

IBM® 11a/b/g Wireless LAN
Mini PCI Adapter



User's Guide

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Mini PCI Adapter



User's Guide

ATTENTION

Refer to the documentation that comes with your computer before installing the product.

Note

Be sure to keep your proof of purchase, because it might be required for warranty services. (For more information, refer to *Product warranty and notices for IBM 11a/b/g Wireless LAN Mini PCI Adapter.*)

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Read first – Safety information

Before installing this product, read the Safety Information.

مج، يجب قراءة دات السلامة

Antes de instalar este produto, leia as Informações de Segurança.

在安装本产品之前，请仔细阅读 **Safety Information**
(安全信息)。

Prije instalacije ovog produkta obavezno pročitajte Sigurnosne Upute.

Před instalací tohoto produktu si přečtěte příručku bezpečnostních instrukcí.

Læs sikkerhedsforskrifterne, før du installerer dette produkt.

Ennen kuin asennat tämän tuotteen, lue turvaohjeet kohdasta Safety Information.

Avant d'installer ce produit, lisez les consignes de sécurité.

Vor der Installation dieses Produkts die Sicherheitshinweise lesen.

Πριν εγκαταστήσετε το προϊόν αυτό, διαβάστε τις πληροφορίες ασφάλειας
(safety information).

לפני שתתקינו מוצר זה, קראו את הוראות הבטיחות.

A termék telepítése előtt olvassa el a Biztonsági előírásokat!

Prima di installare questo prodotto, leggere le Informazioni sulla Sicurezza.

製品の設置の前に、安全情報をお読みください。

본 제품을 설치하기 전에 안전 정보를 읽으십시오.

Пред да се инсталира овој продукт, прочитајте информацијата за безбедност.

Lees voordat u dit product installeert eerst de veiligheidsvoorschriften.

Les sikkerhetsinformasjonen (Safety Information) før du installerer dette produktet.

Przed zainstalowaniem tego produktu, należy zapoznać się
z książką "Informacje dotyczące bezpieczeństwa" (Safety Information).

Antes de instalar este produto, leia as Informações sobre Segurança.

Перед установкой продукта прочтите инструкции по
технике безопасности.

Pred inštaláciou tohto zariadenia si pečítajte Bezpečnostné predpisy.

Pred namestitvijo tega proizvoda preberite Varnostne informacije.

Antes de instalar este producto lea la información de seguridad.

Läs säkerhetsinformationen innan du installerar den här produkten.
安裝本產品之前，請先閱讀「安全資訊」。

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About the IBM 11a/b/g Wireless LAN Mini PCI Adapter

This section provides information on registering, installing, and using the IBM® 11a/b/g Wireless LAN Mini PCI Adapter.

Product registration

Thank you for purchasing this IBM product. Please take a few moments to register your product and provide us with information that will help IBM to serve you better in the future. Your feedback is valuable to us in developing products and services that are important to you, as well as in developing better ways to communicate with you. Register your option on the IBM Web site at:

www.ibm.com/pc/register

IBM will send you information and updates on your registered product unless you indicate on the Web site questionnaire that you do not want to receive further information.

Product description

If you are using a wireless upgradable model of an IBM ThinkPad® computer, you can install the IBM 11a/b/g Wireless LAN Mini PCI Adapter (hereafter called the *Mini-PCI Card*) in a Mini-PCI Card slot on your computer.

The option kit includes:

- Mini-PCI Card
- Mini-PCI guide

Note: Some models do not require a Mini-PCI guide

- *Installation and User's Guide CD* (containing device drivers, BIOS update and this User's Guide)
- Product warranty and notices for IBM 11a/b/g Wireless LAN Mini PCI Adapter
- *Safety Information - Read This First*

Verifying the BIOS code level

If your ThinkPad computer is one of the following:

ThinkPad R40
ThinkPad T40/T40p
ThinkPad X31

you may need to update BIOS, so that your machine will work with this Mini-PCI Card.

You need to update BIOS in either of the following situations:

- If you get the following error message just after starting your ThinkPad computer
ERROR 1802: Unauthorized network card is plugged in - Power Off and remove the miniPCI network card.
- If, for Microsoft Windows NT[®] Workstation, the Configuration Utility cannot be installed and you get the following error message
SysTrayApp: The Driver is not installed or the Card is disabled.

Utilities for updating BIOS are placed as follows on the CD-ROM:

For ThinkPad R40 model type 2681, 2682, 2683

x:\BIOS\R40a\US: US English version of BIOS update utility
x:\BIOS\R40a\JP: Japanese version of BIOS update utility

For ThinkPad R40 model type 2722, 2723, 2724

x:\BIOS\R40b\US: US English version of BIOS update utility
x:\BIOS\R40b\JP: Japanese version of BIOS update utility

For ThinkPad T40/T40p

x:\BIOS\T40\US: US English version of BIOS update utility
x:\BIOS\T40\JP: Japanese version of BIOS update utility

For ThinkPad X31

x:\BIOS\X31\US: US English version of BIOS update utility
x:\BIOS\X31\JP: Japanese version of BIOS update utility

Each subdirectory contains two files:

spsuxxxx.EXE: BIOS update utility file
spsuxxxx.TXT: Readme file
where xxxx is the ID corresponding to BIOS version.

The readme file for your ThinkPad computer specifies the BIOS code level required for this Mini-PCI Card.

Note: IBM frequently updates the BIOS code; therefore, this information is subject to change. To download the latest version of the BIOS code for your computer, go to www.pc.ibm.com/support on the World Wide Web.

How to check the BIOS level of your ThinkPad computer

To determine the BIOS code level of a ThinkPad computer that is using the Microsoft[®] Windows[®] 2000, Windows XP, or Windows 98 Second Edition (SE) operating system, follow the procedure below:

1. Click **Start**; then choose **Control Panel**.
2. Double-click the **ThinkPad Configuration** icon.
3. Click **System Information**.

4. Click **BIOS System Information**.
5. Determine whether your BIOS version is older than the BIOS version specified in the readme file.

To determine the BIOS code level of a ThinkPad computer that is using the Windows NT operating system, follow the procedure below:

1. Make sure there is no diskette in the diskette drive; then turn off the computer.
2. Turn on the computer.
3. While the “To interrupt normal startup, press the blue Access IBM button” message is displayed at the lower-left of the screen, press the Access IBM button. Select **Start setup utility**. If you have set a supervisor password, the IBM BIOS Setup Utility menu appears after you enter the password.
4. The BIOS version and date are displayed on the first screen of the IBM BIOS Setup Utility.

If your BIOS version is newer than the one specified in the readme file, you do not need to update BIOS.

If your BIOS version is older than the one specified in readme file, follow the instructions in “Updating the BIOS code of your ThinkPad computer”.

If you are not sure what BIOS version you have or how to update BIOS code, follow the instructions in “Updating the BIOS code of your ThinkPad computer”, and the IBM BIOS Update Utility will check your BIOS version for you.

Updating the BIOS code of your ThinkPad computer

You can update the BIOS code only if your computer has an ac adapter and a charged battery pack. If your ThinkPad computer is attached to any type of port replicator, turn off the computer, and detach the port replicator. Before you use the IBM ThinkPad BIOS Update Utility with Windows 98SE, IBM recommends applying the Windows 98 Second Edition Shutdown Supplement from the Microsoft Web site Knowledge Base, Article ID 239887.

To update the BIOS code, follow this procedure:

1. Connect the ac adapter to the ThinkPad computer.
2. Start Windows 2000, Windows XP, or Windows 98SE.
3. Create a temporary folder on your hard drive (for example, c:\temp).
4. Insert the Installation CD into your CD-ROM or DVD drive.
5. Refer to “Verifying the BIOS code level” on page 2 to determine the location of the IBM ThinkPad BIOS Update Utility program required to update the BIOS level for your ThinkPad R40, T40/T40p, or X31 Series computer.
6. Copy the IBM ThinkPad BIOS Update Utility from the appropriate folder on the installation CD, and store the file in the temporary folder that you have created.
7. Click **Start**.
8. Click **Run**.
9. Specify the path and file name for the ThinkPad Update Utility, and press **Enter** (for example, c:\temp\IYUJ10US.exe).

Attention: Do not turn off or suspend the computer until the update has been completed. If you turn off or suspend the computer while the update is still in progress, the computer system board might have to be replaced.

10. Follow the on-screen instructions.

Note: If the following message is displayed, the BIOS update is not needed for your ThinkPad computer: "An update is not necessary at this time. The process has canceled. Restart your computer."

11. When the BIOS update is completed, the computer is automatically turned off.

Installing the Mini-PCI Card

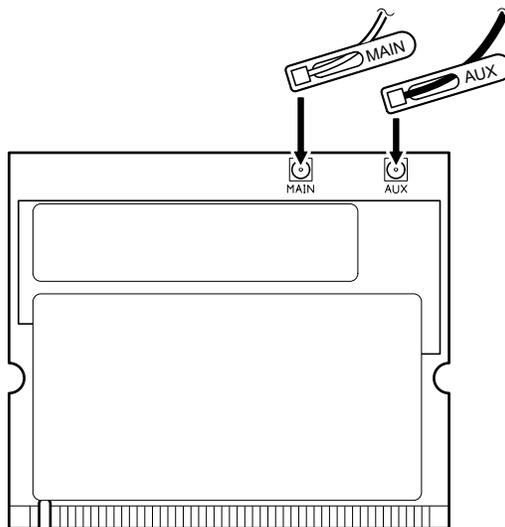
Note

Because the IBM 11a/b/g Wireless LAN Mini PCI Adapter can be damaged by static electricity, it is shipped in a static-protective bag.

- Do not open the static-protective bag until you are replacing the Mini-PCI Card.
- Touch the package to a metal table or a grounded metal object before removing the Mini-PCI Card from the bag. This action reduces any static electricity from the package and from your body.

For information on how to install or remove the Mini-PCI Card, see the online user's guide contained on your ThinkPad computer.

To connect the cables to the Mini-PCI Card, refer to this drawing:



Plug the gray antenna cable with the tab marked "MAIN" into jack M, and the black antenna cable with the tab marked "AUX" into jack A.

Installing the device driver

If your computer is a wireless upgradable model, and you are installing the Mini-PCI Card for the first time, you need to install the device driver for the Mini-PCI Card.

The device driver files are in the following directory:

x:\DRIVERS\WLLANPHL

where x is the drive letter for the CD-ROM drive.

To install the device driver, refer to the following instructions.

Installing the device driver in Windows 2000 or Windows XP

To install the device driver in Windows 2000 Professional or Windows XP, do the following:

1. Start your operating system. Log on with a user ID authorized as an administrator.
2. Right-click the **My Computer** icon on the desktop, and select **Property**.
3. Click the **Hardware** tab; then click the **Device Manager** button.
4. Double-click **PCI Ethernet Controller**, select the **Driver** tab, and click the **Update Driver** button.
5. Click **Next** twice.
6. Specify the location of the driver (x:\DRIVERS\WLLANPHL, where x is the drive letter for the CD-ROM drive).
7. Click **Next** twice, and follow the instructions on the screen.
8. Click **Finish**; then, when asked whether you want to restart the computer, click **Yes**.

Installing the device driver in Windows 98

To install the device driver in Windows 98, do the following:

1. Start your operating system. Log on.
2. Right-click the **My Computer** icon on the desktop, and select **Property**.
3. Click the **Manager** button.
4. Double-click **PCI Ethernet Controller**, select the **Driver** tab, and click the **Update Driver** button.
5. Click **Next** twice.
6. Specify the location of the driver (x:\DRIVERS\WLLANPHL, where x is the drive letter for the CD-ROM drive).
7. Click **Next** twice, and follow the instructions on the screen.
8. Click **Finish**; then, when asked whether you want to restart the computer, click **Yes**.

Installing the device driver in Windows NT

To install the device driver in a Microsoft Windows NT Workstation, do the following:

1. Start your operating system. Log on with a user ID authorized as an administrator.
2. Click **Start**, select **Settings**, and click **Control Panel**.
3. Double-click the **Network** icon.
4. If you are configuring your network settings for the first time, the **Network Configuration** window will appear.

If you have already configured the network settings, proceed to step 14.

5. Click **Yes**.
6. Select **Wired to the network**.
7. Click **Next**.
8. Click **Select from list**.
9. Click **Have disk**.
10. When the **Insert Disk** window opens, type the path (x:\DRIVERS\WLLANPHL, where x is the drive letter for CD-ROM drive) to the directory that contains the OEMSETUP.inf file.
11. Click **OK**.
12. Select **Dual-Band Wi-Fi Wireless Mini-PCI adapter**, and follow the instructions on the screen.
13. When asked whether you want to restart the computer, click **Yes**.
14. Click the **Adapters** tab.
15. Click **Add**.
16. Click **Have disk**.
17. When the **Insert Disk** window opens, type the path (x:\DRIVERS\WLLANPHL, where x is the drive letter for CD-ROM drive) to the directory that contains the .inf file.
18. Click **OK**.
19. Select **Dual-Band Wi-Fi Wireless Mini-PCI adapter**, and click **OK**.
20. Click **Close**, and follow the instructions on the screen.
21. When asked whether you want to restart the computer, click **Yes**.

If your ThinkPad computer is running on the Windows 2000 or Windows XP operating system, you also need to install a Wi-Fi Protected Access (WPA) support program, located on the Installation CD in the WPA subdirectory for the appropriate operating system.

To install the WPA support program, follow this procedure:

1. Click **Start**; then select **Run**.
2. Specify SETUP.EXE with the full path, and follow the instructions on the screen.

After you have installed the device driver, you need to configure your wireless network connection. If your ThinkPad computer is running on the Windows 2000 or Windows XP operating system, start the IBM Access Connections and follow the instructions on the screen. If your ThinkPad computer is running on Windows 98 or Windows NT, you need to install and configure the Configuration Utility, also included with this option package.

Installing the Configuration Utility

To install the Configuration Utility in Windows 98, do the following:

1. Management Instrumentation (WMI) must be installed on your computer. If your ThinkPad computer does not have the WMI, download it from the Microsoft Web site and install it first.
2. Click **Start**; then select **Run**.
3. Specify SETUP.EXE with the full path (x:\DRIVERS\WLLANPHL\SETUP.EXE, where x is the drive letter for your CD-ROM drive), and follow the instructions on the screen.

To install the Configuration Utility in Windows NT, do the following:

1. Click **Start**; then select **Run**.
2. Specify SETUP.EXE with the full path (x:\DRIVERS\WLLANPHL\SETUP.EXE, where x is the drive letter your CD-ROM drive), and follow the instructions on the screen.

For customers using Windows 2000 or Windows XP

If Access Connections loaded onto your computer is not version 2.7 or later, or your computer does not have Access Connections, you need to install Access Connections from the following subdirectory on the installation CD:

x:\ACCON\US\ (for US version)

x:\ACCON\JP\ (for Japanese version)

where x is the drive letter for your CD-ROM drive.

For installation instructions, please refer to README.TXT file in the same directory. To open the README.TXT file, Click **Start**, then select **Run**, and specify full path name to README.TXT file.

Diagnosing the IBM 11a/b/g Wireless LAN Mini PCI Adapter on ThinkPad X31, T40/T40p and R40

The diagnostics in the IBM Predesktop Area does not support IBM 11a/b/g Wireless LAN Mini PCI Adapter. To test IBM 11a/b/g Wireless LAN Mini PCI Adapter, don't use **Run Diagnostics** or **Create diagnostic disks** in IBM Predesktop Area menu. Rather, go to www.pc.ibm.com/support on the World wide web and download and use the latest version (2.0.1250 or later) of PC-Doctor for DOS.

Enabling Extended Channel Mode

The statement below regarding the extended channel mode is applicable when the system supports this function. To check the support of this function, please see the property of the installed wireless card by referring to the extended channel mode enablement instruction.

In countries other than the United States and Canada, you may be allowed to use extra IEEE 802.11b channels. If you cannot connect to an Access Point, contact your system administrator or check your Access Point to find out which channel is being used. If the number of the channel is 12 or greater, enable "Extended Channel Mode" by the following procedure:

1. Start Windows 2000 or Windows XP. Log on with a user ID authorized as an administrator.
2. Right-click the **My computer** icon on the desktop, and select **Property**.
3. Click the **Hardware** tab; then click the **Device Manager** button.
4. Select **Network Adapter**, find a wireless adapter device, right-click the device, and select **Property**.
5. Click the **Advanced** tab.
6. Select "Extended Channel Mode," and set the value to "Enable."

Note: This will be applied for systems with 802.11b wireless function supporting Extended Channel Mode.

Authorized Operation Within the United States and Canada

The statement below regarding the extended channel mode is applicable when the system supports this function. To check the support of this function, please see the property of the installed wireless card by referring to the extended channel mode enablement instruction.

For systems with 802.11g/802.11b wireless function supporting Extended Channel Mode,

This device may only be used with Access Points, which are authorized for use within the geography in which they are being used. The use of this device with an Access Point that is not Wi-Fi compliant and not authorized to be used in your geography could result in violation of government regulations. Consult the network administrator, the instruction manual, or the approval label for the Access Point to determine the authorization of your Access Point in your specific country or geographic region.

"Extended Channel Mode" should only be selected when the device is operated outside the USA and Canada to avoid the unlikely possibility of unauthorized operation. The use of this device outside the United States and Canada in "Extended Channel Mode" may use frequencies not authorized for use in the United States and Canada. When used with an authorized Wireless Access Point that is Wi-Fi compliant or in Ad Hoc mode, this device will operate in its authorized modes in all geographies.

Please reconfigure selected frequencies when you travel from one country to another.

Warning: Australia Users Only

AdHoc mode should not be selected when operating 802.11g in Australia to avoid the unlikely possibility of unauthorized operation which could result in violation of Australian government regulations. AdHoc mode operating in 802.11a and 802.11b is permitted.

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