Number type indicates the value can be any floating point number, up to 15 digits of precision. Other predefined types are TrueFalse and YesNo. You can also create your own types.
Define Types	Click to define attribute types using the Define Attributes dialog box.

---

{button Related Topics,PI('','describi\_rtf\_1230890')}

[About Transaction Attributes](#)

[Using Global Attributes](#)

[Using Expressions](#)

[Setting Global Attribute Values](#)

[Defining Attribute and Function Types](#)

To define a transaction attribute

To initialize a transaction attribute by distribution

To initialize a transaction attribute by constant value and multiple generators



## Setting a Value When the Transaction Is Created

You can initialize the value of a transaction attribute when the transaction is created or at individual activities as transactions flow through the process. For example, after you define transaction attributes named Color, PageCount, and Fruit, their values can be initialized.

A generator is typically used to initialize transaction attributes. When you set the scenario data for simulation, you define the generator. By default, the value of an attribute is initialized to be its first member. If the value is defined as number type, the default initial value is 0.

---

{button Related Topics,PI('','describi\_rtf\_1230890')}

[Initializing a Transaction Attribute](#)

[About Transaction Attributes](#)

[Using Generators](#)

## Initializing a Transaction Attribute

{button Tell me how...,PI('`,`describi\_rtf\_1230938')}

There are two common methods of initializing a transaction attribute:

- By distribution
- Using constant value and multiple generators

---

{button Related Topics,PI('`,`describi\_rtf\_1230920')}

[About Transaction Attributes](#)

[Defining Attribute and Function Types](#)

[Using Generators](#)

[Creating Your Own Functions](#)


To define a transaction attribute

To initialize a transaction attribute by distribution

To initialize a transaction attribute by constant value and multiple generators

## To initialize a transaction attribute by distribution

For example, you can use a generator to set an initial value based on a range of values.

- 1  On the Model menu, click Attributes.

or

On the Model toolbar, click the Attributes tool.

The Define Attributes dialog box appears and displays a list of existing attributes sorted by Location.

- 2 Use this dialog box to add the transaction attribute Fruit and the type name FruitDist.

- 3 Add the following members to FruitDist: Apple, Banana, and Orange.

- 4 On the Model menu, click Functions.

or

On the Model toolbar, click the Functions tool.

- 5 Define the function FruitDistribution. This function is the same type, FruitDist, as the Fruit attribute. Thirty percent of the time that FruitDistribution is called, Apple is returned; forty-five percent of the time, Banana; and twenty-five percent, Orange.

- 6  On the Model menu, click Generators.

or

On the Model toolbar, click the Generators tool.

- 7 Define a generator to initialize Fruit with a value returned by FruitDistribution.

---

{button Related Topics,PI('`,`describi\_rtf\_1230960')}

Setting a Value in the Process Flow


Setting a Value When the Transaction Is Created

To define a transaction attribute

To initialize a transaction attribute by constant value and multiple generators

## To initialize a transaction attribute by constant value and multiple generators

► You can use a constant to set the same value for any transaction created by a generator by defining a separate generator to initialize different values for the transaction attribute.

- 1  On the Model menu, click Generators.

or

On the Model toolbar, click the Generators tool.

The Define Generators dialog box appears.

- 2 Use this dialog box to define Generators.

For example, one generator issues transactions in which Fruit is set to Apple, a second generator sets Fruit to Banana, and the third generator sets Fruit to Orange.

---

{button Related Topics,PI('`,`describi\_rtf\_1230986')}



Setting a Value When the Transaction Is Created

To define a transaction attribute

To initialize a transaction attribute by distribution

## Setting a Value in the Process Flow

The value of a transaction attribute can be set or changed on an activity. This method works particularly well if there is a decision in the process flow that identifies specific transactions. Every transaction that reaches the activity is assigned the attribute values.

The Attributes tab on the Properties Dialog box defines the value of attributes for any specific activity.

---

{button Related Topics,PI('`,`describi\_rtf\_1231012')}

[Defining Activity Attributes](#)

[Defining Activity Tasks](#)

[Setting a Value When the Transaction Is Created](#)

[Using Monitors and Transaction Attributes](#)

## Using Monitors and Transaction Attributes

You can place monitors to track statistics based on transaction attributes. This is useful for looking at cycle time, waiting time, or any transaction statistics for specific transactions.

---

{button Related Topics,PI('','describi\_rtf\_1231038')}

[Using Monitors to Collect Data](#)

[Setting a Value in the Process Flow](#)

[Setting a Priority on a Transaction](#)

## Setting a Priority on a Transaction

{button Tell me how...,PI('`,`describi\_rtf\_1231121')}

You can use the Priority transaction attribute to specify the order in which transactions are transacted. When transactions are queued (for example, waiting for a worker or at a batch activity), the highest priority transactions are always transacted first.

- A higher priority transaction is processed before all lower priority transactions that are waiting.
- Two transactions with the same level of priority are processed in the order that they arrive.
- A higher priority transaction never acquires resources away from transactions that are already in process unless preempt is set. See *Setting a Preempt on a Transaction* on page 451.

The Priority transaction attribute is a predefined attribute for all activities and generators. You can set the following values for the Preempt transaction attribute:

- Constant. The value can be between 0 and 127 where 0 is the lowest priority.  
By default, transactions have a priority of 0.
- Expression. You can define the priority value with an expression that uses different attributes, functions, and arithmetic operators.

The Family option extends the priority value to all members of the transaction's family. For example, in an Order Processing model, when the Sales department establishes a priority for an order, then all of the related family members (for example, the credit check and the work order) also receive the same priority value.

---

{button Related Topics,PI('`,`describi\_rtf\_1231069')}

[Using Expressions](#)

[Setting a Value in the Process Flow](#)

[Setting a Preempt on a Transaction](#)

[About a Transaction Family](#)

## Setting a Preempt on a Transaction

{button Tell me how...,PI('`,`describi\_rtf\_1231121')}

You can use the Preempt transaction attribute to specify the order in which transactions are transacted. A preemptive transaction takes resources away from other, non-preemptive transactions. It also works with the priority attribute to create two tiers of order.

- A preemptive transaction can acquire resources away from all equal or lower-priority transactions, even if the resource is already in use.
- If two transactions have the same priority, a preemptive transaction is transacted first.
- If two transactions have the same priority and are both preemptive, then the transactions are transacted in the order in which they arrive.

The Preempt transaction attribute is a predefined attribute for all activities and generators. You can set the following values for Preempt transaction attribute:

- Constant. Choose True to turn on preemption or False to turn it off.
- Expression. You can define the preemption value with an expression that uses different attributes, functions, and arithmetic operators.

---

{button Related Topics,PI('`,`describi\_rtf\_1231103')}



[Using Expressions](#)

[Setting a Value in the Process Flow](#)

[Setting a Priority on a Transaction](#)

[About a Transaction Family](#)

To define a transaction attribute

To initialize a transaction attribute by distribution

To initialize a transaction attribute by constant value and multiple generators

To set global attribute values

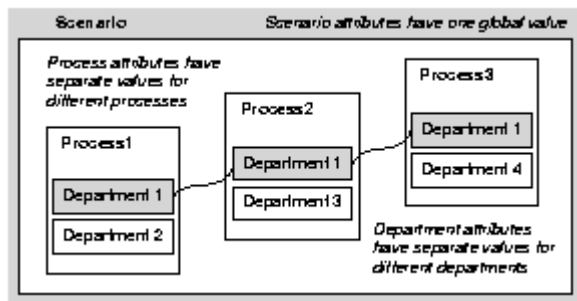
To define an attribute type

## Using Global Attributes

{button Tell me how...,PI('','describi\_rtf\_1231201')}

The three global attributes are department, process, and scenario. These attributes are considered separately from transaction attributes because of their different purposes. A transaction attribute provides individual values for transactions; a global attribute sets a value that all transactions can access.

- Scenario attributes have one global value at any time. This is the most commonly used global attribute.
- Department attributes have separate values for each defined department. A department can exist in multiple processes.
- Process attributes have unique or separate values for each process.



---

{button Related Topics,PI('','describi\_rtf\_1231159')}

[Describing Model Behavior Using the Model Commands](#)

[Using Global Attributes](#)

[Using Global Scenario Attributes](#)

[Using Global Process Attributes](#)

[Using Global Department Attributes](#)

[Setting Global Attribute Values](#)

[About Transactions and Report Results](#)

[Using Attribute Prefixes](#)

[Defining Attribute and Function Types](#)


[Opening Multiple Scenarios](#)

To find the location of an attribute

To set global attribute values

To define an attribute type

### To find the location of an attribute

- 1  On the Model menu, click Attributes

or

On the Model toolbar, click the Attributes tool.

- 2 In the Define Attributes dialog box, click the Location designation that you want for the attribute.

The dialog box displays the attributes sorted by location. The active location is indicated by the shaded button.

---

{button Related Topics,PI('','describi\_rtf\_1231223')}

[To set global attribute values](#)

[To define an attribute type](#)

[Using Global Attributes](#)

## Using Global Scenario Attributes

```
{button Tell me how...,PI('','describi_rtf_1231201')}
```

Scenario attributes are available to all activities. If a model has two scenarios, then the attribute values in Scenario1 are not available to activities in Scenario2. The scenario attribute prefix is S.

For example, a Review Committee keeps track of the number of times that a document is reviewed during its entire revision cycle. This uses a scenario attribute called ReviewCount. Any activity that reviews the document increments the count by 1.



## Using Global Process Attributes

{button Tell me how...,PI('`,`describi\_rtf\_1231201')}

The value of a process attribute is available to activities in the process. The process encompasses the model and its activities. Activities in Process1, for example, can check or set process attribute values only in Process1. The process attribute prefix is *P*.

---

{button Related Topics,PI('`,`describi\_rtf\_1231261')}

[Using Global Attributes](#)

[About Transactions and Report Results](#)

[Using Attribute Prefixes](#)

[Using Global Department Attributes](#)

[Setting Global Attribute Values](#)

## Using Global Department Attributes

{button Tell me how...,PI('','describi\_rtf\_1231201')}

Department attributes are available to any activity in the same department, regardless of process. The department attribute prefix is *D*.

For example, each department in a Tax Office has its own tax rate. The fixed cost for an activity is multiplied by the specific department's tax rate. A department attribute, Tax, is defined, with a different initial value for each department.

The individual activities use Tax as a multiplier for the fixed cost. For example, the following activity has a fixed cost of 25 multiplied by the department's tax rate. In other words, if this activity is in Dept. 3, the fixed cost is 72.5. If the activity is in Dept. 2, it is 70.

---

{button Related Topics,PI('','describi\_rtf\_1231261')}

[Using Global Attributes](#)

[Setting Global Attribute Values](#)

[Using Attribute Prefixes](#)

## Setting Global Attribute Values

{button Tell me how...,PI('','describi\_rtf\_1231339')}

You can set the initial value for a global attribute as part of the simulation data.

---


{button Related Topics,PI('','describi\_rtf\_1231329')}

[Using Global Attributes](#)

[Getting Started With Simulation](#)

To set global attribute values

## To set global attribute values

- 1  On the Model menu, click Attributes

or

On the Model toolbar, click the Attributes tool.

The Define Attributes dialog box appears.

For example, a scenario attribute called *Item* is initialized to 5. The S prefix indicates that the attribute has a scenario location.

- 2 Select a location (Process, Scenario, or Department).
- 3 Add or modify an existing attribute.
- 4 For Initial Value, choose how the value is expressed and the value.
  - Constant. Insert or choose a value from the list. The value must be of the defined type for the attribute. For example, if the type is Number, you can enter only a number.
  - Expression. Create the expression using attributes, functions, and arithmetic operators.

---

{button Related Topics,PI('','describi\_rtf\_1231353')}



[Using Global Attributes](#)

[Using Attribute Prefixes](#)

[About Transactions and Report Results](#)

[Edit Report Element dialog box - Statistic tab](#)

## About Transactions and Report Results

Report statistics contain information gathered about global transactions.

---

{button Related Topics,PI('','describi\_rtf\_1231379')}

[Using Global Attributes](#)

[Using Attribute Prefixes](#)

[Edit Report Element dialog box - Statistic tab](#)

## Using Attribute Prefixes

An attribute prefix is assigned to all attributes that are not located at the transaction level to indicate their location. After you define an attribute, this prefix appears in the Attribute Settings list. You must enter the prefix when using the attribute name in an expression.

Type of attribute	Prefix
Transaction attribute	No prefix (for example attribute_name)
Process attribute	P. (for example P.attribute_name)
Scenario attribute	S. (for example S.attribute_name)
Department attribute	D. (for example D.attribute_name)

The prefix F. (for example F.attribute\_name) assigns a value to a transaction attribute for each of the individual members of the transaction's family. A transaction family is created the first time a transaction is split. For example, a transaction attribute is assigned a value with the expression: *F.layer* = 3. This assigns 3 to *layer* for all other transactions that are family members of the transaction that has the assignment.

---

{button Related Topics,PI('`,`describi\_rtf\_1231401')}

[Defining Attribute and Function Types](#)

[Using Global Attributes](#)

[Edit Report Element dialog box - Statistic tab](#)

## Defining Attribute and Function Types

{button Tell me how...,PI('','describi\_rtf\_1231441')}

The type for an attribute or function defines its range of values. The default types are Number, YesNo, and TrueFalse. You can create your own type and specify the range for the type by adding members to the type. For example, create the type Reports, and assign the members Daily, Weekly, Monthly, EndOfYear.

- Number type sets the attribute value to any real number (to fifteen-digit precision).
- A YesNo type has a value of either No (equal to 0) or Yes (1).
- A TrueFalse type specifies that the attribute can either have a value of False (equal to 0) or True (1).

Types are also used to create Decision paths and as case text labels.

---

{button Related Topics,PI('','describi\_rtf\_1231431')}

Using Global Attributes  
Decision

To define an attribute type



### To define an attribute type

1 On the Model menu, click Types.

2 In the Define Types dialog box, type a name for the type.

The name must have fewer than 32 characters and contain only alphanumeric characters. The name can contain the underscore character but no spaces. Types are case-sensitive.

3 Move the cursor into the Members box and click.

4 Type each of the members, pressing Enter to start a new line.

For example, define the type Color with members Yellow and Red.

5 To define another type, click Add.

---

{button Related Topics,PI('`,`describi\_rtf\_1231455')}

[Using Global Attributes](#)

[Decision](#)

[Defining Activity Inputs](#)

[Defining Activity Outputs](#)

[Defining a Transaction Attribute](#)

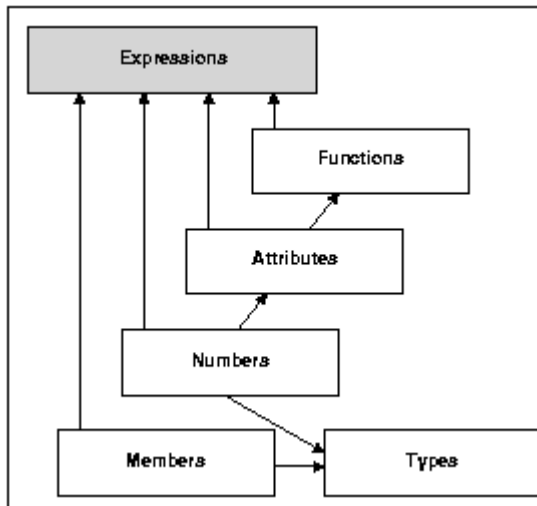
## Using Expressions

{button Tell me how...,PI('`,`describi\_rtf\_1231523')}

When a count or simple number is used in a model (for example, to set the duration for an activity or the length of time for simulation), you can substitute an expression or choose from the library of system functions.

An expression is a mathematical statement that equals a value or distribution. The values that you can set for modeling include simple and complex expressions.

Expressions can combine functions, attributes, numbers, and members with different mathematical operators.



For example, on a *Test* activity, the first time a printed circuit board is tested, the test duration is 15 minutes. All subsequent tests take 25 minutes. The expression uses a function called *If*. The first argument of the function is an attribute, *First\_Time*. For example, *If*(*First\_Time* = True, 15, 25).

The advantage to using either the Expression builder or the Expression toolbar to create an expression is that you can often avoid common syntax errors.

---

{button Related Topics,PI('`,`describi\_rtf\_1231493')}

[Describing Model Behavior Using the Model Commands](#)

[Using Expression Builder](#)

[About the Expression Toolbar](#)

[Adding Operators to Expressions](#)

[Using System-Defined Functions](#)

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[To add a function](#)

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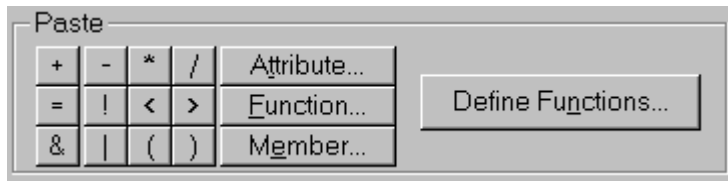
[To add attributes to expressions](#)

[To add members to expressions](#)

## Using Expression Builder

{button Tell me how...,PI('`,`describi\_rtf\_1231579')}

The Expression builder provides a useful interface for creating expressions. At many places where an expression is valid, you can either enter the expression manually or use the Expression builder.



---

{button Related Topics,PI('`,`describi\_rtf\_1231557')}

[Using Expressions](#)

[About the Expression Toolbar](#)

[Adding Operators to Expressions](#)

[Using System-Defined Functions](#)

[Creating Your Own Functions](#)

To add attributes to expressions

To add members to expressions

To define a function



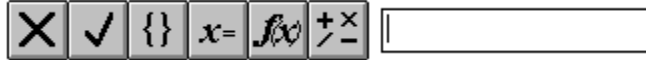
## About the Expression Toolbar

{button Tell me how...,PI('','describi\_rtf\_1231641')}

Use the Expression toolbar to edit and create expressions for the Properties dialog box. This toolbar appears at the bottom of the windows when you use an expression to define the work duration on the Task tab of the Properties dialog box. Select the Properties command to display this dialog box.

### Tip

Place your cursor over each tool to display a tool tip that describes the tool.



The Expression toolbar has a tool for each standard operator. Click these tools to insert the character into the expression, or enter the character by typing it. The tools labeled *Paste members*, *Paste functions*, and *Paste operators* display dialog boxes containing defined items from which you can choose. You can also enter the item by typing it in. The tools provide a convenient shortcut for choosing the correct name. Spaces are ignored in expressions but you can use them to make the expression more readable.

---

{button Related Topics,PI('','describi\_rtf\_1231611')}

[Using Expressions](#)

[Using Expression Builder](#)

[Adding Operators to Expressions](#)

[Using System-Defined Functions](#)

[Creating Your Own Functions](#)

[To add a function](#)

[To define a function](#)

To add attributes to expressions

To add members to expressions

To add a function

## Adding Operators to Expressions

{button Tell me how...,PI('','describi\_rtf\_1231693')}

You can use the following valid operators in an expression.

Operator	Description
+	Added to
-	Subtracted from
*	Multiplied by
/	Divided by
=	Equal to
!	Not (logical negation)
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to
&	Logical <i>and</i> . Both statements must be true to return True.
	Logical <i>or</i> . Either statement can be true to return True.
( )	Parentheses
%	Mod operator. Returns a remainder after a number is divided by a divisor.
,	Comma. Used to separate members of a list of arguments.

Expressions are evaluated according to the operators used and the placement of parentheses. The operations are performed from left to right in the following order.

Operator	Description
( )	Parentheses
* /	Multiplication and division
+ -	Addition and subtraction
< > <= >= !=	Comparisons
& and	Logical <i>and</i> and <i>or</i>

---

{button Related Topics,PI('','describi\_rtf\_1231671')}

[Using Expressions](#)

[Using Expression Builder](#)

[Adding Operators to Expressions](#)

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[To add attributes to expressions](#)

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[To add a function](#)

[To define a function](#)

## To add attributes to expressions

If you know the name of the attribute, you can type it in as the expression. Otherwise, follow these steps to choose from the list of defined attributes.

- 1 On the Expression toolbar or builder, click Paste Attribute.

The Paste Attribute dialog box appears.

- 2 Select the attribute location.

Only attributes that have been defined for the selected location appear in the scrolling list.

- 3 Double-click the attribute that you want to paste.

- 4 When you finish using the Paste Attributes dialog box, click OK.

The attribute is pasted into the expression.

### Note

Attribute names are case sensitive. If you type an attribute into an expression, use the correct lowercase and uppercase characters.

---

```
{button Related Topics,PI('`,`describi_rtf_1231719')}
```



[About Transaction Attributes](#)

[Using Expression Builder](#)

[Adding Operators to Expressions](#)

[Using System-Defined Functions](#)

[Creating Your Own Functions](#)

[To add members to expressions](#)

[To add a function](#)

[To define a function](#)

## To add members to expressions

If you know the name of the member, for example, True or False, you can type it into the expression. Otherwise, follow these steps to choose from the list of valid members.

- 1 On the Expression toolbar or builder, click the Paste Member tool.
- 2 In the Paste Member dialog box, click the type.
- 3 Double-click the member.

The function is pasted into the expression.

---

```
{button Related Topics,PI('','describi_rtf_1231719')}
```

## Using Functions

{button Tell me how...,PI('`,`describi\_rtf\_1231811')}

Although you can often use a simple number or a distributed value for things such as durations, you use a function for a non-constant value or a range of numbers. Functions are also convenient for creating a single place to change a value used in multiple places.

A function is a mathematical correspondence that returns a value for every value passed to it or generated by the system. You cannot edit the system-defined functions but you can create new functions.

A function has one or more arguments. For example, the Between function returns a value that is uniform in the range between a minimum and maximum value. It has two arguments: min and max. You insert a minimum value, which is the lowest value that the function returns, and a maximum value, which is the highest. In the following expression, the duration of an activity is a uniform number between 5 and 15.

For example, Between(5,15)

Other system-defined functions map a number to a unit of time. For example, the following expression returns a value of 2, because there are 7200 seconds in two hours.

For example, Hours(7200)

---

{button Related Topics,PI('`,`describi\_rtf\_1231781')}

[Describing Model Behavior Using the Model Commands](#)

[Using System-Defined Functions](#)

[List of System-Defined Functions](#)

[Using Expressions](#)

[Creating Your Own Functions](#)

[Using System-Defined Functions](#)

[Creating Your Own Functions](#)

To add a function

To define a function

## Using System-Defined Functions

{button Tell me how...,PI('','describi\_rtf\_1231910')}

The graphs for the probability distribution functions in this section were created by running 5,000 transactions through a single activity whose duration was defined to be the specific distribution function. All 5,000 transactions were generated at the start of simulation.

All simulations were run for 200 seconds and snapshots were taken every 10 seconds. The number of transactions completed during each snapshot time was graphed versus the time of the snapshot.

The graphs are not smooth curves because the amount of transactions is sampled every ten seconds. Also, not enough transactions are run to completely smooth out the effects of randomness from the random number generator.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

[Using Expressions](#)

[Using Functions](#)

[Using System-Defined Functions](#)

[List of System-Defined Functions](#)

[Creating Your Own Functions](#)

[To add attributes to expressions](#)

[To add members to expressions](#)

[To add a function](#)



## List of System-Defined Functions

{button Tell me how...,PI('','describi\_rtf\_1231910')}

[Abs\(Number\)](#)  
[BernoulliDist\(Probability\)](#)  
[BetaDist\(A,B,Min,Max\)](#)  
[Between\(Min,Max\)](#)  
[BetweenNorm\(Min,Max\)](#)  
[BinomDist\(N,Probability\)](#)  
[Ceiling\(Num\)](#)  
[Cost\(Value, Labor/Equipment/Other, Standard/Overtime\)](#)  
[Days\(Seconds\)](#)  
[DaysToSec\(Days\)](#)  
[ElapsedTime\(\)](#)  
[ErlangDist\(N,B\)](#)  
[Exp\(Num\)](#)  
[ExponDist\(Mean\)](#)  
[Floor\(Num\)](#)  
[GammaDist\(A,B\)](#)  
[Hours\(Seconds\)](#)  
[HoursToSec\(Hours\)](#)  
[If\(Test, True, False\)](#)  
[Ln\(Num\)](#)  
[Log10\(Num\)](#)  
[LogNormDist\(Mean, Deviation\)](#)  
[Max\(Num, Num\)](#)  
[Min\(Num, Num\)](#)  
[Minutes\(Seconds\)](#)  
[MinutesToSec\(Minutes\)](#)  
[Months\(Seconds\)](#)  
[MonthsToSec\(Months\)](#)  
[NormDist\(Mean, Deviation\)](#)  
[NormSDist\(\)](#)  
[PercentYes\(Num\)](#)  
[PoissonDist\(Mean\)](#)  
[Power\(Num, Exp\)](#)  
[Random\(\)](#)  
[Round\(Num, Numdigits\)](#)  
[Sqrt\(Num\)](#)  
[Time\(Timetype\)](#)  
[TransServiceTime\(\)](#)  
[TransWaitingTime\(\)](#)  
[TriangleDistribution\(Min, Max, Mean\)](#)  
[Trunc\(Num, Numdigits\)](#)  
[Weeks\(Seconds\)](#)  
[WeeksToSec\(Weeks\)](#)

[WeibullDist\(A,B\)](#)

[Years\(Seconds\)](#)

[YearsToSec\(Years\)](#)

---

{button Related Topics,PI('`,`describi\_rtf\_1232120')}

[Using System-Defined Functions](#)

[Creating Your Own Functions](#)

[Using Expressions](#)

## Abs(Number)

This returns the absolute value of a number. The absolute value is the number without a sign.

For example:  $\text{Abs}(-4) = 4$ ,  $\text{Abs}(9) = 9$

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## BernoulliDist(Probability)

The Bernoulli distribution returns a value of 1 or 0; the argument indicates how frequently the value of 1 is returned on a percentage basis.

For example: BernoulliDist(0.7) implies a value of 1 is returned 70% of the time

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## BetaDist(A,B,Min,Max)

This returns the cumulative Beta probability density function between the minimum and maximum values that you supply. The BetaDist function is commonly used to study variation in a percentage across samples.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Between(Min,Max)

This provides a uniformly-distributed number between the minimum and maximum values that you supply.

For example, if you use Between(10,20), the value returned has an equal probability of being any real number from 10 to 20, both numbers inclusive. For example: 12.5 or 16.413

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## BetweenNorm(Min,Max)

This provides a Normal random variable between a minimum and maximum value.

For example, if you use `BetweenNorm(10,20)`, the value returned is more likely to be 14, 15, or 16, and seldom 10 or 20.

This function is the same as the `NormDist` function except that the mean and standard deviation are calculated automatically according to the minimum and maximum values that you provide. Also, the value returned will always be inside the specified range.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}



## BinomDist(N,Probability)

The Binomial distribution models drawing or selecting items from a pool, where N is the number of items in the pool and Probability is the probability of each item being successfully drawn.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Ceiling(Num)

This returns a number rounded up to a whole number. The number can be zero or negative.

For example: Ceiling(2.5) = 3, Ceiling(0) = 0, Ceiling(-4.37) = -4

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Cost(Value, Labor/Equipment/Other, Standard/Overtime)

This returns the costs accumulated on a transaction in the different cost categories. The cost is calculated up to the point in time in the simulation when the function is called. A value of zero returns all cost categories.

- Value
  - 1 = Value Added
  - 2 = Business Value Added
  - 3 = Value Added + Business Value Added
  - 4 = No Value Added
  - 5 = Value Added + No Value Added
  - 6 = Business Value Added + No Value Added
  - 7 = Value Added + Business Value Added + No Value Added (same as using 0)
- Labor/Equipment/Other
  - 1 = Labor
  - 2 = Equipment
  - 3 = Labor + Equipment
  - 4 = Other
  - 5 = Labor + Other
  - 6 = Equipment + Other
  - 7 = Labor + Equipment + Other (same as using 0)
- Standard/Overtime
  - 1 = Standard cost (non-overtime)
  - 2 = Overtime
  - 3 = Standard + Overtime (same as using 0)

For example, Cost(0,0,0) returns total costs in all categories. Cost(1,1,2) returns value-added, overtime labor costs. Cost(4,0,0) returns non-value added costs.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Days(Seconds)

This converts the argument from seconds to days. The Days function uses the run setup information to calculate how many hours are in a day.

For example, if there are 8 hours in a day, then  $\text{Days}(201600) = 7$ .

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## DaysToSec(Days)

This converts the argument from days to seconds. This is the inverse function for Days().

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## ElapsedTime()

This returns the amount of time that has elapsed since the start of the simulation, in seconds.

For example, ElapsedTime() after four hours of simulation = 14400.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## ErlangDist(N,B)

The Erlang distribution generates random values where N is the mean distribution and B is the variance. Both N and B must be greater than zero and N is an integer. (The Erlang distribution is a subset of the Gamma distribution.)

$$\frac{a^N x^{N-1} e^{-ax}}{(N-1)!}$$

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## Exp(Num)

This returns  $e$  raised to the power of *Num*. The constant  $e$  equals 2.71828182845904, the base of the natural logarithm.

For example:  $\text{Exp}(1) = 2.71828$

---

{button Related Topics,PI('','describi\_rtf\_1231888')}



## ExponDist(Mean)

This provides an exponential random variable. The variable is described completely by specifying a single property, the mean.

For example, if you specify `ExponDist(15)`, the resulting value, over time, will be close to 15. Spikes of much larger or smaller numbers are always possible with the exponential distribution.

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## Floor(Num)

This rounds a number down to a whole number.

For example: Floor(4.3) = 4, Floor(.119) = 0, Floor(-5.4) = -6

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## GammaDist(A,B)

The Gamma distribution generates random values with the following density:

$$\frac{A^B}{\text{Gamma}(B)} x^{B-1} e^{-Ax}$$

---

{button Related Topics,Pl('`,`describi\_rtf\_123188')}

## Hours(Seconds)

This converts the argument from seconds to hours by dividing by 3600.

For example: Hours(32400) = 9

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## HoursToSec(Hours)

This converts the argument from hours to seconds. This is the inverse function for Hours().

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## If(Test,True,False)

This provides an If function that checks the condition of Test. If Test is true, the value returned is set by the variable labeled True. If Test is false, the value is set by the variable labeled False. The True and False arguments can be expressions themselves.

For example, if you have an attribute named Apple whose value is Red, then the following expression returns 5. If the value of Apple is Green, the expression returns 10.

For example: If(Apple=Red,5,10)

If Apple is Red, then the following expression returns 5. If Apple is Green, the expression returns 10. If Apple is not Red or Green, the expression returns 15.

For Example: f(Apple=Red,5,(If(Apple=Green,10,15)))

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Ln(Num)

This returns the natural logarithm (the inverse of the Exp function). The number must be positive.

For example,  $\text{Ln}(55) = 4.00733$ ,  $\text{Ln}(\text{Exp}(4)) = 4$ ,  $\text{Ln}(2.71828) = .9999$ .

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Log10(Num)

This returns the base 10 logarithm of a number. The number must be positive.

For example,  $\text{Log10}(5) = .69897$ .

---

{button Related Topics,PI('','describi\_rtf\_1231888')}



## LogNormDist(Mean,Deviation)

This is the logarithmic normal distribution. The first parameter is the mean and the second is the deviation.

---

{button Related Topics,PI('`,`describi\_rtf\_123188')}

## Max(Num,Num)

This returns the largest number of the two arguments.

For example, Max(4,9) = 9.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Min(Num,Num)

This returns the smallest number of the two arguments.

For example, Max(4,9) = 4.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Minutes(Seconds)

This converts the argument from seconds to minutes.

For example, Minutes(4500) = 75.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## MinutesToSec(Minutes)

This converts the argument from minutes to seconds. This is the inverse function for Minutes().

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## Months(Seconds)

This converts the argument from seconds to months.

For example, for 8 hours in a day and 22 days in a month,  
 $\text{Months}(1267200) = 2$ .

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## MonthsToSec(Months)

This converts the argument from months to seconds. This is the inverse function for Months().

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## NormDist(Mean,Deviation)

This provides a Normal random variable described by its mean and its standard deviation.

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}



## NormSDist()

This provides a standard normal random variable where the mean is 0 and the standard deviation is 1. This function does not take any arguments. The value is generated within the distribution curve.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## PercentYes(Num)

The Num sets the percentage of the Yes path on a Decision activity.

For example, PercentYes(95) sets the Decision route through the Yes path 95% of the time.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## PoissonDist(Mean)

The Poisson distribution is a limiting form of the Binomial distribution when, in the Binomial expression, N tends to infinity and Probability tends to zero at the same time. Exponential interarrivals are the same as Poisson arrivals.

$$\frac{e^{-\text{Mean}} \text{Mean}^x}{x!}$$

---

{button Related Topics,PI('',`describi\_rtf\_1231888')}

## Power(Num,Exp)

This returns *Num* to the power of *Exp*.

For example,  $\text{Power}(5,3) = 125$ ,  $\text{Power}(1,5) = 1$ ,  $\text{Power}(10,5) = 100000$ .

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Random()

Provides a standard normal random variable between 0 and 1.

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## Round(Num,Numdigits)

This rounds the number to the number of specified digits. If NumDigits is greater than zero, it rounds to the specified decimal places. If NumDigits equals zero, it rounds to the nearest integer. If NumDigits is less than zero, it rounds to the left of the decimal.

For example, Round(3.45, 1) = 3.5, Round(11.5,-1) = 10.

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## Sqrt(Num)

This returns the positive square root. The number must be positive.

For example,  $\text{Sqrt}(25) = 5$ .

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Time(Timetype)

This returns the amount of time that has accumulated on a transaction, in different categories, since the start of the simulation. The time is given in seconds.

- 0 = Cycle time
- 1 = Work time
- 2 = Resource waiting time
- 3 = Blocked time
- 4 = Inactive time

For example, if ten minutes of inactive time has accumulated, Time(4) returns 600.

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}



## TransServiceTime()

This returns the accumulated service time of a transaction up until the point that the function is evaluated. This does not include the duration on the current activity if it is evaluated as *Attribute Settings Before Duration*.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## TransWaitingTime()

This returns the accumulated waiting time of a transaction up until the point that the function is evaluated. This does not include the duration on the current activity if it is evaluated as Attribute Settings Before Duration.

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## TriangleDistribution(Min,Max,Mean)

This returns the value of a Triangle distribution.

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## Trunc(Num,Numdigits)

This rounds the number toward zero to the nearest integer or nearest NumDigits decimal place.

For example:

- $\text{Trunc}(9.765, 0) = 9$ ,
- $\text{Trunc}(9.765, 2) = 9.76$
- $\text{Trunc}(65, -1) = 60$
- $\text{Trunc}(-9.765, 2) = -9.76$

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## Weeks(Seconds)

This converts the argument from seconds to weeks. The function uses the run setup information to calculate how many days are in a week.

For example, if there are 5 days in a week and 8 hours in a day, then  $\text{Weeks}(6480000) = 45$ .

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## **WeeksToSec(Weeks)**

This converts the argument from weeks to seconds. This is the inverse function to Weeks().

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## WeibullDist(A,B)

The Weibull distribution is typically used for reliability analysis. It takes two parameters, A and B. Both must be greater than 0.

$$We(x) = ABx(B-1) e^{-Ax^B}$$

---

{button Related Topics,PI('','describi\_rtf\_1231888')}

## **Years(Seconds)**

This converts the argument from seconds to years. The function uses the run setup to calculate the length of a year.

For example, if there are 22 days in a month and 8 hours in a day, then  $\text{Years}(7603200) = 1$ .



## YearsToSec(Years)

This converts the argument from years to seconds. This is the inverse function to Years().

---

{button Related Topics,PI('`,`describi\_rtf\_1231888')}

## Creating Your Own Functions

```
{button Tell me how...,PI('`,`describi_rtf_1231523')}
```

You can use functions to describe durations or other expressions in individual activities, or to initialize variables in the simulation data. A key advantage to a function is that you can change its definition and have it affect the values in several activities or expressions that use the function.

The behavior of a function is set by the data that you provide and whether you pass an argument to the function or not.

---

```
{button Related Topics,PI('`,`describi_rtf_1232510')}
```

[Using Expressions](#)

[Using Functions](#)

[Using System-Defined Functions](#)

[Add New Attribute and Modify Attribute dialog box](#)

### To add a function

- 1 On the Model menu, click Functions.

or



On the Model toolbar, click the Functions tool.  
The Define Functions dialog box appears.

- 2 To add a new function, click Add.

The Add New Function dialog box appears.

- 3 Type a function name, select the function type, and the argument.

---

{button Related Topics,PI('`,`describi\_rtf\_1232537')}

To define a function

Using Expressions

Using Functions

Using System-Defined Functions

## Add New Function and Modify Function dialog box

{button Tell me how...,PI('`,`describi\_rtf\_1231523')}

Use this dialog box to add and modify functions.

Option	Description
Function name	Enter a name for the function. The name can be up to 32 alphanumeric characters, including underscore but not spaces.
Function type	Choose from the scrolling list. You can define a new type by clicking Define Type.
Argument (mapping)	<p>The function matches one set of values to another set. You pass an argument to a mapping function and <i>iGrafx Process</i> maps it to a new value.</p> <p>A mapping function offers a method to convert data from one format to another. You specify the type of argument passed to the function and the type returned. You can also set argument text to provide a prompt for the argument when the function appears in a activity. Additional choices for the text and type appear. For text, enter the prompt text that you want with the function.</p> <p>For example, a function, called <i>DyeCost</i>, maps colors to numbers. Colors is a user-defined type. If Red is passed to this function, it returns a value of 5. Likewise, Blue returns 8 and Green returns 4.</p>
No Argument (distribution)	<p>The function returns a value that exists proportionally between two or more numbers, based on the range that is defined.</p> <p>In other words, values between 0 and 100 will be randomly assigned by <i>iGrafx Process</i>. When this function is called a certain percentage of times, it returns the specified set of values.</p> <p>Both distribution and mapping types of functions can have continuous or non-continuous values.</p>

---

{button Related Topics,PI('`,`describi\_rtf\_1230846')}

[Add New Attribute and Modify Attribute dialog box](#)

[Define Functions dialog box](#)

[Defining Attribute and Function Types](#)

## To define a function

- 1 On the Model menu, click Functions

or



On the Model toolbar, click the Functions tool.

The Define Functions dialog box appears. A list of existing functions is displayed and the current function is highlighted.

- 2 To define the values of a function, click the function name from the list of existing functions.

---

{button Related Topics,PI('','describi\_rtf\_1232603')}



To add a function

Define Functions dialog box

## Define Functions dialog box

```
{button Tell me how...,PI('','describi_rtf_1231493')}
```

Use this dialog box to add, modify, and delete functions.

Option	Description
Function name	Enter a name for the function. The name can be up to 32 alphanumeric characters, including underscore but not spaces.
Function type	Choose from the scrolling list. You can define a new type by clicking Define Type.
Argument (mapping)	<p>The function matches one set of values to another set. You pass an argument to a mapping function and <i>iGrafx Process</i> maps it to a new value.</p> <p>A mapping function offers a method to convert data from one format to another. You specify the type of argument passed to the function and the type returned. You can also set argument text to provide a prompt for the argument when the function appears in a activity. Additional choices for the text and type appear. For text, enter the prompt text that you want with the function.</p> <p>For example, a function, called <i>DyeCost</i>, maps colors to numbers. Colors is a user-defined type. If Red is passed to this function, it returns a value of 5. Likewise, Blue returns 8 and Green returns 4.</p>
No Argument (distribution)	<p>The function returns a value that exists proportionally between two or more numbers, based on the range that is defined.</p> <p>In other words, values between 0 and 100 will be randomly assigned by <i>iGrafx Process</i>. When this function is called a certain percentage of times, it returns the specified set of values.</p> <p>Both distribution and mapping types of functions can have continuous or non-continuous values.</p>
# Intervals	<p>Enter the number of intervals, or areas, within the distribution range. The intervals define the range for each area. The dialog box automatically updates to allow room for editing the interval values.</p> <p>If the function takes an argument (for example, if it is a mapping function), the start and end values indicate the range of numbers that return another value. For example, an interval between 80 and 120 returns a value of 10. (You can change the end value of the last interval for a mapping function.)</p> <p>If the function does not take an argument (for example, if it is a distribution function), the intervals define a percentage of time that, when the function is called, it returns a value. The last interval always has an end value</p>

of 100 percent.

Continuous	<p>Values are returned in a continuous range. The range of the arguments determines how often a value is returned.</p> <p>For example, 30% of the time that the function is called, it returns a number between zero and five. Likewise, 55% of the time it is called (between 30 and 85), the function returns a number between five and two. And 15% of the time it is called, the function returns a number between two and four.</p>
Non-continuous	<p>The return values are confined to specific numbers instead of a range. You use a non-continuous function to return certain numbers or members of a type.</p> <p>For example, 18% of the time that the function is called, it returns a value of 38. Likewise, 15% of the time (between 18 and 43), it returns 53, 19% of the time, it returns 22, and 38% of the time, it returns 58.</p>
Values	<p>Enter a return value to correspond to each interval. The type of the value, for example, if it is a number or other type, is specified when you define the function.</p>
Visual Basic	<p>Select if function is a VBA function. VBA functions can be used to retrieve modeling data. For example, a VBA function that retrieves duration data from a database and uses it as input for the simulation.</p>

## Defining Attribute and Function Types

## Describing Modeling Behavior - Now Try This

{button Tell me how...,PI('',`describi\_rtf\_1232672')}

Three different types of policy requests are received by the Data Processing department at the Policy Insurance Company. The processing times for entering the data and evaluating policies depends on the type of policy received. In this exercise, you will use expressions that use transaction attributes to specify durations. You will also review the report results and see how to view simulation data using transaction attributes.

{button Next,JI('>procedur',`describi\_rtf\_1216093')}

---

{button Related Topics,PI('',`describi\_rtf\_1232662')}

[Describing Model Behavior Using the Model Commands](#)  
[Simulation data - Now Try This](#)

[To open the exercise data for transaction attributes - Now Try This](#)

[To review the transaction attribute settings - Now Try This](#)

[To review the generator settings - Now Try This](#)

[To review the duration expressions - Now Try This](#)

[To trace a process with the trace window - Now Try This](#)

**To open the exercise data for transaction attributes - Now Try This**

{button Previous,JI('>concept','describi\_rtf\_1216041')}

- 1 On the File menu, click Open.
- 2 Select iGrafx\Pro\8.0\Exercise\Ex5trans.igx, and click Open.

The process map appears.

- 3 Click the Maximize icon to view the whole screen.

{button Next,JI('>procedur','describi\_rtf\_1216121')}

---

{button Related Topics,PI('', 'describi\_rtf\_1232719')}




[Describing Modeling Behavior - Now Try This](#)

## To review the transaction attribute settings - Now Try This

{button Previous,JI('>procedur','describi\_rtf\_1216093')}

After opening the sample process map for the Policy Insurance Company, examine the definition of the Policy transaction attribute. The attribute uses a custom type to access members specific to this model. You will review the attribute settings; however, please do not modify the data.

- 1  On the Model menu, click Attributes.

or

On the Model toolbar, click the Attributes tool.

The Define Attributes dialog box appears.

- 2 For Location, click to select Transaction, if it is not already selected.

An attribute named Policy already exists.

- 3 Click to select Policy, if it is not already selected.

- 4 Click Modify.

The Modify Attribute dialog box appears.

- 5 Click Define Types.

The Define Types dialog box appears.

- 6 Click to select PolicyType.

This is where the members of PolicyType are defined to be Home, Auto, and Renters. Later in the exercise, you will use these members to set durations and decision paths.

- 7 Close all of the dialog boxes without making any changes.

{button Next,JI('>procedur','describi\_rtf\_1216154')}


---

{button Related Topics,PI('',`describi\_rtf\_1232510')}

### To review the generator settings - Now Try This

{button Previous,JI('>procedur','describi\_rtf\_1216121')}

After the transaction attribute is defined, you initialize a value for each transaction as it is introduced into the process by the generator. Remember that the list of values for the attribute is governed by the attribute's type.

- 1  On the Model menu, click Generators.

or

On the Model toolbar, click the Generators tool.

The Define Generators dialog box appears.

- 2 Under Existing Generators, click each of the three generators, one at a time, and examine the changes in the dialog box.

Each generator introduces transactions at different rates. Also, under Initial Attribute Settings, each generator has different Policy and Priority values. For example, Generator 2 has a Policy value of Home and a Priority of 2.

- 3 Click Cancel to close the dialog box.

{button Next,JI('>procedur','describi\_rtf\_1216190')}

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{button Related Topics,PI('>','describi\_rtf\_1232775')}

[Describing Modeling Behavior - Now Try This](#)  
[Using Generators](#)

## To review the duration expressions - Now Try This

```
{button Previous,JI('>procedur','describi_rtf_1216154')}
```

In this part of the exercise, you will analyze three different activities that use the Policy transaction attribute and PolicyType members to specify the task's duration.

- 1 Double-click the activity labeled *Receive policy request*.

The Properties dialog box appears.

- 2 Choose the Task tab and review the duration.

If (Policy = Home, 1, 2)

This uses the *If* system-defined function. When a transaction enters the activity, if the value of its Policy transaction attribute is Home, then the duration is 1 minute. For all other values, the duration is 2 minutes.

- 3 Without closing the Properties dialog box, move the dialog box so that you can see the activity labeled *Enter data*.

- 4 Click to select *Enter data*.

This updates the dialog box so that you can review the duration.

If (Policy = Home, 2, If (Policy = Auto, 3, 5))

This is similar to the previous expression. When the value of the Policy transaction attribute is Home, the duration is 2 minutes. Otherwise, if the value is Auto, the duration is 3 minutes. For all other values, the duration is 5 minutes.

- 5 Without closing the Properties Dialog box, move the dialog box so that you can see the activity labeled *Evaluate policy*.

- 6 Click to select *Evaluate policy*.

This updates the dialog box so that you can review the duration.

CustomDuration(Policy)

This uses a custom function, CustomDuration, which takes one argument, Policy. Every time a transaction is processed, the function returns a value that determines the duration of the activity.

- 7 To review the definition of CustomDuration, on the Model menu, click Functions.

The Define Functions dialog box appears. The CustomDuration function maps the PolicyType members, Home, Auto, and Renters, to numeric values. When the transaction attribute value is Home, the expression returns 12. Likewise, when it is Auto, the value is 15, and when it is Renters, 20.

- 8 Click Cancel to close all of the dialog boxes.

```
{button Next,JI('>procedur','describi_rtf_1216241')}
```

```
{button Related Topics,PI('','describi_rtf_1232810')}
```

---

[Describing Modeling Behavior - Now Try This](#)  
[Creating Your Own Functions](#)  
[Using System-Defined Functions](#)

### To trace a process with the trace window - Now Try This

{button Previous,JI('>procedur','describi\_rtf\_1216190')}

Use the trace window to watch an animation of the transactions following the process flow during simulation.


- 1 On the Model menu, point to Run, and then click Trace.

The Trace window appears.

- 2 Click the Maximize icon in the trace window.

- 3 On the View menu, click Transactions.

This splits the window so that you can view information about transactions as they are processed. The process map appears in the top of the window and transaction information is displayed in the bottom.

- 4  Click the Step tool twice.

or

On the Model menu, point to Run, and then click Step twice.

- 5 In the Transactions area of the window, click the text: 1 Working, *-Receive policy request*.

For example, several transaction values are displayed. The value of Priority is 1 and the value of Policy is Auto.

- 6 Click Step twice.

This introduces more transactions into the process flow.

- 7 In the transaction area, click the text: 1 Working - *Receive policy request*.

The transaction values for this transaction are different from the first. The value of Priority is 3 and the value of Policy is Renters.

- 8 Continue to watch the trace to see how transactions with different Policy attribute values take different paths.

You can use the Trace toolbar to Step, Pause, Stop, or Start the simulation again.

{button Next,JI('>concept','describi\_rtf\_1216301')}

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{button Related Topics,PI('>',describi\_rtf\_1232849')}

[Describing Modeling Behavior - Now Try This](#)

[Using Trace Mode with Process Diagrams](#)

[Using the Global Attributes Window](#)

[Creating Your Own Functions](#)

[Using System-Defined Functions](#)

[Simulation data - Now Try This](#)



## Simulation data - Now Try This

{button Tell me how...,PI('','describi\_rtf\_1231493')}

After a simulation is run, you can view Activity statistics on the Time tab in the report window. The *#Trans* statistic indicates how many transactions each activity processed.

You can also place monitors at the end of each path to gather statistics about things such as cycle time for transactions that follow one of the Home, Auto, or Renters paths. To view the data associated with the monitor, create a new report element using Monitors statistics.

This is the end of the self-paced exercises for this chapter. If you want to save the process map that you created, do so now.

{button Previous,JI('>procedur','describi\_rtf\_1216241')}

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{button Related Topics,PI('','describi\_rtf\_1232895')}

[Describing Modeling Behavior - Now Try This](#)

[Reviewing Simulation Report Results.](#)

[Using Monitors - Now Try This](#)

[Creating Your Own Functions](#)

[Using System-Defined Functions](#)



## Running a Simulation

{button Tell me how...,PI('`,`running\_\_rtf\_150627')}

After you create the process diagram and model, you can simulate it. When a process is simulated, it runs through a processor that takes the information in the process diagram, including the activities and accompanying logic, and runs it for a set amount of time. This produces statistical results based on the model.

The process for setting up the simulation environment includes determining the duration of the simulation run, the schedule, the inputs, and the resource availability and requirements.

---

{button Related Topics,PI('`,`running\_\_rtf\_150585')}

[Getting Started With Simulation](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

[Using Resources](#)

[Tracing the Model While Running the Simulation](#)

[Using Schedules](#)

[Opening Multiple Scenarios](#)

[Using the Scenario Window](#)

[Describing the iGrafx Process Simulation Methodology](#)

[Running a Simulation - Now Try This](#)

[To set up a simulation](#)

## Getting Started With Simulation

{button Tell me how...,PI('`,`running\_\_rtf\_150687')}

When setting up model data and running a simulation, you typically perform the preliminary steps to specify information about the simulation. After that, you may need to make few, if any, modifications to the settings as you run subsequent simulations.

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{button Related Topics,PI('`,`running\_\_rtf\_150649')}

[Running a Simulation](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

[Using Resources](#)

[Using Schedules](#)

[Opening Multiple Scenarios](#)

[Using the Scenario Window](#)

[About the Model Toolbar](#)

[Describing the iGrafx Process Simulation Methodology](#)



[To set up a simulation](#)

## **About the Model Toolbar**

You can use the Model toolbar to access the simulation tools. If the toolbar is not displayed, you can display it by clicking Toolbars on the View menu.

## To set up a simulation

**Note**

You can perform the first three steps in this process in any order.

- 1 On the Model menu, click Run Setup to set the start and length of the simulation.  
  
or  
  
On the Model toolbar, click the Run Setup tool.
- 2 On the Model menu, click Generators to set the rate at which transactions are introduced into the process.
- 3 Click Resources to set the resources available to the process. For example, 3 workers and 1 machine.
- 4 On the Model menu, point to Run, and then click Start to simulate the model

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{button Related Topics,PI('`,`running\_\_rtf\_150701')}

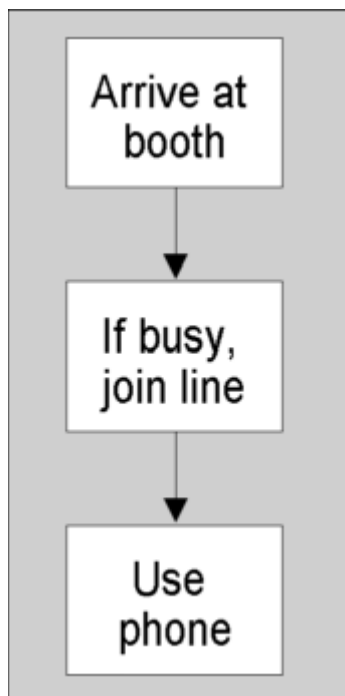
[Getting Started With Simulation](#)

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## Describing the iGrafx Process Simulation Methodology

The simulation method used by iGrafx *Process* is called discrete event simulation. In a discrete event system, the system changes from one distinct state to another as activities occur in a series of individual steps. This change in state can occur in any of the potentially thousands of variables in the model. For example, the number of transactions in a particular queue can decrease, or the status of a particular resource can change from busy to out of service. In other words, an iGrafx *Process* model changes state at discrete points in time as the result of simulation events.

A discrete system uses variables that can take on only particular values from among a finite (but potentially very large) set of alternatives. For example, the users of a telephone booth are engaged in a series of discrete activities. Customers arrive at the booth and wish to make a call. If the booth is busy, the caller creates or joins the waiting line. When the booth is available, the first person in line uses the phone for a certain amount of time. The person then leaves, making the booth available for the next caller.



At any time, the state of the telephone booth can be specified by a variable that indicates the activity in progress.

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{button Related Topics,PI('`,`running\_\_rtf\_150719')}

[Opening Multiple Scenarios](#)

[About the iGrafx Process Environment](#)

[Setting Up a Simulation Run](#)

## About the iGrafx Process Environment

A scenario is a set of data about the simulation environment. It includes the run setup, generators, resources, schedule definitions, and other simulation options. A simulation run uses one or more process diagrams in association with a scenario. The combination of process diagrams and scenarios provides the environment within which to run a simulation.

You can have several scenarios in one file for running different variations. Also, a simulation can use activities from more than one process and the results from multiple reports can be compared side-by-side. The following illustration shows this relationship between multiple processes, scenarios, and reports. Each model file contains some or all of these elements.

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{button Related Topics,PI('`,`running\_\_rtf\_150741')}

[Opening Multiple Scenarios](#)

[Describing the iGrafx Process Simulation Methodology](#)

[Setting Up a Simulation Run](#)



## Setting Up a Simulation Run

{button Tell me how...,PI('`,`running\_\_rtf\_150789')}

Setting up a simulation run requires you to define scenario data. For example you define the type of simulation time used, when the simulation ends, and the time conversion units.

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{button Related Topics,PI('`,`running\_\_rtf\_150771')}

[Running a Simulation](#)

[Getting Started With Simulation](#)

[Run Setup dialog box](#)

[Taking Snapshots During a Simulation](#)

[To set up a simulation](#)

[To set the run initialization options \(active limit and sequence\)](#)

[To snapshot model data](#)

## Run Setup dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_150789')}

Use this dialog box to set up the scenario data for your simulation.

Tab	Description
Simulation Time	Defines how the simulator views time, when simulation starts and ends, and any time conversion units.  In addition to the type of simulation time, you also specify when the simulation ends. You can have the simulation end when all generated transactions have completed their journey through the process diagram or after a specific amount of time, for example, 2 weeks.
Initialization and Reports	Defines where report results are created and also sets active limit and sequence values.
Snapshots	Defines snapshots, or points in time during simulation when data accumulation occurs.

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{button Related Topics,PI('`,`running\_\_rtf\_150821')}

[Getting Started With Simulation](#)


[Run Setup dialog box - Simulation Time tab](#)

[Run Setup dialog box - Initialization and Reports tab](#)

[Run Setup dialog box - Snapshots tab](#)

[Taking Snapshots During a Simulation](#)

### To set the simulation time

- 1  On the Model toolbar, click the Run Setup tool.

or

On the Model menu, click Run Setup.

- 2 On the Run Setup dialog box, click the Simulation Time tab.
- 3 Enter the simulation time parameters.

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{button Related Topics,PI('`,`running\_\_rtf\_150851')}

Run Setup dialog box - Simulation Time tab

Run Setup dialog box

## Run Setup dialog box - Simulation Time tab

{button Tell me how...,PI('`,`running\_\_rtf\_150889')}

Use this dialog box to set the type of time used in the simulation. Simulations sometimes use compressed time because all of the activities are performed within a regular time span. However, if you want to analyze any time that falls outside regular time spans, use calendar time.

<b>Element</b>	<b>Description</b>
<i>Compressed</i>	<i>A compressed model simulates only the active hours. The time is described as being compressed because the simulator only runs during the hours when activity occurs. For example, if an activity takes 10 hours, then one transaction completes in 10 hours.</i>
<i>Calendar</i>	<i>A calendar time model uses a twenty-four hour clock. This allows for regular activity time plus overtime or multiple shifts of resources. For example, if an activity takes 10 hours, and the resources are active for only 8 hours a day, then one transaction completes in 26 hours. This includes eight hours active time, 16 hours out of schedule, and two more hours active time to complete the activity.</i>
<i>Default schedule (Calendar time only)</i>	<i>Choose a schedule during which the simulation is active. This schedule becomes the default schedule which can be referred to in any place in the model that uses a schedule. This capability lets you define (and change) the schedule in one place. All resources and generators are also initially set to the default schedule.</i>
<i>Simulator start (Calendar time only).</i>	<i>By Weekday. The run starts on a Monday. You can change this to another day of the week by clicking Change.</i>  <i>By Date. The run starts on the day listed in the dialog box, or you can change it by clicking Change.</i>
<i>Simulation end</i>	<i>Transactions complete. All transactions finish or at least advance as far as the process flow allows them. This option is useful for models in which you analyze the time that it takes individual transactions to run through the process. For example, you measure how long it takes to introduce a new product to the market or the average time to manufacture a printed circuit board.</i>  <i>Custom. This is the length of time that the simulation runs. You can specify a number and a time unit. A custom end time is a good option for models in which you are analyzing resources because there is a set period of time</i>



*in which many actions are occurring.  
(Compare this to a simulation that continues to run until all transactions are complete. After the generator finishes issuing transactions, then no new transactions vie for resources.)*

*When you set an end time, some transactions may not finish processing. For example, if the run takes one year, then some work will likely be in progress at the end of the year.*

#### *Time conversion*

*Time conversion units are used to calculate the durations for activities, interarrival generators, and, in the case of compressed time, report elements.*

*Compressed Time. The default units for a compressed time model are 8 hours a day, 5 days a week, and 22 days a month. If you change these units, it affects calculations of durations, interarrival generators, and report results.*

*Calendar Time (standard). The standard time conversion units are 24 hours in a day, 7 days in a week.*

*Calendar Time (custom). You set time conversion units for hours in a day and days in a week. If you change these units, it can affect calculations of durations and interarrival generators, but not report results. Report statistics are calculated using the standard time conversion units for calendar time models (24 hours in a day, 7 days in a week).*

*Calendar Time (standard). The standard time conversion units are 24 hours in a day, 7 days in a week.*

*Calendar Time (custom). You set time conversion units for hours in a day and days in a week. If you change these units, it can affect calculations of durations and interarrival generators, but not report results. Report statistics are calculated using the standard time conversion units for calendar time models (24 hours in a day, 7 days in a week).*

Run Setup dialog box - Initialization and Reports tab

Run Setup dialog box

To set the simulation time

To set the run initialization options (active limit and sequence)

To snapshot model data

## Run Setup dialog box - Initialization and Reports tab

{button Tell me how...,PI('`,`running\_\_rtf\_150939')}

When you run a simulation, by default, the data is automatically created in a report called Report1. Simulation reports are stored in a report component in the current iGrafx .igx file. Use this dialog to set the reporting options.

Element	Description
Report Options	<p>Create New Report. A new report is created each time you run a simulation. Any existing information in the report is always deleted before the new report is created.</p> <p>Append to Report. The simulation results are added to the end of the report each time you run the simulator. This lets you compare results across multiple simulations.</p> <p>Replace Simulation Run. The results replace a single simulation run by name. (This option is available only if a report already exists.)</p> <p>Report name</p> <p>You can choose a name or create your own. If you have several report results, you can replace the results from a single simulation run. You can choose from a list of displayed names.</p> <p>Active limits</p> <p>Sets an upper limit for the number of transactions that can be processed concurrently. The default is 1000. This sets a safety condition for the simulator in case you have accidentally created a loop or other oversight in the modeling logic that would cause the model to generate too many transactions to process at one time.</p> <p>Sequence</p> <p>The sequence number seeds the random number generator. iGrafx <i>Process</i> uses random number generators to create different values and events that occur in the process. Each random number generator uses a sequence. If the sequence number is the same, you can make exact comparisons across simulations. For example, a transaction follows the same path as it did in previous simulations.</p> <p>During modeling, it's important that you generate enough transactions to ensure that the results are not skewed by a small sample. If you are only processing a small number of transactions, then you can run multiple simulations with different sequences to</p>

increase your sampling size.

#### Per activity

Specifies whether the set of numbers used by the random number generator is different for each activity. If all activities use the same random number generator, the randomness of each number is affected by other numbers that have already been generated. In other words, if the same numbers are used, one global change in the process affects other parts of the process. A different set of numbers for each activity (which is the default) allows numbers to be independently random. Either method allows for exact comparisons across simulations.

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{button Related Topics,PI('`,`running\_\_rtf\_150921')}

[Run Setup dialog box](#)

[Run Setup dialog box - Simulation Time tab](#)

[Run Setup dialog box - Snapshots tab](#)


[Taking Snapshots During a Simulation](#)

To set the run initialization options (active limit and sequence)

To set the simulation time

To snapshot model data

**To set the run initialization options (active limit and sequence)**

- 1  On the Model toolbar, click the Run Setup tool.  
  
or  
  
On the Model menu, click Run Setup.
- 2 On the Run Setup dialog box, click the Initialization/Report tab.
- 3 Enter the run initialization options (for example, the active limit and the sequence).
- 4 Click another tab and enter additional data, or Click OK.



## Taking Snapshots During a Simulation

{button Tell me how...,PI('`,`running\_\_rtf\_150939')}

A snapshot is a defined time when data accumulation occurs. By default, data is captured in the report at the end of simulation. Using snapshots enables you to capture data at other points during simulation.

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{button Related Topics,PI('`,`running\_\_rtf\_150969')}

[Getting Started With Simulation](#)

[Setting Up a Simulation Run](#)

[Run Setup dialog box](#)

[Run Setup dialog box - Snapshots tab](#)

[To snapshot model data](#)

## Run Setup dialog box - Snapshots tab

{button Tell me how...,PI('`,`running\_\_rtf\_150939')}

Element	Description
Specific Time	A snapshot is taken at a set time. To add a snapshot, click Add and enter the time that you want the snapshot to take place and the unit of time. Note that there is some file overhead associated with each snapshot because a large amount of data is saved.
Scheduled Event	A snapshot is taken when the event occurs. You choose the event from the scrolling list.

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{button Related Topics,PI('`,`running\_\_rtf\_151010')}


[Taking Snapshots During a Simulation](#)

[Getting Started With Simulation](#)

[Setting Up a Simulation Run](#)

[To snapshot model data](#)

### To snapshot model data

- 1  On the Model toolbar, click the Run Setup tool.
- 2 In the Run Setup dialog box, choose the Snapshots tab.
- 3 Add, modify, or delete a snapshot interval.

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{button Related Topics,PI('`,`running\_\_rtf\_151037')}

[Taking Snapshots During a Simulation](#)  
[Run Setup dialog box - Snapshots tab](#)  
[Setting Up a Simulation Run](#)



## Using Generators

{button Tell me how...,PI('`,`running\_\_rtf\_151077')}

A generator introduces transactions into the process at the first activity or at other entry points. It enables you to set a rate at which transactions enter the process. You can think of the generator as the driving force behind the process. For example, each generated transaction can represent a customer submitting an order or a new product being developed. Depending on the type of generator you choose, the transactions enter one at a time, in multiples, or whenever a resource is available.

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{button Related Topics,PI('`,`running\_\_rtf\_151067')}

[Running a Simulation](#)

[Define Generators dialog box](#)


[To define a generator](#)

[To define the generators - Now Try This](#)

[To define the resources - Now Try This](#)

[To run the simulation - Now Try This](#)

## To define a generator

- 1  On the Model toolbar, click the Generators tool.

or

On the Model menu, click Generators.

The Define Generators dialog box appears.

- For Existing Generators, click to select the generator name.
- To create a new generator, click Add.
- To delete a generator, select it and click Delete.

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{button Related Topics,PI('`,`running\_\_rtf\_151103')}

[Using Generators](#)

[Define Generators dialog box](#)

## Define Generators dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151142')}

Element	Description
Start point	Choose the process name and the name of the starting point. A start point corresponds to an activity that labels a start point.
Generator type	<p>Completion. The generator introduces a transaction into the process, and then introduces another transaction only after the previous one has completed its journey through the process. You set a count for the total number of consecutive transactions to be generated.</p> <p>A completion generator is useful for modeling how long a process takes, such as a product development cycle. There is seldom any resource contention between transactions in a completion generator model because one transaction always finishes before the next transaction starts. (One exception is, of course, if an activity splits a transaction and the family members compete for resources among themselves.)</p> <p>Demand. This generator sends a transaction to a start point every time a worker is available in the department containing the start point.</p> <p>You can use a demand generator to find out such things as maximum throughput of a process (for example, the production capacity of a manufacturing line).</p> <div><b>Note</b> The active limit sets the maximum number of transactions active in the process at any time. This places a limit on the generator.</div> <p>Interarrival. This generator issues transactions at a defined rate. You set the count and interarrival time. You can use this generator to model regular processes such as an order entry system where transactions occur on a regular basis.</p>
Active	Choose if the generator is generating any transactions. By default, a process has an active generator. An active generator works during simulation. The most common reason for deactivating a generator is for a

	subprocess. A subprocess typically gets transactions from other processes and not from a generator.
Active period to generate transactions	By default, the active period is the same as when the simulation starts and ends. You can set a start time if you want elapsed time to occur between the point when the simulation begins and the generator starts. Likewise, you can specify an end time when the generator stops issuing transactions.
Schedule of active period	Choose the schedule for the generator. A generator issues transactions only during active time in the schedule.
Count (Completion generator only)	Set the total number of transactions introduced during the simulation.
Initial and subsequent count (Interarrival generator only)	Set the number of transactions introduced at the generator start time and the number issued after the starting time, at subsequent points when the generator is about to generate a new transaction.
Interarrival time (Interarrival generator only)	<p>Choose how often transactions are introduced.</p> <p>Constant. Set a value and choose a unit of time. For example, a transaction is generated in the process every 2 hours.</p> <p>Distributed. Set the distribution range, function, and unit of time. For example, a transaction is generated in a normal distribution between every 5 and 25 minutes.</p> <p>Expression. Set the expression. Its value determines how often a transaction is generated.</p>
Attribute settings	This adds an "Initial Attribute Settings" area to the dialog box. These values are set for all newly generated transactions. You can initialize only transaction attributes in the generator.

Use this dialog box to add, modify, and delete generators.

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{button Related Topics,PI('`,`running\_\_rtf\_151136')}

## Using Generators



[To define a generator](#)

[To define the generators - Now Try This](#)

[To define the resources - Now Try This](#)

[To run the simulation - Now Try This](#)

## Using Resources

{button Tell me how...,PI('`,`running\_\_rtf\_151214')}

The resource list describes the number of workers and other resources available to the model.

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{button Related Topics,PI('`,`running\_\_rtf\_151176')}

[Running a Simulation](#)

[Properties dialog box](#)

[Add New Resource dialog box](#)

[Resource Pools dialog box](#)

[About Resource Costs](#)

[Define Days dialog box](#)

[Define Hours dialog box](#)

[Edit Composite Schedule dialog box](#)

[Define Event dialog box](#)

To define resources

To define resource pools

To create shared or unshared resource pools

## To define resources

- 1  On the Model toolbar, click the Resource tool.

or

On the Model menu, click Resources.

The Define Resources dialog box appears.

Under “Existing Resources,” the Worker resource is automatically defined for all models. This resource is automatically assigned a *Labor* resource type.

- To add a resource, click Add.  
In the Add New Resource dialog box, type a new name under Resource Name and choose a Resource Type.
- To modify a resource, select its name from the Existing Resources list and click Modify.

---

{button Related Topics,PI('`,`running\_\_rtf\_151236')}

[Add New Resource dialog box](#)

[Using Resources](#)

[To define resource pools](#)

[To create shared or unshared resource pools](#)

# Add New Resource dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151299')}

Use this dialog box to add or modify resources.

Element	Description
Resource type	<p>You can use the resource type to create categories of resources. These are used to organize report results. For example, you can view statistics that are sorted by labor, equipment, or other. Labor. This category typically describes human activity, such as people or positions that perform specific jobs.</p> <p>Equipment. This category describes physical resources such as machines, computers, or other equipment used in an operation.</p> <p>Other. This category is used for all other types of resources.</p>
Resource count	<p>This assigns the quantity of resources available.</p>
Schedule	<p>The schedule determines the active times for the resource. When a resource is in schedule, activities can use it to process transactions. When the resource is not in schedule, the transactions wait.</p>

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{button Related Topics,PI('`,`running\_\_rtf\_151273')}

[Using Resources](#)

[About Resource Costs](#)

[Define Days dialog box](#)

[Define Hours dialog box](#)

[Edit Composite Schedule dialog box](#)

[Define Event dialog box](#)



To define resources

To define resource pools

To create shared or unshared resource pools

## About Resource Costs

{button Tell me how...,PI('`,`running\_\_rtf\_151339')}

Activities can accumulate costs during simulation to provide data about different expenses. You set the costs to accumulate in two different places.

- A cost can be part of an activity base that includes fixed and value cost. A cost can be set as a result of resources used. The resource cost for an activity is the combination of its resources' hourly rate, per use cost, and overtime hourly rate.

Different units of time are converted automatically; for example, a rate can be in hours while the duration is days.

- Hourly Rate. The total hourly rate is calculated using the resource busy time. Per Use. This is a cost that accumulates each time the resource is used. For example, a duplicating machine accrues \$.05 for every copy it makes.
- Hourly Rate (Overtime). The overtime rate is calculated when a resource enters overtime. Whether a resource uses overtime depends on the resource behavior, the activity behavior, and the resource's schedule.
- Maximum Hours Per Day (Overtime). This sets the maximum overtime hours allowed for the resource on this activity. For example, a machine can run only two hours over its regular schedule.

For example, workers are responsible for manufacturing plastic disks. The workers have a standard schedule, and are paid \$12.00 an hour, \$18 overtime, and are authorized to work up to one hour overtime a day. The workers use a plastic extruding machine that is always available. The machine costs \$100 an hour to run, plus there is a per use cost of \$75. For example, for two hours, assume one hour of regular time and one hour of overtime. One worker uses the machine. For the first hour, \$12 of the worker's hourly rate is accumulated, plus \$100 for the machine's hour and \$75 per use. For the second hour, \$18 of the worker's overtime rate is accumulated, plus another \$100 for the machine's hour. The total for the two hours is \$305.

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{button Related Topics,PI('`,`running\_\_rtf\_151329')}

Using Resources

Using Schedules

[To set up a simulation](#)

## Using Resource Pools

{button Tell me how...,PI('`,`running\_\_rtf\_151395')}

A pool is a group of identical resources. The resources in a pool are allocated and queued independently from other resources in other pools. You set the order that multiple pools are drawn from and the sequence for transactions to enter the queue. Each pool has its own allocation of resources.

iGrafx *Process* creates one pool for each department, even if the pool has only one worker. All other types of resources are combined into shared pools.

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{button Related Topics,PI('`,`running\_\_rtf\_151361')}

[Using Resources](#)

[Add New Resource dialog box](#)

[About Resource Costs](#)

[Define Days dialog box](#)

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[Edit Composite Schedule dialog box](#)

[Define Event dialog box](#)

[Using Schedules](#)

To define resource pools

To define resources

To create shared or unshared resource pools

### To define resource pools

- 1 In the Define Resources dialog box, click Advanced.

The resources are arranged by pool.

- 2 (Optional) For Resources, click to select a pool.

Newly created pools are appended after the selected pool.

- 3 Click Add Pool.

A new pool is created. The pool name is dimmed if there are no departments assigned to it. The pool name is a series set by the system, for example, Pool-B, Pool-C, and so on.

The report area displays the pool information. For example, Dept. 1 uses Pool-A exclusively and Dept. 2 uses Pool-B exclusively. Pool-C has a single worker but is not assigned to any department.

- 4 When more than one process is open, you can share the resource pools between processes.

To separate the pools by process, select the By Process check box.

To share the pools between processes, clear the By Process check box.

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{button Related Topics,PI('`,`running\_\_rtf\_151361')}



[Using Resource Pools](#)

[Shared and Unshared Pools](#)

[Add New Resource dialog box](#)

[Resource Pools dialog box](#)

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[Define Days dialog box](#)

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[Edit Composite Schedule dialog box](#)

[Define Event dialog box](#)

[To define resources](#)

[To create shared or unshared resource pools](#)

## Shared and Unshared Pools

{button Tell me how...,PI('`,`running\_\_rtf\_151508')}

A pool can be unshared or shared. In an unshared pool, resources are allocated to one department. In a shared pool, multiple departments and processes draw from the same pool when they acquire a resource. You can view a diagram of shared pool allocations in the Scenario window under Resources.

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{button Related Topics,PI('`,`running\_\_rtf\_151478')}

[Add New Resource dialog box](#)

[Resource Pools dialog box](#)

[About Resource Costs](#)

[Define Days dialog box](#)

[Define Hours dialog box](#)

[Edit Composite Schedule dialog box](#)

[Define Event dialog box](#)

To create shared or unshared resource pools

To define resource pools

To define resources

**To create shared or unshared resource pools**

- 1 In the Define Resources dialog box, click Advanced.

The data in the dialog box is updated.

- 2 For Department, double-click the department name for which you are selecting one or more pools.

or

Click to select the department name and click Modify Pool.

The dialog box appears with the resource, department, and process data.

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{button Related Topics,PI('`,`running\_\_rtf\_151530')}

[Resource Pools dialog box](#)

[Add New Resource dialog box](#)

[Resource Pools dialog box](#)

[About Resource Costs](#)

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[Define Event dialog box](#)

[To create shared or unshared resource pools](#)

[To define resource pools](#)

[To define resources](#)

## Resource Pools dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151624')}

Use this dialog box to define resource pools.

Element	Description
Selected pools	Select the pools for the department. Selected pools are added to the department; pools that are not selected are removed. For example, Pool-A is selected and Pool-B and Pool-C are not.
Search Order	Use the up and down arrows and the First and Last buttons to list the pools in the order you want them searched from top to bottom.
Queuing method	<p>Choose the order in which transactions wait before their resource requests are processed.</p> <p>First In, First Out. Transactions queue in the order that they arrive.</p> <p>First In, Last Out. Transactions queue in the reverse order.</p> <p>Min of Attribute. Choose the transaction attribute that you want to queue by its minimum value.</p> <p>Max of Attribute. Choose the transaction attribute that you want to queue by its maximum value.</p>

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{button Related Topics,PI('`,`running\_\_rtf\_151594')}

[Add New Resource dialog box](#)

[Resource Pools dialog box](#)

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[Edit Composite Schedule dialog box](#)

[Define Event dialog box](#)



To create shared or unshared resource pools

To define resource pools

To define resources

## Tracing the Model While Running the Simulation

{button Tell me how...,PI('`,`running\_\_rtf\_151697')}

You can start, stop, or run a trace simulation by pointing to Run on the Model menu and clicking Check, Start, Stop, Pause, or Trace. You can also click the Start, Stop, Pause, and Trace tools on the Model toolbar.

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{button Related Topics,PI('`,`running\_\_rtf\_151659')}

[Setting Up a Simulation Run](#)

[Using Generators](#)

[Using Resources](#)

[Tracing the Model While Running the Simulation](#)

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[To check the model](#)

[To start a trace](#)

[To start or stop a simulation](#)

[To set up a simulation](#)

### To check the model

- ▶ On the Model menu, point to Run, and then click Check.  
Errors in the Model data are displayed on the Model tab of the Output window.

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{button Related Topics,PI('`,`running\_\_rtf\_151731')}

### To start a trace

- ▶ On the Model menu, point to Run, and then click Trace.  
The trace window appears and the simulation starts. If a process error or warning occurs, a message window appears. The trace of the simulation runs to completion so you generally do not need to manually stop it.

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{button Related Topics,PI('`,`running\_\_rtf\_151731')}

[To start and stop the simulation while in trace mode](#)

[To start or stop a simulation](#)

[To set up a simulation](#)

[Tracing the Model While Running the Simulation](#)

### To start or stop a simulation

- ▶ On the Model menu, point to Run, and then click Start or Stop.
- On Model menu, point to Run, and then click Start.

This begins the simulation. If a process error or warning occurs, a message window appears. The simulation runs to completion so you generally do not need to manually stop it.

- On Model menu, point to Run, and then click Stop.

You can stop a simulation at any point while it is running. Any warnings or error messages appear in the message window.

#### Note

If you double-click an error in the message window, the source of the error is displayed.

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{button Related Topics,PI('`,`running\_\_rtf\_151731')}



## Using Schedules

{button Tell me how...,PI('`,`running\_\_rtf\_151815')}

When you create the simulation data for a scenario, you can set the simulation to begin Monday morning at 8:00 am (which is the default) or you can designate the exact days and hours during which the simulation takes place. The specification is given as a schedule. A schedule is a list of active hours and days. You can use schedules to set active times for the following:

- Resources

A resource's schedule determines the times that the resource is available. You set the schedule when you define a resource. For example, at a management consultant firm, the consultants are available Monday through Friday from 8:00 am to 5:00 pm. If a client has a consulting question during the evening, the question must wait until the morning when the consultants are back at work. Schedules can be applied directly to activities. However, they are more simply applied to the resources used by the activities.

- Activities

An activity's schedule determines the times that the activity can process transactions. You set the schedule when you define the activity. For example, at a testing laboratory, the assistants always have a department meeting on the first Tuesday of the month. During this meeting time, no testing takes place.

- Generators

The schedule for a generator determines the active period during which the generator can issue transactions. You set a generator's schedule when you define the generator. For example, at a hoist and crane-manufacturing warehouse, an order for a new crane comes in only during normal working hours. However, after an order is received, the workers work on building the crane during the night.

- Events (Batch by time)

An activity can process transactions at the point when a schedule event happens. You set a batching event when you define the activity's inputs. For example, a bank has an automatic cash machine in which customers can make deposits during the evening hours when the bank is closed. The bank processes the deposits at 9:00 am every morning.

You can choose from a large set of schedules that are provided with iGrafx *Process* or you define your own. A schedule consists of lists of the active days and hours.

---

{button Related Topics,PI('`,`running\_\_rtf\_151773')}

[Running a Simulation](#)

[Defining Schedules](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

[Tracing the Model While Running the Simulation](#)

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## About Schedules and Overtime

When you define a resource, you assign it a schedule. The schedule describes the time the resource is either available for work or out of service. Any time outside the schedule is considered to be inactive time and is a potential span for overtime. For example, a resource can be assigned to work during the standard shift. Any time before 8:00 am and after 5:00 pm is potentially overtime.

A resource is assigned an overtime rate and a maximum amount of overtime that it can work. For example, if a resource has a maximum overtime of zero, the resource never works outside its schedule. If the maximum overtime is two, the resource is eligible to work two hours a day during its inactive hours.

---

{button Related Topics,PI('','running\_\_rtf\_151773')}

## Defining Schedules

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

When an activity or resource is described as being in schedule, it means that the current time is an active period. Likewise, when an activity or resource is out of schedule, it is not an active period. For example, if you choose the Always schedule on a generator, the generator can issue transactions at any time. If you choose the Swing schedule on a generator, the generator can issue transactions only during the hours of 4:30 pm to 12:30 am.

---

{button Related Topics,PI('`,`running\_\_rtf\_151861')}

[Using Schedules](#)

[Defining Days](#)

[Defining Hours](#)

[Defining Schedule Types](#)

[Defining Composite Schedules](#)

[Defining Event Schedules](#)

[To define or edit a schedule](#)

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[To add or edit a definition for hours within a schedule](#)

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[To define an event schedule](#)

## Defining Schedule Types

You can use the following schedule types to define resource or activity schedules:

- Always—All hours and all days.
- Standard—Standard\_Days and Standard\_Hours.
- Swing—Standard\_Days and Swing\_Hours.
- Night—Standard\_Days and Night\_Hours.
- Standard\_With\_Holidays—Standard\_Days and Standard\_Hours, with the exception of US\_Holiday\_Days.
- Swing\_with\_Holidays—Standard\_Days and Swing\_Hours, with the exception of US\_Holiday\_Days.
- Night\_with\_Holidays—Standard\_Days and Night\_Hours, with the exception of US\_Holiday\_Days.
- Two\_Shifts—Standard\_Days, with both Standard\_Hours and Swing\_Hours, with the exception of US\_Holiday\_Days.
- Three\_Shifts—Standard\_Days, with Standard\_Hours, Swing\_Hours, and Night\_Hours, with the exception of US\_Holiday\_Days.
- US\_Holidays—Holiday\_Days and All\_Hours.

---

{button Related Topics,PI('`,`running\_\_rtf\_151861')}



## To define or edit a schedule

- 1  On the Model toolbar, click the Schedule tool.

or

On the Model menu, click Schedule.

The Define Schedule dialog box appears.

- To edit an existing schedule, select it.
- To define a new schedule, click to select a schedule that is similar to the one you will be creating, and click Add. This creates a copy of the schedule and displays the Add New Schedule dialog box. You enter a new name (no spaces) and click OK.

The name is selected from the list of existing schedules and a visual representation of the calendar is displayed in the dialog box. The colors of the days indicate their status.

- Green—Days that are displayed in green represent active time.
  - Gray—Days that are displayed in gray are not part of the schedule and are therefore marked inactive.
  - Red (only in composite schedules)—Days that are displayed in red are specifically marked inactive by another schedule.
- You can click a day to see the exact active hours. For example, if you click January 9 in the Standard\_with\_Holidays schedule, the standard hours appear.

- 2 From the Time Line, choose the days and hours to be included as active in the schedule.

- 3 To add inactive time, create a composite schedule.

### Note

Any changes that you make to a schedule apply only to the active process diagram. To copy the schedule to other process diagrams or templates, use the Scenario window. [See To copy and paste scenario data on page 542.](#)

---

{button Related Topics,PI('','running\_\_rtf\_151925')}

[Define Days dialog box](#)

[Defining Days](#)

[Defining Hours](#)

[Defining Schedule Types](#)

[Defining Composite Schedules](#)

[To define or edit a schedule](#)

[To add or edit a definition for days within a schedule](#)

[To add or edit a definition for hours within a schedule](#)

[To create a composite schedule](#)

[To define an event schedule](#)

## Defining Days

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}


You can use the following definitions to define a day in resource or activity schedules:

- Standard—Monday through Friday.
- Weekend\_Days—Saturday and Sunday.
- Holiday\_Days—New Year's Day, Memorial Day, July Fourth, Labor Day, Thanksgiving Day, and Christmas Day.
- Mondays—Every Monday.
- Tuesdays—Every Tuesday.
- Wednesdays—Every Wednesday.
- Thursdays—Every Thursday.
- Fridays—Every Friday.
- Saturdays—Every Saturday.
- Sundays—Every Sunday.
- First\_Day\_of\_Month—The first day of every month.
- Last\_Day\_of\_Month—The last day of every month.

---

{button Related Topics,PI('`,`running\_\_rtf\_151861')}

## To add or edit a definition for days within a schedule

- 1  On the Model toolbar, click the Schedules tool.

*or*

On the Model menu, click Schedule.

The Define Schedule dialog box appears.

- 2 Under Time Line, next to Days, click Define.

The Define Days dialog box appears. Days that have not been assigned appear white.

### **Note**

If you change the definition for Standard\_Days (or any other day or hour schedules), it changes all schedules in the active process diagram that contain that day schedule.

---

{button Related Topics,PI('`,`running\_\_rtf\_151991')}

[Define Days dialog box](#)

[Defining Schedules](#)

[To define or edit a schedule](#)

[To add or edit a definition for days within a schedule](#)

[To add or edit a definition for hours within a schedule](#)

[To create a composite schedule](#)

[To define an event schedule](#)

## Define Days dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

Use this dialog box to select and edit an existing list, or click Add to create a list.

- Day Type—Choose which days are to be included. The choices are Selected Days, First Work Day, or Last Work Day.

For Selected Days, click the days in the week or calendar to choose them.

- Week Type—Choose among Weekly, Every N Weeks, or Calendar.

At this point, the days simply form a list. Later, when the list is included in a composite schedule, you can specify whether the list is active or inactive. For example, Holiday\_Days is a list of standard holidays. When included in a composite schedule, it is specified as inactive (for example, no one works during holidays).

---

{button Related Topics,PI('`,`running\_\_rtf\_151861')}

## Defining Hours

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}


The following definitions are used to define the hours in resource or activity schedules:

- **Standard\_Hours**—The time periods are 8:00 am to 12:00 pm, 12:00 pm to 1:00 pm (out of service), and 1:00 pm to 5:00 pm.
- **Swing\_Hours**—The time periods are 4:00 pm to 8:00 pm, 8:00 pm to 9:00 pm (out of service), 9:00 pm to 12:00 am, and 12:00 am to 1:00 am.
- **Night\_Hours**—The time periods are 12:00 am to 4:00 am, 4:00 am to 5:00 am (out of service), and 5:00 am to 9:00 am.

---

{button Related Topics,PI('`,`running\_\_rtf\_151861')}

### To add or edit a definition for hours within a schedule

- 1  On the Model toolbar, click the Schedules tool.

or

On the Model menu, click Schedule.

The Define Schedule dialog box appears.

- 2 Under Time Line, next to Hours, click Define.

The Define Hours dialog box appears.

You can select an existing list to edit it, or you can click Add to create a new list.

---

{button Related Topics,PI('`,`running\_\_rtf\_152063')}



[Defining Schedules](#)

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## Define Hours dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

Element	Description
Out of Service Span	Defines the currently selected time span as out of service. Out of service time is not eligible for overtime and is maintained as a separate statistic in the report results.
Paid	Defines the currently selected time span as paid (the default). An unpaid time span can be used for such things as coffee breaks.

---

{button Related Topics,PI('`,`running\_\_rtf\_151861')}

## Defining Composite Schedules

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

A composite schedule is a combination of existing schedules and lists of days and hours (some of which may be inactive) that creates a new schedule. You can edit an existing schedule or combine schedules to create a composite schedule.

Creating a composite schedule can save you time because it takes advantage of predefined components such as holidays. For example, a `Swing_With_Holidays` schedule is a composite schedule. It consists of the `Swing` schedule with `US_Holidays` schedule excluded. When a composite schedule is created, the days and hours form a *mask* or an overlay on the schedule, depending on whether the hours and days are active or inactive.

To define a new schedule, create a new schedule, or pick and choose among existing schedules, and then add different active or inactive hours to make a new schedule.


---

{button Related Topics,PI('`,`running\_\_rtf\_152127')}

Defining Schedules

Using Schedules

### To create a composite schedule

- 1  On the Model toolbar, click the Schedule tool.

or

On the Model menu, click Schedule.

- 2 In the Define Schedule dialog box, under Time Line, click Composite.

The Edit Composite Schedule dialog box appears.

---

{button Related Topics,PI('`,`running\_\_rtf\_152145')}

[Defining Days](#)

[Defining Hours](#)

[Defining Schedule Types](#)

[Defining Composite Schedules](#)

[To define or edit a schedule](#)

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[To create a composite schedule](#)

[To define an event schedule](#)

## Edit Composite Schedule dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

A composite schedule can consist of more than one schedule and more than one list of days and hours. You can select an existing composite and edit it, or click Insert Days/Hours or Insert Schedule to create a new composite.

- Choose a Days definition (or create a new one by clicking Define).
- Choose an Hours definition (or create a new one).
- Specify whether the days and hours are inactive time (that is, nothing happens during this time).
- To insert another schedule, click Insert Schedule.

This displays a list of available schedules to choose from (or you can create a new one). You can also specify whether the schedule is active or not.

For example, in the following illustration, Consultant\_Days consists of two schedules, Standard and Swing, both of which are active.

---

{button Related Topics,PI('`,`running\_\_rtf\_152201')}

Defining Schedules

Using Schedules



## Defining Event Schedules

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

An event schedule is a list of specific points in time, as compared to a regular schedule that includes time spans. You use an event schedule when you want to designate an event that happens at a specific time, for example, a batch process.

---

{button Related Topics,PI('`,`running\_\_rtf\_152227')}

[Defining Hours for Events](#)

[Defining Days for Events](#)

[Defining Schedules](#)

[Using Schedules](#)

## Defining Hours for Events

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

You can set the following parameters to define event hours:

- Morning. 8:00 am.
- Afternoon. 1:00 pm.
- End\_of\_Day. 5:00 pm.

---

{button Related Topics,PI('`,`running\_\_rtf\_152261')}

[Defining Event Schedules](#)

[Defining Schedules for Events](#)

[Defining Days for Events](#)

[Defining Schedules](#)

[Using Schedules](#)

## Defining Schedules for Events

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

You can set the following parameters to define event schedules:

- Every\_Morning—An event happens every morning.
- Every\_Afternoon—An event happens every afternoon.
- Every\_End\_of\_Day—An event happens every End\_of\_Day.
- Weekly—An event happens Monday morning of every week.
- First\_of\_Month—An event happens on the first morning of every month.
- Last\_of\_Month—An event happens on the last morning of every month.

---

{button Related Topics,PI('`,`running\_\_rtf\_152299')}

[Defining Event Schedules](#)

[Defining Hours for Events](#)

[Defining Days for Events](#)

[Defining Schedules](#)

[Using Schedules](#)

## Defining Days for Events

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

Event days are defined the same as days.

---

{button Related Topics,PI('`,`running\_\_rtf\_152337')}

[Defining Days](#)

[Defining Event Schedules](#)

[Defining Schedules for Events](#)

[Defining Schedules](#)

[Using Schedules](#)



## To define an event schedule

- 1  On the Model toolbar, click the Event tool.

or

On the Model menu, click Event.

The Define Event dialog box appears. A list of existing events is displayed.

- 2 To see the definition for an existing event, click to select it.

The dialog box is updated to show the weekly or monthly calendar that displays the event. You can view the hours of the event by clicking a specific day in the calendar.

You can select an existing list to edit it, or click Add to create a new event.

---

{button Related Topics,PI('`,`running\_\_rtf\_152367')}

[Defining Schedule Types](#)

[Defining Composite Schedules](#)

[To define or edit a schedule](#)

[To add or edit a definition for days within a schedule](#)

[To add or edit a definition for hours within a schedule](#)

[To create a composite schedule](#)

[To define an event schedule](#)

## Define Event dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_152437')}

Use this dialog box to define events. Events are usually used when specifying batch inputs by time.

- Days—Select from the list, or click Define to create one.
- Hours—Select from the list, or click Define to create one.

---

{button Related Topics,PI('`,`running\_\_rtf\_152415')}

[Defining Schedules](#)

[Defining Composite Schedules](#)

[Defining Schedule Types](#)

[Defining Days](#)

[Defining Hours](#)

[To define or edit a schedule](#)

[To add or edit a definition for days within a schedule](#)

[To add or edit a definition for hours within a schedule](#)

[To create a composite schedule](#)

[To define an event schedule](#)

## Opening Multiple Scenarios

{button Tell me how...,PI('`,`running\_\_rtf\_152505')}

You can create multiple scenarios to compare models. A model consists of one or more process diagrams, reports, and scenario data. If you find that you make many changes to the scenario data between simulations, you can use multiple scenarios to save time . You can create two or more versions of the scenario data to compare the results of such things as changing the number of transactions generated or the value of an attribute.

The run setup, generators, resources, schedules, initializations, function definitions, and monitoring information apply only to a single scenario. You must supply this information for each scenario (or use the defaults). Process diagrams form the base for all of the scenarios. The only differences are the scenario data; for example, the function definitions or the generators.

---

{button Related Topics,PI('`,`running\_\_rtf\_152475')}

[Running a Simulation](#)

[Using the Scenario Window](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

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[To open a new scenario](#)

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[To load example data for running a simulation - Now Try This](#)



**To open a new scenario**

- 1 On the File menu, click Components.
- 2 In the Components dialog box, click New, and then click Scenario.
- 3 To close the Components dialog box, click Close.

---

{button Related Topics,PI('`,`running\_\_rtf\_152551')}

[Using the Scenario Window](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

[Using Resources](#)

[Tracing the Model While Running the Simulation](#)

[Using Schedules](#)

[To copy scenario data](#)

[To paste scenario data](#)

[To delete or rename a scenario](#)

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[To load example data for running a simulation - Now Try This](#)

### **To copy scenario data**

When you open a new scenario, it contains the system defaults. If you have set up a scenario and want to use it as the basis for a new scenario, you can use the Copy and Paste buttons.

- 1 On the File menu, click Components.
- 2 In the Components dialog box, select the name of the scenario that you want to copy.
- 3 Click Copy.

---

{button Related Topics,PI('`,`running\_\_rtf\_152617')}

[Using the Scenario Window](#)

[Setting Up a Simulation Run](#)

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[To load example data for running a simulation - Now Try This](#)

## To paste scenario data

After you copy a scenario to the clipboard, you can paste it to create a new scenario.

- 1 In the Scenarios dialog box, click Paste.

This pastes a copy of the scenario information on the clipboard to create a new scenario. The new scenario is the last number in the sequence (for example, Scenario4 if there were previously three scenarios).

The Paste button appears only if a scenario has been copied to the clipboard. You can also copy and paste scenarios between files.

- 2 Double-click the new scenario name.

This opens the copied scenario.

---

{button Related Topics,PI('','running\_\_rtf\_152683')}

[Using the Scenario Window](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

[Using Resources](#)

[Tracing the Model While Running the Simulation](#)

[Using Schedules](#)

[To open a new scenario](#)

[To copy scenario data](#)

[To delete or rename a scenario](#)

[To open the scenario window or view a scenario](#)

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[To arrange windows](#)

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[To load example data for running a simulation - Now Try This](#)

**To delete or rename a scenario**

- 1 On the File menu, click Components.
- 2 Select the scenario that you want to delete or rename.
  - To delete, click Delete.
  - To rename, click Rename. The Rename dialog box appears. The name can contain as many as 64 alphanumeric characters, including underscore and space characters.

---

{button Related Topics,PI('`,`running\_\_rtf\_152749')}

[Using the Scenario Window](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

[Using Resources](#)

[Tracing the Model While Running the Simulation](#)

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[To copy scenario data](#)

[To paste scenario data](#)

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[To copy and paste scenario data](#)

[To arrange windows](#)

[To reopen a window](#)

[To load example data for running a simulation - Now Try This](#)



## Using the Scenario Window

{button Tell me how...,PI('`,`running\_\_rtf\_152857')}

The scenario window lists all of the scenario data that you can set with the tools using the Model menu or the Model toolbar (Run Setup, Generators, Resources, and so forth).

Use the scenario window to set global aspects of simulation. The scenario window is in outline form. Click the Plus icon to expand or the Minus icon to collapse a topic. After you expand a topic, you can double-click any item to display the dialog box to change its value. After you set global data, on the Model menu, point to Run, and then click Start to begin the simulation.

---

{button Related Topics,PI('`,`running\_\_rtf\_152823')}

[Running a Simulation](#)

[About the Generator Timeline](#)

[Opening Multiple Scenarios](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

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[To open a new scenario](#)

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[To paste scenario data](#)

[To delete or rename a scenario](#)

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[To arrange windows](#)

[To reopen a window](#)

[To load example data for running a simulation - Now Try This](#)

### To open the scenario window or view a scenario

- 1 On the Model toolbar, click the Scenarios tool.

or

On the File menu, click Components.

The Components dialog box appears with a list of available scenario names.

- 2 Double-click the name of the scenario you want to open, typically Scenario1.

or

Select the name and click View.

The Scenario window opens. You can click the outline buttons to expand and contract them. Some categories are unavailable because their members are not used in any activities.

#### Note

After you have a window open, use the Windows menu to view it.

You can delete unused data whenever it is no longer needed. For example, if you created a function that is no longer used, its definition is kept in the scenario window for later use but it is dimmed. You can delete it by selecting the definition and pressing Delete.

---

{button Related Topics,PI('','running\_\_rtf\_152903')}

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[To copy and paste scenario data](#)

[To arrange windows](#)

[To reopen a window](#)

[To load example data for running a simulation - Now Try This](#)

### To copy and paste scenario data

To copy scenario data, for example, a generator definition or schedule, into another process diagram, follow these steps.

- 1 In the Scenario window, click to expand the topic so that you can view the data that you want to copy.
- 2 Click to select the data.

For example, the *Standard\_Hours* schedule is selected.

- 3 On the Edit menu, click Copy.
- 4 Open the Scenario window in another process diagram.
- 5 Click to expand this topic to view the data that matches what you have copied to the clipboard.
- 6 On the Edit menu, click Paste.

---

{button Related Topics,PI('`,`running\_\_rtf\_152957')}

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[To load example data for running a simulation - Now Try This](#)

## About the Generator Timeline

The timeline is a visual method for checking the simulation time. It appears after you have defined a custom starting or ending time. The top half of the timeline shows units of simulated time. A red line marks the actual length of the simulation as set in the control data. The bottom half of the timeline indicates how long the generator is going to issue transactions.

---

{button Related Topics,PI('`,`running\_\_rtf\_152823')}



### To arrange windows

After you open any of the iGrafx *Process* windows, you can use the Window menu to arrange the windows on the screen or to view them one at a time. The Window menu contains standard Windows items.

---

{button Related Topics,PI('`,`running\_\_rtf\_152823')}

### **To reopen a window**

If you close a process, scenario, or report window, you can open it by clicking Components on the File menu, selecting a process, scenario, or report, and then clicking View.

---

```
{button Related Topics,PI('`,`running__rtf_152823')}
```

## Running a Simulation - Now Try This

{button Tell me how...,PI('','running\_\_rtf\_153105')}

Ticket Service provides tickets to concerts, plays, and sporting events. When customers arrive at the ticket sales counter, they are asked for the event and number of tickets. If tickets are available, the worker chooses the seats and processes the payment. In this exercise, your task is to set the simulation data and run a simulation.

{button Next,JI('>procedur','running\_\_rtf\_128734')}

---

{button Related Topics,PI('','running\_\_rtf\_153067')}

[Running a Simulation](#)

[Setting Up a Simulation Run](#)

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[To load example data for running a simulation - Now Try This](#)

[To create a calendar - Now Try This](#)

[To define the run setup - Now Try This](#)

[To define the generators - Now Try This](#)

[To define the resources - Now Try This](#)

[To run the simulation - Now Try This](#)

**To load example data for running a simulation - Now Try This**

{button Previous,JI('>concept','running\_\_rtf\_128651')}

- 1 On the File menu, click Close, and close any open diagrams.
- 2 On the File menu, click Open.
- 3 Select iGrafx\Pro\8.0\Exercise\Ex6.igx, and click Open.

The process diagram appears.

{button Next,JI('>procedur','running\_\_rtf\_128761')}

---


{button Related Topics,PI('', 'running\_\_rtf\_153156')}

[Running a Simulation - Now Try This](#)

## To create a calendar - Now Try This

```
{button Previous,JI('>procedur','running__rtf_128734')}
```

For the TicketService example, you will create a new schedule that adds new Company holidays to the existing holiday schedule.

- 1  On the Model toolbar, click the Schedule tool.

or

On the Model menu, click Schedules.

The Define Schedule dialog box appears.

- 2 In the Existing Schedules list, click to select Holidays (or US\_Holidays).

You might have to scroll to see it.

- 3 Click Add.

This makes a copy of the Holidays and displays the Add New Schedule dialog box.

- 4 Enter the name: Company\_Holidays

- 5 Click OK to close the dialog box.

- 6 Under Time Line, for Days, make sure that Holiday\_Days is displayed and click Define.

- 7 In the Define Days dialog box, click Add.

This makes a copy of Holiday\_Days and displays the Add New Day dialog box.

- 8 Enter the name: Company\_Days\_Off

- 9 Click OK to close the dialog box.

- 10 Back in the Define Days dialog box, leave the Day Type set to Selected Days and Calendar.

- 11 In the calendar, go to the appropriate months, and click these days.

March 15, 1997 for Founder's Day

July 30, 1997 for Annual Picnic

The days are displayed in green.

- 12 Click OK to close the Define Days dialog box.

- 13 Under Existing Schedules, select Standard\_with\_Holidays.

- 14 Under Time Line, click Edit Composite.

The Edit Composite Schedule dialog box appears.

- 15 In the Composite list, click to select US\_Holidays.



16 For Available Schedules, choose Company\_Holidays.

17 Click to specify inactive time.

18 Click OK to close both dialog boxes.


{button Next,JI('>procedur','running\_\_rtf\_128815')}

---

{button Related Topics,PI('','running\_\_rtf\_153156')}

### To define the run setup - Now Try This

{button Previous,JI('>procedur','running\_\_rtf\_128761')}

- 1  On the Model toolbar, click the Run Setup tool.

or

On the Model menu, click Run Setup.

- 2 In the Run Setup dialog box, choose the Simulation Time tab.

- 3 For Simulation Time, choose Calendar.

- 4 For Default Schedule, choose Standard\_with\_Holidays.

This is the schedule that uses the Company holidays.

- 5 For Simulation Start, choose By Weekday.

- 6 For Simulation End, choose Custom.

- 7 Set the custom end time to 5 Days.

- 8 Set the Time Conversion to Standard.

- 9 Click OK to close the Run Setup dialog box.


{button Next,JI('>procedur','running\_\_rtf\_128848')}

---

{button Related Topics,PI('','running\_\_rtf\_153156')}

### To define the generators - Now Try This

```
{button Previous,JI('>procedur','running__rtf_128815')}
```

- 1  On the Model toolbar, click the Generators tool.

or

On the Model menu, click Generators.

- 2 In the Define Generators dialog box, check to make sure that "Generator 1" in Existing Generators is highlighted to indicate that it is selected.
- 3 For Generator Type, choose Interarrival.
- 4 For Interarrival Time, choose Distributed.
- 5 For Distribution Range, set the range to: Between 10 and 15 Minutes
- 6 Click OK to close the dialog box.

```
{button Next,JI('>procedur','running__rtf_128877')}
```


---

```
{button Related Topics,PI('','running__rtf_153156')}
```

### To define the resources - Now Try This

{button Previous,JI('>procedur','running\_\_rtf\_128848')}

There are two workers in the Ticket Sales department. They are paid \$10 an hour and are eligible for up to one-half hour overtime, at \$15 an hour, if they have already started working on a ticket sale.

- 1  On the Model toolbar, click the Resources tool.

or

On the Model menu, click Resources.

- 2 In the Define Resources dialog box, check to make sure that "Worker" in Existing Resources is highlighted to indicate that it is selected.
- 3 Increase the number of resources to 2.
- 4 Set the schedule to Default.
- 5 For Hourly Rate, enter: 10.00
- 6 For Overtime, enter: 15.00
- 7 For Max Hours Per Day, enter: .50
- 8 Click OK to close the Define Resources dialog box.

{button Next,JI('>procedur','running\_\_rtf\_128909')}

---

{button Related Topics,PI('','running\_\_rtf\_153156')}

### To run the simulation - Now Try This

```
{button Previous,JI('>procedur','running__rtf_128877')}
```

After setting the schedule, run setup, generators, and resource information, it is time to run the simulation.

- 1 On the Model menu, point to Run, and then click Start.

This runs the simulation and makes the Report window active.

- 2 In the report window, look at the Time tab. The simulation ran for five days, which was set in Run Setup. Remember that this is 120 hours in calendar time.

190 transactions completed the process, with an average service time of 21.40 minutes.

(In the following report element, several statistics are omitted for space reasons.)

- 3 Look at the Cost tab.

In the fourth report element, the total resource cost is \$825.33.

<b>Note</b>
-------------

In the following report element, several statistics are omitted.
--

- 4 This is the end of this exercise. If you want to save your file, do so now.

---

```
{button Related Topics,PI('','running__rtf_153156')}
```



## Using Trace Mode with Process Diagrams

{button Tell me how...,PI('`,`using\_th\_rtf\_53466')}

Trace mode graphically traces a simulation (the flow of transactions through a process diagram). The shapes for each activity change color as transactions move through them. Trace mode lets you troubleshoot a model by simply watching the transactions in the trace window – you can see how the model is working and identify problem areas.


### Trace Mode Features

The trace mode allows you to do the following:

- Visually track how a process diagram is transacted
- Use colors to display the state of an activity
- Set pause points that let you run the simulation to a pause point and then you can examine the status of individual settings
- View or set the value of transaction and global attributes during the simulation
- Quickly identify problem areas in a process diagram
- Track transaction paths
- Quick what-if analysis by modifying attributes
- Trace a simulation in normal (graphical) view
- Trace a simulation in tabular view

### Entering and Exiting Trace Mode

Enter and exit trace mode by selecting a process diagram, and then selecting the Trace command. Access the Trace command by doing the following:

- On the Model menu, point to Run, and then click Trace
-  On the Model menu, click the Trace tool.

#### Tip

All diagrams in the file enter or exit trace mode when you click the trace tool.

---

{button Related Topics,PI('`,`using\_th\_rtf\_53452')}

[Using the Trace Toolbar](#)

[Using the Global Attributes Window](#)

[Using Pause Points and the Pause Points Window](#)



To display the trace toolbar

To set the viewing percentage

To enable trace mode

To exit trace mode

To pause and resume a simulation while in trace mode

To run a simulation until a pause point is encountered while in trace mode

To stop a simulation while in trace mode

To start and stop the simulation while in trace mode

To increase or decrease the simulation speed while in trace mode

To change the trace colors

To open and close the Attributes window

To review or modify global attribute values during a simulation

To insert a pause point

To use pause points to start and stop a simulation

To edit a pause point

To delete pause points

## Using the Trace Toolbar

{button Tell me how...,PI('`,`using\_th\_rtf\_53552')}

The following tools are located on the Trace toolbar and are used to control the trace of a simulation:



To start the simulation, click Start.



To step through the simulation, click Step.



To pause the simulation, click Pause.



To resume the simulation after pausing, click Start/Resume.



To run the simulation until a pause point is encountered, click Go To Pause.



To stop the simulation, click Stop.



To restart the simulation until the next Pause point is encountered, click Go To Pause.



To increase or decrease the simulation speed, move the slider.

---

{button Related Topics,PI('`,`using\_th\_rtf\_53452')}

To display the trace toolbar

To set the viewing percentage

To enable trace mode

To exit trace mode

To pause and resume a simulation while in trace mode

To run a simulation until a pause point is encountered while in trace mode

To stop a simulation while in trace mode

To start and stop the simulation while in trace mode

To increase or decrease the simulation speed while in trace mode


To change the trace colors

### To enable trace mode

- 1 On the Window menu, select a process diagram.

or

On the Open menu, click Open, and select a process diagram.

- 2  On the Model menu, point to Run, and click Trace.

or

On the Model toolbar, click Trace.

#### Tip

If you have a process diagram in trace mode, you must exit trace mode before you can place another process diagram in trace mode.

The active window goes into trace mode.

#### Tip

Use the trace mode with a process diagram in normal or tabular view.

---

{button Related Topics,PI('','using\_th\_rtf\_53607')}

[Trace Colors dialog box](#)

[Using the Trace Toolbar](#)

[Using the Trace Numbers](#)

[Using the Global Attributes Window](#)

[To display the trace toolbar](#)

[To set the viewing percentage](#)

[To enable trace mode](#)

[To exit trace mode](#)

[To pause and resume a simulation while in trace mode](#)

[To run a simulation until a pause point is encountered while in trace mode](#)

[To stop a simulation while in trace mode](#)

[To start and stop the simulation while in trace mode](#)

[To increase or decrease the simulation speed while in trace mode](#)

[To change the trace colors](#)

**To exit trace mode**



Click Trace.

**To pause and resume a simulation while in trace mode**


- 1  Click Pause.

The simulation pauses.


- 2  Click Start/Resume.

The simulation resumes.

**To run a simulation until a pause point is encountered while in trace mode**

- 1 Select the shape containing the activity you would like to pause.
- 2 On the Control menu, click Set Pause Point to insert a condition that causes the simulation to pause.
- 3  To start or resume the simulation and watch the shapes change colors, click Start/Resume.

or

-  To start or resume the simulation until the next pause is encountered, click Go To Pause.  
The simulation resumes at maximum speed. The shapes will not change color until the simulation pauses.



## To stop a simulation while in trace mode



Click Stop.

The simulation stops. Trace mode remains active.

**To display the trace toolbar**

- 1 From the View menu, click Toolbars.
- 2 In the Toolbars dialog box, click the check box for Trace.

---

{button Related Topics,PI('`,`using\_th\_rtf\_53673')}

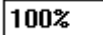

To pause and resume a simulation while in trace mode

To set the viewing percentage

To start and stop the simulation while in trace mode

To change the trace colors

### To set the viewing percentage

- 1   Use the View combo box in the standard toolbar.

or

From the View menu, click Zoom.

- 2 In the Zoom dialog box, set the viewing percentage.

#### Note

If you select All and change the size of the process window while in trace mode, the program recalculates the percentage and continues to display the entire process diagram.

- 3 To use the entire window, click the Maximize icon.

---

{button Related Topics,PI('','using\_th\_rtf\_53699')}

[To pause and resume a simulation while in trace mode](#)

[To start and stop the simulation while in trace mode](#)

[To change the trace colors](#)

## To start and stop the simulation while in trace mode



To start the simulation, click Start.

### Tip

To keep the report window from displaying on top of the process diagram after the simulation has completed, click Minimize on the report window, and convert it into an icon.



To stop the simulation, click Stop.

### To increase or decrease the simulation speed while in trace mode



To step through the simulation, click Step.



To pause the simulation, click Pause.



To resume the simulation after pausing, click Start/Resume.



To run the simulation until a pause point is encountered, click Go To Pause.



To restart the simulation until the next Pause point is encountered, click Go To Pause.



To increase or decrease the simulation speed, move the slider.

---

{button Related Topics,PI('','using\_th\_rtf\_53745')}

To pause and resume a simulation while in trace mode

To set the viewing percentage

To change the trace colors



## Setting Trace Colors

{button Tell me how...,PI('`,`using\_th\_rtf\_53825')}

Trace colors are used to display the status of an activity during the simulation of a process diagram that is in trace mode. Select the Trace Colors command on the Control menu to modify the trace colors.

---

{button Related Topics,PI('`,`using\_th\_rtf\_53775')}

[Trace Colors dialog box](#)

[Using the Global Attributes Window](#)

[Using Pause Points and the Pause Points Window](#)

# Trace Colors dialog box

{button Tell me how...,PI('`,`using\_th\_rtf\_53825')}

During the simulation of a process diagram that is trace mode, the activities change color to indicate the state of each transaction.

Color	Description
Green	Transaction is moving after completing an activity.
Blue	Transaction is working.  For example, the transaction is at an activity that has a work duration associated with it.
Red	Transaction is blocked, because it is waiting for a condition to change (other than resource availability).  For example, a transaction waits for a batching condition to be met or is blocked by a delay duration.
Yellow	Transaction is waiting for resources to become available.
Gray	Transaction is waiting because of a schedule that is inactive, for example, after 5:00 pm using the Standard schedule.  The schedule can apply to either a resource used by the activity or the activity itself.

[Using the Trace Toolbar](#)

[Trace Colors dialog box](#)

[Using the Global Attributes Window](#)

[Using Pause Points and the Pause Points Window](#)

To pause and resume a simulation while in trace mode

To start and stop the simulation while in trace mode

To change the trace colors

To open and close the Attributes window

To review or modify global attribute values during a simulation

To insert a pause point

### To change the trace colors

- 1 On the Control menu, click Trace Colors.
- 2 On the Trace Colors dialog box, use the scrolling lists to choose the new colors.
- 3 Click OK.

**Note**

You can use the trace window to view more than one process.

---

{button Related Topics,PI('`,`using\_th\_rtf\_53863')}

To open and close the Attributes window

To review or modify global attribute values during a simulation

To insert a pause point

## Using the Trace Numbers

{button Tell me how...,PI('`,`using\_th\_rtf\_53918')}

During the simulation of a process diagram that is in trace mode, inside each shape trace numbers may appear. The trace numbers provide detailed information about the transaction status. The transaction status is indicated by the color of the shape during the trace. When more than one transactions accumulate for processing at any activity, the trace numbers display the total number of transactions at the activity and the number of transactions that are in the shown state. Only one trace color appears in an activity at any one moment.

For example, at the following activity, fifteen total transactions have accumulated, and five are being worked. The trace numbers 5/15 appear inside the shape.

### Tip

You can also check the state of the other transactions. See [To open and close the Attributes window.](#)

---

{button Related Topics,PI('`,`using\_th\_rtf\_53452')}



[Using the Trace Toolbar](#)

[Using the Global Attributes Window](#)

[Using Pause Points and the Pause Points Window](#)

To pause and resume a simulation while in trace mode

To start and stop the simulation while in trace mode

To change the trace colors

To open and close the Attributes window

To review or modify global attribute values during a simulation

To insert a pause point

## Using the Transactions Window

{button Tell me how...,PI('`,`using\_th\_rtf\_53978')}

When you enable trace mode, the Transactions window appears. During a simulation, use this window to:

- View transaction status and data while the simulation runs
- View transaction attributes values
- Modify transaction attributes values to validate the data in your process diagram

### Reviewing and Modifying Transaction Attribute Data

The left side of the window sequentially numbers and displays the data for the transactions as they flow through the process diagram. Each transaction is on separate row. The column headings for the window include the names of the transaction attributes assigned to the transaction. To modify a transaction attribute, double-click on the cell you want to modify.

#### Tip

To display the transaction attributes column headings in the Transactions window, click the right mouse button in the window, and click Attributes on the shortcut menu.

### Reviewing and Editing Resource Data

The right side of the transaction window displays resource information for each transaction. Modify these settings by double-clicking on the value that you want to modify.

---

{button Related Topics,PI('`,`using\_th\_rtf\_53964')}

[Using the Trace Numbers](#)

[Using the Trace Toolbar](#)

[Using Pause Points and the Pause Points Window](#)

To pause and resume a simulation while in trace mode

To start and stop the simulation while in trace mode

To change the trace colors


To open and close the Attributes window

To review or modify global attribute values during a simulation

To insert a pause point

### To open and close the Transactions window

During a trace simulation, you can view transaction information in the Transactions window.

- 1  Click Trace.
- 2 On the View menu, click Transactions.

---

{button Related Topics,PI('','using\_th\_rtf\_53964')}

[Using the Trace Numbers](#)

[Using the Trace Toolbar](#)

[Using Pause Points and the Pause Points Window](#)

To pause and resume a simulation while in trace mode

To start and stop the simulation while in trace mode

To change the trace colors

To open and close the Attributes window

To review or modify global attribute values during a simulation

To insert a pause point



### To review or modify transaction attributes in the Transactions window

During a trace simulation, you can view transaction information in the Transactions window.


1  Click Trace.

2 On the View menu, click Transactions.

The Transactions window appears.

3 Click the right mouse button in the Transactions window, and click Attributes on the shortcut menu.

The column headings for the attribute values appear in the Transactions window.

4  Start the simulation.


Transactions, their attributes, and resource data appears in the Transactions window.

5  Click Pause.


6 To modify the transaction attribute associated with a transaction, double-click the value in the appropriate column in the Transactions window.

#### Note

Changing the duration transaction attribute does not affect the current activity.

7  Click stop to end the simulation.

or

 Click Resume/Start to restart the simulation, and repeat steps 4 – 6.

---

{button Related Topics,PI('`,`using\_th\_rtf\_53452')}

[Using the Trace Toolbar](#)

[Using the Global Attributes Window](#)

[Using Pause Points and the Pause Points Window](#)

To pause and resume a simulation while in trace mode

To start and stop the simulation while in trace mode

To change the trace colors

To open and close the Attributes window

To review or modify global attribute values during a simulation

To insert a pause point

## Using the Global Attributes Window

While in trace mode, you can display this window by selecting Attributes on the Control menu. During a simulation, use this window to:

- View global transaction attribute data while the simulation runs
- Modify global transaction attributes values to validate the data in your process diagram

---

{button Related Topics,PI('`,`using\_th\_rtf\_53964')}

[Using the Trace Numbers](#)

[Using the Trace Toolbar](#)

[Using Pause Points and the Pause Points Window](#)

To pause and resume a simulation while in trace mode

To start and stop the simulation while in trace mode

To change the trace colors


To open and close the Attributes window

To review or modify global attribute values during a simulation

To insert a pause point

### To open and close the Attributes window

During a trace simulation, you can view the settings for global attributes global attributes window.

- 1  Click Trace.
- 2 On the View menu, click Attributes.

---

{button Related Topics,PI('','using\_th\_rtf\_54166')}

To review or modify global attribute values during a simulation




### To review or modify global attribute values during a simulation

1  Click Trace.

2 On the View menu, click Attributes.


3 The Attributes window appears.

4  Start the simulation.


The global attributes (scenario, process, and department attributes) settings appear in the Attributes window during this simulation.

5  Click Pause.

6 To modify the global attribute associated with a transaction, double-click the value in the appropriate column in the Attributes window.

7  Click stop to end the simulation.

or

 Click Resume/Start to restart the simulation, and repeat steps 4 – 6.

8 To remove the attribute window, on the View menu, click Attributes.

---

{button Related Topics,PI('','using\_th\_rtf\_54184')}

To open and close the Attributes window

To insert a pause point

## Using Pause Points and the Pause Points Window

{button Tell me how...,PI('`,`using\_th\_rtf\_54246')}

A pause point is a breaking position that you can place in a trace simulation. When you run a trace, transactions stop at any pause points. You can use this break to examine attributes or values associated with the transaction.

---

{button Related Topics,PI('`,`using\_th\_rtf\_54232')}

[Using the Trace Numbers](#)

[Using the Trace Toolbar](#)

[Using the Global Attributes Window](#)

To insert a pause point

To pause and resume a simulation while in trace mode

To start and stop the simulation while in trace mode

To change the trace colors

To open and close the Attributes window

To review or modify global attribute values during a simulation

### To insert a pause point


- 1 In the trace window, highlight the activity for the pause point.
- 2 On the Control menu, click Set Pause Point, and the Set Pause Point dialog box appears.
  - ▶ To always pause the simulation when a transaction reaches this point, click Always.
  - ▶ To conditionally pause the simulation based on an expression evaluating to true, click Expression True.
  - ▶ The expression builder appears. Insert an expression. To pause the simulation after a specified count of transactions reaches this point, click After Count.
    - A scrolling counter appears. Enter a count. When the number of transactions through the activity equals the count, the next transaction pauses.
- 3 Click OK.

---


{button Related Topics,PI('','using\_th\_rtf\_54284')}

To open and close the Attributes window

### To use pause points to start and stop a simulation

- 1  Click Go To Pause to go to a pause point.

This runs the simulation at its fastest speed (not changing the colors) until it reaches the pause point. This is a useful time-saver when the point that you wish to analyze occurs well into the simulation.

- 2  Click Resume/Start to continue past a pause point.

---

{button Related Topics,PI('`,`using\_th\_rtf\_54306')}



[To insert a pause point](#)

[To edit a pause point](#)

[To delete pause points](#)

**To edit a pause point**

- 1 On the View menu, click Pause Points.
- 2 In the Pause Points window, double-click a pause point to edit it using the Set Pause Point dialog box.
- 3 To activate a pause point, select the check box in the Active column.

---

{button Related Topics,PI('','using\_th\_rtf\_54328')}

[To insert a pause point](#)

[To activate or deactivate a pause point](#)

[To delete pause points](#)

[To use pause points to start and stop a simulation](#)

**To activate or deactivate a pause point**

- 1 On the View menu, click Pause Points.
- 2 In the Pause Points window, select the check box in the Active column to activate or clear the check box to deactivate.

---

{button Related Topics,PI('','using\_th\_rtf\_54354')}

[To insert a pause point](#)

[To edit a pause point](#)

[To delete pause points](#)

[To use pause points to start and stop a simulation](#)

**To delete pause points**

- 1 On the View menu, click Pause Points.
- 2 In the Pause Points window, click to select the pause point definition.
- 3 On the Control menu, click Delete Pause Point.

or

On the Control menu, click Delete All Pause Points.

---

{button Related Topics,PI('`,`using\_th\_rtf\_54380')}

[To activate or deactivate a pause point](#)

[To insert a pause point](#)

[To edit a pause point](#)

[To use pause points to start and stop a simulation](#)





## Using Multiple Processes

{button Tell me how...,PI('`,`using\_mu\_rtf\_66271')}

Use multiple processes and subprocesses to create a structure in a process model. The processes in a model share such things as scenario attributes, function declarations, and run settings. However, each process can have its own generator to activate transactions, or the generator can be inactive. The generators can start and stop at different times during the simulation. These capabilities let you model parallel activities or resource contention.

---

{button Related Topics,PI('`,`using\_mu\_rtf\_66241')}

[Using Process Hierarchy](#)

[Working with Processes](#)

[Using Subprocesses](#)

[Tips for Working with Multiple Processes](#)

[Adding Generators - Now Try This](#)

[Using Trace with Multiple Processes - Now Try This](#)

[Using Multiple Processes - Now Try This](#)

[To create a new process](#)

[To view hierarchy in a process diagram](#)

[To open an existing process or subprocess](#)

[To add or deactivate a generator](#)

[To add generators - Now Try This](#)

[To view a subprocess](#)

[To view a subprocess - Now Try This](#)

[To use trace mode to view multiple processes](#)

[To build a process hierarchy](#)

[To run a trace - Now Try This](#)

## Using Process Hierarchy

{button Tell me how...,PI('`,`using\_mu\_rtf\_66355')}

When you build a model that has multiple sets of activities, you may want to create structure in a hierarchy.

---

{button Related Topics,PI('`,`using\_mu\_rtf\_66329')}

[Using Multiple Processes](#)

[Parallel or Concurrent Processes.](#)

[Subprocesses](#)

[Working with Processes](#)

[Using Subprocesses](#)

[Tips for Working with Multiple Processes](#)

[To create a new process](#)

[To view hierarchy in a process diagram](#)

[To open an existing process or subprocess](#)

[To add or deactivate a generator](#)

[To add generators - Now Try This](#)

[To view a subprocess](#)

[To view a subprocess - Now Try This](#)

[To use trace mode to view multiple processes](#)

[To build a process hierarchy](#)

[To run a trace - Now Try This](#)

## Parallel or Concurrent Processes.

In a model that has two or more parallel processes, the product or outcome of one of the processes tends to be different from the product or outcome of the other process. You can create subprocesses for a model using the Components command on the File menu.

For example, consider a main process of manufacturing circuit boards. This process has a different goal from the maintenance department which keeps the machines oiled and repaired every two months. In this case, you can treat the maintenance steps as a parallel process with its own generator. This type of model provides a powerful method for modeling resource contention.

---

{button Related Topics,PI('`,`using\_mu\_rtf\_66405')}

Subprocesses

Using Process Hierarchy

Working with Processes



## Subprocesses

Subprocesses are often created for organizational reasons. For example, if you have different audiences for segments of the process diagram, you can define the highest-level activities in the main process diagram and define subordinate activities as subprocesses, as shown in the following illustration.

---

{button Related Topics,PI('','using\_mu\_rtf\_66427')}

Parallel or Concurrent Processes.

Parallel or Concurrent Processes.

Working with Processes

## Working with Processes

{button Tell me how...,PI('`,`using\_mu\_rtf\_66491')}

Every file containing a process diagram contains at least one process. If you are working with multiple processes, you create the processes within the same file for use as either concurrent processes or subprocesses.

---

{button Related Topics,PI('`,`using\_mu\_rtf\_66457')}

[Using Multiple Processes](#)

[Using Process Hierarchy](#)

[Using Subprocesses](#)

[Creating Concurrent Processes](#)

[Using Generators for Concurrent Processes](#)

[Adding or Deactivating Generators](#)

[Using Subprocesses](#)

[Tips for Working with Multiple Processes](#)

[To create a new process](#)

[To view hierarchy in a process diagram](#)

[To open an existing process or subprocess](#)

[To add or deactivate a generator](#)

[To add generators - Now Try This](#)

[To view a subprocess](#)

[To view a subprocess - Now Try This](#)

[To use trace mode to view multiple processes](#)

[To build a process hierarchy](#)

[To run a trace - Now Try This](#)

## To create a new process

- 1 On the File menu, select Components.

The Components dialog box appears.

### Tip

Click the + button to expand an item.

- 2 Select how to view the components.
  - All Components. All of the processes in the file are listed in alphabetical order.
  - Diagram Hierarchy. The relationships between the processes are shown.
  - Diagrams, By Contained Departments. This is a list of all departments in the file. You can expand a department to view the processes in which each department is used.
- 3 To create a new process, click New, and select Process.
  - To create a new process based on a template, click New, and select New From Template. In the New Component From Template dialog box, select a template and a component.
  - To rename a process, select a process from the list, click Rename, and change its name. For example, you can rename Process1 to Engineering.
  - To copy a process, select a process from the list, and then click Copy. Click Paste to copy the contents of the clipboard into a new process.

---

{button Related Topics,PI('','using\_mu\_rtf\_66541')}

To build a process hierarchy

To create a new document from the Welcome dialog

To create a new document using the New command

To create a document from a template

To create a new template

To view hierarchy in a process diagram

To open an existing process or subprocess

Creating New Documents

Using Multiple Processes

Working with Processes

### **To view hierarchy in a process diagram**

- 1 On the File menu, click Components.
- 2 In the Components dialog box, select the Diagram Hierarchy option to view the relationships between different processes.

The process hierarchy appears in the dialog box.

---

{button Related Topics,PI('`,`using\_mu\_rtf\_66591')}



[To create a new process](#)

[To open an existing process or subprocess](#)

[To view hierarchy in a process diagram](#)

[Working with Processes](#)

[Using Multiple Processes](#)

**To open an existing process or subprocess**

- 1 On the File menu, click Components.
- 2 In the Components dialog box, select the process name that you want to open, and click Open.

---

{button Related Topics,PI('`,`using\_mu\_rtf\_66621')}

[To create a new process](#)

[To view hierarchy in a process diagram](#)

[Working with Processes](#)

[Using Multiple Processes](#)

## Creating Concurrent Processes

{button Tell me how...,PI('`,`using\_mu\_rtf\_66685')}

A concurrent process is any process that operates simultaneously with other processes. Concurrent processes are typically used to contend for resources or set values that cause events to happen in other processes.

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{button Related Topics,PI('`,`using\_mu\_rtf\_66655')}

[Using Multiple Processes](#)

[Using Generators for Concurrent Processes](#)

[Adding or Deactivating Generators](#)

[Using Process Hierarchy](#)

[Working with Processes](#)

[Adding Generators - Now Try This](#)

[Tips for Working with Multiple Processes](#)

To create a new process

To view hierarchy in a process diagram

To open an existing process or subprocess

To add or deactivate a generator

## Using Generators for Concurrent Processes

{button Tell me how...,PI('`,`using\_mu\_rtf\_66749')}

Each process has one or more generators, one or more Start activities, and starting and ending times. A generator can actively issue transactions or you can deactivate it so that the process receives transactions only from Process activities in another process. In this sense, a Process activity is like a generator. Any process that receives its transactions solely from another process is a subprocess.

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{button Related Topics,PI('`,`using\_mu\_rtf\_66719')}

[Using Process Hierarchy](#)

[Using Subprocesses](#)

[Creating Concurrent Processes](#)

[Using Generators for Concurrent Processes](#)

[Adding or Deactivating Generators](#)

[Adding Generators - Now Try This](#)

[Tips for Working with Multiple Processes](#)



To create a new process

To view hierarchy in a process diagram

To open an existing process or subprocess

To add or deactivate a generator

## Adding or Deactivating Generators

{button Tell me how...,PI('`,`using\_mu\_rtf\_66813')}

A generator is automatically created for every process. The generator determines how often transactions are issued. By default, the generator for a subprocess is inactive.

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{button Related Topics,PI('`,`using\_mu\_rtf\_66783')}

[Using Process Hierarchy](#)

[Using Subprocesses](#)

[Creating Concurrent Processes](#)

[Using Generators for Concurrent Processes](#)

[Adding or Deactivating Generators](#)

[Adding Generators - Now Try This](#)

[Tips for Working with Multiple Processes](#)

To create a new process

To view hierarchy in a process diagram

To open an existing process or subprocess

To add or deactivate a generator

### To add or deactivate a generator

- ▶ On the model menu, click the Generators tool.  
The Define Generator dialog box appears.

**Note**

Each generator introduces transactions into the process according to the instructions in its generator definition. For example, one generator can issue transactions every two and four days, and in the same process, another generator can issue transactions every day.

- If you want a process to receive transactions only from a Process activity, you can deactivate or delete the generator.
- If the subprocess also operates as an independent process, you can leave the generator active.

## Adding Generators - Now Try This

{button Tell me how...,PI('','using\_mu\_rtf\_66873')}

At Product Development Corp., several processes occur simultaneously. The main process, which is managed in the Product Testing department, consists of hierarchical tasks done by two other departments. A fourth department, the Review Board, performs independent examinations.

{button Next,JI('>procedur','using\_mu\_rtf\_63941')}

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{button Related Topics,PI('','using\_mu\_rtf\_66851')}

[Using Multiple Processes](#)

[Using Generators for Concurrent Processes](#)

[Adding or Deactivating Generators](#)

[Using Trace with Multiple Processes - Now Try This](#)

[Using Multiple Processes - Now Try This](#)

[To add generators - Now Try This](#)

[To view a subprocess - Now Try This](#)

[To run a trace - Now Try This](#)




### To add generators - Now Try This

{button Previous,JI('>concept','using\_mu\_rtf\_63884')}

- 1 On the File menu, click Open.
- 2 Select iGrafx\Pro\8.0\Exercise\Ex7.igx, and click Open.
- 3 Click OK.

The process diagram for Process1 appears.

- 4 If you are not already using the full screen, click Maximize.
- 5 On the File menu, click Components, and use this dialog box to open Process2.
- 6  On the Modeling toolbar, click the Generators tool.

or

On the Model menu, click Generators.

The Define Generators dialog box appears.

- 7 For Existing Generators, select Process2.
- 8 For Process Start Point, select Process2 and Start.
- 9 For Generator Type, select Interarrival.
- 10 For Active, check the box to specify that the generator is active.
- 11 For Active Period to Generate Transactions, review the settings for Simulation Start and Simulation End.
- 12 For Schedule, leave set to Always.
- 13 For Interarrival Time, select Constant and set to every 6 months.
- 14 For Attribute Settings, add Preempt and set it equal to True.
- 15 When you are finished in the Define Generators dialog box, click OK.
- 16 Close Process2.

You have set a generator for the Review Board for twice a year, with preemptive authority.

{button Next,JI('>concept','using\_mu\_rtf\_64114')}

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{button Related Topics,PI('','using\_mu\_rtf\_66912')}

[Adding Generators - Now Try This](#)

## Using Subprocesses

{button Tell me how...,PI('','using\_mu\_rtf\_66968')}

To create hierarchy in a process diagram, you can use subprocesses. The top-level process typically contains high-level activities, with other subprocesses containing the subordinate activities.

In a hierarchical process diagram, the generator for a subprocess is typically inactive. Transactions are issued instead by higher-level Process activities in another process.

Some overhead is associated with multiple processes, mostly in the time it takes for you to create the diagrams, but also in maintenance and simulation time. This is a trade-off to be considered if you are creating a large number of hierarchical layers (10 or more).

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{button Related Topics,PI('','using\_mu\_rtf\_66934')}

[Using Multiple Processes](#)

[Private and Non-Private Subprocesses](#)

[Using Trace with Multiple Processes - Now Try This](#)

[Using Generators for Concurrent Processes](#)

[Adding or Deactivating Generators](#)

[Using Process Hierarchy](#)

[Working with Processes](#)

[Tips for Working with Multiple Processes](#)

[To view a subprocess](#)

### To view a subprocess

- ▶ Select the activity that contains the subprocess, press the Shift key, and double-click the mouse.  
or

On the File menu, click Components, and select a subprocess from the list of Processes in the Components dialog box.

The subprocess appears in a window.

**Tip**

To quickly find all the Process activities, on the Edit menu, click Select. Use the Select dialog box to select all Process activities.

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{button Related Topics,PI('`,`using\_mu\_rtf\_66982')}

[Using Subprocesses](#)

[Using Trace with Multiple Processes - Now Try This](#)

[To view a subprocess - Now Try This](#)

## Private and Non-Private Subprocesses

{button Tell me how...,PI('`,`using\_mu\_rtf\_67022')}

The transactions in a non-private subprocess interact with other transactions while those in a private subprocess do not. Private subprocesses ensure that transactions are kept separate for purposes of splitting and joining.

Assume you have two processes that use the same subprocess for creating a technical document. The Process activity *Create document* is the same for both processes.

Although the subprocess is the same, the transactions are kept apart. By using a private subprocess, you ensure that a joining activity collects the correct document chapters for the parent process.

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{button Related Topics,PI('`,`using\_mu\_rtf\_67012')}



[Using Subprocesses](#)

[Using Trace with Multiple Processes - Now Try This](#)

[To view a subprocess](#)

## Using Trace with Multiple Processes - Now Try This

{button Tell me how...,PI('','using\_mu\_rtf\_67058')}

In Product Testing, two departments perform work in parallel. Of course, the departments could be added to the first process, but for this example, your task is to model these activities as separate processes.

{button Next,JI('>procedur','using\_mu\_rtf\_64157')}

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{button Related Topics,PI('','using\_mu\_rtf\_67048')}

Using Subprocesses

Private and Non-Private Subprocesses

[To view a subprocess - Now Try This](#)

[To view a subprocess](#)


[To add generators - Now Try This](#)

### To view a subprocess - Now Try This

{button Previous,JI('>concept','using\_mu\_rtf\_64114')}

- 1 In the Process1 window, double-click Prepare test plan.

The Properties dialog box appears.

- 2 Select the Task tab.
- 3 Change the activity type to Process.
- 4 Specify that the activity calls a Subprocess for Process3.
- 5 Without closing the Properties dialog box, click to select the Test 40-series activity. (You may have to move the dialog box to view it.)
- 6 Change the activity type to Process.
- 7 Specify that the activity calls a Subprocess for Process4.
- 8 Click OK to close the Properties dialog box.
- 9  On the Modeling toolbar, click the Generator tool.

The Define Generators dialog box appears.

- 10 For Existing Generators, select Process3.
- 11 Click to toggle Active so that the generator is inactive.
- 12 Repeat Steps 10 and 11 to make Process4 inactive.
- 13 Minimize all of the process diagram windows except Process1.

{button Next,JI('>concept','using\_mu\_rtf\_64406')}

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{button Related Topics,PI('','using\_mu\_rtf\_67097')}

[Adding Generators - Now Try This](#)

## Tips for Working with Multiple Processes

{button Tell me how...,PI('`,`using\_mu\_rtf\_67168')}

Before you create a new process, assign unique names to any departments that will not be shared. Otherwise, all departments with the same name are considered to be the same department across the processes. For example, a newly-created process had a department name *Dept. 1* that is a shared department with *Dept. 1* in all other processes. A shared department uses the same resources and attributes for simulation purposes.

After a department is shared, any change to the name affects all the shared department names in all processes.

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{button Related Topics,PI('`,`using\_mu\_rtf\_67120')}



[Using Multiple Processes](#)

[Linking and Unlinking Department Names](#)

[Windowing Techniques](#)

[Using Multiple Processes - Now Try This](#)

## Linking and Unlinking Department Names

{button Tell me how...,PI('`,`using\_mu\_rtf\_67168')}

When two or more departments have the same name, the departments are linked (when you edit one name, it changes all other departments with the same name). After department names are linked, you can unlink them.

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{button Related Topics,PI('`,`using\_mu\_rtf\_67154')}

Windowing Techniques

Using Multiple Processes - Now Try This

[To unlink departments](#)

### To unlink departments

- 1 Select the department.
- 2 Use the backspace key to delete all the characters in the department name.

**Note**

Be sure to delete all spaces.

- 3 Deselect the department.

Now you can make changes to the department name without affecting the other departments.

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{button Related Topics,PI('`,`using\_mu\_rtf\_67182')}

[Linking and Unlinking Department Names](#)

[Tell me how . . .](#)

[Tips for Working with Multiple Processes](#)

## Windowing Techniques

{button Tell me how...,PI('`,`using\_mu\_rtf\_67230')}

The Window menu items are useful for viewing windows containing different processes. For example, you can have windows open for two processes and then select Tile Horizontal from the Window menu. This creates a horizontal configuration that enables you to view both processes. If you have other windows open, you can turn them into icons so that they do not block other windows.

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{button Related Topics,PI('`,`using\_mu\_rtf\_67212')}

[Tell me how . . .](#)

[Linking and Unlinking Department Names](#)

[Using Multiple Processes - Now Try This](#)


[Tips for Working with Multiple Processes](#)



To use trace mode to view multiple processes

To build a process hierarchy

### To use trace mode to view multiple processes

- 1  On the Model menu, point to Run, and then click Trace to place Process1 in trace mode.
- 2 On the Window menu, click Window to create a copy of the active window.
- 3 On the File menu, click Components.
- 4 In the Components dialog box, select a process under the Diagrams category, and click View.

The process appears in a window.

- 5 Select another process to view, or click Close.

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{button Related Topics,PI('','`using\_mu\_rtf\_67248')}

Windowing Techniques

Using Multiple Processes - Now Try This

To build a process hierarchy

## To build a process hierarchy

You can copy existing process diagrams into a single process diagram to build a hierarchical process diagram (a process that contains subprocesses).

- 1 On the File menu, click New, and Point to Process to create a new, untitled process diagram that will represent the highest-level for activities in your process.

- 2 On the File Menu, click Components.

- 3 In the Components dialog box, click New, and select Process.

A new process diagram is created and appears in a window.

- 4 On the File menu, click Save.

For example, save the process diagram using the name Top.

- 5 (Optional) Draw symbols to represent the highest-level activities.

Later, after the subprocesses have been created, you can specify which symbol references a subprocess using the Properties command (Properties dialog box - Task tab).

- 6 On the File menu, click New to create a second process diagram.

For example, open a file that you have already created for the Sales department.

- 7 On the Window menu, select Tile Horizontally (or Cascade) to view both process diagrams.

- 8 Activate the window containing the second process diagram (Sales.)

- 9 On the File menu, click Components.

- 10 In the Components dialog box, select the process Sales, and click Copy.

This copies the contents of the Sales process diagram to the clipboard.

- 11 Click to select the process for Top. (Process1).

- 12 Click Paste.

This copies the clipboard (the Sales process diagram) into Process2 in the original file contains Top. You can repeat the steps to copy other existing files into new processes.

- 13 Activate the first window and create Process activities for the other processes.

You do this by double-clicking on an activity and specifying process information on the Task tab.

- 14 One at a time, activate each of the subprocesses, and on the Model menu, select Generators.

- 15 In the Generators dialog box, specify that the generator for each subprocess is not Active.

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{button Related Topics,PI('','`using\_mu\_rtf\_67270')}

Windowing Techniques

Using Multiple Processes - Now Try This

To use trace mode to view multiple processes

## Using Multiple Processes - Now Try This

{button Tell me how...,PI('','using\_mu\_rtf\_67326')}

After the Product Testing group prepared the model of their processes, they wanted to troubleshoot to see if it was doing what they expected. Your task is to use the Trace window to visually check that the transactions are being sent to the appropriate processes and to see that transactions for the Review Board occur twice a year to review the testing procedures.

{button Next,JI('>procedur','using\_mu\_rtf\_64461')}

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{button Related Topics,PI('','using\_mu\_rtf\_67304')}

[Using Multiple Processes](#)

[Tell me how . . .](#)

[Windowing Techniques](#)

[Adding Generators - Now Try This](#)

[Using Trace with Multiple Processes - Now Try This](#)

[To add generators - Now Try This](#)

[To view a subprocess - Now Try This](#)

[To run a trace - Now Try This](#)



### To run a trace - Now Try This

{button Previous,JI('>concept','using\_mu\_rtf\_64406')}

1 In the Process1 window, on the Model menu, point to Run, and then click Trace.

2 On the Window menu, click New Window.

3 On the File menu, click Components.

The Components dialog box appears.

4 Select Process2, and click View, or double-click Process 2.

The process appears in a window.

5 To make it easier to view the trace, close the windows that are not trace windows. You can also turn them into icons,

(You need one window open or the file will close.)

6 On the Window menu, select Tile Horizontally.

This rearranges the windows so that all trace windows are visible.

7 On the Modeling menu, point to Run, and then click Start.

As the model is traced, you can watch what happens in each of the processes as a transaction is generated.

8 On the Modeling menu, point to Run, and then click Stop.

This completes this exercises. You can save the model you created.

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{button Related Topics,PI('','using\_mu\_rtf\_67361')}

[Adding Generators - Now Try This](#)



## Using Monitors

{button Tell me how...,PI('`,`using\_mo\_rtf\_41056')}

A monitor is a data filter that you can place on any activity in the process diagram to collect data. The types of data include basic transaction statistics such as busy and waiting time, number of transactions, or the value of attributes at certain points.

Monitors provide a method of validating a model by checking intermediate statistics. For example, you can place a monitor to tabulate the number of transactions that reach an activity. You can also use starting and ending monitors to gather data about a specific segment of the process flow.

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{button Related Topics,PI('`,`using\_mo\_rtf\_41038')}

[Using Monitors to Collect Data](#)

[Using Monitors - Now Try This](#)

[To find a monitor](#)

[To find multiple occurrences of a monitor](#)

[To delete or remove monitors](#)

[To open the exercise data for using monitors - Now Try This](#)

[To define and place the monitor - Now Try This](#)

[To run the simulation and review monitor data - Now Try This](#)

## Using Monitors to Collect Data

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{button Tell me how...,PI('','using_mo_rtf_41116')}
```

A monitor collects statistics about transactions and attribute data. The statistics are gathered at the activities that you specify in the process diagram. Monitors can collect the following data.

Data Type	Description
Count	Counts the transactions at a specific point to track how many times a transaction reached an activity. This can represent scrapped units or canceled orders.
Basic transaction statistics	Collects basic statistics either between two points or from the start point to the current monitor. You can use this to collect statistics such as service time or waiting time between two points.
Filtered data	Further filters the data, for example, how many transactions matched a specific attribute value.
Accumulated values	A value that cumulatively increases every time a transaction passes through the activity.

## **Evaluating Monitors**

Monitors are evaluated during simulation at the start of an activity. This affects monitor statistics because the activity containing the monitor is not included in the statistics. For example, if a monitor keeps track of basic statistics such as service time and busy time, it does not include time statistics for the activity on which the monitor is placed.



## **Viewing Monitor Statistics**

After you run a simulation, you can view monitor results in the Report window by adding a report element. You can add the element to any of the tabs, for example, the Custom tab. In the report element, you specify statistics specifically gathered by monitors.

## Identifying Monitors in the Tabular View

Activities with monitors placed on them have a monitor indicator displayed to the left of the activity.



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```
{button Related Topics,PI('`,`using_mo_rtf_41098')}
```

[Using Monitors](#)

[Define Monitor dialog box](#)

[Using Monitors - Now Try This](#)

To define a monitor

To place a monitor


To find a monitor

To find multiple occurrences of a monitor

To delete or remove monitors

## To define a monitor

- 1 Select the activity at which to place a monitor.

- 2  On the Model toolbar, click the Monitor tool.

or

On the Model menu, click Monitors.

The Define Monitors dialog box appears. This dialog box contains a list of monitors that exist in the model.

The number after a monitor name indicates the number of placements of the monitor. For example, Test(1) indicates that the Test monitor has been placed on one activity.

- 3 To add a new monitor, click Add.

The Add New Monitor dialog box appears. Use this dialog box to specify the monitor name and type.

or

To modify a monitor, select it and click Modify.

The Modify Monitor Type dialog box appears. Use this dialog box to modify the monitor type.

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{button Related Topics,PI('','using\_mo\_rtf\_41146')}

[Define Monitor dialog box](#)

[Using Monitors to Collect Data](#)

[Using Monitors - Now Try This](#)

[To place a monitor](#)

[To find a monitor](#)

[To find multiple occurrences of a monitor](#)

[To delete or remove monitors](#)

Define Monitor dialog box

{button Tell me how...,PI(",`using\_mo\_rtf\_41116")}

Use this dialog box to define the monitor type. After you have specified the name and monitor type, click OK to close the dialog box. The monitor remains selected in the list of Existing Monitors, so further edits affect the selected monitor.

Element	Description
Monitor name	Enter a name for the monitor. You can use any characters except spaces and these special characters: * ? , ; [ ] + = \ / :   < > .
Monitor type	<p>Individual—Collects data only at a particular activity, for example, from the beginning to this point. This is useful for keeping track of different counts, such as the number of transactions that are processed at an activity.</p> <p>Start—Marks transactions so that End monitors can collect statistics on them. You set which transactions are marked with an expression in the Start monitor.</p>

For example, this Start monitor definition, shown in the Scenario window, marks transactions when the Count attribute is greater than 100.



End—Collects statistics from all Start monitors or a specific monitor, and can further filter the transactions with an expression.

Start and End—Marks transactions and also collects statistics from other Start monitors.

Data collection type	<p>Basic—The monitor collects all basic transaction statistics.</p> <p>Attribute—In addition to the basic statistic collection, the monitor adds the value of an attribute. A list of defined attributes appears. Click to select the attribute. The value is added to the previous values.</p>
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For non-numeric attributes, the value is based on the member's enumeration value (for example, the first member is 0, the second member 1).

Accumulate	<p>Always—The monitor accumulates the requested information for every transaction.</p> <p>Expression—The monitor only accumulates information only when the expression is true.</p> <p>When you select Expression, the expression builder appears.</p>
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From (End Monitor only)      If the monitor is an End Monitor, select the starting point from which to accumulate data.


                                 All—Transactions are accumulated from all Start monitors.

                                 (Monitor name)—Transactions are accumulated from only the specified Start monitor.



## Using Monitors to Collect Data

### To place a monitor

- 1 Select the shape that contains the activity at which you want to place the monitor.
- 2  On the Model menu, click Monitor, or click the Monitor tool on the Modeling toolbar.
- 3 In the Define Monitors dialog box, define a monitor or select an existing monitor from the list.
- 4 Click Place.

A number appears after the monitor name, indicating the number of times the monitor has been placed.

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{button Related Topics,PI('','using\_mo\_rtf\_41208')}

[Using Monitors to Collect Data](#)


[To define a monitor](#)

[To find a monitor](#)

[To find multiple occurrences of a monitor](#)

[To delete or remove monitors](#)

### To find a monitor

- 1  On the Model menu, click Monitor.

or

On the Modeling toolbar, click the Monitor tool

- 2 In the Define Monitors dialog box, click the monitor name you want to find.
- 3 Click Find.

The Monitors dialog box closes, and the activity containing the monitor is selected.

- 4 Use the Monitor tool on the Modeling menu to modify, delete, remove, or place the monitor on a different activity.

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{button Related Topics,PI('`,`using\_mo\_rtf\_41238')}

Using Monitors to Collect Data


To define a monitor

To place a monitor

To find multiple occurrences of a monitor

To delete or remove monitors

### To find multiple occurrences of a monitor

- 1  On the Model menu, click Monitor.

or

On the Modeling toolbar, click the Monitor tool

- 2 In the Define Monitors dialog box, click the monitor name that you want to find.

A number appears after the monitor name, indicating the number of times the monitor has been placed.

- 3 Click Find.

The Find Monitor - Next Location dialog box appears and displays the monitor name and the number of occurrences.

- 4 To find and select all uses of the monitor, click Select All.

To find and select the next occurrence of the monitor, click Find Next.

To find and select the previous occurrence of the monitor, click Find Prev.

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{button Related Topics,PI('`,`using\_mo\_rtf\_41268')}

Using Monitors to Collect Data


To define a monitor

To place a monitor

To find a monitor

To delete or remove monitors

### To delete or remove monitors

- 1  On the Model menu, click Monitor.

or

On the Modeling toolbar, click the Monitor tool

- 2 In the Define Monitors dialog box, click the name of the monitor.
- 3 To remove the monitor from the current location, click Remove.

This removes the monitor but does not delete its definition. You can still place it on other activities. If you placed the monitor on more than one activity, clicking Remove removes the monitor only from the current location.

#### Note

To delete all the occurrences of the monitor and the monitor definition, click Delete.

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{button Related Topics,PI('`,`using\_mo\_rtf\_41298')}



Using Monitors to Collect Data

To define a monitor

To place a monitor

To find a monitor

To find multiple occurrences of a monitor

## Using Monitors - Now Try This

{button Tell me how...,PI('','using\_mo\_rtf\_41370')}

A Testing department receives individual parts for testing. If the part does not pass, it is reworked. If the reworked part is acceptable, it is sent back for re-testing. Otherwise, it is scrapped. For this exercise, we will place a monitor to track the average service time for a part that is scrapped.

{button Next,JI('>procedur','using\_mo\_rtf\_40079')}

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{button Related Topics,PI('','using\_mo\_rtf\_41340')}

[Using Monitors](#)

[Evaluating Monitors](#)

[Viewing Monitor Statistics](#)

[Identifying Monitors in the Tabular View](#)

[Define Monitor dialog box](#)

[Using Monitors - Now Try This](#)

[To open the exercise data for using monitors - Now Try This](#)

[To define and place the monitor - Now Try This](#)

[To run the simulation and review monitor data - Now Try This](#)

### To open the exercise data for using monitors - Now Try This

{button Previous,JI('>concept','using\_mo\_rtf\_40018')}

- 1 On the File menu, click Open.
- 2 Select iGrafx\Pro\8.0\Exercise\Ex8.igx, and click Open.

The process model appears in a window.

- 3 Click the Maximize icon to view the entire screen.
- 4 Use the following parameters to set up the exercise:

#### Run setup

- The simulation uses calendar time.
- The default schedule for the model is Standard.
- The simulation runs until all transactions are complete.

#### Generator setup

- The completion generator issues 10 transactions.

{button Next,JI('>procedur','using\_mo\_rtf\_40121')}

{button Related Topics,PI('','using\_mo\_rtf\_41409')}

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[Using Monitors - Now Try This](#)


[To define and place the monitor - Now Try This](#)

[To run the simulation and review monitor data - Now Try This](#)

### To define and place the monitor - Now Try This

{button Previous,JI('>procedur','using\_mo\_rtf\_40079')}

- 1 Click the Scrap activity in the Testing department.

- 2  On the Model menu, click Monitors.

or

On the Modeling toolbar, click the Monitor tool

The Define Monitors dialog box appears.

- 3 Click Add.

The Add New Monitor dialog box appears.

- 4 For Monitor Name, type Scrap.
- 5 For Monitor Type, click Individual.
- 6 Click OK to close the Add New Monitor dialog box.
- 7 For Data Collection Type, select Basic.
- 8 For Accumulate, select Always.
- 9 Click Place.

The Scrap monitor is placed. The (1) indicates there is one placement.

- 10 Click OK to close the Define Monitors dialog box.

{button Next,JI('>procedur','using\_mo\_rtf\_40167')}

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{button Related Topics,PI('','using\_mo\_rtf\_41448')}

[Using Monitors - Now Try This](#)

[To open the exercise data for using monitors - Now Try This](#)

[To run the simulation and review monitor data - Now Try This](#)



### To run the simulation and review monitor data - Now Try This

{button Previous,JI('>procedur','using\_mo\_rtf\_40121')}

- 1 On the Model menu, point to Run, and then click Start.

This runs the simulation. When it is done, the report results are displayed.

- 2 In the Report window, click the Custom tab.

By default, the Custom tab is blank.

- 3 On the Edit menu, click Add Element.

The Statistic dialog box appears.

- 4 For Statistics Collection, select Monitors.

- 5 Click Single.

- 6 For Statistic, select Avg Service Time.

- 7 Click Next.

The Structure dialog box appears.

- 8 Leave the Column Labels set to Simulations.

- 9 For Row Legends, select Monitors and Scrap.

- 10 Click Next.

The Format dialog box appears. You can leave the options on this dialog box unchanged.

- 11 Click Finish.

The new report element appears. The average service time for any transaction that entered the Scrap activity was 6.67 hours.

- 12 Click the Time tab.

You can compare the average service time for all transactions (this includes transactions that were scrapped or not) or for specific activities.

This is the end of this self-paced exercise. If you want to save changes, do so now.

---

{button Related Topics,PI('',`using\_mo\_rtf\_41483')}

[Using Monitors - Now Try This](#)



## Reporting Results

{button Tell me how...,PI('`,`reportin\_rtf\_157454')}

When you run a simulation, statistics are gathered about process times, costs, resource utilization, and queues. These statistics are categorized by transaction, activity, resource, or monitor.

You can use custom statistics to create unique combinations of the standard statistics (for example, setting costing information or revenue formulas). Custom statistics are updated and calculated automatically with each simulation.

You can maintain several sets of named simulation data to compare results across simulation runs and scenarios.

---

{button Related Topics,PI('`,`reportin\_rtf\_157394')}

[Reviewing Simulation Report Results](#)

[Using the Report Window to Review Transaction Statistics](#)

[Using the Report Window to Review Activity Statistics](#)

[Using the Report Window to Review Resource Statistics](#)

[Creating Custom Statistics in the Report Window](#)

[Using Department Statistics](#)

[Naming or Deleting Simulation Data](#)

## Reviewing Simulation Report Results

{button Tell me how...,PI('',`reportin\_rtf\_157454')}

After a simulation runs, use the Run command or the Trace command on the Model menu to update the data in the report window with the results of the simulation.

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{button Related Topics,PI('',`reportin\_rtf\_157440')}

[Reporting Results](#)  
[Report Window Tabs](#)  
[Report Elements](#)

[To view reports in the report window](#)

[To edit a report element](#)

[To add a new report element](#)

[To open the exercise data for reviewing service times - Now Try This](#)

[To create custom statistics](#)

[To name or delete simulation data](#)



## Report Window Tabs

{button Tell me how...,PI('`,`reportin\_rtf\_157454')}

The data in the report window is divided into general categories using tabs. You can use a combination box to the right of the tabs to specify what type of statistics appear in the window. The categories include the following: All statistics, Overall (statistics that relate more globally to the model, such as elapsed time), Activities, Departments, Resources, and Processes.

- **Time.** This tab includes statistics about transaction times, primarily cycle time and service time. Statistics are available that show overall transaction times, and times are also categorized by department, by process, and by activity.
- **Cost.** This tab contains statistics about costs related to transactions, activities and resources.
- **Resource.** This tab contains statistics related to resource utilization, resource time categorizations, and activity and resource costs.
- **Queue.** This tab contains statistics collected when transactions waited in queues for resources or waited in queues at activities to be processed (either blocked or inactive).
- **Custom.** The custom tab is intended for your use to create a custom page of statistics. You can copy and paste statistics from any of the other report tabbed pages, or you can add new report elements.

---

{button Related Topics,PI('`,`reportin\_rtf\_157496')}

[Reviewing Simulation Report Results](#)

[Report Elements](#)

[Edit Report Element dialog box - Statistic tab](#)

[Edit Report Element dialog box - Structure tab](#)

[Edit Report Element dialog box - Filters tab](#)

[Edit Report Element dialog box - Format tab](#)

## Report Elements

{button Tell me how...,PI('',`reportin\_rtf\_157454')}

A *report element* represents a table or graph of statistical data. Each report element has a title and a collection of data associated with it.

Each tab in the report window contains several report elements. Edit a report element using the Elements command on the Report menu, and the Edit Report Element dialog box. This dialog box also appears when you double-click a report element.

You can copy and paste any report element into other Windows applications such as a word processor or spreadsheet.

---

{button Related Topics,PI('',`reportin\_rtf\_157496')}

## To view reports in the report window

- 1 On the File menu, click Components.

In the Components dialog box, select the report, and click View.

The report window appears.

or

On the Model menu, point to Run, and then click Start to run the simulation.

### Tip

When the simulation is complete, the report window appears. If the report window is obscured or not displayed, on the Window menu, click the Report window.

- 2 Select a report tab in the report window.

- The Default button appears on the tabbed report window when you modify any of the settings for the default report elements. Click Default to return the element settings to their default values.
- You can change, delete, or add elements to a report, or open other reports.
- If you add report elements after you run a simulation, you can view the new statistics without re-simulating. However, if you change the process diagram or scenario information, you must simulate again to view new results.

### Tip

To see report results for new attributes, monitors, or other changes that you made to the process diagram or scenario information, you must run the simulation again.

---

{button Related Topics,PI('`,`reportin\_rtf\_157546')}

[Reporting Results](#)

[Report Window Tabs](#)

[Report Elements](#)

[To view reports in the report window](#)

[To edit a report element](#)

[To add a new report element](#)

[To open the exercise data for reviewing service times - Now Try This](#)

[To create custom statistics](#)

[To name or delete simulation data](#)

### To edit a report element

You can change the contents or structure of a report element in any of the tabbed pages of the Report window.

- 1 Double-click the report element.

or

Right-mouse click on the report element, and click Edit Report.

The Edit Report Element dialog box appears.

- 2 Use the dialog box to modify the report element.

---

{button Related Topics,PI('','reportin\_rtf\_157546')}

### To add a new report element

- 1 Select the report element, and click Add Element on the Reports menu.

or

Right-mouse click on the report element, and click Add Element.

The Statistic dialog box appears.

- 2 Use this dialog box to define the statistics in the report element.

- 3 Click Next.

The Structure dialog box appears.

- 4 Use this dialog box to define column labels and row legends for the statistic.

This dialog box contains the same information as the Structure tab on the Edit Report Element dialog box.

- 5 Click Next.

The Filters dialog box appears.

- 6 Use this dialog box to define how to filter the statistic.

This dialog box contains the same information as the Filters tab on the Edit Report Element dialog box.

- 7 Click Next.

The Formats dialog box appears.

- 8 Use this dialog box to define how to format and sort the statistic.

This dialog box contains the same information as the Formats tab on the Edit Report Element dialog box.

- 9 Click Finish.

---

{button Related Topics,PI('`,`reportin\_rtf\_157496')}

## Edit Report Element dialog box - Statistic tab

{button Tell me how...,PI('`,`reportin\_rtf\_157454')}

Use this tab to specify which statistics are displayed in a report element. Access this dialog box by double-clicking a report element.

Most report elements already contain different statistics that typically are viewed together in the same category. Use this tab to remove or add other statistics.

Many of the names of the statistics are abbreviated in the dialog boxes and report elements. You can look up the definition for any abbreviation by using Search in the help.

An abbreviation for a statistic is shown after the full name. For example, Working Time (Avg Work, Tot Work) indicates that working time appears in report elements in two abbreviated forms, as average working time (Avg Work) and total working time (Tot Work).

Element	Description
Statistics category	<p>The statistics category displays the type of information available for viewing. The list varies depending on the type of data that is available in the model and whether you select single or multiple statistics.</p> <p>Transactions. See <a href="#">Using the Report Window to Review Transaction Statistics</a>.</p> <p>Resources. See : <a href="#">Using the Report Window to Review Resource Statistics</a>.</p> <p>Activities. See <a href="#">Using the Report Window to Review Activity Statistics</a>.</p> <p>Custom Stats. This list contains all custom statistics that you have created, and other system-defined custom statistics (for example, time and workers). See <a href="#">Creating Custom Statistics in the Report Window</a>.</p> <p>Monitors. This list contains all monitored data collection points. See <a href="#">Using Monitors</a>.</p> <p>Scenario Attributes, Process Attributes, and Department Attributes. This list contains the attributes that you have defined.</p>
Single or multiple statistics	<p>Single. Choose this option if you want to display a single statistic in the report element. This gives you the ability to vary two other values in the report table (for example, multiple simulations appended to columns, and rows varied by department).</p> <p>The list of statistics is displayed in a scrolling list. You can click to select or remove an item from the list.</p> <p>Multiple. Choose this option to display and compare several statistics in the report element. This gives you statistics in the columns and allows you to vary only the rows.</p>



The dialog box displays a list of the statistics that the report element currently contains. You choose which statistics to include from the list of all statistics that are available.

Modify	To replace a statistic, select it, and click Modify. The Modify Statistic dialog box appears so you can select a statistic to replace the one you selected.
Remove	To remove a statistic, select it, and click Remove.
Arrow Up	To change the order of the statistics, select and use the arrows to move a statistic up and down in the list.
Arrow Down	
Add	<p>To add a new statistic to the report element, click Add. The Add Statistic dialog box appears. You can choose value categories, resource categories, or resource rates to further modify some of the statistics, particularly cost statistics. For example, the Total Cost statistic can display only overtime rates (Total OT Costs) or all rates.</p> <p>The new statistic is added to the end of the list.</p>

## Edit Report Element dialog box - Structure tab

{button Tell me how...,PI('',`reportin\_rtf\_157454')}

Use this tab to define row legends and select which columns of statistics are displayed. To open the dialog box, double-click a report element.

Element	Description
Column labels	<p>Select which columns are displayed. This selection is not available in report elements that have multiple statistics.</p> <p>The list depends on the type of data that is available in the model. You can select one or more items from the list.</p> <p>Simulations. Choose from the simulation data sets that are available.</p> <p>Only one simulation set is available if the model has been simulated only once or if you have not appended to the report.</p> <p>Snapshots. Choose from the available snapshots. For example, you can set the report element to display the data captured after 8 hours of simulation.</p> <p>If snapshot data is shown cumulatively, each snapshot is added to the last. The cumulative data can start at the beginning of simulation or at the starting point you set.</p>
Row legends	<p>Select how you want the rows labeled in the report. The list contains only those items that are relevant to the model.</p> <p>None. Only one overall row is displayed.</p> <p>Processes. The rows are displayed by process.</p> <p>Departments. The rows are displayed by department.</p> <p>Activities. The rows are displayed by activity. You can further modify this choice as hierarchical or by showing department name.</p> <p>Hierarchical. The activities are listed in hierarchies.</p> <p>Show Dept. Name. The department names are displayed as part of the activity label (default).</p> <p>Simulations. The rows are displayed by simulations.</p> <p>Resources. The rows are displayed by resource.</p> <p>Pools. The rows appear in the order of resource pools.</p>

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{button Related Topics,PI('',`reportin\_rtf\_157496')}

# Edit Report Element dialog box - Filters tab

{button Tell me how...,PI('',`reportin\_rtf\_157454')}

The Filters tab enables you to further filter the statistics by individual departments, processes, or snapshots. You access it by double-clicking any report element.

The options available on the Filters tab vary depending on the type of data available in the model. For some models, none of the Filters options apply, so the Filters tab is unavailable.

Element	Description
Departments	Choose whether all departments are included in each statistic cell or pick a single department by name. This option is only available if there is more than one department.
Processes	Choose whether all processes are included in each statistic cell or a single process. This option is only available if there is more than one process.
Snapshots	Choose which snapshot to include in the data for each statistic cell. This option is only available if snapshots have been created.
Start at (snapshots only)	Choose which snapshot to begin including data into each cell. You can use this feature to look at only data after a certain amount of start-up time. This allows for loading transactions into the process to emulate steady state.

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{button Related Topics,PI('',`reportin\_rtf\_157440')}

## Edit Report Element dialog box - Format tab

{button Tell me how...,PI('',`reportin\_rtf\_157454')}

This tab is used to sort the statistics in a report element, and specify the time units, number formats, and display options. Double-click any report element to open this dialog box.

Element	Description
Sorting	<p>The sorting format determines the order of the columns.</p> <p>The statistic(s) in the current report element determines the order that the columns are sorted in. For example, for the statistic # of Transactions, the columns are sorted in the order of the number of transactions.</p> <p>For Ascending, columns are ordered by the smallest number first. If Ascending is not checked (descending), columns are ordered largest first.</p>
Maximum number of rows	<p>The maximum number of rows can be limited or unlimited. You enter a number to limit the rows. This option, combined with the above sorting capability, makes it easy to view a subset of relevant activities. For example, if you have 20 departments, you can display three by limiting the number of rows to three.</p> <p>If the rows are limited, the number of displayed rows is shown in the title of the report element, for example, <i>1 of 2 rows</i>.</p>
Time unit	<p>You can set a specific time unit or Auto (automatic). An automatic time unit is calculated to the largest reasonable time unit, given the data.</p>
Number format	<p>Select the degrees of precision with which you want numbers displayed. A default number format is calculated to the largest reasonable number format. For example, a number format of 0.##### might display .00350 whereas a number format of 0 produces &lt;1.</p>
Tabular or graph	<p>Choose whether to display the report element as tabular or graph. A tabular report element contains only text; a graph contains graphics, for example, a bar chart or line graph.</p>

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{button Related Topics,PI('',`reportin\_rtf\_157440')}

## Using the Report Window to Review Transaction Statistics

{button Tell me how...,PI('`,`reportin\_rtf\_157454')}

You can use transaction statistics to analyze the time and cost of transactions in the model. Transaction statistics are calculated only for transactions that finish processing, either by completing the flow through the process diagram or by reaching an activity that has no further connections.

In the default Report window, both the Time and Cost tabs have report elements containing transaction statistics. (You can also add your own report elements to any tab or create additional reports.)

### Note

Only completed transactions are included in transaction statistics.

If a model uses multiple processes to create hierarchy, the transaction statistics, by default, combine the results of all processes. For example, the transaction count is equal to the total number of transactions in all processes. You can change the row legends of the report element to view the results of a specific process.

---

{button Related Topics,PI('`,`reportin\_rtf\_157688')}

[Reporting Results](#)

[Transaction Formulas](#)

[Transaction Time Statistics - Time tab](#)

[About Joined Transactions](#)

[Transaction Cost Statistics - Cost tab](#)

[Formulas for Activity Statistics](#)

[Resource Statistics Formulas](#)

[Subsets of Resource Busy Time](#)

[Combinations of Resource Times](#)

[Transaction Statistics \(Time\)](#)

[Transaction Statistics \(Cost\)](#)

[Resources](#)

## Transaction Formulas

You can use the following formulas to process transaction statistics:

- **Total (Tot)**  
The combination of all of the completed transaction statistics. If you apply a filter to the statistic, then only specific, completed transactions are counted.
- **Average (Avg)**  
The total divided by the count of completed transactions. If you apply a filter, then only specific, completed transactions are counted (same as totals).

### Transaction Count

- **Total # Transactions (#Trans)**  
The number of transactions that have completed the process. This does not include the transactions that are still in the process when the simulation ends. When a transaction leaves and reenters a department, it is counted only once in the department's total.

---

{button Related Topics,PI('`,`reportin\_rtf\_157688')}

## Transaction Time Statistics - Time tab

{button Tell me how...,PI('',`reportin\_rtf\_157454')}

The Time tab in the Report window displays the time that a transaction spends being processed and is categorized as either working, waiting for resource time, blocked time, or inactive time.

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{button Related Topics,PI('',`reportin\_rtf\_157764')}



[Reporting Results](#)

[Transaction Formulas](#)

[Working Time \(Avg Work, Tot Work\)](#)

[Waiting for Resource Time \(Avg Res Wait, Tot Res Wait\)](#)

[Blocked Time \(Avg Block, Tot Block\)](#)

[Inactive Time \(Avg Inact, Tot Inact\)](#)

[Cycle Time \(Avg Cycle, Tot Cycle\)](#)

[Service Time \(Avg Serv, Tot Serv\)](#)

[Waiting Time \(Avg Wait, Tot Wait\)](#)

[Service Waiting Time \(Avg Serv Wait, Tot Serv Wait\)](#)

[Transaction Time Statistics - Time tab](#)

[About Joined Transactions](#)

## Working Time (Avg Work, Tot Work)

The time spent in working for the duration of an activity.

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{button Related Topics,PI('`,`reportin\_rtf\_157764')}

## Waiting for Resource Time (Avg Res Wait, Tot Res Wait)

The time a transaction spends at an activity waiting for a resource that is currently busy with another transaction or out of service.

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{button Related Topics,PI('','reportin\_rtf\_157764')}

## Blocked Time (Avg Block, Tot Block)

The time a transaction spends blocked at an activity. This can occur when an activity batches by time or by gate, during a Delay duration, or when a capacity limit is reached. Blocked time does not include any time spent waiting for a resource at an activity.

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{button Related Topics,PI('','reportin\_rtf\_157764')}

## Inactive Time (Avg Inact, Tot Inact)

The time a transaction spends at an activity waiting because the necessary resources or the activity are not in schedule (for example., inactive).

---

{button Related Topics,PI('`,`reportin\_rtf\_157764')}

## Cycle Time (Avg Cycle, Tot Cycle)

The wall clock time that it takes a transaction to complete. This is a combination of working time and waiting time.

The cycle time calculation depends on whether the model uses compressed or calendar time.

Tot Cycle = Tot Work + Tot Res Wait + Tot Block + Tot Inact

For example, using calendar time mode, a car (transaction) enters an Automobile Repair Center at 4:00 pm. It takes two hours to complete the transaction, but the mechanic leaves at 5:00 pm and comes back in at 8:00 am. Also, the mechanic is busy with other things until 9:00 am. The cycle time, therefore, is eighteen hours (two hours working, one hour waiting for resource and 15 hours inactive).

---

{button Related Topics,PI('`,`reportin\_rtf\_157764')}

## Service Time (Avg Serv, Tot Serv)

The actual amount of time that the transaction is being processed. This is a combination of working time, waiting for resource time, and blocked time, but not inactive time.

Tot Serv = Tot Work + Tot Res Wait + Tot Block

For example, in the Automobile Repair Center example, the service time is three hours (two hours working and one hour waiting).

<b>Note</b>
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In a compressed time model, cycle time and service time are the same thing.
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{button Related Topics,PI('','reportin\_rtf\_157764')}

## Waiting Time (Avg Wait, Tot Wait)

The wall clock time that a transaction waits to be processed.

Tot Wait = Tot Res Wait + Tot Block + Tot Inact

For example, in the Automobile Repair Center example, the waiting time is 16 hours (one hour waiting for resource and 15 hours inactive time).

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{button Related Topics,PI('`,`reportin\_rtf\_157764')}



## Service Waiting Time (Avg Serv Wait, Tot Serv Wait)

The time that the transaction waited while being processed (not inactive).

Tot Serv Wait = Tot Res Wait + Tot Block

For example, in the Automobile Repair Center example, the service waiting time is one hour (one hour waiting for resource).

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{button Related Topics,PI('`,`reportin\_rtf\_157764')}

## About Joined Transactions

When transactions join, special logic is applied to normalize the time statistics. In other words, the times for the transactions must be merged in a way that makes sense for a single transaction.

The joined transactions are compared two at a time and the statistics for the transaction with the largest cycle time are used. If the transactions have equal cycle time, then largest service time is used. If service time is equal, working time is used. If working time is equal, resource waiting time is used. And if resource waiting time is equal, blocked time is used.

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{button Related Topics,PI('`,`reportin\_rtf\_157764')}



## Transaction Cost Statistics - Cost tab

{button Tell me how...,PI('','reportin\_rtf\_157454')}

The Cost tab in the Report window displays the transaction costs that are accumulated as each transaction passes through activities. The cost is a combination of fixed costs and resource costs for the activity.

The transaction costs can be categorized in several ways, as value type (VA, BVA, or NVA), resource types (Labor, Equipment, or Other), or time (Standard or Overtime). Fixed activity costs are added into the *Other* resource costs.

You can click to select different combinations of the costs when you insert a cost statistic.

### Tip

A transaction can accumulate costs in two value-types for the same activity if the fixed cost has a different category than a resource being used at that activity.

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{button Related Topics,PI('','reportin\_rtf\_157904')}

[Reporting Results](#)

[Transaction Cost Statistics - Cost tab](#)

[Value-Type Costs](#)

[Resource-Type Costs](#)

## Value-Type Costs

The value-type costs are divided as follows:

- VA (Avg VA Cost, Tot VA Cost)  
Costs that are marked as Value Added (to the process).
- BVA (Avg BVA Cost, Tot BVA Cost)  
Costs that are marked as Business Value Added (to the business but not the process).
- NVA (Avg NVA Cost, Tot NVA Cost)  
Costs that are marked as Non Value Added.

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{button Related Topics,PI('`,`reportin\_rtf\_157904')}

## Resource-Type Costs

The resource-type costs are divided as follows:

- Labor Cost (Avg Lbr Cost, Tot Lbr Cost)  
The cost of labor resources that the transaction used.
- Equipment Cost (Avg Eq Cost, Tot Eq Cost)  
The cost of equipment resources that the transaction used.
- Other Cost (Avg Oth Cost, Tot Oth Cost)  
The cost of other resources and fixed activity costs. This includes:  
  
Fixed activity cost.  
  
Other resources. This is the cost of resources categorized as *Other* in the resource definition.  
  
Other costs. These are for unmodeled resources or department breakdown for cross-department activities.

The time costs are divided as follows:

- Standard (Avg Std Cost, Tot Std Cost)  
The cost of resources working within normally scheduled hours. If no overtime is worked, then total cost equals standard cost.
- Overtime (Avg OT Cost, Tot OT Cost)  
The cost of resources working overtime.

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{button Related Topics,PI('`,`reportin\_rtf\_157904')}

## Reporting Results - Now Try This

{button Tell me how...,PI('',`reportin\_rtf\_157976')}

For this exercise, a Direct Mailing process diagram is simulated to examine the transaction statistics. There are three departments, Marketing, Graphics, and Staff, that process the materials for a direct mailing campaign. The durations, activity costs, and cost categories are displayed on each activity.

{button Next,JI('>procedur',`reportin\_rtf\_153289')}

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{button Related Topics,PI('',`reportin\_rtf\_157958')}



[Reporting Results](#)

[Reviewing Activity Time Statistics - Now Try This](#)

[Reviewing Resource Statistics - Now Try This](#)

[Reviewing Service Time and Downtime - Now Try This](#)

[To open the example data file for reporting results - Now Try This](#)

[To run the simulation - Now Try This](#)

[To review time statistics - Now Try This](#)

[To review cost statistics - Now Try This](#)

[To review resource statistics using the Report Window - Now Try This](#)

[To review queue statistics using the Report window - Now Try This](#)

### To open the example data file for reporting results - Now Try This

{button Previous,JI('>concept','reportin\_rtf\_153225')}

- 1 On the File menu, click Close to close any open diagrams.
- 2 On the File menu, click Open.
- 3 Select iGrafx\Pro\8.0\Exercise\Ex12tran.igx, and click Open.

The process model appears in a window.

#### Run setup

- The simulation uses calendar time.
- The default schedule for the model is Standard. This means that the simulation is active Monday through Friday, 8:00 am to 5:00 pm, with an hour lunch break that is marked Out of Service.
- The simulation runs until all transactions are complete.

#### Generator setup

- The completion generator issues 10 transactions. These are issued sequentially; when one completes, another starts.

#### Resource setup

- One Printer resource is used to print cover letters and brochures. The Printer is shared in one pool for both Marketing and Graphics. The resource type is Equipment.
- The hourly rate to use the Printer is \$10.00.
- Each department has its own pool of one worker, for a total of three workers. The resource type is Labor.
- The schedule for the workers is the default schedule.
- A worker is authorized to work up to one hour overtime. All activities authorize overtime if the task has already been started. The hourly rate for the worker is \$8.00; the overtime hourly rate is \$12.00.

{button Next,JI('>procedur','reportin\_rtf\_153329')}

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{button Related Topics,PI('', 'reportin\_rtf\_158027')}

[Reporting Results - Now Try This](#)

### To run the simulation - Now Try This

```
{button Previous,JI('>procedur','reportin_rtf_153289')}
```

- 1 Maximize the *iGrafx Process* window.
- 2 On the Model menu, click Run, and point to Start to start the simulation.

When the simulation is complete, the report results appear in the Report window.

#### Tip

During this exercise, you can always return a Report tab to its original, unchanged state by clicking Default on the tab. (If this button does not appear, the report element has not changed.)

```
{button Next,JI('>procedur','reportin_rtf_153350')}
```

```
{button Related Topics,PI('','reportin_rtf_158027')}
```

### To review time statistics - Now Try This

```
{button Previous,JI('>procedur','reportin_rtf_153329')}
```

- 1 In the Report window, click the Time tab.
- 2 Locate the first report element for Transaction Statistics.

Note that 10 transactions completed, which is the number set in the generator. Average cycle time is 35.40 hours and average service time is 10.60. (Remember that one day equals 24 hours.)

The Standard schedule sets eight hours of daily, active, in service time and we see that one transaction takes about 10.60 hours to be serviced. So, if the transaction is started first thing in the morning, the inactive time is probably only 15 hours (overnight plus one lunch). But if a transaction is started late in the day, it can accrue up to 30 hours of inactive time before it finishes. The average time is somewhere in between the two. You can scroll down further in the Report tab to view the Activity Statistics and see how times were accrued by activity.

```
{button Next,JI('>procedur','reportin_rtf_153373')}
```

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```
{button Related Topics,PI('',`reportin_rtf_158027')}
```

## To review cost statistics - Now Try This

{button Previous,JI('>procedur','reportin\_rtf\_153350')}

- 1 In the Report window, click the Cost tab.
- 2 Locate the first Transaction Statistics report element.

Value Added. The average Value Added cost was \$272.40. If you look at the Task tab for Paste up brochure in the Graphics department, it has a fixed cost of \$50 and a Value-Added category of VA. The Worker resource accrues \$8 an hour with the same classification as the task. These costs accrue for each transaction that is processed and count as VA in the statistics.

Business Value Added. The average Business Value Added cost was \$26.80. If you look at the Task tab for Prepare plan in the Marketing department, it has a fixed cost of \$10 and a Value-Added category of BVA. The Worker resource accrues \$8 an hour with the same classification as the task.

Non Business Value Added. The average Non Business Value Added cost was \$36.00. If you look at the Task tab for *Check materials* in the Marketing department, it has a fixed cost of \$10 and a Value-Added category of NVA. The Worker resource accrues \$8 an hour with the same classification as the task.

As noted before, the average cost for transactions is \$335.20. This is the sum of labor, equipment, and *Other* costs incurred while processing a transaction. Let's look at these three costs one at a time.

Labor. If the average labor cost, \$115.20, is multiplied by the number of transactions, 10, the result is a total labor cost of \$1152.00. You can scroll down to the *Resource Statistics* report element on the Cost tab to verify this.

Equipment. The average equipment cost is \$40. The Printer hourly rate is \$10, so we assume the average printer busy time is 4 hours. If we multiple 4 by the number of transactions, the total busy time for the printer is 40 hours. (This is verified on the Resource Statistics element on the Resource tab.)

Other. The average other costs are the sum of fixed costs from each of the activities. If you look at the Task tab on the *Prepare plan* activity in Marketing, you will see a fixed cost of \$10. This is accrued by each transaction as it is processed and counts as *Other*.

{button Next,JI('>procedur','reportin\_rtf\_153410')}

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{button Related Topics,PI('',`reportin\_rtf\_158027')}

### To review the transaction count - Now Try This

{button Previous,JI('>procedur','reportin\_rtf\_153373')}

- 1 In the Report window, click back to the Time tab.
- 2 Locate the second Transaction Statistics report element.

The element displays transactions by department. The number of transactions processed by each department is 10.

An interesting thing to point out about our model is that the transaction splits at *Prepare materials* and joins back together at *Collate for mailing*. As discussed in [About Process Modeling](#), a split increases the number of transactions being processed until they join back together. Let's examine what happens when the transactions remain split apart.

- 3 In the process diagram, delete the Staff department and simulate again.

(To delete Staff, select its department name area and press Delete.) This removes the one activity in the department that joined the transactions.

The number of transactions processed in Marketing doubles because it now has twenty completed transactions (ten that finish at *Check materials* and ten at *Check brochure*). You can verify that this affects all calculations that use the total number of transactions, for example, average cycle time.

- 4 This is the end of this exercise. On the File menu, click Close.

or

On the File menu, click Save As to save your changes.

---

{button Related Topics,PI('',`reportin\_rtf\_158027')}



## Using the Report Window to Review Activity Statistics

Activity statistics are used to analyze the behavior of transactions being processed at activities.

In the Report window, the Time, Cost, Resource, and Queue tabs have report elements containing activity statistics. Each row of the report element is identified by the text label of the activity, with or without a department name. For example, an activity labeled *Prepare report* can appear in the report element as *Prepare report* or *Dept. 1 - Prepare report*. You can also add the process name if there is more than one process.

The order of the activities in a report element is affected by whether the report element is sorted and whether the element is hierarchical. If it is sorted, you can select the sorting format (). If the element is hierarchical, the activities in each process are sorted separately. Otherwise, the regular sorting format is used.

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{button Related Topics,PI('`,`reportin\_rtf\_158145')}

[Reporting Results](#)

[Reviewing Activity Time Statistics - Now Try This](#)

[Formulas for Activity Statistics](#)

[Activity Time Statistics: Report Window - Time tab](#)

[Activity Cost Statistics: Report Window - Cost tab](#)

[Activity Queue Statistics: Report Window - Queue tab](#)

[Reviewing Activity Time Statistics - Now Try This](#)

[Using the Report Window to Review Activity Statistics](#)

## Formulas for Activity Statistics

The following calculations are available in many of the activity time and queue statistics.

- Total (Tot)

For time statistics, the total time is calculated for each activity. If you apply a filter to the statistic, then only specific, completed transactions are counted.

- Average (Avg)

For time statistics, the average is the total time for the activity divided by the count of completed transactions. For queue statistics, the denominator depends on the statistic.

- Maximum (Max)

The highest number accumulated for the statistic at any one point in time (for example, the *high-water mark*).

- Minimum (Min)

The lowest number accumulated for the statistic at any one point in time.

---

{button Related Topics,PI('`,`reportin\_rtf\_158145')}

## Activity Time Statistics: Report Window - Time tab

The Time tab in the Report window displays activity times. Activity times are similar to transaction times, except the times are calculated for each activity as transactions are processed. The time statistics are working time, waiting for resource time, blocked time, inactive time, cycle time, service time, waiting time, and service waiting time.

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{button Related Topics,PI('','reportin\_rtf\_158145')}

## **Activity Cost Statistics: Report Window - Cost tab**

The Cost tab in the Report window displays activity costs. Activity costs are similar to transaction costs, except the costs are calculated for each individual activity as transactions are processed. An activity can accumulate costs categorized by value type, by resource type, and by standard or overtime.

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{button Related Topics,PI('`,`reportin\_rtf\_158145')}

## Activity Queue Statistics: Report Window - Queue tab

{button Tell me how...,PI('','reportin\_rtf\_158255')}

Element	Description
Maximum Capacity Used (Max Cap Used)	The maximum number of transactions processed in the activity at any one time.
	Average #Waiting Transactions (Avg #Wait)
	The average number of transactions that were waiting to be processed at the activity, at any one point in time that any transactions were waiting. (In other words, this is the average length of the line if there is a line at all.)
	Maximum #Waiting Transactions (Max #Wait)
	The highest number in the queue, or the largest number of transactions that were waiting to be processed by the activity at any one point in time.
	Total #Transactions that Waited for Resources (Tot #Res Wait)
	The total number of transactions that waited to be processed by resources at the activity.
	Total #Transactions Blocked (Tot #Block)
	The total number of transactions that had to wait to be processed by the activity because of a blocking condition. A blocked condition can occur when an activity batches by time or by gate, during a Delay activity, or when capacity limits are met.
	Resource Waiting Time (Avg Res Wait, Tot Res Wait)
	The total time that resources that were already acquired for a transaction had to wait because of blocked or waiting for resource conditions.
	Total #Waiting Transactions (Tot #Wait)
	The total number of transactions that had to wait to be processed by the activity. This is a combination of the total count spent waiting for resources and total blocked count.
	$Tot\ #Wait = Tot\ #Res\ Wait + Tot\ #Block$

## Reviewing Activity Time Statistics - Now Try This

{button Tell me how...,PI('',`reportin\_rtf\_158255')}

For this exercise, we will look at the time, costs, resource, and queue statistics for activities in an office model. When an order arrives, the Front Desk receives it and sends a fax to the main office. Staff picks up the orders twice a day, once at 8:00 am and once at 1:00 pm, for processing. After the order is processed, a follow-up fax is sent to the main office.

For this exercise, a Direct Mailing process diagram is simulated to examine the transaction statistics. There are three departments, Marketing, Graphics, and Staff, that process the materials for a direct mailing campaign. The durations, activity costs, and cost categories are displayed on each activity.

{button Next,JI('>procedur',`reportin\_rtf\_153680')}

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{button Related Topics,PI('',`reportin\_rtf\_158245')}

## Reporting Results

### Using the Report Window to Review Activity Statistics



[To open the activity time statistics sample data - Now Try This](#)

[To run the simulation and generate a report - Now Try This](#)

[To review time statistics using the Report window - Now Try This](#)

[To review cost statistics using the Report window - Now Try This](#)

[To review resource statistics using the Report Window - Now Try This](#)

[To review queue statistics using the Report window - Now Try This](#)

[To review resource statistics using the Report Window - Now Try This](#)

### To open the activity time statistics sample data - Now Try This

{button Previous,JI('>concept','reportin\_rtf\_153617')}

- 1 On the File menu, click Close to close any open diagrams.
- 2 On the File menu, click Open.

The Open File dialog box appears.

- 3 Select the file iGrafx\Pro\8.0\Exercise\Ex10.igx, and click Open.

The process model appears in a window.

#### Run setup

- The simulation uses calendar time.
- The default schedule for the model is Standard. This means that the simulation is active Monday through Friday, 8:00 am to 5:00 pm, with an hour lunch break that is marked Out of Service.
- The simulation runs for five days.

#### Generator setup

- An interarrival generator issues a transaction every three hours.

#### Resource setup

- One fax machine is used to fax materials to other cities. The machine is shared in one pool for both departments. The resource type is Equipment.
- The hourly rate to use the fax machine is \$10.00.
- The Front Desk has a pool of one worker and Staff has a pool of one worker, for a total of two workers. The resource type is Labor.
- The schedule for the workers is the default schedule.
- The workers are not authorized to work overtime. The hourly rate for the worker is \$14.00.

{button Next,JI('>procedur','reportin\_rtf\_153720')}

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{button Related Topics,PI('','reportin\_rtf\_158310')}

[Reviewing Activity Time Statistics - Now Try This](#)

### To run the simulation and generate a report - Now Try This

{button Previous,JI('>procedur','reportin\_rtf\_153680')}

- 1 Maximize the *iGrafx Process* window.
- 2 On Model menu, click Run, and point to Start to start the simulation.

When the simulation finishes, the Report window appears.

{button Next,JI('>procedur','reportin\_rtf\_153740')}

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{button Related Topics,PI('>procedur','reportin\_rtf\_158310')}

### To review time statistics using the Report window - Now Try This

{button Previous,JI('>procedur','reportin\_rtf\_153720')}

- 1 In the Report window, click the Time tab.
- 2 Double-click the Activity Statistics report element.

The Edit Report Element dialog box appears.

- 3 Click the Statistic tab.
- 4 For Statistics Category, leave Activities selected.
- 5 Select and remove Avg Serv, Avg Wait, and Avg Serv Wait.

This helps make the report element easier to read (in terms of width) for our example.

- 6 Select the Filters tab.
- 7 For Departments, select Staff.

This narrows down the statistics to be examined, specifically to activities in the Staff department.

- 8 Select the Format tab.
- 9 For Sorting, select #Trans.

This sorts the activities in the report element by the number of transactions that were processed.

- 10 For Time Unit, select Hours.

This displays the times as hours, instead of the automatic unit.

- 11 Leave the other options unchanged.
- 12 Click OK.

The modified Activity Statistics report element is displayed.

The average cycle time of *Pick up orders* is 29.89 hours. This is the total cycle time, 269.00, divided by the total number of transactions, 9, and rounded off. The cycle time is the sum of the activity's working time, resource waiting time, blocked time, and inactive time.

{button Next,JI('>procedur','reportin\_rtf\_153777')}

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{button Related Topics,PI('>', 'reportin\_rtf\_158310')}

**To review cost statistics using the Report window - Now Try This**

{button Previous,JI('>procedur','reportin\_rtf\_153740')}

- 1 In the Report window, click the Cost tab.
- 2 Locate the first Activity Statistics report element.

Do not edit the statistics in this exercise.

The total cost for the statistics in the Front Desk department was \$155.00, all of which was marked as Valued Added. The cost is the sum of labor, equipment, and other costs.

- 3 Locate the second Activity Statistics report element.

Do not edit the statistics in this exercise. This report element breaks activity costs by activity. The costs are added into the previous report element which displays totals by departments.

{button Next,JI('>procedur','reportin\_rtf\_153806')}

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{button Related Topics,PI('','reportin\_rtf\_158310')}

### To review resource statistics using the Report Window - Now Try This

{button Previous,JI('>procedur','reportin\_rtf\_153777')}

- 1 In the Report window, click the Resource tab.
- 2 Locate the Activity Statistics report element.

You do not need to edit anything. This report element contains statistics similar to the Cost tab, with the emphasis on resource types (for example, labor, equipment, and Other).

{button Next,JI('>procedur','reportin\_rtf\_153823')}

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{button Related Topics,PI('', 'reportin\_rtf\_158310')}

### To review queue statistics using the Report window - Now Try This

{button Previous,JI('>procedur','reportin\_rtf\_153806')}

- 1 In the Report window, click the Queue tab.
- 2 Locate the Activity Statistics report element.

Do not edit the statistics in this exercise. Although the Front Desk processed 15 transactions, only 4 transactions completed. This means that 11 transactions were still in process when the simulation ended. We also see the results of the *Staff - Pick up order* batching activity. There were 19 total transactions that waited at this activity. The most transactions at any one time were 5.

- 3 This is the end of this exercise. On the File menu, click Close.

or

On the File menu, click Save As to save your changes.

{button Next,JI('>concept','reportin\_rtf\_154207')}

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{button Related Topics,PI('',`reportin\_rtf\_158310')}



## Using the Report Window to Review Resource Statistics

{button Tell me how...,PI('`,`reportin\_rtf\_158495')}

Resource statistics are used to analyze data that has been collected about resources, including workers and other resources that you have defined.

In the Report window, the Cost, Resource, and Queue tabs have report elements containing resource statistics.

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{button Related Topics,PI('`,`reportin\_rtf\_158457')}

[Reporting Results](#)

[Reviewing Resource Statistics - Now Try This](#)

[Reviewing Service Time and Downtime - Now Try This](#)

[Resource Statistics Formulas](#)

[Using the Report Window to Review Resource Time Statistics - Resource tab](#)

[Using the Report Window to Review Resource Cost Statistics - Cost and Resource tabs](#)

[Using the Report Window to Review Resource Queue Statistics - Queue tab](#)

[Reviewing Resource Statistics - Now Try This](#)

[Reviewing Service Time and Downtime - Now Try This](#)

[To open the activity time statistics sample data - Now Try This](#)

[To run the simulation and generate a report - Now Try This](#)

## Resource Statistics Formulas

The following calculations are available in many of the resource statistics.

- Total (Tot)

The total is the sum of time or costs accrued by the resource. If you apply a filter to the statistic, then only specific things such as departments, resources, or pools are counted. For example, totals that are filtered by department only include processing time that occurred in the department.

- Average (Avg)

The total divided by the count of resources. If you apply a filter, then only specific departments, resources, or pools are counted.

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{button Related Topics,PI('`,`reportin\_rtf\_158513')}

[Using the Report Window to Review Resource Statistics](#)

[Using the Report Window to Review Resource Time Statistics - Resource tab](#)

## Using the Report Window to Review Resource Time Statistics - Resource tab

{button Tell me how...,PI('`,`reportin\_rtf\_158495')}

The Time tab in the Report window displays resource time statistics. During simulation, a resource can always be classified as busy, out of service, idle, or inactive. You set how a resource *spends* its time when you specify how activities acquire and use it, for how long, and by its schedule.

The sum of a resource's time equals the total elapsed time of the simulation.

- **Workers (Count)**

The total number of workers for one or all departments.

- **Total Elapsed Time (Time)**

The amount of time that elapsed between the simulation starting and ending times.

- **Busy Time (Avg Busy, Tot Busy)**

The time that a resource spends working, for example, processing a transaction. This time is paid.

Also see the following discussion on the two subsets of busy time: waiting versus non-waiting time, and standard time versus overtime.

- **Out of Service Time (Avg OOS, Tot OOS)**

The time that a resource is active but unavailable to process transactions. A resource can also be acquired by an activity as out of service. Out of service time can be paid or unpaid, depending on how the time span is defined in the resource's schedule.

- **Idle Time (Avg Idle, Tot Idle)**

The time that a resource spends available for use but not currently processing a transaction. This time is paid.

- **Inactive Time**

The remaining time when a resource is out of schedule. This time is unpaid.

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{button Related Topics,PI('`,`reportin\_rtf\_158539')}

[Using the Report Window to Review Resource Statistics](#)

[Subsets of Resource Busy Time](#)

[Combinations of Resource Times](#)

## Subsets of Resource Busy Time

- Resource Waiting Time and Non-Waiting Time (Avg Res Wait, Tot Res Wait)

The time that a resource spends waiting. This occurs when an activity processing a transaction acquires a resource with the Wait option, and the transaction must wait for some reason (for example, waiting for another resource, or the transaction incurs blocked or inactive time).

$\text{Tot Busy} = \text{Tot Res Wait} + (\text{Total resource non-waiting time})$

- Resource Standard Time and Resource Overtime (Avg OT, Tot OT)

The time that a resource spends in standard time or overtime. A resource is in overtime if an activity acquires a resource and requires that it finish processing the transaction even though the resource should go out of schedule (become inactive) prior to finishing.

$\text{Tot Busy} = (\text{Resource standard time}) + \text{Tot OT}$

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{button Related Topics,PI('`,`reportin\_rtf\_158539')}



## Combinations of Resource Times

- Resource Utilization (Res Util%)

The percentage of scheduled active time (when a resource should be in schedule) that a resource is busy but not out of service.

The total scheduled active time is calculated by figuring the total number of hours during which the resource is scheduled to be active during the entire simulation. For example, assume a simulation runs for two calendar days using the Standard schedule. This creates 18 hours scheduled active time and two hours out of service time (lunch breaks) for a total of 16 hours. If the total busy time for a worker is eight hours, the resource utilization is 50%.

- Non-Waiting Resource Utilization (NW Util%)

The percentage of scheduled active time (when a resource should be in schedule) that a resource is busy but not waiting or out of service.

If the worker in the previous example has accrued two hours waiting for another resource, then the non-waiting resource utilization is 37.50%.

**Note**

It is possible to get over 100% resource utilization because overtime can cause busy time outside of the scheduled active time.

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{button Related Topics,PI('`,`reportin\_rtf\_158539')}

## Using the Report Window to Review Resource Cost Statistics - Cost and Resource tabs

{button Tell me how...,PI('`,`reportin\_rtf\_158495')}

The costs associated with a resource are specified when you define a resource and at the time when an activity uses a resource.

The resource paid times are divided into the following categories (also see the previous discussion on resource standard time in *Subsets of Resource Busy Time*).

- Resource Standard Paid Time

A resource's normally scheduled hours. This includes busy time, out of service time (but only if it has been marked paid in the schedule) and idle time.

(Resource standard paid time) = Tot Busy + Tot OOS (paid) + Tot Idle

- Resource Overtime (Avg OT, Tot OT)

The amount of time that a resource worked overtime.

A resource's cost is the combination of standard cost, overtime cost, and any per use costs.

- Standard Cost (Avg Std Cost, Tot Std Cost)

The cost of the resource working during standard hours. This is the result of multiplying the resource's standard paid hours by the hourly rate that is specified in the resource definition. )

Tot Std Cost = (Resource standard paid time) \* (Resource's standard hourly rate)

- Overtime Cost (Avg OT Cost, Tot OT Cost)

The cost of the resource working during overtime. This is the result of multiplying the overtime hours by the overtime hourly rate of the resource.

Tot OT Cost = Tot OT \* (Resource's overtime hourly rate)

- Use Cost (Avg Use Cost, Tot Use Cost)

The per use cost is determined by the number of transactions that are processed. The cost is incurred whenever an activity uses the resource, either as *Acquire* or *Activity* to process a transaction.

Tot Use Cost = (Number of times the resource is used) \* (Resource's per use cost)

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{button Related Topics,PI('`,`reportin\_rtf\_158585')}

[Using the Report Window to Review Resource Statistics](#)

[Reviewing Resource Statistics - Now Try This](#)

[Reviewing Service Time and Downtime - Now Try This](#)

## Using the Report Window to Review Resource Queue Statistics - Queue tab

{button Tell me how...,PI('`,`reportin\_rtf\_158495')}

These resource queue statistics are used to examine the behavior of transactions requesting the use of resources at activities.

### Note

The difference between a resource queue and an activity queue is that a resource queue is created when transactions are waiting for a resource. Activity queues are created when transactions wait at an activity to be processed.

- **Total # Trans (#Trans)**  
The number of requests of this resource queue from transactions.
- **Total # Waiting Trans (Tot Wait#)**  
The number of requests of this resource queue that cannot be serviced (e.g., all resources busy) causing the transactions to wait.
- **Maximum Number of Waiting Transactions (Max Wait#)**  
The highest number in the queue, or the largest number of transactions that were waiting for a resource at this queue at any one point in time.
- **Average Number of Waiting Transactions (Avg Wait#)**  
The average number of transactions that were waiting at the queue at any one point in time.
- **Transaction Waiting Time (Avg Wait, Tot Wait)**  
The time that transactions waited for resources from this queue, including all transactions that did not wait. For example, if two transactions waited 10 minutes and two other transactions did not wait, then the total transaction waiting time is 20 minutes and the average transaction waiting time is 5 minutes.
- **Average Non-zero Transaction Waiting Time (Avg NZ Wait)**  
The average time that transactions that waited for resources from this queue, not including any transactions that did not wait (for example, all waiting times are greater than zero). In the above example, the average non-zero transaction waiting time is 10 minutes.

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{button Related Topics,PI('`,`reportin\_rtf\_158615')}

[Using the Report Window to Review Resource Statistics](#)

[Using the Report Window to Review Resource Cost Statistics - Cost and Resource tabs](#)

## Reviewing Resource Statistics - Now Try This

{button Tell me how...,PI('',`reportin\_rtf\_158676')}

For this exercise, a simple process diagram is simulated to examine how the resource statistics are calculated. The process diagram has two activities, a Start activity (no duration) and a *Perform task* activity that has a duration between 1 and 2 hours.

{button Next,JI('>procedur',`reportin\_rtf\_154259')}

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{button Related Topics,PI('',`reportin\_rtf\_158650')}

[Reporting Results](#)

[Using the Report Window to Review Resource Statistics](#)

[Using the Report Window to Review Resource Cost Statistics - Cost and Resource tabs](#)

[Reporting Results - Now Try This](#)

[Reviewing Activity Time Statistics - Now Try This](#)

[Reviewing Service Time and Downtime - Now Try This](#)

[To open the resource queue statistics exercise data - Now Try This](#)

[To run the resource queue simulation - Now Try This](#)



### To open the resource queue statistics exercise data - Now Try This

1 On the File menu, click Close to close any open diagrams.

2 On the File menu, click Open.

The Open File dialog box appears.

3 Select the file iGrafx\Pro\8.0\Exercise\Ex10ref.igx, and click Open.

The process model appears in a window.

#### Run setup

- The simulation uses calendar time.
- The simulation runs for five days.

#### Schedule setup

- The default schedule for the model is Standard.

The simulation is active from Monday through Friday, 8:00 am to 5:00 pm. There is an unpaid lunch hour which is marked paid, out of service.

- The scheduled active time (for example, all the time spans in the schedule) for one week is 45 hours. Forty of these hours are standard time; five are unpaid, out of service time.

#### Generator setup

- A transaction is generated every ninety minutes.

#### Resource setup

- One worker is available.
- The worker is authorized to work up to two hours overtime. The activity *Perform task* allows overtime if the task has already started.
- The hourly rate for the worker is \$10; the overtime hourly rate is \$15.

{button Next,JI(' >procedur','reportin\_rtf\_154296')}

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{button Related Topics,PI(' ','reportin\_rtf\_158703')}

[Reviewing Resource Statistics - Now Try This](#)

### To run the resource queue simulation - Now Try This

{button Previous,JI('>procedur','reportin\_rtf\_154259')}

- 1 On the Model menu, click Run, and point to Start.

When the simulation is complete, the report results are appear in the Report window.

- 2 In the Report window, click the Resource tab.

You do not have to edit anything. First, look at resource utilization. As defined previously, it is equal to the resource's busy time, divided by the active time, which is all of the schedule's time spans that are not out of service (OOS).

Next, examine some of the other resource statistics. The report shows that the resource accrued 37.47 hours busy time (of which 2.12 were overtime) and 4.66 hours idle time. Lunches account for the five hours unpaid, out of service time.

If you take the busy time (37.47 hours), subtract overtime (2.12), and add idle time (4.66), the total is equal to the resource standard time (40.01, including round-off).

And finally, look at some of the costs that have accrued. The total labor cost, by activity, is \$385.31. If we subtract the overtime cost of \$31.86 (2.12 hours at \$15 an hour) from it, we have a total standard cost of \$353.45. This equals the average busy time (37.47 hours), minus overtime (2.12 hours), multiplied by the \$10 hourly rate.

- 3 This is the end of this exercise. On the File menu, click Close.

or

On the File menu, click Save As to save your changes.

{button Next,JI('>concept','reportin\_rtf\_154332')}

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{button Related Topics,PI('', 'reportin\_rtf\_158703')}

## Reviewing Service Time and Downtime - Now Try This

{button Tell me how...,PI('`,`reportin\_rtf\_158773')}

In this exercise, you will examine service time and unscheduled downtime for equipment. In the process diagram, there are two departments: Manufacturing and Downtime. The purpose of the Downtime department is to perform unscheduled service.

A distinction is made between scheduled and unscheduled out of service because the former can automatically be built into a schedule (for example, the lunch breaks in the previous example). Unscheduled out of service, or downtime, typically happens more randomly.

{button Next,JI('>procedur`,`reportin\_rtf\_154375')}

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{button Related Topics,PI('`,`reportin\_rtf\_158759')}

[Using the Report Window to Review Resource Statistics](#)

[Reviewing Activity Time Statistics - Now Try This](#)

[Reviewing Resource Statistics - Now Try This](#)

[To open the exercise data for reviewing service times - Now Try This](#)

[To run the simulation - Now Try This](#)

### To open the exercise data for reviewing service times - Now Try This

{button Previous,JI('>concept','reportin\_rtf\_154332')}

- 1 On the File menu, click Close to close any open diagrams.
- 2 On the File menu, click Open.
- 3 Select iGrafx\Pro\8.0\Exercise\Ex11serv.igx, and click Open.

The process model appears in a window.

#### Run setup

- The model uses calendar time.
- The default schedule for the model is Standard.
- The simulation runs for ten minutes.

#### Generator setup

- Each department has its own Start statement and its own generator.
- One transaction is generated in Manufacturing every one minute.
- One transaction is generated in Downtime between every five and seven minutes. (This number could easily be more random.) The first transaction is issued after the simulation has run for 5 minutes.

#### Resource setup

- One equipment resource is available.
- The equipment resource is used for the *Use equipment* activity in Manufacturing.
- The equipment resource is marked as out of service for the *Service* activity in Downtime. You can verify this by looking at the Resource tab for this activity.

{button Next,JI('>procedur','reportin\_rtf\_154414')}

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{button Related Topics,PI('', 'reportin\_rtf\_158808')}

[Reviewing Service Time and Downtime - Now Try This](#)



### To run the simulation - Now Try This

{button Previous,JI('>procedur','reportin\_rtf\_154375')}

- 1 On the Model menu, click Run, and point to Start.

When the simulation is complete, the report results appear in the Report window.

- 2 In the Report window, click the Resource tab.

In the first report element, for resource utilization, you can see that the worker was utilized 50% and the equipment was fully utilized for the entire process (100%).

In the second report element, we see that out of the total simulation time (which was set to 10 minutes), the average busy time for the equipment was 9 minutes and the average out of service time was 1 minute. There was no idle time.

- 3 This is the end of this exercise. On the File menu, click Close.

or

On the File menu, click Save As to save your changes.

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{button Related Topics,PI('','reportin\_rtf\_158808')}

## Creating Custom Statistics in the Report Window

{button Tell me how...,PI('`,`reportin\_rtf\_158857')}

You can create custom statistics to make calculations that are specific to your design, using arithmetic operators, scenario attributes, and functions.

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{button Related Topics,PI('`,`reportin\_rtf\_158851')}

## Reporting Results

[To create custom statistics](#)

## To create custom statistics

- 1 With a report window active, on the Reports menu, click Custom Stats.

The Custom Statistics dialog box appears.

To modify a statistic, select it and click Modify.

To delete a statistic, select it and click Delete.

- 2 To add a new statistic, click Add.

The Edit Custom Statistic dialog box appears.

- 3 For Name, type a brief name to describe the statistic.

- 4 Select Transaction, Resource, Expression, or Monitor.

**Transaction.** Select one of the statistics: Total Time Elapsed, Completion Count, Service Time, Waiting Time, Cycle Time, Work Time, Resource Wait Time, Blocked Time, Cost, VA Cost, BVA Cost, or NVA Cost.

For example, TotalOrders equals the number of transactions that complete.

TotalOrders = Completion Count

**Resource.** Select the name of the resource and one of the following: Count, Use Count, Time Busy, Time Out Of Service, Time Waiting, Total Cost, Busy Cost, Use Cost, Time Idle, and Overtime.

For example, InUse equals the time busy for resource named Laser.

InUse = Laser Time Busy

**Expression.** Click to use scenario attributes, functions, members, operators, and already-defined custom statistic names to create an expression.

For example, if the wage rate is \$15 per hour, then you use the following expression.

Wage = 15 \* Hours(Time)

**Monitor.** Select the name of the monitor and one of the following: Completion Count, Service Time, Waiting Time, Attribute Value, Cycle Time, Work Time, Resource Wait Time, Blocked Time, Cost, VA Cost, BVA Cost, or NVA Cost.

For example, Total Count equals the number of transactions that have come through a monitor.

TotalCount = Pass Count

- 5 For Hidden, check the box to indicate that the statistic is hidden (for example, not part of the output results in the report). You can click to toggle the box.
- 6 After you finish editing the Custom Statistics dialog box, click OK.

Unless you have specified that it is hidden, the definition of the custom statistic is added the Custom tab on the report window.

After you create a custom statistic, you view its results by creating a report element with Custom Stats as the Statistic category. The statistic can be added to any tab (for example, Time, Cost, and Resource) in the report window.

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{button Related Topics,Pl('`,`reportin\_rtf\_158871')}

## Reporting Results

## Naming or Deleting Simulation Data

{button Tell me how...,PI('',`reportin\_rtf\_158903')}

You can create reports that do the following:

- Append a new report to an existing report so that you can compare the results of a subsequent simulation.
- Replace the report data with each simulation.
- Create a new report for each simulation, the default setting (for example, reports are named Sim #1, Sim #2, and so forth).

The report names and creation options appear in the Run Setup dialog box and in the report elements. This dialog box appears when you select the Run Setup command on the Model menu.

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{button Related Topics,PI('',`reportin\_rtf\_158893')}



Reporting Results

Run Setup dialog box - Initialization and Reports tab

To name or delete simulation data

**To name or delete simulation data**

- 1 On the Report menu, click Simulation Data.

The Simulation Data dialog box appears. It contains a list of the simulation runs that are currently appended to the report. If a name is dimmed, it is unassigned.

- 2 Select the simulation name.
- 3 Click Name to display the Name Simulation Data dialog box.
- 4 Type a name.
- 5 Click OK to close the Name Simulation Data dialog box.
- 6 Click Close to close the Simulation Data dialog box.

## Using Department Statistics

When activities span multiple departments, the report results take into account the shared elements of time, cost, and resources.

In the report results, a cross-department activity appears in each of the departments that participate in the activity. You use the Structure tab of the Edit Report Element dialog box to specify that individual departments appear in the row legends. For example, the department names and the text for the activity are displayed in the report element.

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```
{button Related Topics,PI('`,`reportin_rtf_158917')}
```

Reporting Results

Transaction Statistics (Time)

Activity Statistics (Time)

Transaction Statistics (Cost)

Activity Statistics (Cost)

## Transaction Statistics (Time)

When a transaction is processed in a cross-department activity, time accumulates in the same manner as for an activity in one department. In other words, the time that the transaction spends being processed accumulates the same for one department as for several. Like all transaction statistics, the time can be either working, waiting for resource, blocked, or inactive time. If you look at the transaction statistics by department, you will see that the time accumulates the same in each department that participates in the cross-department activity.

For example, at a Support Agency, a service bulletin (the transaction) is reviewed for one hour by editors from two departments. The transaction working time is one hour, so each department accumulates one hour of working time.

An interesting result of work being performed in parallel is that time accumulates in several departments concurrently. If you add up the working times of several departments, the sum can easily exceed the total elapsed time of the simulation. In the above example, the total service time is one hour and not two hours.

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{button Related Topics,PI('','reportin\_rtf\_158949')}

[Using the Report Window to Review Resource Statistics](#)

[Cross-Department Time Statistics](#)

[Cross-Department Cost Statistics](#)

## **Activity Statistics (Time)**

When a transaction is processed by a cross-department activity, the activity accumulates time. Like all activity statistics, this means that the activity can be accumulating work time, resource waiting time, blocked time, or inactive time. If you look at this time sorted by department, you will see that each department accumulates the same time.

For example, at a Software Code Review meeting, participants from three departments attend a meeting that takes three hours. The activity accrues three hours in each department but the total working time is three hours and not nine hours.



## **Transaction Statistics (Cost)**

Transaction costs for a cross-department activity are the result of adding or accumulating both fixed costs and resource costs. When a transaction is processed, the fixed cost of the activity is split equally among all participating departments. The resource costs are assigned to their individual departments.

Let's begin with a simple example that uses only a fixed activity cost and no resource costs. For a bulk mailing of a brochure (the transaction), two departments share in the purchase of a mailing list that costs \$400. The transaction has a total cost of \$400, of which \$200 is accrued in each department.

## Activity Statistics (Cost)

Each department that participates in a cross-department activity accrues activity statistics.

To continue the previous example, look at how the fixed costs are created for an activity. Fixed costs are assigned as part of the Activity Base in the Task tab on the Edit Activity dialog box.

Now add resource costs to the previous example. The labels for the brochure (still the transaction) are printed using a computer from Dept. A and another printer from Dept. B (the two resources). Creating the labels takes one hour.

The activity still has a fixed cost of \$400 to buy the mailing list. The computer in Dept. A costs \$20 per hour and the printer in Dept. B costs \$40 per hour.

By default, the fixed costs for a cross-department activity apply to all participating departments. However, you can use the *Other* resource type to model fixed activity costs that are used by individual departments.

## Resources

The resources associated with a cross-department activity can be used by an individual department or by all departments that participate in the activity. In other words, in the Resources tab of the Edit Activity dialog box, you can name an individual department or choose *All* departments. If a resource is specified for *All* departments, then each department uses its own instance of the resource.

For example, in a Corporate Planning Division, two departments participate in a two-hour planning meeting. The activity specifies that it uses one worker resource and one laptop computer, each of which we defined to exist in a separate pool by department. The resource specification applies to both departments, that is, each department uses one of their own workers and one of their own computers, for a total of two of each. The resource statistics indicate which departments used individual resources.



## Using Graphs

{button Tell me how...,PI('','using\_gr\_rtf\_35963')}

You can display report elements in either a tabular format or as a graph. If you select a graph, several graph types are available, including such common graphs as pie charts and line graphs, and other more unusual graphs such as a scatter graph or a box-whisker graph.

When you run a simulation, statistics are gathered about process times, costs, resource utilization, and queues. These statistics are categorized by transaction, activity, resource, or monitor.

You can use custom statistics to create your own unique combinations of the standard statistics. For example, you can set costing information or revenue formulas. The custom statistics are updated and calculated automatically with each simulation.

You can also maintain several sets of named simulation data to compare results across simulation runs and scenarios.

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{button Related Topics,PI('','using\_gr\_rtf\_35919')}

[Creating Graphs](#)

[Graph Types](#)

[Creating Graphs from Report Data - Now Try This](#)

## Creating Graphs

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The report results can be displayed as a graph. You have your choice of 2D or 3D styles for many of the graphs.

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{button Related Topics,PI('`,`using\_gr\_rtf\_35949')}

[Using Graphs](#)

[Graph Types](#)

[Creating Graphs from Report Data - Now Try This](#)



[To create a graph using report data](#)

[To open the exercise data for creating a graph - Now Try This](#)

[To change simulation names - Now Try This](#)

[To create a graph using report data - Now Try This](#)

**To create a graph using report data**

- 1 In a report window, double-click the report element that you want to graph.
- 2 In the Edit Report Element dialog box, select the Format tab.
- 3 For Display As, select Graph.

This adds the Graph Style button.

- 4 Click Graph Style.

The Graph Control dialog box appears. Use this dialog box to select the type of graph and other characteristics such as style, titles, fonts, markers, and background.

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{button Related Topics,PI('','`using\_gr\_rtf\_35949')}

[To open the exercise data for creating a graph - Now Try This](#)

[To change simulation names - Now Try This](#)

[To create a graph using report data - Now Try This](#)

[Graph Control dialog box](#)

[Using Graphs](#)

[Graph Types](#)

[Creating Graphs from Report Data - Now Try This](#)

## Graph Types

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

You can select different titles, fonts, and colors for many of the areas and descriptive text in a graph. The style options that are available depend on the type of graph that you select.

[Creating Graphs](#)

[Pie Chart](#)

[Polar Graph](#)

[Bubble Graph](#)

[2D Scatter Graph](#)

[3D Scatter Graph](#)

[Line Graph](#)

[2D Bar Graph](#)

[3D Bar Graph](#)

[Area Graph](#)

[Gantt Chart](#)

[High-Low-Close Graph](#)

[Candlestick Graph](#)

[Box-Whisker Graph](#)

[Tape Graph](#)

[Surface Graph](#)

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{button Related Topics,PI('`,`using\_gr\_rtf\_36098')}

[Using Graphs](#)

[Creating Graphs](#)

[Creating Graphs from Report Data - Now Try This](#)

## Pie Chart

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The pie chart, one of the simplest graph types, consists of a circle (or *pie*) divided into two or more sections (slices). Pie charts show the proportion of parts to the whole. By labeling each pie slice with the quantity it represents, you can also compare parts to each other, although not as effectively as with a bar graph or other graph type.

- Each pie chart can graph only one data set, with each data point represented by a pie slice.
- Negative data points are ignored and not shown.
- You can draw any pie chart in either 2D or 3D form.

When to use a pie chart

- To graph a single data set when your primary message is the relationship of the parts to the whole.

Other graph types to consider

- If you are more concerned with comparing parts to each other than to the whole, try a 2D bar graph or 3D bar graph.
- If you have more than one data set and want to compare parts to the whole (one data set compared to the sum of all data sets), consider a stacked bar graph or area graph.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

[Graph Types](#)

[Using Graphs](#)

[Creating Graphs](#)

[Creating Graphs from Report Data - Now Try This](#)

## Polar Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The polar graph is essentially a line graph drawn on a circular grid, showing trends in values on the basis of angles. Like logarithmic graphs, polar graphs are useful primarily in mathematical and statistical applications.

- In a polar graph, the independent variable is charted on the angular axis, based on an origin (zero point) of three o'clock. The dependent variable is charted on the radial axis, with the origin at the center of the circle.
- Polar graphs can chart multiple data sets, each represented by a single line, with as many data points as are meaningful.
- If you do not supply an angular position for each data point, the first point is placed at an angle of 0, with subsequent points at increments of 360 (degrees) divided by the total number of points.
- When drawing a polar graph, you can use any combination of lines, symbols, and *sticks* drawn between points and the center origin.

When to use a polar graph

- To graph according to angles or other criteria particularly suited to a circular format.
- To graph repeating data sets that flow into each other. For example, you can graph temperatures hour by hour for several consecutive days, representing each day in a different color or pattern.

Other graph types to consider

- Any data set you can chart on a polar graph can also be shown on a line graph. Line graphs are usually more readable, but they cannot represent angles graphically or show multiple data sets linked end to end.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}



## Bubble Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

A bubble graph is a special form of the scatter graph showing bubbles, which are circular markers of variable size plotted on an X-Y grid. The size of each bubble is typically used to show the relative importance of a data point, such as the percentage of gross sales it represents. You can use a bubble graph to chart three variables in two dimensions

- In a bubble graph, all three variables are independent. You can select which variable to show on the X axis, which to show on the Y axis, and which to show by the size of the bubble.
- You must supply values for the X position, Y position, and bubble size for each point.
- You cannot draw curves on a bubble graph.

When to use a bubble graph

- When you have three variables to graph and want to show them on a single set of axes.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## 2D Scatter Graph

The 2D scatter graph consists of plotted points scattered around an X-Y grid. The pattern may reveal a relationship between the two variables measured by the X and Y axes.

- Scatter graphs can chart multiple data sets, each represented by a different symbol, each having any number of data points.
- You can display scatter plots alone, curves alone, or both together. Your selections in the `property` page in the Graph Control dialog box determine the combination.

When to use a scatter graph

- To view actual measurements or observations on a grid, possibly revealing patterns and trends in those data.
- With plotted points alone when you want to show the data empirically, without suggesting a relationship between the X and Y variables.
- With a curve alone when you want to show the relationship between the X and Y variables as suggested by the data, irrespective of the actual data points.
- With both plotted points and a curve when you want to show the empirical data as well as suggest trends.

Other graph types to consider

- When you are graphing against only two variables and you can plot points at regular intervals along the X axis without specifying X positions, you should generally use a line graph with symbols instead of a 2D scatter graph.

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{button Related Topics,PI('','using\_gr\_rtf\_36128')}

## 3D Scatter Graph

The 3D scatter graph consists of plotted points *scattered* around an X-Y-Z space. The pattern may reveal a relationship between the three variables measured by the X, Y, and Z axes.

- Scatter graphs can chart multiple data sets, each represented by a different symbol, each having any number of data points.
- When defining a scatter graph, you usually supply an X position for each data point. However, you can supply no X positions and automatically place points at X increments of 1, starting at 0.
- You can emphasize the Y value of each plotted point by selecting the Sticks option in the `property` page in the Graph Control dialog box.

When to use a 3D scatter graph

- To view actual measurements or observations in 3D space, possibly revealing patterns and trends in those data.

Other graph types to consider

- When you are graphing against three variables, consider a bubble graph, which is generally easier to read than a 3D scatter graph. Instead of using three axes (X, Y, and Z), bubble graphs plot *bubbles* of different sizes along an X and a Y axis. The third variable is shown by the size of each bubble.

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{button Related Topics,PI('',`using\_gr\_rtf\_36128')}

## Line Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The line graph consists of one or more lines (or sequences of symbols) drawn on an X-Y grid. These graphs let you show trends in values over a continuous scale.

- In a line graph, the X axis usually represents an independent variable, which is most often a time scale. The Y axis usually shows a dependent variable, such as a quantity or percentage.
- When drawing a line graph, you can use any combination of lines, symbols, and vertical *sticks*. You can select this combination in the `property` page in the Graph Control dialog box.
- In the `property` page in the Graph Control dialog box, you can select to show the X axis, Y axis, or both in a logarithmic scale – creating a lin/log, log/lin, or log/log graph.

When to use a line graph

- To show the trend of one or more data sets over time or another continuous scale.

Other graph types to consider

- If your main focus is on the quantities at various data points rather than the trends in those quantities, consider an absolute area graph.
- If you are graphing discrete values – with data points that are based on two independent variables and that do not necessarily occur at regular intervals – use a 2D scatter graph.
- If your data points are not consecutive – for example, if you want to graph data only for 1987, 1990, and 1992 – a 2D bar graph or 3D bar graph may be more appropriate.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## 2D Bar Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

A bar graph consists of two or more parallel bars of equal width drawn on an X-Y grid. Bar graphs compare amounts to each other. They can also suggest trends, especially in vertical form.

- 2D bar graphs are available in three styles: simple, stacked, and stacked percentage. You can select a style on the property page in the Graph Control dialog box.
- You can draw bars either vertically or horizontally. In the vertical format, viewers tend to attribute a left-to-right sequence to the bars, whether you intend one or not. To select vertical or horizontal bars, go to the Style property page in the Graph Control dialog box.

When to use a bar graph

- In simple form when you want to compare values to each other.
- In clustered form (simple style with multiple data sets) when you want to compare corresponding data points of multiple data sets to each other.
- In stacked form when you want to compare each data set to the sum of all sets.
- In stacked percentage form when you want to show a percentage breakdown of the sum of data sets.

Other graph types to consider

- If you are graphing only one data set and you want to compare parts to the whole rather than to each other, use a pie chart.
- When the trend of values is your primary concern, and especially when you want to imply a gradual flow between data points, consider a line graph or area graph.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## 3D Bar Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

A bar graph consists of two or more parallel bars of equal width drawn on an X-Y grid. Bar graphs compare amounts to each other. They can also suggest trends, especially in vertical form.

- 3D bar graphs are available in four styles: simple, stacked, stacked percentage, and z-clustered. You can select this style on the property page in the Graph Control dialog box.
- You can draw bars either vertically or horizontally. In the vertical format, viewers tend to attribute a left-to-right sequence to the bars, whether you intend one or not. To select vertical or horizontal bars, go to the main property page in the Graph Control dialog box.

When to use a bar graph

- In simple form when you want to compare values to each other.
- In clustered (simple style with multiple data sets) or z-clustered form when you want to compare corresponding data points of multiple data sets to each other.
- In stacked form when you want to compare each data set to the sum of all sets.
- In stacked percentage form when you want to show a percentage breakdown of the sum of data sets.

Other graph types to consider

- If you're graphing only one data set and you want to compare parts to the whole rather than to each other, use a pie chart.
- When the trend of values is your primary concern, and especially when you want to imply a gradual flow between data points, consider a line graph or area graph.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## Area Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The area graph consists of one or more lines drawn on an X-Y grid, with the area between the line and the X axis filled in. Like line graphs, area graphs show trends in values but give greater emphasis to quantities.

- Area graphs are available in three forms: stacked, absolute, and stacked percentage. You can select one of these forms on the `property` page in the Graph Control dialog box.
- Negative data points are ignored and not shown.
- You can draw any area graph in either 2D or 3D form.

When to use an area graph

- To show the trend of one or more data sets over time or another continuous scale, with an emphasis on quantities.
- In cumulative form when you want to compare each data set to the sum of all sets.
- In absolute form when you want to compare data sets to each other. Absolute area graphs work better in 3D.
- In percentage form when you want to view trends in the percentage breakdown of the sum of data sets.

Other graph types to consider

- If you want to emphasize trends themselves (the downward or upward movement of values) over quantities, use a line graph.
- If you want data points to stand as separate entities rather than flowing together, consider a 2D bar graph or 3D bar graph (in stacked or stacked percentage form) rather than a cumulative or percentage area graph.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## Gantt Chart

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The Gantt chart is a specialized version of the horizontal bar graph in simple or stacked form. It's used almost exclusively to show a project schedule, with each bar or bar segment marking the start time, duration, and completion time of a task.

- Depending on your needs, you can have each bar represent either a single task (one solid bar) or a sequence of tasks (stacked bar).
- Gantt charts are made up of at least two data sets. The first set contains the values for the start point of each bar, and subsequent sets contain the end points of each bar segment.
- Unlike bar graphs, Gantt charts are always drawn horizontally and only in 2D form.
- Gantt bars are placed along the Y axis at increments of 1, starting at 1.
- In default form, Gantt chart bars are drawn with no spaces between them. To add spaces, go to the `property` page in the Graph Control dialog box and select the Spaced option.
- You cannot show negative data points on a Gantt chart.

When to use a Gantt chart

- To graph a project schedule when you know the start time and end time for each task.

Other graph types to consider

- If every task starts at the same point, you can use a 2D bar graph or 3D bar graph (in simple or stacked form) to show the same information.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}



## High-Low-Close Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The high-low-close (HLC) graph lets you chart a range of values on an X-Y grid. The range is shown as a vertical bar, with horizontal crossbars for the high, the low, and a normative value usually called the close. An alternate version, the open-high-low-close (OHLC) graph, adds a fourth crossbar for another normative value usually called the open.

- When you click the High-Low icon on the 2D Gallery property page, you get an HLC graph by default. To get an OHLC graph, go to the property page in the Graph Control dialog box and select the Open Values option.
- An HLC graph must have three data sets (high, low, and close values), and an OHLC graph must have four data sets (open, high, low, and close values). There is no limit on the number of data points you can graph, but each data set should have the same number.
- You can also draw the graph without the open and close bars, without the high and low bars, or with no bars at all. These options are available in the property page in the Graph Control dialog box.

When to use a high-low-close graph

- When you're charting other values that can be set up in a similar fashion with three (HLC) or four (OHLC) data sets – for example, high, low, and average daily temperatures by month.

Other graph types to consider

- If you're considering the OHLC graph, be sure to look at the candlestick graph as well. It shows the same information and also emphasizes the trend (up or down) of close values from point to point.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## Candlestick Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The candlestick graph is an alternative to the open-high-low-close graph. It consists of a series of boxes, with lines extending up and down from the ends, drawn on an X-Y grid. The top and bottom of each box indicate the open and close values. If the open value is higher, the box is filled with a color; if the close value is higher, the box is filled with white. The ascending and descending lines indicate the high and low values for that point.

- The candlestick graph requires four data sets (open, high, low, and close values), each of which should have the same number of data points.
- If you do not supply an X position for each data point, points are placed at increments of 1, starting at 0.
- No style variants are available.

When to use a candlestick graph

- When you're charting other values that can be set up in a similar fashion with four data sets.

Other graph types to consider

- The open-high-low-close graph serves the same purpose as the candlestick graph, but with less emphasis on whether each plot point shows an up or down. A possible advantage of open-high-low-close over candlestick is that you can fit curves into high-low-close graphs to indicate trends in values.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## Box-Whisker Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The box-whisker graph illustrates the spread of data groups around their medians, using a box and whiskers to break down each data group by percentile.

When creating a box-whisker graph, you can either specify the seven percentile parameters for each symbol (provide *parametric* data) or supply a group of *raw* data for the Graph Control to process and graph.

- With parametric data, you need exactly seven data sets, which specify the values at percentiles of 5, 10, 25, 50 (the median), 75, 90, and 95.
- With raw data, you need enough data sets to hold all the values making up each group (always at least seven sets). When you draw the graph, sort the values for each group, then assign the seven percentile positions (5, 10, 25, 50, 75, 90, or 95) to the values closest to those percentiles. For example, in a group of 20 values, the second value would be shown as the tenth percentile.
- For raw data, you can also add symbols to the graph showing each value. If a group contains duplicate values, only one symbol is shown at that position.
- The number of data points is the number of box-whisker symbols.

When to use a box-whisker graph

- When you want to show how the values in one or more data groups are distributed around their medians. You can either specify the percentile breakdowns of the data groups or provide raw data and have the Graph Control determine the percentile breakdowns.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## Tape Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

The tape graph is a 3D form of the line graph. It gives you only one styling option – *tapes* drawn between data points - but is otherwise the same as the line graph.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## Surface Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

You can use the surface graph to represent data topographically in three dimensions. The graph uses an X-Z grid drawn at regular increments in the X and Z directions, with one Y value for each X-Z intersection. The color scale of the graph is automatically keyed to the height of its points, helping the viewer differentiate between higher and lower values.

- A surface graph represents a minimum of two data sets and usually at least three. Each data set holds the Y values of a row of points along the X axis. The first set applies to the row of points perpendicular to the Z origin (the *back* of the graph), and subsequent sets apply to additional rows.
- All panels of the surface graph (the rectangles formed by the X and Z grids) are colored according to their height. You specify the colors at the maximum and minimum points of the axis, and the Graph Control interpolates colors between these points.
- When drawing a surface graph, you can use lines to show the edges of each panel, fill each panel with a solid color, or use both lines and fills. You can also add side walls to the front and right edges of the graph. All of these options are available in the property page in the Graph Control dialog box.

Other graph types to consider

- If your data points have irregularly spaced Z values, consider a 3D scatter graph.
- If your data points have irregularly spaced X values but regular Z values, try a 3D bar graph or tape graph.

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{button Related Topics,PI('`,`using\_gr\_rtf\_36128')}

## Creating Graphs from Report Data - Now Try This

{button Tell me how...,PI('','using\_gr\_rtf\_36442')}

In this exercise, you will change the names of simulation data for clarity and then create a line graph to display the results of five simulations. The process diagram consists of two departments that make copies of a report using a shared copier. Your purpose for running several simulations is to compare resource utilization when the amount of time between generated transactions is reduced.

{button Next,JI('>procedur','using\_gr\_rtf\_34624')}

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{button Related Topics,PI('','using\_gr\_rtf\_36424')}

[Using Graphs](#)

[Creating Graphs](#)

[Graph Types](#)

[Graph Control dialog box](#)

[To open the exercise data for creating a graph - Now Try This](#)

[To change simulation names - Now Try This](#)

[To create a graph using report data - Now Try This](#)



**To open the exercise data for creating a graph - Now Try This**

{button Previous,JI('>concept','using\_gr\_rtf\_34577')}

- 1 On the File menu, click Close to close any open diagrams.
- 2 On the File menu, click Open.
- 3 Select iGrafx\Pro\8.0\Exercise\Ex13.igx, and click Open.

The process map appears.

- 4 On the File menu, click Components.
- 5 In the Components dialog box, select Report1.

The Report window appears and is active.

- 6 Click the Resource tab.
- 7 Locate the first report element, Resource Utilization %.

The report element contains the results of five simulations.

{button Next,JI('>procedur','using\_gr\_rtf\_34665')}

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{button Related Topics,PI('','using\_gr\_rtf\_36481')}

[Graph Control dialog box](#)

[Creating Graphs from Report Data - Now Try This](#)

### To change simulation names - Now Try This

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{button Previous,JI('>procedur','using_gr_rtf_34624')}
```

When you examine the tabular element, you can see trends in the numbers. For example, Worker utilization went up with each subsequent simulation, although the Copier capped out after the third time. However, without appropriate labels, it's difficult to understand what each simulation represents. In this part of the exercise, you will add simulation labels to describe the individual simulations.

- 1 On the Edit menu, click Simulation Data.

The Simulation Data dialog box appears.

- 2 Double-click Sim #1.

or

Select the simulation name and select the Name button.

The Name Simulation Data dialog box appears.

- 3 Enter 3 Hours, and click OK.

For the first simulation, transactions were generated every three hours.

- 4 Repeat the steps to change the name of Sim #2 to 2 Hours.

Transactions were generated every two hours.

- 5 Change the name of Sim #3 to 1 Hour.

Transactions were generated every hour.

- 6 Change the name of Sim #4 to 30 Min.

Transactions were generated every 30 minutes.

- 7 Change the name of Sim #5 to 15 Min.

Transactions were generated every 15 minutes.

- 8 Click Close to close the Simulation Data dialog box.

The report element contains the new simulation names.

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{button Next,JI('>procedur','using_gr_rtf_34710')}
```

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```
{button Related Topics,PI('','using_gr_rtf_36481')}
```

### To create a graph using report data - Now Try This

```
{button Previous,JI('>procedur','using_gr_rtf_34665')}
```

Trends in the report data are much easier to see when the data is shown as graph. For example, a line graph is a good choice to show tendencies and relationships between resources. In this exercise, you will change the tabular element to a graph.

- 1 Double-click the Resource Utilization % report element.
- 2 In the Edit Report Element dialog box, select the Format tab.
- 3 For Display As, select Graph.
- 4 Click Graph Style.
- 5 In the Graph Control dialog box, select the 2D Gallery tab.
- 6 Select the Line graph.

This specifies that the graph uses individual lines for each simulation to connect data points for resource utilization.

- 7 Select the Markers tab.
- 8 Under Symbols, for Size, use the sliding scale to increase the size of the markers.

This increases the size of the symbols drawn to differentiate each line, in this case, a triangle and a square. Markers are useful for making graphs more readable, especially for printing in black and white if the on-line graph uses a lot of color to differentiate data points.

Leave the other settings on this tab unchanged.

- 9 Select the Style tab.
- 10 For Markers, click to select both Symbols and Lines. Do not change the other settings on this tab.

This enables the markers. (In the previous step, you set their size.)

- 11 Select the Titles tab.
- 12 For Graph Title, type: Resource Utilization Percentage

The previous title was Resource Utilization %.

- 13 For Bottom Title, type: Generator Interarrival Rate

Do not change the other settings on this tab.

- 14 Select the Fonts tab.
- 15 Set a new typeface and size for the Graph Title (you used bold Book Antiqua), and click Apply Now.
- 16 Set a new typeface and size for Other Titles. Do not change the other settings on this tab.
- 17 Click OK to close the Graph Control dialog box.
- 18 Click OK to close the Edit Report Element dialog box.

This displays the report element.

**Tip**

To display the Graph Control dialog box to make other edits, press Shift and double-click a report element.

19 On the File menu, click Close.

This is the end of this self-paced exercise. You can save your changes.

---

{button Related Topics,PI('`,`using\_gr\_rtf\_36481')}



## Simulation Start Date dialog box

Use this dialog box to set the date and time from which to start the simulation.

---

{button Related Topics,PI('','csh\_proc\_rtf\_1038830')}

[Getting Started With Simulation](#)

[Run Setup dialog box - Simulation Time tab](#)

[Run Setup dialog box - Initialization and Reports tab](#)

[Run Setup dialog box - Snapshots tab](#)

[Taking Snapshots During a Simulation](#)



## Set Snapshot Time dialog box

Use this dialog box to set the time that a snapshot will occur.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1038860')}

[Getting Started With Simulation](#)

[Run Setup dialog box - Simulation Time tab](#)

[Run Setup dialog box - Initialization and Reports tab](#)

[Run Setup dialog box - Snapshots tab](#)

[Taking Snapshots During a Simulation](#)

## Define Resources dialog box

{button Tell me how...,PI('`,`csh\_proc\_rtf\_1038932')}

Use this dialog box to add or edit the resources that are used to process transactions at activities. You can either modify an existing resource or add a new one. You define the number of resources, their schedule, and costs.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1038894')}

[Running a Simulation](#)

[Add New Resource dialog box](#)

[Resource Pools dialog box](#)

[About Resource Costs](#)

[Define Days dialog box](#)

[Define Hours dialog box](#)

[Edit Composite Schedule dialog box](#)

[Define Event dialog box](#)

[Properties dialog box - Resources tab: Type of Resource](#)

To define resources

To define resource pools

To create shared or unshared resource pools

## Define Schedule dialog box

{button Tell me how...,PI('`,`csh\_proc\_rtf\_1038984')}

Use this dialog box to define a list of hours and days, and schedules used by resources. A schedule can be used in a model to specify when activities, resources, and generators are active or inactive.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1038958')}

[Using Schedules](#)

[Defining Schedules](#)

[Running a Simulation](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

[Tracing the Model While Running the Simulation](#)

[To define or edit a schedule](#)

[To add or edit a definition for days within a schedule](#)

[To add or edit a definition for hours within a schedule](#)

[To create a composite schedule](#)

[To define an event schedule](#)



## Define Events dialog box

{button Tell me how...,PI('`,`csh\_proc\_rtf\_1039052')}

Use this dialog box to define regularly occurring times, or events, and default events.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039018')}

[Defining Event Schedules](#)

[Defining Hours for Events](#)

[Defining Days for Events](#)

[Defining Schedules](#)

[Using Schedules](#)

[Defining Schedules](#)

[Setting Up a Simulation Run](#)

[Using Generators](#)

[To define an event schedule](#)

[To define or edit a schedule](#)

[To add or edit a definition for days within a schedule](#)

[To add or edit a definition for hours within a schedule](#)

[To create a composite schedule](#)

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1038958')}

## Define Attributes dialog box

{button Tell me how...,PI('`,`describi\_rtf\_1230751')}

Use this dialog box to add, modify, and delete transaction attributes for use by transactions, processes, scenarios, or departments.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039090')}

[Describing Model Behavior Using the Model Commands](#)

[About Transaction Attributes](#)

[Common Uses for Transaction Attributes](#)

[Defining a Transaction Attribute](#)

[Properties dialog box - Task tab](#)

[Setting a Value When the Transaction Is Created](#)

[Setting a Value in the Process Flow](#)

[Common Uses for Transaction Attributes](#)

[Setting a Priority on a Transaction](#)

## Set Attributes dialog box

{button Tell me how...,PI('`,`describi\_rtf\_1230751')}

Use this dialog box to add, modify, and delete transaction attributes for use by transactions, processes, scenarios, or departments.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039090')}

## Set Attributes dialog box

{button Tell me how...,PI('','describi\_rtf\_1230751')}

Use this dialog box to define a transaction attribute for use by transactions, processes, scenarios, or departments.

---

{button Related Topics,PI('','csh\_proc\_rtf\_1039090')}

## Define Types dialog box

{button Tell me how...,PI('`,`csh\_proc\_rtf\_1039183')}

Use this dialog box to define the attribute and transactions types.

The type for an attribute or function defines its range of values. The default types are Number, YesNo, and TrueFalse. You can create your own type and specify the range for the type by adding members to the type. For example, create the type Reports, and assign the members Daily, Weekly, Monthly, EndOfYear.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039165')}



[Defining Attribute and Function Types](#)

[Defining a Transaction Attribute](#)

[Using Global Attributes](#)

[Decision](#)

To define an attribute type

## Add New and Modify Monitor dialog box

{button Tell me how...,PI('`,`csh\_proc\_rtf\_1039223')}

Use this dialog box to add or to modify a monitor.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039201')}

[Using Monitors](#)

[Using Monitors to Collect Data](#)

[Working with Monitors](#)

[Define Monitor dialog box](#)

[Using Monitors - Now Try This](#)

To define a monitor

To place a monitor

To find a monitor

To find multiple occurrences of a monitor

To delete or remove monitors

## Define Transaction Groups dialog box

{button Tell me how...,PI(``,`modeling\_rtf\_543981`)}

Use this dialog box to create groups. A group is a collection of transactions that is assigned when inputs are collected and batch processed. Type a new group name, and click Add.

---

{button Related Topics,PI(``,`csh\_proc\_rtf\_1039257`)}

Transaction Groups

Properties dialog box - Inputs tab: Collection Types and Other Information

Properties dialog box

## Paste Attribute dialog box

```
{button Tell me how...,PI('`,`csh_proc_rtf_1039411')}
```

Use this dialog box to select and paste an attribute. The attribute is copied to the clipboard then pasted into the expression.

For example, select the attribute type TrueFalse and the member names True and False appear. You can select True or False, and click OK to paste it in the expression.

---

```
{button Related Topics,PI('`,`csh_proc_rtf_1039284')}
```



[Describing Model Behavior Using the Model Commands](#)

[About Transaction Attributes](#)

[Using Expressions](#)

[Defining Attribute and Function Types](#)

[Using Global Attributes](#)

[Decision](#)

To define an attribute type

## Paste Function dialog box

{button Tell me how...,PI('`,`csh\_proc\_rtf\_1039411')}

Use this dialog box to select a function, copy it to the clipboard, and then paste it into an expression.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039284')}

[Defining Attribute and Function Types](#)

[Describing Model Behavior Using the Model Commands](#)

[About Transaction Attributes](#)

[Using Expressions](#)

[Using Global Attributes](#)

[Decision](#)

To define an attribute type

## Paste Member dialog box

{button Tell me how...,PI('`,`csh\_proc\_rtf\_1039183')}

Use this dialog box to select and paste member names of an attribute type. The member name is copied to the clipboard where it can be pasted into expressions.

For example, select the attribute Priority, and click OK to paste it in the expression.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039371')}

Using Expressions

Defining Attribute and Function Types

Using Global Attributes

Decision

## Paste Operator dialog box

{button Tell me how...,PI('`,`csh\_proc\_rtf\_1039411')}

Use this dialog box to select and paste operators in expressions.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039401')}



Adding Operators to Expressions  
Using Expressions

To add a function to an expression using the expression toolbar

To define a function

To add a function

## Set Pause Points dialog box

{button Tell me how...,PI('',`modeling\_rtf\_543829')}

A pause point is a breaking position which you can place in a trace simulation. When you run a trace, transactions stop at any pause points. You can use this break to examine attributes or values associated with the transaction.

---

{button Related Topics,PI('',`csh\_proc\_rtf\_1039449')}

## Find Start Points dialog box

{button Tell me how...,PI('`,`modeling\_rtf\_543829')}

Use this dialog box to find named start points in a model. By default, the Start symbol is a starting point. If a Start is not currently defined, this menu is grayed out. This command is useful for locating the start in a complicated process diagram, if it has been deleted or changed from the default.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039449')}

[Start Points](#)

[Start Points and Generators](#)

[Stopping Activity Outputs](#)

[Running a Simulation](#)

## Custom Statistics dialog box

{button Tell me how...,PI(``,`reportin\_rtf\_158857')}

Use this dialog box to display the statistics that have been defined. You can also add or modify statistics.

---

{button Related Topics,PI(``,`csh\_proc\_rtf\_1039479')}

[Creating Custom Statistics in the Report Window](#)

[Using the Report Window to Review Resource Statistics](#)

[Reporting Results](#)

[Using Resources](#)

## Edit Custom Statistics dialog box

Add or modify custom statistics that accumulate simulation data.

---

```
{button Related Topics,PI('`,`csh_proc_rtf_1039479')}
```



## Simulation Data dialog box

{button Tell me how...,PI('',`reportin\_rtf\_158903')}

Specify the simulation runs that are shown in a report. A list of simulation names is currently available. You can change the name of existing simulation runs or delete them.

---

{button Related Topics,PI('',`csh\_proc\_rtf\_1039517')}

[Naming or Deleting Simulation Data](#)

[Run Setup dialog box](#)

[Run Setup dialog box - Initialization and Reports tab](#)

## Name Simulation Data dialog box

Name simulation runs. The default naming for simulation is Sim #1, Sim #2, and so forth. You can change the name of the simulation.

The simulation data names appear in the Run Setup dialog box and in the results shown in the report elements.

---

{button Related Topics,PI('','csh\_proc\_rtf\_1038860')}

Reviewing Simulation Report Results

Run Setup dialog box

## Graph Control dialog box

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

Use this dialog box to control the graph set up parameters.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

[Graph Control dialog box - 2D Gallery tab](#)

[Graph Control dialog box - 3D Gallery tab](#)

[Graph Control dialog box - Style tab](#)

[Graph Control dialog box - Titles tab](#)

[Graph Control dialog box - Axis tab](#)

[Control Graph dialog box - 3D Properties tab](#)

[Control Graph dialog box - Fonts tab](#)

[Control Graph dialog box - Markers tab](#)

[Control Graph dialog box - Background tab](#)

[Using Graphs](#)

[Graph Types](#)

[Creating Graphs](#)

[Creating Graphs from Report Data - Now Try This](#)

## Graph Control dialog box - 2D Gallery tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

Use this tab to select a 2D graph.

[Pie Chart](#)

[Polar Graph](#)

[Bubble Graph](#)

[2D Scatter Graph](#)

[Line Graph](#)

[2D Bar Graph](#)

[Area Graph](#)

[Gantt Chart](#)

[High-Low-Close Graph](#)

[Candlestick Graph](#)

[Box-Whisker Graph](#)

[Tape Graph](#)

[Surface Graph](#)

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Graph Control dialog box - 3D Gallery tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

Use this tab to select a 3D graph.

[Pie Chart](#)

[3D Scatter Graph](#)

[3D Bar Graph](#)

[Area Graph](#)

[Tape Graph](#)

[Surface Graph](#)

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}



## Graph Control dialog box - Titles tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

Use this tab to set up the graph title.

- Graph Title

In this box, you can enter text for the graph title, which can be up to 80 characters in length. This title appears centered at the top of the graphing window.

When you enter text for a title, the Graph Control adjusts the rest of the graphing window to provide space--either redrawing the graph and associated objects at a smaller size or decreasing the space between objects. When you clear the text box for a title, you disable it and provide more space for the rest of the graph.

If you enter a title that's too long to appear in a single line, the Graph Control automatically word-wraps it. If a title doesn't display at all, it's because the Graph Control can't make the font small enough to fit all the text in the space provided. Increase the size of the graphing window to make the title appear.

- Title text

When you enter text for a title, the Graph Control adjusts the rest of the graphing window to provide space--either redrawing the graph and associated objects at a smaller size or decreasing the space between objects. When you clear the text box for a title, you disable it and provide more space for the rest of the graph.

If you enter a title that's too long to appear in a single line, the Graph Control automatically word-wraps it. If a title doesn't display at all, it's because the Graph Control can't make the font small enough to fit all the text in the space provided. Increase the size of the graphing window to make the title appear.

- Bottom Title

In this box, you can enter text for the bottom title, which can be up to 80 characters in length. This title appears centered at the bottom of the graphing window. A bottom title frequently explains the X axis.

When you enter text for a title, the Graph Control adjusts the rest of the graphing window to provide space--either redrawing the graph and associated objects at a smaller size or decreasing the space between objects. When you clear the text box for a title, you disable it and provide more space for the rest of the graph.

If you enter a title that's too long to appear in a single line, the Graph Control automatically word-wraps it. If a title doesn't display at all, it's because the Graph Control can't make the font small enough to fit all the text in the space provided. Increase the size of the graphing window to make the title appear.

- Left Title

This box lets you enter text for the left title, which can be up to 80 characters in length.

When you enter text for a title, the Graph Control adjusts the rest of the graphing window to provide space--either redrawing the graph and associated objects at a smaller size or decreasing the space between objects. When you clear the text box for a title, you disable it and provide more space for the rest of the graph.

If you enter a title that's too long to appear in a single line, the Graph Control automatically word-wraps it. If a title doesn't display at all, it's because the Graph Control can't make the font small enough to fit all the text in the space provided. Increase the size of the graphing window to make the title appear.

- Horizontal (default)

Select this option if you want the title to print horizontally.

- Up

Select this option if you want the title to print vertically, running in an upward direction.

- Down

Select this option if you want the title to print vertically, running in a downward direction.

- Right Title

This box lets you enter text for the right title, which can be up to 80 characters in length. The right title frequently explains the right-hand Y axis.

When you enter text for a title, the Graph Control adjusts the rest of the graphing window to provide space--either redrawing the graph and associated objects at a smaller size or decreasing the space between objects. When you clear the text box for a title, you disable it and provide more space for the rest of the graph.

If you enter a title that's too long to appear in a single line, the Graph Control automatically word-wraps it. If a title doesn't display at all, it's because the Graph Control can't make the font small enough to fit all the text in the space provided. Increase the size of the graphing window to make the title appear.

---

{button Related Topics,PI('','csh\_proc\_rtf\_1039562')}

## Graph Control dialog box - Style tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

Use this tab to set up the graph style.

[Graph Control dialog box](#)

[Control Graph dialog box - Style tab for Bar Graph](#)

[Control Graph dialog box - Style tab for Box-Whisker Graph](#)

[Control Graph dialog box - Style tab for Gantt Chart](#)

[Control Graph dialog box - Style tab for High-Low-Close Graph](#)

[Control Graph dialog box - Style tab for Polar Graph](#)

[Control Graph dialog box - Style tab for Scatter Graph 2D](#)

[Control Graph dialog box - Style tab for Surface Graph](#)

[Control Graph dialog box - Style tab for Line Graph including log-lin, lin-log and log-log](#)

[Control Graph dialog box - Style tab for Graphs with XY Grids](#)

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Bar Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Horizontal  
Select this option for a graph with bars drawn horizontally.
- Vertical (default)  
Select this option for a graph with bars drawn vertically, which is sometimes called a column graph.
- Simple (default)  
Select this option to draw one bar per data point. If you have more than one data set, corresponding points from each set are shown as clustered bars.
- Stacked  
Select this option to divide bars into segments, showing multiple data sets at corresponding data points.
- Stacked %  
Select this option to divide bars into segments representing percentages of a whole. Each complete bar will be the same length, but the breakdown of segments will vary according to their percentages at each data point.
- Z-Clustered (available for 3D bar graphs only)  
Select this option to draw multiple sets of bars, one bar per data point, with subsequent sets drawn in front of previous ones. In this form, smaller bars may be hidden behind larger values.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Box-Whisker Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Parametric Data

Select this option if you want to specify the seven values making up the box-whisker graph.

- Raw Data (default)

Select this option if you want the Graph Control to process a group of data and produce the seven values making up the box-whisker graph.

- Show Samples (default is on)

Select this option to show the actual data values (samples) from which the box-whisker graph is produced, superimposed as symbols over the box-whisker graphics. Deselect it to show no samples.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Gnatt Chart

- Spaced (default is off)

Select this option to place spaces between Gantt bars. Deselect it to draw all bars adjacent to each other.

---

{button Related Topics,PI('','csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for High-Low-Close Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Data group

By default, a high-low-close graph charts three data sets: high values, low values, and closing values. In the Data group, you can enable a fourth data set for opening values, creating an open-high-low-close graph.

- Open Values (default is off).

Select this option for an open-high-low-close graph. Deselect it for a high-low-close graph.

- No High/Low Ticks (default is off)

Select this option to disable high and low ticks. Deselect it to show those ticks.

- No Open/Close Ticks (default is off)

Select this option to disable open and close ticks. Deselect it to show those ticks.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Pie Chart

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Off (default is off)

Select this option to draw a pie chart with no labels for the slices. Deselect it to draw labels.

- Connecting Lines (default is on)

Select this option to have connecting lines drawn between pie slices and their labels. Deselect it for no connecting lines.

- Colored as Slices (default is off)

Select this option to have pie labels drawn in the same colors as their corresponding slices. Deselect it to have every label drawn in a single color (black by default, or as specified on the Fonts property page).

- % Data Values (default is off)

Select this option to have pie labels show the percentage values of their slices (as related to the whole). Deselect it to have labels show the actual values of their slices.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}



## Control Graph dialog box - Style tab for Polar Graph

{button Tell me how...,PI('','using\_gr\_rtf\_35963')}

- Symbols (default is off)  
Select this option to draw a symbol at the position of each data point. Deselect it for no symbols.
- Lines (default is off)  
Select this option to draw lines between data points. Deselect it for no lines.

### Note

That if all options in the Markers group (Symbols, Lines, and Sticks) are deselected, lines are drawn in any case.

- Sticks (default is off)  
Select this option to draw a stick between each data point and the origin. Deselect it for no sticks.

---

{button Related Topics,PI('','csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Scatter Graph 2D

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Symbols (default is on)  
Symbols are drawn along with curves.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Scatter Graph 3D

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Markers group

All 3D scatter graphs are drawn with symbols representing data points. In the Markers group, you can also enable vertical sticks for the graph.

- Sticks (default is off).

Select this option to draw a vertical stick between each data point and the Y origin plane. Deselect it for no sticks.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Surface Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Markers group

In the Markers group, you can choose style options for your 3D surface graph. The surface graph is based on a grid of cells drawn in the plane of the Y origin in other words, the graph would appear as a flat grid of rectangles if viewed from above. Each point lies at the intersection of the lines of this grid (which determines its X and Z values); the elevation of each point is its Y value, which is set by the GraphData property.

To differentiate cells of the grid, you can use filled panels, boundary lines, or both.

- Filled Panels (default is on). Select this option to fill in the cells of a surface graph grid with panels (actually paired triangles) of color. Deselect it for no panels.

The color range of panels is determined by your settings in the Grade Color group.

- Boundary Lines (default is on). This option lets you draw lines along the edges of each cell of the surface graph grid.

If Filled Panels is selected, select Boundary Lines to draw lines (which are always black) and deselect it for no lines.

If Filled Panels is deselected, lines are drawn in any case. Their color range is determined by your settings in the Grade Color group.

- Min

This box sets the color for the lowest point on the surface graph.

- Max

This box sets the color for the highest point on the surface graph.

- On (default is off)

Select this option to draw side walls around the perimeter of the graph in the X and Z planes. Deselect it for no side walls.

- Color

This box sets the color for the side walls, using the current color palette.

---

{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Line Graph including log-lin, lin-log and log-log

{button Tell me how...,PI('','using\_gr\_rtf\_35963')}

- Symbols (default is off)  
Select this option to draw a symbol at the position of each data point. Deselect it for no symbols.
- Lines (default is off)  
Select this option to draw lines between data points. Deselect it for no lines.

### Note

If all options in the Markers group (Symbols, Lines, and Sticks) are deselected, lines are drawn in any case.

- Sticks (default is off)  
Select this option to draw a vertical stick between each data point and the Y origin. Deselect it for no sticks.
- Y Axis (default is off)  
Select this option for a logarithmic Y axis. If you select Y Axis and leave X Axis off, you'll get a log/lin graph; if you select both, you'll get a log/log graph.
- X Axis (default is off)  
Select this option for a logarithmic X axis. If you select X Axis and leave Y Axis off, you'll get a lin/log graph; if you select both, you'll get a log/log graph.

---

{button Related Topics,PI('','csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Style tab for Graphs with XY Grids

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- **X**  
Select this option to view and/or change the settings for the X axis.
- **Y Primary**  
Select this option to view or change the settings for the primary Y axis.
- **Y Overlay**  
Select this option to view and/or change the settings for the Y axis.

### Note

You can't set Position options for Y Overlay because that axis is always drawn at the right.

- **Z**  
Select this option to view and/or change the settings for the Z axis.

### Note

You can't set Position options for Z because that axis is always drawn at the bottom right.

- **Color of Axes (default is automatic black or white)**  
In this list box, you can choose a color for axes from the current color palette. The same color is applied to all axes. The default color is automatic black or white, whichever provides more contrast.
- **Variable (default)**  
When X is selected in the Apply to Axis group, select this option to draw the X axis intersecting the Y origin, whether that's at the top, bottom, or middle of the graph.  
  
When Y Primary is selected in the Apply to Axis group, select this option to draw the primary Y axis intersecting the X origin, whether that's at the left, right, or middle of the graph.
- **Left or Top**  
When X is selected in the Apply to Axis group, select this option to draw the X axis at the top of the graph, regardless of the location of the Y origin.  
  
When Y Primary is selected in the Apply to Axis group, select this option to draw the primary Y axis at the left edge of the graph, regardless of the location of the X origin.
- **Right or Bottom**  
When X is selected in the Apply to Axis group, select this option to draw the X axis at the bottom of the graph, regardless of the location of the Y origin.  
  
When Y Primary is selected in the Apply to Axis group, select this option to draw the primary Y axis at the right edge of the graph, regardless of the location of the X origin.
- **Zero Origin (default for all X-Y-Z graphs except time series)**  
Select this option to draw the axis including the origin (zero) and extending far enough in the positive and negative directions to include all of the graph's values.
- **Variable Origin**  
Select this option to have the axis zoom in on the range of the graph's actual values, whether or not that range includes zero.

For X and Z axes, this option differs from Auto only if you specify X or Z values for data points.

- User-Defined (default for time series graphs)

Select this option to set your own values for the minimum, maximum, and number of ticks for the axis. When you select User-Defined, the settings in the Range group are enabled.

- Max (enabled by selecting User-Defined in the Scale group)

The Max setting is generally the maximum point of the axis, with the following exceptions:

If you have a positive Max with a negative Min, the Graph Control may adjust the maximum or minimum point so that it lies on a tick. See Ticks.

In 3D graphs, if you specify a Max that's too low to show all your data values, the Graph Control moves the maximum point to show all the values. The Ticks setting still applies.

For X and Z axes without specific X or Z values, the Max setting is ignored. The maximum point of the axis is equal to the number of points or sets you're graphing.

- Min (enabled by selecting User-Defined in the Scale group)

The Min setting is generally the minimum point of the axis, with the following exceptions:

If you have a positive Max with a negative Min, the Graph Control may adjust the maximum or minimum point so that it lies on a tick. See Ticks.

In 3D graphs, if you specify a Min that's too high to show all your data values, the Graph Control moves the minimum point to show all the values. The Ticks setting still applies.

For X and Z axes without specific X or Z values, the Min setting is ignored. The minimum point of the axis is always 0.

- Ticks (enabled by selecting User-Defined in the Scale group)

The Ticks setting determines the number of ticks along the selected axis. (Note that ticks are distinct from tick marks see the Tick Marks group.) The effect depends on the axis and the nature of your data:

For Y axes, X axes with specific X values, and Z axes with specific Z values, the Ticks setting specifies the number of ticks from the origin to the setting of either Max or Min, whichever has the higher magnitude (distance from 0). For example, if you set Min to -50 and Max to 20, Ticks applies to the axis segment between 0 and -50.

To determine the Ticks value you want to set, divide the length of the axis (or axis segment) by the desired interval between ticks. For the axis segment 0 to -50 we've just described (whose length is 50 units), if you want to place ticks 25 units apart, set Ticks to 2.

Both the maximum and minimum points of an axis must fall on a tick. If you have a negative Min with a positive Max, the Graph Control may have to move the minimum or maximum point to make this happen. In our example axis, ticks would be placed at -50, -25, 0, and 25 overriding the Max setting of 20.

For Z axes without specific Z values (3D bar, tape, area, and surface graphs), you can't specify Ticks. The option is disabled.

- Show (default is on)

Select this option to show labels along the axis. Deselect it for no labels.

- Vertical (available for X and Z axes only; default is off)

Select this option to display X or Z labels vertically (rotated 90 degrees counterclockwise). Deselect it for horizontal labels.

The Vertical option is normally used with text labels. It lets you use a larger font for labels because you don't need as much space horizontally.

- Every (available for X axis only; default is 1)

The Every setting determines the frequency with which labels are displayed. A setting of 1 places a label at every tick along the X axis, a setting of 2 places a label at every other tick (beginning with the origin), and so on.

- Show (available for X and Y Primary axes only; default is on)

Select this option to draw tick marks along the axis. Deselect it for no tick marks.

If you have a Y Overlay axis, your Show setting for Y Primary also applies to Y Overlay. Either both axes have tick marks or both don't.

- Minor (available for X and Y Primary axes; default is off)

Select this option to draw five minor tick marks between standard tick marks.

- Every (available for X axis with zero or variable origin only; default is 1)

If you select Zero Origin or Variable Origin in the Scale group, you can use the Every setting to specify the frequency with which tick marks are displayed along the X axis. An Every setting of 1 places a mark at each tick, a setting of 2 places a mark at every other tick, and so on.

The X axis must end with a tick mark. If you set an Every value that doesn't include the last value on the axis, the Graph Control will extend the axis so that it ends on a tick mark.

- Show (available for X and Y Primary axes only; default is off)

Select this option to draw grid lines perpendicular to the axis, intersecting each tick mark. Deselect it for no grid lines.

- Line (default is solid)

In this list box, you can choose a style for grid lines. The same style is applied to both X and Y grids.

- Color (default is automatic black or white)

In this list box, you can choose a color for grids from the current palette. The same color is applied to both X and Y grids. The default color is automatic black or white, whichever provides more contrast.

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{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}



## Graph Control dialog box - Axis tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

Use this tab to set up the graph style.

[Control Graph dialog box - Axis tab for Polar Graph](#)

[Control Graph dialog box - Axis tab for Graph Types with XY Grids](#)

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{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Axis tab for Graph Types with XY Grids

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- **X**  
Select this option to view and/or change the settings for the X axis.
- **Y Primary**  
Select this option to view and/or change the settings for the primary Y axis.
- **Y Overlay**  
Select this option to view and/or change the settings for the Y axis.

### Note

You can't set Position options for Y Overlay because that axis is always drawn at the right.

- **Z**  
Select this option to view and/or change the settings for the Z axis.

### Note

You can't set Position options for Z because that axis is always drawn at the bottom right.

- **Color of Axes (default is automatic black or white)**  
In this list box, you can choose a color for axes from the current color palette. The same color is applied to all axes. The default color is automatic black or white, whichever provides more contrast.
- **Variable (default)**  
When X is selected in the Apply to Axis group, select this option to draw the X axis intersecting the Y origin, whether that's at the top, bottom, or middle of the graph.  
  
When Y Primary is selected in the Apply to Axis group, select this option to draw the primary Y axis intersecting the X origin, whether that's at the left, right, or middle of the graph.
- **Left or Top**  
When X is selected in the Apply to Axis group, select this option to draw the X axis at the top of the graph, regardless of the location of the Y origin.  
  
When Y Primary is selected in the Apply to Axis group, select this option to draw the primary Y axis at the left edge of the graph, regardless of the location of the X origin.
- **Right or Bottom**  
When X is selected in the Apply to Axis group, select this option to draw the X axis at the bottom of the graph, regardless of the location of the Y origin.  
  
When Y Primary is selected in the Apply to Axis group, select this option to draw the primary Y axis at the right edge of the graph, regardless of the location of the X origin.
- **Zero Origin (default for all X-Y-Z graphs except time series)**  
Select this option to draw the axis including the origin (zero) and extending far enough in the positive and negative directions to include all of the graph's values.
- **Variable Origin**  
Select this option to have the axis zoom in on the range of the graph's actual values, whether or not that range includes zero.

For X and Z axes, this option differs from Auto only if you specify X or Z values for data points.

- User-Defined (default for time series graphs)

Select this option to set your own values for the minimum, maximum, and number of ticks for the axis. When you select User-Defined, the settings in the Range group are enabled.

- Max (enabled by selecting User-Defined in the Scale group)

The Max setting is generally the maximum point of the axis, with the following exceptions:

If you have a positive Max with a negative Min, the Graph Control may adjust the maximum or minimum point so that it lies on a tick. See Ticks.

In 3D graphs, if you specify a Max that's too low to show all your data values, the Graph Control moves the maximum point to show all the values. The Ticks setting still applies.

For X and Z axes without specific X or Z values, the Max setting is ignored. The maximum point of the axis is equal to the number of points or sets you're graphing.

- Min (enabled by selecting User-Defined in the Scale group)

The Min setting is generally the minimum point of the axis, with the following exceptions:

If you have a positive Max with a negative Min, the Graph Control may adjust the maximum or minimum point so that it lies on a tick. See Ticks.

In 3D graphs, if you specify a Min that's too high to show all your data values, the Graph Control moves the minimum point to show all the values. The Ticks setting still applies.

For X and Z axes without specific X or Z values, the Min setting is ignored. The minimum point of the axis is always 0.

- Ticks (enabled by selecting User-Defined in the Scale group)

The Ticks setting determines the number of ticks along the selected axis. (Note that ticks are distinct from tick marks see the Tick Marks group.) The effect depends on the axis and the nature of your data:

For Y axes, X axes with specific X values, and Z axes with specific Z values, the Ticks setting specifies the number of ticks from the origin to the setting of either Max or Min, whichever has the higher magnitude (distance from 0). For example, if you set Min to -50 and Max to 20, Ticks applies to the axis segment between 0 and -50.

To determine the Ticks value you want to set, divide the length of the axis (or axis segment) by the desired interval between ticks. For the axis segment 0 to -50 we've just described (whose length is 50 units), if you want to place ticks 25 units apart, set Ticks to 2.

Both the maximum and minimum points of an axis must fall on a tick. If you have a negative Min with a positive Max, the Graph Control may have to move the minimum or maximum point to make this happen. In our example axis, ticks would be placed at -50, -25, 0, and 25 overriding the Max setting of 20.

For Z axes without specific Z values (3D bar, tape, area, and surface graphs), you can't specify Ticks. The option is disabled.

- Show (default is on)

Select this option to show labels along the axis. Deselect it for no labels.

- Vertical (available for X and Z axes only; default is off)

Select this option to display X or Z labels vertically (rotated 90 degrees counterclockwise). Deselect it for horizontal labels.

The Vertical option is normally used with text labels. It lets you use a larger font for labels because you don't need as much space horizontally.

- Every (available for X axis only; default is 1)

The Every setting determines the frequency with which labels are displayed. A setting of 1 places a label at every tick along the X axis, a setting of 2 places a label at every other tick (beginning with the origin), and so on.

- Show (available for X and Y Primary axes only; default is on)

Select this option to draw tick marks along the axis. Deselect it for no tick marks.

If you have a Y Overlay axis, your Show setting for Y Primary also applies to Y Overlay. Either both axes have tick marks or both don't.

- Minor (available for X and Y Primary axes; default is off)

Select this option to draw five minor tick marks between standard tick marks.

- Every (available for X axis with zero or variable origin only; default is 1)

If you select Zero Origin or Variable Origin in the Scale group, you can use the Every setting to specify the frequency with which tick marks are displayed along the X axis. An Every setting of 1 places a mark at each tick, a setting of 2 places a mark at every other tick, and so on.

The X axis must end with a tick mark. If you set an Every value that doesn't include the last value on the axis, the Graph Control will extend the axis so that it ends on a tick mark.

- Show (available for X and Y Primary axes only; default is off)

Select this option to draw grid lines perpendicular to the axis, intersecting each tick mark. Deselect it for no grid lines.

- Line (default is solid)

In this list box, you can choose a style for grid lines. The same style is applied to both X and Y grids.

- Color (default is automatic black or white)

In this list box, you can choose a color for grids from the current palette. The same color is applied to both X and Y grids. The default color is automatic black or white, whichever provides more contrast.

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{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Axis tab for Polar Graph

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Angular (default)

Select this option to view and/or change the angular axis, which is marked by a series of radial lines (spokes) at angular increments. The origin is three o'clock.

- Radial

Select this option to view and/or change the settings for the radial axis, which is marked by a series of concentric circles.

- Color of Axes (default is automatic black or white)

In this list box, you can choose a color for axes from the current color palette. The same color is applied to both the angular and radial axes. The default color is automatic black or white, whichever provides more contrast.

- Show (default is on)

Select this option to show numeric labels along both the angular and radial axes. Deselect it for no labels along either axis.

- Show (default is off)

Select this option to enable grid lines for the axes. Deselect it for no grid lines.

For angular axes, the Graph Control draws grid lines between the origin and outer wall of the polar graph at angles of 45, 135, 225, and 315 degrees.

For radial axes, the Graph Control draws four concentric circles at regular increments between the origin and the outer wall of the polar graph.

- Line (default is solid)

In this list box, you can choose a style for grid lines. The same style is applied to both angular and radial grids.

- Color (default is automatic black or white)

In this list box, you can choose a color for grids from the current palette. The same color is applied to both angular and radial grids. The default color is automatic black or white, whichever provides more contrast.

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{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - 3D Properties tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Off (available only for 3D bar, tape, and area graphs)

Select this option for standard 3D. This option is included for compatibility with earlier editions of the Graph Control. Standard 3D doesn't support such True3D options as rotating cages and Z axis labels. All you can do is set the color of the walls and edges of the graph's cage.

- Perspective (default)

Select this option for True3D with perspective projection. You can use the In-Out scroll bar to control the perspective at which graphs are drawn.

- Isometric

Select this option for True3D with isometric projection. In this mode, angles are rendered as if the graph is viewed from an infinite distance (so all parallels are preserved in the drawing), and the In-Out scroll bar is disabled.

- In-Out

The In-Out scroll bar controls the degree of perspective foreshortening or the perceived distance from which the graph is viewed for a True3D graph with perspective projection. This setting determines the acuteness of the angles in the graph.

The default In-Out bar setting places the viewing distance at about twice the width of the graph, which is defined as 50 units. Each click in decreases the viewing distance by one unit (to a minimum of 0 units, a distance about equal to the graph's width), and each click out increases the viewing distance by one unit (to a maximum of 100, a distance about four times the graph's width).

The In-Out scroll bar is disabled for True3D graphs with isometric projection. In those graphs, angles are drawn as if the viewing distance were infinite, so all parallels are preserved.

- Up-Down (default is halfway up the graph)

The Up-Down bar sets the vertical viewing angle for a True3D graph.

The default Up-Down bar setting places the viewing angle halfway up the graph, which is defined as 0 degrees. Each click up or down shifts the angle by one degree, to a maximum of 90 degrees (directly above the graph) and a minimum of -60 degrees (somewhat below the floor of the graph cage).

- Left-Right (default is facing the front of the graph)

The Left-Right bar sets the horizontal viewing angle for a True3D graph.

The default Left-Right bar setting places the viewing angle directly facing the front of the graph. Each click to the left or right shifts the angle by one degree, to a maximum of 180 degrees (to the right) and a minimum of -180 (to the left). The values of 180 and -180 provide the same view directly facing the rear of the graph.

- Cage flips

If you select a viewing angle that would normally cause part of the graph to be obscured, the back or side wall flips to the opposite edge of the cage, letting you see the whole graph.

- Off (default)

Select this option to disable cage flips.

- Back and Side

Select this option to enable cage flips for both the back wall and side wall.

- Back Only

Select this option to enable cage flips for the back wall only. This option makes it easier for the viewer to stay oriented to the graph, because the side wall always represents the left edge of the cage.

- Depth

This scroll bar lets you vary the projected depth of True3D graphs.

The default Depth setting provides equal increments for units in the X and Z directions a graph with an equal number of points and sets would be of equal width and depth. The numeric value for this default is 100. Each click to the left decreases the value by 5 (to a minimum of 10) and each click to the right increases it by 5 (to a maximum of 1000).

- X Gap

This scroll bar lets you set the gap between the bars of a True3D bar graph. This gap is in the X direction for vertical bar graphs and in the Y direction for horizontal bar graphs.

The default X Gap setting is 20 percent of the entire possible width of each bar the remaining 80 percent is occupied by the bar itself. Each click to the left decreases the gap percentage by 1 (to a minimum of 0) and each click to the right increases it by 1 (to a maximum of 95). At the minimum X Gap setting of 0, there's no gap between bars.

- Z Gap

This scroll bar lets you set the gap in the Z (depth) direction between data sets in three kinds of True3D graphs with multiple data sets: bar (z-clustered style), area (absolute style), and tape.

The default Z Gap setting is 20 percent of the entire possible width of each bar (or area plot or tape) the remaining 80 percent is occupied by the bar itself. Each click to the left decreases the gap percentage by 1 (to a minimum of 0) and each click to the right increases it by 1 (to a maximum of 95). At the minimum Z Gap setting of 0, there's no gap between bars.

- Wall Color (default is automatic color)

In this list box, you can choose a color for the walls and floor of a True3D graph cage from the current palette. The same color is applied to the back wall, side wall, and floor of the cage.

- Thick Walls (default is on)

Select this option if you want the walls and floor of the True3D cage to appear thick, with edges. Deselect it for thin walls, which have no discernible edges.

- Edge Color (default is automatic color)

In this list box, you can choose a color for the edges of a True3D graph cage from the current palette. This setting is disabled if you deselect the Thick Walls option.

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{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Fonts tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- **Graph Title (default)**  
Select this option to apply font settings to the graph's title, which always appears centered at the top of the graphing window.
- **Other Titles**  
Select this option to apply font settings to the graph's left, right, and bottom titles. The same settings apply to all three of these titles.
- **Labels**  
Select this option to apply font settings to the graph's labels including axis labels (for graphs with X-Y-Z grids and polar graphs), pie chart labels, and data labels. The same settings apply to all labels in use in the graph.
- **Legend**  
Select this option to apply font settings to the graph's legend.
- **Name (default is Arial)**  
In this list box, you can choose any installed Windows font for the selected text.
- **Italic (default is off)**  
Select this option to have the Graph Control italicize the text.
- **Bold (default is off)**  
Select this option to have the Graph Control display the text in boldface.
- **Underline (default is off)**  
Select this option to have the Graph Control underline the text.
- **Smart Scale (default is on)**  
Select this option to have the Graph Control automatically use smaller type if the size you specify (using the Smaller-Bigger scroll bar) makes the text too large for the available space. If the Graph Control can't make the type small enough to fit, the text won't display at all.  
  
If you deselect Smart Scale, the Graph Control won't attempt to use type smaller than you specify with the Smaller-Bigger scroll bar. If the text is too large for the space available, it simply won't display.
- **Smaller-Bigger**  
This scroll bar lets you set the size of type. If Smart Scale is selected, the Graph Control may override your setting to make the text small enough to fit in the graphing window.  
  
Each click on the Smaller end of the scroll bar decreases the text size by 5 arbitrary units (to a minimum of 50), and each click on the Bigger end increases it by 5 units (to a maximum of 500). The initial size depends on which type of text you're sizing.
- **Reset**  
Click this button to reset the text size to the default.

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{button Related Topics,PI('`,`csh\_proc\_rtf\_1039562')}



## Control Graph dialog box - Markers tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- Click to Select a Point or Set

When you move the mouse pointer over the graph drawing at the upper left of the Markers page, the pointer becomes a large arrow. Point and click on the marker you want to apply settings to.

- Apply To group

This group shows you the point or set number of the graph object you've selected in the graph illustration.

Set. For all graph types except pie, bubble, and bar graphs having one data set, a Set number is shown. Your settings apply to a particular data set.

Point. For pie charts, bubble graphs, and bar graphs having one data set, a Point number is shown. Your settings apply to a particular data point.

- Reset All button

Click this button to return all values in the Markers property page to their default.

- Color (default is automatic color selection)

In this list box, you can choose a color for the selected marker from the current palette.

By default, the Graph Control assigns an automatic series of colors to markers, chosen for variety. If you override this default by setting your own color for one marker, you have to set colors for the remaining markers as well otherwise, they'll be shown in black.

- Pattern list box

The Pattern list box is enabled for pie, bubble, bar, area, Gantt, box-whisker, and tape graphs.

Pattern (default is solid). From this list box, you can choose a pattern for the selected marker. If you don't choose one, the marker appears in a solid color.

- Symbols group

The options in this group are enabled for polar, scatter, line and logarithmic, time series, and (Size bar only) high-low-close and open-high-low-close graphs.

Symbol (default is automatic symbol). In this list box, you can choose one of 14 symbol options.

By default, the Graph Control assigns an automatic series of symbols to data sets, chosen for variety. If you override this default by setting your own symbol for one set, you have to set symbols for any remaining sets as well otherwise, they'll all default to the first available symbol (+).

Size. This scroll bar sets the size for symbols, based on a default of 100 arbitrary units. Each click to the left decreases the symbol size by 5 units (to a minimum of 10), and each click to the right increases it by 5 units (to a maximum of 1000).

- Lines group

The Lines group is enabled for polar, line and logarithmic, and (Thick check box only) high-low-close and open-high-low-close graphs.

Thick (default is on). Select this option to enable thick lines, which are three pixels thick by default. Deselect it for thin lines, which are one pixel thick.

For polar, line, and logarithmic graphs, you can choose a line thickness of one to five pixels (overriding the default three pixels) in the list box. This setting applies to all lines in the graph. You can't set your own thickness for high-low-close or open-high-low-close markers, which are always three pixels thick when Thick is on.

Patterned (default is off). Select this option to enable patterned lines. Then, in the list box, you can choose a pattern for each line.

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{button Related Topics,PI('',`csh\_proc\_rtf\_1039562')}

## Control Graph dialog box - Background tab

{button Tell me how...,PI('`,`using\_gr\_rtf\_35963')}

- **Apply To**  
In the Apply To subgroup, you can select the graph object you want to apply styles and colors to the Graph Title (default), Bottom Title, Left Title, Right Title, Legend, or Graph (including the graph itself and its axes).
- **No Style (default)**  
Select this option for no styling effect.
- **Border**  
Select this option to draw a border around the object.
- **Drop Shadow**  
Select this option to draw a black drop shadow behind the object.
- **Raised**  
Select this option to draw a border with a raised appearance around the object.
- **Lowered**  
Select this option to draw a border with a lowered appearance around the object.
- **Text Color (default is automatic black or white)**  
In this list box, you can choose a color for the object's text from the current palette. The default color is automatic black or white, whichever provides the most contrast.
- **Background (default is automatic black or white)**  
In this list box, you can choose a background color for the rectangular area surrounding a graph. The default color is automatic black or white, whichever provides the most contrast.
- **Position (default is right-hand center)**  
If your graph has a legend, you can use these buttons to set the legend's position around the edges of the graphing window.  
  
If you choose the top center or bottom center position, legend items are drawn horizontally in a single row. At all other positions, legend items are stacked vertically.
- **Size (default is maximum)**  
This scroll bar lets you set the size of a legend including the text, marker, and gap between items. The Size setting is a percentage of the maximum legend size. The default setting is 100, and each click to the left or right decreases or increases the setting by 1 (to a minimum of 0 or maximum of 100).
- **Background Color (default is light gray)**  
In this list box, you can choose a background color for the graphing window from the current color palette.
- **Backdrop (default is None)**  
This list box lets you choose a type of graphic image (bitmap or metafile) to use for the backdrop of the graphing window. You also choose how the image is displayed centered, tiled, or stretched.
- **File**  
In this text box, you can enter the filename for the graph's backdrop image. If you don't include a path to the file as part of this string, the Graph Control searches the current directory. The appropriate file extension (.BMP or .WMF) is added automatically, according to your selection in the Backdrop list box.

- Browse

Click this button if you want to call up a standard Windows Open dialog to locate a backdrop file.

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{button Related Topics,PI('',`csh\_proc\_rtf\_1039562')}

## Add New Day dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

Use this dialog box to add a name for a new schedule. The schedule can be used in the model to specify when activities, resources, and generators are active or inactive.

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{button Related Topics,PI('`,`running\_\_rtf\_151861')}

## Add New Hour dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

Use this dialog box to a name for a new list of hours. The list of hours can be combined with other calendar days and schedules to create a composite schedule.

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{button Related Topics,PI('`,`running\_\_rtf\_151861')}

## Edit Cost/Count dialog box

{button Tell me how...,PI('','running\_\_rtf\_151887')}

Use this dialog box to increase or decrease the resource allocations for a department or pool.

---

{button Related Topics,PI('','running\_\_rtf\_151861')}

## Add New Schedule dialog box

{button Tell me how...,PI('`,`running\_\_rtf\_151887')}

Use this dialog box to add a name for a new schedule. The schedule can be used in the model to specify when activities, resources, and generators are active or inactive.

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{button Related Topics,PI('`,`running\_\_rtf\_151861')}



## Formatting dialog box

Set the number format and time unit for the selected new field using the lists.

## **Process Name dialog box**

To create a new process name or rename an existing process, type a new name in the New name box, and click OK.

## **Add/Modify Statistic dialog box**

Select a new statistic from the list, and click OK.

## **Paste Custom Statistic dialog box**

To paste a custom statistic in the Edit Custom Statistic dialog box, select the statistic from the Custom Statistic list, and click OK.

## **Find Monitor-Next Location dialog box**

To find placed monitors in existing processes, click Find Next or Find Previous.



# Header and Footer dialog box

{button Tell me how...,PI('`,`csh\_prof\_rtf\_1040781')}

Element	Description
Insert Tools	Lets you insert text, page numbers, date, time, or diagram name position in the header or footer.
Sections	Where the inserted header or footer information appears at the top or bottom of the page.

[To create a custom header or footer](#)



## Toolbars dialog box

{button Tell me how...,PI('`,`csh\_prof\_rtf\_1021413')}

Element	Description
Toolbars list	Check the toolbar boxes you want to view in iGrafx Professional.
New button	Creates a new toolbar.
Customize button	Lets you add custom tools to other toolbars or a toolbar that you create.
Reset button	Resets the selected toolbar to its original settings.

[To create a new toolbar](#)

[To rename a toolbar](#)

[To reset a toolbar](#)

## Name Toolbar dialog box

```
{button Tell me how...,PI('`,`csh_prof_rtf_1040962')}
```

Type the name for your new toolbar in the box.

[To create a new toolbar](#)

[To rename a toolbar](#)

[To reset a toolbar](#)

## Insert iGrid dialog box

```
{button Tell me how...,PI('`,`csh_prof_rtf_1041004')}
```

To view descriptions of iGrids, click any icon in the box.

[To insert an iGrid](#)

[To edit an iGrid in the diagram space](#)

## Format Department dialog box

Element	Description
Apply To	Name Area - Applies styles to the department header.
	Process Area - Applies styles to the department lane.
	Name and Process Areas - Applies styles to both the department header and lane.
Fill Style	Selects the styles and types of styles.
Sample	Displays your selections for the department header, department lane, or both.

## Edit Gradient dialog box

Element	Description
Gradient Type	Selects the direction of the gradient pattern.
Attributes	Selects the size or angle of the gradient pattern direction.
Sample	Displays the gradient based on your selections.



## Shape Properties dialog box

{button Tell me how...,PI('`,`csh\_prof\_rtf\_1041228')}

Element	Description
Name box	Displays the name of the selected shape. You can also type a new name for a shape in this box.
Keywords box	Type keywords for browsing shapes of this type in Share Media subjects.
Description	Type a description for the selected shape in this box.
Edit button	Opens the Edit Shape dialog box for setting shape defaults.

[To set shape and line defaults using Share Media](#)

## Extension Projects dialog box

{button Tell me how...,PI('`,`csh\_prof\_rtf\_1041460')}

Element	Description
Projects list	Displays the *.flx projects saved on your hard disk.
New button	Opens the Save As dialog box where you can save the selected *.flx file under a new name.
Open button	Opens the Open dialog box where you can browse for another *.flx file.
Remove button	Removes the selected Project from the list.

To open a VBA Extension Project

## **Format Shape dialog box - General tab**

To change the name of the shape, type the new name in the box.

## **New From Template dialog box**

In the General tab, click the template you want to use, and click OK.

## Move to Layer dialog box

{button Tell me how...,PI('`,`csh\_prof\_rtf\_1041429')}

To move currently selected objects to another layer, select the layer name in the box, and click OK.

To change the current layer

To add a layer to the active diagram

To delete a layer

To rename a layer

To change the order of a layer

To show or hide a layer



## Print dialog box

{button Tell me how...,PI('`,`csh\_prof\_rtf\_1041523')}

Element	Description
Printer	Lists the current local or network printers available for your machine.
Print Range	Prints all pages or a range of pages.
Copies	Prints one copy or multiple copies.
Print What	Prints the open diagram or multiple diagrams contained in the entire document.
Preview button	Displays the current diagram as it will be printed.

[To print a diagram](#)

[To see a print preview of your diagram](#)

## **iGrid Properties dialog box**

This dialog box lets you change the formatting and lock an iGrid to the page. For example, you can select the Allow Styling box to change the line style and color of the iGrid you select.

## **Code Assistant dialog box**

This dialog box lets you handle events for specific shapes or groups of shapes in a single diagram or document. Selecting an event and choosing a handle option will open VBA where you can edit the code.

## **Insert ActiveX Control dialog box**

To insert an ActiveX control in your diagram, select the control from the list, and click OK.

## **Value Class dialog box**

To edit the Value Class for a particular shape, choose a new value class from the Value Class list and click OK.

## **Exclude Department dialog box**

To exclude task data for a shape spanning two or more departments, select the departments in the Departments list, and click Yes. This moves the departments into the Excluded list.

## **iGrafx Professional**

iGrafx Professional allows all business people to create a broad array of diagrams with easy and powerful ready-to-use tools. iGrafx Professional provides Microsoft Office users with a drag-and-drop environment that facilitates the creation of popular structured business graphics, from simple organizational charts to large, wall-sized process maps.

Now all business users including program managers, secretaries, software engineers, and marketing managers can quickly and easily integrate structured business graphics into documents, presentations, and worksheets to help them communicate ideas in a much more effective and compelling way.

## **Microsoft Office Compatible**

iGrafx Professional is a Microsoft Office Compatible product, which means that its toolbars, menus, and accelerator keys are similar to those used by Microsoft Office. If you are already using Microsoft Office, which includes Microsoft Excel, Microsoft Word, Microsoft Access, and Microsoft PowerPoint, then many of the tasks you have learned to complete in Office can be completed in a similar manner in iGrafx Professional. Micrografx and Microsoft hope these similarities will make it easier for you to use our products together and with other Microsoft Office Compatible products.

As a Microsoft Office Compatible product, iGrafx Professional will support the Microsoft Intellimouse. This includes all features of the Intellimouse including zooming, panning, and scrolling functions.

Look for the Microsoft Office Compatible logo when purchasing software. For more information about the Microsoft Office Compatible program, and for a complete listing of Microsoft Office Compatible products, call Microsoft Customer Service at 1-800-426-9400 in the United States. Customers outside the United States may contact their local Microsoft office.

## **iGrafx Professional and the Office Compatible Features**

Office Compatible features include:

- Standardized toolbars that are now also dockable and fully customizable
- Wizards that speed you through complex tasks
- Shortcut menus, activated via right mouse button clicks, expand quick access to functions
- Microsoft Office-style tabbed dialog boxes
- OLE in place lets you run other programs within iGrafx Professional and iGrafx Professional within other programs
- OLE drag and drop lets you drag an object from iGrafx Professional and drop it into any OLE container program, or drag an object from any OLE source program and drop it into iGrafx Professional
- Microsoft Office-style color picker buttons for text, lines, and shapes
- Scraps support for dragging objects onto the desktop and later into MS Office-compatible programs
- ToolTips
- Long filenames
- In-place editing

While adapting to Microsoft Office, we have built the ability for you to customize the interface to best suit your needs.

## **Microsoft Office Binder Compliance**

iGrafx Professional is fully compliant with the document requirements for Binder. iGrafx Professional files can easily be inserted as individual documents grouped in Binder with documents from other Binder-compliant programs.

## **Using Key Office Compatible Features**

iGrafx Professional contains a toolbar which is similar to the ones in Microsoft Office. For example, you can print a diagram by pressing the Print button on the Standard toolbar, and you can discover each button's function just by



pointing to it with the mouse. This will activate a ToolTip that displays the name of the button.

## **Using iGrafx Professional with Microsoft Office**

Data in the iGrafx Professional window can be transferred to Microsoft Office programs. To do so:

- 1 Click at the top left of the data you want to copy and drag the mouse to the bottom right of the data. This selects the data.
- 2 Press Ctrl+C to copy it.
- 3 Switch to any Office program.
- 4 Press Ctrl+V to paste it.

Run other programs within iGrafx Professional diagrams. To do so:

- 1 On the Insert menu, click OLE Object.  
  
Choose either to create a new file, or to use an existing file.
- 2 If you select Create New, choose the program to run.  
  
or
- 3 If you select Create from File, choose the file to open.

When you click OK, the file is inserted into your diagram. To run the program, simply double-click the file.

You can also run iGrafx Professional within other programs. Refer to the program documentation for the procedure.

## **Drag and drop an iGrafx Professional object into any OLE container program.**

For example, you can drag any diagram into a Word document. When you drop it, the program's icon appears in the document. To run the program and see the diagram, simply double-click the icon.

You can also drag other objects into iGrafx Professional and drop them into a diagram.

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