# Wireless Application Protocol

WAP stands for Wireless Application Protocol, a secure specification that allows users to access information instantly via handheld wireless devices such as mobile phones, pagers, two-way radios, smartphones and communicators.

The idea comes from the wireless industry, from companies such as Phone.com, Nokia and Ericsson. The point of this standard is to serve Internet contents and Internet services to wireless clients, WAP devices, such as mobile phones and terminals. The authoritative source for WAP is http://www.wapforum.org/.

WAP supports most wireless networks. These include CDPD, CDMA, GSM, PDC, PHS, TDMA, FLEX, ReFLEX, iDEN, TETRA, DECT, DataTAC, and Mobitex.

WAP is supported by all operating systems. Ones specifically engineered for handheld devices include Palm OS, EPOC, Windows CE, FLEXOS, OS/9, and Java OS.

WAPs that use displays and access the Internet run what are called microbrowsers--browsers with small file sizes that can accommodate the low memory constraints of handheld devices and the low-bandwidth constraints of a wireless-handheld network.

Although WAP supports HTML and XML, the WML language (an XML application) is specifically devised for small screens and one-hand navigation without a keyboard. WML is scalable from two-line text displays up through graphic screens found on items such as smart phones and communicators. WAP also supports WMLScript. It is similar to JavaScript, but makes minimal demands on memory and CPU power because it does not contain many of the unnecessary functions found in other scripting languages.

Because WAP is fairly new, it is not a formal standard yet. It is still an initiative that was started by Unwired Planet, Motorola, Nokia, and Ericsson.

People on the move need services, information and entertainment that can keep up with them. With access to mobile services, decisions and interactions happen here and now. The value of mobile services to end-users is boosted by three separate elements: personalization, time-sensitivity and location awareness. Combining these three effectively adds even more value.

Wireless application protocol (WAP) is a protocol that has successfully established a de facto standard for the way in which wireless technology is used for Internet access. WAP technology has been optimized for information delivery to thin-client devices, such as mobile phones.

**WAP Server**
A WAP Server is frequently misused term. A WAP server by itself is really nothing more than a HTTP server - ie. A web server. In order to confuse everyone, Nokia has a product that they call a WAP server, which is a WAP gateway, and a HTTP server all in one. Ie. This is actually a

content providing servers and a gateway. The gateway takes care of the gateway stuff, and the web server provides the contents.

**WAP Gateway**
A WAP gateway is a two-way device (as any gateway). Looking at if from the WAP device's side, since a WAP device can only understand WML in its tokenized/compiled/binary format, the function of the WAP gateway is to convert content into this format. Looking at it from the HTTP server's side, the WAP gateway can provide additional information about the WAP device through the HTTP headers, for instance the subscriber number of a WAP capable cellular phone, its cell id and even things like location information (whenever that becomes available).

**WAE Wireless Application Environment**
The Wireless Application Environment specifies a general-purpose application environment based fundamentally on World Wide Web technologies and philosophies. WAE specifies an environment that allows operators and service providers to build applications and services that can reach a wide variety of different platforms. WAE is part of the Wireless Application Protocol.

**WSP Wireless Session Protocol**
The Wireless Session Protocol provides the upper-level application layer of WAP with a consistent interface for two session services. The first is connection-mode service that operates above a transaction layer protocol, and the second is a connectionless service that operates above a secure or non-secure datagram transport service.

**How long will WAP last?**
First of all let me remind you that these are my personal views, and the bottom line is that it is the consumer who has the faith of WAP in his hand. Good technology has been wasted before just because the market has chosen something else to support. Take the VHS, Beta and Video2000 home video standards of some years back. Technically speaking, Video2000 offered the best quality, but the market chose VHS, which is probably the worst of the three.

Anyway, on to the future of WAP. Unfortunately WAP is currently being marketed as "the internet on your phone". I'm sure that most WAP devices will be mobile phones, but WAP is not in any way limited to phones. Further, anyone who has worked with WAP knows that it's wrong to say that WAP is a "web" browser as such.

WAP can on the other hand offer services and applications similar to the ones you find on the Internet in a very thin client environment. Thin meaning virtually no processor power, very limited display rendering capabilities and so on. How well these applications work are up to the developers. It's true that WAP currently limits the developers in many ways, but the technology is new, and there are ways around almost every obstacle.

Many see the death of WAP when they are shown hand held micro PCs and PDAs, arguing that the limited display size and lack of a proper keyboard will mean the end of WAP. Personally I think this is wrong. First the amount of devices you'll end up with. Most people will need to carry

both their mobile phone and their micro PC/PDA. My opinion is that the consumer will think; the more I can do with just one device the better. Then there's the question of cost. Two devices cost more than one. The majority of WAP users should be normal people, and they'll want to spend as little as possible.

Manufacturers have and will try to solve these problems by combining the PC and the mobile phone. The problem then becomes size. For a device like this to be usable by a human, there are certain restrictions. First of the entire input interface. Currently the best-input interface available is the common QWERTY keyboard. For this keyboard to work the keys and the space between them must have a minimum size or only very small children will be able to use it. Second, the output interface. The human eye I guess is best suited to look at a display down to five inches. Anything smaller than this and you'll need to move the device closer to your eyes. A display like this will make a hand held device very large and impossible to put in a normal sized pocket. The typical mobile phone display is about two inches. If you want to present a normal 640 by 480 image on a two-inch display, you'd have to have the display surgically attached to your cornea. I doubt this would sell.

The typical combination PDA and mobile phone today is something like the Nokia Communicator. The drawback with this is that you cannot comfortably use the device unless you have one hand free to hold the device or that the device is firmly seated. A normal mobile phone can be operated with just one hand, both holding and "typing". Some argue that it is impossible to type using the numeric keypads of a mobile phone. It's true that it's more complicated than using a normal keyboard, but then again you're not meant to be writing an essay on a WAP device. And the billions of SMS messages sent from mobile phones every day at least proves that it's not impossible.

The bottom line is that WAP is not "the web" on your mobile phone, and that WAP should have all the prospects of a long life as long as developers understand that it's what's inside the applications that matter, and not necessarily how it is packaged.