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B5FH-4801-01EN-00



DECLARATION OF CONFORMITY

Responsible Party Name:	Fujitsu PC Corporation
Address:	5200 Patrick Henry Drive Santa Clara, CA 95054
Telephone:	(408) 982-9500
Declares that product:	Integrated Wireless LAN
Complies with:	FCC 47 CFR Part 15C, Section 15.247 ETSI 300-328, CE Marked ICS-RSS 210

This device complies with Part 15 of the FCC rules. Operations are subject to the following two conditions:

(1) This device must not be allowed to cause harmful interference, (2) This device must accept any interference received, including interference that may cause undesired operation.

FCC Regulatory Information

Please note the following regulatory information related to your wireless LAN device.

Regulatory Notes and Statements

Wireless LAN, Health and Authorization for use

Radio frequency electromagnetic energy is emitted from Wireless LAN devices. The energy levels of these emissions, however, are far much less than the electromagnetic energy emissions from wireless devices such as mobile phones. Wireless LAN devices are safe for use by consumers because they operate within the guidelines found in radio frequency safety standards and recommendations. The use of Wireless LAN devices may be restricted in some situations or environments, such as:

- On board an airplane, or
- In an explosive environment, or
- In situations where the interference risk to other devices or services is perceived or identified as harmful.

In cases in which the policy regarding use of Wireless LAN devices in specific environments is not clear (e.g., airports, hospitals, chemical/oil/gas industrial plants, private buildings), obtain authorization to use these devices prior to operating the equipment.

Regulatory Information/Disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The Manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution or attachment of connecting cables and equipment other than those specified by the manufacturer. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. The Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failure to comply with these guidelines.

USA-FCC (Federal Communications Commission) statement

This device complies with Part 15 of FCC Rules.

Operation is subject to the following two conditions: (1) This device may not cause interference, and, (2) This device must accept any interference, including interference that may cause undesired operation of this device.

FCC Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

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If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the distance between the equipment and the receiver.
3. Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.

FCC Radio Frequency Exposure statement

This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65C and found compliant to the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247 (b) (4) addressing RF Exposure from radio frequency devices. The radiated output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation is minimized. When using this device, a certain separation distance between antenna and nearby persons must be maintained to ensure RF exposure compliance. In order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20 cm (8 inches).

Export restrictions

This product or software contains encryption code which may not be exported or transferred from the US or Canada without an approved US Department of Commerce export license. This device complies with Part 15 of FCC Rules., as well as ICES 003 B / NMB 003 B. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. Modifications not expressly authorized by Fujitsu PC Corporation may invalidate the user's right to operate this equipment.



Integrated Wireless LAN User's Guide

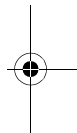
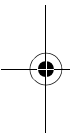


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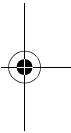
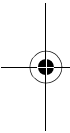
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LifeBook E Series



Before Using This Device

Thank you for purchasing a Fujitsu LifeBook with an Integrated Wireless LAN. This manual describes the basic operating procedures for the Wireless LAN (referred to as the “device” in this manual) and how to set up a wireless LAN network. Before using this device, read this manual carefully to ensure correct operation of the device. Keep this manual in a safe place for reference while using the device.

CHARACTERISTICS OF THE DEVICE

This device consists of a wireless LAN card that is attached to the computer via a mini-PCI slot.

The main characteristics are as follows:

- It uses the power saving communications system in the 2.4 GHz band, and does not require any license for radio communication.
- It uses Direct Sequence Spread Spectrum (DS-SS), which is resistant to noise.
- This device complies with Wi-Fi, and is able to communicate at the maximum transfer rate of 11 Mbps.
- The maximum communication range is approximately 80 feet (25 meters) inside a building. The range may be shorter depending upon the installation factors, such as walls and columns.
- Unauthorized access can be prevented with the use of SSID and encryption key.

WIRELESS LAN MODES USING THIS DEVICE

AdHoc Mode

The “AdHoc Mode” refers to the network connecting two computers using wireless LAN cards. This connection is called an “AdHoc network.”

Using an AdHoc network, you can obtain a network connection easily and at a low cost.

In the AdHoc mode, you can use the function supported by Microsoft Network, such as File and Print Sharing to exchange files and share a printer or other peripheral devices.

To use the AdHoc Mode, you must set the same SSID and the same encryption key for all the computers that are connected. All connected computers can communicate with each other within the communication range.

Infrastructure Mode

If a number of computers are connected simultaneously in the AdHoc mode, the transfer rate may be reduced, communications may become unstable, or the network connection could fail. This is because all wireless LAN cards are using the same radio frequency in the network.

To improve this situation, you can use a wireless LAN access point, which is sold separately. The wireless LAN network is in the “Infrastructure mode” when it uses an access point, and such a connection is called the “Infrastructure Network.”

By using an access point, you can set and use a different communication channel for each network group. Each channel is given a different radio frequency, and it eliminates the collision of communications and provides a more stable communications environment. Infrastructure mode is most suitable when you are configuring multiple wireless LAN networks on the same floor.

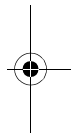
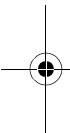
To connect a wireless LAN network to a wired LAN, you need an access point.

HOW TO HANDLE THIS DEVICE

The Integrated Wireless LAN device is already installed in your LifeBook computer. Under normal circumstances, it should not be necessary for you to remove or re-install it. The LAN has been configured to support the operating system with which your system shipped.



Integrated Wireless LAN User's Guide



Connecting Windows® 98/2000 Systems

This chapter describes how to set the wireless LAN connection for computers running Windows 98 or Windows 2000.



POINT

When you receive your LifeBook, the integrated wireless LAN device and drivers have already been installed. This procedure outlines the steps for setting the device parameters.

WORKFLOW

The proper setup of the wireless LAN requires several steps which must be performed in the proper order. Following is a general outline of the steps that must be performed. Each step is detailed later in this procedure.

1. Setting parameters
 - Setting the profile
 - Setting the encryption
2. Network settings
 - Setting the protocol and checking the network
 - Setting file and printer sharing
 - Checking the connection

SETTING PARAMETERS

1. Click [Start]-> [Settings] -> [Control Panel].
2. Double-click the [PRISM Settings] icon. The [PRISM Wireless Settings] appears.
3. Set the profile as specified in Table 1. Ask your network administrators to check the setting.
4. When you finish your entry, click [Apply].

Item	Description
Profile	Enter the system file name in which the parameter information is to be saved.
Mode	<i>Ad Hoc Network:</i> Click the down arrow and select "802.11 AdHoc". <i>Infrastructure Network:</i> Click the down arrow and select "Infrastructure".
SSID	Enter the network name to which you want to connect
Transmit Rate	Obtain the information from your network administrator. If you do not have a network administrator, select "Fully Automatic".
Power Save Enabled	Not supported.
AdHoc Channel	<i>AdHoc Network:</i> Select the same channel, 1-11, for all connected computers. If there is more than one wireless LAN nearby (such as on the same floor), we recommend that the channels for each LAN be 5 numbers apart (e.g., if there are two other LANs nearby, the channels used should be 1, 6, and 11). <i>Infrastructure Network:</i> Not an option.

Table 1: Profile Parameters

5. Click the [Encryption] tab.
6. Set the encryption items in accordance with Table 2.
 - AdHoc Network: Specify the same value for all the computers for which the encryption key is used for connection.
 - Infrastructure Network: Specify the identical encryption keys to the encryption keys set for the access point. For instructions on how to check the encryption keys set for the access point, refer to the access point manual.

**POINT**

Make sure that you specify the encryption keys. If you do not specify the keys, any computer with a wireless LAN card can be connected. This presents a risk that your data may be stolen or destroyed.

Item	Description
Encryption (WEP)	Click the down arrow and select an encryption option. ▪ <i>Disable</i>: Disables the encryption. In this case, "Create keys with Passphrase" and subsequent items are greyed out, and you cannot enter anything. ▪ <i>64 bit</i>: The encryption is set. Select either "Create keys with Passphrase", "Create keys manually", or "ASCII Input", and enter the encryption keys. ▪ <i>128 bit</i>: The encryption is set. Select either "Create keys with Passphrase", "Create keys manually", or "ASCII Input", and enter the encryption keys.
Create Keys with Passphrase	Not supported.
Passphrase	Not supported.
Create Keys Manually (Hexadecimal Input)	Select this to use hexadecimal character codes to set the encryption keys (Keys 1 - 4). Enter a 10-digit value when you have selected [64 bit] for the encryption. Enter a 26-digit value when you have selected [128 bit] for the encryption. Select if the network contains a card that is set with the encryption key using the character code. Specify the encryption keys with the same value used for other wireless LAN cards that are already set.

Item	Description
ASCII Input	Select to use the ASCII codes to set encryption keys (Keys 1 - 4). Select this if network does not contain other wireless LAN cards that are set with encryption key using character codes. Enter a 5-digit value when you have selected [64 bit] for the encryption. Enter a 13-digit value when you have selected [128 bit] for the encryption. You can use the following characters: 0 - 9, A - Z, a - z, _ (underscore). For example, to set "ABC12" for the encryption key, enter "ABC12."
Default Key	Click the down arrow, and select a key from Keys 1 - 4.

Table 2: Encryption Key Setup

7. When you finish your entry, click [Apply].
 8. Click [OK]. [PRISM Wireless Settings] closes.
- You have completed the parameter settings.

**POINT**

When you are using ADSL (PPPoE) with the infrastructure network to connect to the Internet, you need to change the MTU size set for the computer. To change the MTU size, refer to the manual that comes with the access point.

NETWORK CONNECTION: WINDOWS 98

The section describes how to set the network connection if your computer running Windows 98.

Network Settings

In this section, you set "TCP/IP Settings," and complete "Checking Computer Name and Workgroup" required for the network connection.

TCP/IP Settings

1. Click [Start]-> [Settings]->[Control Panel].
2. Double-click the [Network] icon. [Network] appears.
3. Perform the following steps.
 - Click [TCP/IP].
 - Click [Properties].



POINT

If you have more than one [TCP/IP...] entry, select [TCP/IP -> Intersil PRISM Wireless LAN PCI Card]. [TCP/IP Properties] appears.

4. Set an IP address. (When you are done, ask your network administrator to check the setting).
 - **AdHoc Network:** Select [IP address], and enter a value for [IP address] and [Subnet Mask]. Refer to "About IP Addresses" on page 27 to set an IP address and subnet mask.
 - **Infrastructure Network:** Select [Obtain an IP address automatically].
5. Click [OK]. [Network] appears again.

In the next step, you will check the computer name and workgroup.

Checking the Computer Name and Workgroup

1. Click the [Identification] tab on the [Network] window.



POINT

If this tab is not found on the [Network] window, click [Start] -> [Settings] -> [Control Panel], and double-click the [Network] icon.

2. Check the entry for [Computer name] and [Workgroup]. Ask your network administrator and check the setting, if you have a network administrator.

Item	Description
Computer Name	A name to identify the computer on the network. You can specify any name for any computer. Use up to 15 single-byte characters. For easiest identification, use the model name or user name.
Workgroup	The name of the network group. Use up to 15 single-byte characters. ▪ AdHoc Network: Specify the same name to all computers within the same network. ▪ Infrastructure Network: Specify a workgroup name to connect to.
Computer Description	Additional description for the computer. This is not necessary.

Table 3: Computer Name and Workgroup



POINT

Including a period or other special characters may prevent you from connecting to the network.

3. Click [OK]. When a message appears prompting you to restart the computer, click [Yes].

Sharing

In this section, you set sharing of the drive, folder, and printer.

You need to set this only when you are sharing files or a printer with other computers on the network.

When you share a drive, folder, or printer, you can use these from any computer on the network.

Setting File and Printer Sharing for Networks

1. Click [Start] -> [Settings] -> [Control Panel].
2. Double-click the [Network] icon. The [Network] window appears.
3. Click [File and Print Sharing...]. [File and Print Sharing] appears.
4. Click and check one or both of the options.
5. Click [OK]. [File and Printer Sharing for Microsoft Networks] is added under [The following network components are installed] on [Configuration] tab.
6. Click [OK]. [Network Properties] closes. Follow the instructions on the screen.
7. When a message appears prompting you to restart the computer, click [Yes].

Sharing Files

The following example shows how to set sharing the "Work" folder on the c drive.

1. Double-click [My Computer] -> [C: drive] on the desktop.
2. Right-click the "Work" folder, then click [Sharing] from the menu that appears. The [Work Properties] window appears.
3. Click [Sharing], and select items, as specified in Table 4.

Item	Description
Share Name	Specify a share name for the drive or folder that you want to share.
Access Type	Limits the read/write permission for the drive to be shared. ▪ Read-Only Password: Specifies read-only for the drive to be shared. ▪ Full Access Password: Allows read and write for the drive to be shared. ▪ Depends On Password: Identifies either Read-Only or Full, depending upon the password.
Passwords	A password used for [Access Type]. ▪ Read-Only Password: Specify a password to allow read. ▪ Full Access Password: Specify a password to allow read and write.

Table 4: Password Setup

4. Click [OK]. The folder is set for sharing, and the "Work" folder icon changes.

Printer Sharing

1. Click [Start] -> [Settings] -> [Printers]. [Printers] appears, showing the printers that are connected.
2. Right click the printer that you want to share, and then click [Sharing] from the menu that appears.
3. Click [Sharing], and select necessary items.

Item	Description
Not Shared	Disables printer sharing.
Shared as	Enables printer sharing
Share Name	Specifies a share name for the printer to be shared.
Comment	Enter a description of the printer to be shared.
Passwords	Specify passwords. If you specify a password, you need to enter it when using the printer.

Table 5: Printer Sharing

4. Click [OK]. The printer is set for sharing, and the printer icon changes.

Checking the Connection

After the network setting is completed, access the shared drive on another computer to check the connectivity of the wireless LAN network.

Accessing Another Computer

1. Double-click the [Network Neighborhood] on the desktop. The computers that are connected to the network are displayed.
2. Double-click the computer that you want to access. The drive that you set with "Sharing" is displayed. The drive is not displayed unless it is set for sharing, even if it exists.
3. Double-click the drive that you want to access. The drive is displayed showing its contents and made available to you.

If you have a question or problem, refer to "Troubleshooting" on page 19.

Checking the Connectivity

1. Click [Start] -> [Settings] -> [Control Panel].
2. Double-click the [PRISM Settings] icon. [PRISM Wireless Settings] appears.

Connecting with Windows 98/2000

3. Check the connectivity on the [Link] tab. The current condition of connection is displayed.

Item	Description
State	Shows the current condition of connection. The MAC address of the other computer that you are connected to is displayed, when the connection is successfully made. If you are connected to more than one computer, the computer that has the best connectivity is displayed.
Current Channel	Shows the current channel used for the connection.
Current Tx Rate	Shows the current transfer rate in Mbits/sec.
[Radio Off]/ [Radio On]	Click [Radio Off] to disconnect. Click [Radio On] to connect to network.
Rescan	Click to search for others to connect to.
Throughput (Bytes/sec)	Shows the actual transfer rate of the transfer data for send (Tx) and receive (Rx).
Link Quality	Shows [Excellent], [Good], [Fair], [Poor], or [Not Connected], depending on the link quality. This is not shown for the AdHoc connection.
Signal Strength	Shows [Excellent], [Good], [Fair], [Poor], or [Not Connected], depending on the signal strength. This is not shown for the AdHoc connection.

Table 6: Connectivity Condition

NETWORK CONNECTION: WINDOWS 2000

The section describes how to set the network connection for a computer with Windows 2000.

Network Settings

In this section, you set "TCP/IP Settings," and complete "Checking Computer Name and Workgroup," required for the network connection.

TCP/IP Settings

1. Click [Start] -> [Settings] -> [Control Panel].

2. Double-click the [Network and Dial-up Connections] icon. The [Network and Dial-up Connections] window appears.
3. Right click the [Local Area Connection], then click [Properties] from the menu that appears. The [Local Area Connection Properties] window appears.



POINT

More than one network adapter is installed in your system if more than one [Local Area Connection] entry is displayed. In this case, select the [Local Area Connection] entry with [Intersil PRISM Wireless LAN PCI Card] displayed under [Device Name].

4. Perform the following steps.
 - Click [Internet Protocol (TCP/IP)].
 - Click [Properties]. The [Internet Protocol (TCP/IP) Properties] window appears.
5. Set an IP address as indicated in Table 7. Ask your network administrator to check the setting.

Item	Description
For AdHoc Network	Set the IP address and subnet mask: Click [Use the following IP address], and enter a value for [IP address] and [Subnet mask]. Refer to "About IP Addresses" on page 27 to set an IP address and subnet mask.
For Infrastructure Network	Select [Obtain an IP address automatically]: For the DNS server, select [Obtain DNS server address automatically]. For the IP address, DNS server, and default gateway, follow the network administrator's instructions, if any.

Table 7: Setting an IP Address

6. Click [OK]. The [Local Area Connection Properties] window appears again.
7. Click [OK]. When a message appears prompting you to restart the computer, click [Yes].

Checking the full computer name and workgroup

1. Click [Start] -> [Settings] -> [Control Panel].
2. Double-click the [System] icon. [System Properties] appears.
3. Click the [Network Identification] tab.

4. Check [Full computer name] and [Workgroup]. Ask your network administrator and check the setting.

Item	Description
Full Computer Name	A name to identify the computer on the network. You can specify any name to each computer. For easier identification, use the model name or user name.
Workgroup	A name for the network group: ▪ AdHoc Network: Specify the same name to all computers within the same network. ▪ Infrastructure Network: Specify a workgroup name to connect to. To change the setting, click [Properties], and follow the instructions on the screen. [System Properties] appears again.

Table 8: Checking computer name and workgroup

5. Click [OK]. When a message appears prompting you to restart the computer, click [Yes].

Sharing

In this section, you set sharing of the drive, folder, and printer.

You only need to set this when you are sharing files or a printer with other computers on the network.

When you share a drive, folder, or printer, you can use them from any computer on the network.

Setting [File and Printer Sharing for Microsoft Networks]

1. Click [Start] -> [Settings] -> [Control Panel].
2. Double-click the [Network and Dial-up Connections] icon. The [Network and Dial-up Connections] window appears.
3. Right-click the [Local Area Connection], then click [Properties] from the menu that appears. [Local Area Connection Properties] appears.



POINT

More than one network adapter is installed in your system if more than one [Local Area Connection] entry is displayed. In this case, select the [Local Area Connection] entry with [Intersil PRISM Wireless LAN PCI Card] displayed under [Device Name].

4. If [File and Printer Sharing for Microsoft Networks] is displayed in the list, make sure that it is checked. If it is not checked, check it and click [OK]. You do not have to perform the following steps. Go to the next section, entitled "Sharing Files."

If [File and Printer Sharing for Microsoft Networks] is **not** found in the list, click [Install], and perform Step 5 and subsequent steps. When you click [Install], the [Select Network Component Type] window appears.

5. Perform the following steps.
 - Click [Service].
 - Click [Add]. The [Select Network Service] window appears.
6. Perform the following steps.
 - Click [File and Printer Sharing for Microsoft Networks].
 - Click [OK]. You will go back to [Local Area Connection Properties], and [File and Printer Sharing for Microsoft Networks] is added to the list.
7. Click [OK].



POINT

If you have changed the setting, [Close] is shown instead. Click [Close].

Sharing Files

The following example shows how to set sharing the "Work" folder on the c: drive.

1. On the desktop, double-click [My Computer]-> C: drive.
2. Right-click the "Work" folder, then click [Sharing] from the menu. The [Work Properties] window appears.
3. Click [Share this folder] and set necessary items, as indicated in the following table.

Item	Description
Share name	You can specify a share name for the drive or folder that you want to share.
Comment	You can enter the description for the drive or folder that you want to share.
User limit	Specifies the limit for the number of sharing users.
Permissions	Specifies the access privilege to the folder.
Caching	Specifies the caching for the folder.

Table 9: Sharing files

Connecting with Windows 98/2000

- Click [OK]. The folder is set shared, and the “Work” folder icon changes.

Printer Sharing

- Click [Start] -> [Settings] -> [Printers]. The Printers window appears, showing the printers that are connected.
- Right click the printer that you want to share, then click [Sharing] from the menu that appears.
- Click [Sharing], and select necessary items.

Item	Description
Not Shared	Disables printer sharing.
Shared As	Enables printer sharing.
Share Name	Specifies a share name of the printer to be shared.
Comment	Enter the description of the printer to be shared.
Passwords	If you specify a password, you need to enter it when using the printer.

Table 10: Printer Sharing

- Click [OK]. The printer sharing is set, and the icon changes.

Checking the Connection

After the network setting is completed, access the shared drive on another computer to check the connectivity of the wireless LAN network.

Accessing Another Computer

- Double-click the [My Network Places] icon on the desktop. [My Network Places] appears.
- Double-click [Computers near me]. The computers that are connected to the network are displayed.
- Double-click the computer that you want to access. The drive that you set with “Sharing” are displayed.
- Double-click the drive that you want to access. The drive is displayed showing its contents and made available to you. If you have any questions or problems, refer to “Troubleshooting” on page 19.

Checking the Connectivity

- Click [Start] -> [Settings] -> [Control Panel].
- Double-click the [PRISM Settings] icon. [PRISM Wireless Settings] appears.

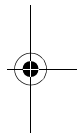
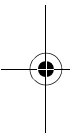
- Check the connectivity on the [Link] tab. The current condition of connection is displayed.

Item	Description
State	Shows the current condition of connection. The MAC address of the other computer to which you are connected is displayed when the connection is successful. If you are connected to more than one computer, the computer that has the best connectivity is displayed.
Current Channel	Shows the current channel used for the connection.
Current Tx Rate	Shows the current transfer rate in Mbits/sec.
[Radio Off]/[Radio On]	Click [Radio Off] to disconnect. Click [Radio On] to connect to the network.
[Rescan] button	Click this button to search for others to connect to.
Throughput (Bytes/sec)	Shows the actual transfer rate of the data transfer for send (Tx) and receive (Rx).
Link Quality	Shows either [Excellent], [Good], [Fair], [Poor], or [Not Connected], depending on the link quality. Not shown for AdHoc connection.
Signal Strength	Shows either [Excellent], [Good], [Fair], [Poor], or [Not Connected], depending on the signal strength. Not shown for AdHoc connection.

Table 11: Checking connectivity



Integrated Wireless LAN User's Guide



Connecting Windows XP Systems

This chapter describes how to set up the wireless LAN connection for computers that are running Windows XP.



POINT

When you receive your LifeBook, the integrated wireless LAN device and drivers have already been installed. This procedure outlines the steps for setting the device parameters.

WORKFLOW

The proper setup of the wireless LAN connection requires that several steps be performed in the proper order. Following is a general outline of the steps to be performed. Each step is detailed later in this procedure.

1. Setting parameters
 - Setting the profile
 - Setting the encryption
 2. Network settings
 - Setting the protocol and checking the network
 - Setting file and printer sharing
 - Checking the connection
1. Click [Start] -> [Control Panel].
 2. Click [Network and Internet connection].
 3. Click [Network connection]. A list of networks that are currently installed is displayed.
 4. Right click [Intersil PRISM Wireless LAN PCI Card] in the list, and click [Properties] from the menu that is displayed. [Wireless Network Connection 2 Properties] appears.
 5. Click the [Wireless Networks] tab. The [Wireless Networks] tab appears.
 6. Perform the following steps.
 - Make sure that [Use Windows to configure my wireless network settings] is checked.
 - Click [Add] under [Preferred networks]. [Wireless Network Properties] appears.
 7. Set parameters.
 - For the AdHoc network, specify the same value to all the computers, for which the encryption key is used for connection.
 - For the infrastructure network, specify the encryption key (network key) with the same value to the encryption key of the access point. For how to check the encryption keys set for the access point, refer to the manual supplied with the access point.

 POINT

Be sure to specify the encryption keys. If you do not specify the keys, any computer with a wireless LAN card can be connected. This presents a risk that other users may steal or destroy your data.

Item		Description
Network Name SSID		Enter the network name to which you want to connect. This is a required item. For the network name, ask your LAN administrator.
		<i>AdHoc network:</i> Set the same name for all of the computers that are to be connected. <i>Infrastructure network:</i> Specify the same name as that specified on the access point that is to be connected. For access point instructions, refer to the manual that comes with the access point.
Key Format		Click the down arrow and select the input for the Network key.
	ASCII characters	Select this when using ASCII characters for the Network Key. Characters that can be used follow: 0-9, A-Z, a-z, and _ (underscore) <i>Example:</i> To set the key to "ABC12", input "ABC12".
	Hexa-decimal characters	Select this when using hexadecimal characters for the Network Key. Use this if there is a wireless LAN card in the network that has the Network Key set to a character code. In 'Network Key', input the same value as the other wireless LAN card.

Table 12: Setting parameters

8. When you finish your entry, click [OK]. [Wireless Network Connection 2 Properties] appears again.
9. Make sure the network name you specified for the SSID in Step 7 is added under [Preferred networks].

NETWORK CONNECTION

The section describes how to set the network connection for a computer running Windows XP.

Network Settings

In this section, you set "TCP/IP Settings," and complete "Checking Computer Name and Workgroup" required for the network connection.

TCP/IP Settings

1. On [Wireless Network Connection Properties], click [General].

 POINT

If [Wireless Network Connection 2 Properties] is not displayed, click [Start] -> [Settings] -> [Control Panel], and double-click the [Network Connection] icon.

Right click the [Wireless Network Connection], and then click [Properties] from the menu that appears.

2. Perform the following steps.
 - Click [Internet Protocol (TCP/IP)].
 - Click [Properties]. [Internet Protocol (TCP/IP) Properties] appears.
3. Set an IP address. Ask your network administrator and check the setting.

Item	Description
AdHoc Network	Set the IP address and subnet mask. Click [Use the following IP address]. Enter a value for [IP address] and [Subnet mask]. See "About IP Addresses" on page 27 to set IP address and subnet mask.
For Infrastructure Network	Select [Obtain an IP address automatically]. For the DNS server, select [Obtain DNS server address automatically]. For the IP address, DNS server, and default gateway, follow the network administrator's instructions, if any.

Table 13: Setting an IP address

5. Click [OK].

 POINT

If you have changed the setting, [Close] is shown instead. Click [Close].

6. Close [Network Connection].

Checking the Full Computer Name and Workgroup

1. Click [Start] -> [Control Panel]. Make sure the Classic View is selected.
2. Double-click the [System] icon. [System Properties] appears.
3. Click the [Computer Name] tab.
4. Check [Full computer name] and [Workgroup]. Ask your network administrator and check the setting.

Item	Description
Computer Name	A name to identify the computer on the network. You can specify any name to each computer. Use up to 15 single-byte characters. For easier identification, use the model name or user name.
Workgroup	A name of the network group. Use up to 15 single-byte characters. <i>AdHoc Network:</i> Specify the same name to all computers within the same network. <i>Infrastructure Network:</i> Specify workgroup name to connect to.

Table 14: Setting computer name and workgroup

To change the setting, click [Change], and follow the instructions on the screen. [System Properties] appears again.

5. Click [OK]. When a message appears prompting you to restart the computer, click [Yes].

Sharing

In this section, you set sharing of the drive, folder, and printer.

You need to set this only when you are sharing files or a printer with other computers on the network.

When you share a drive, folder, or printer, you can use these from any computer on the network.

Setting [File and Printer Sharing for Microsoft Networks]

1. Click [Start] -> [Control Panel]. Make sure the Classic View is selected.
2. Double-click the [Network Connection] icon.
3. Right click the [Wireless Network Connection], and then click [Properties] from the menu that appears. [Wireless Network Connection Properties] appears.
4. If [File and Printer Sharing for Microsoft Networks] is displayed in the list:

Make sure that it is checked. If it is not checked, check it, and click [OK]. You do not have to perform the following steps. Go to the next section, "Sharing Files."

If [File and Printer Sharing for Microsoft Networks] is **not** found in the list, click [Install], and perform Step 5 and the subsequent steps. When you click [Install], [Select Network Component Type] appears.

5. Perform the following steps.
 - Click [Service].
 - Click [Add]. [Select Network Service] appears.
6. Perform the following steps.
 - Click [File and Printer Sharing for Microsoft Networks].
 - Click [OK]. You will go back to [Wireless Network Connection 2 Properties], and [File and Printer Sharing for Microsoft Networks] is added to the list.
7. Click [Close].

Sharing Files

The following example shows how to set sharing the "Work" folder on the c: drive.

1. Click [Start] -> [My Computer].
2. Double-click the [Local Disk (c:)] icon.
3. Right click the "Work" folder, and then click [Sharing and Security] from the menu that appears. [Work Properties] appears.
4. Click [If you understand the security risks but want to share files without running the wizard, click here].



POINT

If you have already clicked [If you understand the security risks but want to share files without running the wizard, click here], this window does not appear.

In the [Work Properties] window, the description under [Network Sharing and security] changes.

5. Check [Share this folder on the network]. Uncheck [Allow network users to change my files], if the shared folder is for read only.
6. Click [OK]. The folder is set shared, and the "Work" folder icon changes.

Printer Sharing

1. Press [Start]->[Control Panel] (or [Settings], if viewing in Classic mode)-> [Printers and Faxes]. The Printers and Faxes display will appear and the connected printers will be displayed.

2. Right-click the printer to be shared, and click [Sharing] from the menu that appears. The properties of the printer to be shared will be displayed. Set printer sharing.

On the display, the printer sharing setting is recommended by the Network Setup Wizard, but for the wireless LAN network, security is maintained by network name (SSID) or network key. The following steps allow you to set up printer sharing without using the Network Setup Wizard.

3. Click 'If you understand the security risks but want to share printers without running the wizard, click here.' 'Enable Printer Sharing' will be displayed.
4. Select 'Just enable printer sharing'.
5. Click 'OK'. The printer properties will be indicated.
6. Select 'Share this printer'.
7. Enter the sharing printer name in 'Share name'.
8. Click OK. The printer will be shared, and the printer icon will become a sharing icon.

Checking the Connection

After the network setting is completed, access the shared drive on another computer to check the connectivity of the wireless LAN network.

Accessing Another Computer

1. Click [Start] -> [My Computer].
2. From the left menu in [Other Places], click [My Network Places].
3. From the left menu in [Network Tasks], click [View workgroup computers]. The workgroup in which you are participating will appear.
4. Double click the computer to which you want to connect. The drive that you set in [Computer Sharing] appears.
5. Double click the drive to which you want to connect. The contents of the drive will appear, and is available for use.

If you have a question or problem, refer to "Troubleshooting" on page 19.

Checking the Connectivity

1. Click [Start] -> [Control Panel].
2. Double-click the [PRISM Settings] icon. [PRISM Wireless Setting] appears.

3. Check the connectivity on the [Link] tab. The current condition of connection is displayed

Item	Description
State	Shows the current condition of connection. The MAC address of the other computer that you are connected to is displayed, when the connection is successfully made. If you are connected to more than one computer, the computer that has the best connectivity is displayed.
Current Channel	Shows the current channel used for the connection.
Current Tx Rate	Shows the current transfer rate in Mb/s/sec.
Radio Off/ Radio On	Click [Radio OFF] to disconnect. Click [Radio On] to connect to the network.
Rescan	Click this button to search for others to connect to.
Throughput (Bytes/sec)	Shows the actual transfer rate of the transfer data for send (Tx) and receive (Rx).
Link Quality	Shows the link quality. This is not shown for the AdHoc connection.
Signal Strength	Shows the signal strength. This is not shown for the AdHoc connection.

Table 15: Checking connectivity

Troubleshooting

This chapter contains troubleshooting information, including causes and actions, for problems you may find while using this device.

TROUBLESHOOTING TABLE

Problem	Possible Cause	Possible Solution
An exclamation mark (!) or cross (x) is attached to [Intersil PRISM Wireless LAN PCI Card].	A failure to recognize the device.	Restart the computer.
	A failure in installing the driver.	Restart the computer.
Other computers are not displayed when the [Network Computer] icon is double-clicked.	You did not enter the password when Windows 98 started. You clicked [Cancel] or [ESC] when User Name/Password window was shown.	Make sure that you enter user name and password and click [OK] when starting Windows 98. If you forget your password, enter another user name. A new user name and password is registered in the computer.
	The network has not been set up correctly.	Check the setting for the protocol, workgroup, and sharing. To check this, you need a different procedure, depending upon the operating system that you use. Refer to the appropriate section of this manual.
	It takes time before the network is searched and the computer connected is displayed.	Perform the following steps to search for the computer. - Click [Start] -> [Search] -> [Other Computers]. - Enter the computer name that you are connecting to in [Name], and click [Search]. - Double-click the icon of the computer that has been searched.
	A failure in installing the driver.	Make sure that the driver is correctly installed.
	The TCP/IP protocol is not installed, or, the IP address is not set correctly.	Make sure that the TCP/IP protocol is installed. To check this, you need a different procedure, depending on the operating system that you use. Refer to the appropriate section of this manual.

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Problem	Possible Cause	Possible Solution
Other computers are not displayed when the [Network Computer] icon is double-clicked.	The TCP/IP protocol is not installed, or, the IP address is not set correctly.	If the TCP/IP protocol is installed, do the following to check the IP address: 1. Windows 98: Click [Start] -> [Programs] -> [MS-DOS Prompt]. Windows 2000: Click [Start] -> [Programs] -> [Accessories] -> [Command Prompt]. Windows XP: Click [Start] -> [All Programs] -> [Accessories] -> [Command Prompt]. 2. Enter "IPCONFIG" command, and press [Enter]. (If your hard disk is C drive, enter C:\>ipconfig) Check that the IP address is correctly displayed under the IP Address. Example: IP address: 10.0.1.3 Subnet Mask: 255.255.255.0 Default Gateway: 10.0.1.1
	No communication due to poor radio signal.	Shorten the distance between computers or remove visible obstacles between them, and retry the connection.

Troubleshooting

Problem	Possible Cause	Possible Solution
IP packet isn't reaching its destination	Run the PING command to check the connection	Perform the following steps to run the PING command to check if the IP packet is correctly delivered to the destination. To run the PING command, the TCP/IP protocol must be installed. First you will determine your IP address, then you will make sure your IP address can respond, and then you will make sure other computers can be addressed. 1. Windows 98: Click [Start] -> [Programs] -> [MS-DOS Prompt]. Windows 2000: Click [Start] -> [Programs] -> [Accessories] -> [Command Prompt]. Windows XP: Click [Start] -> [All Programs] -> [Accessories] -> [Command Prompt]. 2. Type: <code>ipconfig > directory\filename</code> where <i>directory</i> and <i>filename</i> represent the location at which you want to find the IP address. 3. Click [Enter], then go to the location you specified above. The IP address for your system will be contained in the file. 4. To check that your IP address is functioning properly, go back to the DOS prompt and type: <code>ping <IP address></code>, then press [Enter]. You will receive several replies, followed by the PING statistics (similar to below). 5. To check that your system is communicating with other systems, go to the DOS prompt and type: <code>\>ping XXX.XXX.XXX.XXX.</code> (With the destination IP address in place of XXX.XXX.XXX.XXX). Example: if the destination IP address is 10.0.1.3: <pre>C:\>ping 10.0.1.3</pre> A message similar to the following appears if the connection is successful. Pinging 10.0.1.3 with 32 bytes of data: <pre>Reply from 10.0.1.3: bytes=32 time=1ms TTL=32 Reply from 10.0.1.3: bytes=32 time<10ms TTL=32 Reply from 10.0.1.3: bytes=32 time=4ms TTL=32 Reply from 10.0.1.3: bytes=32 time<10ms TTL=32</pre> If the connection fails, [Request timed out], [Destination host unreachable], or a similar message appears. In this case, refer to the "Other computers are not displayed" portion of this chapter.

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Problem	Possible Cause	Possible Solution
Cannot connect to the network	There are several possible causes, as listed to the right. Refer to the specific section of this manual or your user's manual.	The following causes are possible. Check each one of them. ▪ The network name or encryption key is not right. ▪ The driver has not correctly started. ▪ The destination computer is not turned on. ▪ You do not have the access privilege to the destination computer. ▪ The card has failed. ▪ Hardware conflict.
I want to remove the driver. (Windows 98)		Windows 98: When removing the driver, make sure that the device is attached to the computer. If you try to remove the driver while the device is detached from the computer, the driver is not removed. 1. Right click the [My Computer] icon on the desktop, and then click [Properties] from the menu that appears. [System Properties] appears. 2. Click the [Device Manager] tab. 3. Click [+] beside [Network adapters]. 4. Perform the following steps. ▪ Click [Intersil PRISM Wireless LAN PCI Card]. ▪ Click [Remove]. [Confirm Device Removal] appears. 5. Click [OK]. The device is removed, and [System Settings Change] appears. 6. Click [No]. 7. Close [System Properties]. 8. Make sure that the icon has disappeared from the task tray in the lower right corner of the screen. 9. Click [Start] -> [Settings] -> [Control Panel]. [Control Panel] appears. 10. Double-click [Add/Remove Programs]. [Add/Remove Programs Properties] appears. 11. Double-click [PRISM 11Mbps Wireless LAN for Windows]. A window appears asking you if you really want to remove the driver. 12. Click [Yes]. When the driver is removed, a window appears showing that the driver has been removed. 13. Click [OK]. 14. Close [Add/Remove Programs Properties] and [Control Panel]. 15. Shut down Windows, and turn off the computer.

Troubleshooting

Problem	Possible Cause	Possible Solution
I want to remove the driver (Windows 2000)		Windows 2000: When removing the driver, make sure that the device is attached to the computer. If you try to remove the driver while the device is detached from the computer, the driver is not removed. 1. Right click the [My Computer] icon on the desktop, and then click [Properties] from the menu that appears. [System Properties] appears. 2. Click the [Hardware] tab. 3. Click [Device Manager...]. The [Device Manager] window appears. 4. Click [+] beside [Network adapters]. 5. Right click [Intersil PRISM Wireless LAN PCI Card], and click [Uninstall] from the menu that is displayed. [Confirm Device Removal] appears. 6. Click [OK]. 7. Close [System Properties]. 8. Make sure that the icon has disappeared from the task tray in the lower right corner of the screen. 9. Click [Start] -> [Settings] -> [Control Panel]. 10. Double-click [Add/Remove Programs]. [Add/Remove Programs] appears. 11. Perform the following steps. ▪ Click [PRISM 11Mbps Wireless LAN for Windows]. ▪ Click [Change/Remove]. A window appears asking you if you really want to remove the driver. 12. Click [Yes]. When the driver is removed, a window appears showing that the driver has been removed. 13. Click [OK]. 14. Close [Add/Remove Programs] and [Control Panel]. 15. Shut down Windows, and turn off the computer.

Problem	Possible Cause	Possible Solution
I want to remove the driver (Windows XP)		Windows XP: When removing the driver, make sure that the device is attached to the computer. If you try to remove the driver while the device is detached from the computer, the driver is not removed. 1. Click [Start], right click [My Computer], and then click [Properties] from the menu that appears. [System Properties] appears. 2. Click the [Hardware] tab. 3. Click [Device Manager]. 4. Click [+] beside [Network adapters]. 5. Right click [Intersil PRISM Wireless LAN PCI Card], and click [Uninstall] from the menu that is displayed. [Confirm Device Removal] appears. 6. Click [OK]. 7. Close [System Properties]. 8. Make sure that the icon has disappeared from the task tray in the lower right corner of the screen. 9. Click [Start] -> [Control Panel]. [Control Panel] appears. 10. Double-click [Add/Remove Programs]. [Add/Remove Programs] appears. 11. Perform the following steps. ▪ Click [PRISM 11Mbps Wireless LAN for Windows]. ▪ Click [Change/Remove]. A window appears asking you if you really want to remove the driver. 12. Click [Yes]. When the driver is removed, a window appears showing that the driver has been removed. 13. Click [OK]. 14. Close [Add/Remove Programs] and [Control Panel]. 15. Shut down Windows, and turn off the computer.

If a Second LAN Device is Installed

INSTRUCTIONS FOR DISABLING ANOTHER LAN DEVICE

If you have another LAN card on your computer running Windows 98, perform the following steps to disable that LAN card before installing the driver.

For Windows 98

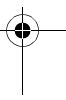
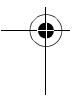
1. Click [Start] -> [Settings] -> [Control Panel].
2. Double-click [System]. [System Properties] appears.
3. Click [+] beside [Network adapters], and double-click the standard built-in LAN device.

The following devices appear depending on your computer model.

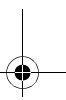
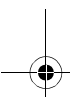
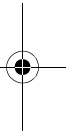
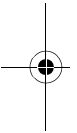
- [Intel(R) 82559 Fast Ethernet LOM with Alert on LAN 2*]
- [Intel(R) 8255x-based PCI Ethernet Adapter(10/100)]
- [Realtek RTL8139(A/B/C/8130)PCI Fast Ethernet NIC]
- or others.

The LAN Card Properties window appears.

4. Check [Set disable with this hardware profile], and click [OK]. An [x] mark is added to the LAN card icon.
5. Click [OK].
6. Restart the system.



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About IP Addresses

SETTING IP ADDRESSES

If you are not sure how to set the IP address, refer to the following procedure.

If you have an access point (DHCP server) on the network, set the IP address as follows:

Windows 98: [Obtain an IP address automatically]

Windows 2000: [Obtain an IP address automatically]

Windows XP: [Obtain an IP address automatically]



POINT

A DHCP server is a server that automatically assigns IP addresses to computers or other devices in the network. There is no DHCP server for the AdHoc network.

If the IP address is already assigned to the computer in the network, ask the network administrator to check the IP address to be set for the computer.

If no access point is found in the network:

An IP address is expressed with four values in the range between 1 and 255.

Set the each computer as follows: The value in parentheses is a subnet mask.

<Example>

Computer A: 192.168.100.2 (255.255.255.0)

Computer B: 192.168.100.3 (255.255.255.0)

Computer C: 192.168.100.4 (255.255.255.0)

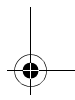
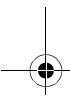
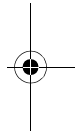
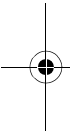
:

:

Computer X: 192.168.100.254 (255.255.255.0)



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Specifications

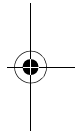
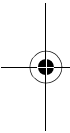
Specifications

TECHNICAL SPECIFICATIONS FOR INTEGRATED WIRELESS LAN DEVICE

Item	Description
Network Type	IEEE 802.11b
Transfer Rate	11/5.5/2/1Mbps (auto change)
Frequency Range	2,412 - 2,462 MHz
Channels	One of 11 channels is used
Card Type	Non-intelligent
VCC	Class B
Security	Network name, encryption key
Supported Operating Systems	Windows 98, Windows 2000, Windows XP
Power Current	Max: 350mA
Maximum number of units recommended for wireless LAN (AdHoc network)	10 or less



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Glossary

GLOSSARY OF TERMS USED IN THIS DOCUMENT

AdHoc

A name of a wireless LAN configuration.

It is a type of communication using wireless cards only.

Another type of communication is called Infrastructure (using a wireless card and an access point).

For details, refer to “Wireless LAN Modes Using this Device” on page 5.

ADSL

Asymmetric Digital Subscriber Line

Technology for transporting high bit-rate services over ordinary phone lines.

Channel

A radio frequency band used for communication between wireless cards and access points.

DHCP

Dynamic Host Configuration Protocol

A protocol used to automatically acquire parameters required for the communication, such as IP address.

The sender of IP address is called a DHCP server, and the receiver is called a DHCP client.

DNS

Domain Name System

A function to control the association between the IP address and the name assigned to the computer.

If you do not know the IP address but if you know the computer name, you can still communicate to that computer.

Encryption Key (Network Key)

Key information used to encode data for data transfer.

This device uses the same encryption key to encode and decode the data, and the identical encryption key is required between the sender and receiver.

IEEE 802.11b

The U.S. IEEE (Institute of Electrical and Electronic Engineers) promotes standardization of LAN, and its standards committee (IEEE 802.11) has promoted 1-Mbps and 2-Mbps wireless LAN. Currently, another standards committee (IEEE802.11b) is working for standardization of the faster 11-Mbps wireless LAN.

Infrastructure

A name of a wireless LAN configuration. This type of communication uses an access point.

Another type of communication is called AdHoc.

For details, refer to “Wireless LAN Modes Using this Device” on page 5.

IP Address

An address used for computers to communicate in the TCP/IP environment.

Current IPv4 (version 4) uses four values in the range between 1 and 255. (Example: 192.168.100.123).

There are two types of IP address: global address and private address.

The global address is an only address in the world. It is controlled by JPNIC (Japan Network Information Center). A private address is an only address in the closed network.

LAN

Local Area Network

A connection of computers within a relatively limited area, such as the same floor, or the same building.

MAC Address

Media Access Control Address

A unique physical address of a network card.

For Ethernet, the first three bytes are used as the vendor code, controlled and assigned by IEEE. The remaining three bytes are controlled by each vendor (preventing overlap), therefore, every Ethernet card is given a unique physical address in the world, being assigned with a different address from other cards. For Ethernet, frames are sent and received based on this address.

MTU

Maximum Transmission Unit

The maximum data size that can be transferred at a time through the Internet or other networks. You can set a smaller MTU size to obtain successful communication, if you have difficulty transferring data due to the fact that the maximum size is too large.

PCI

Peripheral Component Interconnect

Self-configuring PC local bus. Designed by Intel, PCI has gained wide acceptance as a standard bus design.

PPPoE**Point to Point Protocol over Ethernet**

A protocol for Ethernet, using a Point-to-Point Protocol (PPP), which is used for connection on the phone line.

Protocol

Procedures and rules use to send and receive data between computers.

- Method of sending and receiving data
- Process used to handle communication errors

Conditions required for communication are organized in procedures for correct transfer of information.

SSID**Service Set Identifier**

Specifies which network you are joining. Some systems allow you to specify any SSID as an option so you can join any network.

TCP/IP**Transmission Control Protocol/Internet Protocol**

A standard Internet protocol that is most widely used.

Wi-Fi Compatible

Wi-Fi (Wireless Fidelity) Identifies that the product has passed the interoperability test, supplied by the WECA (Wireless Ethernet Compatibility Alliance), which guarantees the interoperability of wireless IEEE 802.11 LAN products. For more information on the Wi-Fi standard, go to the WECA website at: www.wirelessethernet.com.