

Creating Custom Solutions
with iGrafx System

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Introduction

Welcome to this introductory guide on developing custom graphics applications using *iGrafx System*. This guide introduces you to the features of *iGrafx System* which enable you to develop customized graphics applications or add graphics to existing applications.

Join the growing number of companies in many different industries who have taken advantage of the flexibility and ease with which solutions can be developed. With *iGrafx System* you can create totally customized graphics business solutions in a matter of days, not weeks or months.

This guide introduces you to some of the ways *iGrafx System* can be customized. It includes examples that illustrate how easily you can create custom solutions. This guide demonstrates that even a non-programmer can create solutions that utilize the dynamic features of the system. It also lists some resources to assist you in developing more advanced solutions. The remainder of this guide is organized according to the following topics:

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Why use iGrafx System?

With *iGrafx System*, you have powerful, comprehensive, flexible, easy to use, process and business graphics capabilities at your disposal. By using *iGrafx System* as your engine, you can focus on adding your unique value and not spend time creating, testing, documenting, and maintaining a world-class graphics engine.

Think of developing your custom solution as laying a brick road. With *iGrafx System*, you can focus on the design of the road, the path the road takes, and where the road leads you. You won't need to spend time, energy, or resources creating the individual bricks. *iGrafx System* gives you the bricks that become the road. With *iGrafx System* you can:

- Rapidly and efficiently create custom, process-oriented, graphics applications and rich graphical extensions to existing applications.
- Build upon the COM and VBA platforms that enable you to leverage millions VB programmers thereby ensuring availability of development resources, shorter development cycles, and an emphasis on developing graphical solutions rather than coding the features.
- Develop highly customized solutions with a lower total overall cost of ownership.
- Capitalize on the more than 16 years of experience and investment Micrografx has made in developing leading graphics applications.
- Integrate with your existing data or application to add process oriented graphical capabilities.



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iGrafx Development

This guide includes some simple examples for customizing *iGrafx System*. To take advantage of the development and customization capabilities of *iGrafx System*, you will need *iGrafx Development*. *iGrafx Development* is a software development kit (SDK) that documents and helps you understand and take advantage of the development features available in *iGrafx System*. *iGrafx Development* consists of a developer's guide, online help reference, developer tools, and sample files including source code that describe how you can use *iGrafx System* development features to create a custom solution.

To learn more about iGrafx Development contact your sales representative or visit the Micrografx website at www.micrografx.com.

How can I Customize iGrafx System?

To illustrate the customizing and development capabilities of *iGrafx System*, we focus on one application: *iGrafx Professional*—The diagramming and modeling component of *iGrafx System*. The other components of *iGrafx System* can also be customized such as *iGrafx Process* and *iGrafx Enterprise Charter*.

iGrafx Professional offers you the tools you need to develop custom graphics applications. Virtually all of the functionality available to you through the user interface is available for customization, extension, or integration through a programming interface.



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You can customize the appearance of *iGrafx Professional* to make it look like a completely new application. For example, you can add, delete, or change menus, toolbars, and commands. You can add your own greetings or logins. You can add custom dialog boxes or forms. You can add your own shapes and shape palettes or modify existing shapes and palettes. The possibilities for customization are virtually limitless.

You can also add intelligence to your diagrams. *iGrafx Professional* enables you to make shapes in your diagrams recognize and respond to events. For example, a shape could recognize a mouse click or keyboard stroke and perform some action based on the event.

You can also add behavior to your diagram. For example, you can make a shape change its appearance (geometry, color, linestyle) when you click on it. Or you can make shapes perform complex tasks such as reading and updating a database or sending email messages.

Create Custom Shapes

iGrafx Professional provides you with a rich, comprehensive palette of shapes for most common business and process scenarios. You may, however, have a special need for custom symbols or wish to represent process steps in a unique fashion. Using *iGrafx Professional*, you can create a shape palette that is custom to your solution.



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As we mentioned earlier, you can also customize the behavior of any shape. Suppose you would like to automate an order-entry process. With *iGrafx Professional* you can represent the process with a diagram. Then you can add intelligence and behavior to the shapes of your process diagram to perform order entry tasks. For example, you can customize a shape to display an order entry form and gather and validate a customer's order. Another shape could query an inventory database to determine availability. Yet another shape could add the order to an order entry database. And you could create a shape to send email notifications to the appropriate departments such as Sales, Shipping, and Accounting.

Extend the iGrafx Functionality

iGrafx Professional provides you with a revolutionary and powerful process-oriented, diagramming and graphics feature set. You can extend this feature set by creating new implementations of these features for a specific purpose.

Suppose your company develops or uses a Human Resources Information System (HRIS) system. Using *iGrafx Professional* you can create a new diagram type to represent an organizational chart. Associated with this diagram type are shapes, menus, and commands that facilitate the creation of these charts. When a user creates or uses an organization chart, the user interface displays only those attributes and features that are applicable to that type of diagram. If the user selects a different diagram type, the features and attributes applicable to that type are displayed.



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Integrate iGrafx with other Applications

You can combine *iGrafx Professional* graphics engine with other applications to create a complete custom solution. Integrating with other applications lets you leverage the power of those applications and allows you to focus on adding your unique value to your solution.

For example, suppose your order entry system uses an off-the-shelf database management system as a database. Through *iGrafx Professional* development environment you can add code to directly access that database. You can also add code that sends out email notifications using your organization's email system. Your order entry system now has a powerful graphics engine, a powerful database engine, and a powerful communications engine. But the best news is that you don't have to develop any of those engines! You are able to concentrate on developing your own application.



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Create New Applications based on iGrafx

With the power of *iGrafx Professional*, you can develop a completely new graphics or diagramming application to serve a specific need or market. *iGrafx Professional* provides the development platform for creating your own diagramming, graphics, or process-oriented application.

Let's suppose your company sells a set of products and services to your customers based on answers to a series of questions. Your direct sales force completes a form with the customer's responses and enters that information into a database. The database generates a customized list of products and services for that customer. This is a time consuming process; the customers never know where they are in the process and don't know how changes in a response to the questionnaire may affect the final recommendation.

With *iGrafx Professional*, you can easily develop a graphical questionnaire that enables the customer to always see where they are in the process and visualize the impact of changes in a response. The entire sales process is also expedited since data is entered directly into the system, as opposed to entered first on paper and then into the text-based system.



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The iGrafx System Integrated Development Environment

iGrafx System 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 System*.

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.

With *iGrafx System*, you get a powerful graphics engine, and with VBA you get a development environment that lets you quickly extend the capabilities of or develop custom applications based on that graphics engine.



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Developing with iGrafx Professional

Start *iGrafx Professional* according to the user's guide. Use the Open File command button to open the following file:

`c:\Program Files\iGrafx\Pro\8.0\Exercise\DEx1.igx`

You will use this diagram as the starting point for all of the examples in this chapter.

Note: You can find completed solutions for the examples in the file called *c:\Program Files\iGrafx\Pro\8.0\Exercise\DEx2.igx*.

Example 1: Customizing Shapes

iGrafx Professional gives you the ability to add intelligence to the shapes of your diagrams. You can add VBA code that causes shapes to perform simple tasks such as changing aspects of its appearance (e.g., geometry, color, or line style). Or you can add code to perform very complex tasks such as displaying a spreadsheet, starting a word processor, or reading and updating a database.

In the first example, you will write some very simple code that causes a shape to change its fill color when you select it. The objective of this example is to demonstrate to you how simple it is to add intelligence to a shape.

To Change the Shape 1 fill color

- 1 From the diagram select Shape 1 by left-clicking it with your mouse.



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- 2 From the main menu select Tools then, Visual Basic, then Edit Code. The Visual Basic Editor (VBE) starts.
- 3 In the VBE code window, choose Select from the procedure list. The code for the Shape1_Select event procedure appears as shown below.

```
Private Sub Shape1_Select()  
End Sub
```

- 4 Add the following line of code to the event procedure:

```
Shape1.FillColor = vbRed
```

That's all there is to it! To test your code, exit the VBE by selecting File and Close and Return to *iGrafx Professional*. In the diagram deselect Shape 1 and then reselect it. When you reselect Shape 1, its fill color changes from white to red.

You can customize the behavior of other objects in a diagram in much the same way as you customize shapes. For example, you can also customize connectors, departments, and diagrams. *iGrafx Professional* also includes the following special objects for customizing object behavior for all objects of a particular category.

- AnyShape - customizes the behavior of any shape in a diagram. (You will see how to use this object in a later example.)
- AnyConnector - customizes the behavior of any connector in a diagram.
- AnyDepartment - customizes the behavior of any department in a diagram.
- AnyObject - customizes the behavior of any object in a diagram.



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Example 2: Creating Executable Diagrams

If you are familiar with *FlowCharter* 7.0, then you are familiar with the concept of executable diagrams. You draw a diagram, choose Run, and *FlowCharter* runs the diagram while letting you choose a path through it. *iGrafx Professional* takes this concept a step further. Now you can put your own VBA code behind each shape of the diagram. You can add code that enable shapes to react to input, make decisions, perform tasks, and generate output. In effect, you are able to create executable, intelligent diagrams—iDiagrams.

In this next example you will write some VBA code to make your diagram executable. When it executes the diagram will perform the following tasks:

- When each shape executes, the fill color of the shape turns to red.
- When a shape finishes executing the fill color of the shape turns to white.
- When each process shape (Shape 1, Shape 3, and Shape 4) executes, a message appears telling you the shape name.
- When the decision shape (Shape 2) executes, a form appears that lets you choose the next path to take in the diagram.
- When the final shape (Shape 5) executes, a message informs you that the process is complete.

Creating a Code Module

First, you need to create a VBA code module. The code module is used to contain some general VBA declarations.

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To create the code module

- 1 From the main menu start the VBE by selecting Tools, then Visual Basic, then Visual Basic Editor.
- 2 On the VBE main menu, create a module by selecting Insert and then Module. An object named Module1 appears in the Project window.
- 3 Right-click on Module1 and select View Code. The Code window appears.
- 4 In the Code window enter the following statements:

```
Option Explicit  
Public g_Path As Integer
```

Creating the Form

Next, you will create the form that appears when the decision shape (Shape2) executes. You can use this form to execute either the left or right path of the diagram by clicking the appropriate command button.

To create the form

- 1 On the VBE main menu, select Insert and then UserForm. An object named UserForm1 appears in the Project window and a blank form and a toolbox appear in the Code window.
- 2 From the toolbox, drag and drop a command button on the lower left-hand side of the form. From the Property window change the caption property for this button to Left.
- 3 Right-click this command button and select View Code. A Code window appears. In the procedure CommandButton1_Click enter the following code.

```
g_Path = 1           ' select the left path  
Unload Me           ' close the form
```
- 4 Close the Code window and return to the form.

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- 5 From the toolbox, drag and drop a command button on the lower right-hand side of the form. Change the caption property for this button to Right.
- 6 Right-click this command button and select View Code. A Code window appears. In the procedure CommandButton2_Click enter, the following code:

```
g_Path = 2           `select the right path
Unload Me           `close the form
```
- 7 Close the Code window and return to the form.
- 8 You can add a label to the form and enter text such as “Choose a Path.”

Writing the Event Procedures

When a shape executes, an event called EntityExecute is generated, causing a corresponding event procedure to execute. You can modify the event procedure for each shape in this example to perform the tasks of changing the fill color and displaying a message or form.

To write the event procedures

- 1 On the VBE Project window, right-click Diagram1 and select View Code. The Code window appears.
- 2 In the Code window, select Shape1 from the object list and select EntityExecute from the procedure list.
- 3 In the procedure Shape1_EntityExecute, enter the following lines of code:

```
Shape1.FillColor = vbRed
MsgBox "Executing Shape 1"
Entity.SelectPath 1
Shape1.FillColor = vbWhite
```
- 4 In the Code window, select Shape2 from the object list and select EntityExecute from the procedure list.
- 5 In the procedure Shape2_EntityExecute, enter the following lines of code.

```
Shape2.FillColor = vbRed
```

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```
UserForm1.Show  
Entity.SelectPath g_Path  
Shape2.FillColor = vbWhite
```

- 6** In the Code window, select Shape3 from the object list and select EntityExecute from the procedure list.
- 7** In the procedure Shape3_EntityExecute, enter the following lines of code.

```
Shape3.FillColor = vbRed  
MsgBox "Executing Shape 3"  
Entity.SelectPath 1  
Shape3.FillColor = vbWhite
```
- 8** In the Code window, select Shape4 from the object list and select EntityExecute from the procedure list.
- 9** In the procedure Shape4_EntityExecute, enter the following lines of code:

```
Shape4.FillColor = vbRed  
MsgBox "Executing Shape 4"  
Entity.SelectPath 1  
Shape4.FillColor = vbWhite
```
- 10** In the Code window, select Shape5 from the object list and select EntityExecute from the procedure list.
- 11** In the procedure Shape5_EntityExecute, enter the following lines of code:

```
Shape5.FillColor = vbRed  
MsgBox "Process complete!"  
Shape5.FillColor = vbWhite
```

Executing the Diagram

You have now created an executable diagram. To execute the diagram, exit the VBE, return to *iGrafx Professional* and perform the following steps.



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To execute the diagram

- 1 On the main menu select Tools, then iDiagram, then Insert Entity.
- 2 Left-click Shape 1 in the diagram. A small blue square (referred to as the Entity) appears in the upper left corner of the shape.
- 3 On the main menu select Tools, then iDiagram, then Execute.

As each shape in the diagram runs, its fill color changes to red and it displays a message box or form. When you click the appropriate command button, the shape sets its fill color back to white and starts running the next shape in the path.

Example 3: Customizing a Menu

As mentioned earlier, you can customize the appearance of *iGrafx Professional*. For example, you can customize *iGrafx Professional* menus to tailor them to your specific needs. Perhaps there are commands on the menu that are not required in your solution. You can remove them to provide a more streamlined interface. Perhaps there are special commands that are required for your solution. You can add these commands to existing menus or create your own menus.



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The standard context menu appears when you right-click on a shape. With this context menu you can perform tasks such as editing the shape's text or changing the format of the shape.

Suppose you would like to remove some items from this menu that do not apply to your solution. For the next example we will remove the first item from the menu: the Cut command. Since we would like to customize the context menu for all shapes in our diagram, we will add code to the AnyShape object.

To modify the context menu

- 1 From the main menu select Tools then, Visual Basic, then Edit Code to start the Visual Basic Editor (VBE).
- 2 In the Code window select AnyShape from the object list and select ContextMenu from the procedure list.
- 3 In the procedure AnyShape_ContextMenu, enter the following VBA statement:
`CommandBar.CommandBarItems.Item(1).Delete`

That's all it takes. To test this code exit from the VBE, return to *iGrafx Professional* and right-click on any shape in the diagram. The Cut command no longer appears in the context menu.



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For additional information and support on developing custom *iGrafx System* solutions, the following resources are available to you.

Resource	Description
iGrafx System online help	Available through the Help menu on the <i>iGrafx Professional</i> main menu.
iGrafx Professional User's Guide	Provides an overview of <i>iGrafx Professional</i> . Available with the purchase of <i>iGrafx Professional</i> .
iGrafx System Developer's Guide	Provides step-by-step guide to developing custom <i>iGrafx</i> applications. Available with the purchase of <i>iGrafx Development</i>
iGrafx API reference file	Documents all of the <i>iGrafx System</i> API objects and their properties, methods, and events. Available with the purchase of <i>iGrafx</i> .
VBA online help	Available through the Help command on the main menu of the Visual Basic Editor
www.micrografx.com/iGrafx/development	Micrografx web site for <i>iGrafx Development</i> .
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