

Symantec Visual Cafe
Database Development Edition
Getting Started

Installation and Tour

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The JDK 1.1.5 binary release is based in part on the work of the Independent JPEG Group.

C O N T E N T S

Chapter 1 Introducing Visual Cafe Database Development Edition

What's included	1-1
Java applets and Web browsers	1-2
Java standalone applications	1-4
What is Java?	1-5
What is JDBC?	1-7
What is the dbANYWHERE three-tier architecture?	1-7
Features of the Visual Cafe environment	1-8

Chapter 2 Installing Visual Cafe

Installing the software needed for the tour	2-1
Installing Visual Cafe, the dbANYWHERE Server, and the database software ..	2-1
Setting up the Tour database on a dbANYWHERE Server	2-3
Planning your installation	2-4
System requirements	2-4
Running only Visual Cafe	2-4
Running Visual Cafe and dbANYWHERE	2-5
Running Visual Cafe, dbANYWHERE, and the database engine	2-5
Using the installer	2-6
Using Visual Cafe	2-7
Starting Visual Cafe	2-7
Exiting Visual Cafe	2-7
Uninstalling Visual Cafe	2-8
Updating Visual Cafe	2-8

Chapter 3 Starting the Tour

What you need	3-1
Looking at the Isle de Cafe Web pages	3-2
Opening the project	3-3
Running the applets in the Web page	3-3
Looking at the applets in Visual Cafe	3-6
Looking at the project	3-6
Looking at the applets	3-9
Opening an HTML file	3-11

Running the custom itinerary application	3-13
Looking at the application in Visual Cafe	3-15

Chapter 4 Creating an Applet for the Web Page

Creating and naming the project	4-2
Creating the island map applet	4-4
Gathering the files you need	4-4
Setting the applet properties and adding the map	4-5
Adding the HTML links	4-8
Adding the volcano eruption animation	4-10
Running the applet	4-12
Displaying the applet in a Web page	4-14
Adding the HTML file to the project	4-14
Adding the applet tag to the HTML file	4-16
Executing the applet within the Web page	4-17

Chapter 5 Creating the Application and Debugging Code

Creating the itinerary application	5-1
Opening and naming the new project	5-2
Gathering the files you need	5-4
Setting the properties of Frame1 and adding the SlideShow component	5-4
Adding the Button components to the frame	5-6
Adding the Amazing Adventures Travel logo	5-8
Adding the labels	5-9
Specifying component interactions	5-12
Setting up the Previous button to display the previous image	5-13
Setting up the Next button to display the next image	5-14
Disabling the Next button at the end of the slide show	5-15
Disabling the Previous button at the start of the slide show	5-16
Making the slide show descriptions appear in the wrapping labels	5-16
Setting the Day label	5-17
Adding custom Java code	5-18
Customizing the menu bar	5-19
Customizing the About dialog box	5-20
Customizing the Quit dialog box	5-21
Running the application	5-21
Looking at the application in the Hierarchy Editor and Class Browser	5-24
Debugging	5-25

Debugging the About dialog box	5-27
Debugging the Day label	5-30

Chapter 6 Creating Applets with Database Functionality

Creating the online reservations applet	6-1
Using the dbAWARE Project Wizard to create a new project	6-2
Assigning applet properties	6-7
Gathering the files you need	6-7
Designing the package portion of the applet	6-8
Designing the reservation portion of the applet	6-12
Looking at dbNAVIGATOR	6-15
Setting initial record positions	6-16
Making fields uneditable	6-17
Adding component interactions	6-18
Setting up the Send Registration button	6-18
Setting the Package ID field	6-19
Setting up the Number in Party and Total Cost fields	6-20
Calculating the total cost	6-21
Running the applet	6-22
Displaying the applet in a Web page	6-23
Adding the HTML file to the project	6-23
Modifying the applet tag in the HTML file	6-24
Executing the applet within the Web page	6-25
Creating an administrative applet for online reservations	6-26

Chapter 7 Support and More Information

Where to get information	7-2
Registering your Symantec product	7-3
Product updates	7-4
Symantec service and support solutions	7-4
Technical support	7-4
StandardCare support	7-5
PriorityCare support	7-5
PremiumCare support	7-6
PremiumCare Gold support	7-6
PremiumCare Platinum support	7-6
Electronic support	7-7
CompuServe	7-7

America Online	7-8
Symantec discussion groups	7-8
Automated fax retrieval system	7-8
Customer service	7-9
Replacing a CD-ROM	7-9
Recovering user IDs and passwords	7-10
Old version support	7-10
Discontinued product support	7-10
Service and support headquarters	7-11
Worldwide service and support	7-11
International locations	7-11

Glossary	Glossary-1
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Introducing Visual Cafe Database Development Edition

Symantec Visual Cafe Database Development Edition is the first Rapid Application Development (RAD) environment for creating Web-hosted Java applets and standalone Java applications that provide powerful database connectivity. It offers a full suite of integrated tools for Java development, including a project manager, form designer, component library, source editor, class browser, interaction wizard, database wizards and navigator, and an integrated graphical debugger coupled with a Java compiler and applet viewer. For many tasks, you don't have to work with raw source code at all.

Whether you are a novice user who wants to quickly create animations for a Web page without touching Java code or a high-powered Java programmer who wants to create sophisticated standalone applications and have control over every line of your code, Visual Cafe is for you.

What's included

The Visual Cafe Database Development Edition package includes the following software to meet a variety of your requirements:

- Visual Cafe Database Development Edition — A RAD tool you use to design Java applets and applications that can optionally contain database functionality.

- dbANYWHERE Server — This middleware gives Java applets and applications running on clients access to a variety of databases. The clients require no special database software.
- Database software — A relational DBMS solution that is ideal for desktop, workgroup, and mobile users and provides multi-platform support.
- Netscape FastTrack Server — This easy-to-use, upgradable Web server software lets you create and manage a Web site.
- Netscape browser software — This includes a powerful Web browser that facilitates information creation, access, and sharing and includes Web, News, and Mail applications.

Now let's take a closer look at Java and its many advantages.

Java applets and Web browsers

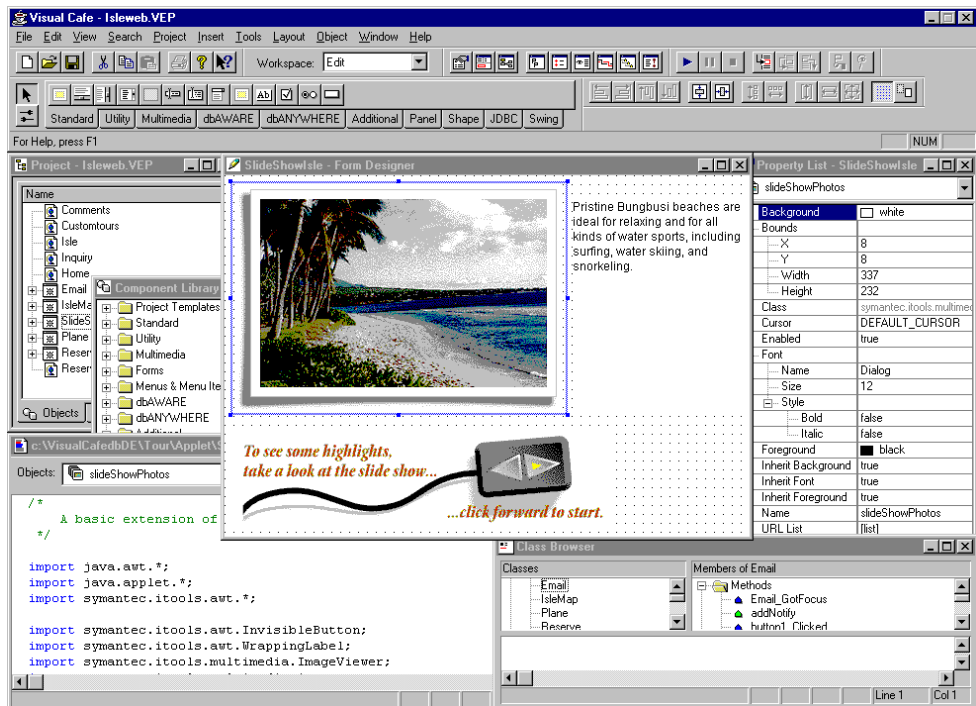
If you've explored the World Wide Web (WWW) with a Java-enabled Web browser, chances are you've run into Java applets such as steaming coffee cups, fireworks, scrolling banners, hotel and airline reservation utilities, or even adventure games. Integrating an applet into a Web page is as simple as adding a graphic: you just add a line of Hypertext Markup Language (HTML) code. When you access a Web page with an applet, the applet code is transferred to your computer and executed by the browser, which reduces the load on the Web server and makes the applet run faster on the local computer.

Java is becoming very popular on the Internet because it makes Web pages much more appealing and adds more functionality than HTML alone can provide, so most new browser versions support Java. What's more, Java applets are secure since they can't access the file system on the local computer, but they can still read from the Web server. This means that applets are less likely to damage a user's system or send private information back to the Web server.

Java makes it possible for a Web site to include much richer capabilities, such as sound, animation, and the ability to interact real-time with data on the Web, than is currently possible with static text or graphics. You can include new types of data and provide associated Java bytecode programs that know how to process the data on the client computer. For example, if you wanted your applet to display an image that is stored in a format not

supported by most browsers, you could incorporate the ability to handle this graphics format in the applet.

With Visual Cafe, it's easy to build Java applets that add dynamic, interactive functionality to your Internet or intranet Web site. You simply create a new project containing a "skeleton" applet, which you use as a template. You can display the applet in the Form Designer, which enables you to design the applet with graphical tools. To create your user interface, you can drag onto the form a variety of components, such as a button, text field, and even an animation or slide show, then position or resize the components as needed. You assign the component properties in a separate Property List window and add interactions between components with the Interaction Wizard. Visual Cafe generates the Java code for you during this design process. To test the applet, you can run it with Visual Cafe. The following figure shows some elements of the Visual Cafe Database Development Edition environment.



After your applet is finished, you can optionally add an HTML file to the project. You can create and view HTML files using Symantec Visual Page, using the Source Editor in Visual Cafe, or you can create the files in another environment and add it to a Visual Cafe project.

Because of Visual Cafe's extensive library of components, you can develop many applets without manually creating or editing Java code. To program other features, you can manually add Java code with Visual Cafe's Source Editor. For example, you can add more complex custom event handling that can't be created with the Interaction Wizard, add custom data processing, and write your own components then add them to the Visual Cafe Component Library.

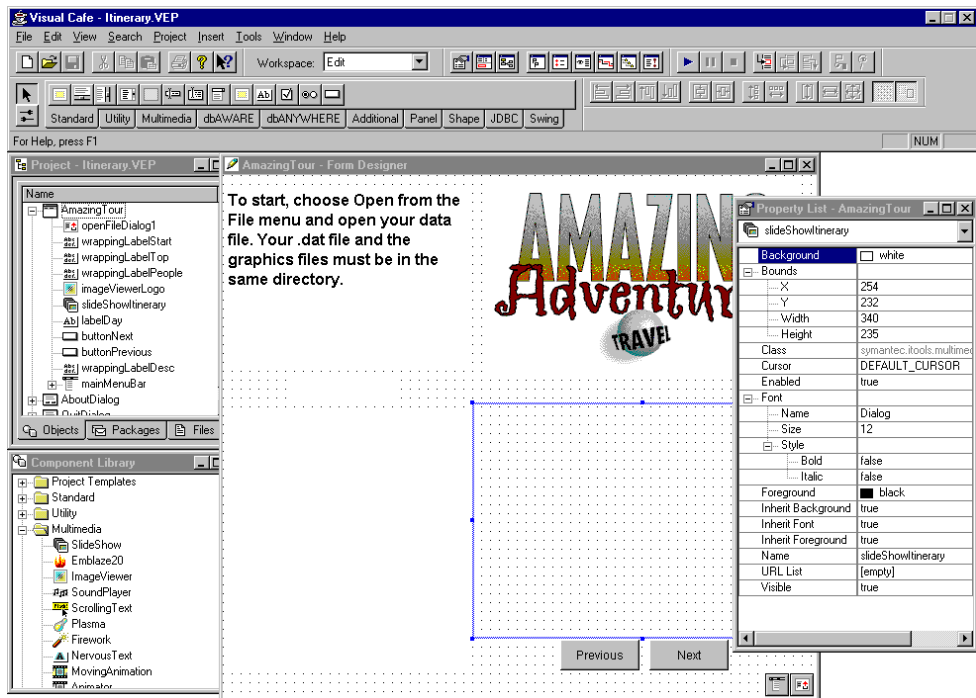
Java standalone applications

Like applets, Java applications are cross-platform, which makes them popular for intranets. A Java application can run on all computers that have Java, so separate applications for each environment aren't needed. Unlike Java applets, Java applications usually have menu bars and can access files on the local computer. This additional functionality lets you implement features in applications that you can't provide in an applet, but it also makes applications less secure than applets. You should be aware of this if you are going to write code to access local storage or any host other than a Web server.

Like other applications, Java applications run standalone without a Web browser. A Java application is like a C++ application, but it's cross-platform and you need a standalone Java virtual machine and supporting files on your computer to run it. For example, you could write a word processor program in Java. Java is free: the Sun Java Developers Kit (JDK), for instance, can be downloaded from the Sun Microsystems Web site, <http://java.sun.com>. In the future, Java will be integrated into many operating systems.

Developing a Java application with Visual Cafe is similar to developing an applet. First, you create a project and add all of the elements of your application to it. For your main application window, you can open an application template in the Form Designer, which enables you to design the Java frame with graphical tools. You can drag onto the form a variety of components, then position or resize the components as needed. You assign the component properties in a separate Property List window, including the menu items (the frame can have a menu bar); you can specify interactions between components with the Interaction Wizard. Visual Cafe automatically creates the Java code for you during this design process. The

following figure shows some of these elements of the Visual Cafe environment.



To test an application, you can run it with Visual Cafe.

What is Java?

Java, developed by Sun Microsystems, was designed for creating applets and applications for Internets, intranets, and any other heterogeneous, distributed network. This language offers the following powerful features, as described in the Java white papers published by Sun:

- Simple** — Java is similar to C and C++, which many programmers are already familiar with. Some of the more difficult features of C++, including operator overloading, pointers and pointer arithmetic, multiple inheritance, and extensive automatic coercions, were omitted to make programming with Java easier. The Java automatic garbage collection feature reduces bugs by automatically freeing unused memory.

- **Small** — The Java virtual machine is relatively small in size, so it can be downloaded over the Internet and run on computers with little available memory. Many operating systems will include Java in the future.
- **Object-oriented** — Java mimics the object orientation of C++ and includes extensions from Objective C for dynamic method resolution. Some advantages of object-oriented programming include the following:
 - Code is encapsulated in objects, which have a public interface and a private implementation, so you can rapidly develop prototypes and group code into manageable chunks — even for very complex systems.
 - Objects can inherit the characteristics of other objects and override inherited characteristics, so you can easily reuse code, make your code more compact, and fix or update code in one place, which saves time and reduces bugs.
- **Network-ready** — Creating network connections is easier in Java than for C or C++ because Java has built-in routines for dealing with TCP/IP, including HTTP and FTP. These routines make it as easy to open and access objects over the network through URLs as it is to access a local file system.
- **Robust** — Java eliminates problems early by requiring declarations, using static typing, having the compiler perform type checks, and not supporting pointers, which can result in overwriting memory or corrupting data.
- **Secure** — Because there are no pointers, Java applications can't access data structures or private data that they don't have access to. This prevents most viruses from taking hold. Applets, when run within a Web browser on a local computer, can't read or write to the disk, execute programs on this computer, or connect to any other computers except the server from which they were downloaded.
- **Architecture-neutral and portable** — The Java compiler generates an architecture-neutral object file format and bytecode instructions, so Java code can run on any computer that has a Java runtime system. *Bytecodes* are instructions that are similar to machine code, but are not platform-specific. During execution, the Java virtual machine either interprets the bytecodes or converts them to machine code. Creating separate applications for different computer platforms is no longer an issue.

- **High-performance** — Java bytecodes can be translated on the fly to native machine instructions — for example, by a Java-enabled browser. Linking is faster than for C or C++. Once the Java bytecodes are converted to machine code by a Just-In-Time compiler in a Java virtual machine, the performance is comparable to that of C or C++.
- **Multithreaded** — Java code can deal with multiple things happening at once with sophisticated synchronization primitives that are integrated into the language, which makes them easier to use and more robust. Multithreading improves interactive responsiveness and real-time behavior, so is critical to high-performance Java applets because applet execution must continue while various image and binary files are being retrieved from one or more Web servers. In addition, the ability to control the execution of multiple concurrent threads is crucial for deploying real-world Web applications.
- **Dynamic** — New module plug-ins can be added to a Java application with minimal overhead. Java can look up a class definition at runtime from its name.

What is JDBC?

The many advantages of Java make it an excellent choice for use with databases. JDBC is an SQL-level API that provides Java developers with database access that's independent of the database and the connectivity mechanism. Its generic SQL database access framework provides a uniform interface to a variety of different database connectivity modules. Because Visual Cafe is fully compliant with the JDBC API, you can use Visual Cafe to create a single database interface that's compatible with a variety of connectivity solutions. The JDBC design is similar to the Open Database Connectivity (ODBC) standard, so its interface is familiar to many programmers.

What is the dbANYWHERE three-tier architecture?

The three tiers are the client, the dbANYWHERE middleware, and the database residing locally or remotely to dbANYWHERE. The client communicates with dbANYWHERE over a network, such as the Internet, an intranet, or a local area network (LAN). This architecture distributes the database software between the clients and dbANYWHERE. dbANYWHERE

makes the database requests and passes the data back to clients; it caches data from the database system and sends only the requested subset to a client. The client needs no application or database software other than the standard Java files or a Java-enabled Web browser.

The dbANYWHERE middle tier is easy to manage and secure because you only have to maintain direct database connectivity at this tier. In addition, three-tier systems are cost-effective because the middle tier requires fewer connections than would be required for direct client connections.

The dbANYWHERE Server provides heterogeneous access to common database engines. This allows applets and applications to maintain live connections to multiple database engines, with the advantages of data buffering, reduced network traffic, and decreased hits on the database engines.

dbANYWHERE supports two interfaces for Java database connectivity: the standard JDBC API and the dbANYWHERE API. The dbANYWHERE API delivers robust functionality for Java applications while making common database operations — including master/detail processing — easier to implement.

Features of the Visual Cafe environment

Visual Cafe gives you the easy-to-use Java language in a development environment designed to make you highly productive. It includes the following features, which you'll learn more about in the Tour:

- Visual, form-based development
- Quick creation of component connections with the Interaction Wizard
- Two-way development, which means the visual tools and Java code always match
- Database connectivity through a three-tier architecture and the JDBC standard
- Support for major database servers
- Database wizards for simplified form development
- Hierarchical view of database cataloging information with the dbNAVIGATOR

- Simplified Java database connectivity through smart dbAWARE components that provide data binding
- Support for JDK 1.1, portable JavaBeans components, and Java Archive (JAR) files
- Quick creation of component connections with the Interaction Wizard
- Integration with the Visual Page HTML editor
- Rapid turnaround with fast compilers
- An advanced debugger that includes expression evaluation

Installing Visual Cafe

This chapter outlines the installation process for Visual Cafe Database Development Edition and other software on the Visual Cafe CD.

This chapter has the following sections:

- “Installing the software needed for the tour”
- “Planning your installation”
- “Using the installer”
- “Using Visual Cafe”

Installing the software needed for the tour

Before starting the tour, you need to perform the following tasks:

- Install Visual Cafe.
- Install the dbANYWHERE Server.
- Install the database software.
- Set up the database for use with the Tour.

Installing Visual Cafe, the dbANYWHERE Server, and the database software

To use the Tour you need to install, at a minimum, the Visual Cafe program files and the Tour files. To use the Visual Cafe database features provided in the Tour, you must also have access to the Tour database through the

dbANYWHERE Server and the database engine, which are included on the CD for Visual Cafe Database Development Edition for Java.

To install the software needed for the tour, follow these steps:

- 1 Insert the Visual Cafe CD into your CD-ROM drive.
Normally, this will start the install program.
- 2 If step 1 didn't start the install program, run `Setup.exe`.
- 3 Install Visual Cafe.

Note: If you have a previous version of Visual Cafe, *do not* install to the same directory where it resides. You need to install to a new directory. See the `Readme.txt` file for details.

If you need more instructions on using the installer, see the section, "Using the installer" on page 2-6.

- 4 Install the dbANYWHERE Server.
The dbANYWHERE Server can be installed on the local computer or on a remote computer. If Visual Cafe and dbANYWHERE are on different computers, the computers must be able to communicate over the network through TCP/IP.
For more information on installing dbANYWHERE, refer to the *Installing and Running dbANYWHERE Server* manual.
- 5 Install the database software.
See the installation documentation provided with the database engine for more information.
- 6 After installing these products, you must reboot the computer.

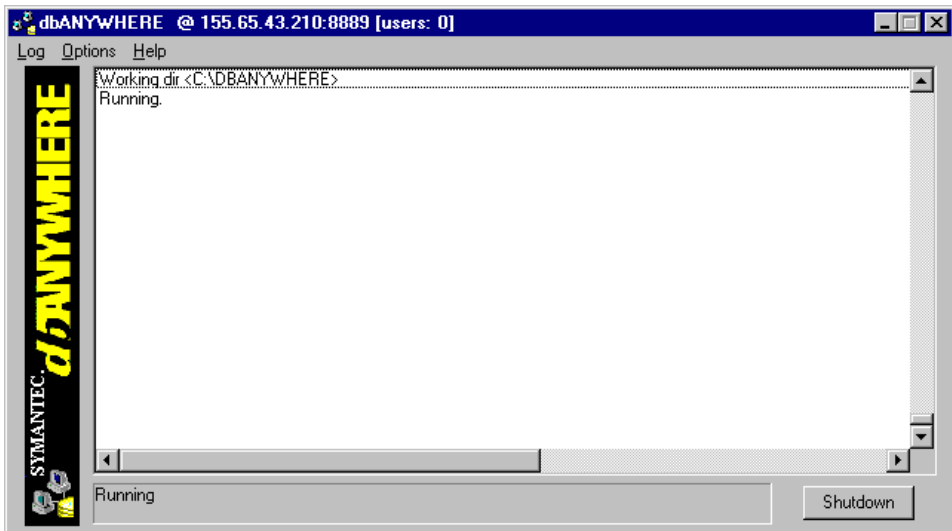
Note: The database section of the Tour, Chapter 6, is designed with the assumption that all three tiers run locally. In other words, Visual Cafe, the dbANYWHERE Server, and the database engine are running on one computer. If you're working through the Tour, you might want to install all of this software on your development computer for the tour. If necessary, you can uninstall this software later.

If you can't run all of this software on one computer because of system resource limitations, you can still work through the tour. However, in the section, "Looking at the Isle de Cafe Web pages" on page 3-2, you will need to modify the applet to use a remote dbANYWHERE Server. See the section, "Planning your installation" on page 2-4 for system requirements.

Setting up the Tour database on a dbANYWHERE Server

After installing dbANYWHERE and the database engine, you must create the database for the Tour and register it with the 32bit ODBC Administrator. To create and register the database, complete the procedures provided in the file `createdb.txt` in the Tour subdirectory of your Visual Cafe installation.

Once you have created and registered the database for the Tour, Launch dbANYWHERE by clicking the Windows Start menu then Programs > Symantec dbANYWHERE Server > Symantec dbANYWHERE Server. The dbANYWHERE window opens.



Look at the title bar and note the IP address (or host name) and the port number configured for dbANYWHERE. You need this information when you work through Chapter 6, “Creating Applets with Database Functionality.” If dbANYWHERE is running locally, you can use **localhost** in place of an IP address, as long as your `hosts` or `lmhosts` file contains an entry for it (and it typically does by default).

You can test the data source for the Tour using dbANYWHERE. For information on how to do this, refer to the *Installing and Running dbANYWHERE Server* manual.

The rest of this chapter contains more general-purpose installation instructions. You can look through them now, or start the Tour by going directly to Chapter 3.

Planning your installation

If you are not developing Java programs with database features, you only need to install Visual Cafe. However, to develop Java programs that have database connectivity, you must have access to the rest of the three-tier architecture described in *Installing and Running dbANYWHERE Server*.

We recommend that you set up your system so it uses dbANYWHERE with the same database that you use when you deploy your applets or applications.

During development, you install Visual Cafe on your local computer. You also need to install the following software:

- The dbANYWHERE Server
You can install dbANYWHERE on your local computer or on a remote computer that can communicate with the local computer through TCP/IP.
- The database engine
You can install the database engine locally (on the same computer as dbANYWHERE) or on a remote computer that can communicate with the local computer through TCP/IP. Remote database engines (and some local engines) require client software that must be installed on the same computer as dbANYWHERE.

System requirements

The requirements for your system vary with respect to how you decide to install Visual Cafe and other software. The topics that follow describe the requirements for some common scenarios.

- “Running only Visual Cafe”
- “Running Visual Cafe and dbANYWHERE”
- “Running Visual Cafe, dbANYWHERE, and the database engine”

Running only Visual Cafe

To run only Visual Cafe you need:

- IBM personal computer or 100 percent compatible, Pentium equivalent, 90 MHz minimum

- 32 MB RAM; 48 MB recommended for larger projects
- Windows 95 or Windows NT 4.0 or greater
- CD-ROM drive
- 30 to 100 MB free hard disk space, depending on configuration and data caching requirements
- VGA monitor; Super VGA recommended
- TCP/IP network

Running Visual Cafe and dbANYWHERE

To run Visual Cafe and the dbANYWHERE Server (with client software to interface with a remote database), you must satisfy the requirements listed above for Visual Cafe, and you also need:

- an additional 16 MB RAM
- an additional 30 to 40 MB free hard disk space, depending on configuration and data caching requirements

For a complete list of dbANYWHERE installation requirements, see the *Installing and Running dbANYWHERE Server* manual.

Running Visual Cafe, dbANYWHERE, and the database engine

To run Visual Cafe, the dbANYWHERE Server, and the database engine on the same computer, you need to meet the requirements for running your databases engine in addition to those listed for running Visual Cafe and dbANYWHERE. Typically, this requires:

- an additional 16 MB RAM
- an additional 50 to 100 MB free hard disk space, depending on configuration and data caching requirements

In some cases, additional RAM is not required. In other cases, more RAM and disk space than is listed here is required. For details on the installation requirements for your database engine and client software, refer to the documentation that accompanies the database.

Using the installer

If Visual Cafe is already installed on your system, refer to the `Readme.txt` file before you begin installation.

To install Visual Cafe, dbANYWHERE, and other products included on the Visual Cafe CD:

- 1 Insert the CD into the CD-ROM drive on your system.
- 2 If the installer doesn't automatically start, choose Run from the Windows Start menu to display the Run dialog box. Then, type: `drive:\setup.exe` where *drive* is the CD-ROM drive identifier, and click OK.
- 3 Click the name of the software you want to install.
The Install Wizard guides you through the installation process; you can select where to install Visual Cafe and which elements to install. Click Next to proceed through the steps.
You can install the following items separately, by clicking the appropriate icon:
 - Visual Cafe
 - The dbANYWHERE Server
 - Other software (if included on your CD)
- 4 After installing, you are prompted to register your copy of Visual Cafe. The Registration program asks you for your location, method of registration, name and address, and some questions about how you use Visual Cafe. You can register over the Internet, or by printing a form and mailing it to Symantec.
Upon registering, you'll be able to access Technical Support. For more information on obtaining Technical Support, see "Support and More Information" on page 7-1.
- 5 After you register your copy of Visual Cafe, the installer returns you to the main installation window, where you can install other items.
- 6 Read the `Readme.txt` file (on the CD-ROM) *before* you use the software. It contains important last-minute information.

Information on Visual Cafe is included in the *User's Guide* and in the online help. Information on the dbANYWHERE Server is included in *Installing and Running dbANYWHERE Server* and in the online help. Information on other software included with Visual Cafe is described in other publications.

Using Visual Cafe

For information on starting, exiting, and uninstalling Visual Cafe, see the following topics:

- “Starting Visual Cafe”
- “Exiting Visual Cafe”
- “Uninstalling Visual Cafe”
- “Updating Visual Cafe”

Starting Visual Cafe

You can use either of the following methods to launch Visual Cafe:

- From the Windows Start menu, choose Programs > Symantec Visual Cafe dbDE > Symantec Visual Cafe dbDE.
- Run the application (`vcafe.exe`) or a `.vep` file from the Run dialog box or an Explorer window.

The Visual Cafe environment appears. After you use Visual Cafe, it remembers what windows you had open when you last used the application and opens those windows the next time you run the product.

To use database functionality within Visual Cafe, dbANYWHERE must be installed and running, either locally or on a remote computer, and accessible through TCP/IP. Your local computer must also be configured with TCP/IP connectivity.

To locate dbANYWHERE, you must know the IP address (or host name) of the PC it's running on and the port number configured for dbANYWHERE. When dbANYWHERE is running, it displays its IP address and port number. The default port number is 8889. If dbANYWHERE is running locally, you can use **localhost** in place of an IP address, as long as your `hosts` or `lmhosts` file contains an entry for it. The entry for localhost in the `hosts` or `lmhosts` file should be **127.0.0.1**.

Exiting Visual Cafe

To exit from Visual Cafe, choose Exit from the File menu. If you have unsaved changes, you are prompted to save them.

Uninstalling Visual Cafe

To uninstall Visual Cafe:

- 1 Launch the Add/Remove Programs utility from the Windows Control Panel.
- 2 Click the Install/Uninstall tab and click Visual Cafe.
- 3 Click Add/Remove and follow the instructions on the screen.

Note: Uninstall does not remove any files created in the `\VisualCafedbDE` directory tree after Visual Cafe is installed (for example, any sample projects) or in the Visual Cafe program group. You must manually remove these files.

Updating Visual Cafe

To get a newer version of Visual Cafe, choose LiveUpdate from the Help menu and follow the instructions on your screen.

Starting the Tour

Imagine that you work for a travel agency, called Amazing Adventures Travel, that's ready to take advantage of the money-making opportunities that the Internet offers. You decide to add Java functionality to a series of Web pages that advertise your upcoming package tours and your custom tour services. To get started, you update the pages for your favorite destination, Isle de Cafe.

In this chapter, you'll look at the Isle de Cafe applets and application, some of which you'll create in the following chapters, plus learn some important Visual Cafe terms and concepts.

Note: The Tour is designed to be used in SDI mode. Make sure the MDI Development Environment checkbox is de-selected on the General tab of the Environment Options dialog box.

What you need

To work through the tour, you need to install the Visual Cafe software, as described in the section, "Installing the software needed for the tour" on page 2-1. You also need to install the version of Visual Page that is on your Visual Cafe CD, because you will view applets in Visual Page. Be sure to start the dbANYWHERE Server before working through the tour.

After you meet these requirements, you can start the tour with this chapter. Then work through the following chapters in order:

Chapter 4, "Creating an Applet for the Web Page" shows you how to create an island map applet including an animation and integrate it into a Web page, without needing to program in Java code.

Chapter 5, “Creating the Application and Debugging Code” describes how to create a simple application and how to perform advanced debugging operations. This chapter builds on the previous chapter.

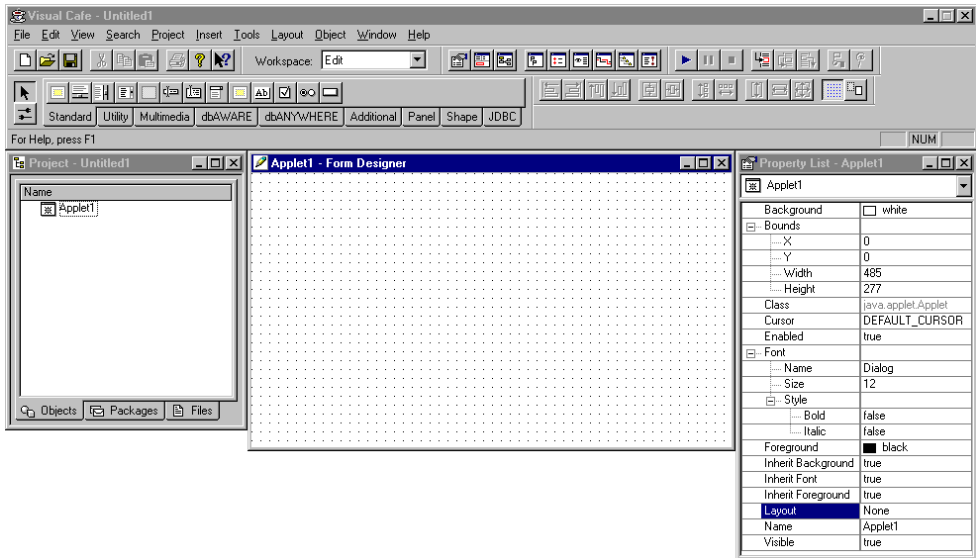
Chapter 6, “Creating Applets with Database Functionality” shows you how to use many of the Visual Cafe database features.

Looking at the Isle de Cafe Web pages

Your main Isle de Cafe Web page is the most important page. On this page, you need to grab the initial interest of prospective clients, so they remember your company and want to spend some time at your Web site. A Web page with only HTML could potentially be a little boring. You decide to add Java applets so the page becomes dynamic and interactive.

Let’s look at the Web pages and identify the elements created with Visual Cafe.

When you first start Visual Cafe, the last project you opened or an unnamed project, based on the default project template, appears. By default, the Project, Form Designer, and Property List windows appear.



You’ll work with the Visual Cafe applet and application templates later in this tour.

Opening the project

The Visual Cafe full-featured project management system and flexible editing and browsing tools let you develop and maintain even the most complex Java applications.

All of the applets and HTML files that make up the Isle de Cafe Web pages are contained within the `IsleWeb.vep` project.

To look at the project:

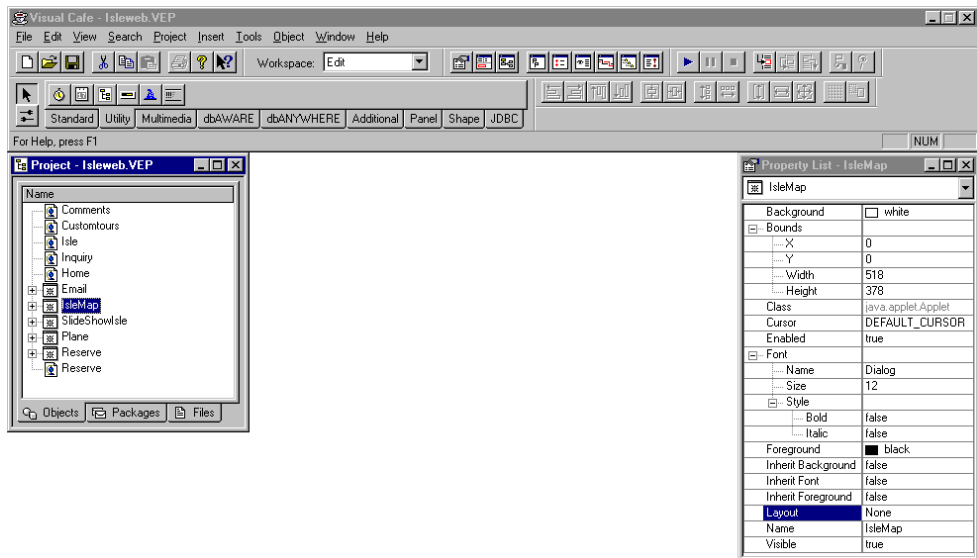
- 1 Close any open projects by clicking the Project window, then choosing Close Project from the File menu.

- 2 From the File menu, choose Open.

The Open dialog box appears.

- 3 Select the `IsleWeb.vep` project in the `\Tour\Applet` folder, then click Open.

The project appears.



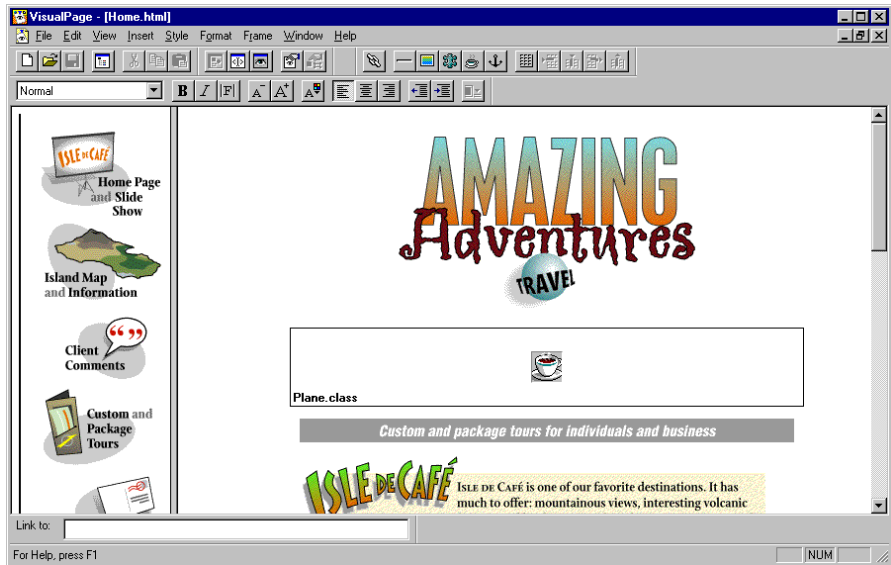
Running the applets in the Web page

Visual Cafe lets you run the applet directly within the Web page by using Visual Page or your default Web browser. The advantage of using Visual Page is you can also modify your HTML files as needed.

To open the Web page in Visual Page:

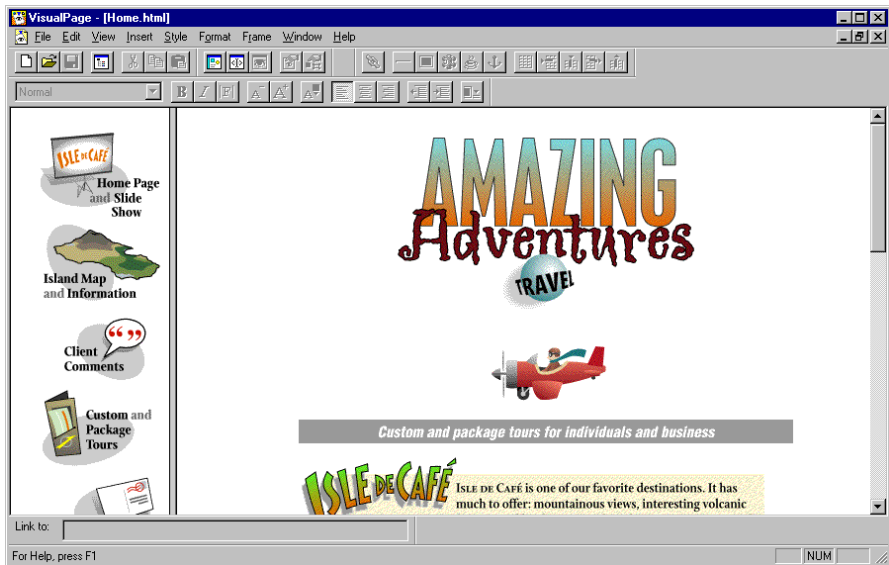
- 1 In the Objects tab of the Project window, double-click Home, which is an HTML file.

If you have properly installed Visual Page from the Visual Cafe CD, Visual Page starts and displays the Isle de Cafe home page.



- 2 From the View menu, choose Preview.

The applets run in Visual Page.



The Web pages contain elements that were created with HTML using Visual Page and with Java using Visual Cafe. The Visual Cafe applets on this page are the plane animation created with the Visual Cafe Animator component and the slide show created with the Visual Cafe SlideShow component.

On the left of the page are links to the other pages.

You use the plane animation to attract the attention of your Web site guests. You also want your potential customers to get an idea of what Isle de Cafe offers them, so you include the slide show. The slide show contains photos of Isle de Cafe that you've collected over the years. Your customers can move back and forward between the photos of the slide show. Next to each photo is a description of the location so your customers know what they're looking at.

- 3 Click the Forward button (the right triangle) until you've viewed the entire slide show. Also try clicking the Previous button (the left triangle).
- 4 Explore the other Web pages by clicking a link on the left of the page.

While the main Isle de Cafe Web page is important to capture people's initial interest, once they're interested they may want more in-depth information about the island.

You decide that the best way to present this detailed information is through an island map. On the map, customers can click a location to jump to information about it. This feature was implemented with the `ImageViewer` and `InvisibleHTMLLink` components provided with Visual Cafe. You also decide to add an animation, implemented with the `Animator` component, that draws attention to a main attraction on the island — the ability to safely view an active volcano.

Some additional features on the Web site include a list of your upcoming package tours, information on the custom tours you can design for clients, an e-mail request form (an applet created with Visual Cafe) so clients can get additional information, and some quotes from clients about how much they enjoyed your tours.

It's time to look at these Web page elements in Visual Cafe directly. You can exit Visual Page or keep it running so you can refer back to the completed Web pages.

Looking at the applets in Visual Cafe

Now that you've seen how the applets look in your Web pages, let's see how they were created with Visual Cafe.

Looking at the project

The Visual Cafe full-featured project management system and flexible editing and browsing tools let you develop and maintain even the most complex Java applications.

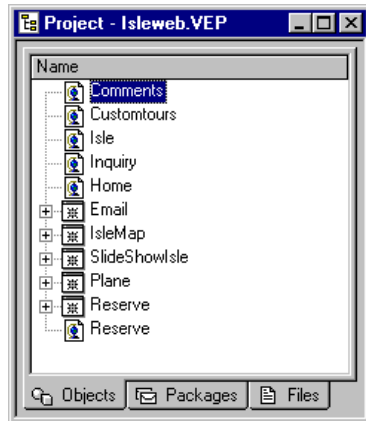
The Objects view of the Project window shows the components of a project:

- A *visual component* is a user interface element, such as a window, menu, button, and so on, that is visible at runtime and appears in the Visual Cafe Project window and Form Designer. It extends from the Java Component class and has a screen position, a size, and a foreground and background color. It is often called a control in C++.
- A *top-level component*, also called a Visual Cafe *form*, can only appear at the top level in the Objects view of the Project window. Applets, Frames, Windows, and some dialog components are forms. A form has an associated Java source file and can contain other components, which are represented by code in the source file.

The Objects view also shows HTML files, if present.

To look at the project:

- 1 Look at the items appearing in the Project window.



You'll notice the following HTML files in the Project window:

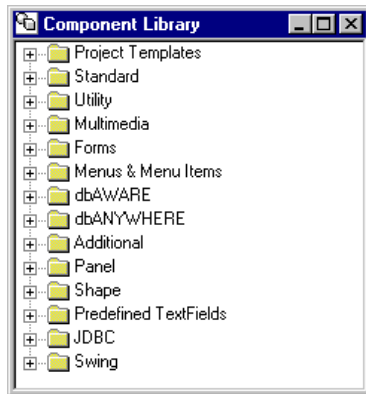
- Comments — page containing customer comments
- Customtours — page describing custom and package tours
- Isle — page with island map
- Inquiry — page with e-mail questionnaire
- Home — first page
- Reserve — page with online reservations utility

And the following applets:

- Email — e-mail information form
- IsleMap — Isle de Cafe map with volcano eruption
- SlideShowIsle — slide show
- Plane — plane animation
- Reserve — online reservations utility

- 2 In the Project window, click the + next to a form to view the components contained by it.
- 3 From the View menu, choose Component Library.

The Component Library appears.



The Component Library is a repository of components that comply with the JavaBeans standard. Visual Cafe provides an extensive library of components, which you can supplement with third-party JavaBeans components and your own components. In addition to supporting the complete set of standard Java components, Visual Cafe provides many additional components. For fast access, you can configure the Component Palette, which is at the top of the main window or floating, to contain your favorite components:



To add a component to a Visual Cafe form, drag a component from the Component Library to the Project window or Form Designer, then position and resize it as needed. Or, you can click a component on the Component Palette and draw it on the form. In addition, the Component Library contains forms, so you can drag a form into a Project window to add it to the project. To add a component to the Component Palette so you can get to it more quickly, drag the component from the Component Library to the Palette.

- 4 Close the Component Library window.
- 5 In the Project window, click the Packages tab.

The Packages view shows the source files in a project, grouped as *packages*. A Java package is a group of related Java classes and interfaces.

- 6 In the Project window, click the Files tab.

The Files view lists the files in your projects. The Imports folder contains the classes the Java programs need.

- 7 Click the Objects tab to return to the Objects view.

You can double-click a form or file in the Project window to open it. In the following sections, you'll look at the applets and an HTML file in the project.

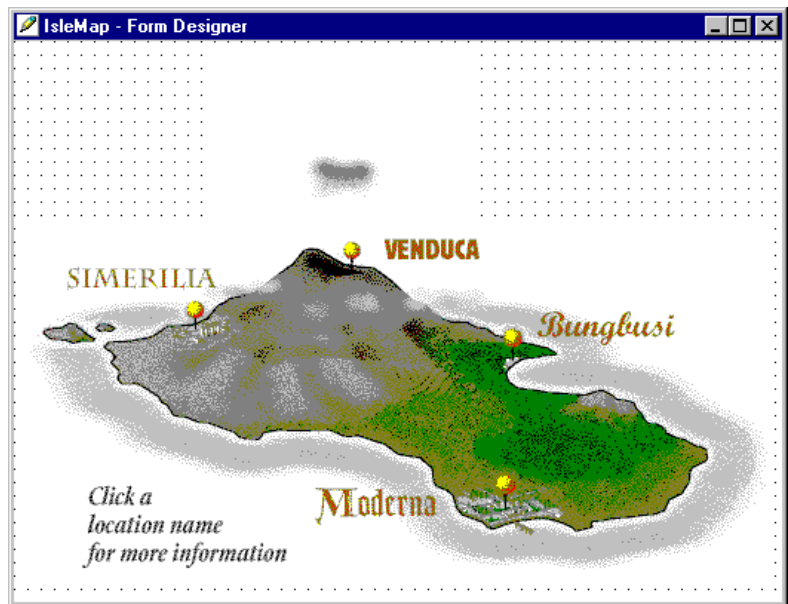
Looking at the applets

Once the Project is opened, you can look at the applets it contains.

To look at the applet:

- 1 Double-click the IsleMap applet in the Project window.

The Form Designer appears.



The Form Designer is a true What-You-See-Is-What-You-Get (WYSIWYG) form layout tool: it lets you edit all types of forms, including applets, windows, message boxes, and dialog boxes. To design the visual interface of your Java applications and applets, you can drag and drop components from the Component Palette or Library directly onto your forms. Visual Cafe automatically generates the Java code and changes the code as you make modifications.

Several layout managers are available, so you can pick the one that best suits your form, or don't use one at all.

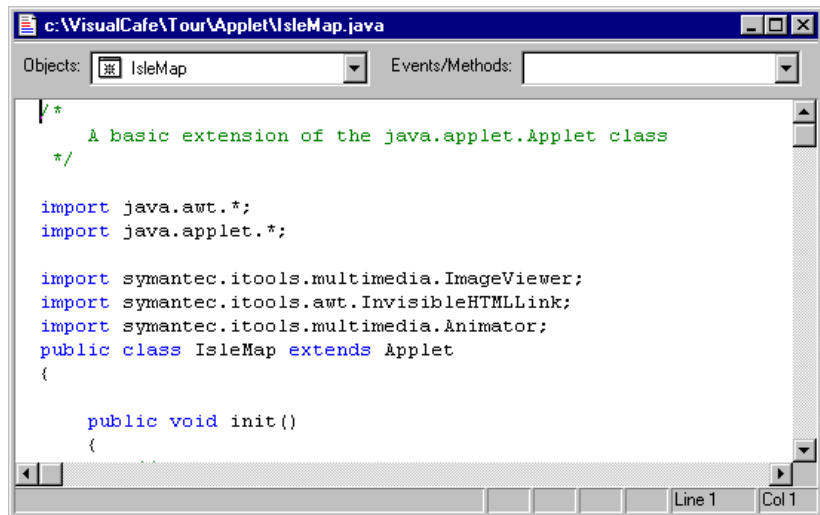
The properties of the components are displayed in the Property List window. To specify the properties of components on a form, you simply fill in fields in the Property List. Visual Cafe updates the component appearance on the form and the Java code for you.

- 2 To look at the properties for the Animator component, choose the component (`AnimatorErupt`) from the pull-down menu at the top of the Property List or click the component on the form.

The properties for the Animator component appear in the Property List window.

- 3 To look at the underlying Java source code for the applet, double-click the Form Designer. Or right-click over the `IsleMap` object in the Project window, then choose Edit Source from the pop-up menu.

The applet source code appears in the Source Editor.



The screenshot shows a window titled "c:\VisualCafe\Tour\Applet\IsleMap.java". The "Objects:" dropdown menu is set to "IsleMap" and the "Events/Methods:" dropdown is empty. The code editor contains the following Java code:

```
/**
 * A basic extension of the java.applet.Applet class
 */

import java.awt.*;
import java.applet.*;

import symantec.itools.multimedia.ImageViewer;
import symantec.itools.awt.InvisibleHTMLLink;
import symantec.itools.multimedia.Animator;
public class IsleMap extends Applet
{
    public void init()
    {
        ...
    }
}
```

The status bar at the bottom right indicates "Line 1" and "Col 1".

Visual Cafe supports two-way development by translating Java code into a visual representation and by translating the visual representation in the Form Designer to Java code. Your code and your visual model always match.

The Visual Cafe Source Editor simplifies development with full-color Java syntax and keyword highlighting and an integrated macro language for extending the editor. A single mouse click in a pull-down menu navigates you to a declaration inside the Java project.

The Form Designer ensures full synchronization between source code and the visual tools. During debugging, you can use the Source window to monitor program execution.

- 4 Close the Source window.
- 5 You can also look at the plane animation by double-clicking Plane in the Project window, the slide show by double-clicking SlideShowIsle, the e-mail questionnaire applet by double-clicking Email, and the online reservations utility by double-clicking the Reserve applet.

Because these are detailed applets, you might want to close each Form Designer window before opening another one.

To test your applet, you can run it in the Visual Cafe Applet Viewer. Visual Cafe also lets you run your applets within a Web browser by launching the browser for you.

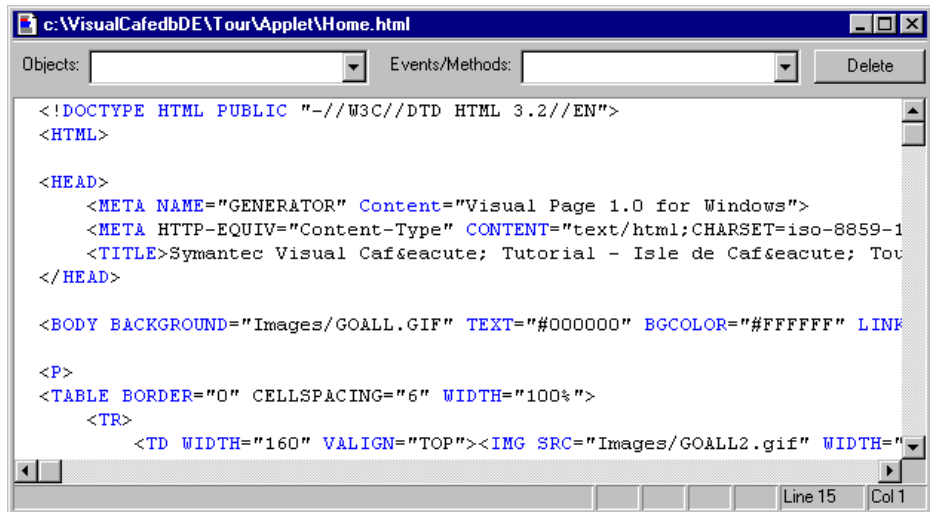
Opening an HTML file

An applet runs from an HTML file. Although your project doesn't have to contain the HTML files that the applets run in, it's convenient to include the HTML files in the project.

To look at the HTML file:

- 1 Click the Files tab in the Project window, then double-click Home.html.

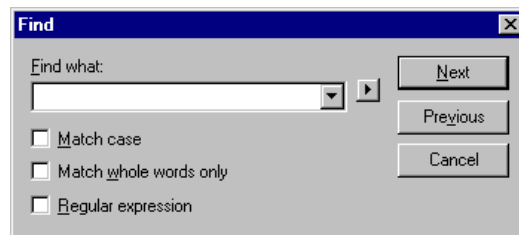
The Source window appears.



The HTML file is displayed in this window. You can create and edit HTML code here. If you've installed Visual Page from the Visual Cafe CD, you can double-click an HTML file in the Project window to launch Visual Page and edit the file there.

- 2 From the Search menu, choose Find.

The Find dialog box appears.



- 3 Type **applet code**, then click Next.

The words are highlighted in the HTML code. This is part of the applet tag that causes the Visual Cafe applet to appear on the Web page. An applet tag has the following basic format:

```
<APPLET code="applet.class" width=pixw height=pixh></APPLET>
```

applet is the name of the applet, *pixw* is the number of pixels for the width, and *pixh* is the number of pixels for the height.

- 4 From the Search menu, choose Find Again.

Another applet tag is highlighted in the HTML file.

- 5 From the File menu, choose Close Home.html.

The Source window closes.

Now let's look at the application. You can close your project by closing the Project window.

Running the custom itinerary application

A large part of your business revenue is generated from designing custom, escorted tours to Isle de Cafe. As you expand your operations onto the web, you look at ways to take full advantage of the time-saving aspects of electronic communications.

You decide that a cross-platform Java application would be ideal for distributing custom itineraries to clients for approval. Instead of spending time and money putting together an itinerary on paper — especially one that looks good enough for people purchasing a premium tour — you can put together a polished itinerary in the form of an application. This itinerary is easily modified as changes are needed and includes photos of the locations the clients will visit.

To run the itinerary application:

- 1 In a DOS window, navigate to the directory containing `AmazingTour.class`.
If you installed in the default location, it should be in the `\Tour\Application` directory.
- 2 At the DOS prompt, enter the full path to `java.exe` followed by the class. For example:

```
\VisualCafedbDE\java\bin\java AmazingTour
```

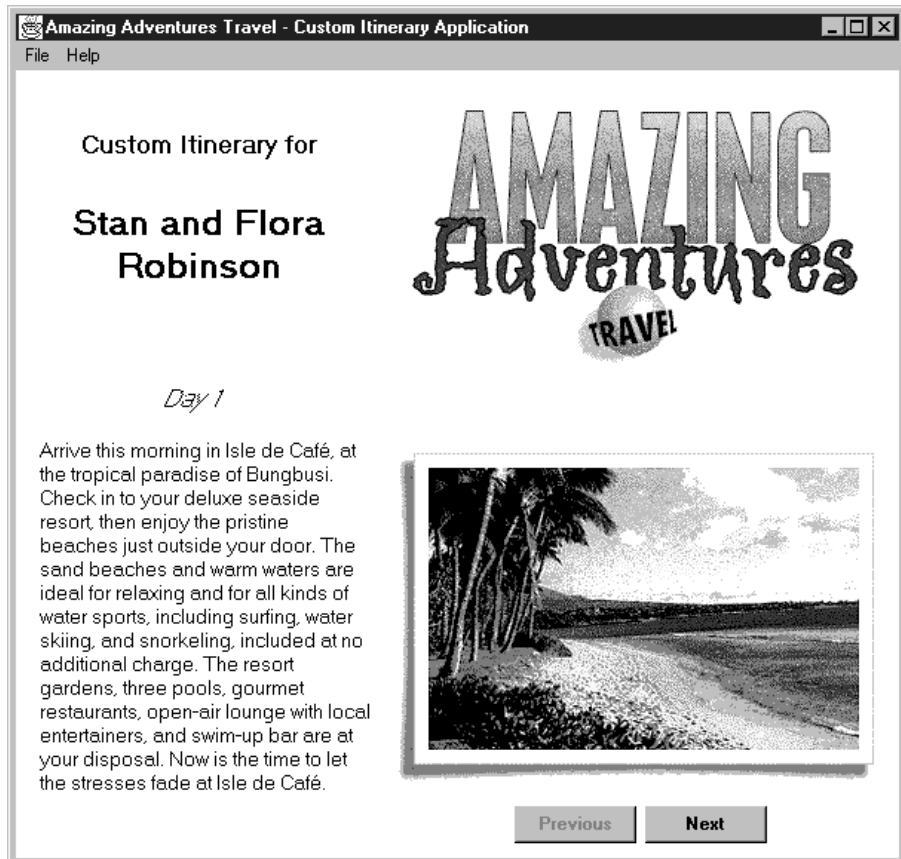
Note: Since Java is case sensitive, you must type in the class name with appropriate upper/lowercase letters.

The application appears.



- 3 From the application, open `Tour.dat`, which is located in the Images directory.

The itinerary appears.



- 4 Press the Next and Previous buttons to look through the itinerary.
- 5 To exit the application, choose Exit from the File menu. Then click Yes in the dialog box.

Now let's look at the application in Visual Cafe.

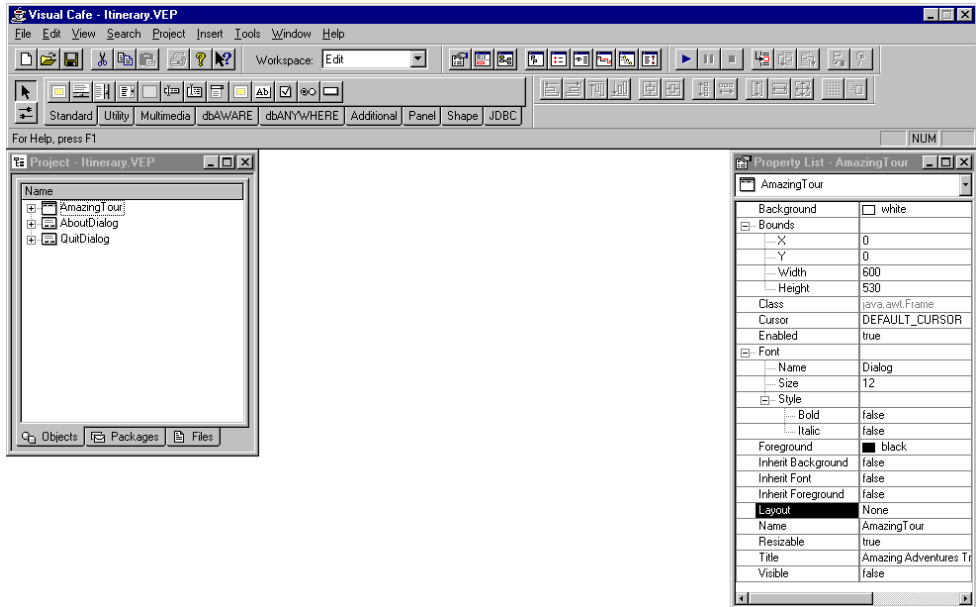
Looking at the application in Visual Cafe

Now that you've seen how the application works, let's see how it was created with Visual Cafe.

To look at the itinerary application in Visual Cafe:

- 1 If you don't have Visual Cafe running, start it now.

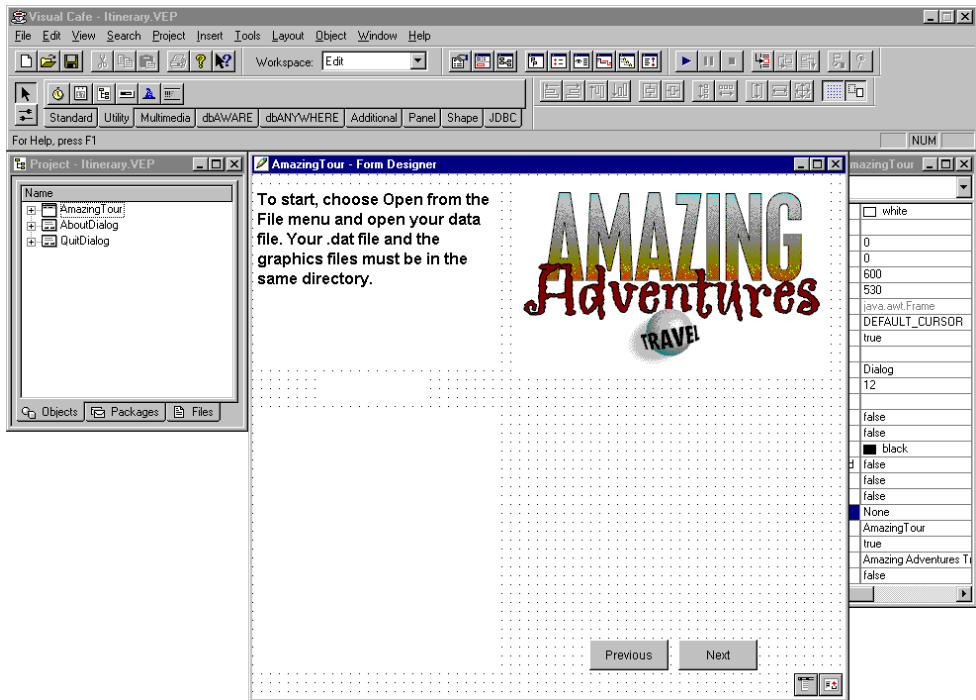
- 2 Close any open projects.
- 3 From the File menu, choose Open.
The Open dialog box appears.
- 4 Select the `Itinerary.vep` project in the `\Tour\Application` folder, then click Open.
The project appears.



You'll notice the following components in the Project window:

- AmazingTour — main application window
 - AboutDialog — About dialog box
 - QuitDialog — Quit dialog box
- 5 In the Project window, double-click `AmazingTour`.

The Form Designer appears.



The Project window lists the names of the components on the form. To see the components within AmazingTour, you can click the + next to AmazingTour.

6 Close your project by closing the Project window.

Visual Cafe lets you launch your application from within its environment so you can test it. You'll try this feature later in the tour.

Now you can continue with the next chapter to build and test one of the applets.

Creating an Applet for the Web Page

This chapter quickly acquaints you with the main features of Visual Cafe by showing you how to create an applet for your Isle de Cafe Web site. This portion of the tour doesn't involve manually creating new Java code; instead, you use the visual design capabilities of Visual Cafe to create your complete applet. In the next chapter, you do work directly with Java code.

To learn how to add applets to your HTML page, you work through the following sections in this chapter:

- “Creating and naming the project”
- “Creating the island map applet”
- “Displaying the applet in a Web page”

Before working through this chapter, you should have completed the previous chapter “Starting the Tour.”

Note: When you first install Visual Cafe, you have the default environment options. If you've changed your environment options since you've installed the product, you might run into variations because of your settings. In particular, make sure the keyboard is set to vcafe. Choose Environment Options from the Tools menu to view your environment option settings.

Also, the Tour is designed to be used in SDI mode. Make sure the MDI Development Environment checkbox is de-selected on the General tab of the Environment Options dialog box.

Creating and naming the project

The project contains the elements needed in a Web page, a group of related Web pages, or an application, including applets, HTML files, application windows, and so on. To get started quickly, you can use project templates with skeleton applets and applications that you extend with additional functionality. You can also create custom templates and add them to the Component Library, and add your favorite templates to the Component Palette.

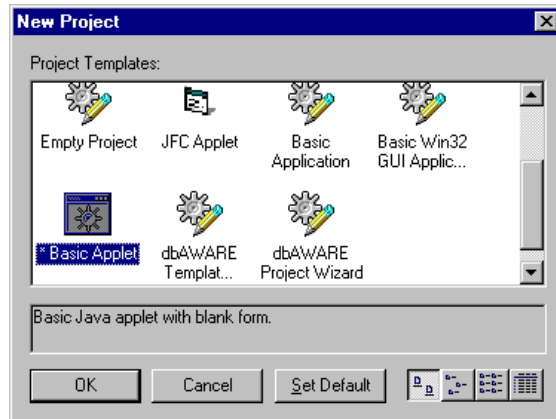
To create the project:

- 1 Close any open projects by clicking the Project window, then choosing Close Project from the File menu.

When you first start Visual Cafe, the last project you opened or an unnamed project, based on the default project template, appears. Here you'll create a new project so you can see how to choose a template.

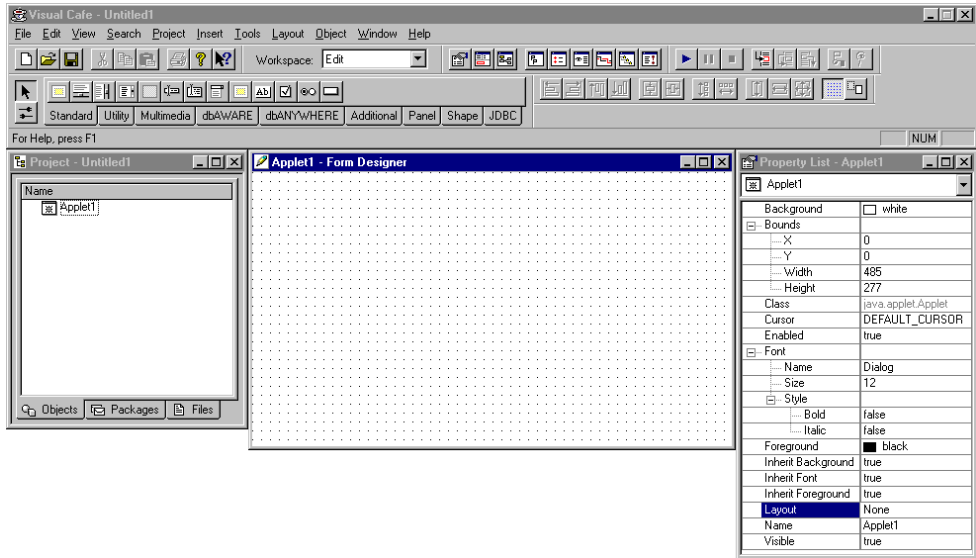
- 2 From the File menu, choose New Project.

The New Project dialog box appears.



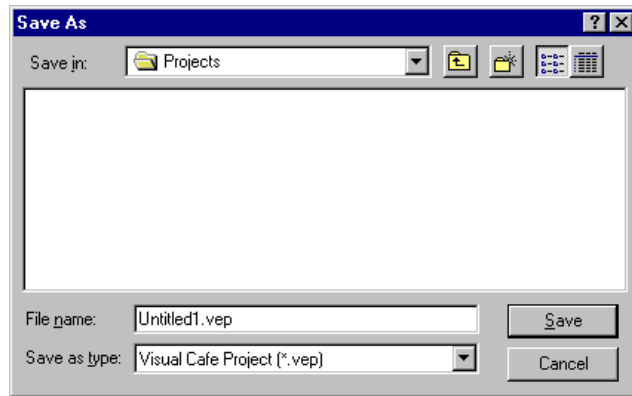
- 3 Select the Basic Applet project template. Then click OK.

The Project and Form Designer windows appear.



- 4 Click the Project window, then choose Save As from the File menu.

The Save As dialog box appears.



- 5 Create a new directory structure in the Visual Cafe directory, such as `\MyApps\Applet`, to hold your applet files.

The project and all of the files contained within it should be in the same directory. For easier project management and to prevent filename conflicts, you should save each project in its own directory.

- 6 Type `MyIslePg.vep` in the File name field, then click Save.

The new name appears in the titlebar of the Project window. Visual Cafe Project files have a `.vep` extension.

The first time you save a project, all of the files it contains are also saved to the new directory. After you save it once, saving just the project does not save other files, such as applets. Save All does save all files.

Creating the island map applet

To create the applet, you work through the following tasks:

- “Gathering the files you need”
- “Setting the applet properties and adding the map”
- “Adding the HTML links”
- “Adding the volcano eruption animation”
- “Running the applet”

Gathering the files you need

To construct your Web page, you need an HTML file that your applet will run within and the graphics files that your applet uses. You will copy an HTML file into your project directory. You will copy the graphics files into an Images subdirectory.

Visual Cafe lets you specify URLs that are relative to the applet directory. That way you can move your directory to another location and avoid the problems associated with hardcoded file specifications.

To copy the files by using the Windows 95 or NT operating system commands:

- 1 Copy `Isle.html` from the `\Tour\Applet` directory to your project directory.
- 2 Create an `Images` directory in your project directory.
- 3 Copy these files from the `\Tour\Applet\Images` directory to your new `Images` directory:
 - `Bungbusi.gif`
 - `Erupt01.gif` through `Erupt16.gif`

- Goall.gif
- Goall2.gif
- Map.gif
- Moderna.gif
- Photo_1.gif through Photo_8.gif
- Simerili.gif
- Venduca.gif

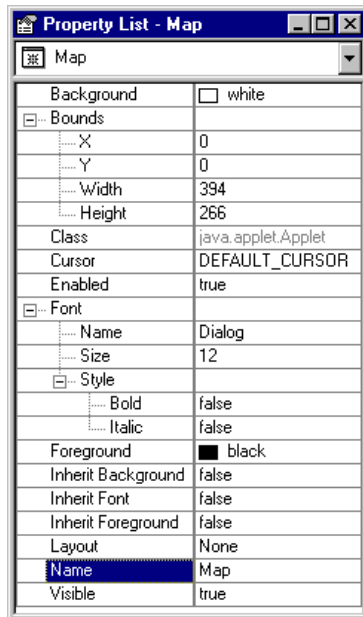
Setting the applet properties and adding the map

To start, you need to customize the properties of your form. Then you can add a picture of the island to the form.

To customize the properties of the form:

- 1 In the Property List, for Applet1, set the Name property to Map and the Inherit Background, Inherit Font, and Inherit Foreground properties to false.

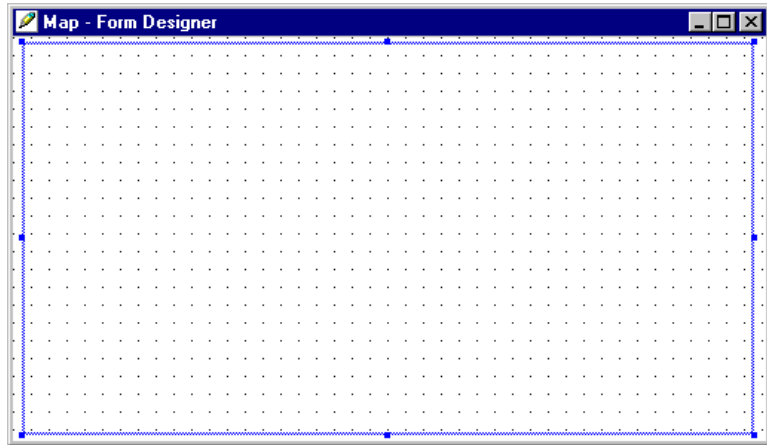
When you are finished, the Property List will look like this:



- 2 In the Component Palette, click the Multimedia tab, then click ImageViewer.

ToolTips shows you which button is for the ImageViewer component. Move the cursor over a button until a pop-up message appears.

- 3 Draw a rectangle (about as large as the island map) on the applet form by clicking and dragging the cursor.



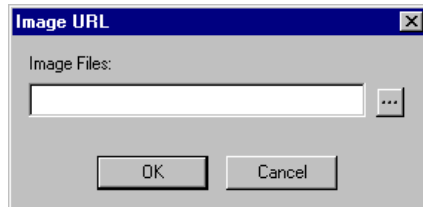
- 4 You can make the Form Designer window bigger by dragging the right side or bottom of the window. The components are positioned on the window relative to the top and left sides, so this spacing remains the same unless you move the components in the window.

The component you just added to the applet appears in the Project window.

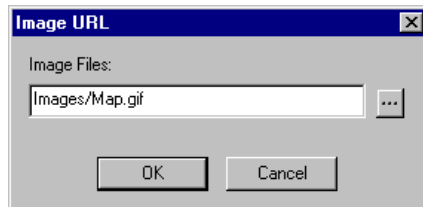


While the component is selected on the form, the Property List displays the properties of this component.

- 5 In the Property List, change the Name property to `imageViewerMap`.
- 6 Double-click the Image URL property.
The Image URL dialog box appears.



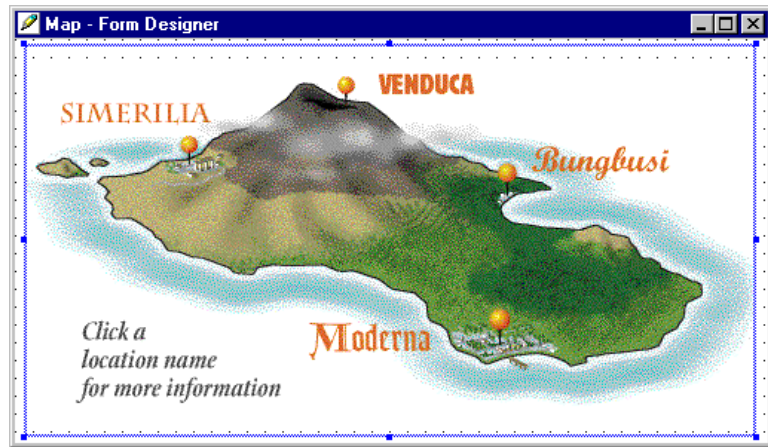
- 7 Click the ... button.
The Add Image Files dialog box appears.
- 8 Navigate to your `Images` directory, select `Map.gif`, then click Open.
The complete path appears in the Image URL dialog box.
- 9 Delete the first part of the URL, so the only path remaining is `Images/Map.gif`.



This creates the relative URL

- 10 Click OK.

The map appears in the Form Designer.



Resize the form and the component as needed, so you can see the entire image.

When a component is selected and you move the cursor over a square (called a handle) on the edge of a component, the cursor changes to a two-way arrow, which means you can click and drag to resize the component.



When a component is selected and you move the cursor over it, the cursor changes to a four-way arrow, which means you can click and drag the component to another location.



The Form Designer window size represents the applet size. So when you run the applet, it will appear the same size as the window.

- 11 Click the Project or Form Designer window, then choose Save All from the File menu.

The project and all included files are saved.

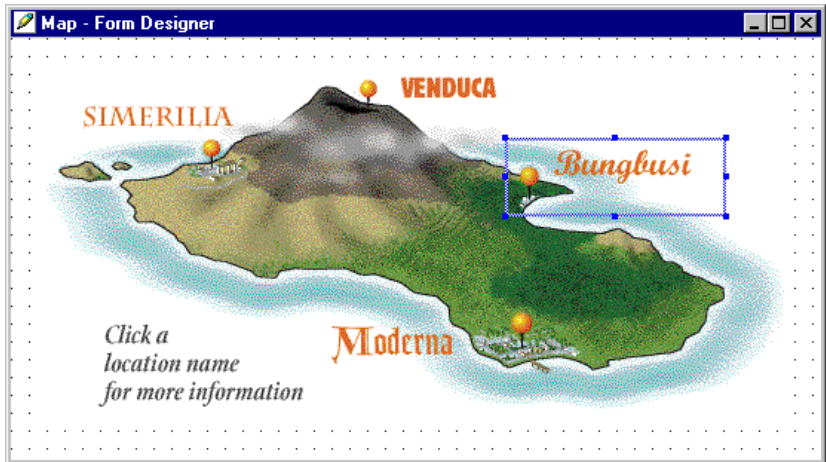
Adding the HTML links

Visual Cafe lets you specify clickable areas on the map by drawing InvisibleHTMLLink components on it. These areas are associated with a location in an HTML file, so when the applet runs clicking the area will cause a jump to another location.

To add the InvisibleHTMLLink components:



- 1 In the Component Palette, click Additional, then click InvisibleHTMLLink.
- 2 Draw the component over the image, by clicking and dragging, so it contains the word Bungbusi and the location on the map.



- 3 In the Property List, change the Name property to invisibleHTMLLinkB.
- 4 In the Property List, double-click the HTML Link URL property. The HTML Link URL dialog box appears.
- 5 Type Isle.html#Bungbusi in the dialog box, then click OK.
- 6 Add InvisibleHTMLLink components for the remaining three locations. Use the following values for the Name and HTML Link URL properties:
 - Venduca — invisibleHTMLLinkV and Isle.html#Venduca
 - Simerilia — invisibleHTMLLinkS and Isle.html#Simerilia
 - Moderna — invisibleHTMLLinkM and Isle.html#Moderna
- 7 Click the Project or Form Designer window, then choose Save All from the File menu.



Now you can add the final component to the applet: an eruption animation.

Adding the volcano eruption animation

The volcano eruption is an added feature of the island map that should attract attention.

To create the volcano eruption animation:

- 1 Select the island map on the form, then choose Send to Back from the Layout menu.

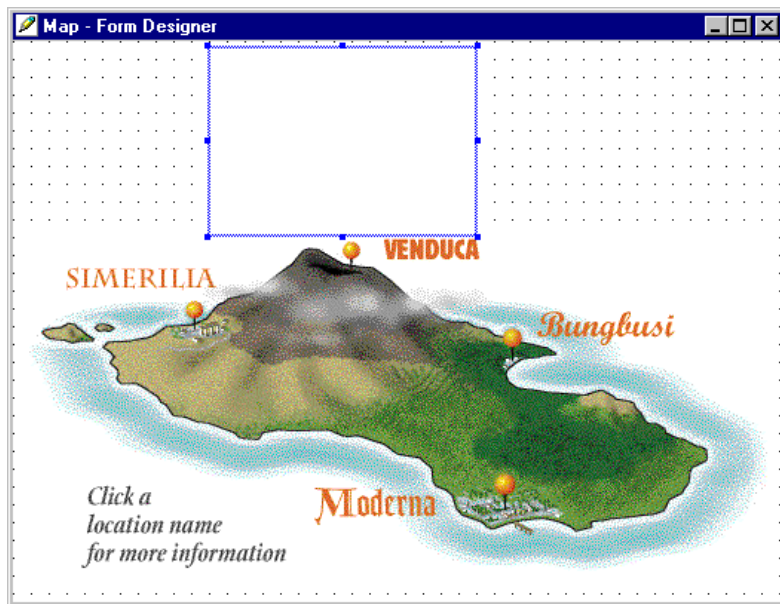
This puts the InvisibleHTMLLinks on top of the image. When you add components to a form, they are added after other components in the Project window. The order of components in the Project window determines how components overlap. After you choose Send to Back, the ImageViewer changes position in the Project window, indicating that it is now underneath the other components on the form.

- 2 Resize the form and move the components as needed so you can put the animation above the map.

Shift-click the image and each of the links, then drag to move them.



- 3 On the Component Palette, click Multimedia, then click Animator.
- 4 Draw a rectangle (about as large as the eruption) on the applet form by clicking and dragging the cursor.



- 5 In the Property List, set the Name property to animatorErupt.
- 6 In the Property List, double-click the URL List property of the Animator component.

The URL List dialog box appears.



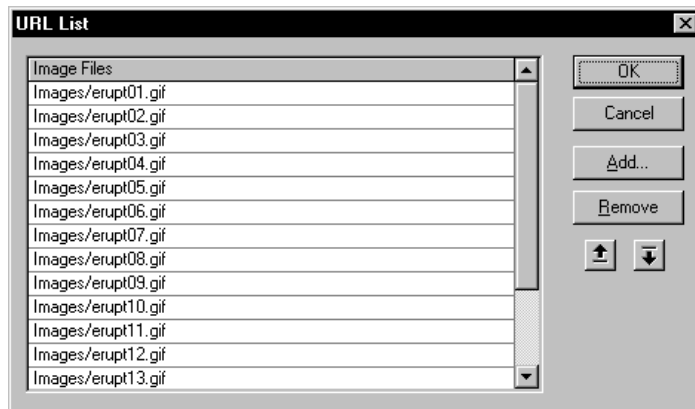
- 7 Click Add, select the Erupt01.gif file in the File dialog box, then click Open.

A dialog box, asking if you want to add the files Erupt*.gif, appears.

- 8 Click Yes to add the sequence of files.

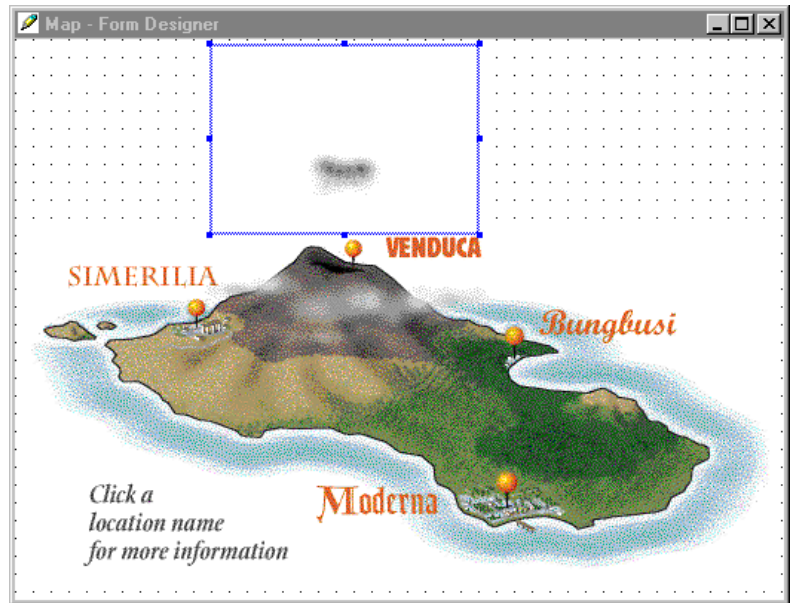
The files appear in the URL List dialog box.

- 9 For each file specification, double-click the row then remove the first part of each file specification up to the Images directory.



- 10 Click OK to close the dialog box.

An animation picture appears in the Form Designer.



Set the Preview Component in the Property list to true to view the animation.

- 11 Resize the Animator component as needed. Move the component until it's positioned where you want it in the applet.
- 12 Set the Preview Component to false.
- 13 Click the Project or Form Designer window, then choose Save All from the File menu.

You have completed the animation and the applet, so you can close the Form Designer.

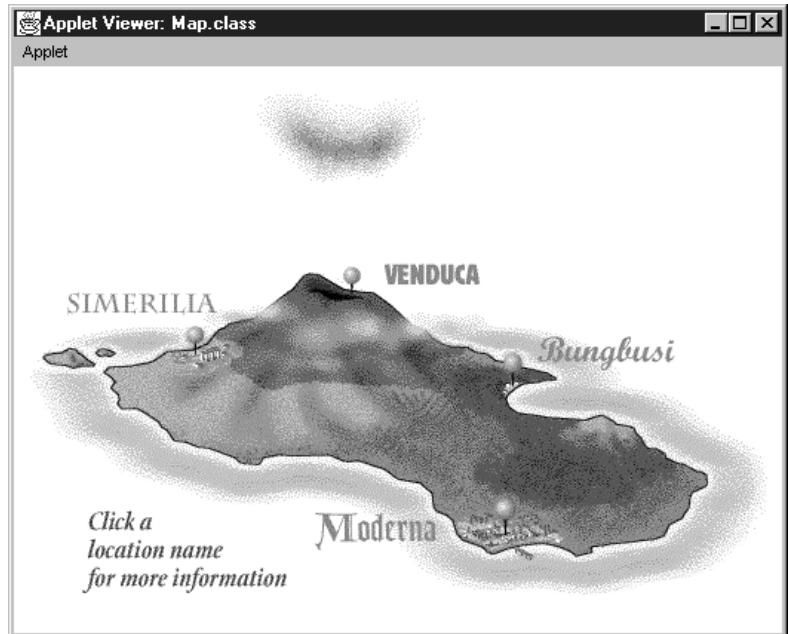
Running the applet

The integrated Applet Viewer enables you to view and test your working Java applets within the Visual Cafe environment. Now that you've created your applet, you can compile it and look at it while it's running.

To run the applet:

- 1 From the Project menu, choose Execute.

The applet appears in the Applet Viewer. Visual Cafe saves your source code and compiles your applet before displaying it.



When you choose **Execute** from the **Project** menu, the Visual Cafe bytecode compiler creates machine-independent bytecode instructions. Then the Symantec Just-In-Time (JIT) compiler translates these instructions into native machine instructions, which Visual Cafe runs for you. The machine instructions are stored temporarily in memory — no native executable is generated.

Visual Cafe's native bytecode compiler currently builds Java programs several times faster than the standard Sun Java compiler. The compiler also provides improved code optimizations and shows detailed error information in the **Messages** window. You can double-click an error message in this window to go to the line in the code where the error was generated.

The enhanced JIT compiler has superior execution speed, too. To start, it provides immediate applet and application execution by converting bytecodes on-the-fly to native code as needed. When compilation is complete, the JIT compiler seamlessly starts executing the native code.

- 2 From the **Applet** menu, choose **Quit**.
The **Applet Viewer** window closes.

Displaying the applet in a Web page

To test your applet, you need to view it in a Web page. This is the only way to try your HTML links. You will work through the following procedures to do so:

- “Adding the HTML file to the project”
- “Adding the applet tag to the HTML file”
- “Executing the applet within the Web page”

Note: To be able to run your applet in a Web browser, your default Web browser must support JDK 1.1.5.

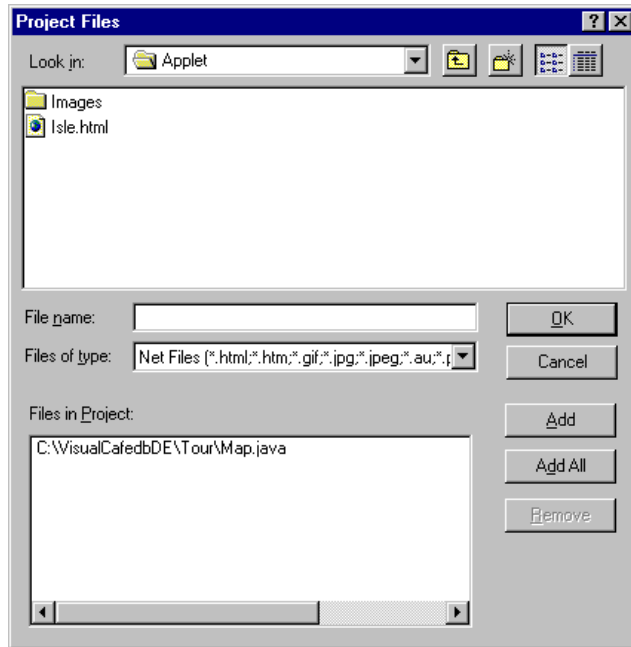
Adding the HTML file to the project

You can add HTML files to your project as an organizational tool, but it isn't required to run an applet in a Web page. Visual Cafe lets you create HTML files in the Source window, or you can import existing HTML files into a project. You already have your HTML file, so you can just add it.

To add the HTML file to the project:

- 1 From the Insert menu, choose Files into Project.

The Project Files dialog box appears.



- 2 In the Project Files dialog box, select `Isle.html` in your project directory, then click Add.

The file appears in the Files in Project list.

- 3 Click OK to add the file to the project.

The file appears in the Project window.



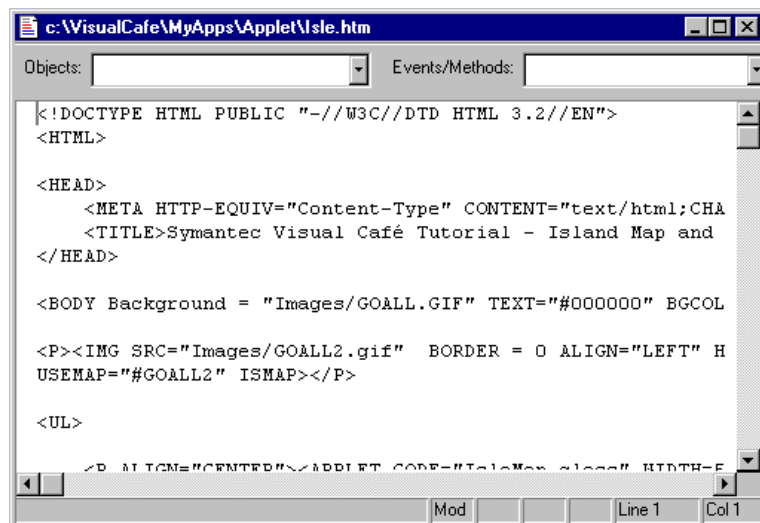
Adding the applet tag to the HTML file

Now you're ready to add the applet you created in Visual Cafe to the HTML file.

To add the applet to the HTML file:

- 1 Look at `Isle.html` by clicking the Files tab in the Project window, then double-clicking `Isle.html`.

The Source Editor appears. It contains the contents of `Isle.html`. You can edit the code in this window.



- 2 Find the following applet tag in the file:

```
<APPLET CODE="IsleMap.class" ARCHIVE="tour.jar"
WIDTH=594 HEIGHT=349 ALIGN=center>
```

```
</blockquote>
```

```
<hr>
```

If you were using a Java-enabled browser, you would see an island map and volcano eruption instead of this paragraph.

```
<hr>
```

```
</blockquote>
```

```
</APPLET>
```

This tag causes the applet to run within the Web page. If the browser isn't Java-enabled, the text displays instead.

Whenever you create an HTML document and want to include an applet, you need to add an applet tag.

- 3 Change the name `IsleMap.class` to `Map.class`. If the applet tag contains the `ARCHIVE="tour.jar"` variable and value, remove it.
- 4 If different, change the width and height in the applet tag so it matches the width and height in the Property List for your Map applet.
- 5 Close the Source window, and save changes.

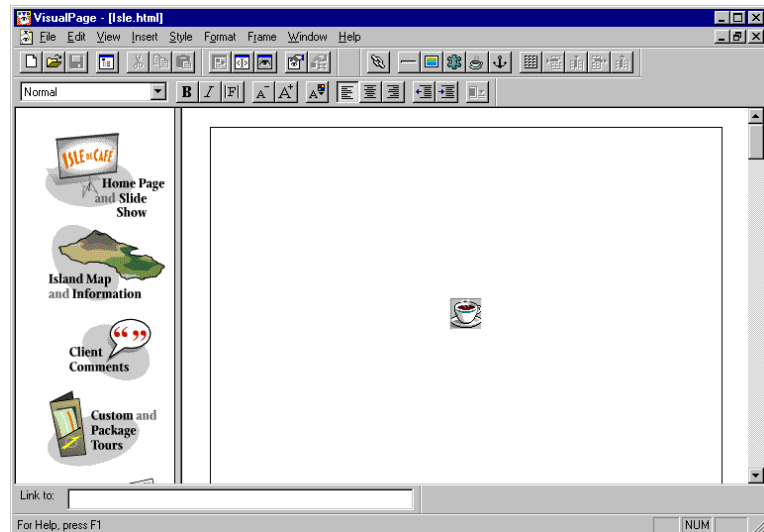
Executing the applet within the Web page

Visual Cafe lets you run the applet directly within the Web page by using Visual Page or your default Web browser. The advantage of using Visual Page is you can also modify your HTML files as needed.

To open your Web page in Visual Page:

- 1 In the Objects view of the Project window, double-click `Isle.html`.

If you have properly installed Visual Page from the Visual Cafe CD, Visual Page starts and displays your Web page.



- 2 From the View menu, choose Preview.
The applet runs in Visual Page.

3 Try out your applet.

Note: Some browsers use a different z-order when determining how components overlap in an applet. When run in a browser, the InvisibleHTMLLink must be on top for users to be able to click it. To ensure compatibility with different browsers, it is a good idea to “sandwich” InvisibleHTMLLinks on top and beneath the image they overlap. For now, if you are unable to use the InvisibleHTMLLinks, close the Web page, select the island map on the form, then choose Send to Back from the Layout menu and view the Web page in Visual Page again.

4 Exit Visual Page.

The window closes.

If your applet works properly in Visual Page, you have completed the applet. Continue with the next chapter to create the Custom Itinerary application.

Creating the Application and Debugging Code

This chapter builds on the previous chapter. It introduces you to some advanced features that you may want to use particularly if you have more programming experience and want to take advantage of all the diverse capabilities of Visual Cafe. In this chapter, you create the custom itinerary application that your clients can use to view their custom tour itineraries. You also try some of Visual Cafe's debugging features.

Note: The Tour is designed to be used in SDI mode. Make sure the MDI Development Environment checkbox is de-selected on the General tab of the Environment Options dialog box.

Creating the itinerary application

To create the itinerary application, work through the following tasks:

- “Opening and naming the new project”
- “Gathering the files you need”
- “Setting the properties of Frame1 and adding the SlideShow component”
- “Adding the Button components to the frame”
- “Adding the Amazing Adventures Travel logo”
- “Adding the labels”

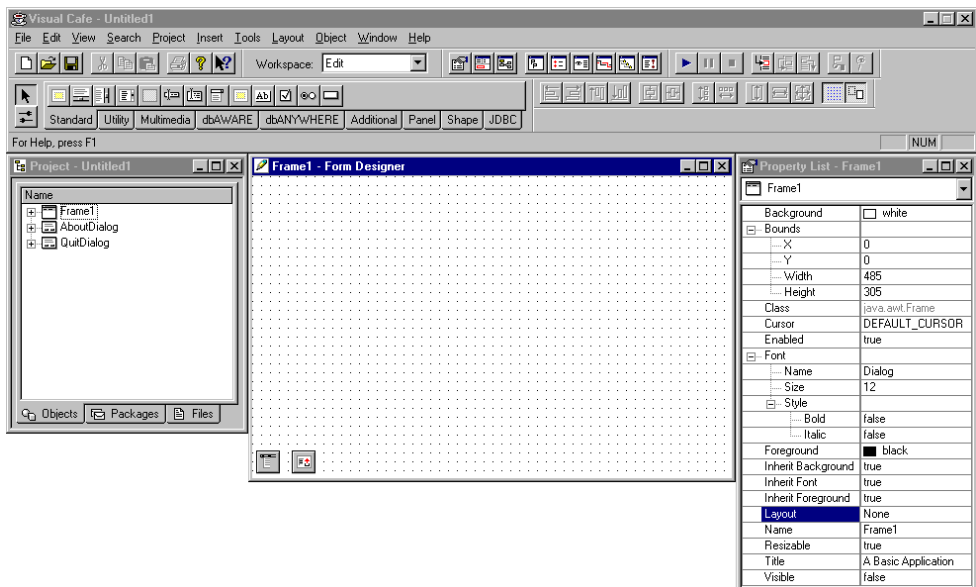
- “Specifying component interactions”
- “Adding custom Java code”
- “Customizing the menu bar”
- “Customizing the About dialog box”
- “Customizing the Quit dialog box”
- “Running the application”

Opening and naming the new project

You should create a separate project for your application and save it in its own directory.

To create the new project:

- 1 Close any open projects.
- 2 From the File menu, choose New Project.
The New Project dialog box appears.
- 3 Select the Basic Application project template, then click OK.
The Project and Form Designer windows appear.



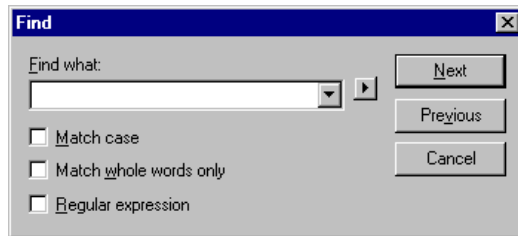
A standard application project contains a Java frame (a special kind of window) with a predefined menu bar, an About dialog box, and a Quit dialog box. Two objects already included in Frame1 are `mainMenuBar` and `openFileDialog1`, which are represented by icons on the Form Designer. If you select an icon on the Form Designer, it is identified in the Property List.

- 4 Double-click the Form Designer.

The Source Editor appears.

- 5 From the Search menu, choose Find.

The Find dialog box appears.



- 6 Type `void main`, then click Next.

The word is highlighted in the Java code. When you use the frame in the application template, it's already set to be the main application window. If you do not use the frame in the template, you need to add the main and show methods to your main application window.

- 7 Close the Source Editor.

- 8 Click the Project window, then choose Save As from the File menu.

The Save As dialog box appears.

- 9 Create a new directory structure, such as `\MyApps\Application`, to hold your application files.

The project and all of the files contained within it should be in the same directory. For easier project management and to prevent filename conflicts, you should save each project in its own directory.

- 10 Navigate to your project directory, type `MyIslePr.vep` in the File name field, then click Save.

The new name appears in the titlebar of the Project window, and all the files in the project are saved to this directory.

Gathering the files you need

To use relative URLs, you will store your graphics files in a directory subordinate to the project directory.

To gather and store the graphics files:

- 1 Using Windows operating system commands, copy the `\Tour\Application\Images` directory.
- 2 Paste the directory in your project directory.

The Images directory contains the following files:

Logo.gif

Photo_1.gif through Photo_8.gif

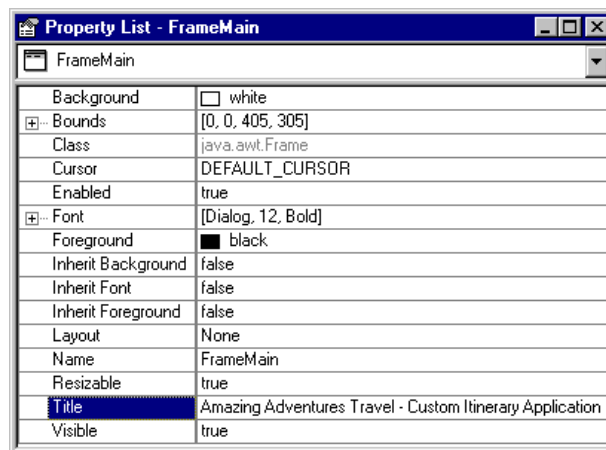
Tour.dat

Setting the properties of Frame1 and adding the SlideShow component

The user interface of your application can be put together quickly with the SlideShow component, which associates a picture with text and allows you to navigate through sequential photos with button clicks.

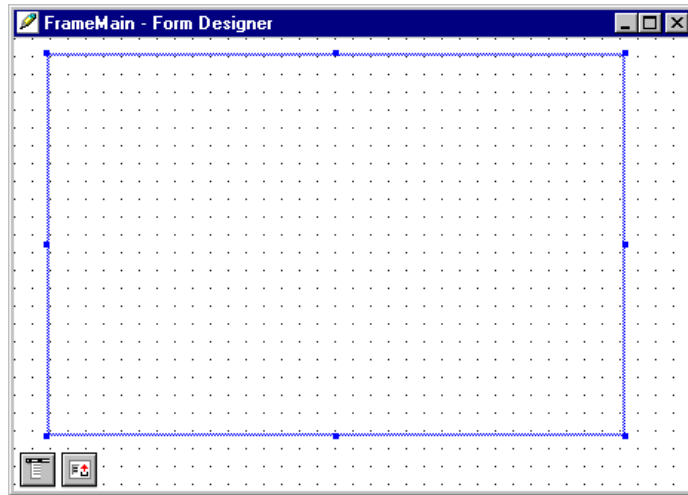
To add the SlideShow component to the frame and set its properties:

- 1 Set the Frame1 properties, including Name, Title, and Inherit Background, Inherit Font, and Inherit Foreground, so it appears as follows:





- 2 On the Component Palette, click Multimedia, then click SlideShow. ToolTips shows you which button is for the SlideShow component. Move the cursor over a button until a pop-up message appears.
- 3 Draw a rectangle (about as large as the photos) on the form by clicking and dragging the cursor.



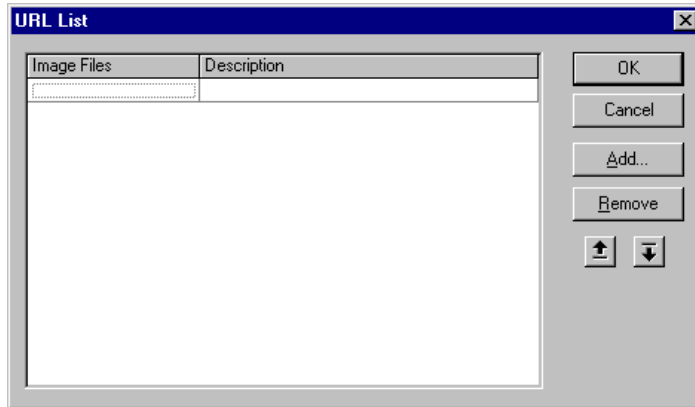
While the component is selected on the form, the Property List displays the properties of this component. The Project window shows the new component.



- 4 In the Property List, change the Name property to slideShowItinerary.
- 5 Resize the slide show until it's approximately 340 pixels in width by 235 pixels in height by typing in the Property List.

- 6 In the Property List, double-click the URL List property of the SlideShow component.

The URL List dialog box appears. Normally, you would enter photo names and text descriptions here, but for your application you will read in a file that sets these properties at runtime.



- 7 Click Cancel.
- 8 Click the Project or Form Designer window, then choose Save All from the File menu.

Adding the Button components to the frame

The slide show is controlled by button clicks. You need to add the buttons and set their properties.

To add the button components:

- 1 Resize the Form Designer window so two buttons can fit under the SlideShow component. Move the component until it's positioned where you want it in the frame.

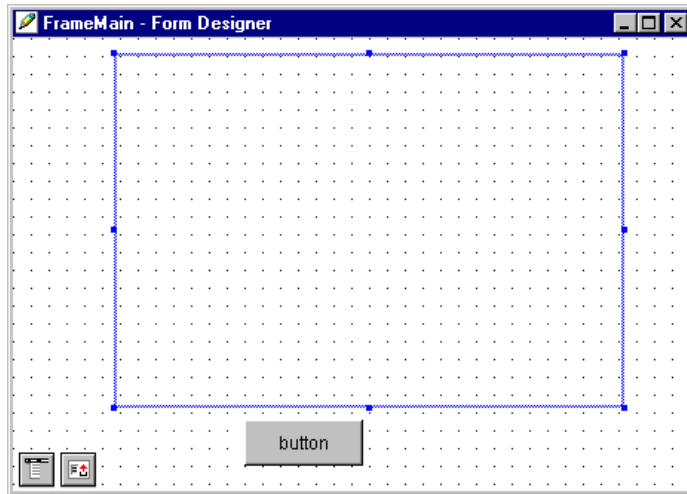
You can make the Form Designer window bigger by dragging the right side or bottom of the window. The components are positioned on the window relative to the top and left sides, so this spacing remains the same unless you move the components in the window.

The Form Designer window size represents the Java frame container size. The frame size is the same as the window size. So when you run the application, it will appear the same size as the window.



- 2 While the Form Designer is the active window, click the Standard tab on the Component Palette, then click Button.

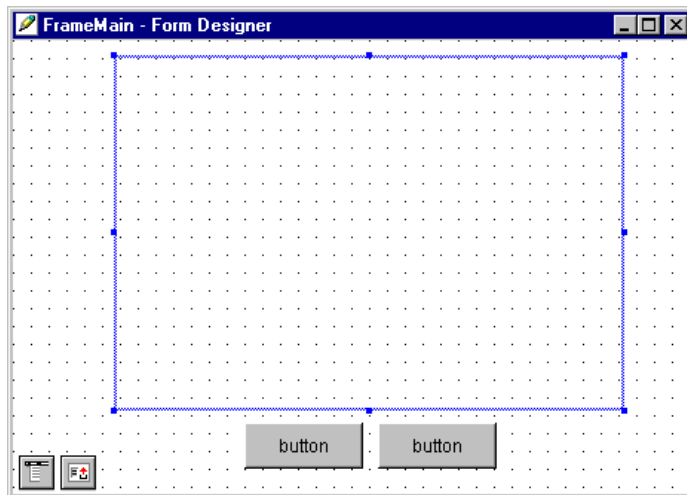
- 3 Draw a button under the SlideShow component by clicking and dragging.



- 4 To copy and paste this button, select the button and choose Copy from the Edit menu, then choose Paste from the Edit menu. You can also choose these menu items from the pop-up menu that appears when you right-click.

A second button appears.

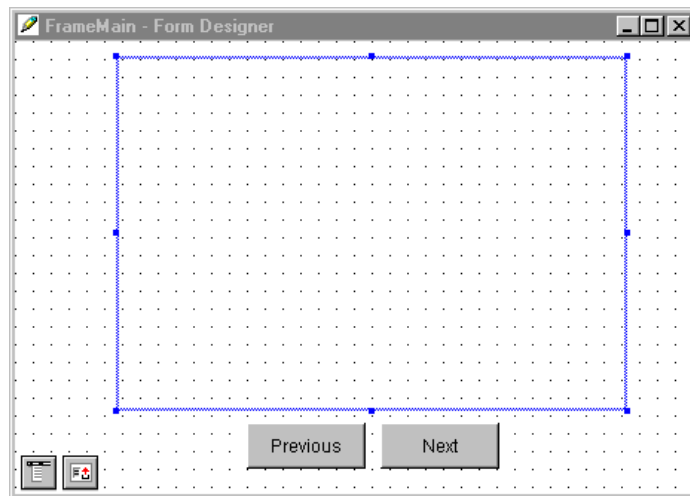
- 5 Position the buttons under the SlideShow component as follows:



- 6 Select the button on the left, then set the following properties:

- Name — buttonPrevious
 - Label — Previous
 - Visible — false (because you don't want the button to appear until you load a data file)
- 7 Select the button on the right, then set the following properties:
- Name — buttonNext
 - Label — Next
 - Visible — false

The buttons now both have names.



- 8 Click the Project or Form Designer window, then choose Save All from the File menu.

Adding the Amazing Adventures Travel logo

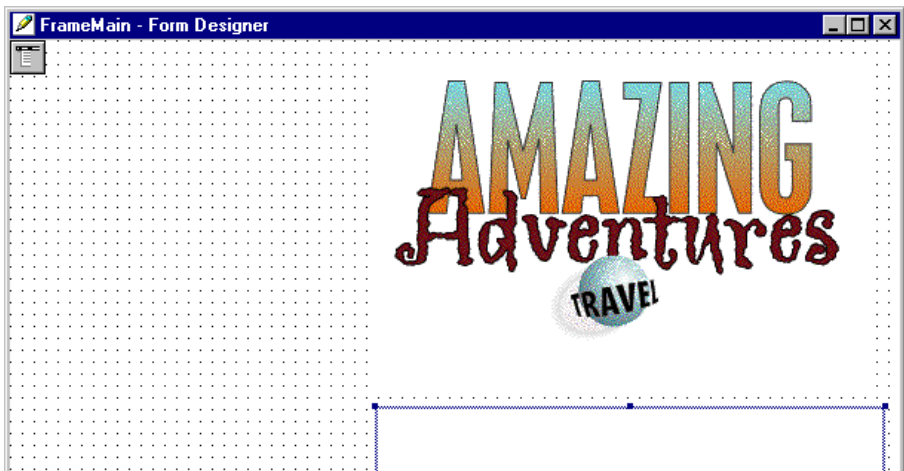
Now you can add your company logo.

To add the Amazing Adventures Travel logo:

- 1 In the Property List, resize FrameMain to 600 pixels in width and 530 pixels in height.
The form size changes. If you have a small screen, you can make FrameMain smaller.
- 2 Shift-click the SlideShow component, then each button, to select them.



- 3 Drag the components to the bottom right corner of the form.
- 4 In the Component Palette, click Multimedia, then click ImageViewer.
- 5 On the form, draw a rectangle above the SlideShow component (a little less wide than the slide show) by clicking and dragging the cursor.
- 6 In the Property List, change the Name property to `imageViewLogo`.
- 7 Double-click the URL property.
The URL dialog box appears.
- 8 Click the ... button.
The Add Image Files dialog box appears.
- 9 Navigate to your Images directory, select `Logo.gif`, then click Open.
- 10 To create a relative URL, delete the file specification so it displays just `Images/Logo.gif`. Then click OK in the URL dialog box.
The logo appears in the Form Designer.



- 11 Click the Project or Form Designer window, then choose Save All from the File menu.

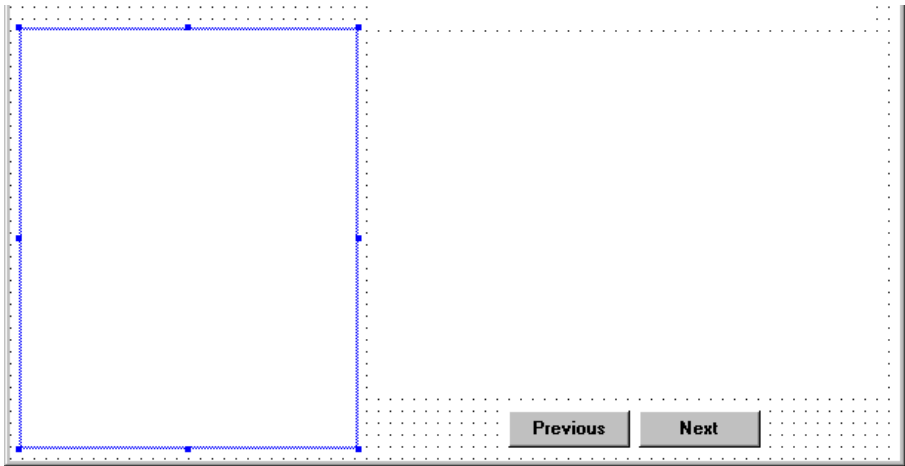
Adding the labels

Your application displays text, so you need to add text fields to the form.

To add the text field components:



- 1 In the Component Palette, click the Additional tab, then click WrappingLabel.
- 2 Draw a text box to the left of the SlideShow component.
The dimensions can be about 240 pixels in width by 265 pixels in height.

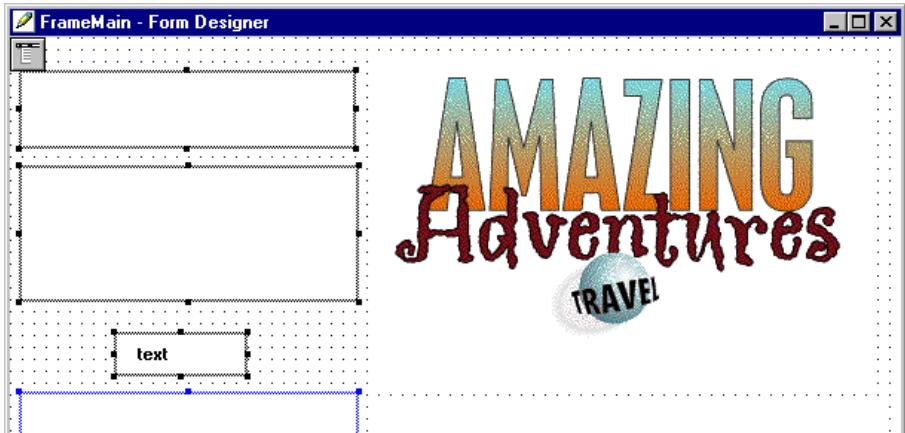


You can choose Grid Options from the Layout menu to turn Snap to Grid on or off.

- 3 In the Property List, set the following properties:
 - Name — wrappingLabelDesc
 - Font Size — 14
 - Font Style Bold — false



- 4 To the left of the picture, draw two WrappingLabel components and underneath a Label component (in the Standard tab of the Component Palette) as shown.



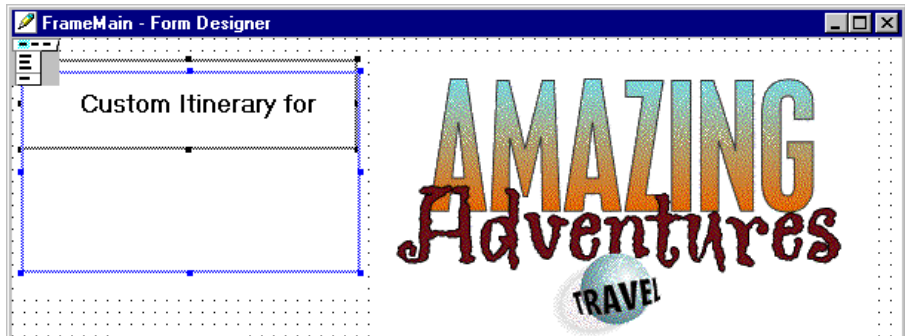
- 5 In the Property List, set the properties of the top WrappingLabel component as follows:
- (To display the properties in the Property List for this component, either select the component on the form or choose it from the drop-down list in the Property List window.)
- Name — wrappingLabelTop
 - Font Size — 16
 - Font Style Bold — true
 - Text Alignment — ALIGN_CENTERED
 - Text — Custom Itinerary for
- 6 Set the properties of the middle WrappingLabel component as follows:
- Name — wrappingLabelPeople
 - Font Size — 24
 - Font Style Bold — true
 - Text Alignment — ALIGN_CENTERED
- 7 Set the properties of the Label component as follows:
- Name — labelDay
 - Font Size — 16
 - Font Style Bold — false

- Font Style Italic — true
- Alignment — CENTER

Also, delete the text in the Text field.



- 8 Now draw a WrappingLabel component over the top two labels as follows:



- 9 Set the properties of the new WrappingLabel component as follows:
 - Name — wrappingLabelStart
 - Font Size — 16
 - Font Style Bold — true
 - Text — To start, choose Open from the File menu and open your data file. Your .dat file and the graphics files must be in the same directory.
- 10 Select wrappingLabelStart on the Form Designer, then choose Bring to Front from the Layout menu.

This ensures that the label is on top of the other labels. Because the labels overlap, an easy way to select wrappingLabelStart is to choose it from the Property List drop-down menu.

- 11 Click the Project or Form Designer window, then choose Save All from the File menu.

Specifying component interactions

One of the most powerful features of Visual Cafe is the ability to create interactions between components. The Interaction Wizard lets you graphically build relationships between components, or between a component and itself (for example, double-clicking an item in a list box could remove the item from the list box and add it to another list box).

These relationships specify the actions to take when an event is triggered on a component. For example, in a slide show, a button click could cause the next photo to be displayed. Visual Cafe automatically generates the necessary Java code for the specified relationship.

In the following sections, you specify interactions between components on the application form:

- “Setting up the Previous button to display the previous image”
- “Setting up the Next button to display the next image”
- “Disabling the Next button at the end of the slide show”
- “Disabling the Previous button at the start of the slide show”
- “Making the slide show descriptions appear in the wrapping labels”
- “Setting the Day label”

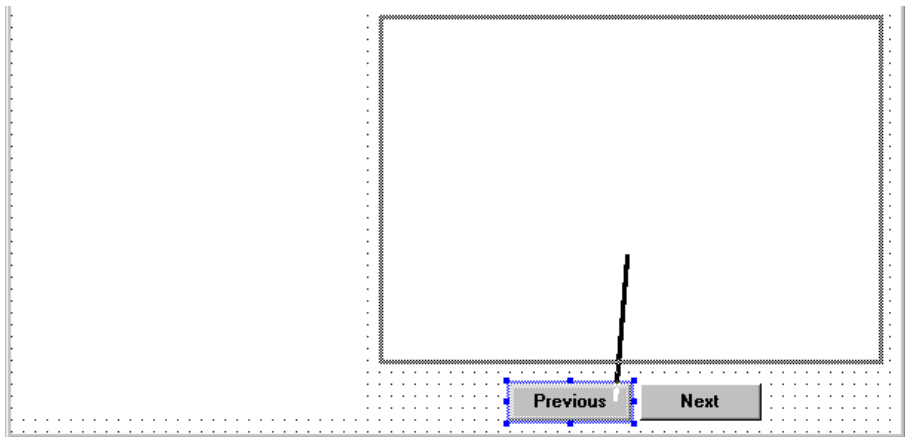
Setting up the Previous button to display the previous image

Here you set up an interaction between the Previous button and the SlideShow component so that a button click causes the previous image to be displayed.

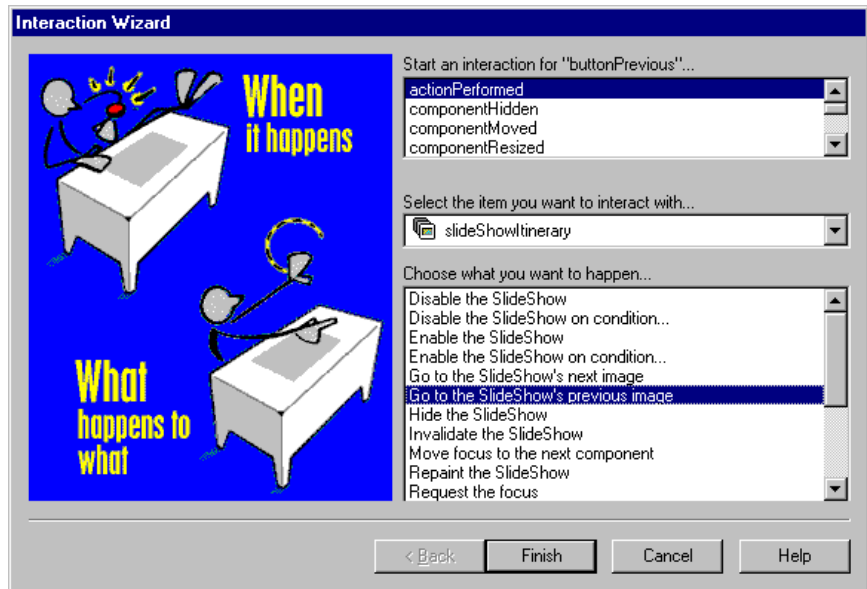
To set up the Previous button to display the previous image:



- 1 Click the Interaction Wizard button, then click the Previous button and drag a line to the SlideShow component.



The Interaction Wizard appears.



- 2 Select the following items:
 - Start an interaction for “buttonPrevious”: ActionPerformed
 - Select the item you want to interact with: slideShowItinerary
 - Choose what you want to happen: Go to the SlideShow’s previous image
- 3 Click Finish.

Setting up the Next button to display the next image

Here you set up an interaction between the Next button and the SlideShow component so a button click causes the next image to be displayed.

To set up the Next button to display the next image:



- 1 Click the Interaction Wizard button, then click the Next button and drag a line to the SlideShow component.

The Interaction Wizard appears.

- 2 Select the following items:
 - Start an interaction for “buttonNext”: ActionPerformed
 - Select the item you want to interact with: slideShowItinerary

- Choose what you want to happen: Go to the SlideShow's next image
- 3 Click Finish.

Disabling the Next button at the end of the slide show

When you're at the last picture, you want to indicate that by disabling the Next button.

To disable the Next button at the end of the slide show:



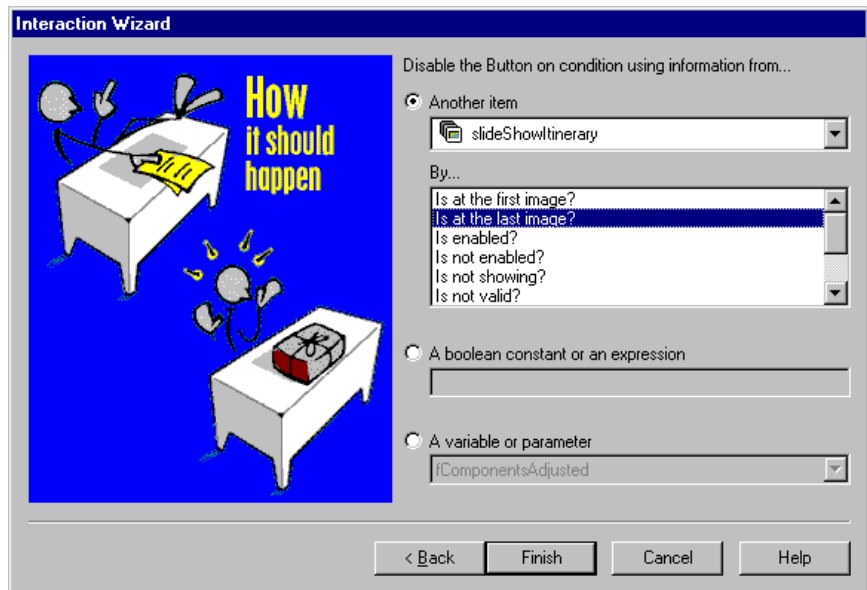
- 1 Click the Interaction Wizard button, then click the SlideShow component and drag a line to the Next button.

The Interaction Wizard appears.

- 2 Select the following items:
 - Start an interaction for "slideShowItinerary": SlideChanged
 - Select the item you want to interact with: buttonNext
 - Choose what you want to happen: Disable the Button on condition

- 3 Click Next.

The second page wizard appears.



- 4 While Another item is selected, choose `slideShowItinerary` and select `Is` at the last image?
- 5 Click `Finish`.

Disabling the Previous button at the start of the slide show

When you're at the first picture, you want to indicate that by disabling the `Previous` button.

To disable the `Previous` button at the start of the slide show:



- 1 Click the `Interaction Wizard` button, then click the `SlideShow` component and drag a line to the `Previous` button.
The `Interaction Wizard` appears.
- 2 Select the following items:
 - Start an interaction for “`slideShowItinerary`”: `SlideChanged`
 - Select the item you want to interact with: `buttonPrevious`
 - Choose what you want to happen: `Disable the Button on condition`
- 3 Click `Next`.
The second page of the wizard appears.
- 4 While `Another` item is selected, choose `slideShowItinerary` and select `Is` at the first image?
- 5 Click `Finish`.
- 6 Click the `Project` or `Form Designer` window, then choose `Save All` from the `File` menu.

Making the slide show descriptions appear in the wrapping labels

You need to set up an interaction between the `SlideShow` component and a `WrappingLabel` component so the descriptive text associated with a picture displays in the text field.

To make the slide show descriptions appear in the wrapping labels:



- 1 Click the `Interaction Wizard` button, then click the `SlideShow` component and drag a line to the `wrappingLabelDesc` component.
The `Interaction Wizard` appears.

- 2 Select the following items:
 - Start an interaction for “slideShowItinerary”: SlideChanged
 - Select the item you want to interact with: wrappingLabelDesc
 - Choose what you want to happen: Set the text for this WrappingLabel
- 3 Click Next.

The second page of the wizard appears.
- 4 While Another item is selected, choose slideShowItinerary and select Get current description.
- 5 Click Finish.

Setting the Day label

Now you’ll set up the incrementing and decrementing Day field.

To set up the Day label:



- 1 Click the Interaction Wizard button, then click the Next button and drag a line to the labelDay component.

The Interaction Wizard appears.
- 2 Select the following items:
 - Start an interaction for “buttonNext”: ActionPerformed
 - Select the item you want to interact with: labelDay
 - Choose what you want to happen: Set the text for Label
- 3 Click Next.

The second page of the wizard appears.
- 4 Select A String constant or an expression.
- 5 Deselect Add quotes.
- 6 Type this expression (don’t forget the blank spaces):
`"Day " + (++dayCount)`



- 7 Click Finish.
- 8 Click the Interaction Wizard button, then click the Previous button and drag a line to the labelDay component.

The Interaction Wizard appears.
- 9 Select the following items:
 - Start an interaction for “buttonPrevious”: ActionPerformed

- Select the item you want to interact with: `labelDay`
 - Choose what you want to happen: Set the text for Label
- 10 Click Next.
The second page of the wizard appears.
 - 11 Select A String constant or an expression.
 - 12 Deselect Add quotes.
 - 13 Type this expression:
`"Day " + (--dayCount)`
 - 14 Click Finish.
 - 15 Click the Project or Form Designer window, then choose Save All from the File menu.

Now it's time to add the custom code. You can close the Form Designer if you want.

Adding custom Java code

You can add custom Java code to a project, including complete applets and applications. If the code contains visual aspects, Visual Cafe translates the code into a visual representation that's displayed in the Form Designer.

Visual Cafe has many features to assist you with creating new Java code. For example, the Source Editor can help you when you want to handle an event for a component. From the Source Editor, you can select a component from the Object drop-down list, then select the event you want to handle from the Events/Methods drop-down list. When you do this, Visual Cafe creates a method for that event and puts a call to that method in the event handler. You fill in the body of the method.

Now that Visual Cafe has created the main portion of your program, you can add custom code to read data from a file at runtime and to increment the Day label.

The data file is a text file in the following format:

```
client_names  
number_of_pictures  
picture1_filename  
picture1_text  
picture2_filename  
picture2_text  
...
```

Here's an easy way to add the code:

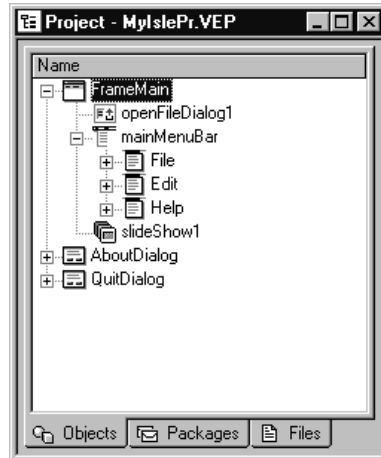
- 1 Choose Open from the File menu, and open
 \Tour\Application\AmazingTour.java.
 The file appears in the Source Editor. The custom code is identified
 by comments directly in the code.
- 2 In the Project window, click FrameMain, then right-click. Choose
 Edit Source from the pop-up menu.
 FrameMain.java appears in another Source Editor.
- 3 Copy the custom code from AmazingTour.java into your
 application.
 You can search for the words “Custom code” in
 AmazingTour.java to find the code quickly. There are eight
 places where you need to copy the code. Make sure you insert the
 code into your application directly under the same line that appeared
 above it in AmazingTour.java.
- 4 When you're finished, click the FrameMain Source Editor and
 choose Save All. Then close the Source Editors.

Customizing the menu bar

When you use the Create Project wizard to create a Java application, Visual Cafe adds a set of menus and menu items that are frequently used in applications. For this application, you will use only a small subset of the default menus.

To modify the default menu bar in the application:

- 1 In the Project window, display the contents of mainMenuBar (subordinate to FrameMain) by clicking the +.



- 2 In the Project window, select the Edit menu component and delete it.
- 3 In the Project window, display the contents of the File menu, then delete New, Save, and SaveAs.
- 4 Click the Project window, then choose Save All from the File menu.

Customizing the About dialog box

The About dialog box is included as part of the application template.

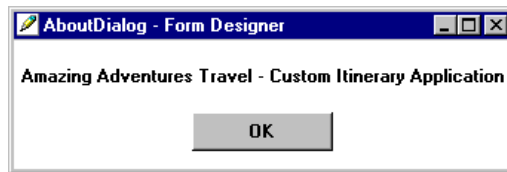
To modify the About dialog box:

- 1 Double-click the AboutDialog object in your project.
The Form Designer appears.
- 2 Change the properties as follows:
 - Inherit Font — false
 - Inherit Background — false
 - Inherit Foreground — false
- 3 Click the Label component in the Form Designer.

- 4 In the Property List, click the Text property value to highlight it, then type Amazing Adventures Travel - Custom Itinerary Application.

The text appears in the Label.

- 5 Click the Form Designer, then resize and reposition the label, button, and form as needed.



- 6 Click the Project or Form Designer window, then choose Save All from the File menu.

The About dialog box is saved in the project.

- 7 Close the Form Designer for the About dialog box.

Customizing the Quit dialog box

The Quit dialog box is also included as part of the application project template.

To modify the Quit dialog box:

- 1 Double-click the QuitDialog object in your project.
The Form Designer appears.
- 2 Change the properties as follows:
 - Inherit Font — false
 - Inherit Background — false
 - Inherit Foreground — false
- 3 Click the Project or Form Designer window, then choose Save All from the File menu.
The Quit dialog box is saved in the project.
- 4 Close the Form Designer for the Quit dialog box.

Running the application

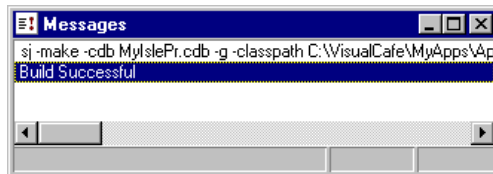
Now that you've specified the user interface and other aspects of your application, you're ready to run it.

To run the application from within Visual Cafe:

1 From the Window menu, choose Messages.
The Messages window appears.

2 From the Project menu, choose Execute.

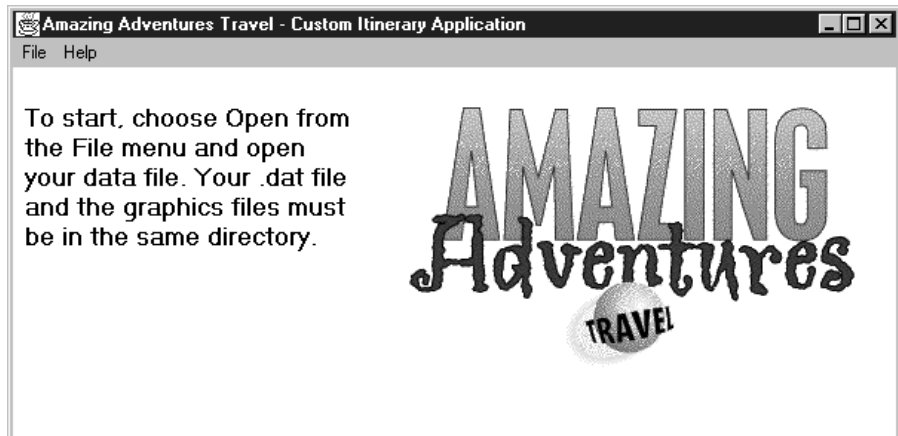
Visual Cafe compiles your application before displaying it. Any warning or error messages appear in the Messages window.



You can double-click an error message in this window to go to the line in the code where the error was generated.

Println statements and certain errors might be displayed in a java (command prompt) window.

Then the application appears.



- 3 Open the data file in the Images directory, and click the Next and Previous buttons to verify your application works as planned.



- 4 Close the application.
- 5 Make adjustments in the Form Designer as needed. Then execute the application again. Repeat until the application looks the way you want it.

If the application works as planned, you have completed it.

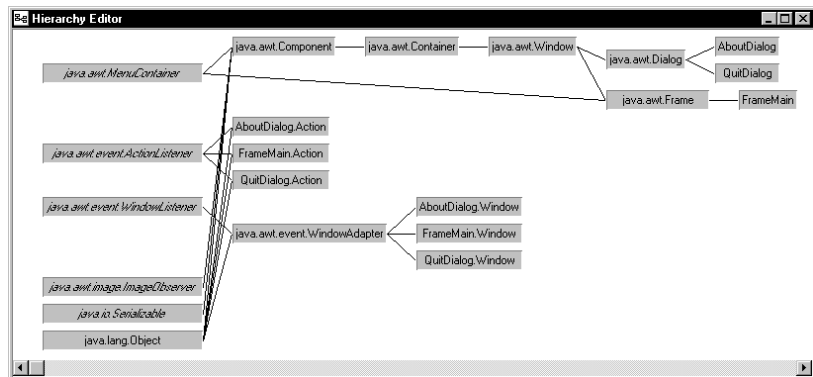
Looking at the application in the Hierarchy Editor and Class Browser

Visual Cafe has special object programming tools that make it easy to understand and manage Java classes. Let's take a look at your application in the Hierarchy Editor and Class Browser.

To look at the application in the Hierarchy Editor and Class Browser:

- 1 While your application project is open, choose Hierarchy Editor from the View menu.

Your application appears in the Hierarchy Editor.



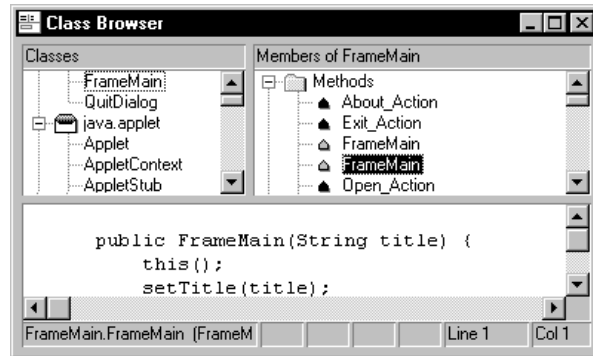
The Hierarchy Editor lets you visually learn, modify, and extend the Java class hierarchy for an applet or application. Drag and drop to instantly edit the hierarchy structure — both the visual model and the source code.

- 2 Right-click, then choose View Imports from the pop-up menu.

The Hierarchy Editor now shows all Java classes.

- 3 In the Hierarchy Editor, double-click a class to navigate to a class definition in the Class Browser. Then select a member in the upper right list.

The Class Browser shows the code associated with the class member.



The three-pane Class Browser lists the classes in your project, and shows each method and data member contained within a class, all of which are individually editable to make you more productive. For example, when you click a class in the upper left pane, its methods and data members appear in the upper right pane. When you click a method, that implementation of the method is extracted from the source file and displayed in the lower pane where you can edit it. This makes it easy to navigate to the areas you want to edit — no matter how large the source file — and reduces the possibility of accidentally editing code outside the scope of the selected object.

Color syntax highlighting makes your Java source more readable. The Class Browser also has an incremental search feature when you have a class selected: as you type the name of a class, the list of matching objects is refined until you have automatically selected the class you want.

Visual Cafe reads your Java source code so the Hierarchy Editor and Class Browser always contain the most up-to-date information.

- 4 Close the Class Browser and Hierarchy Editor.

Debugging

The integrated graphical debugger provides source-level debugging and lets you browse data and manipulate calls and threads. You can modify a variable value and continue debugging without reloading. The Source Editor shows ValueTips so you can quickly view variable values.

While debugging, you can either step through each line of source code one at a time (including sublevel method code, when available) or step over the execution of method calls, which causes the debugger to execute all method code then pause on the line following the method call.

The debugger includes the following windows:

- Breakpoints window — The breakpoints for the entire project appear in this window. You can set simple breakpoints that stop execution at a certain line or method, or conditional breakpoints based on an expression.
- Threads window — You can pause individual threads, which causes their execution to cease temporarily while all other threads continue to execute, and resume them. This helps you check for and resolve thread synchronization errors, where more than one thread is in contention for the execution of a method. Double-clicking a thread in this window updates the Calls window, so it reflects the chain of execution for the thread, and the Variables window, so it reflects the scoping level of the thread.
- Calls window — All code modules and methods executed by a thread, and the current execution point and return points for each called method, appear in this window. This view is useful for following the flow of the code, for example.
- Watch window — In this window, you can specify variables and expressions that you want to watch continuously while debugging your program. The values update when you pause execution or step through code. You can also examine the contents of a class member or variable. To watch all the variables accessible to a method, drag the variable from the Variables window to the Watch window. To modify a variable value, you can enter it and continue debugging without having to stop and restart the debug session.
- Variables window — This window incorporates a tree view so you can collapse and expand the various scopes and makes it easy to examine the values of both simple and complex data types, such as arrays. It automatically displays the local and global variables and objects that are local to the current method, and the variables that are members of the current object. You can edit variable values.

All of the debugger windows have resizable columns so you can create the most readable display.

Visual Cafe also lets you debug an applet or application that's running on another computer. One computer displays the debug windows while an applet or application runs on a remote computer.

Working with the debugger is divided into the following sections:

- “Debugging the About dialog box”
- “Debugging the Day label”

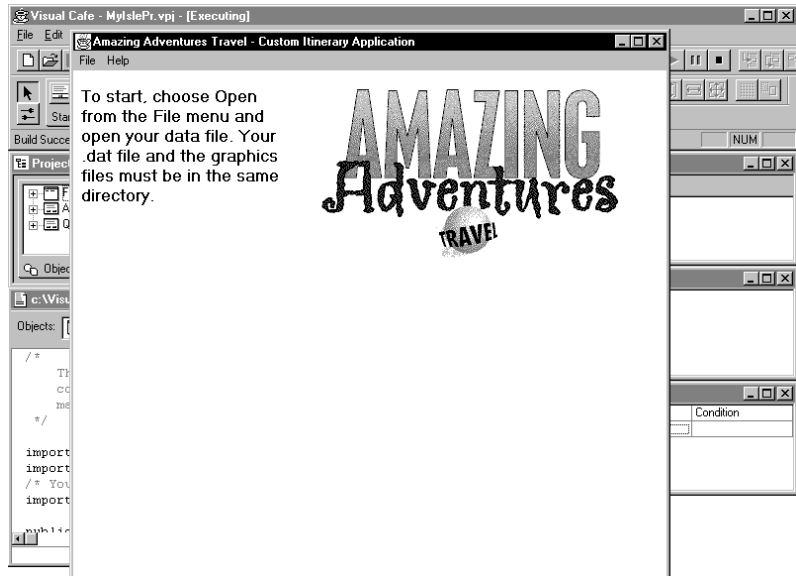
Debugging the About dialog box

Although the About dialog box works properly in your application, here you can explore some debugging features by working with the About dialog box code.

To debug the About dialog box:

- 1 While your application project is open, choose Run in Debugger from the Project menu.

Visual Cafe compiles your program and displays several debugger windows. Then it displays your application.

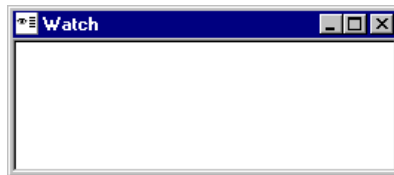


Note: When your application is running, “Executing” appears in the titlebar of the Visual Cafe main window. Note that when your application is paused, it cannot redraw its window, so the application may pick up the contents of other windows when you move them.

The Variables, Calls, and Breakpoints windows should be displayed. If they aren’t, open the window by choosing them from the View menu.

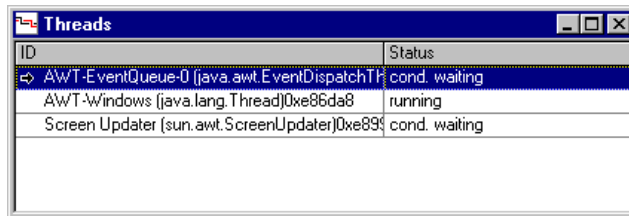
- 2 If it’s not already open, open FrameMain in the Source Editor.
- 3 From the View menu, choose Watch.

The Watch window appears. You use the Watch window to display the value of selected variables.



- 4 From the View menu, choose Threads.

The Threads window appears.



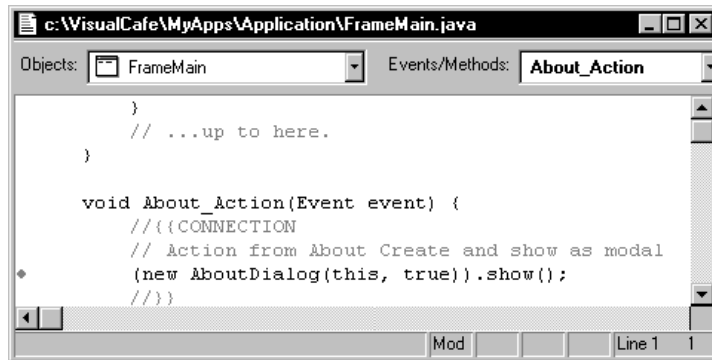
The window shows the standard Java AWT threads and other threads, including the debugger threads.

- 5 In the Source Editor, choose FrameMain in the Objects pull-down list, then choose miAbout_Action from the Events/Methods pull-down list.

The miAbout_Action method appears in the window.

- 6 Click the line with the show method, right-click, then choose Set Breakpoint from the pop-up menu.

A red diamond indicates a breakpoint was set.



Notice the breakpoint in the Breakpoints window.

- 7 In your running application, choose About from the Help menu.
The breakpoint is triggered. The Source Editor appears and the breakpoint line is highlighted. Variables and their values at this point in the code appear in the Variables window; the current call stack appears in the Calls window. The titlebar of the Visual Cafe main window displays [Paused].
- 8 From the Debug menu, choose Step Into.
Another Source Editor appears. It displays AboutDialog.java.
- 9 From the Debug menu, choose Step Over.
The next call is highlighted.
- 10 From the Debug menu, choose Step Out.
You return to the FrameMain.java file.
- 11 Right-click the highlighted line and choose Clear Breakpoint from the pop-up menu.
The breakpoint is removed.
- 12 From the Debug menu, choose Continue.
- 13 Now you can click OK in the About dialog box.
- 14 From the File menu, choose Open, then open Tour.dat.
The data appears in the application.
- 15 Click the FrameMain Source Editor.
- 16 Choose main from the Events/Methods drop-down list.
- 17 From the Search menu, choose Find, then search for class SymAction.

The class appears. ActionListener receives events such as mouse clicks and determines which event handler each event goes to.

- 18 Set a breakpoint at Object object.

The breakpoint appears.

- 19 Click a button in the application window.

The breakpoint is triggered.

The Visual Cafe debugger lets you dynamically set breakpoints while the program runs for more powerful debugging. A listener or adapter is a useful place to put a breakpoint, because in the Breakpoints window you can disable the breakpoint by de-selecting the checkbox and enable it with a condition for particular types of events.

- 20 Clear the breakpoint, then choose Continue from the Debug menu.

The application appears.

- 21 Close the Source Editor displaying AboutDialog.java.

Debugging the Day label

Continue exploring the debugger with these steps that examine the Day label code.

To examine the Day label code in the Debugger:

- 1 If not already open, open the Source Editor for your FrameMain application.

- 2 While the Objects field shows FrameMain, choose `buttonNext_ActionPerformed` from the Events/Methods menu.

Under `buttonNext_ActionPerformed`, you'll see this method: `slideShowItinerary.nextImage`. The method is activated when the Next button is clicked.

- 3 Set a breakpoint at `nextImage`.

A breakpoint symbol appears next to the code.

- 4 In your application window, click the Next button.

The breakpoint is activated. The Source Editor appears with the breakpoint highlighted.

- 5 Look at the variables in the Variables window.

The Variables window shows the variables and their values at this breakpoint.

- 6** Click the + next to this.
The variables associated with the object appear.
- 7** Type `this.day`.
The `dayCount` variable row is highlighted. This is the variable that sets the `Day` value.
- 8** Drag `dayCount` from the Variables window to the Watch window.
(Or right-click and choose Evaluate Expression; in the Evaluate Expression dialog box, click Add Watch.)
`dayCount` appears in the Watch window. You can drag the variables you want to watch closely, no matter where they are in the Variables window hierarchy, to this window.
- 9** Drag `fileName` (under `dayCount`) to the Watch window.
`fileName` appears in the Watch window.
- 10** Scroll down in the Variables window, and click the + next to `wrappingLabelDesc`.
The variables associated with this component appear. You can resize columns for a more readable display.
- 11** Drag one of the `wrappingLabelDesc` variables, `text`, to the Watch window.
The variable appears in the Watch window.
- 12** From the Debug menu, choose Continue.
- 13** Click the Next button in the application.
The breakpoint is triggered. The `Day` and `text` values change in the Watch window.
- 14** In the Calls window, double-click `actionPerformed`.
The portion of code called in the action listener appears in the Source Editor.
- 15** In the Calls window, double-click `buttonNext_ActionPerformed`.
You return to the original breakpoint position.
- 16** De-select the checkbox in the Breakpoints window to deactivate the breakpoint.
- 17** In the Watch window, click the `dayCount` row, then click the Value field and change the value to 2 less than its current value.
- 18** In the Source Editor, highlight the `dayCount` variable under the breakpoint, and leave the cursor there.
ValueTips show that the value has changed.

- 19 From the Debug menu, choose Continue.
- 20 Press the Previous and Next buttons.
Notice what has happened to the Day value in your application.
- 21 In the Breakpoints window, select the breakpoint checkbox, then click the Next button in the application.
The breakpoint is triggered.
- 22 In the Breakpoints window, enter the following in the Condition field:

```
dayCount == 0
```

Now the breakpoint triggers only when dayCount is zero.
- 23 Choose Continue from the Debug menu.
- 24 Press the Previous and Next buttons until the breakpoint is triggered.
- 25 Clear the breakpoint, then choose Stop from the Debug menu.
The debugger windows close.

You have now completed the Visual Cafe tour and learned about many important Visual Cafe features. Now you're ready to build your own applets and applications. For more in-depth information, explore the *User's Guide* and the online help provided with Visual Cafe.

Creating Applets with Database Functionality

This chapter showcases some Visual Cafe database features. Here you create an online reservation applet that your clients can use to sign up for your package tours and an administrative applet to keep track of your reservations. To create your applets, you work through the following tasks:

- “Creating the online reservations applet”
- “Displaying the applet in a Web page”
- “Creating an administrative applet for online reservations”

Before beginning, make sure you have installed and started the dbANYWHERE Server and the database engine as described in “Installing the software needed for the tour” on page 2-1.

Note: The Tour is designed to be used in SDI mode. Make sure the MDI Development Environment checkbox is de-selected on the General tab of the Environment Options dialog box.

The database functionality described in this chapter utilizes the JDBC API. Make sure the Code generation setting is set to JDBC API on the Database tab of the Environment Options dialog box.

Creating the online reservations applet

Now you’ll create an online reservations applet that your clients can use to browse through package tours and reserve a spot in a tour. The packages

are kept in one database table, and the reservations in another table. You work through the following tasks to create the applet:

- “Using the dbAWARE Project Wizard to create a new project”
- “Assigning applet properties”
- “Gathering the files you need”
- “Designing the package portion of the applet”
- “Designing the reservation portion of the applet”
- “Looking at dbNAVIGATOR”
- “Setting initial record positions”
- “Making fields uneditable”
- “Adding component interactions”
- “Running the applet”

Using the dbAWARE Project Wizard to create a new project

Visual Cafe has several wizards that help you set up applets and applications that are database-aware. The wizards step you through complicated processes and let you create new forms over existing database tables, add database connectivity to existing forms, define master/detail joins, and create tables and forms from predefined templates.

You use the Project Wizard to create a new project for an applet.

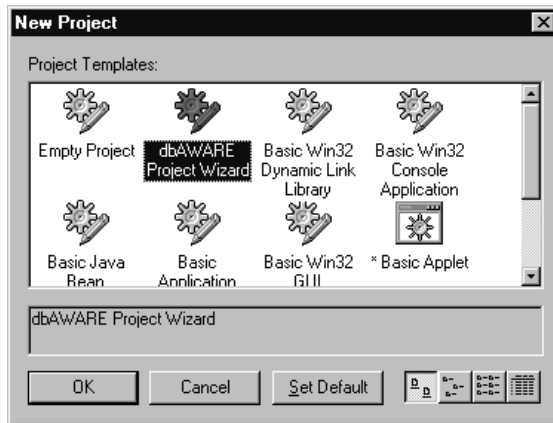
To create a new project for an applet:

- 1 Make sure the dbANYWHERE Server is running.

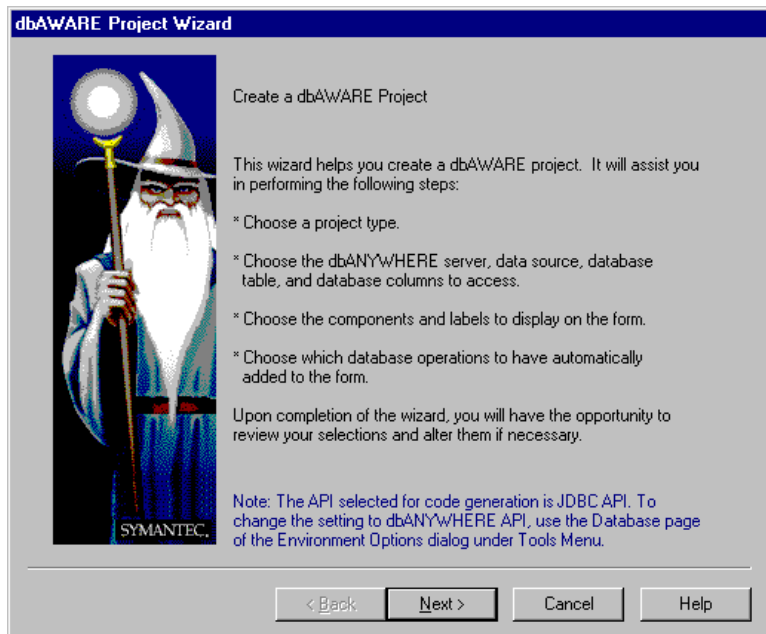
Note: If you don't set up your system as described in the section, “Installing the software needed for the tour” on page 2-1, you might not be able to successfully complete this chapter.

- 2 Close any open projects.
- 3 From the File menu, choose New Project.

A New Project dialog box appears.



- 4 Select the dbAWARE Project Wizard template and click OK.
The dbAWARE Project Wizard appears.



- 5 Click Next.
The Project Type page appears. Here is where you choose whether you want to create an applet or application.
- 6 Select Applet, then click Next.

The dbANYWHERE Server page appears.

- 7 In the dbANYWHERE Server Name field, type the name you want to give your dbANYWHERE Server.

The screens in this tour will show the server name **dba**. Normally, you can use any name you want, provided it is a unique name.

- 8 If dbANYWHERE is on a local computer, you can use the default host name and port number. If dbANYWHERE is on a remote computer, type the host name or IP address, and the port number, in the fields.

When dbANYWHERE is running, it displays its IP address and port number in its window; the default port number is 8889. (Remember, if you use **localhost** for the host name, you must change the URL property for the JdbcConnection object before deploying an applet or application.)

- 9 Click Next.

The Data Source page appears.

Note: If a “Server not responding” message appears, dbANYWHERE is not running. You need to start it.

- 10 For the Data Source Name, choose Tutorial from the pull-down menu. Then click Next.

You’re asked for a user name and password.

- 11 Type **dba** for the user name then type **sql** for the password, and click OK.

The Database Table page appears.

Note: If the system seems to be waiting for a response, you could have a problem with low system resources. The dbANYWHERE Server has issued a request for the database engine to start, but the engine has not fully started. Eventually, you receive a “Timed out” message. If you do, press the Next button again to retry the connection to the database engine, because the extra time may have allowed the database engine to start. Otherwise, you probably need to increase your memory resources.

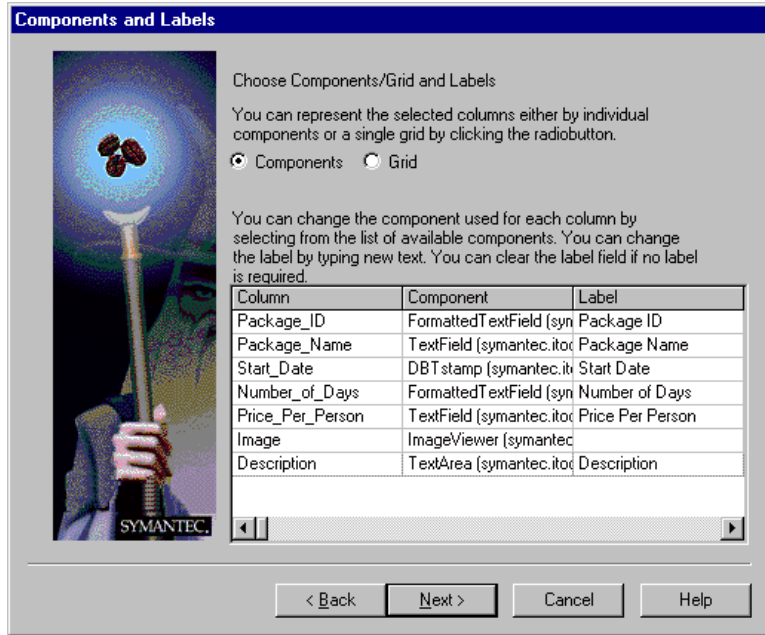
- 12 Select DBA.packages. Then click Next.

This lets you build a form that contains information on travel packages.

The Database Columns page appears.

- 13 Make sure the checkboxes for all columns are selected. Then click Next.

The Components and Labels page appears.



- 14 Perform these operations in the Components and Labels page:
- In the Label fields, replace each underscore (_) with a blank space to create a more readable form.
 - Clear the Label field for the Image column, because you don't need an identifier for the image.
 - Make sure each column has the correct component as follows:

Package_ID and Number_of_Days — FormattedTextField

Package_Name and Price_Per_Person — TextField

Start_Date — DBTstamp

Image — ImageViewer

Description — TextArea

- Then click Next.

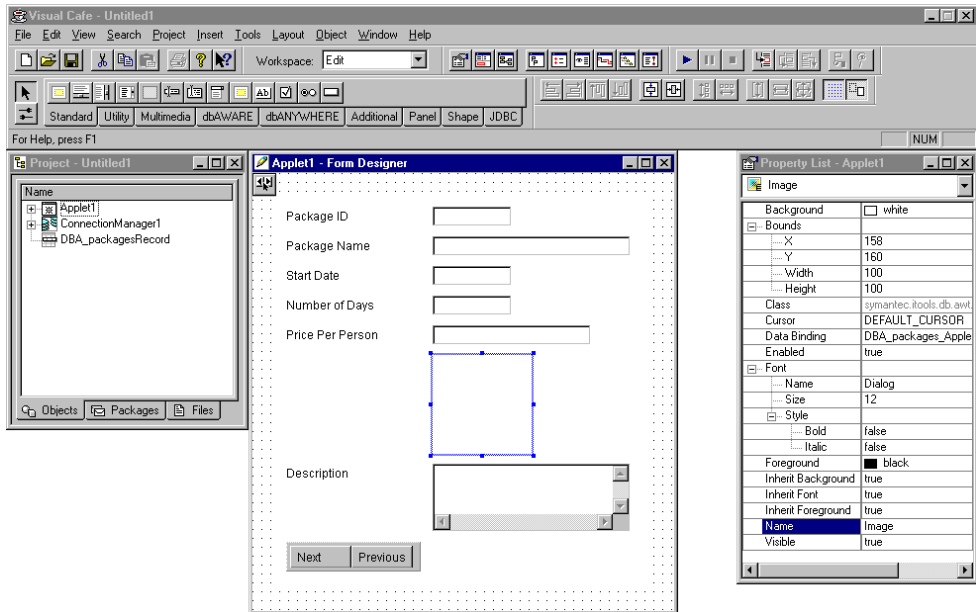
The Database Operations page appears.

- 15 De-select all operations except Move to the next record and Move to the previous record. Then click Next.

A summary of your selections appears.

- 16 Look over your selections. If they look correct, click Finish. If you need to change something, click Back and change what you need to, then return to this window and click Finish.

The new project appears. It contains an automatically generated form with the fields you selected. (You have to click the ImageViewer component to see where it is.)



- 17 Click the Project window, then choose Save As from the File menu.

The Save As dialog box appears.

- 18 Create a new directory structure, such as `\VisualCafedbDE\MyApps\AppletDb`, to hold your applet files.

Note: The project and all of the files contained within it should be in the same directory. For easier project management and to prevent filename conflicts, you should save each project in its own directory.

- 19 Navigate to the new project directory, type **Reserve.vep** in the File Name field, then click Save.

The new name appears in the title bar of the Project window.

Assigning applet properties

Follow these steps:

- 1 Select Applet1 in the Project window.
The properties of Applet1 appear in the Property List.
- 2 In the Property List, set the Name property to Reserve.
- 3 Set the Inherit Background, Inherit Font, and Inherit Foreground properties to False.
- 4 Click the Project or Form Designer window, then choose Save All from the File menu.

The project and all included files are saved.

Gathering the files you need

To construct your Web page, you need an HTML file that your applet will run within and the graphics files that your applet uses. You need to copy an HTML file into your project directory. Then copy the graphics files into an Images directory subordinate to the project directory.

Using the Windows 95 or NT operating system commands, copy the files as follows:

- 1 Copy Reserve.html from the \VisualCafedbDE\Tour\Applet directory to your project directory.
- 2 Create a new Images directory in your project folder.
- 3 Copy the following files from the \VisualCafedbDE\Tour\Applet\Images directory to the Images directory in your project directory:
 - reserv.gif
 - register.gif
 - goall.gif
 - goall2.gif

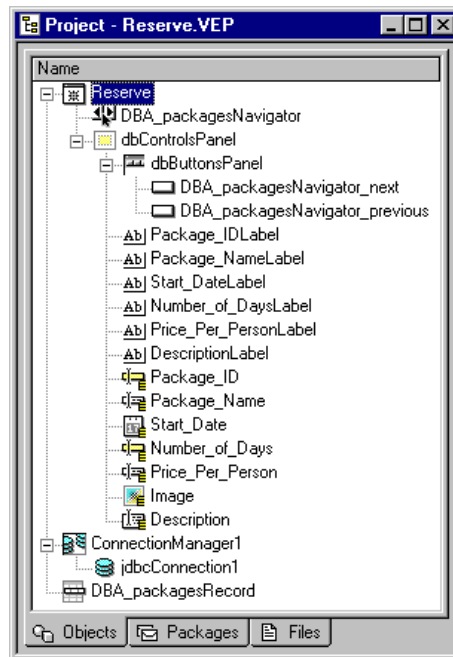
Now you're ready to design your form.

Designing the package portion of the applet

Visual Cafe has put the fields you need on the form, so you can arrange them.

Follow these steps:

- 1 Look at the objects in the Project window (click all the + icons to expand the container objects).



The objects that are not listed under dbControlsPanel are invisible objects:

- DBA_packagesNavigator
The QueryNavigator object manages the interaction between the set of data and the user interface. It provides methods for navigating (next, previous) and manipulating (insert, delete) the set of data. The QueryNavigator object also defines the master-detail relationship, if any.
- ConnectionManager1 and jdbcConnection1
The jdbcConnection object provides access to a data source. It stores the URL of the data source and optionally a user name and password for connecting to the data source. You can have

multiple jdbcConnection objects in an applet. The ConnectionManager object manages the jdbcConnection objects for the applet.

- DBA_packagesRecord

The RecordDefinition object stores the name of the table and defines the set of data that is retrieved from the database.

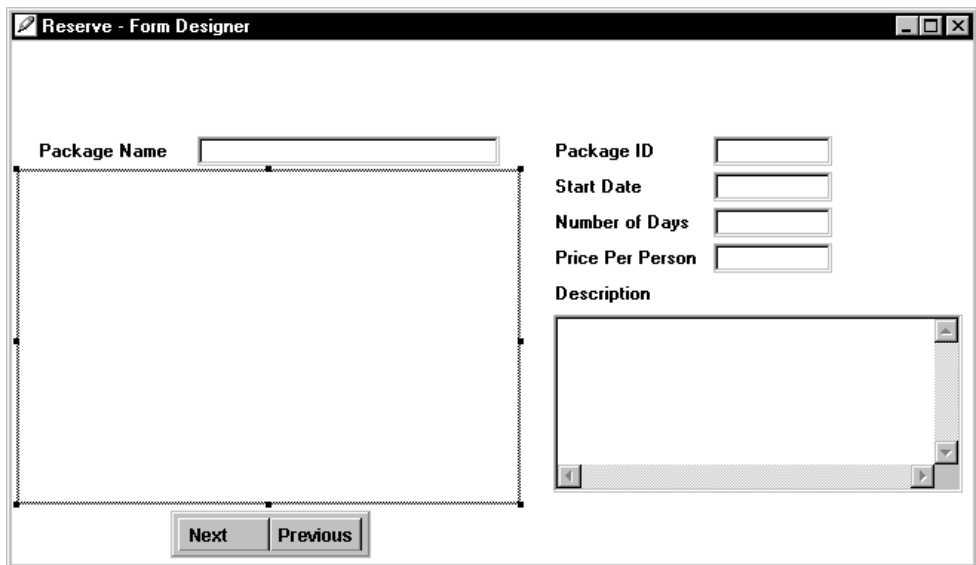
The dbControlsPanel object contains all of the visual components that have been added to the form. The Label components are the labels for the fields of the same name (minus the word Label). New visual components go into the same container.

The fields are database-aware. Java forms built with these components communicate with databases through the JDBC API. The tab order of the fields is determined by the order of the components in the list.

- 2 Click on the Form Designer, then de-select Invisibles from the Layout menu. This is so you can lay out your applets without the invisible object icons getting in the way.

The icon in the upper corner, corresponding to the DBA_packagesNavigator object disappears.

- 3 Move the items on the form so they appear like this:



You need to leave room at the top for a banner. You can click then Shift-click to select more than one item to move. You can resize the

window and the Panel by dragging the right or bottom sides. The fields must appear on the Panel.

- 4 In the Property List, change the Font Bold property to True for all label and button components.

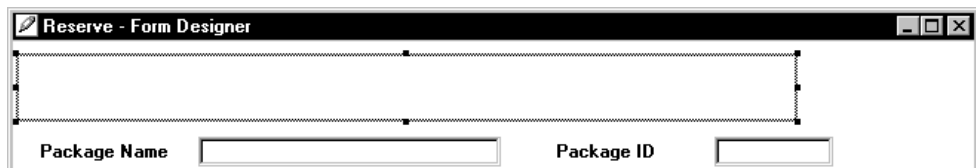
This action might cause a button to “disappear” from the dbButtonsPanel. If so, resize the dbButtonsPanel to allow room for all the buttons.



- 5 In the Component Palette, click the Multimedia tab, then click ImageViewer.

ToolTips shows you which button is for the ImageViewer component. Move the cursor over a button until a pop-up message appears.

- 6 Draw a rectangle across the top of the applet form by clicking and dragging the cursor.



- 7 In the Property List, change the following:
 - Name property — imageViewPackage
 - Image Style property — IMAGE_NORMAL
- 8 Double-click the Image URL property to specify an image for the component.

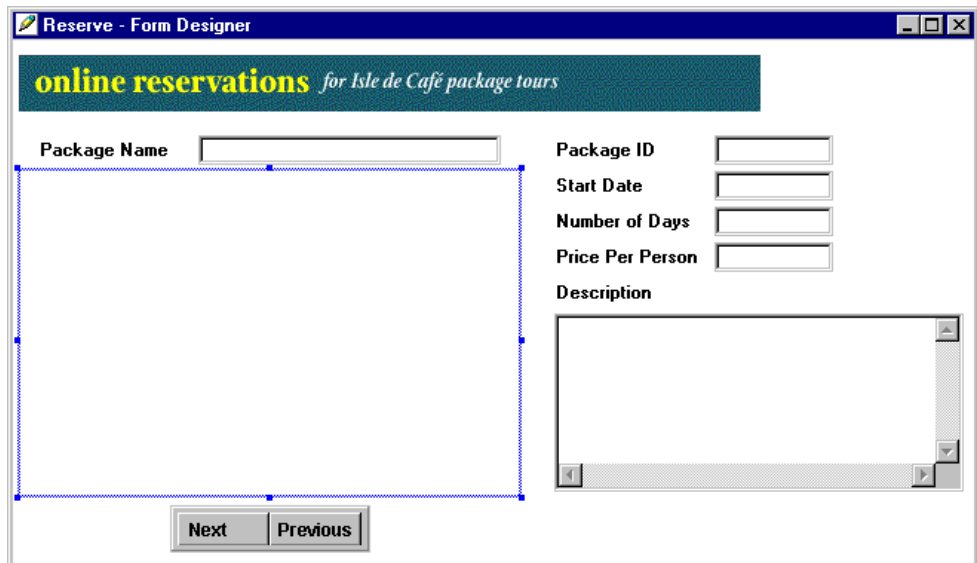
The Image URL dialog box appears.
- 9 Click the ... button.

An Add Image Files dialog box appears.
- 10 Navigate to your Images directory, select `Reserv.gif`, then click Open.

The complete path appears in the dialog box.
- 11 Delete the first part of the URL, so the only path remaining is `Images/Reserv.gif`.

This creates the relative URL.
- 12 Click OK.

The banner appears in the Form Designer. Reposition and resize it as needed.



- 13 In the Project window, select Start_Date.
- 14 In the Property List, change the Format on Display property to:
M+ D%, Y*
This makes the date display in the format of Apr. 7, 1998.
- 15 Click the Project or Form Designer window, then choose Save All from the File menu.
The project and all included files are saved.
- 16 Close your project so you can copy it.
- 17 Make a copy the entire project directory. You could name the new directory \VisualCafedbDE\MyApps\AppAdmin.
You'll use these files later when you create an administrative page for your database.
- 18 Reopen your project by choosing Reserve.vep from the File menu. Open the Form Designer window by double-clicking on Reserve in the Objects view of the Project Window.

Now you can create the lower half of your applet form.

Designing the reservation portion of the applet

The lower portion of the applet lets users make reservations.

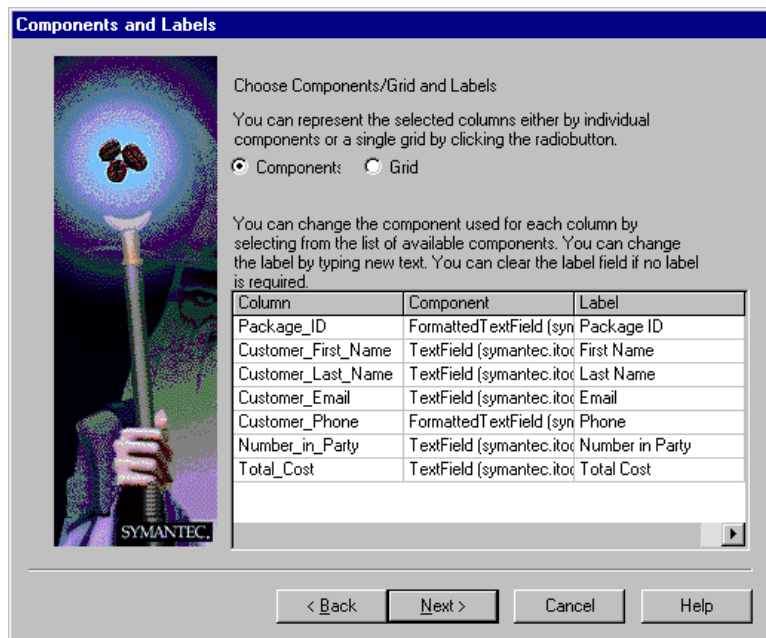
To design the reservation portion, follow these steps:

- 1 With the Form Designer window active, deselect Invisibles from the Layout menu. This is so that you can lay out your applets without the invisible object icons getting in the way.
- 2 In the Project window, click dbControlsPanel.
This ensures that new components are added to this panel.
- 3 Choose Add Table Wizard from the Insert menu.
The dbAWARE Project Wizard appears.
- 4 Click Next.
The dbANYWHERE Server page appears.
- 5 Type **dba** in the dbANYWHERE Server Name field or choose it from the pull-down menu.
- 6 The correct host name and port number should appear. If not, type the host name or IP address, and the port number, in the fields.
When dbANYWHERE is running, it displays its IP address and port number in its window; the default port number is 8889.
- 7 Click Next.
The Data Source page appears.
- 8 Choose Tutorial for the Data Source Name. Then click Next.
You are asked for a user name and password only if you're not still logged in. Type **dba** for the user name, then type **sql** for the password, then click OK.
The Database Table page appears.
- 9 Select DBA.registration. Then click Next.
The Database Columns page appears.
- 10 Make sure the checkboxes for all columns are selected, except for Registration_ID. Then click Next.
The Components and Labels page appears. Perform these operations in the Components and Labels page:
 - a In the Label fields, delete each occurrence of "Customer_" and replace each underscore (`_`) with a blank space.

b Make sure each column has the correct component as follows:

- Package_ID and Customer_Phone — FormattedTextField
- all others — TextField

The components and labels should be set up as follows:



c Then click Next.

The Database Operations page appears.

- 11 De-select all operations except Save changes and Undo changes.
- 12 Change the text of the Undo changes operation to Clear.
- 13 Change the text of the Save changes operation to Send Registration.

14 Then click Next.

The Master View page appears.

- 15 You don't need to make any changes on this page, so click Next.
- 16 Look over your selections. If they look correct, click Finish. If you need to change something, click Back and change what you need to, then move to this window and click Finish.

The new fields appear on the same form in the lower half of the Form Designer.

- 17 Arrange the fields as follows:

You may need to resize some elements so they fit onto the `dbControlsPanel` correctly.

- 18 In the Property List, change the Font Bold property to True for all label and button components.



- 19 In the Component Palette, click the Multimedia tab, then click Image Viewer.

- 20 Draw a rectangle underneath the Previous and Next buttons by clicking and dragging the cursor.

- 21 In the Property List, change the following:

- Name property — `imageViewReg`
- Image Style property — `IMAGE_NORMAL`

- 22 Double-click the Image URL property.

The Image URL dialog box appears.

- 23 Click the ... button.

An Add Image Files dialog box appears.

- 24 Navigate to your Images directory, select `Register.gif`, then click Open.

The complete path appears in the dialog box.

- 25 Delete the first part of the URL, so the only path remaining is `Images/Register.gif`.

This creates the relative URL.

- 26 Click OK.

The banner appears in the Form Designer. Reposition and resize it as needed.

The screenshot shows a registration form with a yellow header bar containing the text "register for this tour here". Below the header, there are seven text input fields arranged in two columns. The left column contains "Package ID", "First Name", "Last Name", and "E-mail". The right column contains "Phone", "Number in Party", and "Total Cost". At the bottom center of the form, there are two buttons: "Send Registration" and "Clear".

- 27 Click the Package ID field on the second part of your form (Package_ID2).

- 28 In the Property List, change the Text property to 780.

This initializes the field to display the first Tutorial package ID. Alternatively, you could write Java code that took the first Package ID number from the database and placed it in the registration Package ID field on initialization.

- 29 For the Number in Party and Total Cost fields, change the Text property for each to 0 (zero).

This initializes these fields to display zero at first. This is important because later these fields will dynamically update numbered data.

- 30 Click the Project or Form Designer window, then choose Save All from the File menu.

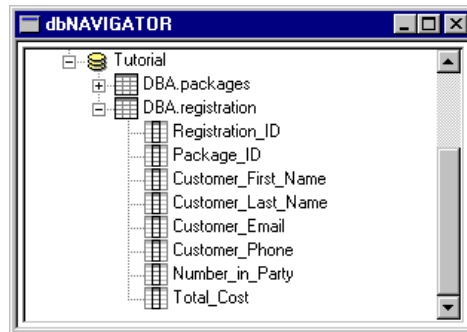
The project and all included files are saved.

Looking at dbNAVIGATOR

The dbNAVIGATOR provides a hierarchical view of database cataloging information (known as meta-data). This view shows you dbANYWHERE Servers and available databases, as well as the tables and columns in each database. You can use dbNAVIGATOR to drop fields on a form and add fields after you've run the Project Wizard.

To view the dbNAVIGATOR display for the Tutorial database, follow these steps:

- 1 From the View menu, choose dbNAVIGATOR.
The dbNAVIGATOR window opens.
- 2 Click the + to open dba, then the Tutorial database, then the DBA.registration table in the Tutorial database.



You can drag fields from the dbNAVIGATOR to the dbControlsPanel object in the Project window to add them to a form. Both a field and a label are added. Because you've already added all of the fields you need, you don't need to drag a field.

- 3 Close the dbNAVIGATOR window.

Setting initial record positions

The packages information should start at the first record, while the registration information should start at a new record.

To set the initial record position:

- 1 Select DBA_packagesNavigator in the Project window.
- 2 In the Properties window, make sure the AutoStart property is set to true.
- 3 Now select DBA_registrationNavigator in the Project window.
- 4 In the Properties window, set the AutoStart property to false.

Now you need to type in a line of Java code to start a new record for the registration information.

- 5 Right-click on the Reserve applet in the Project window and choose Edit Source from the pop-up menu.

The Source Editor appears.

- 6 Choose Find from the Search menu to display the Find dialog box.
- 7 Search for REGISTER_LISTENERS.
- 8 Immediately above the REGISTER_LISTENERS line, enter the following:

```
DBA_registrationNavigator.insert();
```
- 9 Close the Source Editor.
- 10 Click on the Project window and choose Save All from the File menu.

Making fields uneditable

All of the DBA.packages fields (except for the label fields and the image field) and the following registration fields should not be editable by a user:

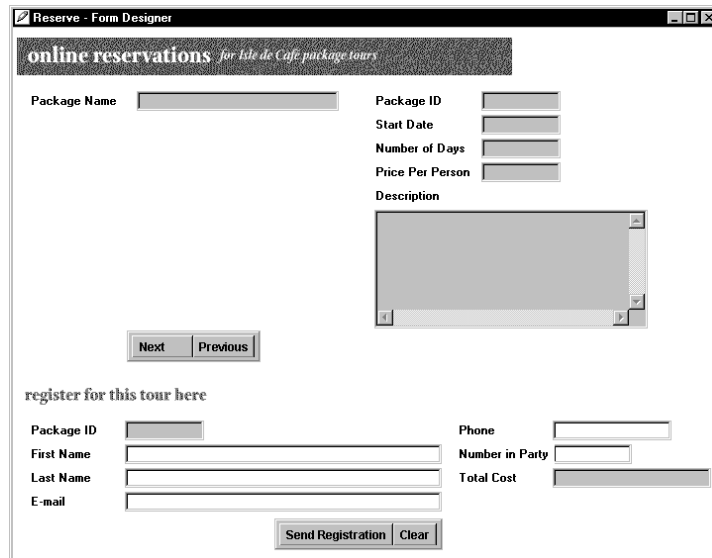
- Package_ID2
- Total_Cost

To make the fields uneditable:

- 1 In the Form Designer, select all of the fields listed above.
As before, click then Shift-click to select multiple fields.
- 2 In the Property List, set the Editable property to False.
The field is now uneditable. To indicate this, you'll change the background to gray.
- 3 For the Background property, choose gray.
The gray color appears as the background color.



When you finish with the fields, your form should look like this:



Save your project by clicking the Project or Form Designer window, and then choosing Save All from the File menu.

Adding component interactions

You need to add the following component interactions to your applet:

- “Setting up the Send Registration button”
- “Setting the Package ID field”
- “Calculating the total cost”

Setting up the Send Registration button

Whenever a record is saved, you want to get a new record so a user can register again.

To set up the Send Registration button:

- 1 Select the Send Registration button and right-click.
A pop-up menu appears.
- 2 Choose Add Interaction.

The Interaction Wizard appears.

- 3 Select the following items:
 - Start an interaction for “DBA_registrationNavigator_save”:
ActionPerformed
 - Select the item you want to interact with:
DBA_registrationNavigator
 - Choose what you want to happen: insert
- 4 Click Finish.
- 5 Click the Project or Form Designer window, then choose Save All from the File menu.

Setting the Package ID field

You need to set the Package ID field when the following buttons are clicked:

- Clear
- Send Registration
- Previous
- Next

To create the interaction for each button:



- 1 Click the Interaction Wizard button, then click the button and drag a line to the Package ID field on the registration form.

The Interaction Wizard appears.

- 2 Select the following items:
 - Start an interaction for “*button*”: ActionPerformed
 - Select the item you want to interact with: Package_ID2
 - Choose what you want to happen: Set the text for
FormattedTextField

- 3 Click Next.
The second page in the wizard appears.
- 4 While Another item is selected, choose Package_ID and select Get the contents of the FormattedTextField.
- 5 Click Finish.

Save your project by clicking the Project or Form Designer window, then choosing Save All from the File menu.

Setting up the Number in Party and Total Cost fields

The Number in Party and Total Cost fields need to be reset to zero when the Clear or Send Registration buttons are clicked.

To set up the Number in Party field:



- 1 Click the Interaction Wizard button, then click the button and drag a line to the Number in Party field on the registration form.
The Interaction Wizard appears.
- 2 Select the following items:
 - Start an interaction for “*button*”: ActionPerformed
 - Select the item you want to interact with: Number_in_party
 - Choose what you want to happen: Set the text for TextField
- 3 Click Next.
The second page of the wizard appears.
- 4 While A String constant or an expression is selected, select Add quotes and type **0** (zero).
- 5 Click Finish.

To set up the Total Cost field:



- 1 Click the Interaction Wizard button, then click the button and drag a line to the Total Cost field on the registration form.
The Interaction Wizard appears.
- 2 Select the following items:
 - Start an interaction for “*button*”: ActionPerformed
 - Select the item you want to interact with: Total_Cost
 - Choose what you want to happen: Set the text for TextField
- 3 Click Next.

The second page of the wizard appears.

- 4 While A String constant or an expression is selected, select Add quotes and type 0 (zero).
- 5 Click Finish.

Save your project by clicking the Project or Form Designer window, then choosing Save All from the File menu.

Calculating the total cost

The total cost should be calculated after a user enters the number of people. It should be updated when Previous or Next is clicked, because the price might change.

To calculate the cost when the Number in Party field changes:



- 1 Click the Interaction Wizard button, then click the Number in Party field and drag a line to the Total Cost field on the registration form.

The Interaction Wizard appears.

- 2 Select the following items:
 - Start an interaction for “Number_in_Party”: focusLost
 - Select the item you want to interact with: Total_Cost
 - Choose what you want to happen: Set the text for TextField
- 3 Click Next.

The second page of the wizard appears.

- 4 While A String constant or an expression is selected, deselect Add quotes and type the following line:

```
String.valueOf(Float.valueOf(
    Price_Per_Person.getText()).floatValue()
    * Float.valueOf(
    Number_in_Party.getText()).floatValue())
```

- 5 Once you’ve typed it in, copy the entire line.

You’ll paste it later.

- 6 Click Finish.

- 7 Click the Project or Form Designer window, then choose Save All from the File menu.

To set up the cost calculation for the Previous and Next buttons:



- 1 Click the Interaction Wizard button, then click the button and drag a line to the Total Cost field on the registration form.

The Interaction Wizard appears.

- 2 Select the following items:
 - Start an interaction for “*button*”: ActionPerformed
 - Select the item you want to interact with: Total_Cost
 - Choose what you want to happen: Set the text for TextField

- 3 Click Next.

The second page of the wizard appears.

- 4 While A String constant or an expression is selected, deselect Add quotes and paste the following line:

```
String.valueOf(Float.valueOf(
    Price_Per_Person.getText()).floatValue()
    *   Float.valueOf(
    Number_in_Party.getText()).floatValue())
```

- 5 Click Finish.

Save your project by clicking the Project or Form Designer window, then choosing Save All from the File menu.

Now you're ready to run the applet.

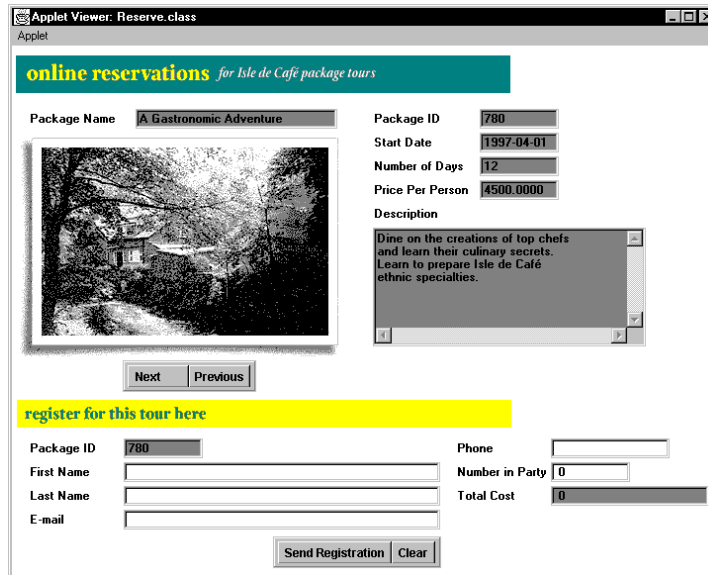
Running the applet

You can compile your applet and look at it while it's running in the Applet Viewer.

To run the applet:

- 1 From the Project menu, choose Execute.

The applet appears in the Applet Viewer. Visual Cafe compiles your applet before displaying it.



- 2 Try out your applet to make sure it works.
- 3 From the Applet menu, choose Quit.
The Applet Viewer window closes.
- 4 Click the Project or Form Designer window, then choose Save All from the File menu.

Displaying the applet in a Web page

Now you can test your applet in a Web page.

Note: To be able to run your applet in a Web browser, the browser must support JDK 1.1.5.

Adding the HTML file to the project

To add the file to the project:

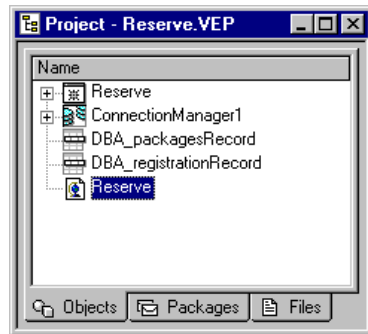
- 1 From the Insert menu, choose Files into Project.
The Project Files dialog box appears.

- 2 In the Project Files dialog box, select `Reserve.html` in your project directory, then click Add.

The file appears in the Files in Project list.

- 3 Click OK to add the file to the project.

The file appears in the Project window.



Modifying the applet tag in the HTML file

Now you're ready to add the applet you created in Visual Cafe to the HTML file.

To add the applet to the HTML file:

- 1 To look at `Reserve.html`, right-click on the file in the Objects view of the Project window and choose Edit Source from the pop-up menu.

The file opens in Edit Mode in Visual Page.

- 2 From the View menu, choose Source.

The HTML source window opens.

- 3 Find the applet tag in the file:

```
<APPLET CODE="Reserve.class" WIDTH=634 HEIGHT=540>
```

- 4 If different, change the width and height in the applet tag so it matches the width and height in the Property List for your Reserve applet.
- 5 From the File menu, choose Save.
- 6 Close or minimize Visual Page.

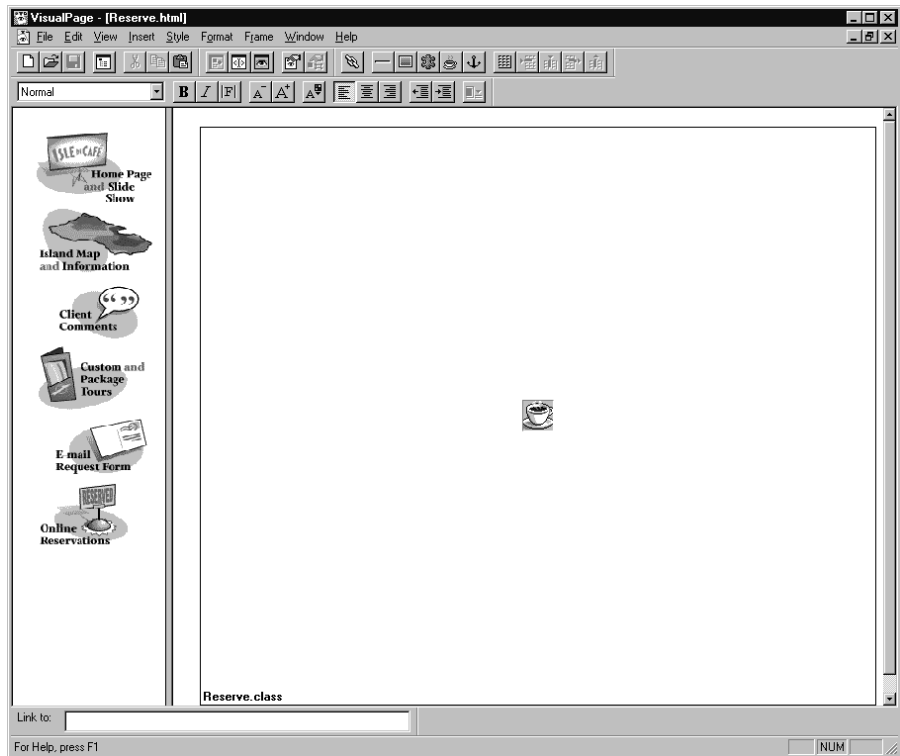
Executing the applet within the Web page

Visual Cafe lets you run the applet directly within the Web page by using Visual Page or your default Web browser. The advantage of using Visual Page is you can also modify your HTML files as needed.

To open your Web page in Visual Page:

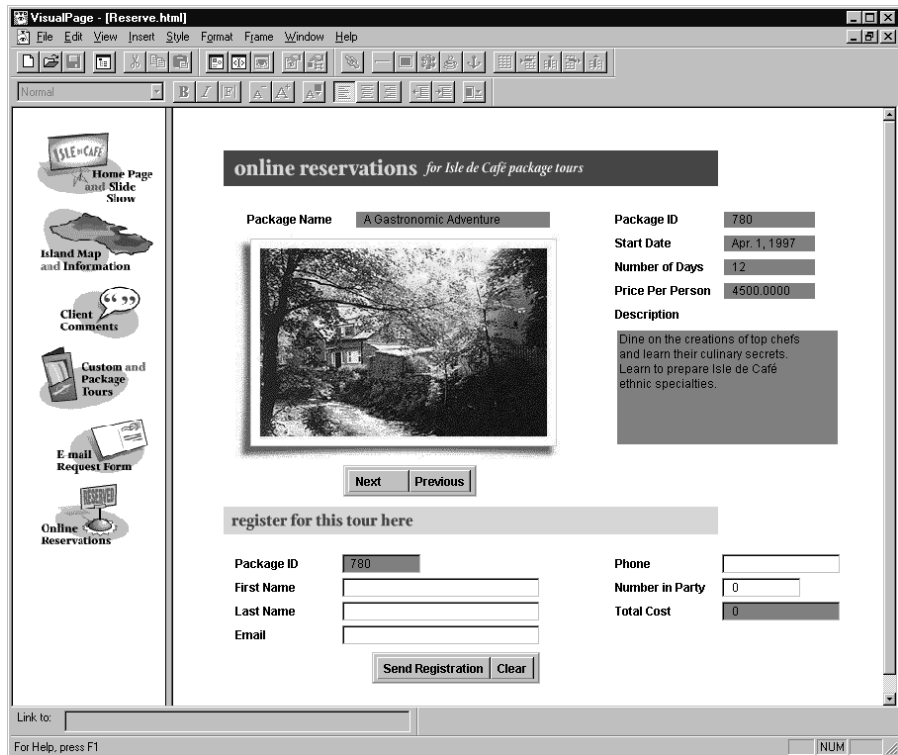
- 1 In the Objects view of the Project window, double-click `Reserve.html`.

If you have properly installed Visual Page from the Visual Cafe CD, Visual Page starts and displays your Web page.



- 2 From the View menu, choose Preview.

The applet runs in Visual Page.



Try out your applet.

3 Exit Visual Page.

The window closes.

If your applet works properly in Visual Page, you have completed the applet. Continue with the next section to create the administrative applet.

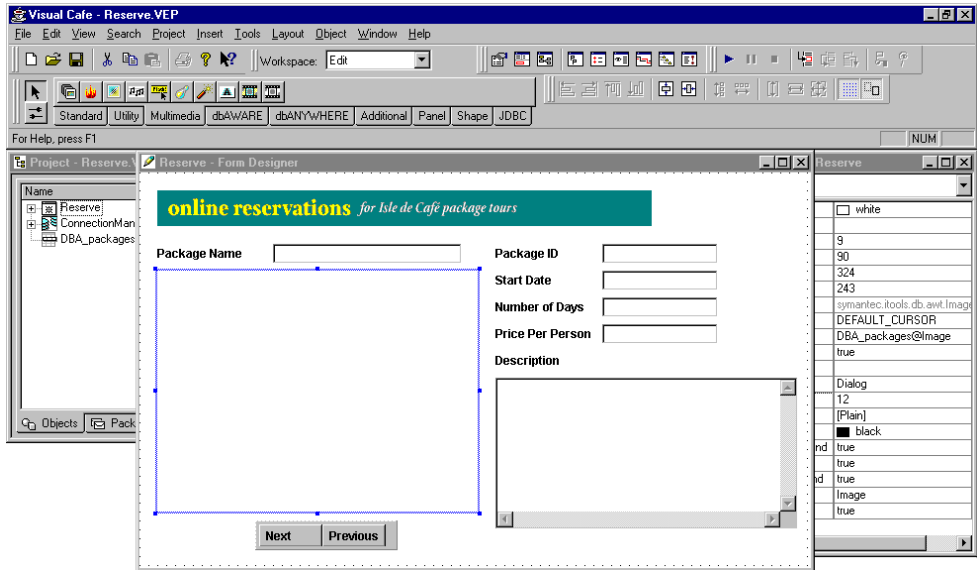
Creating an administrative applet for online reservations

You can quickly create an administrative applet so you can manage and view the reservations in DBA.registration. The applet should require a password for security.

To create an administrative applet:

- 1 Close any open projects.
- 2 Open the project you saved in your AppAdmin project directory.

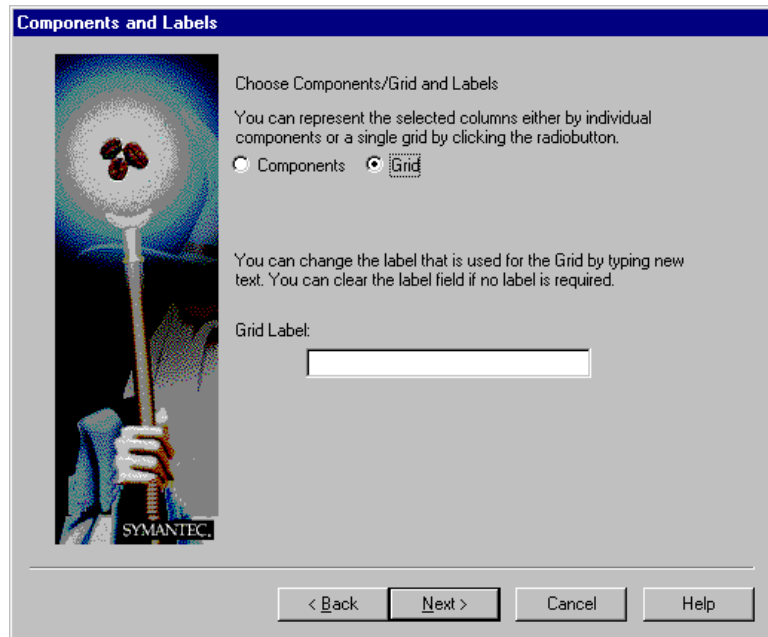
The project appears.



- 3 In the Project window, select dbControlsPanel.
- 4 Choose Add Table Wizard from the Insert menu.
The dbAWARE Project Wizard appears.
- 5 Click Next.
- 6 On the dbANYWHERE Server page, choose dba.
- 7 Make sure the Host Name and Port Number are correct and click Next.
- 8 On the Data Source page, choose Tutorial and click Next.
- 9 If you're not already logged in, do so using dba for the User Name and sql for the password.
- 10 On the Database Table page, choose DBA.registration and click Next.
- 11 On the Database Columns page, make sure all columns are selected and click Next.

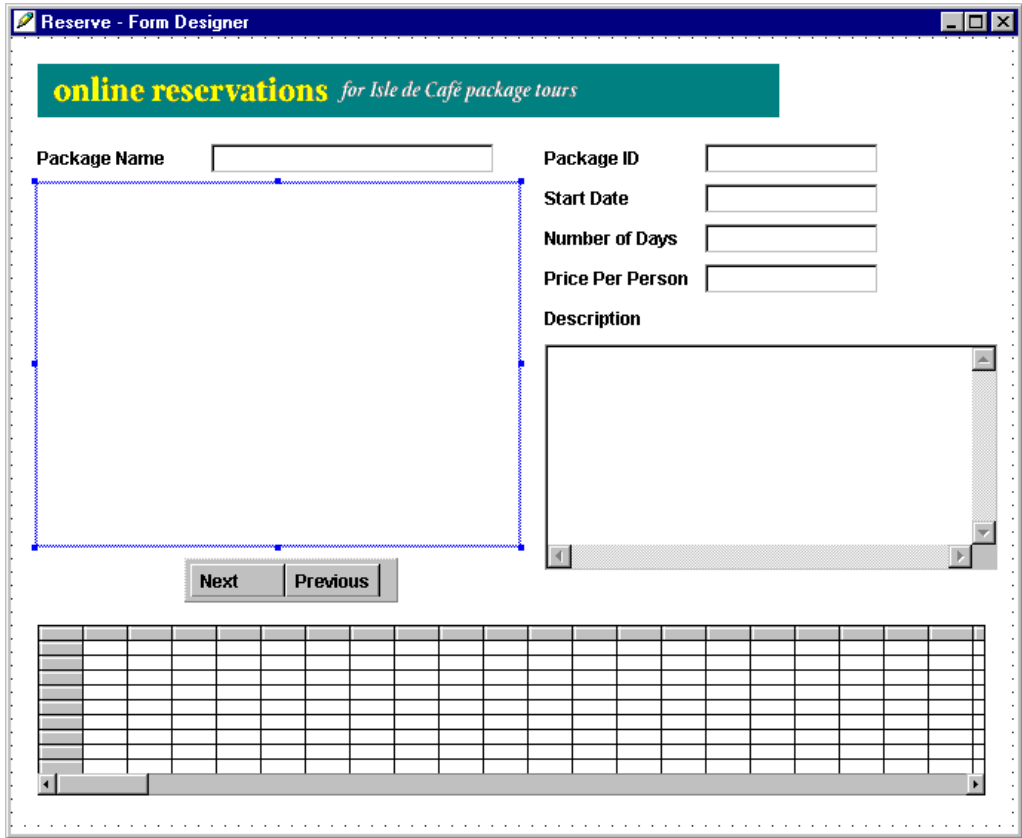
The Components and Labels page appears.

- 12 Click Grid, then clear the Grid Label field.



- 13 Click Next.
- 14 On the Database Operations page, de-select all operations and click Next.
- 15 On the Master View page, choose the alias of the packages view and click Next.
The Join Definition page appears.
- 16 Specify the master-detail relationship as follows:
 - Master Column -- Package_ID
 - Operator -- =
 - Detail Column -- Package_ID
- 17 Click Next.
A summary of your selections appears.
- 18 If the information appears to be correct, click Finish to create the grid.

19 Resize the grid so it fits on the bottom of the form like this:



20 Click the Project or Form Designer window, then choose Save All from the File menu.

Now let's see if the applet runs.

21 From the Project menu, choose Execute.

The applet appears in the Applet Viewer.

22 Try out the applet to make sure it works. Then close the Applet Viewer.

When you click Next or Previous, the list in the grid updates. You can resize the columns in the grid for the best display.

23 In the Project window, select the jdbcConnection1 object.

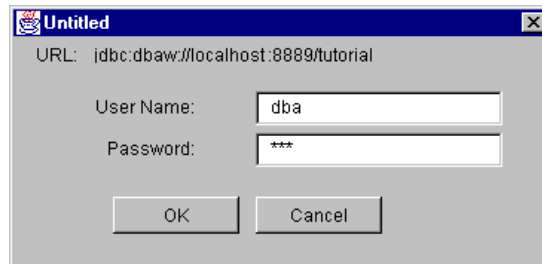
The properties for this object are displayed.

- 24** In the Properties List, delete the values for the User Name and User Password properties.

Now you'll have to enter them at runtime to access the data source. Let's try the applet again.

- 25** From the Project menu, choose Execute.

A User Authentication dialog box appears.



- 26** Type **dba** in the User Name field and **sql** in the Password field. Then click OK.

The applet appears in the Applet Viewer.

- 27** Close the Applet Viewer.

You can also test the applet in a browser.

If your applet works, you have completed the Visual Cafe tour and learned about many important Visual Cafe features. Now you're ready to build your own applets and applications. For more in-depth information, explore the online help and the *Visual Cafe for Java User's Guide* provided with Visual Cafe.

Support and More Information

This chapter describes where to get more information on Java and the Database Development Edition of Visual Cafe. It has the following sections:

- “Where to get information”
- “Registering your Symantec product”
- “Product updates”
- “Symantec service and support solutions”
- “Technical support”
- “Electronic support”
- “Customer service”
- “Service and support headquarters”
- “Worldwide service and support”

Note: The information in this chapter is accurate at the time of publication. However all information, including URLs, is subject to change.

Where to get information

Visual Cafe includes the following documentation:

Title	To find it ...
Visual Cafe help	<p>Choose Help Topics from the Help menu.</p> <p>Choose a menu command, then press F1 to see a description.</p> <p>Press F1 in any dialog box or window to display help for that option.</p> <p>Press Shift+F1, then choose the item for which you need help.</p>
Visual Cafe Samples	<p>Go to the <code>Samples</code> subdirectory of your Visual Cafe installation. You need to use the custom install to install these samples.</p>
Sun Microsystems Java API Specifications	<p>Choose Java API Reference from the Help menu.</p> <p>Highlight a keyword in an Editor window and press F1 for a description.</p>
Sun Microsystems Java Language Specifications	<p>Choose Java Language Reference from the Help menu.</p> <p>Highlight a keyword in an Editor window and press F1 for a description.</p>
Visual Cafe Macro Reference	<p>Choose Macro Reference from the Help menu.</p>

To find the most up-to-date information about Sun Java and Visual Cafe:

For information about...	See...
Sun Microsystem's Java	http://www.javasoft.com
Symantec Internet Tools	http://cafe.symantec.com
Symantec Technical Support	http://service.symantec.com See the section "Symantec service and support solutions" in this chapter.

For technical support telephone numbers, see the section "Service and support headquarters" in this chapter.

You can also purchase books on Java. Some books for Java and HTML, are listed at <http://service.symantec.com/amazon/index.html>.

Registering your Symantec product

If you have ordered the product online, you are automatically registered through Customer Service. In addition, you can use the toll-free fax number listed below to register your product, or register on the Customer Service Home Page under Service and Support at www.symantec.com.

If your address changes, you can mail or fax your new address to Customer Service. Please send it to the attention of the Registration Department.

Symantec Corporation
Attn: Registration Dept.
175 W. Broadway
Eugene, OR 97401

(800) 800-1438 Fax

You can also change your address on the Customer Service Home Page under Service and Support at www.symantec.com.

Product updates

Check the Symantec Web site (<http://cafe.symantec.com>) for updates to Visual Cafe. After you have registered your copy of Visual Cafe, you can use your login name and password to download patches and minor updates to your current version. If you bought your product in a box, the user ID and password are included with your package. If you bought your product online, the user ID and password were displayed to you on the screen.

Symantec service and support solutions

Symantec is committed to excellent service worldwide. Our goal is to provide you with professional assistance in the use of our software, wherever you are located.

Technical Support and Customer Service solutions vary by country. If you are outside the United States or Canada, please refer to the Worldwide Service and Support section at the end of this chapter.

Technical support

Symantec's Technical Support department offers expanded support options designed for your individual needs and to help you get the most out of your software investment.

The phone numbers listed "Service and support headquarters" on page 7-11 are for support in North America. If you are outside the United States or Canada, please call the local Symantec office or distributor in your area, or refer to the information provided at the end of this chapter.

Symantec now offers different types of technical support services for you to choose from, which are described below. You are given StandardCare Support by purchasing the product and then can choose from Symantec's PriorityCare and PremiumCare services to extend your level of support.

For the most current information on Symantec Support Solutions, please call our automated fax retrieval service, located in the United States, at (800) 554-4403 or (541) 984-2490, and request document 070. Alternatively, visit Symantec on the World Wide Web at www.symantec.com.

StandardCare support

All registered users of Symantec products are entitled to these services at no charge:

- Unlimited calls for 90 days (from the date of the first call) for installation assistance, configuration, and general usage questions. The phone number is (541) 465-8470.
- Unlimited technical assistance through CompuServe and America Online. These forums offer electronic access to our technical support staff, libraries of sample files, technical notes, and bulletins. You will also find a rich interaction and information exchange with other users of Symantec software.
- Unlimited use of the Symantec Discussion Groups available from the Service and Support section on www.symantec.com. These forums offer electronic access to our professional technical support staff, the Symantec knowledge base, FAQs, and announcements. The news server is at service.symantec.com.
- Unlimited access to company information through the Internet. With a Web browser such as Netscape, you get the latest company news by entering the URL for Symantec's home page: www.symantec.com. The Web site include links to our anonymous FTP site, where you can download the latest software patches and drivers for Symantec products. You can also FTP directly to the site by entering: [ftp.symantec.com](ftp://ftp.symantec.com).
- Unlimited use of Symantec's automated fax retrieval system for instant printouts of technical notes, bulletins, product literature, and general information by fax.
- StandardCare Support is available Monday through Friday, 7:00 a.m. to 4:00 p.m. Pacific Time.

For your first 90 days of free technical support, please refer to the StandardCare Support (541) phone number in the "Service and support headquarters" section.

PriorityCare support

All registered users of Symantec products are entitled to these services on a "pay-as-you-go" basis:

- The PriorityCare 800-number is charged to your VISA, MasterCard, or American Express on a per incident basis.
- The PriorityCare 900-number is charged to your telephone bill on a per minute basis. (As of this writing, the charge is \$2 per minute, and an equivalent 900-number service is not available outside the United States.)
- Average hold time will be kept to a minimum.
- PriorityCare Support is available Monday through Friday, 6:00 a.m. to 5:00 p.m. Pacific Time.

To use the PriorityCare 800- and 900-number services, please refer to those numbers in the “Service and support headquarters” section.

PremiumCare support

All registered users of Symantec products are entitled to these services on an annual subscription basis:

PremiumCare Gold support

- Support for one year for a set number of incidents, with an option to add more incidents.
- Priority support on a toll-free 800 line.
- Average hold time will be kept to a minimum.
- Electronic mail support is provided with a 24-hour response time on working days. The PremiumCare Gold Support is available for Visual Cafe for Windows owners at support_javawin@symantec.com and for Visual Cafe for Macintosh owners at support@devtools.symantec.com. Please include your subscription ID with any e-mail.
- PremiumCare Gold Support is available Monday through Friday, 6:00 a.m. to 5:00 p.m. Pacific Time.

PremiumCare Platinum support

- Unlimited calls on a toll-free 800 line.
- Average hold time will be kept to a minimum.

- A Support Center Manual with troubleshooting, installation, configuration, and usage information.
- Quarterly updates of technical notes and bulletins.
- Instant access to senior support staff.
- Automatic updates of inline software revisions. (Inline software revisions do not include version upgrades.)
- After hours and weekend support is also available to PremiumCare Platinum customers for an additional fee.
- PremiumCare Platinum Support is charged on an annual subscription basis per product family. The annual fee is for two subscribers; other subscribers can be added on a per person basis.
- PremiumCare Platinum Support is available Monday through Friday, 6:00 a.m. to 5:00 p.m. Pacific Time.
- Electronic support for Visual Cafe for Windows owners at support_javawin@symantec.com and for Visual Cafe for Macintosh owners at support@devtools.symantec.com.

To order PremiumCare Gold or Platinum support, please contact Customer Service or your Symantec sales representative.

Electronic support

Technical information is available electronically 24 hours a day. Symantec maintains the Symantec forums on CompuServe and America Online.

CompuServe

You can exchange information and ideas with Symantec representatives and with other users of Symantec products on the CompuServe bulletin board.

To access the Symantec forums on CompuServe, type:

```
GO SYMANTEC at any ! prompt or  
GO SYMDEVTOOL
```

For additional information, or to subscribe in the United States and Canada, please call CompuServe at (800) 848-8199. Outside the United States and

Canada, please call (1) (614) 718-2800. Check with CompuServe for data communications settings.

America Online

To access the Symantec bulletin board on America Online, type keyword:

SYMANTEC

For additional information, or to subscribe in the United States and Canada, please call America Online at (800) 227-6364. Check with America Online for data communications settings.

Symantec discussion groups

Use your Web browser to go to <http://www.symantec.com> and go to the Service and Support section. Here you can review the Frequently Asked Questions, search the Symantec Knowledge Base for known solutions to problems previously encountered, or post your own query to a support newsgroup.

Symantec representatives are ready to answer your questions via our support discussion groups. All messages posted will receive a response from a Symantec representative within 48 hours. The discussion groups are similar to electronic bulletin boards where you post a message and then return later to find an answer. These support forums are in Usenet newsgroup (Internet news) format and require that you have a newsreader available.

You can FTP directly to this site to download technical notes and software patches at: <ftp.symantec.com>. You can also use the news server, <service.symantec.com>.

Automated fax retrieval system

Symantec's automated fax retrieval system can be used 24 hours a day to receive product information on your fax machine. You can call from any touch tone phone to receive an index listing of both Technical Support and Customer Service documents available, then have any of these specific documents faxed to you.

To receive technical application notes and samples of "how tos," please call our Technical Support fax retrieval number, and choose Option 2.

You can receive general product information, data sheets, and product upgrade order forms from our Customer Service fax retrieval number.

- Technical Support: (541) 984-2490
- Customer Service: (800) 554-4403

In addition, you can receive a listing of Symantec offices and worldwide service and support partners by calling the Technical Support fax retrieval number, choosing Option 2, and requesting Document 1400.

Customer service

Symantec's Customer Service department builds and maintains long-lasting customer relations through consistent, expert service. Our Customer Service department is available to help you:

- Order an upgrade.
- Subscribe to the technical support solution of your choice.
- Fulfill your request for product literature or demonstration disks.
- Find out about dealers and consultants in your area.
- Replace missing or defective pieces (disks, manuals, and so on) from your package.
- Get status on an order or a return.
- Update your product registration with address or name changes.
- Replace lost passwords or user IDs.

You can reach Customer Service at (800) 441-7234 or under the Service and Support section at www.symantec.com. For specific questions about how to use your Symantec software, please contact Technical Support.

Replacing a CD-ROM

If the Visual Cafe CD-ROM is damaged or unusable, you can obtain a replacement.

To receive a replacement or refund for a product purchased through a reseller, please visit or contact the authorized dealer from whom you purchased the product.

If you ordered the product or upgrade directly from Symantec and wish to receive an replacement or refund in accordance with our 60-day money back guarantee, please return your CD-ROM and a letter including a brief explanation for the return. Please send by traceable means, such as UPS or FEDEX, to:

Symantec Corporation
ATTN: RMA Dept.
175 West Broadway
Eugene, OR 97401

Recovering user IDs and passwords

If your user ID and password become inoperative, send a message to Customer Service at custserv@symantec.com with your name, address, daytime phone number, ID, and password and we will resolve the situation for you within 24 to 48 hours. Type **Cafe 1.5 DL Reset** in the subject field of the message.

If you have lost your Visual Cafe ID, send a message to Customer Service at custserv@symantec.com. If your information does not appear in our registration database, we will provide additional avenues so you can verify ownership of the product.

Old version support

When a new version of this software is released, registered users may receive upgrade information through electronic mail or the postal service. After the release of the new version, telephone support will be provided for the previous version for 6 months. Technical information for the older versions may still be available on the electronic services and automated fax retrieval system.

Discontinued product support

When Symantec announces that a product will no longer be marketed or sold, telephone support will be discontinued 60 days later. Support will only be available for discontinued products through services such as our

automated fax retrieval system or through documentation posted on electronic services such as the World Wide Web, Symantec BBS, CompuServe or America Online.

Service and support headquarters

Symantec's service and support headquarters for North America is at the following location.

Symantec Corporation 175 W. Broadway Eugene, OR 97401	(800) 441-7234 (USA & Canada Customer Service) (541) 334-6054 (all other locations) Fax (541) 984-8020
	For Visual Cafe technical support, please call the following numbers: StandardCare Support (541) 465-8470 PriorityCare 800 Support (800) 927-4014 PriorityCare 900 Support (900) 646-0004 or post a message in the Visual Cafe Discussion Group at http://www.symantec.com/techsupp/index.html .

Worldwide service and support

Symantec provides technical support and customer service worldwide. Services vary by country and include International Partners (IPs) who represent Symantec in regions where there is no Symantec office. Most IPs provide customer service and technical support for Symantec products in your local language, as close to your home or office as possible.

If your country is not listed in the International Locations section below, please call our Technical Support automated fax retrieval service, located in the United States, at (541) 984-2490, choose Option 2, and request Document 1400.

International locations

European headquarters

Symantec Europe Ltd.
Kanaalpark 145

Tel. (31) (71) 535 3111
Fax (31) (71) 535 3150

2321 JV Leiden
The Netherlands

Customer Service		Tel. (31) (71) 535 3294
Technical Support -	Dutch	Tel. (31) (71) 579 4407
	French PC/Mac	Tel. (33) (1) 41 38 69 80
	French Mac	Tel. (33) (1) 41 38 69 81
	German	Tel. (49) (211) 9917 110
	English	Tel. (44) (1628) 788 580
	Other Countries	Tel. (31) (71) 579 4425
		Fax (31) (71) 535 3153

International BBS (up to 14.4 baud)	Tel. (31) (71) 535 3169
Automated fax retrieval (24 hrs.)	Tel. (31) (71) 535 3255

Asia/Pacific Rim region

Symantec Australia Pty. Ltd. Tel. (61) (2) 9850 1000
408 Victoria Road Fax (61) (2) 9850 1001
Gladesville, NSW 2111
Australia

Technical Support	Tel. (61) (2) 9879 6577
	Fax (61) (2) 9879 6594
BBS	Tel. (61) (2) 9879 6322
Automated fax retrieval (24 hrs.)	Tel. (61) (2) 9817 4550

Mexico

Symantec Mexico Tel. (52) (5) 545 1234
Rubén Darío No. 36, Piso 2, OFNA 6 Fax (52) (5) 531 2252
Colonia Chapultepec Polanco
11560 México, D.F.

Technical Support	For Technical Support call the automated fax retrieval service, located in the United States, at (541) 984-2490, and request Document 1400.
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Japan

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Every effort has been made to ensure the accuracy of this information. However, the information contained herein is subject to change without notice. Symantec Corporation reserves the right for such change without prior notice.

Glossary

adapter

Classes that implement an interface. The `java.awt.event` package provides, as a convenience, a series of listener classes that can be implemented by classes

applet

A program that can be added to a Web page and run by Java-enabled Web browsers (or the Applet Viewer). Java applets are secure because they can't access the file system on the local computer, but they can still read from the Web server. This means that applets are less likely to damage a user's system or send private information back to the Web server. (While an applet usually doesn't have a menu bar, it can create a Java frame that has a menu bar.)

applet tag

HTML code that causes an applet to appear in a Web page. It has the following basic format:

```
<APPLET code="applet.class" width=pixw height=pixh></APPLET>
```

applet is the name of the applet.

pixw is the number of pixels for the width.

pixh is the number of pixels for the height.

Consult an HTML book for more information on the applet tag.

application

A Java application is standalone and cross-platform: it can run on all computers with a standalone Java virtual machine and supporting files (which, for instance, you can obtain from the Sun JDK at <http://java.sun.com>), so separate applications for each environment aren't needed. Java applications can have menu bars and access files on the local computer. A Java application is like a C++ application, but it's cross-platform and you need a Java virtual machine to run it. For example, you could write a word processor program in Java. A Java frame is a good base class for a main application window: it can exist by itself, contain components and menus, and can show dialogs and windows.

bean

A component complying with the JavaBeans standard. Also called a JavaBean or a JavaBeans component. A bean is a reusable component that can be visually manipulated in a builder tool. The minimum requirements are that it can be instantiated (it is not an abstract class or interface) and has a class constructor method that takes zero parameters (it has a null constructor). It can also have properties and events, implement the serializable or externalizable interface, and follow method signature rules so it can be introspected.

bytecodes

Instructions that are similar to machine code, but are machine-independent. During execution, the Java virtual machine either interprets the bytecodes with a Java interpreter or converts them to machine code (stored temporarily in memory) with a Just-In-Time compiler.

class

A collection of attributes and methods that defines the implementation of a particular kind of object. A class definition defines instance variables and methods, and specifies the interfaces the class implements and the immediate superclass of the class. See also *inner class*.

component

A JavaBeans component.

- A *visual component* is a user interface element, such as a window, menu, button, and so on, that is visible at run time and appears in the Visual Cafe Project window and Form Designer. It extends from the Java Component class and has a screen position, a size, and a foreground and background color.
- An *invisible component* is not visible at run time, such as a Timer, or displays in a different way in the Form Designer and at run time, such as a MenuBar. It does not extend from the Java Component class. In the Form Designer, an invisible component is represented by an icon that does not effect the form layout.
- Some components can contain other components, such as an application window containing a button; these components are called *containers*. In the Objects view of the Project window, the components in a container appear subordinate to the container, like a file system display. The containers at the top level are separate Java files in your project (called Visual Cafe *forms*),

while the components in the containers are Java code within the container Java file.

To create your user interface, you can display a form in the Form Designer, then drag onto the form a variety of components from the Component Library or Palette; you assign the component properties in a separate Property List window, and add interactions between components with the Interaction Wizard. Visual Cafe Pro automatically creates the Java code for you during this design process.

- Components are like controls in C++.

container

A component that can contain other components. There are two general categories of Java containers: windows and panels. Some types of windows are a frame (which can have a menu bar) and a dialog. A panel is a defined area that can appear in a window, such as an applet that appears in a browser. A top-level container, also called a Visual Cafe *form*, is at the top level in the Objects view of the Project window. It has a corresponding Java file that appears in the Packages and Files views.

dialog

A Java Dialog component is a simple window with a title bar that can receive and process input from a user. Dialogs cannot be used by applets, and are not suitable for use as a main window for an application. Dialogs can contain components, but not menus. Use dialogs for temporary windows. See also *component* and *container*.

data source

A data source is a source of data, usually a database.

database template

A database template is an empty database table with predefined columns. Each template is designed for a specific type of information.

event

An action, initiated by a user or a program, to which an object can respond. Events are typically user actions that the program can capture and respond to. Examples of events include mouse clicks, key presses, and mouse movements.

event handler

A method that is called when a certain type of event is triggered. Visual Cafe automatically generates the code needed to bind the occurrence of an event to an

event handler when you create an interaction with the Interaction Wizard or from the Events/Methods pull-down menu of the Source window. An event binding is made of three parts: the event handler, the listener or adapter implementation, and the code to register the listener or adapter to the object triggering the event. The default name of an event handler is the object name, followed by an underscore then the name of the action that triggers the event.

form

A component that can only appear at the top level in the Objects view of the Project window. Applet, Frame, Window, and some dialog components are forms. In the Component Library, the Visual Cafe forms are all in the Forms group. When you open a form in the Form Designer, the form boundaries are the bounds of the window. You can position other components, such as text, buttons, and graphics, on the form; these components are contained by the form.

frame

A Java Frame component is a general-purpose application window to which you can add components and menus. See also *component* and *container*.

inner class

A class that is included within the body of another class, even within a method (called a local class). An inner class is also called a nested class. This feature is new for JDK 1.1 and is useful for creating adapter classes. After compilation, the inner class ends up in its own class file, which has a dollar sign (\$) in its name.

interaction

A relationship that you define between components, or a component and itself, resulting in Visual Cafe-generated code. You can create an interaction between components on one form, or between a component on one form and a top-level component (such as having a button click open another form). An interaction consists of one or more components, a trigger event, and an action. For example, you can connect a button (the trigger component) to a text box (the action component) so that when the user clicks on the button (the trigger event), the associated text box is enabled for user input (the action).

interface

A set of methods and constants to be implemented by another object. It defines the behavior, or certain characteristics, that another object implements. An interface can define abstract methods and final fields, but not the implementation of them.

introspection

The ability to read JavaBeans classes directly with the Core Reflection API using the Introspector class. This information is stored in a BeanInfo object and includes data such as properties, events, and all the accessible methods.

invisible component

See *component*.

Java Archive (JAR) file

Compressed archive file that complies with the JavaBeans standard. It is the primary method for delivering JavaBeans components. For example, a JAR file can contain one or more related beans, and any support files, including classes, icons, graphics, sounds, HTML documentation, serialization files, and internationalization files. You can deploy applets and applications from a JAR file. A JAR tool, called `jar.exe` on Windows computers, archives and extracts JAR files and is provided with JDK 1.1. In Visual Cafe, to use the JavaBeans components in a JAR file, you must first add the file to the Component Library.

JavaBeans

A standard for creating portable, cross-platform components.

JavaBeans component

A component complying with the JavaBeans standard. Also called a bean or JavaBean. A bean is a reusable component that can be visually manipulated in a builder tool. The minimum requirements are that it can be instantiated (it is not an abstract class or interface) and has a class constructor method that takes zero parameters (it has a null constructor). It can also have properties and events, implement the serializable or externalizable interface, and follow method signature rules so it can be introspected.

Java Virtual Machine

The Java Virtual Machine (Java VM) contains a bytecode translator that converts the downloaded binary Java files into instructions to be executed by the client machine. The Java VM also contains the library routines that are called by a Java applet.

join

A join is a definition of a master/detail relationship. Only detail views have joins. The Join properties for a detail RelationView define a join.

layout manager

The layout is a property of container components that automatically arranges components within the container so that they display well on different platforms and screens, and at different resolutions.

listener

An event listener is an object that has defined the listener interface for a specific event. After this interface has been implemented in a class, an instance of this class may be registered as an event listener. When an event is generated, the event is sent to the object, as well as all other registered listeners.

master/detail relationship

This is a relationship between a master view and a detail view. The join of the detail view defines the relationship.

method

A procedure that is defined as part of an object and acts on an object that is based on that object. It is a collection of statements that perform a complex operation. When a method is called, the instructions in the method are performed and the result is returned to the statement that made the call.

nested class

See *inner class*.

package

A Java package is a group of related Java classes and interfaces. It is both a way of organizing code and a library of code. You can view the source files and packages of a project in the Package view of the Project window.

panel

A Java Panel component is a general-purpose container that can be added to another container. A panel has no visible border and can be used to break up windows into logical regions. See also *component* and *container*.

project

For an application, a Visual Cafe project is a collection of components and code that make up the application. For applets, a Visual Cafe project is a collection of components and code that make up an applet or a group of related applets; it optionally contains one or more HTML files that the applets run in.

property

A named attribute of a component. Properties define component characteristics such as the size, color, label, and state — for example, enabled or disabled.

RelationView

A Visual Cafe component that represents a view of data that's defined by an SQL statement.

top-level component

A component that can only appear at the top level in the Objects view of the Project window. Also called a *form*. Applet, Frame, Window, and some dialog components are top-level components. In the Component Library, the Visual Cafe top-level components are all in the Forms group. When you open a top-level component in the Form Designer, the component boundaries are the bounds of the window. You can position other components, such as text, buttons, and graphics, on the top-level component in the Form Designer; these components are contained by the top-level component.

visual component

See *component*.

view

A view is a virtual database table that exists only in memory.

window

A Java Window component, which is based on the Window class, is an area that has no borders and no menu bar. See also *component* and *container*.

