HP iPAQ and GSM/GPRS/EDGE Technology

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Abstract

The HP iPAQ hw6900 and hw6500 Mobile Messenger series are global communications devices offering connectivity, productivity, and mobility with high-end GSM/GPRS/EDGE technologies. GSM/GPRS/EDGE capabilities guarantee connectivity in and out of the office.

The HP iPAQ hw6900 and hw6500 Mobile Messenger series offer integrated GSM/GPRS technology. The HP iPAQ hw6900 and hw6500 series also integrate EDGE capability. (Users will need to subscribe to a wireless service to use these integrated features.)

Introduction to GSM/GPRS/EDGE

GSM technology is typically used for voice calls and text messaging, while GPRS/EDGE technology provides a connection to the Internet that can be used for web browsing, multimedia messaging service (MMS) messaging, or accessing a corporate network. With GSM/GPRS/EDGE, users can retain connectivity outside of a local area network (LAN).

GSM

Global System for Mobile Communications (GSM) is a digital cellular phone technology based on time division multiple access (TDMA) technology. GSM is a circuit-switched system that divides each 200 kHz channel into 8 time slots. Whereas TDMA defines only the air interface, dividing radio frequencies into time slots and then allocating slots to multiple calls, GSM defines the entire cellular system. GSM operates in the 900MHz and 1800MHz bands in Europe, and 1900MHz and 850MHz PCS bands in the U.S.

GSM has become the wireless communications standard for more than half of the world's mobile phones. Today, it is the most popular standard for mobile phones with more than 250 million mobile phones operating with GSM technology.

The ubiquity of the GSM standard makes international roaming possible. As long as the subscriber's mobile phone supports the GSM band used in the specified country. Subscribers are able to use the same mobile phone in many parts of the world. Frequency bands differ around the world. In the U.S., two (dual) of the available four (quad) bands are used. The HP iPAQ hw6900 and hw6500 Mobile Messenger series support four bands to increase the available phone service coverage. To get additional information about roaming and how it works, visit this web site: http://www.gsmworld.com/roaming/how_roaming_works.shtml.

In addition to high quality mobile voice and data services with worldwide roaming capabilities, GSM provides support to SMS and MMS messaging. SMS is capable of sending and receiving text messaging up to 160 characters in length. MMS is capable of sending graphics, video clips, and sound files.

SIM Cards

GSM phones use a Subscriber Identity Module (SIM) smart card containing user account information. Each SIM card contains a computer chip with information about the user's phone number, service, registration information and contacts. By installing the SIM card into any GSM phone, it is immediately programmed with the appropriate account information. SIM cards make it easier to rent or borrow GSM phones because user information can be swapped in and out quickly.

SIM cards can also be programmed to display custom menus for personalized services. SIM cards also contain the memory to store speed dial numbers and text messages.

GPRS

General Packet Radio Service (GPRS) is an enhancement to the GSM mobile communications system that supports transmission of data packets. GPRS is capable of running at speeds up to 115 kilobits per second and enables continuous flows of IP data packets over the system. Current GSM systems are capable of running only 9.6 kilobits per second.

GPRS makes efficient use of limited bandwidth and is especially suitable for sending and receiving data, whether in small bursts like e-mail and web browsing or large volumes like file transfers. GPRS technology offers broad high-speed connectivity and access Internet-based content, e-mail messages, and text messaging.

EDGE

EDGE is an enhancement to GPRS technology that enables higher speed data connections up to 384 kilobits per second. EDGE provides faster phone multimedia capabilities, like sending and receiving SMS/MMS messages and sharing video clips. EDGE is rapidly becoming a global standard for wireless wide-area data communication.

Users' individual service providers may or may not support EDGE technology. If the user's service provider does not support the EDGE network, the HP iPAQ automatically switches to GPRS data transfer rates, providing a seamless mobile experience and widespread access to Internet-based content and data services worldwide.

Notes

HP iPAQ devices are equipped to allow users to take advantage of GSM/GPRS/EDGE technology. However, users must arrange for GSM/GPRS/EDGE services separately with service providers. Service providers can supply information about availability and coverage in particular areas. Data transmission and download speeds may vary based up on network capabilities and other conditions. GPRS/EDGE data services may be subject to an additional charge beyond standard GSM mobile phone service.

For more information, refer to the specifications listed for individual products at: http://www.hp.com/go/iPAQ.

HP iPAQ GSM/GPRS/EDGE Phone and Data Connection

GSM/GPRS/EDGE technology offers users more than the ability to make and receive telephone calls. HP iPAQ devices offer a comprehensive set of wireless capabilities to keep users connected in or out of the office. With GSM/GPRS/EDGE integrated into a single HP iPAQ, users have broad coverage offering high speed access to the Internet as well as business and personal information.

HP iPAQ devices offer the following connectivity options:

- Use the integrated GPRS/EDGE technology to connect to a Virtual Private Network (VPN) or to remotely connect to a mobile Internet Service Provider (ISP).
- Make a wireless GSM/GPRS/EDGE connection to place a phone call, send or receive e-mail or send SMS/MMS messages.

To send or receive data over a GSM/GPRS/EDGE network, users must have an account with a mobile phone service provider that supports GSM/GPRS/EDGE data services and an activated SIM card. The following features are supported on HP iPAQ devices but must be activated by users' individual mobile phone service providers:

- Call forwarding
- CSD—Circuit Switched Data

- GPRS—General Packet Radio Service
- International dialing
- International roaming
- Internet access
- SMS/MMS
- Message service
- Voicemail
- Virtual Private Network—VPN

HP iPAQ GSM/GPRS/EDGE Features

Automatic Frequency Band Selection

HP iPAQ devices offer integrated quad-band GSM/GPRS technology, supporting 850, 900, 1800 and 1900 MHz. This flexibility makes HP iPAQ devices an excellent solution for users who need to stay connected during international travel.

When traveling between countries and wireless network operators, the HP iPAQ automatic selection feature changes the frequency bands of the GSM/GPRS/EDGE connection settings. The feature initiates an automatic search for network frequency bands when the user's home bands are not available. Automatic frequency band selection is the default setting on HP iPAQ devices.

GSM/GPRS Settings Manager

HP-exclusive GSM/GPRS Settings Manager software is included with HP iPAQ devices. GSM/GPRS Settings Manager automatically configures the HP iPAQ according to network parameters on the device's SIM card. Users still have the flexibility to modify the automatic settings according to individual preferences and create specialized network settings.

GSM/GPRS Settings Manager provides the following features:

- Automatically detects the carrier and sets up the GPRS, MMS and WAP connection information.
- Allows users to edit network settings including GPRS, CSD, SMS, MMS and WAP information.
- Allows users to create individual network settings and save the settings under a user defined name in the iPAQ File Store folder.

Synchronizing with Microsoft ActiveSync

HP iPAQ devices use Microsoft ActiveSync to access corporate information on servers running Microsoft Exchange Server 2003 software. Microsoft ActiveSync software is included on the *Companion* CD or *Getting Started* CD that comes with HP iPAQ devices.

ActiveSync-enabled HP iPAQs can synchronize calendars, contacts lists and e-mail messages over the air with a GPRS or wireless connection without using a desktop computer, cradle or desktop synchronization software. When ActiveSync is enabled, users have the flexibility to sync and receive information as needed by using either a push e-mail solution (via SMS) or a scheduled download from the Exchange server.

Flexible Syncing Solutions

HP iPAQ devices can support different syncing options depending on user needs. For customers who choose not to deploy Microsoft Exchange 2003, HP offers compatibility with the Good Technology GoodLink solution. GoodLink and the HP iPAQ hw6900 Mobile Messenger series deliver a true "push" solution for e-mail accounts, calendar, contacts and much more.

HP includes GoodLink software on the HP iPAQ hw6900 Mobile Messenger. GoodLink provides access to wireless e-mail and corporate data with a familiar Microsoft Outlook-like interface (using a separate server). Additionally, GoodLink also:

- Provides two-way synchronization of all Microsoft Outlook functions
- Supports Microsoft Exchange 5.5, 2000, and 2003
- Offers enhanced features such as Out-of-Office manager
- Offers simple over-the-air (OTA) set up, deployment and management

Additionally, other solutions like those from Seven and Extended Systems (sold separately) are supported syncing options for HP iPAQ device users. Possible fees also may apply to these wireless services.

Receiving Phone Calls during Data Connection

HP iPAQ devices may be attached to both GPRS and GSM services, using one service at a time so that users can make or receive a voice call while sending or receiving a text message. Depending on the network server and/or network carrier, HP iPAQ devices automatically suspend GPRS services during voice calls or text messaging and automatically resume after the call or text message session has ended.

Summary

HP iPAQ devices use built-in GSM/GPRS/EDGE high-speed global wireless technology to meet global business and personal communication needs in a single stylish device. HP iPAQ Pocket PCs are the only devices on the market that delivers this level of messaging capability along with an entire range of other high-end features.

Glossary

Term	Definition
EDGE	Enhanced Data Rates for Global Evolution, an enhancement to GPRS technology that enables higher speed data connections than GPRS.
GPRS	General Packet Radio Service, an enhancement to the GSM mobile communications system that supports data packets. GPRS is suitable for sending and receiving data, such as e-mail or file transfers.
GSM	Global System for Mobile Communications, a digital cellular phone technology based on time division multiple access (TDMA) technology. GSM is a circuit-switched system that divides each 200 kHz channel into 8 time slots.
MMS	Multimedia Messaging Service, an enhanced transmission service that allows cellular phone users to transmit photographs, video clips, sound files and short text messages over wireless networks.
Push E-mail	Push technology keeps your Outlook Mobile up-to-date by delivering Inbox, Calendar, Contacts, and Tasks list quickly and directly to your HP iPAQ while synchronized over GSM/GPRS/EDGE or Wi-Fi through a corporate Microsoft Exchange server. GoodLink e-mail solution offers the Push e-mail technology.
SIM card	Subscriber Identity Module, an intelligence module that operates GSM phone features and contains a computer chip with information like user phone number, service, registration information and contacts. SIM cards also contain the memory to store speed dial numbers and text messages
SMS	Short Messaging Service, a text message service that allows cellular phone users to send and transmit short messages up to 160 characters long.
TDMA	Time Division Multiple Access (IS 136) technology is named for the frequency bands that are available to a network that is divided into time slots. Each user has access to one time slot at regular intervals. TDMA IS 136 uses time division multiplexing for voice and control channel transmissions for business and home use. (The major phone carriers using TDMA technology are AT&T Wireless Services, Bell South, and Southwestern. Bell).
VPN	Virtual Private Network, a type of technology designed to increase the security of information transferred over the Internet. VPN works with either wired or wireless networks, as well as with dial-up connections. VPN creates a private encrypted tunnel from the end user's personal computer, through the local wireless network, through the Internet, to the corporate servers and database.

For more information

iPAQ Mobile

http://www.hp.com/go/iPAQ

MSN Mobile

http://www.mobile.msn.com/pocketpc

GoodLink Workgroup Edition

http://www.good.com

GSM World

http://www.gsmworld.com/roaming/how_roaming_works.shtml

Call to action

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