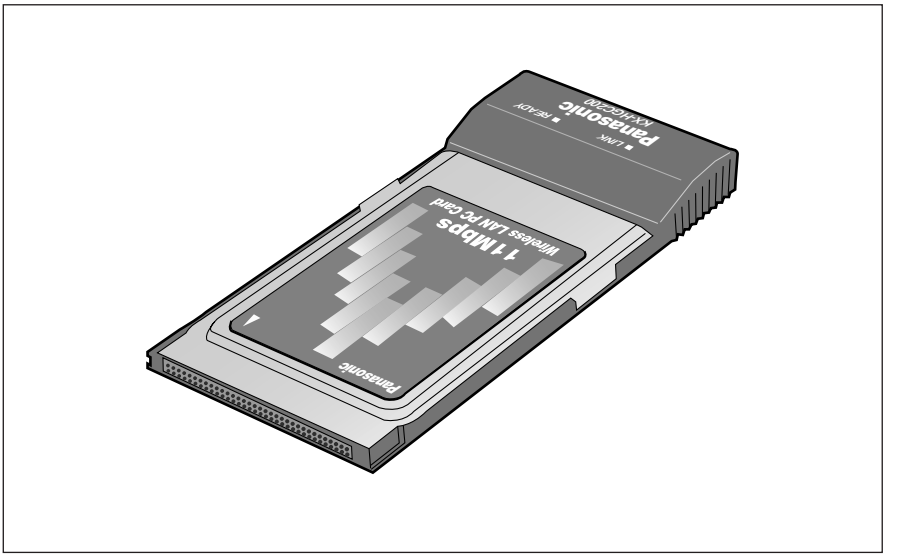
Panasonic

11Mbps Wireless LAN PC Card

Operating Instructions

Model No. KX-HGC200



PLEASE READ BEFORE USE AND SAVE.

Panasonic World Wide Web Address:
http://www.panasonic.com
for customers in the USA or Puerto Rico

Before Initial Use

Thank you for purchasing the Panasonic 11 Mbps Wireless LAN PC Card.

Attach your purchase receipt here.

For your future reference

Serial No. _____ Date of purchase _____
(found on the rear side of the unit)

Name and address of dealer _____

FOR OPERATION ASSISTANCE:
–Call
1-800-272-7033
–Refer to
the Panasonic world wide web site
http://www.panasonic.com

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The operating instructions are subject to change without notice.
The screens of the device driver, Network Manager software and the Broadband Networking Gateway administration web screens that are shown in this Operating Instructions manual are subject to change without notice.

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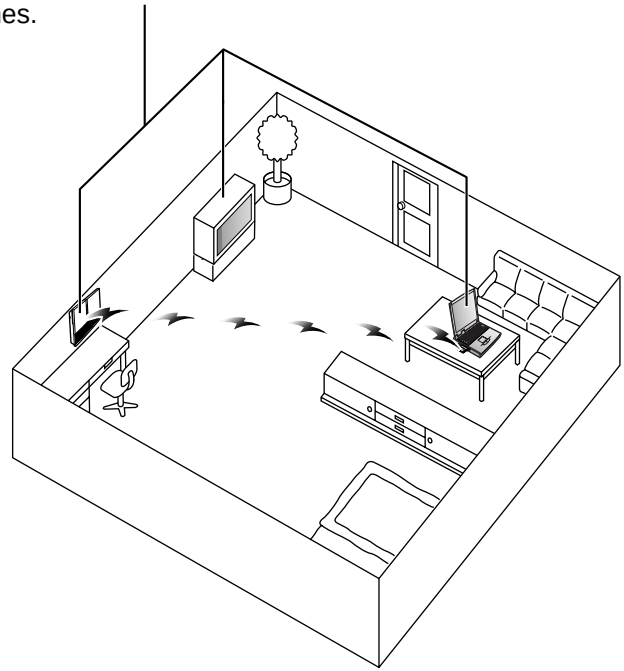
For Best Performance

Location of the units

Communications are transmitted between the KX-HGC200s using wireless radio waves at 11Mbps data speed. **For maximum performance**, it is recommended that the KX-HGC200 be operated:

Away from electrical appliances such as TVs or cordless telephones.



- Metal or steel framework, such as refrigerators, can hinder radio communications. Open areas offer better performance.
- If the KX-HGC200 is located near a microwave oven which is in use, communication may be interfered with. For maximum performance, operate the KX-HGC200 away from microwave ovens.
- It is recommended that the KX-HGC200s be located no closer than about 1.6 ft. (50 cm) apart.

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Overview

Features

No wiring

The KX-HGC200 helps you network without troublesome wiring using wireless technology and accommodates up to 10 wireless users*.

*Accommodates up to 9 wireless users when used with the Broadband Networking Gateway.

High data-transmission quality by using the Whitecap™ protocol

The features of the Whitecap™ protocol are as follows:

- Error correction and dynamic TDMA (Time Division Multiple Access) for higher usable network throughput and range
- Carries several multimedia (video, voice, audio) data streams simultaneously

Internet sharing and expandability of the home network (With the Panasonic Broadband Networking Gateway)

When operated with the Panasonic Broadband Networking Gateway (In the following pages, Broadband Networking Gateway), the KX-HGC200 allows you to share an Internet connection with the other computers in your home network at the same time and expand your home network by using the HomePNA phoneline and Ethernet interfaces of the Broadband Networking Gateway.

Easy to configure/administrate

The KX-HGC200 setup wizard and Network Manager software lead you through an easy installation and administration.

System requirements

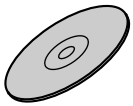
Operating System	Microsoft® Windows® 95 operating system (OSR2.0 or later) Microsoft® Windows® 98 operating system Microsoft® Windows® Me operating system
Interface	PCMCIA Type II PC card slot equipped
RAM	32MB or more
Other (for installation)	CD-ROM drive/Ethernet or HomePNA card
Protocol	TCP/IP installed
CPU	Pentium 133 MHz or faster

- The Network Management web screen (p. 20–21, 55–58) can be viewed using Internet Explorer 4.0 or later.

Included Accessory

For extra orders, call 1-800-332-5368.

☐ 11Mbps Wireless LAN Setup CD-ROM
Order No. PQLV50I5AZ
(p. 30, 32, 35)



one

- If the item is missing or damaged, check with the place of purchase.
- The order number listed above is subject to change without notice.
- Save the original carton and packing materials for future shipping and transportation of the unit.

Contents of the CD-ROM

The CD-ROM contains the following software and files:

The device driver for Windows 95, Windows 98 and Windows Me

–Used while configuring the KX-HGC200. During configuration, the appropriate driver software is installed depending on the operating system of your computer.

The Network Manager software

–Used for administrating the wireless network. For more details, refer to “About the Network Manager Software” on p. 54.

The firmware update utility software

–Used for updating the KX-HGC200 firmware written in the Flash-ROM. For more details, refer to “Updating the KX-HGC200 Firmware” on p. 65.

The uninstall software

–Used for uninstalling all the software of the KX-HGC200 that has been installed to a computer. For more details, refer to “Uninstalling the KX-HGC200 Software” on p. 67.

The Broadband Networking Gateway firmware for upgrade

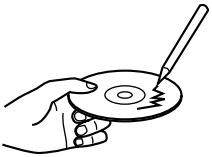
–Used for upgrading the Broadband Networking Gateway firmware. For more details about the firmware, refer to “To obtain and upgrade the Broadband Networking Gateway firmware” on p. 14.

The Readme.txt

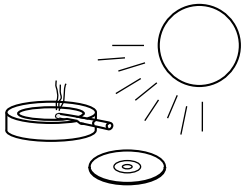
–Contains the latest information about the KX-HGC200.

Included Accessory

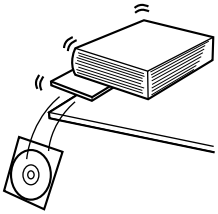
To prevent accidental damage to the CD-ROM:



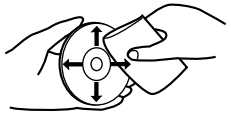
- Do not touch or write on the surface of the disc.



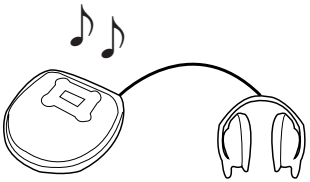
- Do not leave the disc in direct sunlight or near heat sources.



- Do not place heavy objects on the disc case or drop the case.



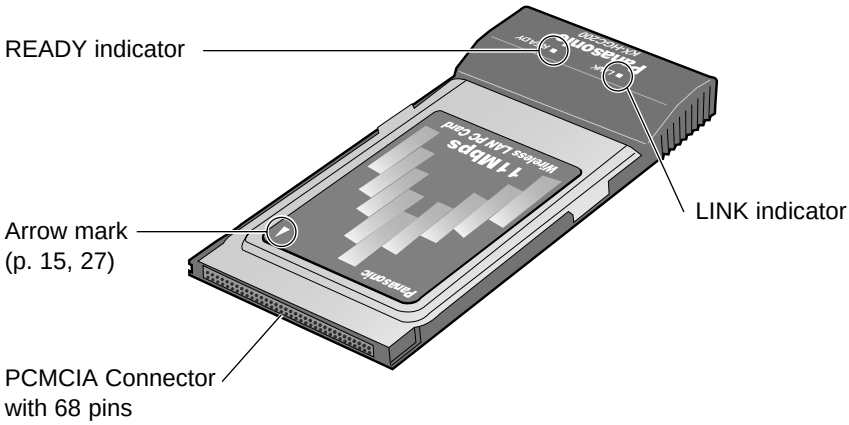
- To clean the disc, hold the disc by its edges and wipe it from the center to the edges with a dry, soft cloth.



- Do not play the disc on an audio CD player.

Part Names

Part names



Note:

- To prevent the KX-HGC200 from being damaged, never touch the PCMCIA connector.

Indicators

LED	Status	Indicates
LINK	Green	● The KX-HGC200 is turned on and transmitting/receiving data to/from another KX-HGC200.
	Green (Blinking)	● The KX-HGC200 is turned on and transmitting/receiving data to/from another KX-HGC200, but the data transmission status is not stable.
	Off	● The KX-HGC200 is not connected to any wireless network.
READY	Green	● The KX-HGC200 is turned on and ready for communication.

Installation Overview

4 important parameters to create a wireless network

A wireless network can be created using the 4 parameters below which are programmed in the Flash-ROM of the KX-HGC200 or in a node*. Normally, you would only program the **Network Name** because the other parameters have been already set. However, for later customization, be sure to read about the parameters below.

*Node: A device that is connected to the network and can communicate with other network devices. In this Operating Instructions, we use this word for the Broadband Networking Gateway or a computer.

Network Name

Name for a wireless network. For security, only the nodes that are programmed with the same Network Name can communicate. It is necessary to set a Network Name for all the KX-HGC200 during the installation of the Network Manager software or on the Broadband Networking Gateway administration web screen.

Network ID

The ID that is created from the Network Name. Actually, this ID is used for maintaining a wireless network instead of the Network Name. However, users do not need to care what Network ID is programmed to each node.

Node Name

Name of each node in your network (wireless or wired) for identification. The Node Name of the Broadband Networking Gateway is set on its administration web screen. The Node Name of a computer is set in the Identification tab in the Network dialog box which can be accessed via the Control Panel menu on your computer.

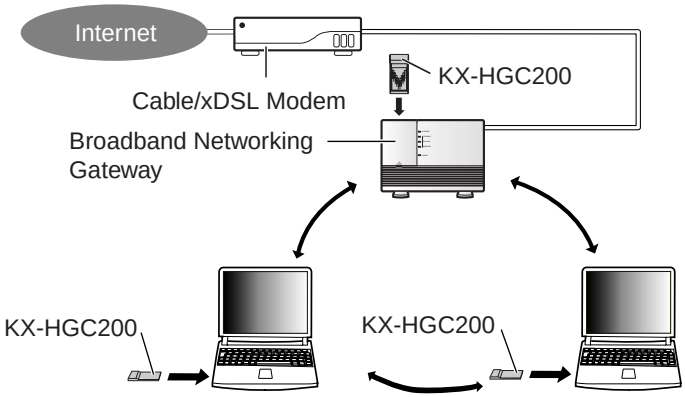
Channel Number

Number of the radio frequency channel on which a wireless network communicates. To prevent the radio frequency interference with other wireless products, the channels below can be selected depending on the status of the wireless communications:

Channel 1 (2412 MHz)
Channel 6 (2437 MHz)–default setting of the KX-HGC200
Channel 11 (2462 MHz)

On each channel, data-transmission can be performed on a speed up to 11Mbps. Only the nodes that are programmed with the same channel number can communicate.

Network with the Broadband Networking Gateway



Required setup for the Broadband Networking Gateway

Confirming the Broadband Networking Gateway firmware version* (p. 13)

↓

Inserting the KX-HGC200 in the Broadband Networking Gateway (p. 15)

↓

Setting up from a wired computer (p. 17)

Setting up from a wireless computer (p. 19)

Required setup for each computer

Inserting the KX-HGC200 into a computer (p. 27)

↓

Installing the device driver (p. 29)

↓

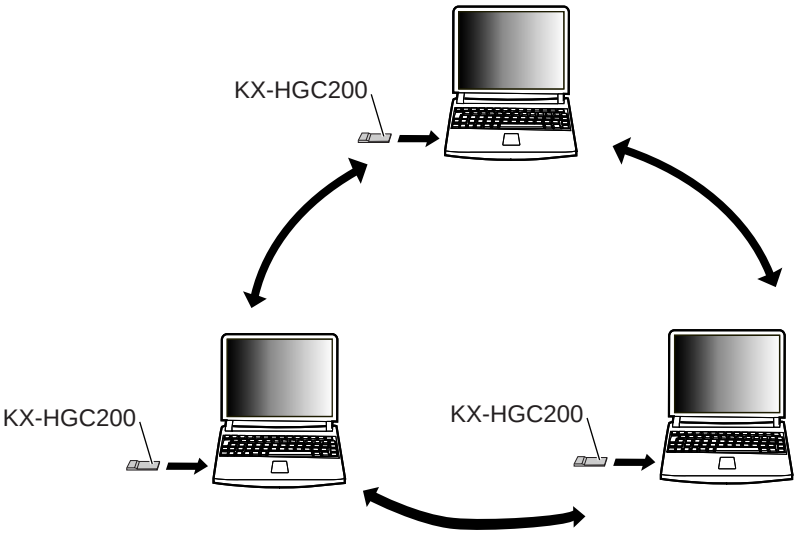
Installing the Network Manager (p. 38)

↓

Setting an IP address (p. 46)

*Depending on the Broadband Networking Gateway firmware version, upgrading may be necessary.

Network consisting only of wireless computers



Required setup for each computer

Inserting the KX-HGC200 into a computer (p. 27)

↓

Installing the device driver (p. 29)

↓

Installing the Network Manager (p. 38)

↓

Setting an IP address (p. 46)

Installing the KX-HGC200 in the Broadband Networking Gateway

Confirming the Broadband Networking Gateway firmware version

Depending on the firmware version of the Broadband Networking Gateway, it may not support the KX-HGC200. Before adding the Broadband Networking Gateway to your wireless network, check your Broadband Networking Gateway firmware version and, if needed, upgrade the firmware first.

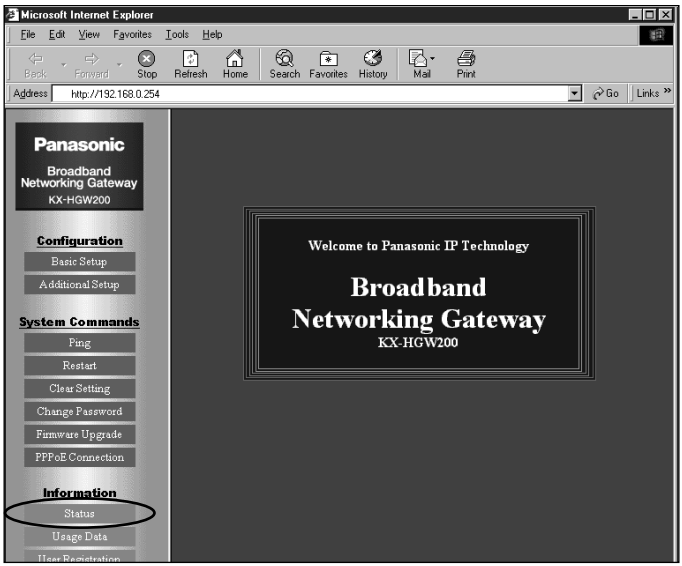
The steps below are for using the wired computer, not the wireless computer.

To check the Broadband Networking Gateway firmware version

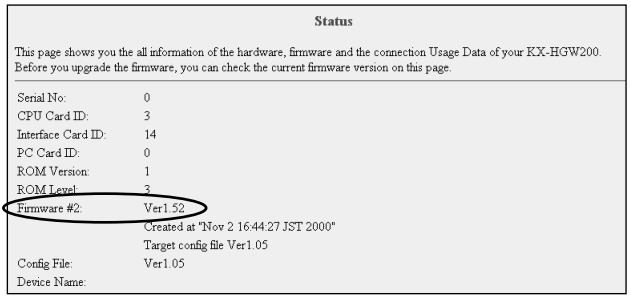
1 Access the Broadband Networking Gateway administration web screen. For more details about accessing the web screen, refer to the Operating Instructions of the Broadband Networking Gateway.

- The default local IP address of the Broadband Networking Gateway is 192.168.0.254.

2 Click **Status**.



3 In the Firmware section, check the firmware version of your Broadband Networking Gateway.
If the firmware version is **2.00** or later, the firmware supports the KX-HGC200 use. Then, go to step 4.
If the firmware version is an earlier version than **2.00**, upgrade the Broadband Networking Gateway firmware. For more details about upgrading the firmware, see below “To obtain and upgrade the Broadband Networking Gateway firmware.”



4 Click **Restart** to restart the Broadband Networking Gateway.

To obtain and upgrade the Broadband Networking Gateway firmware

The Broadband Networking Gateway firmware is available as follows:

- Included in the below directory of the CD-ROM that came with the KX-HGC200
  \KX-HGW\hgwxxxx_us.bin (depending on the version number of the firmware)

  OR

- Downloaded from the Panasonic support web site
  http://www.kmelink.net/ipproducts/us/download/index.html

For more detailed information about upgrading the firmware, refer to the Operating Instructions of the Broadband Networking Gateway.

After upgrading the Broadband Networking Gateway, be sure to follow the below notes:

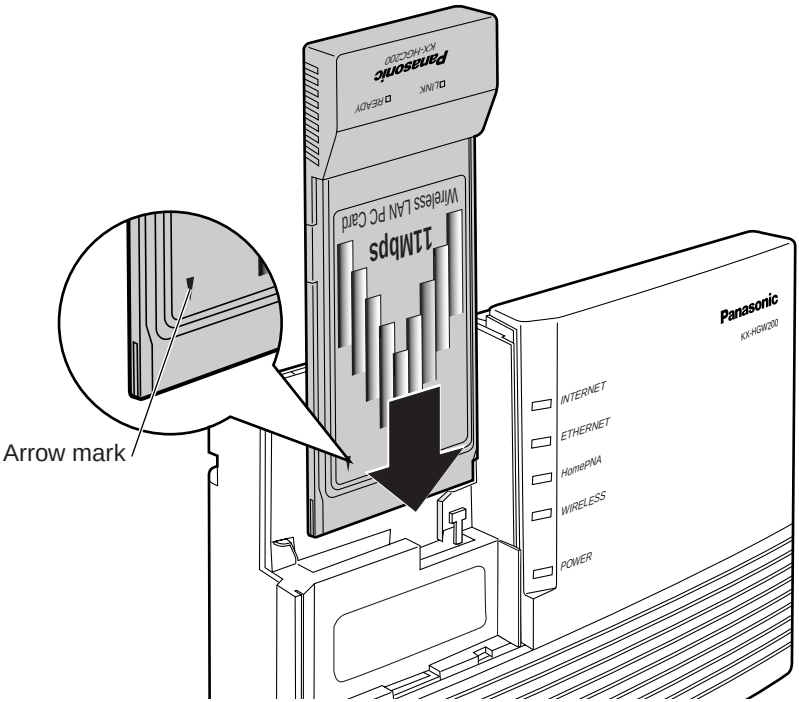
- Restart the computer connected to the Broadband Networking Gateway.
- Confirm the Broadband Networking Gateway has been successfully upgraded referring to the Status screen of the Broadband Networking Gateway administration web screen.

Inserting the KX-HGC200 in the Broadband Networking Gateway

1 Make sure the Broadband Networking Gateway and other devices connected to it are turned off.

2 Open the cover on the front side of the Broadband Networking Gateway.

3 Insert the KX-HGC200 into the PC card slot of the Broadband Networking Gateway making sure that the “Panasonic” side is facing toward you and the arrow mark on the KX-HGC200 is pointing toward the slot.



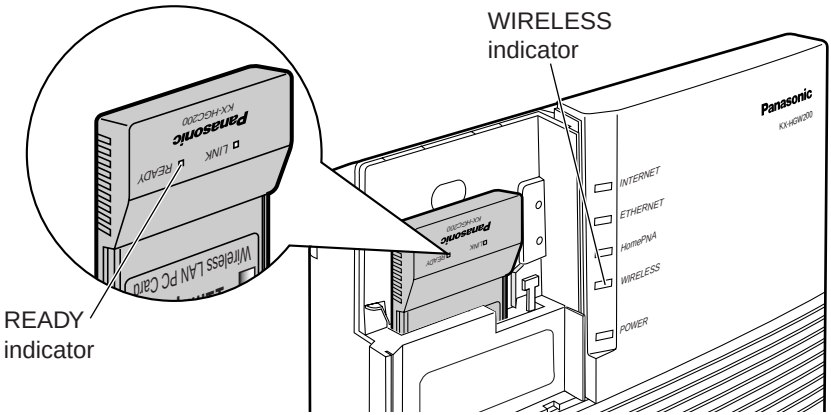
Notes:

- Be sure to insert the KX-HGC200 firmly until you hear the click.
- Insert in the proper direction to prevent device from being damaged.

Installing the KX-HGC200 in the Broadband Networking Gateway

4 Turn on the Broadband Networking Gateway and other devices that are being used with it.

- Make sure the READY indicator of the KX-HGC200 (p. 9) and the WIRELESS indicator of the Broadband Networking Gateway are lit. If not lit, refer to p. 13 and confirm the Broadband Networking Gateway firmware version.



5 Close the cover of the Broadband Networking Gateway.

Setting up the Broadband Networking Gateway

After the KX-HGC200 is inserted in the Broadband Networking Gateway, configuration of the KX-HGC200 is required. The steps for configuration proceed the Broadband Networking Gateway administration web screen or Network Management web screen. The KX-HGC200 can be configured from both a wired computer and wireless computer, but using a wired computer is convenient.

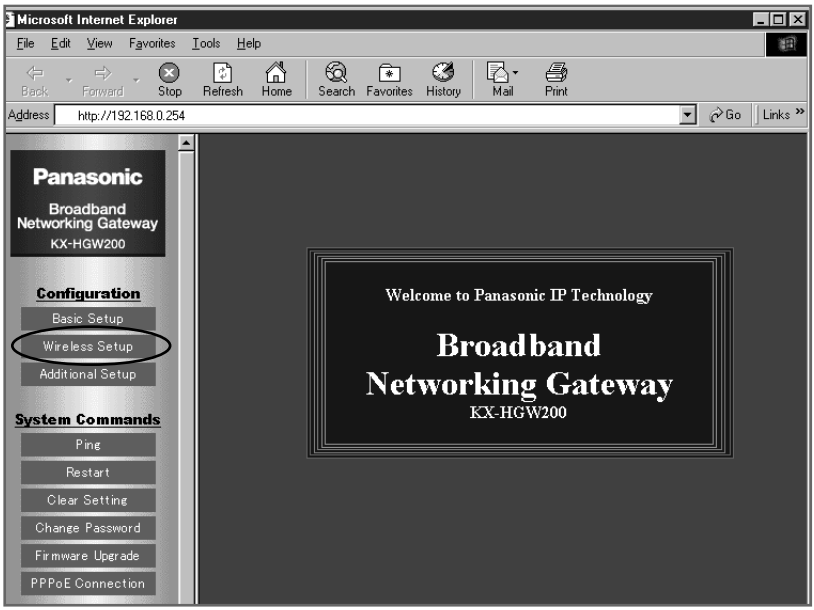
- **For setting up from a wired computer, follow the steps below.**
- **If you can not set up from a wired computer, follow the steps from p. 19 “Setting up from a wireless computer”.**

Setting up from a wired computer

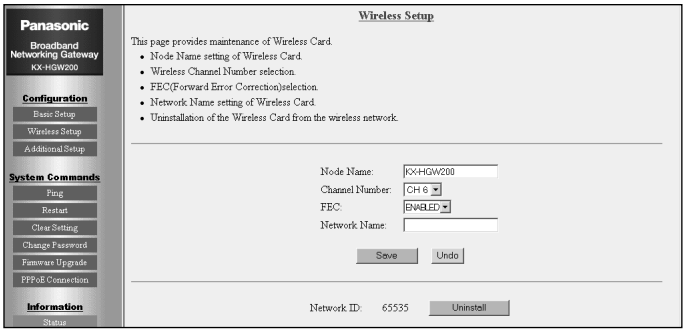
1 Access the Broadband Networking Gateway administration web screen.

- The default local IP address of the Broadband Networking Gateway is 192.168.0.254.

2 Click **Wireless Setup**.



3 Enter the Node Name and Network Name in the each field and select the Channel Number from the drop-down list.



Node Name	The name of the Broadband Networking Gateway for identification in a network.
Channel Number	The KX-HGC200 is preset to communicate using the radio frequency channel 6 (2437 MHz). This preset channel can be changed to channel 1 (2412 MHz) or 11 (2462 MHz) by using the **Channel Number** pull-down menu. Normally, using the preset channel is recommended. If the wireless communication status is not good, changing the channel may improve the communication status. **To communicate, all the nodes in a wireless network must be set the same radio frequency channel.**
FEC	The FEC (Forward Error Correction) mechanism of the Whitecap™ protocol allows your KX-HGC200 to correct error packets when data is transmitted to the other wireless nodes and contributes to higher throughput. **When you disable this function for one node, be sure to disable this function for all the nodes in the wireless network.**
Network Name	To use the KX-HGC200, a network name must be specified in this entry. For more details, refer to the next page “About the network name”.
Uninstall button	Allows you to reset the Network ID of the KX-HGC200.

About the network name

To communicate with others in a wireless group, the same Network Name must be programmed into each computer. It is impossible to communicate with a computer that has a different Network Name. To join a wireless network, it is necessary to enter the Network Name that is common to that particular network. For security, specify a unique Network Name that others do not guess, using more than 8 digits or characters, for a wireless network.

4 Click **Save**.

- After the "Success" screen appears, the Broadband Networking Gateway restarts and you will connect to the administration initial screen.

5 Restart all the computers that are connected to the Broadband Networking Gateway.

The KX-HGC200 has been successfully set up and is ready to communicate with others. Refer to pages from 25 and set up each computer that you want to add to a wireless network.

Setting up from a wireless computer

To set up the Broadband Networking Gateway from a wireless computer, the wireless computer must have already configured the KX-HGC200. For more details about how to configure the KX-HGC200, refer to "*Required setup for each computer*" on p. 11.
Below steps for configuration are performed on the Network Management web screen of the wireless computer. All of the computers in the wireless network can use this function and configure the Broadband Networking Gateway.

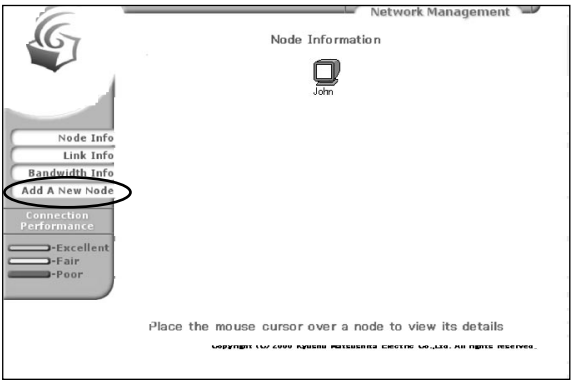
Note:
To set up from a wireless computer, the KX-HGC200 must be set to use the radio frequency channel 6 and the FEC (p. 62) must be activated.

1 Turn on the Broadband Networking Gateway.

2 Turn on the wireless computer.

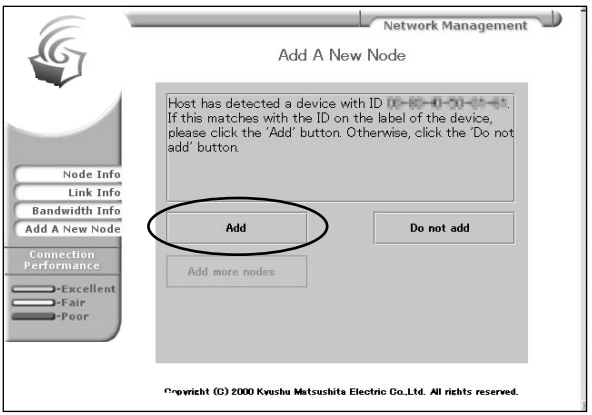
3 On the desktop, double-click the Network Manager icon in the taskbar.

4 Click **Add a New Node** in the Network Management web screen.

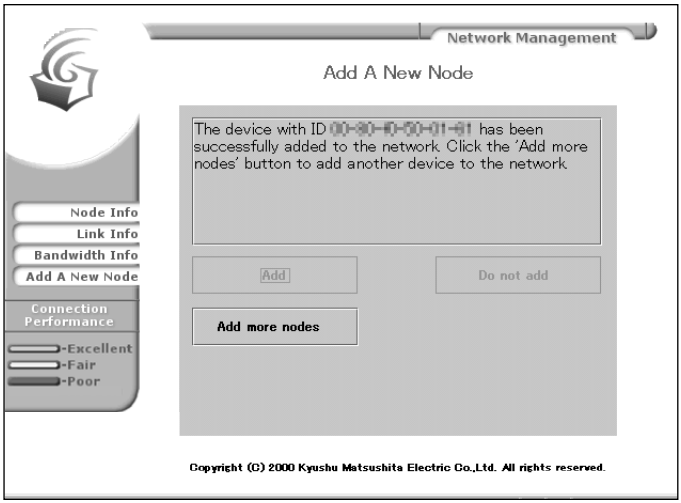


- This step may take a little time.
- For the overview of the Network Management web screen, refer to “About the Network Management web screen” on p. 55.

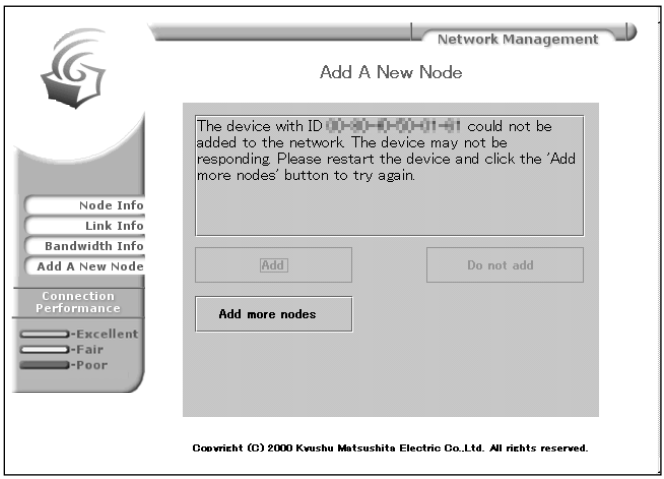
5 Click **Add**.



The below screen appears and KX-HGC200 has been successfully set up and is ready to communicate with others. Refer to steps on p. 11 "*Required setup for each computer*" and set up each computer that you want to add to a wireless network.



- If an error occurs, the screen below appears. Then follow one of the steps below (A or B).
  - A: Restart the Broadband Networking Gateway referring to its Operating Instructions.
  - B: Close your web browser first, then access the Network Management web screen again.



Caution when initializing the Broadband Networking Gateway

When the CLEAR SETTING button on the Broadband Networking Gateway is pressed, all the parameters that have been set to the Broadband Networking Gateway reset to the default setting. If the KX-HGC200 is inserted and the WIRELESS indicator of the Broadband Networking Gateway is turning green at that time, all the parameters (Node Name, Channel Number, FEC, Network Name and Network ID) reset to default settings also.
If you want to preserve the parameters set to the KX-HGC200, first remove the KX-HGC200 from the Broadband Networking Gateway referring to “Removing the KX-HGC200 from the Broadband Networking Gateway” on p. 64, then initialize the Broadband Networking Gateway.

Note:
Before initializing, be sure to take notes of the setup parameters of the Broadband Networking Gateway.

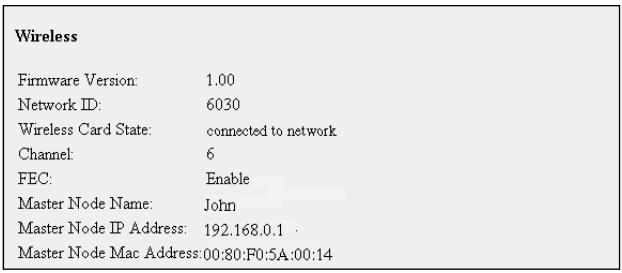
Helpful functions

For checking the setup parameters or data-transmission status of the KX-HGC200, helpful functions are available on the Broadband Networking Gateway administration web screen.

Checking the setup parameters

1 Click **Status** on the Broadband Networking Gateway administration web screen.

2 Check the **Wireless** section.

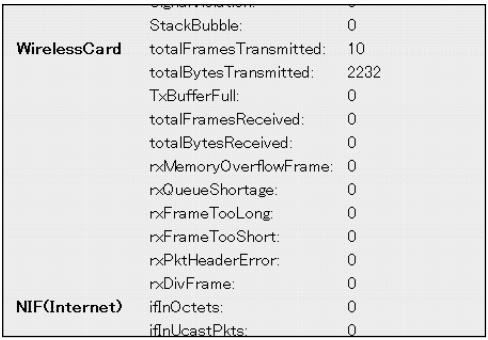


Firmware Version	Current version of the firmware, written in the KX-HGC200 Flash-ROM. To update the firmware, see p. 65.
Network ID (p. 10)	The Network ID of the wireless network. This ID works in order to identify a wireless network to prevent an invalid access to the wireless network.
Master Node IP Address (p. 73)	The local IP address of the Master Node in the wireless network.
Wireless Card State	connected to network: The KX-HGC200 is connected to a wireless network and working properly. not connected to network: The KX-HGC200 is not connected to any wireless network. TROUBLE: The KX-HGC200 is not working properly. The hardware or software is defected.

Checking data-transmission status

1 Click **Usage data**.

2 Check the **WirelessCard** section.



	StackBubble:	0
WirelessCard	totalFramesTransmitted:	10
	totalBytesTransmitted:	2232
	TxBufferFull:	0
	totalFramesReceived:	0
	totalBytesReceived:	0
	rxMemoryOverflowFrame:	0
	rxQueueShortage:	0
	rxFrameTooLong:	0
	rxFrameTooShort:	0
	rxPktHeaderError:	0
	rxDivFrame:	0
NIF(Internet)	ifInOctets:	0
	ifInUcastPkts:	0

Installing the KX-HGC200 to a Computer

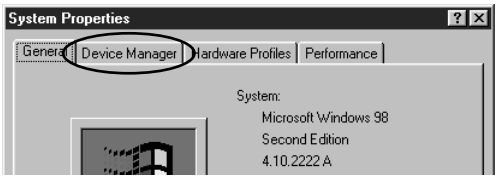
Before inserting the KX-HGC200

Confirming the PC card service

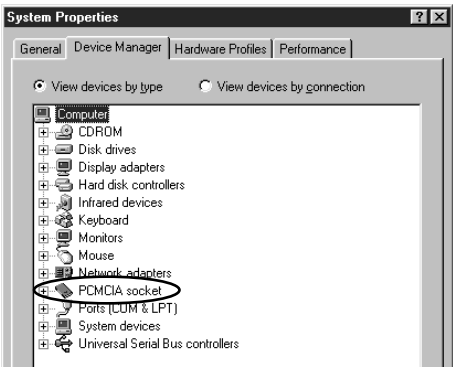
If the PC card socket of the computer is not working properly, the KX-HGC200 is not installed successfully. Follow the steps below and check the PC card socket before inserting the KX-HGC200.

1 Right-click the **My Computer** icon on your desktop and click **Properties**.

2 Click the **Device Manager** tab.



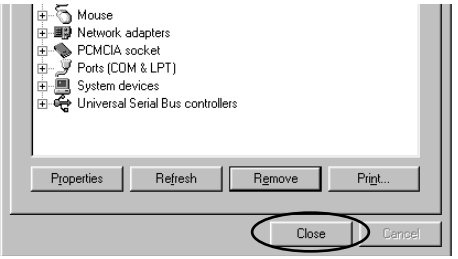
3 Click the plus sign next to the **PCMCIA socket**.



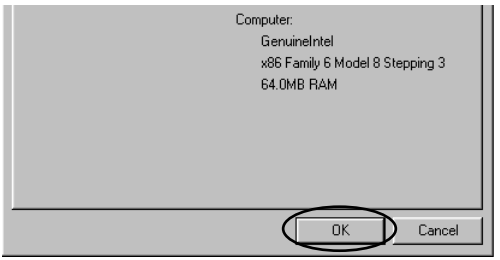
4 In the PCMCIA socket list, confirm **?** mark or **!** mark is not followed by the PCMCIA socket.

- If **?** mark or **!** mark is followed, device driver of the PC card socket is not properly installed. Refer to the manual of your computer and re-install the proper device driver first, then insert the KX-HGC200.

5 Click **Close**.



6 Click **OK** to close the window.



To save the boot up time when the Ethernet adapter is attached or equipped to your computer

If the Ethernet adapter that is attached or equipped to your computer works with the KX-HGC200 at the same time, the boot up time of the computer may take a few minutes. To save the boot up time, remove or disable the Ethernet adapter following its manual or the computer's manual.

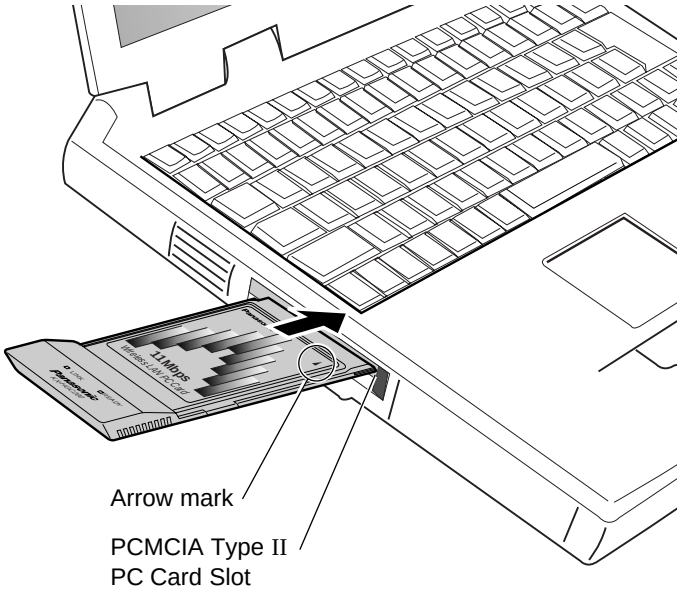
Inserting the KX-HGC200 into a computer

To insert the KX-HGC200 to the PC card slot of a computer, follow the steps below.

The Power Management function (automatic shutoff function) of the computer may disturb the power supply to the KX-HGC200. Disable the function when using the KX-HGC200. For more details, refer to the manual of the computer. Before installation of the KX-HGC200, be sure to disable all the application software.

1 Start up the computer and make sure no application software is working.

2 Insert the KX-HGC200 to the PCMCIA Type II PC card slot of a computer with the “Panasonic” side facing up and the arrow mark on the KX-HGC200 pointing to the card slot.



Notes:

- Be sure to insert the KX-HGC200 firmly.
- Insert in the proper direction to prevent the KX-HGC200 or the computer from being damaged. For more details about inserting a PC card into the PCMCIA card slot, refer to the manual of your computer.

Helpful hints

- **If you are using an external CD-ROM drive that is connected via the PCMCIA PC card slot of the computer and no other PC card slot is available, follow the steps below before installing the KX-HGC200.**
  1. Connect the CD-ROM drive to the PC card slot of the computer and confirm that it works properly.
  2. Place the 11Mbps Wireless LAN Setup CD-ROM in the CD-ROM drive.
  3. On your desktop, double-click the My Computer icon, then double-click the CD-ROM drive icon.
  4. Select all the files and folders contained in the CD-ROM drive and copy them to a desired directory of your computer.
  5. Remove the CD-ROM from the CD-ROM drive.
  6. Remove the CD-ROM drive from the PC card slot of the computer.

- **If your computer has two PC card slots (upper and lower):** Insert the KX-HGC200 to the upper slot. When the KX-HGC200 is inserted in the lower slot, the internal antenna of the KX-HGC200 may interfere with usage of the upper slot.

Installing the device driver

When the KX-HGC200 is inserted into a computer, Windows operating system (Windows 95/98/Me) will automatically detect it and the **Update Device Driver Wizard** (For Windows 95) or **Add New Hardware Wizard** will appear.

- **For using the Windows 95, follow the steps from this page.**
- **For using the Windows 98, follow the steps from p. 32.**
- **For using the Windows Me, follow the steps from p. 35.**

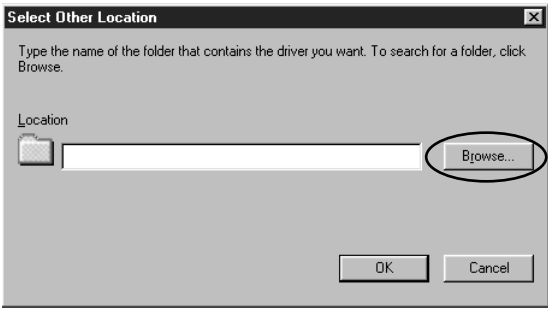
For Windows 95

1 Click **Next**.

2 Click **Other Locations**.

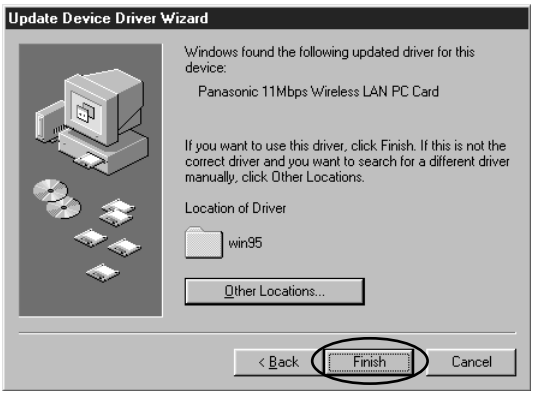
3 Place the CD-ROM labeled Panasonic 11Mbps Wireless LAN Setup CD-ROM in the CD-ROM drive of your computer.

4 In the **Select Other Location** dialog box, after clicking **Browse** and choosing the directory where the device driver is located, click **OK**.



- To specify, type "**D:\software\win95**" (depending on the drive name of your CD-ROM drive).
- Clicking **Browse** will help you specify the directory.

5 Click **Finish**.



- The device driver will be installed to your computer.

- If the **Insert Disk** dialog box appears, remove the CD-ROM which came with the KX-HGC200, then insert the Windows 95 CD-ROM and click **OK**.

6 Restart the computer.

While a computer is restarting, mind below notification.

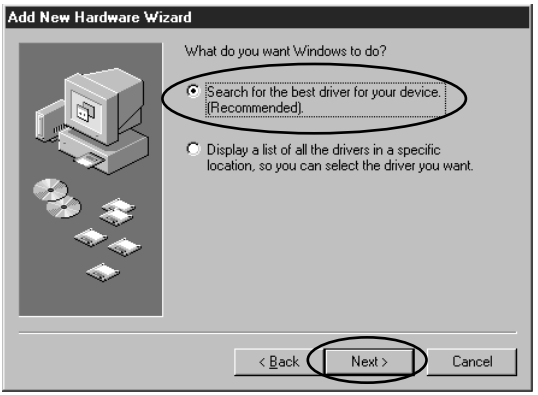
- If the KX-HGC200 has been installed to a computer, restarting may take about a few minutes.
- To prevent a device from being damaged or broken, never turn off a computer while restarting.

The device driver has been successfully installed to your computer. After the computer restarts, refer to p. 38 and install the Network Manager software.

For Windows 98

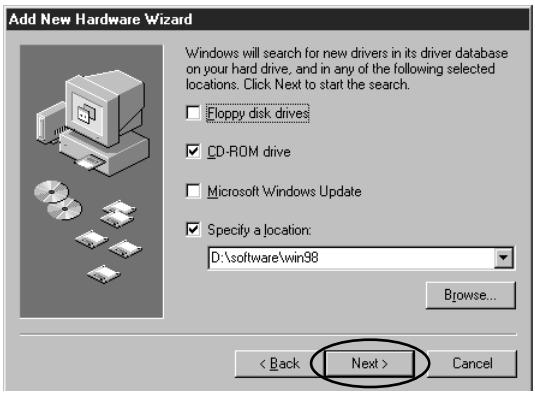
1 Click **Next**.

2 Select “Search for the best driver for your device [Recommended]” and click **Next**.



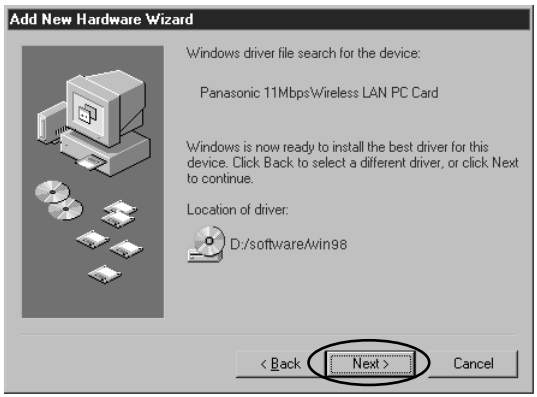
3 Place the CD-ROM labeled Panasonic 11Mbps Wireless LAN Setup CD-ROM in the CD-ROM drive of your computer.

4 Select “CD-ROM drive” and specify the directory where the device driver is located, and click **Next**.

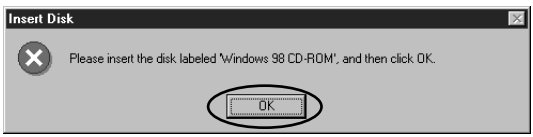


- To specify, select “Specify a location” and type “**D:\software\win98**” (depending on the drive name of your CD-ROM drive).
- Clicking **Browse** will help you specify the directory.

5 Click **Next**.

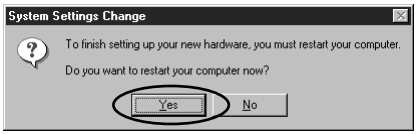


- The device driver will be installed to your computer.
- If the **Insert Disk** dialog box appears, remove the CD-ROM which came with the KX-HGC200, then insert the Windows 98 CD-ROM and click **OK**.



6 Click **Finish**.

7 Click **Yes** to restart the computer.



- If the above dialog box does not appear, restart the computer manually.

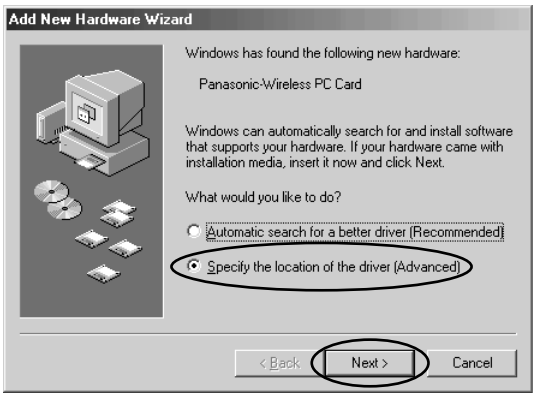
While a computer is restarting, mind below notification.

- If the KX-HGC200 has been installed to a computer, restarting may take about a few minutes.
- To prevent a device from being damaged or broken, never turn off a computer while restarting.

The device driver has been successfully installed to your computer. After the computer restarts, refer to p. 38 and install the Network Manager software.

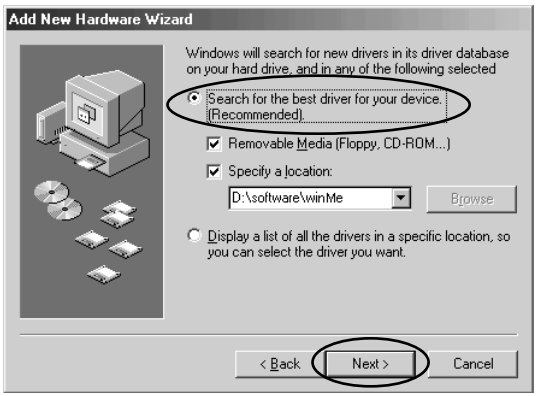
For Windows Me

1 Select “Specify the location of the driver (Advanced)” and click **Next**.



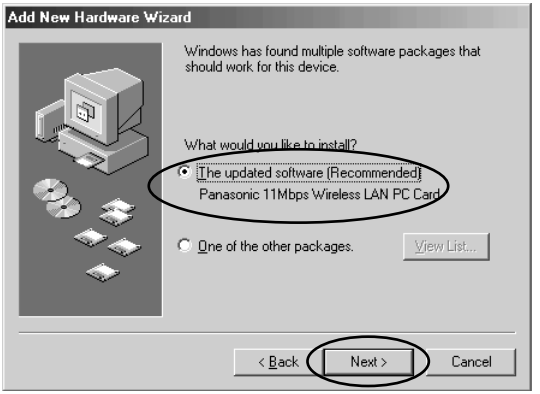
2 Place the CD-ROM labeled Panasonic 11Mbps Wireless LAN Setup CD-ROM in the CD-ROM drive of your computer.

3 Select “Search for the best driver for your device (Recommended).”, select “Removable Media (Floppy, CD-ROM...)” and specify the directory where the device driver is located and click **Next**.



- To specify, select “Specify a location” and type “**D:\software\winMe**” (depending on the drive name of your CD-ROM drive).
- Clicking **Browse** will help you specify the directory.

4 Select “The updated software (Recommended)” and click **Next**.

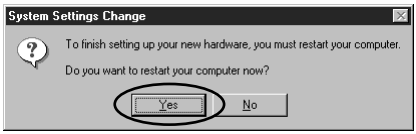


5 Click **Next**.

- The device driver will be installed to your computer.

6 Click **Finish**.

7 Click **Yes** to restart the computer.



- If the above dialog box does not appear, restart the computer manually.

While a computer is restarting, mind below notification.

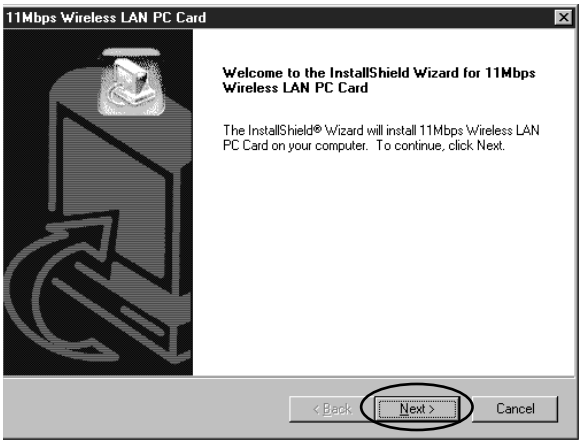
- If the KX-HGC200 has been installed to a computer, restarting may take about a few minutes.
- To prevent a device from being damaged or broken, never turn off a computer while restarting.

The device driver has been successfully installed to your computer. After the computer restarts, refer to p. 38 and install the Network Manager software.

Installing the Network Manager

After the device driver has been installed to a computer, the computer restarts and the installation of the Network Manager software starts automatically.

1 Click **Next** and start the setup.

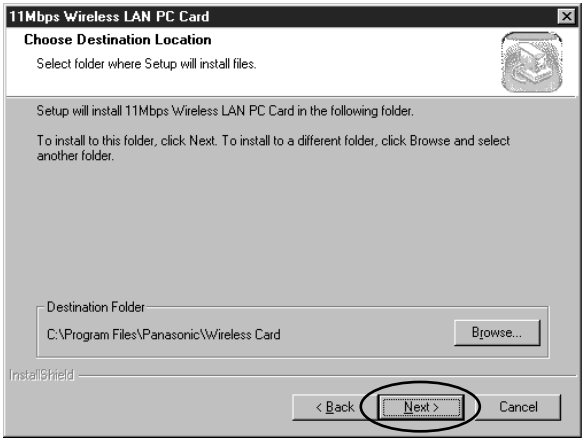


- The **Software License Agreement** dialog box appears.

2 Click **Yes** after you have read all the contents and if you agree with the end user agreement on the dialog box.

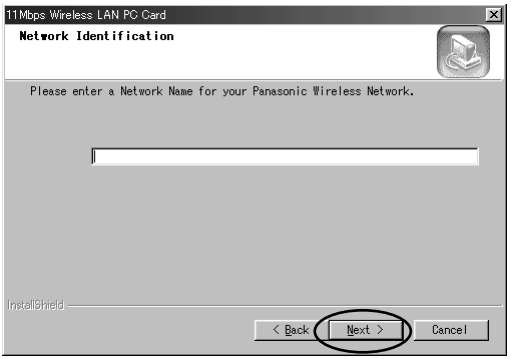
3 Click **Next**.

- If you want to specify a directory, clicking **Browse** will help you.



- The Network Manager software will be installed to your computer.

4 Enter the network name (i.e, John6919) in the data field and click **Next**.

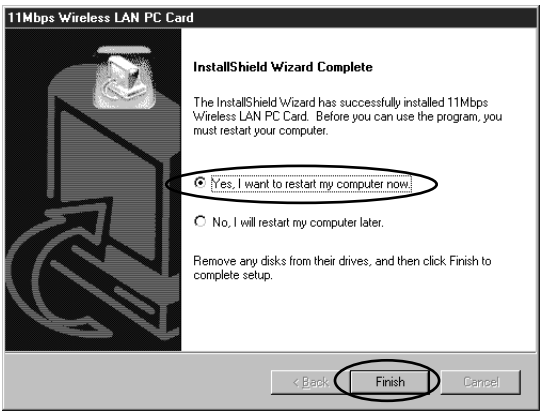


- The data setting field is **not** case-sensitive.

About the network name

To communicate with others in a wireless group, the same Network Name must be programmed into each computer. It is impossible to communicate with a computer that has a different Network Name. To join a wireless network, it is necessary to enter the Network Name that is common to that particular network. For security, specify a unique Network Name that others do not guess, using more than 8 digits or characters, for a wireless network.

5 Select “Yes, I want to restart my computer now” and click **Finish**.



- The computer restarts.

While a computer is restarting, mind below notification.

- If the KX-HGC200 has been installed to a computer, restarting may take about a few minutes.
- To prevent a device from being damaged or broken, never turn off a computer while restarting.

The Network Manager software has been successfully installed. To add more computers to the wireless network, refer to pages from 25 and perform the installation of the computer.
After the software has been installed, the Network Manager icon is located in the taskbar and shortcut leading to it is located on your desktop. Refer to p. 54 for more details about the Network Manager software.

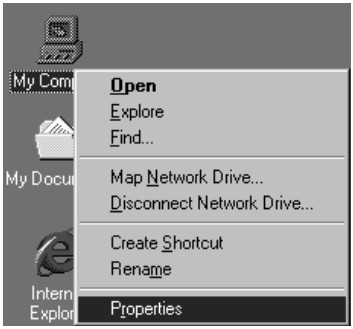
Shortcut to the Network Manager

Network Manager icon in the taskbar (See below.)

Icon	Status
	The KX-HGC200 has not been inserted into the PC card slot or the KX-HGC200 has not been correctly recognized by a computer.
	The KX-HGC200 has been inserted into the PC card slot and is successfully recognized by a computer.

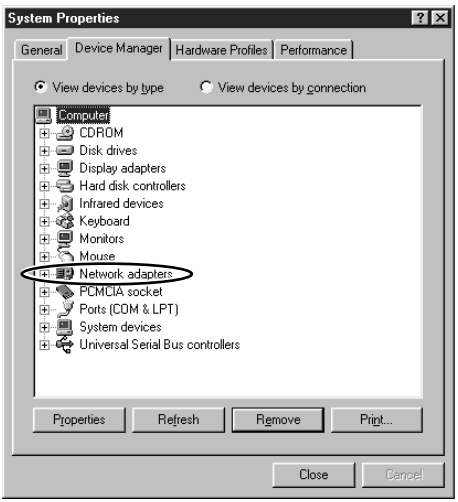
Confirming the KX-HGC200 setup

1 Right-click the **My Computer** icon on your desktop and click **Properties**.

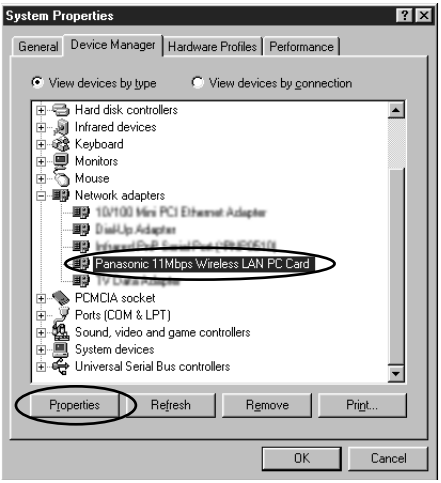


2 Click the **Device Manager** tab.

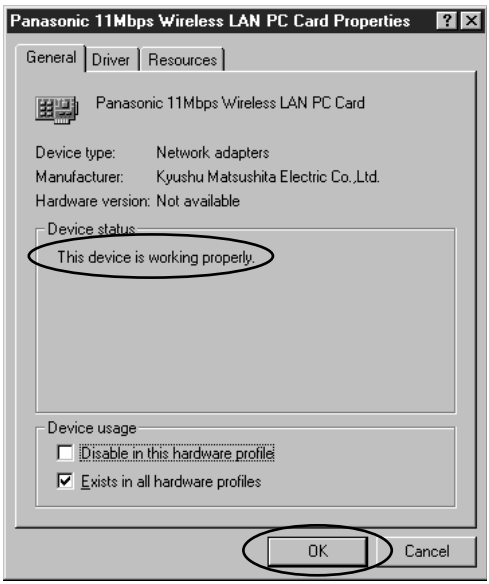
3 Click the plus sign next to the **Network adapters**.



4 Select **Panasonic 11Mbps Wireless LAN PC Card** and click **Properties**.



5 Confirm that "**This device is working properly.**" is shown in the **Device status** field and click **OK**.



- If "This device is working properly." is not shown, re-install the KX-HGC200 device driver after uninstalling the existing device driver. To uninstall, refer to p. 67. To re-install, follow the steps from p. 27.

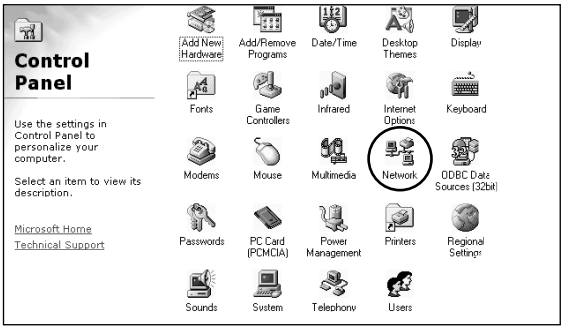
Confirming the network protocols

After the device driver and the Host Network Manager have been installed to a wireless computer, setup of the network protocols is necessary to each wireless computer.

1 From the Start menu, point to **Settings**, then click **Control Panel**.

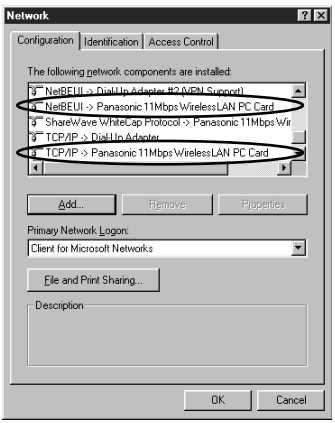
2 Double-click the **Network** icon.

- If you are using Windows Me and can not find the **Network** icon, click **view all Control Panel options** to show the **Network** icon.



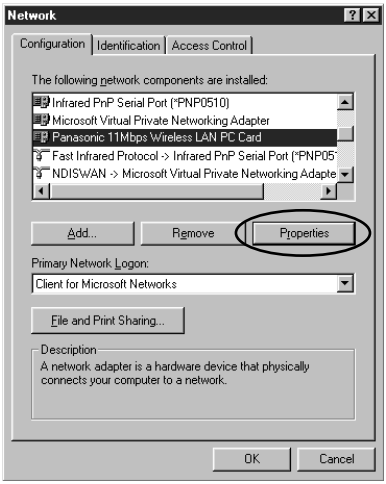
3 Make sure the following protocols are on the **The following network components are installed** list.

- **NetBEUI->Panasonic 11Mbps Wireless LAN PC Card**
- **TCP/IP->Panasonic 11Mbps Wireless LAN PC Card**

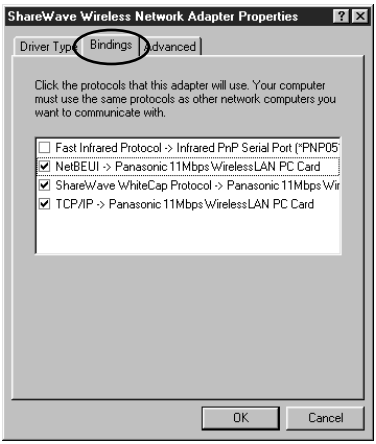


- If the protocols does not appear, install them to your computer first, referring to the manual of your computer or Windows.

4 Select **Panasonic 11Mbps Wireless LAN PC Card** and click **Properties**.



5 Click the **Bindings** tab.



6 Make sure the following protocols are checked and click **OK**.

- **NetBEUI->Panasonic 11Mbps Wireless LAN PC Card**
- **TCP/IP->Panasonic 11Mbps Wireless LAN PC Card**
- **ShareWave WhiteCap Protocol->Panasonic 11Mbps Wireless LAN PC Card**
- If the protocols does not appear, install them to your computer first, referring to the manual of your computer or Windows.

Setting an IP address

To communicate on a wireless network, setup of an IP address is necessary to each wireless computer. Actual steps for IP addressing differ depending on if you plan to add the Broadband Networking Gateway to your wireless network or not.

IP addressing steps for networking with the Broadband Networking Gateway

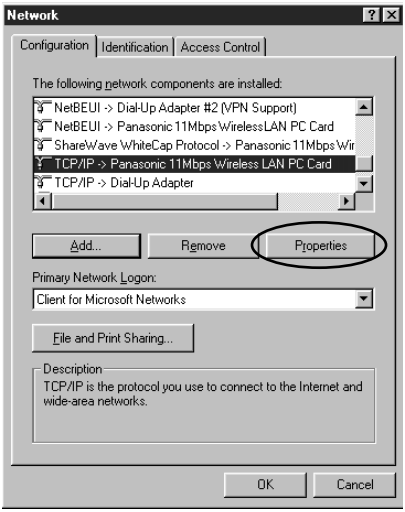
The steps below are for connecting a wireless computer to the Broadband Networking Gateway. As the default setting of the Broadband Networking Gateway, it uses the DHCP (Dynamic Host Configuration Protocol) server function to address all the nodes in the network, including wireless computers.
If you are using the DHCP server function of the Broadband Networking Gateway, IP addressing for each computer is automatic. However, if you have customized and disabled the DHCP server function of the Broadband Networking Gateway, setup of the IP address and related parameters is necessary to the wireless computer.

1 From the Start menu on a wireless computer, point to **Settings**, then click **Control Panel**.

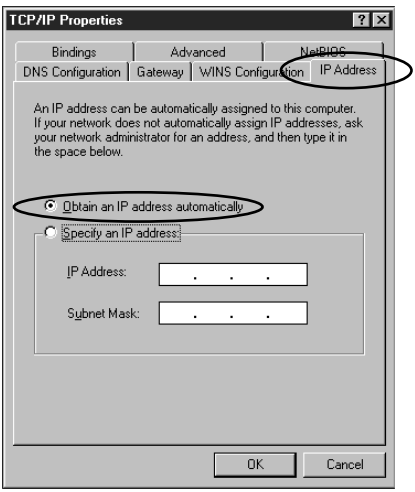
2 Double-click the **Network** icon.

- If you are using Windows Me and can not find the **Network** icon, click **view all Control Panel options** to show the **Network** icon.

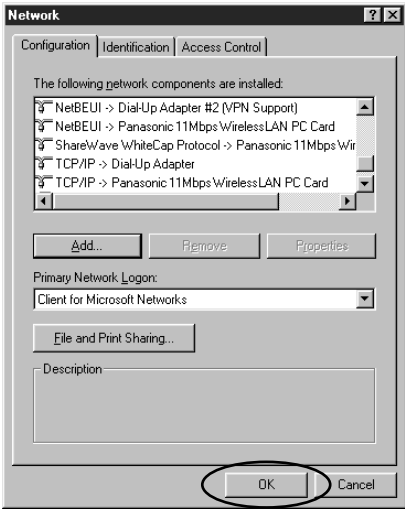
3 Select **TCP/IP->Panasonic 11Mbps Wireless LAN PC Card** and click **Properties**.



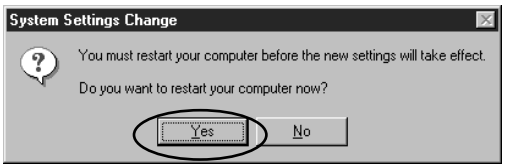
4 If the DHCP server function of the Broadband Networking Gateway is being used, click the **IP Address** tab and select **Obtain an IP address automatically** and click **OK**.
Unless the DHCP server function of the Broadband Networking Gateway is being used, refer to its Operating Instructions and specify the IP address and other related parameters in the same manner that the other wired computers in your home network have been set up.



5 Click **OK**.



6 Click **Yes** to restart the computer.



- The computer restarts.

While a computer is restarting, mind below notification.

- If the KX-HGC200 has been installed to a computer, restarting may take about a few minutes.
- To prevent a device from being damaged or broken, never turn off a computer while restarting.

The network protocol has been set up and now that all the installation steps for using the KX-HGC200 have been completed. To maintain your wireless network, the Network Manager software is available . For more details, refer to p. 54.

IP addressing steps for creating a network that consists only of wireless computers

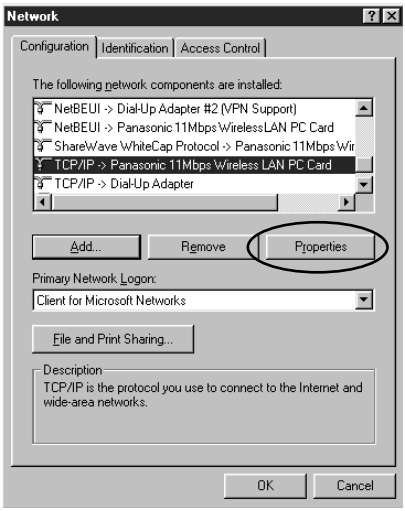
For setting up a computer to network with the other wireless computers, setup of the IP address and Subnet mask is necessary. Follow the steps below and set up the parameters.

1 From the Start menu on a wireless computer, point to **Settings**, then click **Control Panel**.

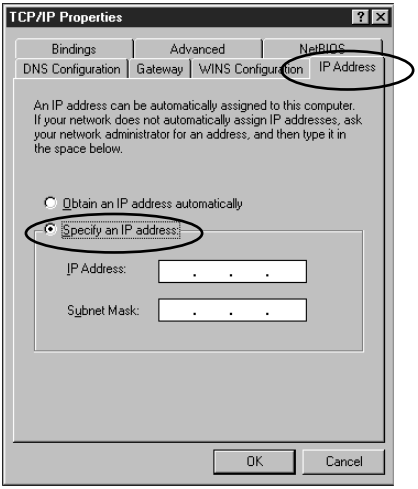
2 Double-click the **Network** icon.

- If you are using Windows Me and can not find the **Network** icon, click **view all Control Panel options** to show the **Network** icon.

3 Select **TCP/IP->Panasonic 11Mbps Wireless LAN PC Card** and click **Properties**.



4 Click the **IP Address** tab and select **Specify an IP address**.



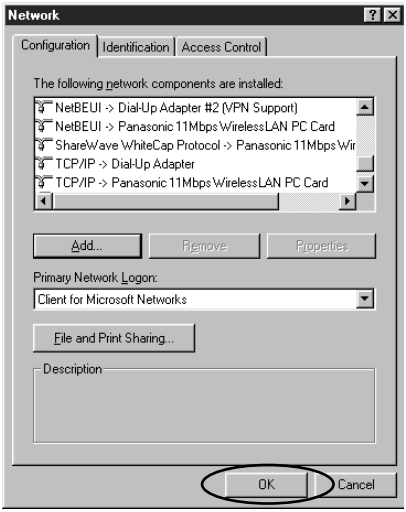
5 Enter the IP address and subnet mask (See below.) in each data field.

About the IP address and subnet mask

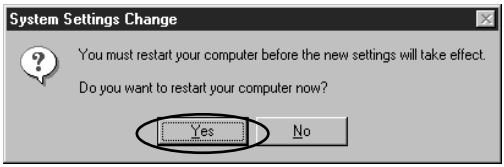
- The IP address and subnet mask should be entered as dot notation (xxx.xxx.xxx.xxx).
- Be sure to specify a **different** IP address value for all the wireless nodes. The recommended extent of the IP address is 192.168.0.101 to 192.168.0.200.
- Be sure to specify the **same** subnet mask value for all the wireless nodes. The recommended parameter for the subnet mask is 255.255.255.0.

6 Click **OK**.

7 Click **OK**.



8 Click **Yes** to restart the computer.



- The computer restarts.

While a computer is restarting, mind below notification.

- If the KX-HGC200 has been installed to a computer, restarting may take about a few minutes.
- To prevent a device from being damaged or broken, never turn off a computer while restarting.

The network protocol has been set up and now that all the installation steps for using the KX-HGC200 have been completed. To maintain your wireless network, the Network Manager software is available. For more details, refer to p. 54.

Sharing Files and Printers

Preparing for sharing files and printers

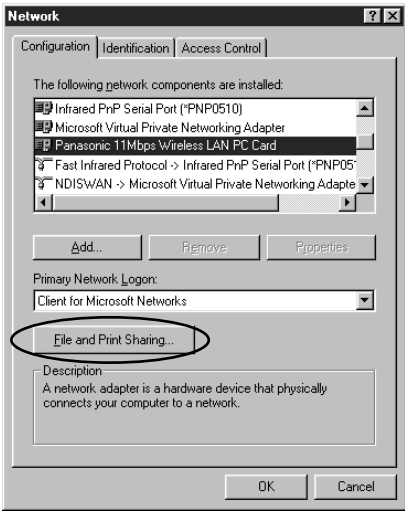
To share files and printers with wireless computers, installation of the protocols and setup of each computer is required.

1 From the Start menu, point to **Settings**, then click **Control Panel**.

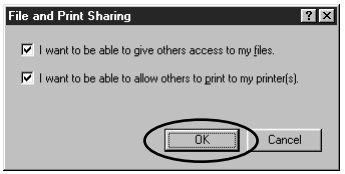
2 Double-click the **Network** icon.

- If you are using Windows Me and can not find the **Network** icon, click **view all Control Panel options** to show the **Network** icon.

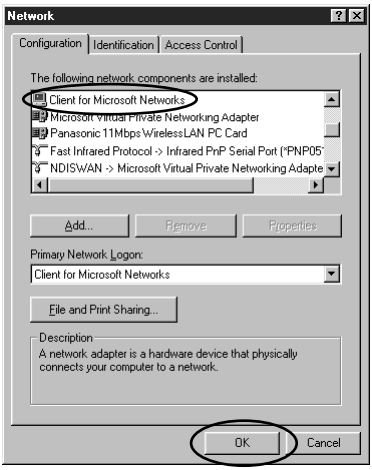
3 Click **File and Print Sharing...**.



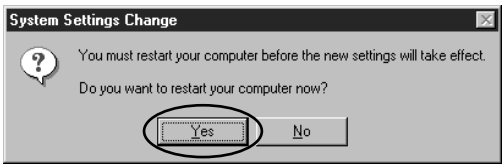
4 Check the appropriate boxes for file and/or printer sharing and click **OK**.



5 Make sure **Client for Microsoft Networks** is listed in the **The following network components are installed** list box and click **OK**.



6 Click **Yes** and restart the computer.



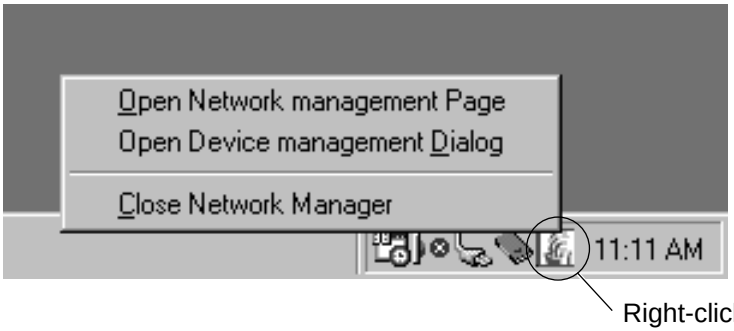
- The computer restarts.

While a computer is restarting, mind below notification.

- If the KX-HGC200 has been installed to a computer, restarting may take about a few minutes.
- To prevent a device from being damaged or broken, never turn off a computer while restarting.

About the Network Manager Software

The Network Manager application software helps you administrate the wireless network. After the installation of the KX-HGC200 device driver, the software is installed to your computer.
By right-clicking the Network Manager icon on your desktop, three functions of the Network Manager will appear.



Selectable functions

Open Network management Page* (See p. 55.)	Connects you to the Network Management web screen that allows you to check the allocation of your wireless network.
Open Device management Dialog (See p. 59.)	Opens the Device Management dialog box that allows you to check/change setup parameters of the KX-HGC200.
Close Network Manager	Disables the Network Manager application software and removes the icon from the taskbar.

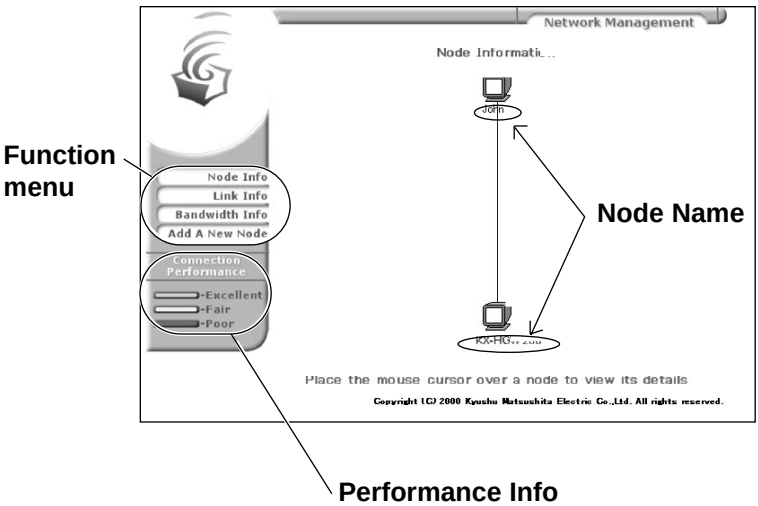
*To view the Network Management page, Internet Explorer (4.0 or later) is needed.

Note:
In the cases below, a wireless network may temporary stop data-transmission.
- When a wireless computer is shut down.
- When a wireless computer is located out of the extent to communicate.

Using the Network Management Web Screen

About the Network Management web screen

The Network Manager application software uses the web screens named “Network Management” to check the allocations of the nodes in the wireless network. See the following pages for the functions on the web screen.

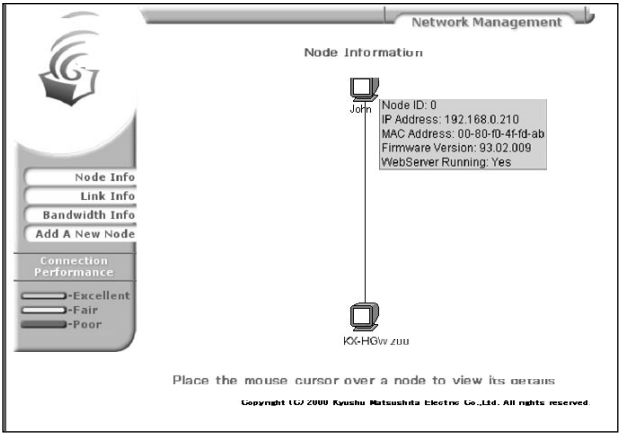


Node Name	The name of each node for identification in a network. For a computer, this name is set in the **Identification** tab of the **Network** dialog box in the Control Panel on your computer. For the Broadband Networking Gateway, this name is set on the **Wireless Setup** screen of the Broadband Networking Gateway administration web screen.
Function menu	Clicking these buttons allows you to check and change the current status of the wireless network. For more details about each function, refer to the instructions from the following pages.
Performance Info	The color shows the current status of the data-transmission performance between nodes.

Using the function menu

Node Information

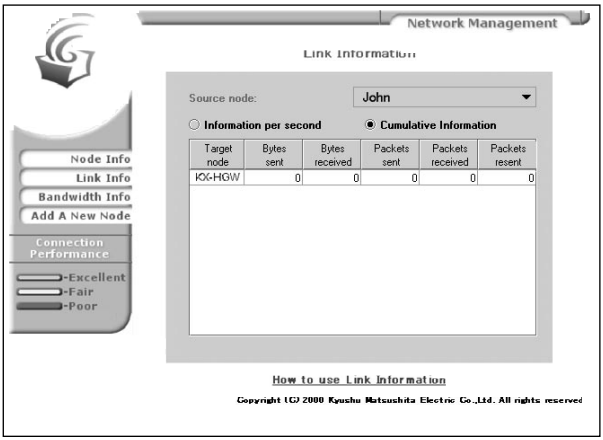
When you think you may have lost the connection to a node, or if you want to know how many nodes are in a wireless network, this function will help you. The screen provides an illustration that shows the entire logical allocation of every node on a wireless network. To obtain detailed information about each node as shown in below figure, move the cursor to the illustration of the appropriate node.
To use this function, click **Node Info** on the web screen.



Node ID	This ID is specified by the Master Node in the wireless network.
IP Address	The local IP address of the node.
MAC Address	The MAC (Media Access Control) Address of the KX-HGC200.
Firmware Version	The current version of the firmware written in the KX-HGC200 Flash-ROM. To update the firmware, see p. 65.
Webserver Running	“Yes” or “No” is shown. If “Yes” is shown, the wireless computer has been set to the Master Node of the wireless network. If “No” is shown, the computer has been set to a Client Node. For more details about the Master Node and Client Node, refer to p. 73.

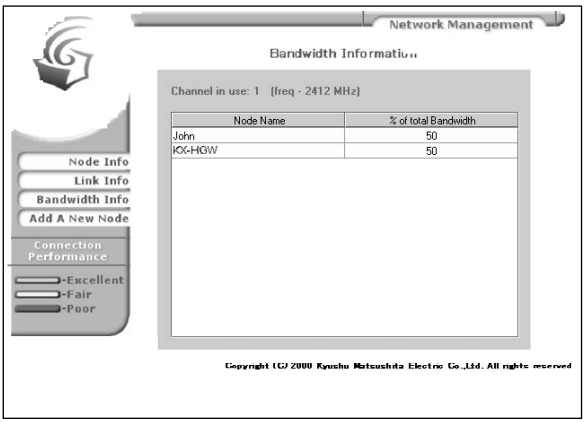
Link Information

To obtain detailed information about sent/received data, this function will help you. The screen provides you with information about the status of packets transmitted by the wireless network.
To use this function, click **Link Info** on the web screen.



Bandwidth Information

To obtain detailed information about bandwidth usage, this function will help you. To find out what channel (radio frequency) the wireless network is using, look at “Channel in use”. The chart below indicates the bandwidths used by each node in the entire wireless network.
To use this function, click **Bandwidth Info** on the web screen.



Add A New Node

This function is used to add the Broadband Networking Gateway to a wireless network from a wireless computer. For detailed steps about how to add the Broadband Networking Gateway, refer to p. 19.

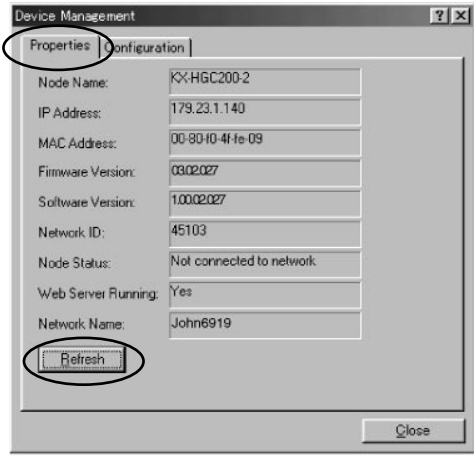
Using the Device Management Dialog Box

About the Device Management dialog box

The Device Management dialog box allows you to check the setup parameters of the KX-HGC200 and change them by overwriting the Flash memory of the KX-HGC200. To check the current setup parameters, click the **Properties** tab. To change the parameters, click the **Configuration** tab.

Properties tab

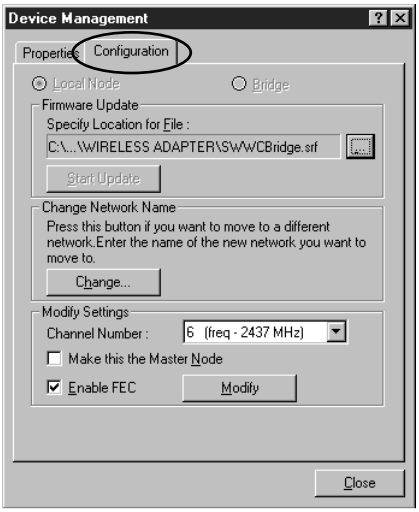
- Clicking **Refresh** button makes the latest change of the parameters take effect.



Configuration tab

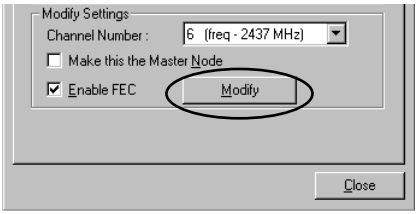
Configuration tab allows you to use the following functions:
Firmware Update*
Change Network Name (p. 61)
Modify Settings (p. 62)

*Not available in current release.



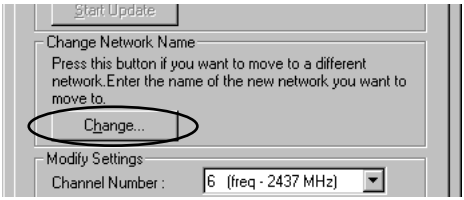
To modify the current settings of the wireless networking status:

First, change each group of settings following the instructions on p. 62. To make new settings take effect, click **Modify**.

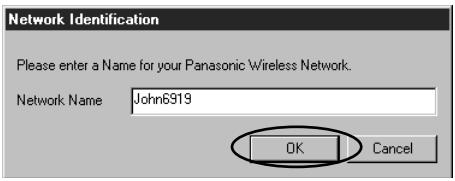


Creating a new wireless network/ Joining another wireless network

1 Click **Change...** in the Change Network Name section.



2 Enter the name of the network to which you are moving and click **OK**.



- The data setting field is **not** case-sensitive.
- If you are creating a new wireless network near an existing wireless network, to prevent the radio frequency interference, be sure to set a different channel number (p. 62) from the existing network.

About the network name

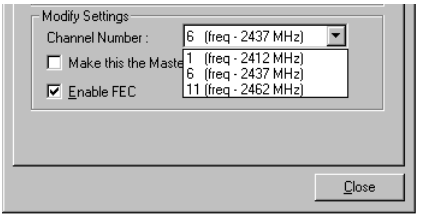
To communicate with others in a wireless group, the same Network Name must be programmed into each computer. It is impossible to communicate with a computer that has a different Network Name. To join a wireless network, it is necessary to enter the Network Name that is common to that particular network. For security, specify a unique Network Name that others do not guess, using more than 8 digits or characters, for a wireless network.

3 Click **OK**.

Changing the channel (radio frequency)

The KX-HGC200 is preset to communicate using the radio frequency channel 6 (2437 MHz). This preset channel can be changed to channel 1 (2412 MHz) or 11 (2462 MHz) by using the **Channel Number** pull-down menu.

To communicate, all the nodes in a wireless network must be set the same radio frequency channel.



Setting a computer to the Master Node

The KX-HGC200 is preset to automatically assign a Master Node (p. 73) to the network and in case of the Master Node being shut down, the other computer replaces the Master Node. However, when the **Make this the Master Node** box is checked, the wireless computer is forced to be the Master Node in the wireless network.

Notes:

- To keep stable data-transmission status in a wireless network, a computer that is always connected to the wireless network is preferable to be set to the Master Node.
- Do not use this function for more than one computer.

Forward Error Correction (FEC)

The FEC (Forward Error Correction) mechanism of the Whitecap™ protocol allows your KX-HGC200 to correct error packets when a data is transmitted to the other wireless nodes and contributes to the higher throughput. Normally, using of this function is strongly recommended. However, only when little interference of the radio frequency is being made and data transmission status is very well, by suspending this function, the throughput may be improved somewhat, while the data-transmission status becomes instable.

Note:

When you disable this function for one node, be sure to disable this function for **all** the nodes in the wireless network.

Removing the KX-HGC200

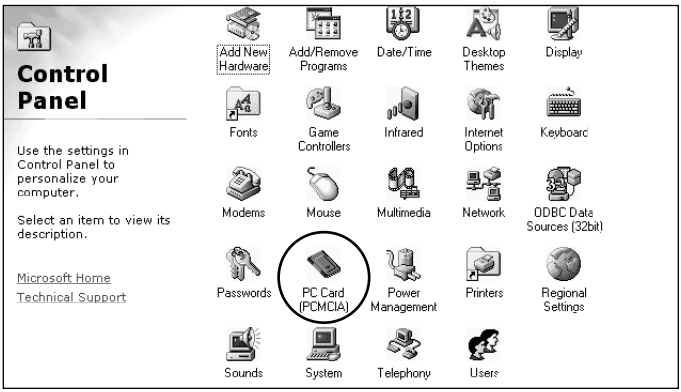
Removing the KX-HGC200 from a computer

Note:
Before removing the KX-HGC200 from a computer, terminate all the application software that uses the wireless data-transmission.

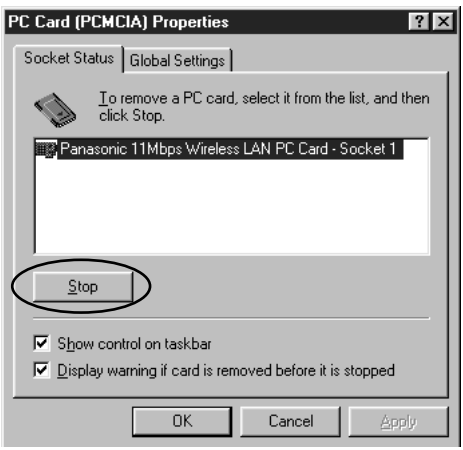
1 From the Start menu, point to **Settings**, then click **Control Panel**.

- By clicking the PCMCIA icon on the taskbar and selecting **Stop Panasonic 11Mbps Wireless LAN PC Card**, you can remove the KX-HGC200, then skip to step 4.

2 Double-click the **PC Card (PCMCIA)** icon.



3 Select **Panasonic 11Mbps Wireless LAN PC Card** and click **Stop**.



Appendix

4 Click **OK**.

- **[Empty]–Socket XX** is displayed.

5 Remove the KX-HGC200 from the PC card slot.

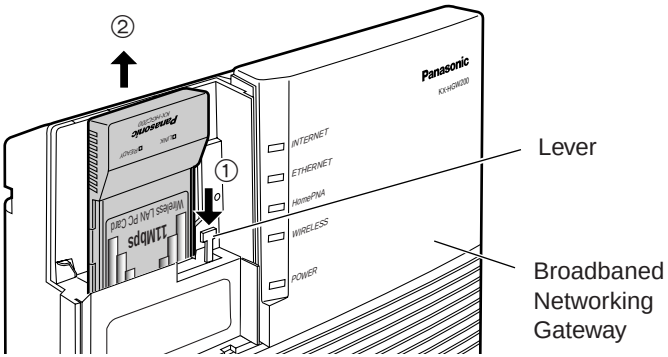
- When the card has been removed, a beep should sound from the computer.

Removing the KX-HGC200 from the Broadband Networking Gateway

1 Make sure the Broadband Networking Gateway and other devices that are used with the Broadband Networking Gateway are turned off.

2 Open the cover on the front side of the Broadband Networking Gateway.

3 ① Press the lever of the Broadband Networking Gateway along with the PC card slot.
② Remove the KX-HGC200 from the PC card slot.



4 Close the cover of the Broadband Networking Gateway.

Updating the KX-HGC200 Firmware

The KX-HGC200 firmware written in the Flash-ROM can be updated using the update utility software. Before update, the firmware must have been downloaded in the computer to which the KX-HGC200 is attached.

The latest firmware can be downloaded from the Panasonic support web site
http://www.kmelink.net/ipproducts/us/download/index.html

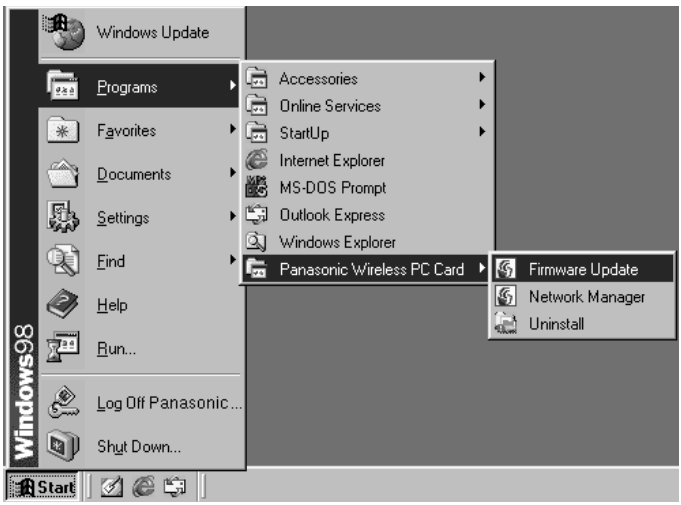
Note:
When the KX-HGC200 is used with the Broadband Networking Gateway and the KX-HGC200 firmware has been updated, the Broadband Networking Gateway firmware must be upgraded to the latest one also.
For more details about the latest firmware, refer to the information on the Panasonic support web site.

1 Make sure the KX-HGC200 is inserted in the PC card slot of the computer and the READY indicator of the KX-HGC200 is lit.

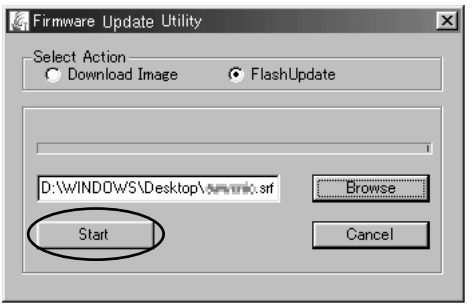
2 Terminate the Network Manager software using its icon on the taskbar, referring to p. 54 “Close Network Manager”.

- The Network Manager icon disappears.
- To show the Network Manager icon later, restart the computer.

3 From the Start menu, point to **Programs**, point to **Panasonic Wireless PC Card** and click **Firmware Update**.



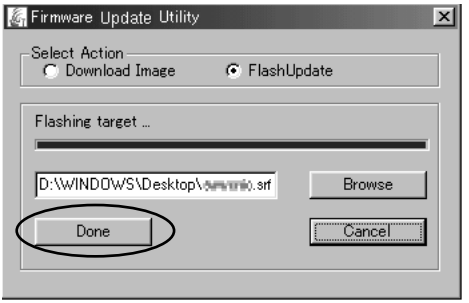
4 Type the name of the new firmware in the data field with full path and click **Start**.



Notes:
- While updating, do not turn off the computer.
- Do not select “Download Image” in the Select Action field.

- Clicking **Browse** helps you specify the directory.
- If an invalid file is selected, the screen below appears. Then, click **OK** and reselect the proper firmware.

5 Click **Done**.



- This step may take a few minutes.

6 Restart the computer.

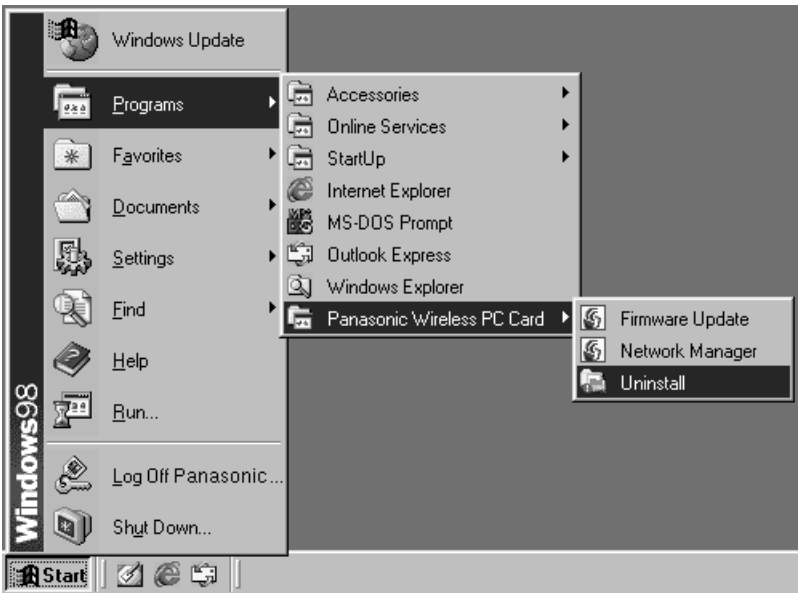
The KX-HGC200 firmware has been successfully updated.

Uninstalling the KX-HGC200 Software

The steps for uninstalling the KX-HGC200 software are performed using the uninstall software which was installed during the installation of the KX-HGC200 device driver.

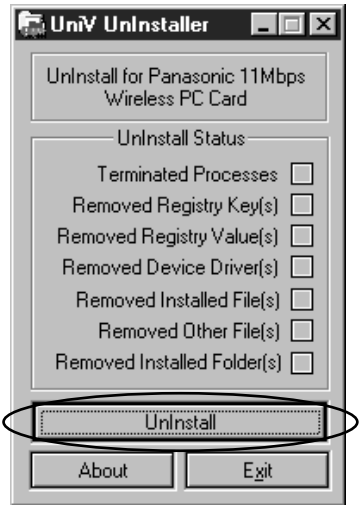
1 Make sure the KX-HGC200 is not inserted in the PC card slot of the computer.

2 From the Start menu, point to **Programs**, point to **Panasonic Wireless PC Card** and click **Uninstall**.

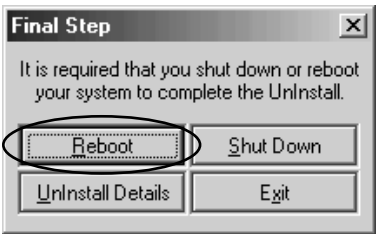


Uninstalling the KX-HGC200 Software

3 Click **UnInstall**.



4 Click **Reboot**.



- The computer restarts.
- Clicking **UnInstall Details** allows you to check the detailed information about removed files.

While a computer is restarting, mind below notification.

- If the KX-HGC200 has been installed to a computer, restarting may take about a few minutes.
- To prevent a device from being damaged or broken, never turn off a computer while restarting.

The KX-HGC200 software has been successfully uninstalled.

Troubleshooting

Problem	Remedy
When you insert KX-HGC200 to the PC card slot, the Install wizard screen is not displayed. The computer does not operate even if you insert KX-HGC200.	● The KX-HGC200 may not be inserted properly. Insert it again firmly to the end. ● The PC card socket may not be working properly. After checking its operation, insert KX-HGC200 again firmly to the end. ● The Power Management Function (automatic shutoff function) of the computer may disturb the power supply to KX-HGC200. Confirm the function according to the manual of the computer. ● The cancellation of the device driver installation has left some driver files in the computer.It hinders the re-installation of the device driver. Un-install the KX-HGC200 software completely by using the un-installation software which was installed during the installation of the KX-HGC200 device driver.
You cannot install the KX-HGC200 device driver.	● KX-HGC200 may not be inserted properly. Insert it again firmly to the end. ● The PC card socket may not be working properly. Check its operation.
The Network management web screen is not displayed. You cannot connect with the computer. You cannot connect with the Broadband Networking Gateway.	● KX-HGC200 may not be inserted properly. Insert it again firmly to the end. ● The PC card socket may not be working properly. Check its operation. ● The version of the firmware of the Broadband Networking Gateway may be old or improper to that of KX-HGC200. Check each versions.

Problem	Remedy
The Network management web screen is not displayed. You cannot connect with the computer. You cannot connect with the Broadband Networking Gateway.	● The KX-HGC200 device driver may have not been installed successfully. Make sure the driver is installed. ● The computer and/or the Broadband Networking Gateway may have not been configured properly. Check the settings of the computer and/or the Broadband Networking Gateway. ● The channel numbers of the computers and/or the Broadband Networking Gateway vary in the same network. Check their channel numbers. ● Even if the Network Names of the computers and the Broadband Networking Gateway are same, their Network ID may vary in the same network. Re-enter the Network Name by using the Device Management dialog box. ● The computer and/or the Broadband Networking Gateway may be out of radio waves, or the concrete wall etc. may be disturbing the waves. Set the computers closely. ● More than one computers are set to the Master Node. Check the setting of each computers. ● Check the setting of the IP address. ● The Network Manager may not be installed. Make sure the “Network Manager” icon is displayed on the taskbar. ● The Network Manager recognizes a different IP address from that of the computer to which the KX-HGC200 is attached. Check the Properties tab of the Device management dialog box (p. 59), then click **Refresh** to update the information.

Problem	Remedy
You cannot share files and/or the printers.	● Check the LINK indicator of KX-HGC200. When the LINK indicator is turned off, the computer is not connected to the network. Check the connecting condition of the computer referring to the case of “You cannot connect with the computer.” (p. 69, 70). ● When the LINK indicator is turned on, check the following settings. •Computer which setting? •Sharing of files how? •Sharing of printers how? ● You may have not entered the password when starting up the Windows computer. Restart the computer and enter the password.
You cannot access the Internet. (When using the Broadband Networking Gateway)	● Check the LINK indicator of KX-HGC200. When the LINK indicator is turned off, you are not connected to the network. Check the following settings. •Computer ····· Check the connecting condition of the computer referring to the case of “You cannot connect with the computer.”. •Broadband Networking Gateway ····· Check the connecting condition of the Broadband Networking Gateway referring to the case of “You cannot connect with the Broadband Networking Gateway.”.

Problem	Remedy
You cannot access the Internet. (When using the Broadband Networking Gateway)	● When the LINK indicator is turned on, check the following settings. ●The invalid IP address may be configured. Check the IP address of the computer on the Device management Dialog screen. To connect with the Broadband Networking Gateway, the IP address of “192.168.0.xxx” * is required. *192.168.0.254 is the default local IP address of the Broadband Networking Gateway. If you have changed the default local IP address of the Broadband Networking Gateway, please change that of the computer as well. ●The setting of the Web browser may be wrong. Check the setting by consulting the information from the contracted Internet Service Provider and the Operating Instructions of the Broadband Networking Gateway.
The other computers are not displayed when you double-click the “Network Neighborhood” icon, though the other computers are shown on the Network management web screen.	● You may have not entered the password when starting up the Windows computer. Restart the computer and enter the password. ● The network of the computer may not be configured properly. Setup the network computer.

Glossary

Channel Number

To communicate with each other, a wireless network occupies one radio frequency. As the default setting, the KX-HGC200 is preset to communicate using the channel 6 (2437 MHz).

Client Node

Nodes other than the Master Node in a wireless network.

Device Management dialog box

The dialog box allows you to check and change the setup parameters written in the Flash-ROM of each KX-HGC200.

IP address

One of the Internet protocols for communicating with the other nodes. For each wireless computer, setup of the IP address is required. Depending on whether there is a DHCP server in your home network, how to set an IP address for each node differs.

Master Node

As the default setting of the KX-HGC200, all the communications performed in a wireless network are controlled by the Master Node, that is automatically selected from wireless computers. When the Master Node is shut down, another wireless computer replaces it automatically, so there is no need to care about what node is the Master Node. However, it is possible to set a wireless computer as the Master Node manually. In that case, do not set more than two one computer as the Master Node.

Network ID

The ID that is created from the Network Name. Actually, this ID is used for maintaining a wireless network instead of the Network Name. However, users do not need to care what Network ID is programmed to each node.

Network Management web screen

The web screen can be viewed using Internet Explorer. In the web screen, the information about the entire wireless network is available using illustrations or numerical data.

Glossary

Network Manager software

The Panasonic original utility software that is installed to your computer. The software helps you maintain your wireless network using the Network Management web screen and Device Management dialog box.

Node Name

The unique name assigned to nodes not only in wireless networks but also in the entire home network. To view the Node Name of a wireless node, open the Device Management dialog box. To view the Node Name of all the wireless computers participating in a wireless network, browse the Node Information page of the Network Management web screen.

Radio Frequency

The KX-HGC200 wireless communications can be performed using the Radio Frequency range from 2400MHz to 2483.5MHz. However, the KX-HGC200 is preset to use the Radio Frequency bandwidth of 2437MHz (channel 6), which can be manually customized to 2412MHz (channel 1) or 2462MHz (channel 11), depending on the performance of the wireless communication.

Specifications

Interface:	PCMCIA Type II card slot
Dimensions (HWD):	4.92″ (125 mm) x 2.12″ (54 mm) x 0.41″ (10.5 mm) including internal antenna
Environmental:	Operation temperature (The temperature in the PC Card slot): +5°C (+41°F) to +50°C (+122°F) Storage temperature: -10°C (+14°F) to +60°C (+140°F) Humidity (non-condensing): 45% to 85%
Weight:	0.127 lb.
Power consumption:	600 mA (max.)
LED display:	LINK READY
Operating frequency:	2400–2483.5 MHz (3 channels)
Antenna:	Omni-directional polarization diversity antenna
Wireless medium	Direct Sequence Spread Spectrum
Range (typical):	100 ft. indoor 850 ft. in open air

FCC and Other Information

This device complies with Part 15 of the FCC Rules. 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 undesired operation.

CAUTION:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this device.

Note:
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 and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. 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 to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

- **Environment**—do not place the unit in a room where the temperature is less than 5°C (41°F) or greater than 35°C (95°F). Allow 10 cm (4″) clearance around the unit for proper ventilation. Avoid excessive smoke, dust, mechanical vibration, shock, or direct sunlight.
- **Medical**—consult the manufacturer of any personal medical devices, such as pacemakers, to determine if they are adequately shielded from external RF (radio frequency) energy. (The unit operates in the frequency range of 2400MHz to 2483.5MHz and the power output level is 0.1 watt.) Do not use the unit in health care facilities if any regulations posted in the area instruct you not to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF (radio frequency) energy.
- **Routine care**—wipe the unit with a soft cloth. Do not use benzine, thinner, or any abrasive powder.

Responsible Party: Matsushita Electric Corporation of America
One Panasonic Way, Secaucus, NJ 07094
Tel No: 1-800-272-7033

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For product service

- Panasonic Servicenters are listed in the servicenter directory.
- Call 1-800-272-7033 for the location of an authorized servicenter.
- After the limited warranty, please contact our Continued Services Technical Support Line at 1-900-555-PANA (1-900-555-7262). If you have difficulty reaching this number, it may be blocked by your phone company. Please contact your local phone company to correct this.

When you ship the product

- Carefully pack your unit, preferably in the original carton.
- Attach a letter, detailing the symptom, to the outside of the carton.

Symptom

- Send the unit to an authorized servicenter, prepaid and adequately insured.
- Do not send your unit to the Panasonic Consumer Electronics Company listed below or to executive or regional sales offices. These locations do not repair consumer products.

- This unit is designed for use in the United States of America. Sale or use of this product in other countries may violate local laws.
- Ce appareil est conçu pour être utilisé aux États-Unis d'Amérique. La vente ou l'emploi de cet appareil dans certains autres pays peut constituer une infraction à la législation locale.
- Esta unidad fue elaborada para uso en los Estados Unidos de América. La venta o el empleo de este producto en ciertos países puede constituir violación de la legislación local.
- この製品は、日本国外での使用を目的として設計されており、日本国内での使用は法律違反となります。従って、当社では日本国内においては原則として修理などのサービスは致しかねます。

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