



# QMF Visionary Tutorial

## About the QMF Visionary Tutorial

The QMF Visionary Tutorial is a set of exercises that demonstrate how to create and deploy business analysis applications, called QMF Visionary worlds. You use QMF Visionary Studio to create worlds. You can then deploy your worlds within a client/server environment.

A QMF Visionary world is a graphic display of related data driven by dynamic SQL queries. A world consists of scenes, rather than traditional forms or reports. As your end user navigates from scene to scene in a world, data displays can change according to context. Data is continually updated to what is current in the database.

In this tutorial, you create two QMF Visionary worlds based on the scenario that the Vice President of Human Resources for Acme Corporation wants to present employee information dynamically. Traditional reports, such as printed organization charts, are static. They contain data that rapidly becomes out of date and is difficult to navigate to find specific information. QMF Visionary worlds, however, are dynamic: data is retrieved from the database every time you access the world, and you can easily navigate the data without losing its context.

This tutorial demonstrates how to use three of QMF Visionary's data layout formats: an organization chart, a matrix, and a simple form. QMF Visionary has many other data layout formats; read the *DB2 QMF Visionary Developer's Guide* for a description of each.

You should have basic knowledge of databases and SQL to use this tutorial.

The exercises in this tutorial are cumulative; you should complete them in order.

The tutorial contains the following exercises:

- Getting Started with QMF Visionary
- Creating an Organization Chart
- Adding Detail to the Organization Chart
- Creating a Navigable Employee Matrix
- Publishing Your Employee Matrix

## Software Dependencies

To use this tutorial, you need the following software:

- QMF Visionary Version 8.1, QMF Visionary Developer package
- ODBC, version 3.510.4202.0 or later
- ODBC Data Source Administrator
- Microsoft Access 2000

See the *ReadMe* file for QMF Visionary for system requirements.

## Configuring the ODBC Data Source

You must configure an ODBC data source for the **vis\_employee** database installed by the tutorial.

### To configure an ODBC data source

1. Choose **Start ► Settings ► Control Panel**.
2. Double-click **ODBC Data Sources** to launch the ODBC Data Source Administrator (Probably in **Administrative Tools**).
3. Click the **System DSN** tab to display the **System DSN** page.
4. Click **Add** to display the Create New Data Source dialog box.
5. Select the Microsoft Access Driver and click **Finish**.
6. In the ODBC Microsoft Access Setup dialog box, type **access\_employee** in the **Data Source Name** box.
7. Click **Select**.
8. In the Open Database dialog box, select **vis\_employee.mdb** from **Drive:\directory\Tutorial**, where **Drive:\directory** is the location of your QMF Visionary installation. By default, this directory is **C:\Program Files\IBM\QMF Visionary**.
9. Click **OK** to select the database.
10. Click **OK** to define the data source.
11. Close the ODBC Data Source Administrator.

## Tips

Use the QMF Visionary Studio online help to obtain more information about interface elements.

## Related Reading

- *DB2 QMF Visionary Getting Started Guide*
- *DB2 QMF Visionary Developer's Guide*

These manuals are available in PDF format on the QMF Visionary installation CD-ROM.

# Tutorial Exercise 1

## Getting Started with QMF Visionary

In this exercise, you become familiar with QMF Visionary Studio, and create a custom workbook to use in subsequent exercises. Workbooks are useful when creating queries. A workbook is a filtered view of database objects. The default workbook shows all objects in the database. A custom workbook provides a filtered view of the database; you include only the information relevant to your world.

Workbooks can display the following database objects:

- **Tables.** Any tables in the database, including system tables.
- **Data types.** Built-in data types.
- **Views.** Restricted or modified presentations of the data in one or more tables.
- **Routines.** Built-in functions and procedures.
- **Synonyms.** Tables or views with alternative names.

**Important:** You must configure the data source before you start the tutorial. See the *Configuring the ODBC Data Source* section for instructions.

## Exercise Steps

1. Start QMF Visionary Studio and connect to a data source.
2. Tour QMF Visionary Studio.
3. Look at the default workbook.
4. Close and disable the default workbook.
5. Create a custom workbook.
6. Save the workbook.

## 1

### Start QMF Visionary Studio and connect to a data source

When you start QMF Visionary Studio, you can choose a data source to which QMF Visionary Studio connects.

#### To start QMF Visionary Studio and connect to a data source

1. From the Windows **Start** menu, choose **Programs ► QMF Visionary ► QMF Visionary Studio**.
2. In the Select Data Source dialog box, select **access\_employee** from the list.
3. If the Select Data Source dialog box does not appear in QMF Visionary Studio, choose **File ► Connect** to display it.
4. Type your user name and password in the **Login Name** and **Password** boxes (Can probably just leave both blank).
5. Click **OK**.

## 2

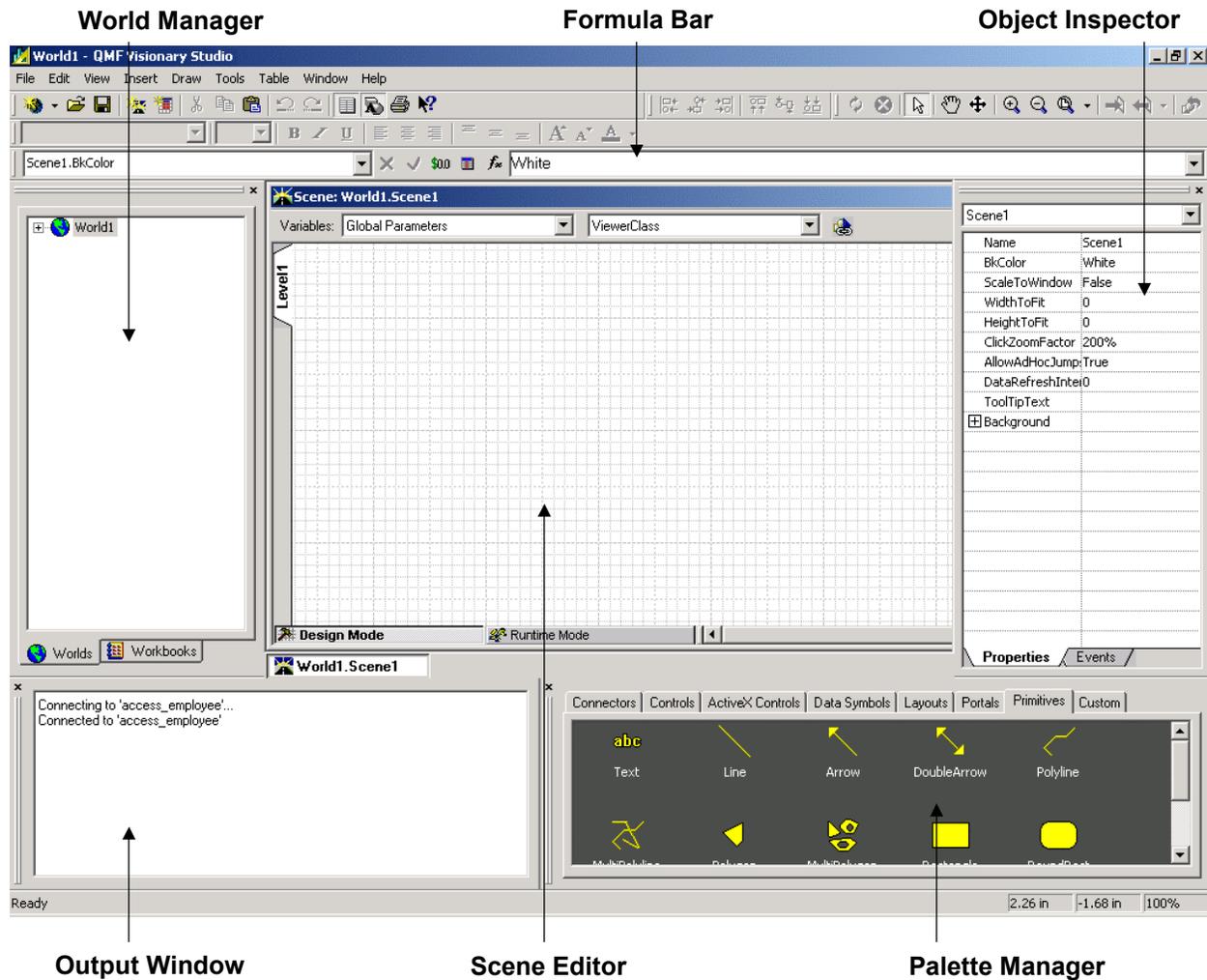
### Tour QMF Visionary Studio

Look at the parts of QMF Visionary Studio and move them around or adjust their sizes to fit your needs.

When you start QMF Visionary Studio, by default the following QMF Visionary Studio components appear:

- **World Manager.** Allows you to manage the organization of worlds (on the **Worlds** page) and open data sources (on the **Workbooks** page). By default, QMF Visionary Studio creates a new world when you start it.
- **Scene editor.** Allows you to edit and test your scene. By default, when you start it, QMF Visionary Studio creates an empty scene belonging to the new world.
- **Palette Manager.** Allows you to add graphic objects to a scene.
- **Object Inspector.** Allows you to edit the properties and events of objects.
- **Formula bar.** Allows you to edit the value of the object property selected in the Object Inspector.
- **Output window.** Displays information and error messages when you connect to a database, run a query, or compile a scene.

You can close or hide these components; use the **View** menu to display them.



### 3

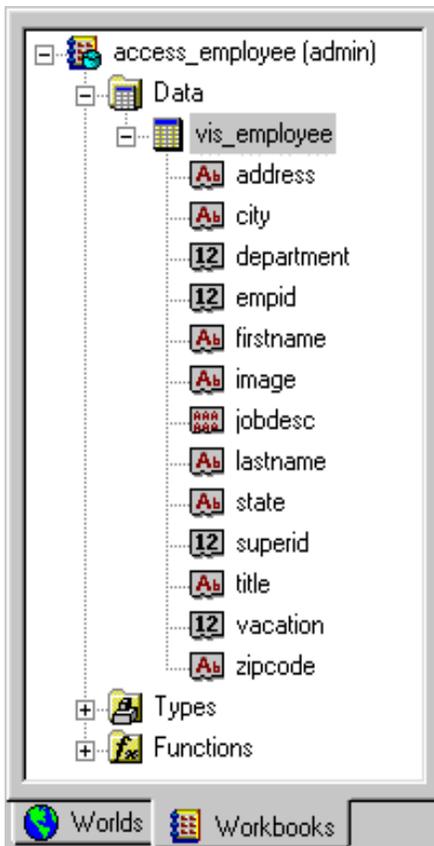
## Look at the default workbook

QMF Visionary Studio displays the default workbook every time you connect to a data source. The default workbook has the same name as the data source and contains all the objects in the database.

### To view the contents of the default workbook

1. Click the **Workbooks** tab at the bottom of the World Manager.
2. Click the expander buttons to look at the contents of the **access\_employee** data source.

Notice that along with the **vis\_employee** table, all other tables in your database, including system tables (if you have any), are listed, making the workbook seem crowded.



**4****Close and disable the default workbook**

Because you are going to create a custom workbook, close the default workbook and prevent QMF Visionary Studio from loading it the next time you start QMF Visionary Studio.

**To close and disable the default workbook**

1. Right-click the workbook name in the World Manager and select **Close**.
2. Choose **Tools ► QMF Visionary Options**.
3. In the QMF Visionary Options dialog box, click the **Login** tab.
4. On the **Login** page, uncheck the **Create and load a default workbook when a connection is established** check box.
5. Click **OK**.

**5****Create a custom workbook**

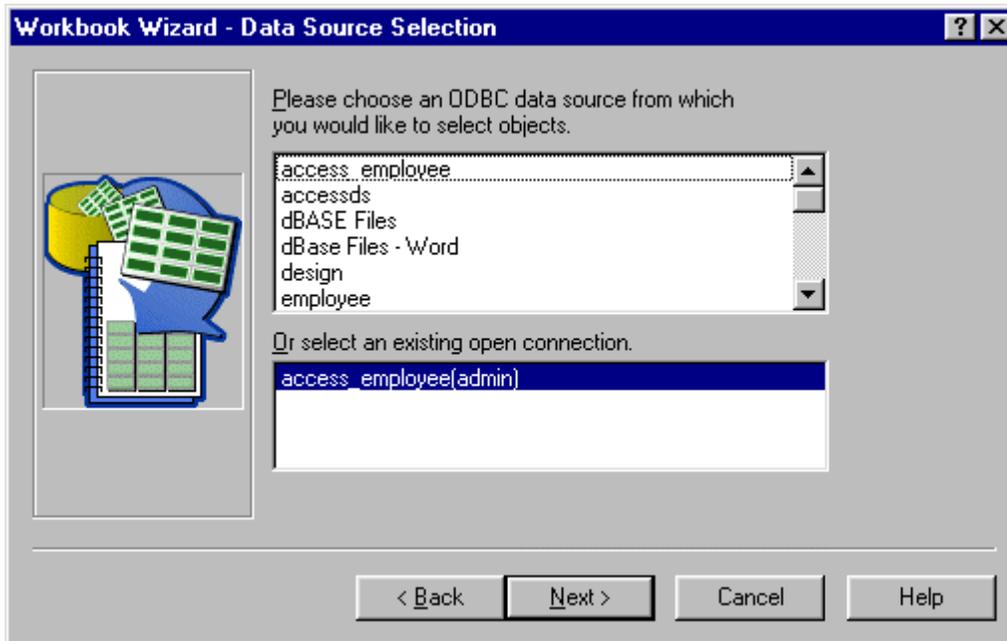
Some databases contain thousands of tables that are not relevant to your application. Custom workbooks allow you to work with a subset of tables, views, and routines in a database.

In the other exercises in this tutorial you use data from only the **vis\_employee** table. Therefore, create a custom workbook that contains one table: **vis\_employee**.

**To create a workbook**

1. Choose **File ► New ► Workbook**. The Workbook wizard appears.
2. Click **Next** on the first page of the Workbook wizard.

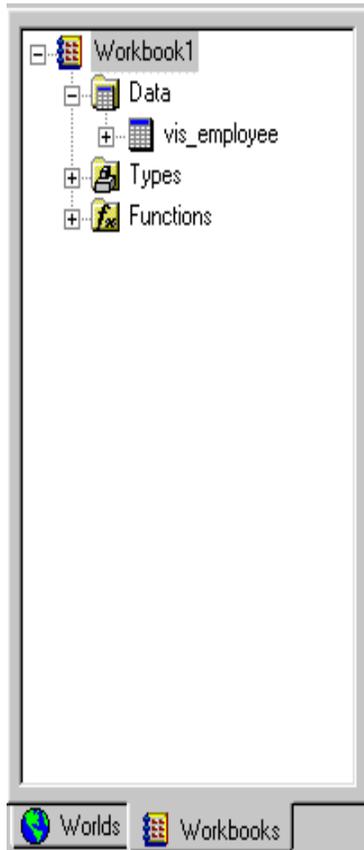
3. On the Data Source Selection page, select **access\_employee** from the open connections list and click **Next**.



4. On the Object Type Selection page, uncheck the **Procedures** box and click **Next**.
5. On the Function Type Selection page, click **Next**.
6. On the Tables, Views, and Synonyms Selection page, use the arrow button to move **vis\_employee** from the **Data source** list to the **Workbook** list.

7. Click **Finish**.

The new workbook appears on the **Workbooks** page of the World Manager with the name **Workbook1**.



**6**

**Save the workbook**

Save your QMF Visionary workbook as a file named **employee.vwb**.

**To save the workbook**

1. Choose **File ► Save Workbook**.
2. Select a location, such as **C:\Program Files\IBM\QMF Visionary\Tutorial**.
3. Name the workbook **employee** and click **Save**.

**Exercise Summary**

In this exercise, you connected to the **access\_employee** data source and customized your QMF Visionary Studio environment by creating a custom workbook containing the **vis\_employee** table.

# Tutorial Exercise 2

## Creating an Organization Chart

This exercise demonstrates how easy it is to create a simple world in QMF Visionary to display your data effectively.

When you look at an organization chart that is printed on many pieces of paper, it is difficult to follow the hierarchy to the group or employee you are most interested in. Often, you have to flip through many pages to find the page you want. Also, most organizations change frequently, and the content of an organization chart quickly becomes obsolete.

With QMF Visionary, you create an organization chart as part of a QMF Visionary world. A QMF Visionary organization chart is dynamic, in both presentation and content. A QMF Visionary organization chart uses expander buttons on every parent object to display or hide child objects in the hierarchy, allowing you to easily navigate to the relevant information. Additionally, a QMF Visionary organization chart is always accurate because it is recreated from the database when you access it.

In this exercise, you become familiar with the basic tasks of creating a QMF Visionary world: planning a world, presenting the information, previewing the world, and saving it.

### Exercise Steps

1. Plan your world.
2. Create the database query.
3. Specify how information is presented.
4. Add information to the organization chart.
5. Modify the font of the label.
6. Add a scene title.
7. Look at your world in the World Manager.
8. Save your world.



## 1 Plan your world

The plan for your world is called a storyboard. A storyboard is the equivalent of a pictorial outline of the application you want to create with QMF Visionary. You can use any method to create a storyboard: for example, using pencil and paper, or Microsoft PowerPoint.

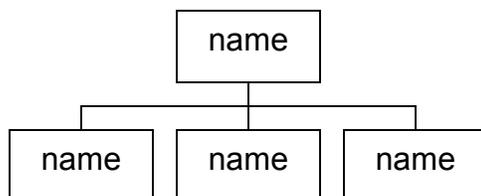
The storyboard for this exercise contains an organization chart representing all the employees in Acme Corporation.

### To create the storyboard

1. Draw a basic organization chart with two levels: a supervisor and three subordinates. Label each box with the word `name`.
2. Add `Acme Corporation Organization Chart` above the chart.

Your completed storyboard should look like the following illustration.

Acme Corporation Organization Chart



## 2

### Create the database query

To specify the information to display in your QMF Visionary world, you first create a query.

In this step, you use the Simple Query wizard to specify the following information about the query that supplies data for the organization chart:

- The table from which to retrieve the data
- Which columns from the table to retrieve
- Whether to return individual records or a summary of records
- The name of the query

#### To create a query with the Simple Query wizard

1. Choose **File ► New ► Query**.
2. In the New Query dialog box, select **Simple Query Wizard**, make sure the workbook is **employee**, and click **OK**.

The first page of the Simple Query wizard appears.

**Simple Query Wizard - Tables and Columns**

Select the fields from the (first) table or view containing the data you wish to present.

Table/view: **vis\_employee**

Available fields: (Expression), department, empid, firstname, lastname, superid, title, address

Selected fields:

Edit...

Tip: You may choose column names from the list of available fields and you may also calculate fields by entering functional expressions. An expression may contain one or more column names.

< Back   Next >   Cancel   Help

3. From the **Table/view** list, select the **vis\_employee** table.
4. Click the right double arrow button to move all fields to the **Selected fields** list.
5. Click **Next** to display the **Summarize Records** page.
6. Make sure **Return individual records** is selected and click **Next**.
7. Type **Employee Orgchart** in the **What do you want to name the query?** box and click **Finish**.
8. Click **Yes** to execute the query and view all the records retrieved by the query in the Query editor.

	department	empid	firstname	lastname	superid	title
1	1	1	Alana	Aries		President and Chief
2	2	3	Dennis	Coleman	1	Vice President, Engi
3	3	4	Diana	Collier	1	Vice President, Fina
4	4	5	Amir	Androes	1	Vice President, Sale
5	1	6	Donald	Cope	1	Administrative Assist
6	5	8	Duane	Cotton	1	Vice President, Hum
7	2	9	Amy	Anton	3	Chief Architect
8	2	10	Ellen	Dabreao	3	Project Manager
9	2	11	Frank	Dalglish	10	Software Developer
10	2	12	Dorothy	Cory	10	Technical Writer
11	2	14	Elein	Cruz	10	Software Developer
12	2	15	George	Dhawan	10	Quality Assurance E
13	4	17	Gerald	Dichiser	5	Sales Representative
14	4	18	Gian	Dighle	5	Sales Representative

You should see 15 records.

9. Close the Query editor window.

### 3

## Specify how information is presented

QMF Visionary worlds contain one or more scenes. A scene is a visual display of information similar to a presentation slide, except contents in a scene can be linked to data stored in a database. A scene can also contain static graphics, such as text and images, and navigation, such as jumps to other scenes.

Scenes contain two types of information: static and dynamic. Static information, such as a scene title, appears only once in the scene. Dynamic data appears when the scene is run by QMF Visionary. Running a scene includes executing the query and retrieving the results, as well as calculating values for some of the properties you defined in the scene.

You add dynamic data from the database using a *layout*, which formats the data from the database in meaningful ways. When you insert a layout, you choose a specific layout format. QMF Visionary provides many different layouts that you can customize to accommodate your data. For more information about QMF Visionary layouts, see the *DB2 QMF Visionary Developer's Guide*.

To add a layout to your scene, use the **Scene Editor**. The Scene editor has two modes: design mode and runtime mode. You use design mode to add to and edit your scene. You use runtime mode to test your scene. You change between the modes by clicking the buttons at the bottom of the editor.

For this exercise, you use the organization chart layout. An organization chart portrays a parent-child relationship between data, which in this case is the relationship between the supervisor ID and the employee ID.

### To insert a layout into the scene

1. Click the **Design Mode** button at the bottom of the Scene Editor to make sure you are in the correct mode, and then click in the scene.
2. On the **Layout** palette on the **Palette Manager**, double-click the **Organization Chart** layout (you might have to scroll down the palette to see it). The Step 2 page of the Layout wizard appears.

- From the list of queries, select **Employee Orgchart** and click **Next**. The Step 3 page of the Layout wizard appears.

Layout Wizard: Step 3

Select the fields representing the parent-child relationship

Parent field:

Child field:

Size of child objects relative to parent objects:

Add a text label to each block in the diagram

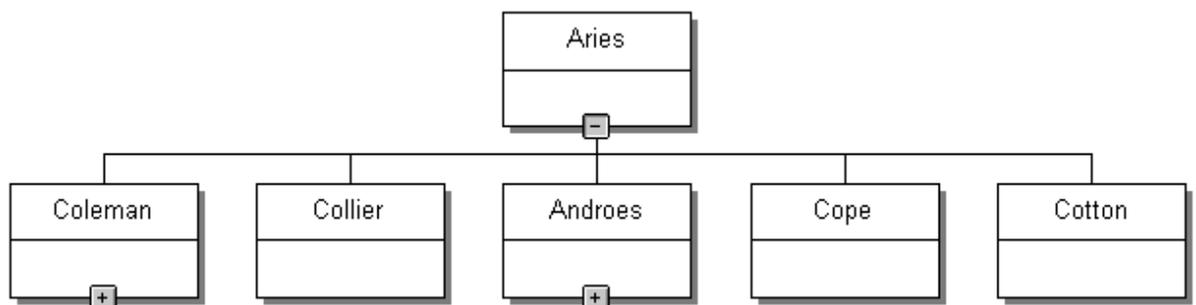
Label field:

< Back Finish Cancel Help

- From the **Parent field** list, select **superid** (which represents the supervisor ID).
- From the **Child field** list, select **empid** (which represents the employee ID).
- In the **Size of child objects relative to parent objects** box, change the value to 1.
- From the **Label field** list, select **lastname** so that the employee's last name is displayed as text on the chart.
- Click **Finish**.

The Data Template Selector and Editor appear at the bottom of the Scene Editor.

- Click the **Runtime Mode** button to view your results.



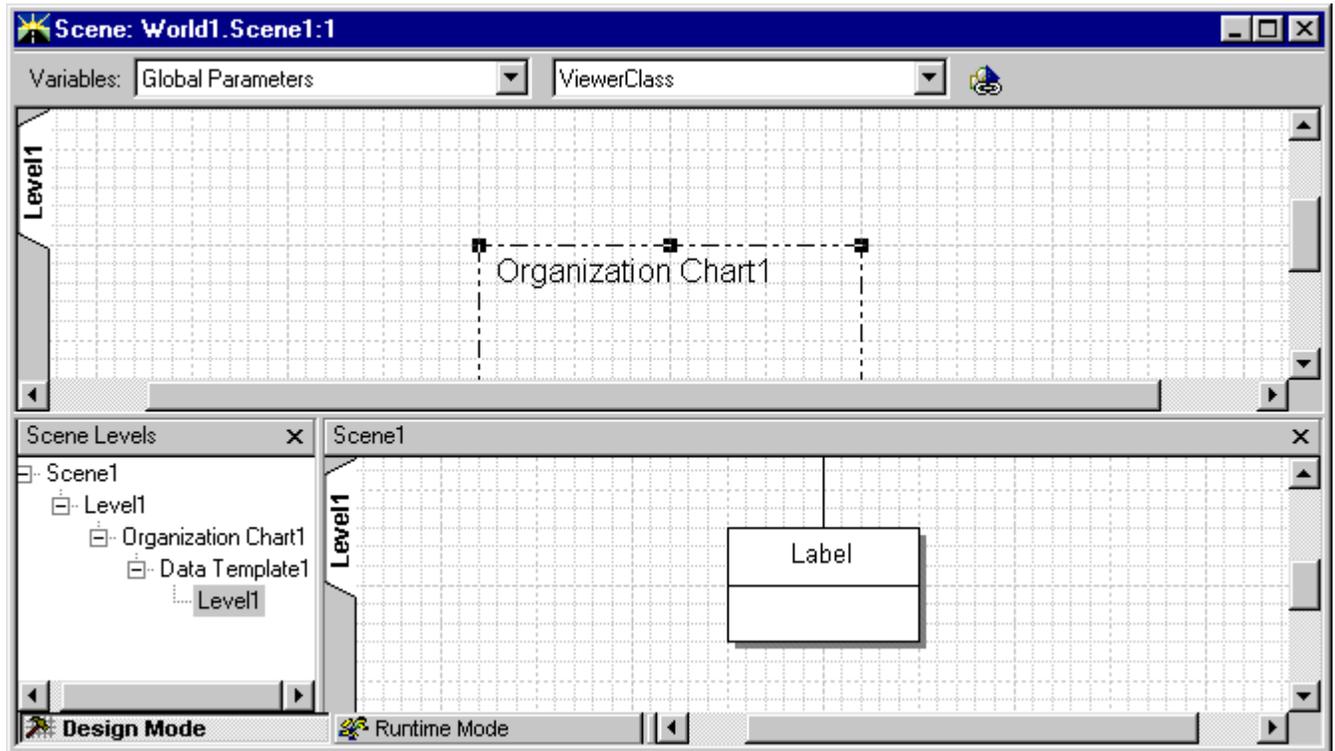
Notice the expander buttons on the bottom of some of the boxes; click them to show more of the chart.

- Click the **Design Mode** button to continue.

## 4

## Add information to the organization chart

In the Data Template Editor, you see the template for each data point.



The template represents how each retrieved record is displayed at runtime. For the organization chart layout, this template consists of a rectangle, its label, a horizontal line, and a connector line. Each of these objects has properties that you can modify. If you modify objects in the Data Template editor, at runtime you see those changes for every data point. Notice the Variables toolbar at the top of the Scene Editor. You select the type of variable in the left list, then the specific variable in the right list. Variables include all columns returned by queries.

You will edit the label for each data point in the layout to display the first name as well as the last name for each employee. In the Layout wizard, you specified that the label show the value of the **lastname** column. You now add the **firstname** column. To do so, you modify the label's **Value** property using the Object Inspector.

When you edit the **Value** property, include a blank space between the first and last name. The format for this text string is:

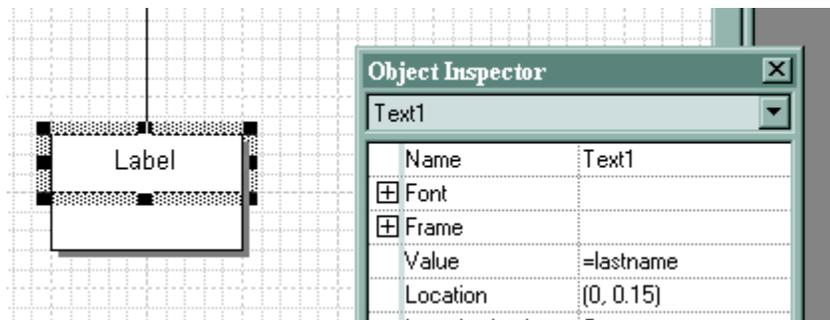
```
=column_name+" "+column_name
```

You use an equals sign to indicate that the value is calculated (constants do not use an equals sign). Include quotation marks around any blank spaces, punctuation, or literal text.

### To add the first name to the label

1. In the Data Template Editor, click the word **Label** to see its properties in the Object Inspector. If the Object Inspector is not open, display it by right-clicking the word **Label** and selecting **Properties**.

Notice that the name of the object in the Object Inspector is **Text1**.



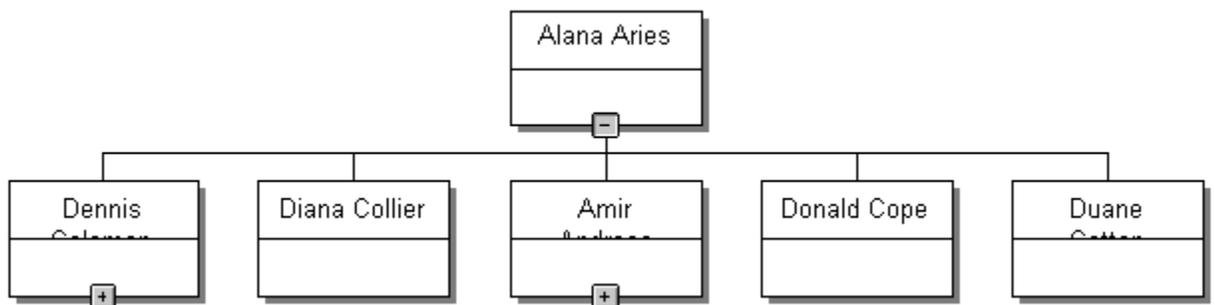
2. In the **Value** cell, add `firstname+" "+` between the equals sign and `lastname` to produce the following string:

```
=firstname+" "+lastname
```

Notice that the value of the **Value** cell also appears in the Formula bar above the editor window. You can edit values in the formula bar as well as in the Object Inspector.

3. View your changes in runtime mode.

Notice that some employee names are too long: for example, Dennis Coleman.



4. Return to design mode.

**5****Modify the font of the label**

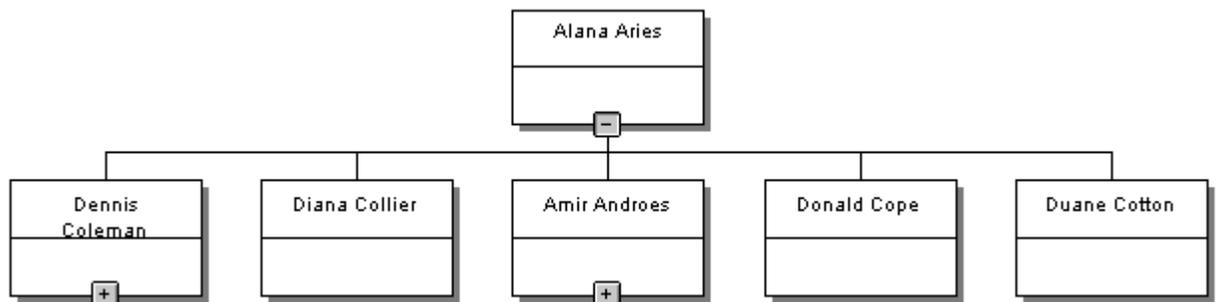
As you can see in runtime mode, the name of the employee does not always fit in the organization chart box. To fix this problem, you will reduce the font size of the **Text1** object. You will also edit the font properties so that the font remains the same size at a greater zoom level (this will be important in Exercise 2).

*Tip: You could use other methods in QMF Visionary Studio to make the names fit: for example, by enlarging **Text1**.*

**To reduce the font size of the Text1 object**

1. In the Data Template Editor, click the **Text1** object to see its properties in the Object Inspector.
2. Click the expander button in front of the word **Font** to see its properties.
3. Change the value of the **Size** property from 10 to 8.
4. Change the value of the **Fixed Size** property to `True`.
5. View your changes in runtime mode.

Notice that the names now fit in the chart.



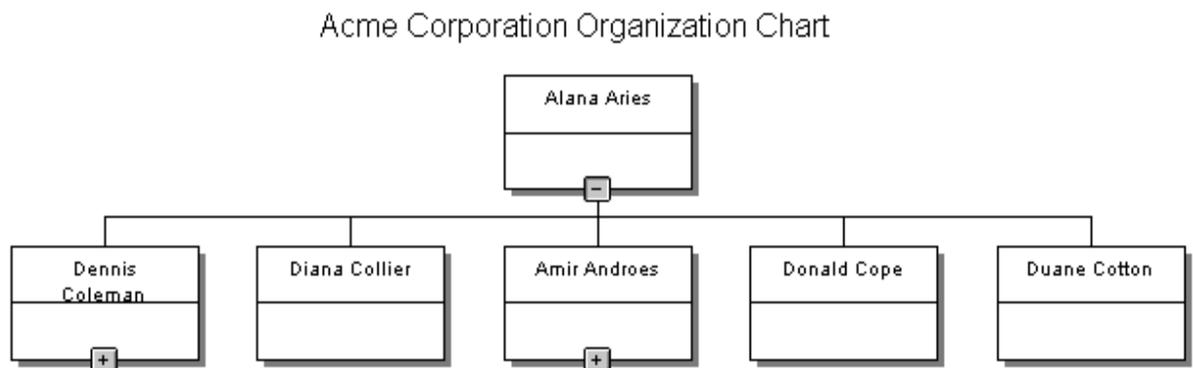
6. Return to design mode.

**6****Add a scene title**

Add a title to the scene in the upper windows of the Scene Editor. The scene title is static text, and it appears only once in the scene. When you add static objects in the Scene editor, make sure they do not overlap the layout for the dynamic data. The layout is bounded by a dotted line.

**To add static text to the scene**

1. Click in the upper window of the Scene Editor.
2. From the **Primitives** palette on the Palette Manager, double-click **Text**.
3. Move the cursor over the selected text object until it is a four-headed arrow, and then drag the object so that it is directly above the layout.
4. Type *Acme Corporation Organization Chart* in the text object.
5. Widen the text object to fit the text by dragging its handles with the double arrow cursor.
6. View your change in runtime mode.

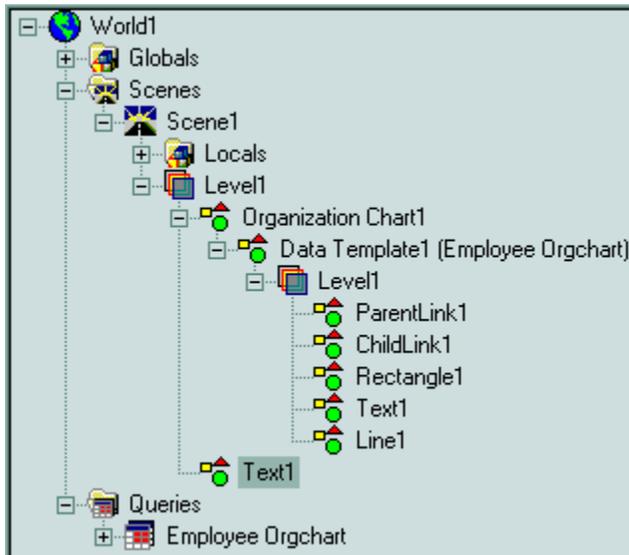


7. Return to design mode.

## 7

### Look at your world in the World Manager

Click the **Worlds** tab of the World Manager to look at the **Worlds** page and see the elements in your world.



Notice the following attributes of your world:

- **Scene1** has one level, which has one layout (**Organization Chart1**).
- The **Organization Chart1** layout has one data template, which is linked to the **Employee Orgchart** query.
- **Data Template1** has one level, which contains the five organization chart objects.
- **Level1** contains a **Text1** object, which is the chart title.
- There is one query, **Employee Orgchart**.

You can use the **Worlds** page to perform the following actions:

- Double-click an object name to select it for editing.
- Double-click a scene, data template, or query to open its corresponding editor window.
- Right-click any element to access menu options.

**8****Save your world**

Save your QMF Visionary world as a file named **Orgchart.vwx**. Because QMF Visionary allows concurrent development, you must save each QMF Visionary world in a different directory.

**To save your world**

1. Choose **File ► Save World**.
2. Select a location, such as **C:\Program Files\IBM\QMF Visionary \Tutorial\orgchart** (you will have to create the **orgchart** subdirectory).
3. Name the world **Orgchart** and click **Save**.

**Exercise Summary**

In this exercise, you have become familiar with using QMF Visionary Studio.

You have completed the following tasks:

- Defined a query
- Specified a layout
- Edited an object in the Data Template editor
- Added static text in the Scene editor
- Previewed your scene in runtime mode
- Looked at the structure of your world in the World Manager
- Saved your world

# Tutorial Exercise 3

## Adding Detail to the Organization Chart

This exercise demonstrates how easy it is to customize the standard layouts QMF Visionary provides to meet your business needs.

To add more information about each employee to a printed organization chart, you will have more pieces of paper and a harder time navigating. Also, the more information you display, the more quickly it can become obsolete.

In QMF Visionary, one way you can add more information to your organization chart is with a second level of detail. A level of detail is a view of data associated with a zoom level. As you zoom in, fewer data points are displayed, and more screen area is available for showing details. Your users can move to the second level to see the additional information when they click the zoom button and then click the scene. QMF Visionary allows you to empower the user to choose how much information to see.

In this exercise you use the Data Template Editor to edit your world.

### Exercise Steps

1. Add to the storyboard.
2. Add a level of detail.
3. Add the information you want to display.
4. Add a picture.
5. Map the Picture object to the location of the employee photos.
6. Increase the zoom percentage to display all the data.
7. Delete the horizontal line.
8. Review and save your world.
9. Close the world.



## Add to the storyboard

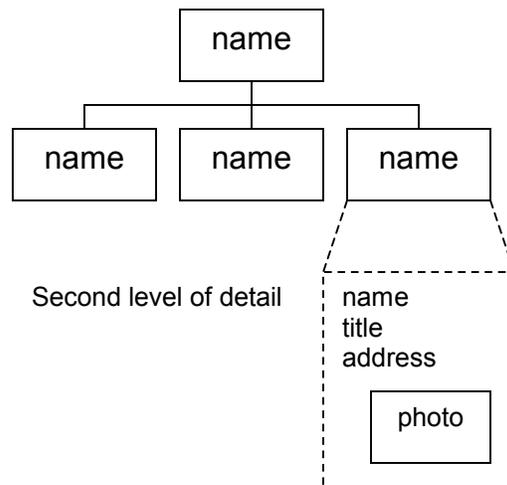
The storyboard for this exercise adds to the storyboard you created in Exercise 1. The second level of detail contains the employee name, title, address, and photo.

### To complete the storyboard

1. Below the original scene, draw a box containing an employee name, title, address, and photo. The box could have dotted lines to differentiate it from the main scene.
2. Add dotted lines from one of the employee boxes in the main scene to the corners of the second level to indicate the link between them.

Your completed storyboard should look like the following illustration.

Acme Corporation Organization Chart



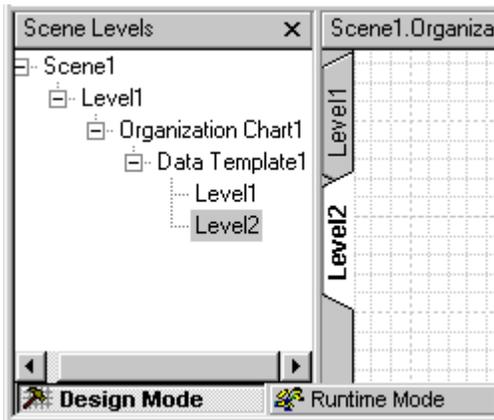
## 2

### Add a level of detail

When you add a level of detail to the data template, you work with the same layout. Level2 then looks identical to Level1; however, its objects are distinct and can have different properties. After you edit object properties for Level2, when you zoom in on the organization chart, the second level has larger boxes with more information.

**Tip:** You could add access to more information in other ways using QMF Visionary Studio: for example, by adding a jump to another scene.

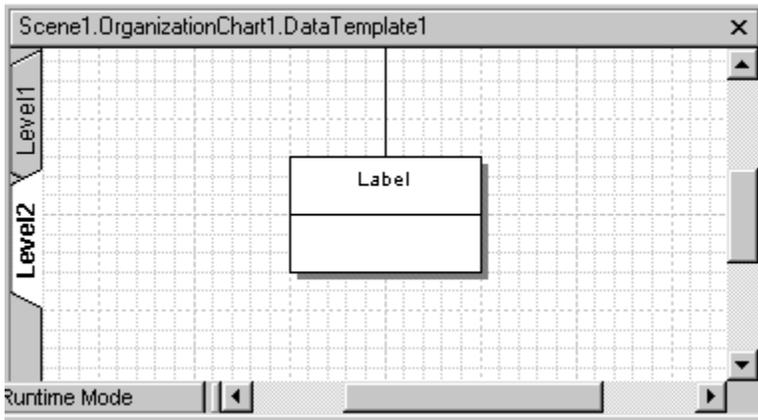
After you create another level of detail, you can view and modify it by clicking the corresponding **Level** tab on the left side of the Data Template editor, or by clicking the corresponding Level object in the Data Template selector.



## To add a level of detail

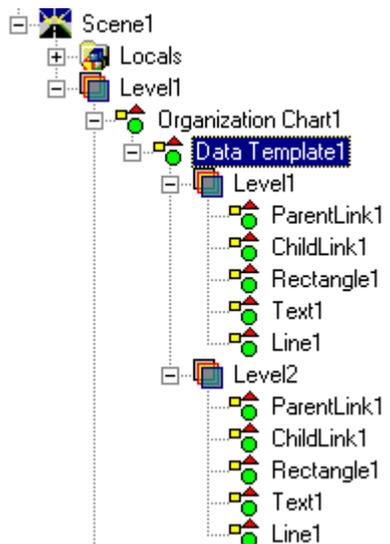
1. Click anywhere in the Data Template Editor window.
2. Choose **Insert ► Level of Detail**.
3. Click **Yes** to use the same objects in the second level as in the first.

The Data Template editor displays Level2, which looks identical to Level1.



4. Click the **Level1** tab to make sure both levels look the same, and then return to **Level2**.
5. Look at the **Worlds** page of the World Manager.

Notice that **Level2** is below **DataTemplate1** and contains the same five objects as **Level1**.



**3****Add the information you want to display**

To display the name, title, and address of the employee in this level of detail, you need to include data from these columns: **firstname**, **lastname**, **title**, **address**, **city**, **state**, and **zipcode**.

You associate the columns you want to display with the **Value** property of the **Text1** object (the label).

***Tip:** You can copy the text for the **Value** property from this tutorial and paste it into the **Value** cell.*

**To edit the label text**

1. In the Data Template Editor, click the word **Label** to see its properties in the Object Inspector.

If you have trouble selecting the **Text1** object, you can choose **Text1** from the list box at the top of the Object Inspector.

2. Click the **Value** cell.
3. In the Formula bar, add the following string after the existing string:

```
+newline+title+newline+address+newline+city+", "+state+" "+zipcode
```

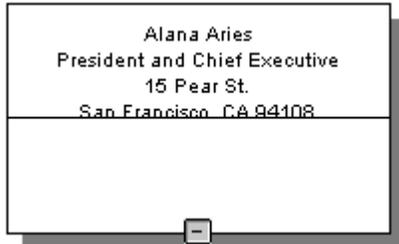
```
=firstname+" "lastname+newline+title+newline+address+newline+city+", "+state+" "+zipcode
```

4. Click the **Runtime Mode** button to view your changes.

Notice that runtime mode shows Level1; you must zoom in to see Level2.

5. Use the **Zoom in** tool () on the toolbar to see the second level of detail.

Notice that you cannot see the whole address for some employees: for example, Alana Aries. You will solve this problem in a later step.



6. Click the **Design Mode** button to return to design mode.

#### **4** Add a picture

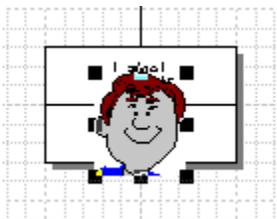
To add the employee's photo to the second level of detail, you first add a **Picture** object to the box (**Rectangle1**), in the Data Template Editor. The **Picture** object is a placeholder for the actual employee images that will be retrieved from the database. You map the value of a database column to the **Picture** object in the next step.

#### To add a picture object

1. From the **Primitives** palette of the Palette Manager, double-click the **Picture** object.

The **Picture** object appears on top of **Rectangle1**.

2. Click the **Picture** object and then press the down arrow key to move it 0.1 inch.



**5****Map the Picture object to the location of the employee photos**

The filenames of the photos are stored in the **image** column, while the actual photos are stored on the file system. To link the **Picture** object to the photo, you map its **ImageSource** property to a concatenation of the directory where the photos are stored and the filename stored in the **image** column.

**To map the Picture object to the image column**

1. While in the Data Template Editor, click the **Picture1** object so that its properties are displayed in the Object Inspector.
2. Type the following string in the **ImageSource** property value cell:

```
=concat('Drive:\path\Tutorial\Images\' , image)
```

**Drive:\path** represents where QMF Visionary is installed on your computer. The default location is **C:\Program Files\IBM\QMF Visionary**. The single quotation marks around the directory indicates that it is a string, in contrast to `image`, which is a column name.

```
=concat('C:\Program Files\IBM\QMF Visionary\Tutorial\images\' , image)
```

3. View your changes in runtime mode.

Notice that you can now see the employee pictures, although, they obscure part of the address.



4. Return to design mode.

**6****Increase the zoom percentage to display all the data**

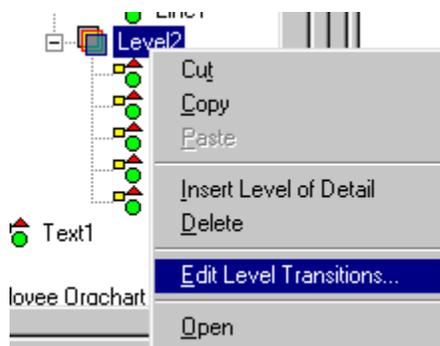
As you saw in runtime mode, the **Rectangle1** object is not large enough to display all the text and the employee photos.

In this step, you edit the zoom percentage of **Rectangle1** to make it larger. The default zoom percentage for Level2 is 200%. To have enough room for all the data you want to display, change the zoom percentage to 300%. This means you do not see Level2 until the zoom percentage is at 300% or greater, which requires two clicks of the **Zoom in** tool. To see Level2 after only one click of the **Zoom in** tool, you need to change the **ClickZoomFactor** property of the scene to 300%.

*Tip: You could use other methods in QMF Visionary Studio to solve this problem: for example, you could change the height and width properties of the **Rectangle1** object in Level2.*

**To edit the zoom property of the level**

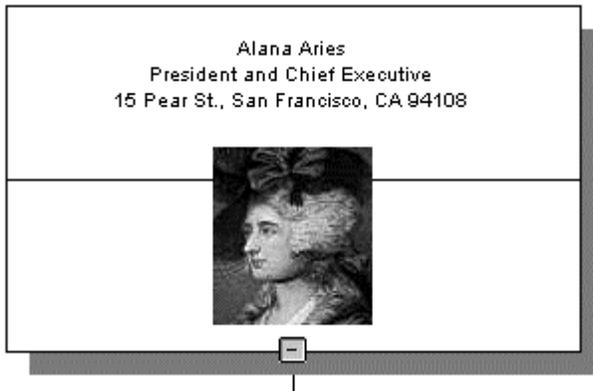
1. In the **Worlds** page of the World Manager, right-click the **Level2** folder under the **DataTemplate1** folder and choose **Edit Level Transitions**.



2. In the Level-of-Detail Transition Editor dialog box, change the value in the **Level2** cell from 200 to 300.
3. Click **OK**.
4. Click in a blank part of the upper window of the Scene Editor (or choose **Scene1** from the list at the top of the Object Inspector).
5. In the Object Inspector, change the **ClickZoomFactor** property to 300%.

6. View your changes in runtime mode.

Notice how large the box is when you zoom once to 300%, and that you can now see all the data and the photos.



7. Return to design mode.

7

## Delete the horizontal line

The horizontal line detracts from the employee photo; delete it.

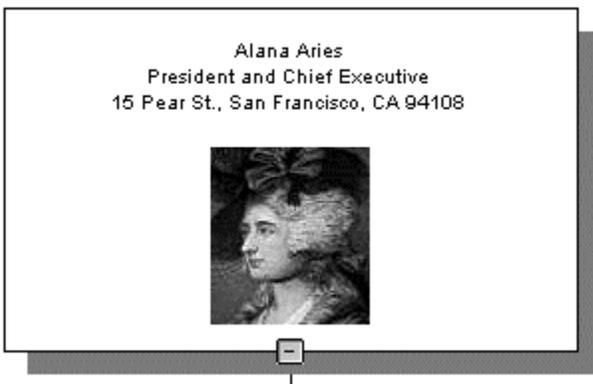
### To delete the line

1. Click the horizontal line on **Rectangle1** (in **Level2**) to select it and press **Delete**.

If you have trouble selecting the line, double-click **Line1** under the **Level2** folder on the **Worlds** page of the World Manager.

2. View your changes in runtime mode.

Notice that the line is gone.

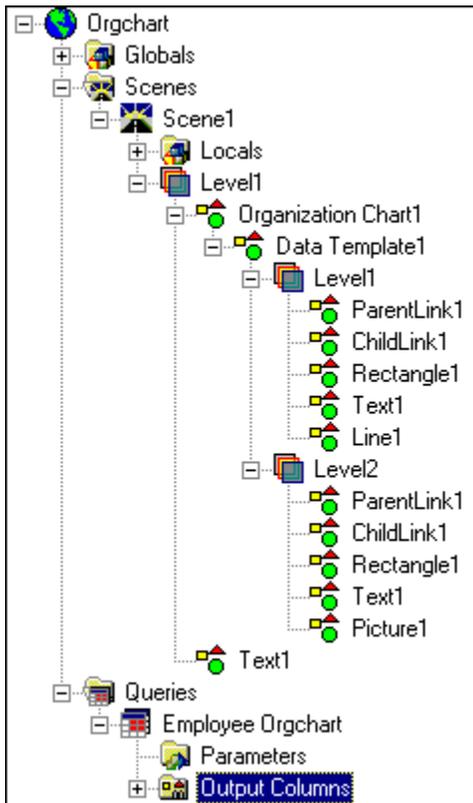


3. Return to design mode.

## 8

### Review and save your world

Review your world by looking at it on the **Worlds** page of the World Manager.



Notice that Level2 no longer has the same five objects as Level1: Level2 does not have a **Line1** object, and it has a **Picture1** object.

Save the world.



## Close the world

You are finished working with this world. In the next exercise, you create a new world. To close this world, right-click the world name in the World Manager and select **Close**.

### Exercise Summary

In this exercise, you have seen how easy it is to modify a QMF Visionary world to add complexity without losing ease of navigation.

You have completed the following tasks:

- Added a level of detail
- Added and edited objects

# Tutorial Exercise 4

## Creating a Navigable Employee Matrix

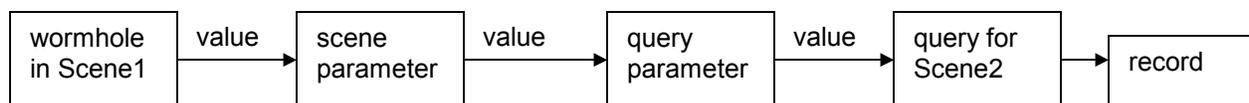
This exercise demonstrates how to add navigation and other advanced features to a QMF Visionary world.

In the previous exercise, you used a level of detail to display more information in the same scene. In this exercise, you create a world in which you display more information by navigating between two scenes with a *wormhole*. A wormhole is a portal that allows you to move from a source scene to a destination scene, typically by clicking the wormhole. A wormhole also acts as a window onto the destination scene; it allows you to view some or all of the contents of the destination scene. A wormhole differs from an ordinary link in that it can pass information from one scene to another.

In this exercise, you will give your user a choice, and the user's response will affect the data displayed in the destination scene. QMF Visionary enables you to capture user information (or other information, such as a query result) and pass it to other parts of your world with *parameters*. Parameters are variables that can be assigned values and can be of the following types:

- **Global.** Available to all scenes in a world. You do not use global variables in this exercise.
- **Scene.** Available only for the scene for which it is defined; passed from one scene to another by a wormhole or event action.
- **Query.** Set at runtime before a query is executed; simplifies the process of changing query criteria.

In this exercise, the wormhole passes a value to a scene parameter. The scene parameter then passes that value to the query parameter, which sets the value of a column in the query's WHERE clause.



In the world you create in this exercise, the wormhole passes an employee ID to the scene parameter, which passes it to the query parameter. The query for Scene2 selects the record corresponding to the value of the employee ID. Therefore, when your user passes through the wormhole to Scene2, Scene2 displays information about the employee the user clicked in Scene1.

The first several steps in this exercise are similar to steps you performed in previous exercises to create queries and format the display of data; subsequent steps involve more advanced features of QMF Visionary. Scene1 of this world contains wormholes that display a portion of Scene2. Scene2 contains the data about each employee. The strategy in this exercise is to first construct Scene2 and then complete Scene1.

## **Exercise Steps**

1. Create the storyboard.
2. Create a new world.
3. Define the query and query parameter for Scene2.
4. Create Scene2 and insert a layout.
5. Add text objects to Scene2.
6. Associate data with the text objects.
7. Add a tooltip to Text1.
8. Add a scene parameter to Scene2.
9. Set the query parameter to be the value of the scene parameter.
10. Add the Exit button to Scene2.
11. Add the Calculator button to Scene2.
12. Define the query for Scene1.
13. Insert a layout into Scene1.
14. Add a wormhole to Scene1.
15. Set the value of the scene parameter.
16. Review and save your world.



## Create the storyboard

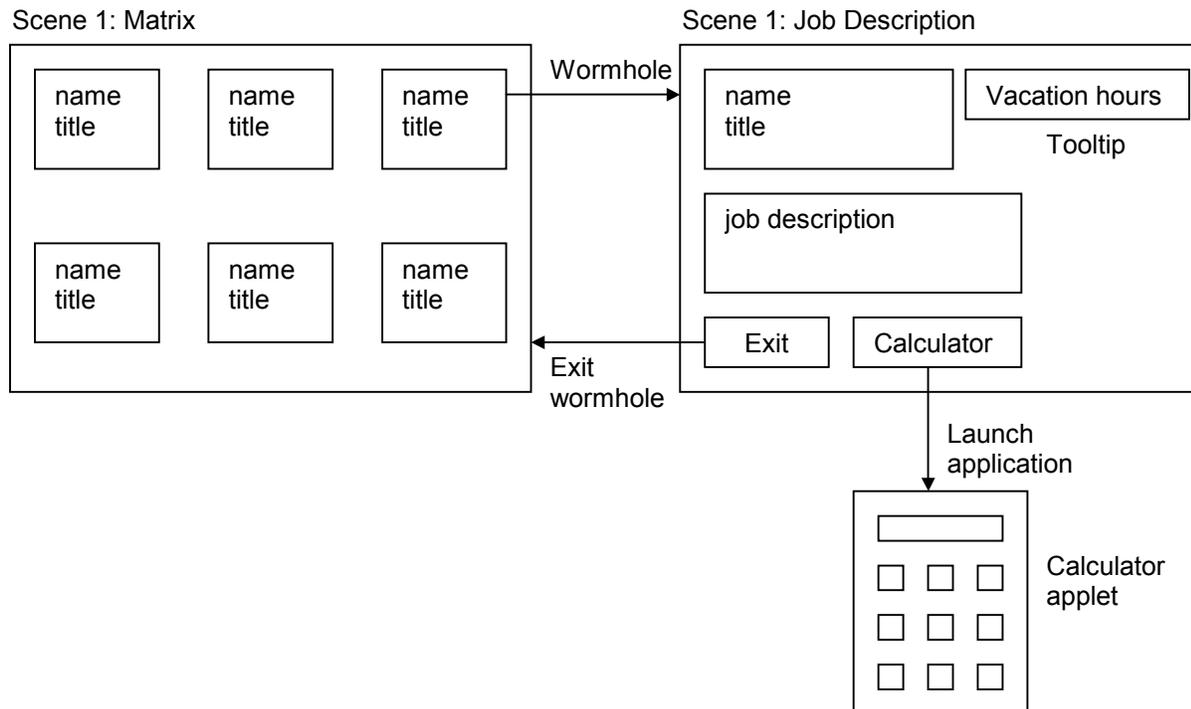
The storyboard for this world contains two scenes. Scene1 is a group of rectangles in a matrix pattern that act as windows to display content from Scene2. Each rectangle is a wormhole to Scene2; when you click a rectangle, you go to Scene2.

Scene2 displays the name, title, and job description of the employee whose box you clicked in Scene1. The employee's accrued vacation hours are shown as a tooltip when you place the cursor over the employee name. Scene2 has a button to return to Scene1 and a button to launch the Microsoft calculator applet so you can convert vacation hours to vacation days.

### To create the storyboard

1. Draw Scene1 as a matrix of three by two boxes, each displaying an employee name and title.
2. Draw Scene2 as two boxes, one above the other, the first displaying an employee name and title and the second displaying a job description.
3. Draw an arrow from a box in Scene1 to Scene2. (Each box is a wormhole; this storyboard represents only one of them). Label the arrow `Wormhole`.
4. Add two buttons below the job description in Scene2, labeled `Exit` and `Calculator`.
5. Draw an arrow from the **Exit** button to Scene1. Label the arrow `Exit wormhole`.
6. Draw a calculator.
7. Draw an arrow from the **Calculator** button to the calculator. Label the arrow `Launch application`.
8. Draw a tooltip box next to the employee name in Scene2. Write `Vacation hours` inside the box. Label the box `Tooltip`.

Your completed storyboard should look like the following illustration.



## 2

### Create a new world

If you have shut down QMF Visionary Studio, perform the following tasks:

1. Start QMF Visionary Studio.  
A new world called **World1** appears in the World Manager, along with Scene1 for that world.
2. Click the **Workbooks** tab in the World Manager and then choose **File ► Open** to open your workbook.
3. In the Open dialog box, select **employee.vwb** and click **Open**.

If you have not shut down and restarted QMF Visionary Studio, choose **File ► New ► World** to create a new world. A new world appears in the World Manager, and a new scene appears in the Scene Editor.

To close a world you are not currently working on, right-click the world name in the World Manager and choose **Close World**.

### 3

## Define the query and query parameter for Scene2

Before you create Scene2, you will create its query and query parameter.

Unlike the queries you have created previously in this tutorial, the query for Scene2 uses an SQL WHERE clause that filters the data to return specific information instead of every row. The query should return the record whose employee ID matches the one you clicked in Scene1. Therefore, you specify that the query return a record in which the value of the **empid** column is equal to a query parameter. In addition to the **empid** column, the query must return the columns whose data you want to display: **firstname**, **lastname**, **title**, **vacation**, and **jobdesc**.

Because this query contains a filter, you use the Advanced Query wizard to create it. You also create the query parameter as part of the process of defining the filter. When you create the query parameter, you specify its data type as **integer**, because that is the data type of the **empid** column (you can see information about the **empid** column on the **Workbooks** page of the World Manager). You also specify that the default value is **1**, which corresponds to the employee with an ID of 1.

***Tip:** A good naming convention for parameters is to indicate what type of parameter it is in the name. For example, you could preface query parameters with **Q\_**, scene parameters with **S\_**, and global parameters with **G\_**.*

### To define the query and query parameter for Scene2

1. Choose **File ► New ► Query**.
2. Select the Advanced Query wizard from the New Query dialog box and click **OK**.
3. Move the following fields from the available list to the selected list: **empid**, **firstname**, **lastname**, **title**, **vacation**, and **jobdesc**. Click **Next**.
4. Leave **No** selected on the additional information page and click **Next**.
5. Click the **Yes, filter the rows based on additional criteria** button and then click **Next**.
6. On the search constraint page, click the **Column** button () to select a column.
7. Select **vis\_employee.empid** in the Choose Column dialog box and click **OK**.

The text `vis_employee.empid` appears in the criteria box.

- Click **Define Parameter** and fill in the following information in the Query Parameters dialog box:

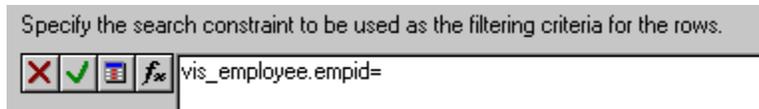
Parameter name: `Q_empid`

Data type: **Integer**

Description: `employee ID`

Has default value: `1`

- Click **Set** and then **OK**.
- Type `=` after `vis_employee.empid` in the criteria box.



- Click the **Column** button again, select **Q\_empid** in the Choose Column dialog box, and click **OK**.

The criteria should be `vis_employee.empid=Q_empid`.

- Click **Next**.
- Click **Next** to return individual records.
- Name the query `JobDescription` and click **Finish**.
- Click **Yes** to view the query results.

Notice that the only record retrieved is for Alana Aries, who has the employee ID of 1.

- Close the Query editor.

## 4

### Create Scene2 and insert a layout

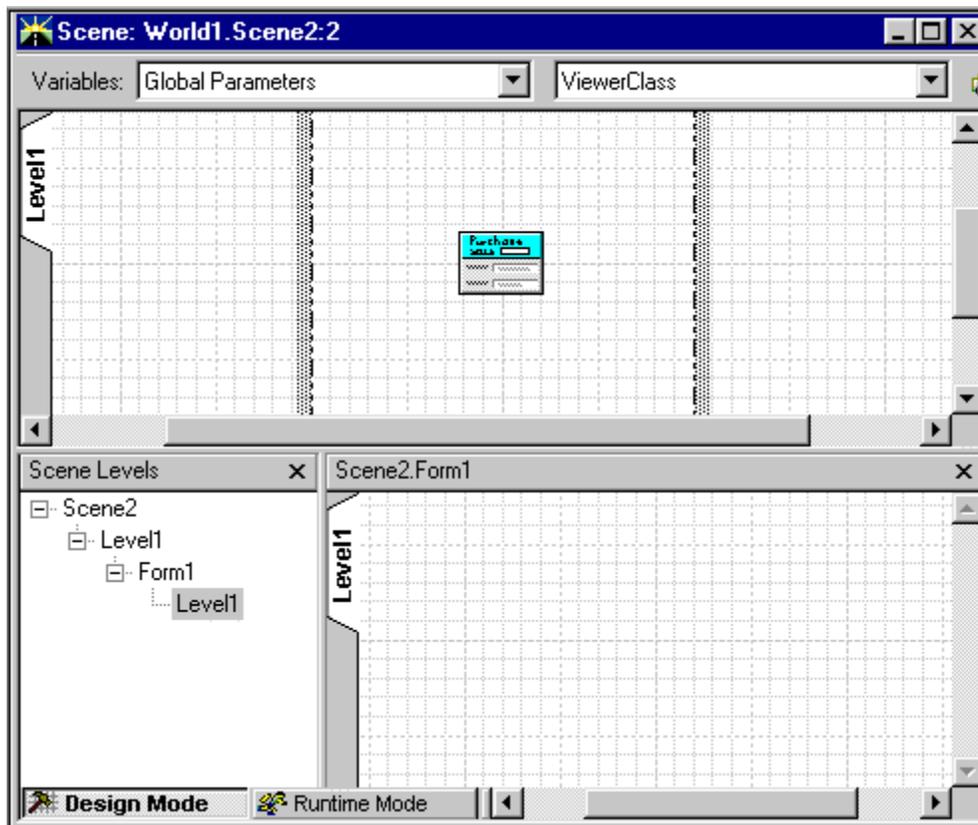
Add a second scene and insert a **Simple Form** layout that is mapped to the **JobDescription** query. A Simple Form layout is often used to display information for a query that returns only one row.

The Simple Form layout does not contain any objects; you will add objects to it in the next step.

#### To create Scene2 and insert a layout

1. Choose **File ► New ► Scene**.
2. In the New Scene dialog box, click **OK** to accept the name **Scene2**.  
A new Scene Editor window appears, titled **Scene: Worldn.Scene2**.
3. Double-click **Simple Form** on the **Layouts** palette of the Palette Manager.
4. Select the **JobDescription** query and click **Finish**.

A blank Data Template editor window appears.



**5****Add text objects to Scene2**

To display data in Scene2, add two text objects to the blank **Simple Form** layout. Use the Object Inspector to modify the font and size of the text displayed, and add a border to the text object.

**To add and format text objects to Scene2**

1. While in the Data Template editor (the bottom frame of the Scene Window), double-click **Text** on the **Primitives** palette of the Palette Manager.

A text object appears. Notice that it is called **Text1** in the Object Inspector.

2. In the Object Inspector, change the following properties of **Text1**:

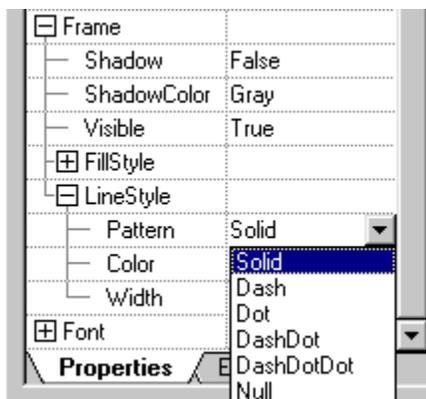
Width: 2.0

Height: 0.5

AutoHeight: False

AutoWidth: False

3. Expand the **Frame** property of **Text1**, expand **LineStyle**, and change **Pattern** to **Solid**.

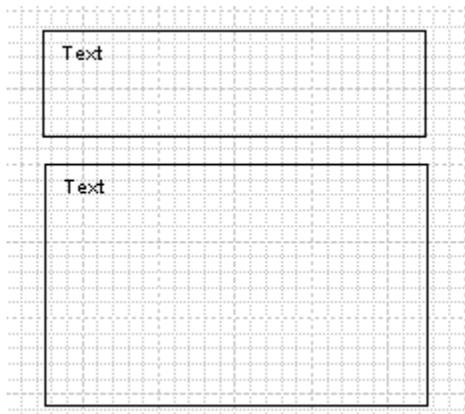


4. Expand **Font** and then change **Size** to 8.
5. Right-click **Text1** and select **Copy** and then right-click a blank portion of the data template and select **Paste**.

The second text object appears on top of the first. Notice that it is called **Text2** in the Object Inspector.

6. If it is not already selected, select **Text2**. If you have trouble selecting it, double-click **Text2** on the **Worlds** page of the World Manager.
7. Move **Text2** below **Text1** using the crossed-arrow cursor.
8. Change the **Height** property of **Text2** to 1.5.

Your text objects should look like the following illustration.



**6****Associate data with the text objects**

The **Text1** object is what you will see through the wormhole in Scene1. The text it will display is the employee name and title. **Text2** will contain the job description. To map columns to a text object, you edit its **Value** cell in the Object Inspector.

***Tip:** You can copy the text for the **Value** properties from this tutorial and paste it into the corresponding **Value** cell.*

**To map columns to the text objects**

1. Edit the **Value** property of **Text1** to the following string:

```
=firstname+" "+lastname+newline+title
```

2. Edit the **Value** property of **Text2** to the following string:

```
=jobdesc
```

3. Click the **Runtime Mode** button to view your changes.

Notice that the employee displayed is Alana Aries, whose employee ID is 1. This is the default value of the query parameter.



Alana Aries  
President and Chief Executive



Manage the overall operation of the company. Be responsible for overall performance and managing company growth. Craft business and product strategy with the Board of Directors and the management team. Communicate with investors, customers, and analysts as required.

4. Click the **Design Mode** button to return to design mode.

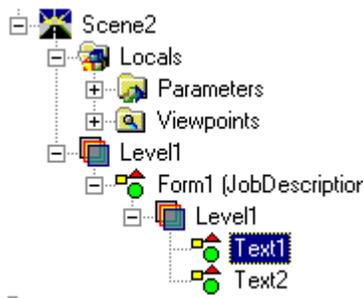
## 7

### Add a tooltip to Text1

You will add a tooltip to **Text1** to display the words `Vacation Hours:` and the number of accrued vacation hours for the employee. To create a tooltip for an object, you assign a value to its **ToolTipText** property.

#### To add a tooltip to display vacation hours

1. On the **Worlds** page of the World Manager, double-click **Text1** so that its properties are displayed in the Object Inspector.



2. Edit the value of the **ToolTipText** cell to the following string:  
`= "Vacation Hours: "+vacation`
3. Move to runtime mode and place the cursor over **Text1**.  
Notice that Alana Aries has 81 hours of vacation time.
4. Return to design mode.

**8****Add a scene parameter to Scene2**

The scene parameter links the wormhole you will add in Scene1 to the query parameter, **Q\_empid**, in Scene2. The value of the scene parameter determines what data is displayed in Scene2. When the user clicks a wormhole, the scene parameter passes the employee ID associated with that employee to the query parameter, and then the query returns the data for that employee. The scene parameter should have the same data type as the query parameter.

**To insert a scene parameter**

1. Choose **Insert ► Scene Parameter**.
2. In the Insert Scene Parameter dialog box, fill in the following information:

Name: `s_empid`

Data type: **integer**

Has default value: `3`

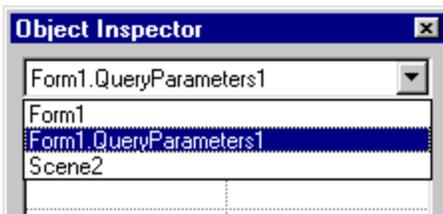
3. Click **OK**.

**9****Set the query parameter to be the value of the scene parameter**

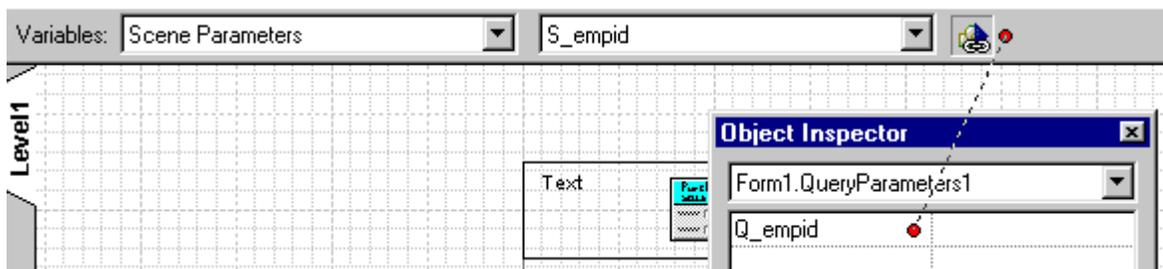
To pass a value from the scene parameter to the query parameter, you set the value of the query parameter equal to the scene parameter.

**To set the scene parameter equal to the query parameter**

1. Select **Form1.QueryParameters1** from the Object Inspector's list box.



2. From the Variables type list, choose **Scene Parameters**, and from the Variables list, choose **S\_empid**.
3. Click the link button, and then the **Q\_empid** cell in the Object Inspector.



4. View Scene2 in runtime mode.

Notice that the employee displayed is now Dennis Coleman, whose employee ID is 3. This is the default value of the scene parameter, which now sets the query parameter.

Dennis Coleman  
Vice President, Engineering

Plan and manage software engineering resources. Establish software engineering methodologies and standards. Manage the development and maintenance of software coding, testing, documentation, and customer support. Coordinate scheduling.

5. Return to design mode.

10

**Add the Exit button to Scene2**

The **Exit** button uses an event action to send you back through the wormhole to Scene1. An event action is a procedure automatically executed in response to a specified event. You associate an event, such as a mouse click, with an action, such as jumping to another scene. To set the event action, you use the **Events** page for the button in the Object Inspector.

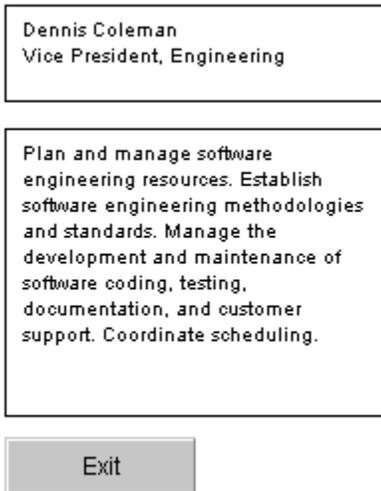
**To add the Exit button**

1. Click in the Data Template editor for Scene2.
2. Double-click **Button** on the **Controls** palette of the Palette Manager. Notice that **Button1** appears in the Object Inspector.
3. Move the button below the **Text2** object.
4. Change the **Caption** property of **Button1** to `Exit` in the Object Inspector.

5. Click the **Events** tab at the bottom of the Object Inspector.



6. Double-click the **Click** event.
7. In the Object Behavior dialog box, select **Exit wormhole** from the **Action** list.
8. Click **OK**.
9. View the **Exit** button in runtime mode.



10. Click the **Exit** button.

Notice that the **Exit** button does not work; it only sends you back through the wormhole if you have entered the scene through the wormhole.

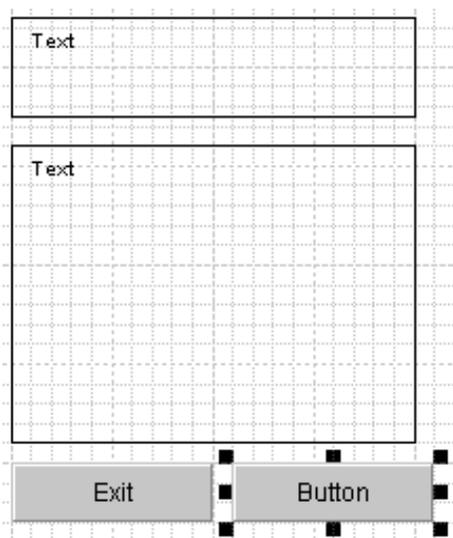
11. Return to design mode.

**11****Add the Calculator button to Scene2**

You add the **Calculator** button to enable users to convert vacation hours to vacation days. The **Calculator** button uses an event action to launch the Microsoft Calculator applet.

**To add the Calculator button**

1. Double-click **Button** on the **Controls** palette of the Palette Manager.
2. Move the new button (**Button2** in the Object Inspector) below the **Text2** object and to the right of the **Exit** button.



3. Change the **Caption** property of the button to `calculator` in the Object Inspector.
4. Right-click the **Calculator** button and choose **Behavior**.  
Notice that this action has the same effect as double-clicking the **Click** event in the Object Inspector, which you performed in the previous step.
5. In the Object Behavior dialog box, select **Launch another application** from the **Action** list.
6. Click **Browse** to open the Open Executable Files dialog box.
7. Find the calculator executable and click **OK**. The calculator executable is typically in one of the following locations:
  - Windows NT: **C:\WINNT40\system32\Calc.exe**
  - Windows 98 or 2000: **C:\Windows\Calc.exe**
8. Click **OK** to close the Object Behavior dialog box.

9. View the **Calculator** button in runtime mode.



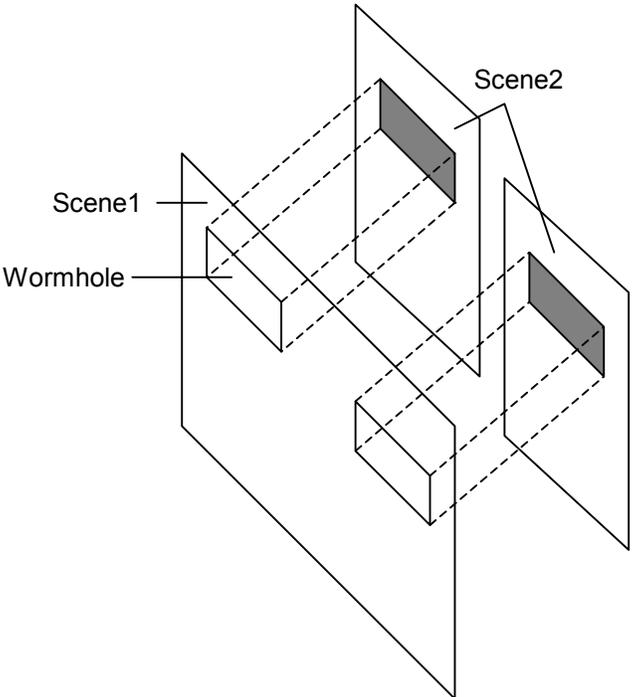
10. Click the **Calculator** button.  
Notice that the Calculator applet appears.
11. Return to design mode.

**12**

**Define the query for Scene1**

Scene1 does not contain its own data, but only wormholes showing a portion of the data in Scene2. Therefore, you do not map any columns to any objects in Scene1. However, you do need a query for Scene1. Although queries usually supply columns that are displayed in the layout, in this case the query supplies the column (**empid**) that is used in a scene parameter.

Scene1 displays a portion of the possible versions of Scene2, as shown in the following illustration.



Use the Simple Query wizard to define a query with the values listed in the following table.

Wizard Options	Value
Name of table	vis_employee
Fields to select	empid
Individual or summarized records	Individual records
Name of query	Matrix
Execute the query	Yes

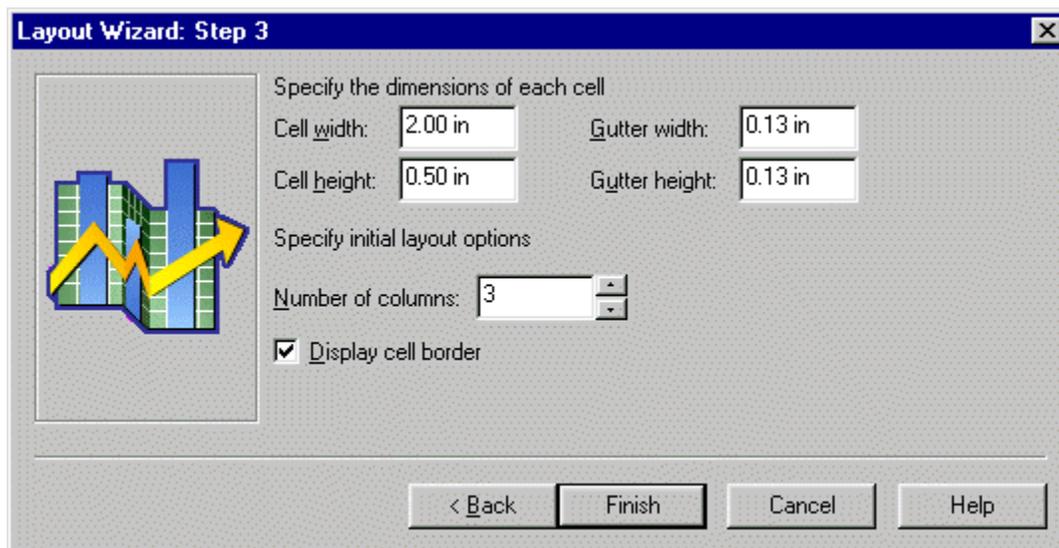
**13****Insert a layout into Scene1**

For this step, you insert a matrix layout into Scene1. Unlike the organization chart layout, the matrix layout does not have a label to display data. To display data in a matrix, you add other objects, such as text objects, or, as in this exercise, a wormhole.

The default matrix rectangle size is one inch square. This size, however, is not wide enough to display the employee name and is higher than necessary. Therefore, you will change the default size of the matrix box in the Layout wizard. The default matrix is four columns wide; however, because you make the rectangles wider, you will change the columns to three.

**To insert the matrix layout into Scene1**

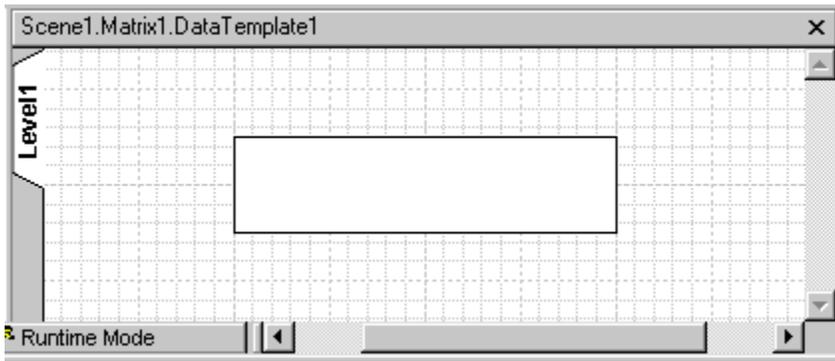
1. Click the **Worldn.Scene1** button on the Scene Editor Window taskbar (below the Scene Editor).
2. Double-click **Matrix** on the **Layouts** palette of the Palette Manager.
3. Select the **Matrix** query in the Layout wizard and click **Next**.  
The Step 3 page of the Layout wizard appears.
4. Change **Cell width** to 2.0 and **Cell height** to 0.5.



5. Change the number of columns to 3.

6. Click **Finish**.

The Data Template editor for the matrix layout appears.



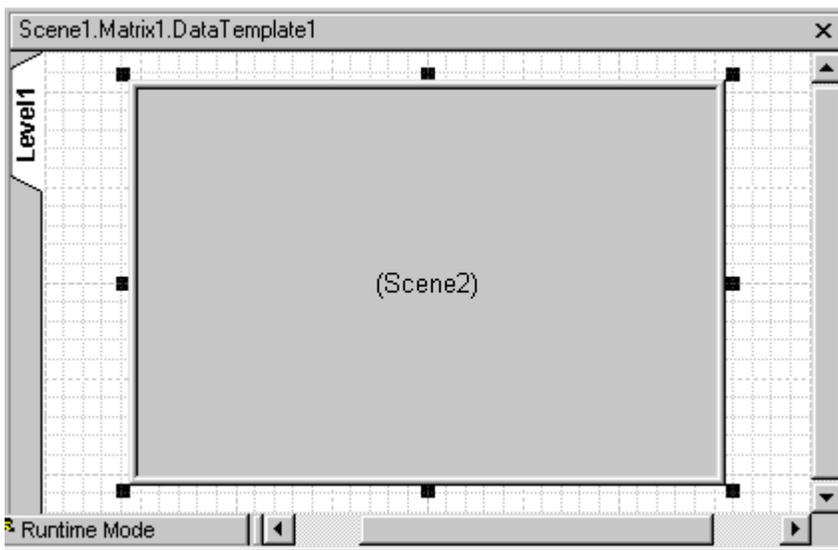
**14**

**Add a wormhole to Scene1**

You will add a wormhole to Scene1 and specify Scene2 as the wormhole destination. You will also specify how to enter the wormhole: either by clicking it with the pointer (the default) or by using the **Wormhole** tool. In this exercise, choose the default action.

**To add a wormhole**

1. Click anywhere in the Data Template editor for Scene1.
2. Double-click **Wormhole** on the **Portals** page of the Palette Manager.
3. In the Wormhole dialog box, select **Scene2** as the destination scene and click **OK**.



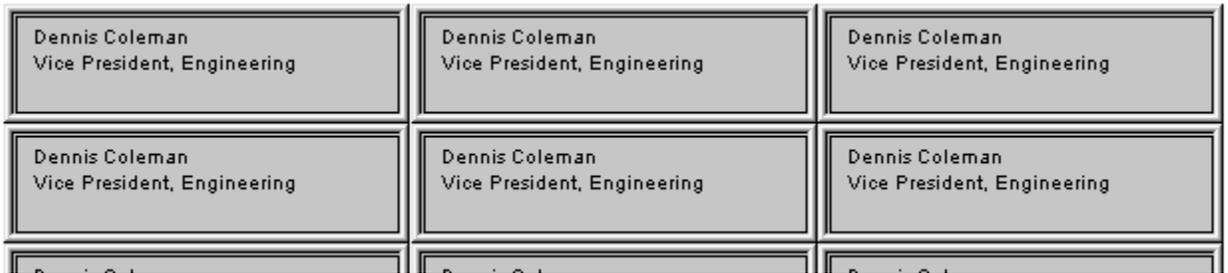
4. Change the size of the wormhole to be the same as the matrix rectangle by editing the following properties in the Object Inspector:

**Width:** 2.0

**Height:** 0.5

5. View Scene1 in runtime mode.

Notice that the content displayed through each wormhole is the same.



6. Return to design mode.

**Tip:** If you do not see the employee name and title through the wormholes, you should make sure that the **SceneCenter** property of the wormhole is 0,0. You can also try moving the text objects in Scene2 until you see the name and title.

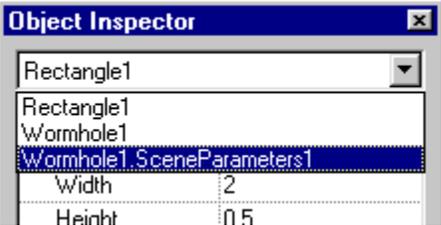
**15**

**Set the value of the scene parameter**

To pass a value through a wormhole, you use the scene parameter you created in Step 8. Wormholes carry information from their source scenes to their destination scenes using parameters. Each wormhole has a scene parameter as a child object. You added the wormhole to the scene in the Data Template Editor, so that is where you will set the scene parameter.

**To set the scene parameter value**

1. Click anywhere in the Data Template editor for the matrix layout.
2. Select **Wormhole1.SceneParameters1** from the Object Inspector list box.



3. Select **matrix** from the Variables type list and **empid** from the Variables list.
4. Click the link button and then click the **S\_empid** cell in the Object Inspector. The value `=empid` appears in the **S\_empid** cell.
5. View Scene1 in runtime mode.

Notice that each wormhole now displays different data.

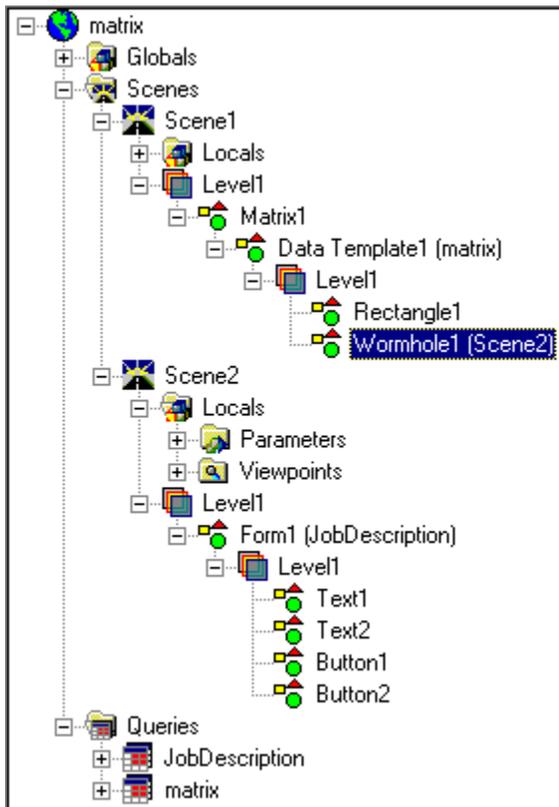
Alana Aries President and Chief Executive	Dennis Coleman Vice President, Engineering	Diana Collier Vice President, Financial Serv
Amir Androes Vice President, Sales and Mark	Donald Cope Administrative Assistant	Duane Cotton Vice President, Human Resource
Amy Anton	Ellen Dabreao	Frank Dalglish

6. Click a wormhole to travel to Scene2.
7. Click the **Exit** button to return to Scene1.
8. Return to design mode.

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## Review and save your world

Review your world by looking at it on the **Worlds** page of the World Manager.



Notice the following attributes of your world:

- There are two scenes.
- Scene1 has one layout, **Matrix1**, which has a data template that is linked to the **Matrix** query.
- The data template for Scene1 contains two objects: **Rectangle1** and **Wormhole1**.
- **Wormhole1** is linked to Scene2.
- Scene2 has a local scene parameter, **S\_empid**.
- Scene2 has one layout, **Form1**, which is linked to the **JobDescription** query.
- The **Form1** layout contains four objects: two text objects and two buttons.
- There are two queries.

Save your world with the name **Matrix**, in a new directory called **matrix**.

## Exercise Summary

In this exercise you learned about some of the QMF Visionary features you can use to enable navigation and user input, as well as how to add controls to your application.

You performed the following tasks:

- Added a wormhole and a control linked to an event action to move from one scene to another
- Added a control to launch an application
- Added a tooltip that displays data from a database column
- Used scene and query parameters to allow the user to specify what information to retrieve from the database

# Tutorial Exercise 5

## Publishing Your Employee Matrix

This exercise demonstrates how to publish your QMF Visionary world so that users can access it.

After you complete your world, you publish it. After you publish it, however, you can easily modify and republish your world as your business requirements change.

When you publish a world, QMF Visionary gives you options so that you can configure your world for your business needs. Typically, you consult database and system administrators about which options to choose.

You use the Publish wizard to specify the following attributes for the world:

- **Choose to deploy it.** Deploys the world within a client/server environment (local or networked drive). This option has a two-tier architecture: the database server and the client. On the client computer, you must define the data sources for your world. In this exercise, you publish your world to a local drive.
- **Filename.** The name of the published world, with a **.vis** extension.
- **Which scene to display.** Determines which scene a user sees first.
- **Authentication method.** Controls access to the database. You have the following options:
  - **Anonymous access.** The end-user does not log in to the database. Instead, you supply a user name and password, and your users are not prompted for individual logins. In this exercise, you use anonymous access.
  - **Require login.** The end-user must login to the database. The user name and password for every user must be valid for every database accessed by the world, or the user is denied access.
- **Connection options.** The maximum number of connections that can be opened by each user for each database. Two connections are usually sufficient unless the world has multiple layouts in a single scene.
- **Limit on the number of returned rows.** If any of the queries in a world could result in a large number of returned rows, you should consider limiting their number.

Depending on the options you choose, you might need to specify other information. For more information, see the *DB2 QMF Visionary Developer's Guide*.

### To publish a world

1. If necessary, open the **Matrix** world.
2. Choose Tools→ Publish World. The Publish wizard appears.

3. On the Deployment page, click **To a local or networked drive** and then click **Next**.
4. On the Name page, select a directory for your world, name it **Matrix.vis**, leave Scene1 as the first scene, and click **Next**.
5. On the Database Access page, click **Allow anonymous access** and click **Next**.
6. On the Login Information page, type your user name and password.
7. Click Test Connection to test the connection.
8. If the connection succeeds, click **OK** and then click **Next**. If the connection fails, check your user name and password.
9. On the Connection Options page, click **Next** to accept the default of two connections.
10. On the Dataset Limits page, click **Next** to accept the default of 1000 rows.
11. On the Testing page, click **Next** to test your world.
12. On the Summary page, click **Finish**. Your published world is displayed.

## Exercise Summary

In this exercise, you converted your QMF Visionary world to an application suitable for end users and explored some of the options available when you publish a world.