

Using Oracle with Windows CE

Douglas Scherer
Core Paradigm

Abstract

Palmtop computers have become a common component in the businessperson's tools arsenal. Their functionality extends beyond mere scheduling and address storage by adding Internet connectivity and web-browsing capability.

This paper will provide the reader with an overview of the issues involved in developing Oracle Web Applications for the palmtop computer.

Palmtops: A Brief Overview

Palmtops are kind of small personal organizers with a lot of added functionality. They essentially allow the user to take a scaled down version of their desktop on the road. They range in size, but most of them can fit in a standard suit pocket. Most include a sort of ink-less pen that is used as a mouse to make choices and to write on the screen.

A high level of integration is provided with desktop applications so that, for example one could create an Excel spreadsheet or Word document on the Palmtop and easily port it to a desktop PC or print it. Many of them include infrared ports to talk directly to a printer that also has an infrared port or to another palmtop. This allows palmtop users to exchange information on

each other's palmtops.

Imagine two Eco '98 attendees talking during a break and they've each taken notes on their Palmtop that the other would like. They can simply make the information transfer then and there. Now imagine that they each have cellular modems attached to their palmtops and want to immediately distribute the new information to their team at the office. Using the cellular modem they can send the notes to their teams via e-mail, post them on their web site or fax them.

Much of this capability has been available with the use of laptops. What makes the palmtop more inviting is it's small size, lightweight and low cost. One is less concerned about carrying a \$300.00 - \$600.00 palmtop - hidden in the coat pocket - then carrying a several thousand-dollar laptop. Most palmtops have password security so in case it is stolen, the thief cannot gain access to the sensitive information it may hold.

Palmtops: Different Types

There are many brands and models of palmtops each with their own specifications. This writing is not meant to be an exhaustive overview of them all, but simply a look at what you might commonly run into. The information will later be used to plan your application.



The modem used for the making a connection to an Internet Service Provider (ISP) is either introduced to the unit via a PCMCIA card or on an external device. The paper focuses on Windows CE devices although it is possible to apply much of this to the Palmtop of your choice. Windows CE appears as a scaled down version of Windows. It includes a version of Internet Explorer and an e-mail tool.

Getting Connected

Choosing A Modem

When choosing a modem it's good to consider its need for vast amounts of power. Some mobile and cellular modems now come with their own on board battery powerpacks. This frees up the Palmtop's battery to keep the unit alive. This is a very important consideration since palmtops don't have harddrives. If the power goes down then you will lose any data stored on the unit. Most units have an emergency short life battery just in case, but you don't want to let the situation get to that point.

Completing The Communications Settings

Once the modem is installed you will need to complete the communications settings. From the Windows CE Start menu choose programs. Open the communications folder and then the Remote Networking folder. Double click on the Make New Dial-up Connection folder. This starts a wizard. In the field labeled "Type a name for the connection" enter a descriptive name, for example: ConnectToMyISP. Select the Dial-up Connection radio button then click on Next. In this screen choose the modem type and enter the telephone number of your ISP provider. You can also configure your TCP/IP settings based upon information provided by your ISP. Click Finish .

Close all of the open windows. From the Start menu choose Programs and then open the Communications folder. Double click on the Microsoft Pocket Internet Explorer icon. When the program opens the default Windows CE HTML page will appear. Choose Open from the File pull-down menu. A dialog box appears called Open Internet Address. Here you can enter a WWW site address.

Once you have visited a page you can find it again more easily in the history pulldown list



Once connected to the Internet you can browse the web. With special software you can even create a telnet session. E-mail is also available as stated earlier and takes a bit more configuration.

Considerations When Planning Your Application

The most important axiom to remember while designing an application for the Palmtop computer is keep it simple. There are some characteristics that are fairly common amongst Windows CE Palmtop monitors. Most are 480 x 240 with a 4 grayscale monochrome display. Some of the newer models such as the HP 300 and 600 series have larger screens 640 x 240 display. The 600 series also provides a 256 colors.

Browser capabilities can vary greatly among the different Palmtop operating system. For the Windows CE machines there are basically two flavors: Pocket Internet Explorer v 1.x and Pocket Internet Explorer v2.x. The earlier version is very simple and does not provide support for frames, Java or security. The newer version of Pocket Internet Explorer comes closer with support for frames and security.

It's best to limit the use of graphics. The memory is limited on these machines (although some can now hold 16M of RAM) and it's unwise to use it up with graphics. On the 4-grayscale monitors the graphics are not very usable anyway. There is also no support for moving .gifs and any use of graphics takes up precious screen space. It becomes tiresome and frustrating to be forced to scroll passed images on the small browser screen to get to the desired information.

Palmtop Development With the Oracle Suite

With these basic guidelines one can begin to build an application. There are several methods one might use to proceed.

The PL/SQL Agent

Given all of the above limitations and requirements, using the PL/SQL Agent is a great tool for deploying Palmtop applications. When combined with Oracle WebServer 3.x the palmtop takes on the role of sophisticated machine that can access and update transactions in real time. Since the PL/SQL agent provides fast database access without the need for plugins, it can be used to deploy applications to any of the Palmtops with standard browsers.

The Use Of Developer/2000 And Designer/2000

What are some of the ways to develop these applications? It's useful to be able to emulate the Palmtop's small screen during design and development. One way to do this is to use Oracle Forms as the development environment in conjunction with Designer/2000. This will be fairly straightforward since the form under creating will need to remain simple due to the target environment. Resizing the Oracle Forms Builder layout can represent the small screen. This environment will allow the developer to proceed in the limited space environment that's similar to the Palmtop landscape.

What will become clear is that one way to force the data into such a small space is to limit the number of rows on screen in a multi-row block. This becomes important in the next step, reverse engineering the form into Designer/2000. Once the form is in Designer/2000 it can be recreated as a PL/SQL Web Application using the Web Server Generator. Since there is no way to tell the Web Server Generator the maximum size of a web page, the next best thing is to set the number of rows on screen. This can be specified in the Module Data Diagrammer, but will also be picked up from the form discussed and reverse engineered above.

The other that can help keep your application easy to use and view on a Palmtop is to keep the number of colors to a minimum. Don't, for example designate a detailed .gif as the background to your web pages. If using the Oracle Forms Builder method of designing your web application, you can set the color there. If using Designer/2000 as the starting point the Background Color preference can be set. This property is designated in hexadecimal, but Designer/2000 help provides a mapping of the hexadecimal designation to its English color name.

Oracle Web Forms On The Palmtop

It would seem natural to want to simply create an Oracle Form and deploy it on the web. This is not yet possible since the Palmtop browsers do not yet support the Java that Web forms needs.

Conclusion

This paper has provided a brief overview of the pros, cons and issues involved in creating an Oracle Web Application for Palmtop Handheld Computers. Windows CE was used as the example Palmtop Operating System, but there are other Palmtop OSs and configurations to take into consideration.

It would be interesting to see a Palmtop built with NC Architecture in mind. Such a machine might provide more tightly integrated connectivity and accessibility not only to Oracle Web Applications, but also to all other programs on the Web.

Douglas Scherer
Managing Principal
The Columbia Group, Inc
dscherer@coreparadigm.com
www.coreparadigm.com

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