INTERACTING WITH THE user is a primary responsibility for any application. QUALCOMM BREW provides the usual gamut of user input/output controls, including static and mutable text controls, a versatile menu control, custom controls for entering the time and date, and even a simple Hypertext Markup Language (HTML) viewer you can use to present documents formatted in simple HTML. This chapter shows you the most common controls you'll encounter in QUALCOMM BREW, as well as how to extend the previous chapter's framework to simplify handling your application's controls.

Understanding Modes of User Interaction

Applications running under QUALCOMM BREW can interact with the user in three primary means: visually, aurally, and tactilely. Each has specific strengths and weaknesses. More important, users expect certain kinds of interaction from their phone to have specific meanings—for example, a vibration may be appropriate to notify the user of an incoming message or to add excitement to a game but isn't appropriate in other settings, such as when reporting the successful completion of a network transaction.

Using the Display and Keyboard to Interact with the User

The handset display and keypad are the primary mediums by which your application will interact with the user. Your application will display text and graphics, and it will accept user input via the keys and direction pad.

When designing applications for wireless handsets, you need to keep several things in mind. First, wireless handsets are small. A handset's display isn't suited to presenting a great deal of information at once, and the keypad constrains your ability to enter a great deal of text information. Consequently, it's best to set up the
interface of your application to use icons rather than text, wherever possible, and rely on menus and canned text to speed text input.

NOTE Even with today's rapid-entry systems such as Motorola's iTap and Tegic's T9, text input can still be a frustrating and time-consuming experience, especially for applications that rely on text, such as messaging and chat applications. Applications requiring a great deal of text input should provide menus with customizable quick-text entries for common phrases.

There are few user interface conventions for QUALCOMM BREW applications, but those that exist are largely immutable:

- All applications should begin with a full-screen splash screen that identifies the application. This splash screen should appear for 10 seconds or until the user presses a key.

- From any screen, the Clear key should bring the user to the logical previous screen. If you're viewing the application's main screen, Clear should exit the application.

- In virtually all applications, there should be only one input control (such as an input line or full-screen menu) on the display at once. (Notable exceptions include the text control with a soft key menu discussed in the section “Using the ITextCtl Control” and applications with a browser-like interface that can show more than one selectable hyperlink at once.)

- From any screen, the Select key should accept a current action, such as selecting a menu choice or completing text input, and it should bring the user to the next logical screen.

In a sense, the Clear and Select keys are analogous to the Back and Next buttons on a Web browser: The Clear key brings you back to the item you've just seen, and the Select key brings you to the next screen, as if you selected a link in a browser.

A notable exception to this user flow that you must keep in mind is how network activity and other status dialog boxes change application flow. For example, consider a stock quote application, where you enter a stock ticker symbol and then the application makes a network request to obtain the current value of the stock. When viewing the results of a query, pressing Clear should show you the stock ticker input screen, not the network status display. This is generally