Rainbow ODK v2.1 for Windows CE

Enabling the Windows CE Embedded Web

Product Overview

Rainbow™ technology enables Web server functionality to be easily and inexpensively incorporated into the rapidly growing number of consumer, commercial and industrial electronics products running the Windows® CE operating system. Using Rainbow, OEMs and systems integrators can remotely manage, configure and control their embedded Windows CE devices via the Internet or private TCP/IP networks.

Rainbow takes advantage of a ubiquitous standard client application (the browser) as the user interface. Ease of use is increased, development costs lowered, and time-to-market is reduced by being able to prototype the user interface before hardware designs are complete. Internet and Intranet connectivity makes the products more and more practical and inexpensive to implement, use and maintain.

Rainbow web server technology can be used in a wide range of products. Remote monitoring and maintenance of equipment is a common application across many industries. For example, the condition of industrial and telecom equipment can easily accessed from any location. Vending machines can be queried to see what inventory is running low. Vehicles can be monitored both locally and remotely. Office equipment such as printers, copiers and fax machines can be accessed from user desktops to observe status. There are hundreds of applications that can benefit from access through a standard web browser.

Features and Benefits

First web server for Windows CE – Rainbow was designed specifically for use with Microsoft's new Windows CE operating system.

Small footprint - as little as 50K of ROM.

Full HTTP/1.0 and HTTP/1.1 subset support - fully compatible with standard web browsers.

Easy to integrate - Rainbow's web server engine comes packaged in a single dynamic linked library (RBHTTPD.DLL), which can be easily loaded on to the target Windows CE machine.

Easy to configure - a simple configuration utility is supplied to easily configure Rainbow using the Windows CE registry.

Easy to administer - a Windows CE shell application is supplied to easily administer Rainbow. Remote updates for headless systems are also supported

Fully extensible - Rainbow's Binary Gateway Interface (BGI) technology allows OEMs to easily create custom extensions to the web server that can be called to perform a variety of duties such as turning motors on or off or communicating the status of sensors. The BGI interface is based on a subset of the familiar Microsoft ISAPI standard, so developers can quickly adapt their web server applications to Windows CE.

User Authentication security features - Rainbow's User Authentication feature prevents unauthorized access to non-public areas of the device such as configuration pages or sensitive data pages.

Dynamic content via Server Side Includes - Server Side Includes (SSI) allows static pages to incorporate dynamic elements, minimizing content development time. OEMs can create HTML pages based on HTML code components and BGI extensions. This allows a complex page to be built from a series of reusable fragments. SSI provides the basis for rich dynamic pages requiring minimal ROM.

OEM Developer's Kit (ODK) - the ODK integrates with the familiar Microsoft Visual Studio design environment. The ODK includes AppWizards to easily create BGIs and server loaders for various hardware platforms. The ODK also includes sample code, online help and demos.

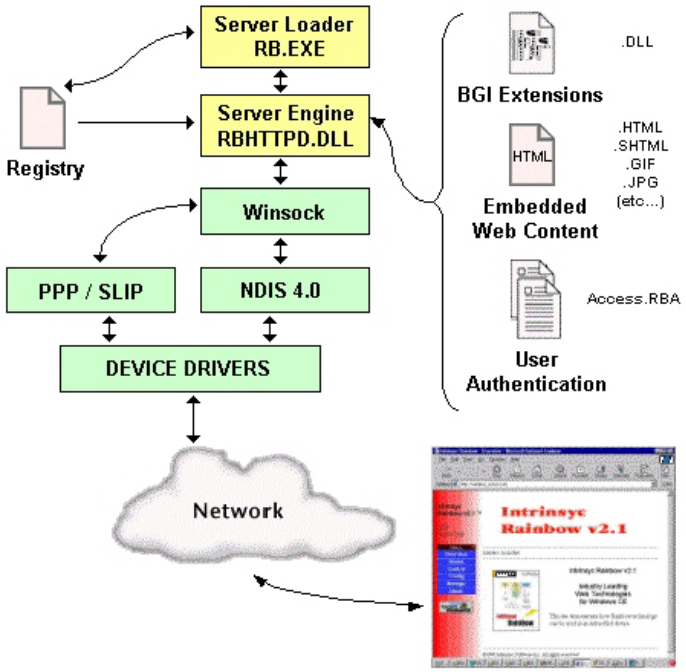
New for version 2.1:

- Headless server and loader support
- 20% to 30% improvements in server response
- Automatic server updates on configuration changes (no need to unload/reload server)
- IP access control for User Authentication
- BGI parameter support
- New "push" and ADO demos
- Support for x86 emulation and Palm-size PC

INTRINSYC Software Inc.

Technology Overview

The Rainbow web server is fully compliant with HTPP 1.0 and includes a subset of HTTP1.1. The Rainbow server is a single DLL and the ODK includes sample server loaders to accommodate typical deployment scenarios. The HTTP server is accessed via TCP/IP over Winsock services, either via Ethernet, serial or wireless links.



The web server is easily extended using BGIs (Binary Gateway Interface), a subset of the Microsoft ISAPI extension mechanism adapted for specific use in Windows CE embedded applications. BGIs are invoked within standard HTML code and results are presented to the browser via the Rainbow server engine.

Rainbow also supports SSI (Server Side Includes), a mechanism that allows nesting of common page elements to minimize the device web site memory requirements. SSI and BGI can be used to generate powerful dynamic content or even full web-based applications, as in the Rainbow RMS v1.0 add-on to Rainbow. The Rainbow web server includes both user and IP address authentication thus allowing the embedded devices to be securely deployed the Internet.

Contact Information

Intrinsyc Software, Inc.
Suite 1050, 1075 W. Georgia St.
Vancouver, BC, V6E 3C9
Tel: (604) 801-6461
Fax: (619) 673-1432
E-mail: sales@intrinsyc.com
Web: www.intrinsyc.com

Specifications

Development Environment

System Requirements:

- Microsoft Windows NT 4.0.
- Microsoft Windows CE Toolkit for VC++ v5.0.
- Microsoft Windows CE Embedded ToolKit (ETK).
- Microsoft Windows CE 2.0 or 2.1, custom or standard platform (H/PC, Palm-Size PC), with Ethernet Adapter or serial Mobile Services link.

Tools and Utilities include:

- Visual C++ 5.0 Wizards for BGI creation.
- Sample BGI with source code included.
- Sample server loaders.
- Online Help and Tutorials.
- Sample Rainbow RMS (Remote Management System) v1.0 application for review (separately licensed).

Run-Time Environment

System Requirements:

- Windows CE v2.0 and v2.1 (with Ethernet Adapter or serial Mobile Services link).
- Windows NT 4.0, Windows 95/98.

Supported processors:

- all processors supported in Windows CE 2.0 and 2.1.

Interoperability:

- HTTP 1.0, 1.1 (subset).
- Any browser.
- TCP/IP and UDP network support.

Typical Windows CE Memory Requirements (depending on the processor and excluding site contents):

- Average 50 to 80K of ROM.
- Average 60 to 80K of RAM.