

Engines for Wireless Data **nweb**™ Micro Client for HTML

Overview

Novarra's Engines for Wireless Data solution incorporates elements for automatic delivery of full Web content to mobile handsets with fast downloads and in a small footprint. The solution is comprised of the Novarra Wireless Data Server (WDS) and **nweb** client. Clients are available for BREW, Java, Linux, Palm, RIM and native C++ based handsets. The client may work independently or in conjunction with the server for optimal performance. Benefits include enhanced speed and usability. **nweb** provides full HTML or WAP 2.0 functionality with speed and mobility features in a small footprint that can be downloaded Over-The-Air (OTA) or pre-loaded on handsets. The **nweb** architecture is modular and can be scaled to fit operator or OEM requirements. This componentized approach enables core browser elements to be made available to other handset applications mirroring current trends in the PC desktop environment, where the “rendering engine” and UI of a browser are becoming cross-application components.

nweb is modular and available as either a proxy based thin-client with device footprint as low as 100K, or as a pure proxyless thick-client with a footprint of 2 - 3M depending on functionality. Both versions support full HTML content. The thick-client can be dynamically switched by the user or operator to perform as a standalone browser or interface with the Novarra WDS server for improved speed and mobility features. Novarra clients provide breakthrough performance in memory, footprint and CPU requirements, across handset platform and operating systems (OS). The Java or BREW based clients reduce overall solution costs for OEMs by using open standard interfaces for easy portability and lower integration effort. It also minimizes the need for individual handset customization.

Core Features

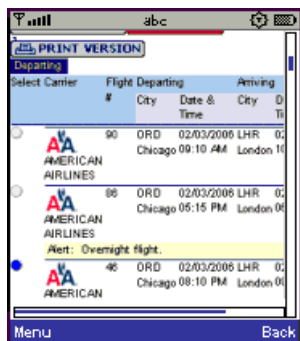
CNN Weather



Image Maps

- Scalable architecture supporting low to high tier handsets.
- Small footprint: ROM and RAM.
- Full Internet:
HTML, JavaScript, Cascading Style Sheets, multiple image formats (GIF, JPEG, BMP, WBMP, PNG, animated GIF), HTTP, HTTPS.
- Carrier WAP portal compliance.
- Content downloads, OMA, DRM standards.
- Multiple layout options - Desktop, handheld, small screen, quick view.
- Multiple view options - Full screen, landscape, pan & zoom page, image zoom.
- Incremental SmartRendering™ - Optimized tables, images, interaction.
- SmartNav™, SmartScroll™, SmartSearch™ significantly improve mobile usability.

American Airlines



Departing	Flight	City	Date & Time	Arriving
AMERICAN AIRLINES	90	ORD	02/03/2006 LHR 02:00 Chicago 09:10 AM London 10:00	
AMERICAN AIRLINES	86	ORD	02/03/2006 LHR 02:00 Chicago 05:15 PM London 06:00	
AMERICAN AIRLINES	46	ORD	02/03/2006 LHR 02:00 Chicago 08:10 PM London 09:00	

Tables

Additional Micro Client Features

- Standard browser features - Caching, history, favorites, back/forward, etc.
- Enhanced navigation - 5 way navigation, page top/bottom, screen up/down.
- Mobility features - Text & URL completion, background content download.
- Phone application integration - Dialer, messaging, push, multimedia.
- International language support.
- Downloadable and customizable UI, plug-in APIs.
- Enhanced content support - RSS, SVG tiny, SMIL, streaming audio/video, Flash, MPEG2/MPEG4, 3GP, 3GP2, MIDI.

- Fastest download of content.
- Remote content upgrades.
- Reduced footprint.
- Enhanced Web content support.

Solution Differentiators

Connection to WAP Push Proxy Gateways for enhanced services including:

- Content Downloads
- Push
- Multimedia Streaming
- Location Services

Feature Descriptions

SmartNav™

User selectable feature that automatically jumps the browser to the main content area on a page. Typical navigation sections of a page are placed under a clickable link for easy access if the main content is not the area of interest.

SmartScroll™

Normally pages are rendered top to bottom. SmartScroll automatically enables horizontal scrolling on sections of pages where it makes sense to maintain the original site context layout. For example airline reservation search results, train schedules, stock tables, etc.

SmartSearch™

Web search is automatically integrated into any Web page using a clickable search toolbar that provides one click access to several popular search and reference engines.

SmartRendering™

Optimized table, image and page layout to fit specific phone screens sizes.

SmartImage™

Images larger than the screen size are automatically scaled for the screen. Image zoom provides the capability to view these images at their original resolution, with panning enabled.

SmartZoom™

The entire Web site is displayed on the screen. Users pan a window around the page and click to zoom in on any page section.

Phone Application Integration

nweb browser easily integrates with phone applications for portability to multiple handset platforms using open interfaces:

- Email and Messaging
 - Native email, SMS, MMS, EMS applications
- Phone dialer
 - Auto number recognition
- Built in phone devices
 - Camera, input devices, etc.

Feature List

Yahoo Finance



SmartScroll™

BBC World



Zoom Out View

HTML/WAP 2.0 Content Type Support

- Web/Portal Content Support:
 - Street HTML, HTML 4.01, XHTML 1.0, XHTML Basic, XHTML MP, cHTML, HDML, WML 1.1
 - CSS v1, CSS v2, W-CSS
 - Tables, Frames, Forms
- Cookies, Basic Authentication
- GZIP, Multi-Part MIME
- GIF, Animated GIF, JPEG, BMP, WBMP
- SVG Tiny, SMIL, Flash, MPEG-2/MPEG-4, 3GP, 3GP2, MIDI (supported on handsets with appropriate APIs)
- JavaScript 1.5, ECMAScript v3, ECMAScript Mobile Profile

Network Protocols and Security

HTTP1.1, HTTPS, SSL2.0/3.0, WTLS, Certificates

Push

WAP 2.0 Push Access Protocol (PAP)

User Navigation

Progressive rendering, handheld view (fit to screen), page & image zoom, tables, SmartScroll, SmartNav, SmartSearch, frames/forms, jump to main, top & bottom, in-line data entry, full-screen view, auto complete URL.

Branding & Customization

Application splash screen, Help and About screens, Menus, Terminal soft & hard key mapping.

Download Mechanisms

OMA Download 1.0, MIDP OTA 1.0 & 2.0

Integration and Plug-ins

- Exchange Mgr/MIME type registration for HTTP, HTTPS
- Media Viewers and Plug-ins (supported on handsets with appropriate APIs)
 - PDF document viewer
 - Flash, SMIL, SVG tiny, etc.
 - Audio, video playback within the browser

Java Handset Requirements

Accuweather



Background Colors

Core Memory and Java Platform Requirements

- MIDP 2.0 (JSR 118)
- Application Size allotment: < 64K - > 2.4MB depending on feature set
- Required heap: < 512KB - > 3MB depending on feature set
- Available permanent storage: Configurable
- Screen Size / Resolution: 128 x 128 min.

Optional Java Features for Additional Enhancements

- Push (SMS-based): Wireless Messaging API (JSR 120)
- Audio & Video (Voice, Midi, MP3...): Mobile Media API (JSR 135)
- Click-to-Call (integration with phone dialer): Mobile Telephony API (JSR 253)
- Download of Ringtones, Wallpaper, Games, etc.: Application Management System (AMS) Integration API
- Quick Launch Browser: Terminal support to map "hard" or "soft" key to browser application
- Connection Status / Activity Indicator: OEM API to annunciator

Additional Operating System/Platform Support

Amazon.com



E-Commerce

nweb is also available on the following platforms:

- BREW
- Palm OS v3.5 and higher
- RIM OS v3.0 and higher
- Linux OS
- An embedded C++ version (available to OEMs).

Client functionality is modular and scalable depending on the capabilities of the handset and OEM requirements. Versions are available from as small as 64 KB.