# HP iPAQ hx2000 series Pocket PC
Frequently asked questions and answers

These questions and answers are available for use with the press and external audiences but not in written form.

**Q .**    **What is the new HP iPAQ hx2000 series Pocket PC?**

**A .**    The versatile HP iPAQ hx2000 Pocket PC series delivers performance, connectivity, and enhanced security to suit your business and personal needs.   Choose from a variety of models with the features you need – the choice is yours.  With the new, greatly enhanced Microsoft® Windows Mobile™ 5.0 operating system, a range of processor speeds, more flash memory, integrated Wi-Fi1 (on certain models), integrated Bluetooth, and dual expansion slots the HP iPAQ hx2000 Pocket PC series provides the connectivity, speed and expandability that's right for you.  Security features including the unique biometric fingerprint reader (on one model) and HP ProtectTools secured by Credant Technologies security software (on all models) provide user authentication and data encryption capabilities.7  Extended product life cycle and common accessories ensure stability, investment protection and lower TCO.  The HP iPAQ hx2000 Pocket PC series – choose the model that best meets your handheld computing needs.

**Q .**    **What are the benefits of Microsoft® Windows Mobile™ 5.0 operating system and software?**

**A .**    Microsoft® Windows Mobile™ 5.0 operating system makes your Pocket PC easier than ever to use with the following features:
- Persistent storage helps prevent loss of data when battery power is lost.  In addition, overall device efficiency has improved, yielding more battery life.
- Allows for more productivity when working away from the desktop. Almost anywhere can now be a mobile office.

- ActiveSync® 4.0 support offers new features such as the ability to sync pictures in contacts and wirelessly sync over Bluetooth®, as well as an improved partnership wizard allowing for an improved overall synchronization experience.
- Enhanced security - Compliant with the FIPS 140-2 standard.

Windows Mobile 5.0 now includes Windows Media® Player 10 Mobile, with support for technologies such as Universal Serial Bus (USB) 2.0, and enables improved media content organization, making it an amazing platform for multimedia devices:

- Easy synchronization.
  – Users can easily sync media files, playlists and song ratings right from Windows Media Player 10 Mobile on their desktop PC, and listen to them on their mobile device.
- New formats and content.
  – Windows Media Player 10 Mobile supports a variety of file formats including Windows Media Audio, Windows Media Video and MP3; customers can now access more than 1 million protected digital songs and videos from online services.(Separately purchased Internet service required; online services may require additional fees.)
- USB 2.0 support.
  – Windows Mobile 5.0 adds support for USB 2.0, which will greatly increase file transfer speeds and synchronization of information between PCs and Windows Mobile-based devices.

**Q .**  **What version of Active Sync works with Microsoft Windows Mobile™ 5 software?**

**A .**  You must use the latest version of Active Sync (4.0 or later) with Microsoft Windows Mobile™ 5 software. ActiveSync 4.0 is included on your Getting Started Disc.  You can download ActiveSync 4.0 from the Microsoft website at www.microsoft.com/pocketpc.

**Memory**

**Q .**  **What is the memory available on the iPAQ Pocket PC hx2000 series?**

**A .**  The iPAQ hx2790 series Pocket PC has 256 MB total memory; (192 MB ROM and 64 MB SDRAM (Up to144 MB user available). The iPAQ hx2490 and hx 2190 series Pocket PC has 192 MB total memory; (128 MB ROM and 64 MB SDRAM (Up to 80 MB user available memory).

**WLAN**

**Q .**  **What is WLAN (Wireless LAN)?**

**A .**  A WLAN is a type of Local Area Network (LAN) that uses high frequency radio waves rather than wires to communicate and transmit data among nodes. It is a flexible data communication system implemented as an extension to or as an alternative for, a wired LAN within a building or campus.  It is also referred to as Wi-Fi.

**Q .**  **Why did HP select Wi-Fi 802.11b versus 802.11a or 802.11g?**

**A .**  We chose to integrate 802.11b for the wide market availability, the main system power needs, and small form factor.
802.11a is an extension to 802.11 that applies to wireless LANs and provides up to 54 Mbps in the 5GHz band. 802.11a also has a shorter range and is less power efficient than 802.11b.
802.11g -- applies to wireless LANs and provides up to20+ Mbps in the 2.4 GHz band.

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**Q .**     **What are the benefits of integrating Wi-Fi (WLAN) into the Pocket PC?**

**A .**     HP continues to integrate new technologies to provide the optimal user experience. We listen to our customers and integrate the most universally needed technologies. In addition to integrated solutions, we also provide modular ones. Some users prefer to select and configure their own solutions using iPAQ Pocket PC accessories. Advantages to having WLAN technology integrated include:

- Smaller, lighter
- Lower Total Cost of Ownership
- Easier deployment/distribution/management
- Easier to hold/more "pocketable"
- More expandable (can still use expansion packs)
- Fewer pieces to lose; fewer pieces to break; fewer assets to track
- Better power management

**Q .**     **Can Wi-Fi (WLAN) and Bluetooth connections coexist?**

**A .**     Bluetooth and 802.11 use different radios. The distance between the two antennas will determine the level of interference or coexistence of the two radios within the same product. The hx2000 series has software that eliminates the co-existence issue between WLAN and Bluetooth. In the iPAQ Pocket PC, WLAN and Bluetooth connections can be established at the same time without disconnections.

**Q .**     **Are HP Wi-Fi (WLAN) products interoperable with other product brands?**

**A .**     Yes. HP WLAN products are compatible with products from different vendors employing the same technology (for example, Direct Sequence Spread Spectrum). This compatibility allows users to use client adapters from multiple vendors. The goal of industry standards, including the IEEE 802.11 specifications, is to allow compliant products to interoperate without explicit collaboration between vendors. WECA (Wireless Ethernet Compatibility Alliance) is an industry organization that certifies WLAN product interoperability. The 802.11b specification provides the guidelines for WLAN interoperability, and the Wireless Ethernet Compatibility Alliance (WECA) ensures that products interoperate in real-world applications. Systems can interoperate as long as the PC client card and access point are 802.11b compliant and WECA certified.

**Q .**     **What is the data throughput speed of an 802.11b WLAN network connection?**

**A .**     802.11b WLANs operate up to speeds of 11 Mbps. WLAN users experience speed comparable to that offered by many-wired networks. Similar to the wired network, WLAN throughput speed depends on such factors as network topology, load, and distance from the access point.

**Q .**     **What is a Hot Spot?**

**A .**     A hot spot is a place where you can access WLAN/Wi-Fi service, either free or fee-based. Hot spots can be inside a coffee shop, airport lounge, train station, convention center, hotel or any other public meeting area. Corporations and campuses are also implementing hot spots to provide wireless Internet access to their visitors and guests. In some parts of the world, hot spots are also known as cool spots.

**Q .**   **What is Ad-Hoc mode?**

**A .**   Ad-Hoc mode is a profile setting that provides independent peer-to-peer connectivity. In Ad-Hoc mode you can connect to other WLAN enabled devices without the need of an access point.

**Q .**   **What is Network Infrastructure mode?**

**A .**   Network Infrastructure mode is a client setting providing connectivity to an Access Point. As compared to Ad-Hoc mode, whereby devices communicate directly with each other, a Profile set in Infrastructure Mode must pass data through a central Access Point. The Access Point not only mediates wireless network traffic in the immediate neighborhood, but also provides communication with the wired network.

PCs communicate directly with each other; clients set in Infrastructure mode all pass data through a central Access Point.  The Access Point not only mediates wireless network traffic in the immediate neighborhood, but also provides communication with the wired network.

**Q .**   **What are the requirements for WLAN connectivity?**

**A .**   A standard WLAN infrastructure (access points), other Bluetooth enabled devices, separately purchased equipment and a service contract with a wireless airtime provider may be required for applicable wireless communication.  Wireless Internet use requires a separately purchased service contract.  Check with a service provider for availability and coverage in your area.  Not all Web content available.

**Q .**   **Are all of my accessories (SD Cards, software programs) compatible with Microsoft Windows Mobile™ 5.0 software for Pocket PC?**

**A .**   At the time of launch of the Microsoft Windows Mobile™ 5.0 software for Pocket PC operating system, many accessories and software work with your Pocket PC.  If you have trouble with a third-party software or accessory, check the third-party's website for a driver update.

**Q .**   **Can the iPAQ Pocket PC synchronize with Outlook XP?**

**A .**   Yes, using the latest ActiveSync®, included on your Getting Started Disc.  You can also download (free) from the Microsoft website at www.microsoft.com/pocketpc.

**Bluetooth**

**Q .**   **What is Bluetooth?**

**A .**   Bluetooth is a short-range wireless[1] technology that allows wireless connection between other Bluetooth devices without requiring cables. For example, you can connect your iPAQ Pocket PC to a cellular phone, notebook computer, or printer without a connecting cable. Bluetooth technology redefines the very way we experience connectivity.

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**Q.** **What can I do with Bluetooth?**

**A.** With Bluetooth you can:
- Bluetooth Phone Manager simplifies pairing and setup with a Bluetooth-enabled mobile phone which then allows connection to the Internet and remote data access.[1, 4, 5, 6]
- Create wireless personal area networks using peer-to-peer communication with another Bluetooth device for collaboration and information sharing.
- Print your pictures, email and documents to a Bluetooth equipped printer.[1]
- Wirelessly synchronize data with your Bluetooth desktop or notebook PC using ActiveSync. [1]
- Exchange business cards, calendar appointments, documents, and more with other Bluetooth devices.[1]
- Support for Bluetooth mobile phones, headphones, printers, keyboards, GPS receivers, etc.
- Cable-free communication in and out of the office.

**Q.** **What Bluetooth devices will work with the iPAQ hx2000 series Pocket PC?**

**A.** The Bluetooth specification uses profiles to identify special services that can be implemented by individual Bluetooth products. A Bluetooth device can implement one or many profiles, depending on the functionality it desires. Two devices can only perform activities with each other if they both support a common profile. That is why HP has created a Bluetooth Compatibility Matrix to help customers identify products that work well with HP Bluetooth products. See the Bluetooth Compatibility Matrix at
http://h18000.www1.hp.com/products/wireless/wpan/btcompmatrix.html

**Q.** **What Bluetooth profiles are supported in the iPAQ hx2000 series Pocket PC?**

**A.** The following Bluetooth profiles are supported:
- General Access Profile
- Service Discovery Application Profile
- Serial Port Profile
- Generic Object Exchange Profile
- File Transfer Profile
- Dial-Up Networking Profile
- Dial-Up Networking Server Profile
- LAN Access Profile
- Object Push Profile
- Personal Area Networking Profile
- Basic Printing Profile
- Hard Copy Replacement Profile (printing)
- Headset Profile

**Security**

**Q.** **What security features are available on the iPAQ hx2000 series Pocket PC?**

**A.** Security features including the unique biometric fingerprint reader on one model (hx2700 series) and HP ProtectTools secured by CREDANT Technologies security software on all models provide user authentication and data encryption capabilities. Also full VPN and WEP security is included in the Microsoft operating system. A VPN provides enhanced security when accessing your corporate information over the Internet.[1,4] WEP provides encryption security for an authorized connection and data transfer when connected via Wi-Fi (802.11b). Advanced levels of security for wireless communication are available with award winning Odyssey Client from Funk Software (included on your Getting Started Disc) which provides comprehensive standards support including:
- 802.1x – LEAP (Cisco), EAP-TTLS, EAP-TLS, EAP-PEAP, EAP-FAST (Cisco), EAP-SIM, and EAP-MD5.
- 802.11i – WPA, WPA2

**Q.** **What is the Biometric Fingerprint Reader?**

**A.** Biometric Fingerprint Reader[1] protects the information on your Pocket PC by allowing you to easily authenticate yourself to the device using your unique fingerprint, or a combination of a PIN and/or fingerprint (available on HP iPAQ hx2790 series Pocket PC).

**Q.** **What happens if it does not recognize my fingerprint when logging on to the device?**

**A.** In the event that your fingerprint isn't recognized, you should attempt to swipe another enrolled finger, or choose to enter a PIN or Password if you elected these choices when setting up your security settings. If you are unable to authenticate yourself, you will be prompted to hard reset the device after a specified number of unsuccessful attempts.

**Q.** **What features do HP ProtectTools secured by CREDANT Technologies software provide?**

**A.** With HP ProtectTools secured by Credant Technologies, mobile professionals and others can easily secure their devices by using a PIN or password to control access, imposing industry-standard encryption to protect stored data, and providing fail-safe actions that automatically occur if a device is lost or stolen[7]. By selecting either a PIN or password, a user is assured that only s/he gains access to the device. In the event a user forgets a PIN or password, access can be regained by entering an answer to a pre-selected question. A second layer of defense can be established with encryption, ensuring that sensitive information remains confidential. A user can encrypt email, contacts, calendar, notes, My Documents and other files that are then automatically protected whether stored on the device or an external storage card. In the event that a mobile device is lost or stolen, aggressive fail-safe actions can be automatically invoked to hard reset the device back to factory defaults after a pre-determined number of access attempts.[7]

**Q.** **What is 802.1X and is it supported?**

**A.** The hx2000 series supports the IEEE 802.1X standard for wireless encryption for customers whose networks support this feature. This security standard controls access to a wireless network by varying encryption keys using the Extensible Authentication Protocol (EAP). Pocket PC 2003 supports Transport Layer Security (TLS) and Microsoft's Protected EAP (PEAP) implementation of 802.1X. Both implementations require an enroller to retrieve the appropriate certificates from a central certificate authority (CA) onto your Pocket PC. The enroller is included in the ROM for the hx2000 series.

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**Q.** What is WEP and is it supported?

**A.** Wired Equivalent Privacy (WEP) is a basic wireless security provided by Wi-Fi. In some instances, WEP may be all a home- or small-business user needs to protect wireless data. WEP is supported in 64-bit and 128-bit encryption modes. As 128-bit encryption provides a longer algorithm that takes longer to decode, it can provide better security than basic 64-bit encryption. Windows Mobile 5.0 supports WEP.

**Q.** What is WPA and is it supported?

**A.** Short for Wi-Fi Protected Access, a Wi-Fi standard that is designed to improve upon the security features of WEP. The technology is designed to work with existing Wi-Fi products that are enabled with WEP (i.e., as a software upgrade to existing hardware), but the technology includes two improvements over WEP:

Improved data encryption through the temporal key integrity protocol (TKIP). TKIP scrambles the keys using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys have not been tampered with.

User authentication through the extensible authentication protocol (EAP). WEP regulates access to a wireless network based on a computer's hardware-specific MAC address, which is relatively simple to be sniffed out and stolen. EAP is built on a more secure public-key encryption system to ensure that only authorized network users can access the network.

**Q.** What is a VPN?

**A.** Virtual Private Network (VPN) is 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 computer, through the local wireless network, through the Internet, to the corporate servers and database.

**Display**

**Q.** What type of display technology does the iPAQ hx2000 series Pocket feature?

**A.** The iPAQ hx2000 series Pocket PC utilizes a 3.5" transflective TFT QVGA 64K color LED backlight display and allows better and easier viewing of documents, images, and web pages in both portrait and landscape modes

**Q.** What is the difference between reflective and transflective display?

**A.** Reflective is front-lit active matrix display viewable by utilizing internal or external light source, ideal for indoor or outdoor use. The rear polarizer of a reflective display includes a diffuse reflector. This layer reflects polarized ambient light that has entered the front of the display back through the LCD cell. Reflective displays require ambient light to be seen, with high brightness, excellent contrast (14:1), and wide viewing angles. iPAQ Pocket PCs using the reflective LCD's are front-lit.

Transflective display combines transmissive and reflective technologies utilizing internal or external light source. Transmissive displays have a clear polarizer on the front and the back. The display depends on light coming through from the back of the display toward the user. Reflective displays reflect polarized ambient light that has entered the front of the display back trough the LCD cell.

The benefits of transflective display are crisper images and clearer text, with rich color saturation.

**Q.** **Can a button be set to switch from portrait to landscape?**

**A.** Yes, using an iPAQ applet, you can change your iPAQ's predefined button settings.

**Power**

**Q.** **What is the battery runtime of the iPAQ hx2000 series Pocket PC when using the removable/rechargeable 1440 mAH Lithium-Ion battery?**

**A.** The battery life will vary based on an estimated typical use pattern of an average user, the configuration of the computer and the usage pattern of the individual user. Use of some attachments may significantly decrease battery life.

The hx2000 series also includes an extended removable/rechargeable 2880 mAh Lithium-Ion battery that can be purchased as an option.

**Q.** **Can I maintain a wireless connection while I change the removable battery?**

**A.** No. When swapping batteries, the connection and any unsaved data will be lost. The Back Up battery will not maintain the wireless connection or any unsaved data.

**Q.** **What is the Back Up battery for and how long will it last?**

**A.** The Back Up battery is not used to power the device. This internal battery is only intended to maintain stored memory during a battery swap of the main removable battery. The Back Up battery will last up to 10 minutes. If the Back Up battery is depleted and a main battery is not being used, the device will perform a hard reset and data that is in RAM will be lost.

**Q.** **Is the Back Up Battery replaceable?**

**A.** The Back Up battery is not user-replaceable. It is replaceable by HP Service and Support only.

**Q.** **How can I increase the battery life of my device?**

**A.** You can preserve battery life by disconnecting a wireless connection and adjusting your backlight settings when not being used. You can also purchase an Extended removable battery.

**Q .** **What has the greatest impact on battery life?**

**A .** The following have the greatest impact on battery life:
- Backlight
- WLAN active connection
- Bluetooth active connection
- Playing games
- Multimedia

**Q .** **How frequently can you recharge the battery?**

**A .** Your battery may be recharged at any time.

**Q .** **Will the battery become damaged by charging it before the battery has completely discharged?**

**A .** No. Recommendation is that the Pocket PC remains connected to A/C power when not in use. Staying connected to A/C for an extensive period will not damage the battery. The Pocket PC operates with Lithium Ion battery that does not retain a memory.

**Q .** **What is the iPAQ Image Zone?**

**A .** The iPAQ Image Zone is an image viewer that supports JPG, BMP, and PNG. It also has a unique slide show mode to display your images in a digital frame mode.

**Q .** **What is the difference between Secure Digital and MMC technologies?**

**A .** Secure Digital (SD) media features faster data transfer rates and the ability to manually write-protect data. Multimedia Card (MMC) technology is used to add content such as games, e-books, travel software, and other data to your handheld inexpensively with no impact on the storage capacity. Cards can be read-only or rewriteable.

**Q .** **Can I switch my SD card used in my camera to my iPAQ and access pictures?**

**A .** Yes

**Q .** **Does the iPAQ hx2000 series Pocket PC support the 4-bit data BUS of SD memory and SDIO cards?**

**A .** Yes.

**Q .** **Does the iPAQ hx2000 series Pocket PC support memory cards?**

**A .** Yes, the iPAQ hx2000 series Pocket PC supports both SD and MMC memory cards.

**Q .** **Does the iPAQ hx2000 series Pocket PC support SDIO?**

**A .** Yes, the iPAQ hx2000 series Pocket PC is SDIO ready. HP is supporting SDIO Now! as a standard way to ensure SDIO cards will work across Pocket PC devices.

**Q .** **What are some of the future SDIO options?**

**A .** Future planned peripherals include connectivity (multimedia, camera, scanner) options and more.

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| **Q .** | **What software is included on the Getting Started Disc?** |

**A .**  The Getting Started Disc provides various software deliverables, including applications from Microsoft® and HP

- ActiveSync 4.0 (Desktop device synchronization), Adobe Reader for PC, Outlook 2002 Desktop, WorldMate (NA Retail only), Media Player Desktop. Links to websites for additional downloadable applications (some programs may require purchase of additional desktop software).
- HP additional software and documentation: Safety and Comfort Guide on PDF, and User Guide on PDF iPAQ Pocket PC Reference Guide on PDF.
- Award winning Odyssey Client from Funk Software provides comprehensive standards support including:
  - 802.1x – LEAP (Cisco), EAP-TTLS, EAP-TLS, EAP-PEAP, EAP-FAST (Cisco), EAP-SIM, and EAP-MD5.
  - 802.11i – WPA, WPA2

Please note that programs can vary based on SKU purchased, and some programs may require links to various web sites.

**Accessories**

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| **Q .** | **Are other iPAQ Pocket PC series accessories compatible with the hx2000 models?** |

**A .**  Not all of the iPAQ Pocket PC accessories can be used with the iPAQ hx2000 series Pocket PC due to different designs.

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| **Q .** | **What accessories are available?** |

**A .**  The accessories for the iPAQ hx2000 series include[2]:
- Memory cards
- Standard and Extended Batteries
- Automobile adapter
- Charger adapter
- AC adapter
- Desktop cradle
- AutoSync cable (USB and serial)
- iPAQ Navigation System (U.S. & Canada only)
- Stylus three-pack
- Keyboards
- Bluetooth stereo headphones
- iPAQ rugged case
- Cases
- For a complete list of accessories and their compatibility, please visit www.hp.com/products/pocketpc/options

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| **Q .** | **Is the iPAQ hx2000 series Pocket PC serial supported?** |

**A .**  Yes, the hx2000 series is supported via HP standard 22 pin cable interface (cable must be purchased separately)

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| **Q .** | **Does the cradle for the iPAQ hx2000 series Pocket PC support USB?** |

**A .**  Yes, the iPAQ hx2000 series Pocket PC supports a USB connection to your desktop PC via a standard 22 pin cradle interface.

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**Q .**   **Does the cradle for the iPAQ hx2000 series Pocket PC support IrDA?**

**A .**   No, the cradle for the iPAQ hx2000 series Pocket PC does not have an infrared transmitter; however, the iPAQ hx2000 series Pocket PC has integrated SIR and supports connections to both SIR and FIR equipped devices.

**Q .**   **Is Universal Remote control (CIR) on the iPAQ hx2000 series?**

**A .**   No.

**Q .**   **Can the Nevo application be used with the iPAQ hx2000 series?**

**A .**   No.

**Q .**   **Does this cradle work with iPAQ Pocket PCs other than hx2000 series?**

**A .**   Yes, this cradle is designed for compatibility with other HP iPAQ Pocket PCs if you have the correct adapter for your specific device.

**Q .**   **Can I use any of the iPAQ hx2000 series Pocket PC as a phone?**

**A .**   No, the iPAQ hx2000 series Pocket PC model does not have WAN or phone capability. However, it does have integrated wireless LAN technology, which requires an 802.11b infrastructure in place for connectivity.  Therefore, this device is intended for data use, as opposed to voice communications.  The exception to this might be the use of a separately purchased Voice Over IP software application, which allows you to use this device as a VoIP phone in an 802.11b WLAN environment.

[1] A standard WLAN (Wi-Fi) infrastructure, other Bluetooth-enabled devices, separately purchased equipment, and a service contract with a wireless airtime provider may be required for applicable wireless communication. Wireless Internet use requires a separately purchased service contract.  Check with service provider for availability and coverage in your area.  Not all web content available.
[2] Wireless cards and options are available at additional costs
[3] Requires separately purchased third party enterprise management application and supporting IT infrastructure. ROM upgrades are available on an as-needed basis
[4] Wireless access point required and is not included.  Availability of public wireless access points limited.  Wireless Internet use requires separately purchased Internet service contract
[5] Requires Bluetooth enabled mobile, separately purchased wireless carrier/Internet service plan(s) and supporting IT infrastructure.
[6] Telephone service requires separately purchased contract with a telephone service provider with coverage in your service area
[7] User must have HP Protect Tools features enabled

**HP iPAQ Pocket PC features Windows Mobile™ software**

For more information on HP iPAQ Pocket PC, visit our website at
http://www.hp.com/go/iPAQ

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