

Canon

Wireless Network Interface Board

NB-W2

User's Guide



IMPORTANT:

Read this manual carefully before using your printer.
Save this manual for future reference.

ENG

Wireless Network Interface Board NB-W2 User's Guide



How This Manual Is Organized

Chapter 1 Before You Start

Chapter 2 Installing NB-W2

Chapter 3 Settings for NB-W2

Chapter 4 Troubleshooting

Chapter 5 Appendix

-
- Considerable effort has been made to ensure that this manual is free of inaccuracies and omissions. However, as we are constantly improving our products, if you need an exact specification, please contact Canon.
 - To view the manual in PDF format, Adobe Reader/Acrobat Reader/Acrobat is required. If Adobe Reader/Acrobat Reader/Acrobat is not installed on your system, please download it from the Adobe Systems Incorporated website (<http://www.adobe.com>).

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Preface

Thank you for purchasing this Canon product.

Wireless Network Interface Board NB-W2 is a product that is used when a printer is connected to a network and used as a network printer.

This manual describes the procedures for connecting Wireless Network Interface Board NB-W2 to a printer as well as connecting the printer to a network.

Please read this manual thoroughly before operating NB-W2. After reading this manual, store it in a safe place for future reference.

How To Use This Manual

Symbols Used in This Manual

The following symbols are used in this manual to indicate operational requirements or clarification.



CAUTION

Indicates a caution concerning operations that may lead to injury to persons, or damage to property if not performed correctly. In order to use the printer safely, always pay attention to these cautions.



IMPORTANT

Indicates operational requirements and restrictions. Be sure to read these items carefully in order to operate the printer correctly, and to avoid damage to the printer.



NOTE

Indicates a clarification of an operation, or contains additional explanations for a procedure. Reading these notes is highly recommended.

Keys and Buttons Used in This Manual

Keys and buttons used in this manual may differ in form depending on the model of the printer you are using.

The following are a few examples of how keys and buttons are depicted in this manual:

- Keys on the Printer: [Key Name]

Example: [Online]

[Utility]

- Buttons on Computer Operation Screen: [Button Name]

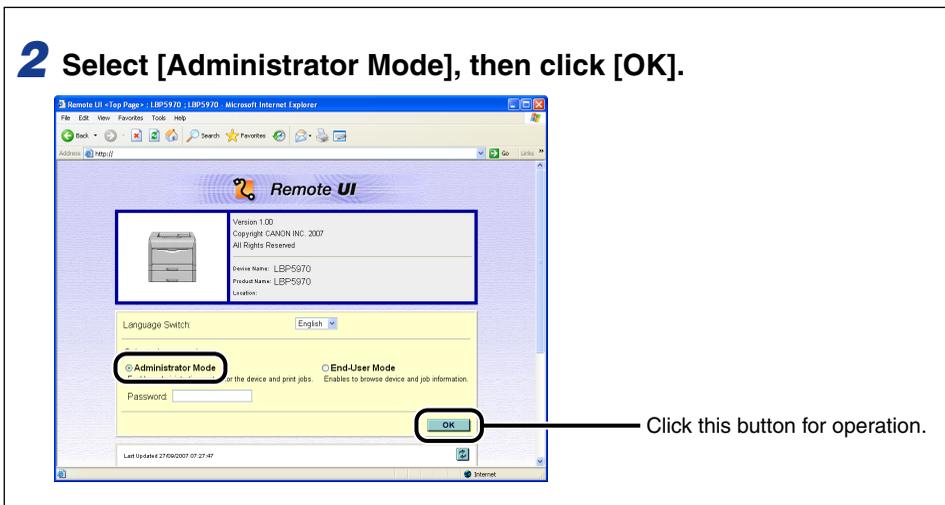
Example: [OK]

[Device Settings]

Displays Used in This Manual

Displays used in this manual may differ from those shown on your computer display, depending on the system.

The buttons to be clicked are marked with a  as shown below. If multiple buttons can be clicked for a procedure, all such buttons will be marked on the illustration.



Abbreviations Used in This Manual

In this manual, product names and model names are abbreviated as follows:

Microsoft Windows 2000:

Windows 2000

Microsoft Windows XP:

Windows XP

Microsoft Windows Server 2003:

Windows Server 2003

Microsoft Windows Vista operating system:

Windows Vista

Microsoft Windows operating system:

Windows

Wireless Network Interface Board NB-W2:

NB-W2

Legal Notices

FCC (Federal Communications Commission)

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.

Use of shielded cables are required to comply with Class B limits in Subpart B of Part 15 of the FCC Rules.

Do not make any changes or modifications to the equipment unless otherwise specified in the manual. If you make such changes or modifications, you could be required to stop operation of the equipment.

If your equipment malfunctions, please contact your local authorized Canon dealer from whom you purchased the equipment (if under warranty), or with whom you have a servicing contract. If you are not sure who to contact, and have both purchased and are using the equipment in the U.S.A., please refer to the "SUPPORT" page on Canon U.S.A.'s Web site (<http://www.usa.canon.com>).

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

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.

This equipment complies with FCC radiation exposure limits set forth for uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65. This equipment should be installed and operated with at least 20cm and more between the antenna and person's body (excluding extremities: hands, wrists, feet and ankles).

Security Warnings Regarding the Use of Wireless LAN Products

A Wireless LAN enables you to exchange information between devices (such as computers) and wireless access points using radio waves, instead of a physical LAN cable. You are advised that unauthorized access could be possible and security features should be configured as appropriate. (For information on selecting encryption and authentication methods, see "Security Settings (General Network Environment: Not Using an Authentication Server)" (p. 3-27) and "Security Settings (Enterprise Environment: Using an Authentication Server)" (p. 3-47).)

On the other hand, as radio waves penetrate to all areas within a certain radius and go through obstacles (such as walls), the following problems can occur if security settings are not specified.

- Transmitted data can be eavesdropped on
Third parties with malicious intent can deliberately intercept the radio waves and possibly steal the following information:
 - Personal information such as IDs, passwords, or credit card numbers.
 - E-mail content
- Unauthorized infiltration
Third parties with malicious intent can access a personal or corporate network without authorization, and possibly perform the following:
 - Extract personal or confidential information (information leakage)
 - Impersonate a specific individual to perform communication or send out misleading information (impersonation)
 - Overwrite and resend intercepted information (modification)
 - Send a computer virus, etc., to destroy data or systems (destruction)

Wireless LAN cards and wireless access points have security features to deal with these problems. Therefore the possibility of such problems can be reduced by specifying the security settings of the wireless LAN product.

The customer must understand the problems that may occur if security settings are not specified and take responsibility for decisions regarding security. It is recommended you specify security settings when using this product.

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Export Regulations

The Products are subject to control of the Foreign Exchange and Foreign Trade Law of Japan. (The Law, hereafter)

In the event the Products are exported or brought abroad, all applicable export control rules and regulations under the aforementioned Law and of the country involved must be complied with.

Before You Start

1

CHAPTER

This chapter describes the things you need to check before using NB-W2, such as the network environments with which NB-W2 is compatible and the procedures for configuring NB-W2.

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Checking the Network

1

Before You Start

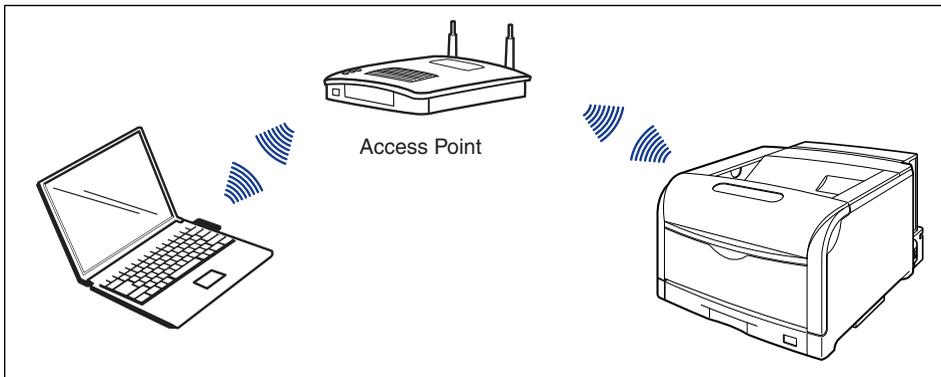
NB-W2 can be used in either of the following network environments that have an access point.

 **NOTE**

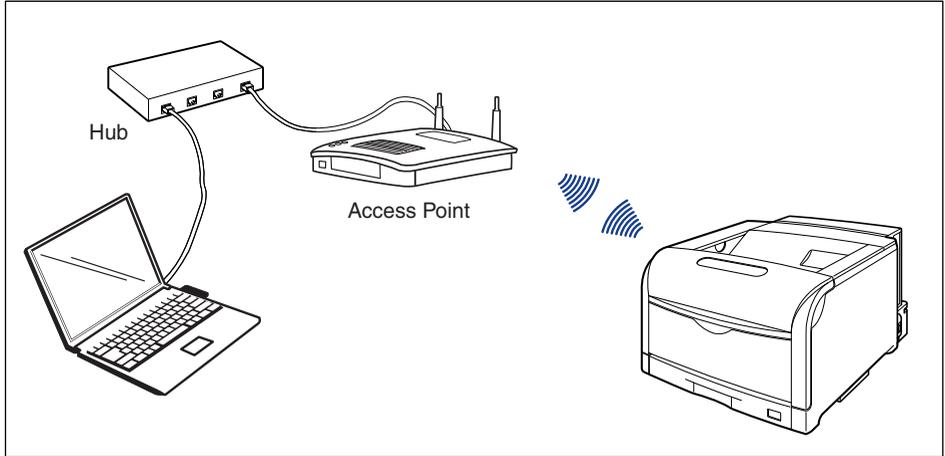
NB-W2 normally communicates in the infrastructure mode, which works via an access point.

The ad hoc mode which does not communicate via an access point can be used only if some problem has occurred in NB-W2. For more details, see "Emergency Startup Mode," on p. 5-17.

■ **Environment where the computer, access point, and NB-W2 communicate wirelessly**



- Environment where the computer and access point are connected by a LAN cable and the access point and NB-W2 communicate wirelessly



System Requirements

This section describes the system requirements of NB-W2, including the types of access points it supports.



IMPORTANT

For information on the wireless LAN devices that can communicate with the NB-W2, see the Canon Web site (<http://www.usa.canon.com/>).



NOTE

For details on system requirements for printing, see "Driver Guide" (PDF manual) supplied with the printer. For details on available network environments, see "Network Guide" (PDF manual).

General System Environment (Not Using an Authentication Server)

If you want to use NB-W2 in a small network environment such as a SOHO environment, you need the following access point.

■ Access Point

- An access point compatible with IEEE 802.11g or IEEE 802.11b in the 2.4 GHz band (ISM (Industrial Scientific Medical) band)
- The following conditions are also required depending on the security system.

WEP	An access point which supports 64-bit or 128-bit WEP
WPA/WPA2 + PSK	An access point compatible with WPA or 802.11i (WPA2)

- An access point that supports IP v. 6 if you want to use the IP v. 6 functions



NOTE

NB-W2 cannot communicate with an IEEE 802.11a (5 GHz band) access point.

System Environment to Perform 802.1X Authentication (Using an Authentication Server)

If you want to perform 802.1X authentication in an enterprise environment or another environment, you need the following access point and authentication server.

■ Access Point

- An access point compatible with IEEE 802.11g or IEEE 802.11b in the 2.4 GHz band (ISM (Industrial Scientific Medical) band)
- The following conditions are also required depending on the security system.

802.1X/EAP + WEP	An access point which supports 802.1X authentication and Dynamic WEP
WPA/WPA2 + 802.1X/EAP	An access point compatible with WPA or 802.11i (WPA2), which supports 802.1X authentication (supports WPA/WPA2 Enterprise)

- An access point that supports IP v. 6 if you want to use the IP v. 6 functions

NOTE

NB-W2 cannot communicate with an IEEE 802.11a (5 GHz band) access point.

■ RADIUS Authentication Server

- A RADIUS authentication server, which supports EAP-TLS, PEAP, or EAP-TTLS

NOTE

- If the access point has the function of an authentication server, you do not need a RADIUS authentication server.
- To use a RADIUS authentication server, you need a server certificate and root CA certificate.
- To use EAP-TLS, you need a client certificate and client private key. If not using an external authority to issue certificates and private keys, you need to use a certificate authority.

Setting Procedure for NB-W2

1

Before You Start

The setting procedure for NB-W2 is as follows.

Checking the LAN Adapter (See p. 1-8)

Check if the LAN adapter, which is installed in your computer, is operating properly.

Installing NB-W2 (See p. 2-4)

Install NB-W2 in your printer.

IP Address Setting (IP v. 4) (See p. 3-2)

Set the IP address for NB-W2.

IP v. 6 Settings (See p. 3-10)

Specify the settings for using IP v. 6.

* You do not need to specify the settings if you are not using IP v. 6.

Network Settings Other than the IP Address Setting (See p. 3-17)

Specify the network settings, such as the settings for subnet mask and gateway address, other than the IP address.

Security Settings for the Access Point and Computer (See p. 3-20)

Specify the security settings for your access point and computer.

*If your access point and computer are connected by a LAN cable, you do not need to specify the security settings for the computer.

SSID Settings (See p. 3-21)

Specify the settings for the access point to be connected.

Security Settings for NB-W2

- **Security Settings (General Network Environment: Not Using an Authentication Server) (See p. 3-27)**
- **Security Settings (Enterprise Environment: Using an Authentication Server) (See p. 3-47)**

Specify the security settings for NB-W2.

Switching the Network to Be Used to NB-W2 (See p. 3-103)

Enable the wireless LAN.

Checking the LAN Adapter in the Computer that Performs Printing

1

Before You Start

Before you start, check if the LAN adapter in your computer is operating properly using the following procedure.

NOTE

- If you are using the LAN adapter for the first time, install the LAN adapter and its driver and software in advance, as needed. For details on the installation procedures, see the instruction manual supplied with the LAN adapter.
- This section describes the procedure, taking Windows as an example.

1 Display [Device Manager].

- For Windows 2000
 1. From the [Start] menu, select [Settings] → [Control Panel].
 2. Double-click the [System] icon.
 3. Click [Hardware] → [Device Manager].
- For Windows XP
 1. From the [Start] menu, select [Control Panel].
 2. Click [Performance and Maintenance] → [System].
 3. Click [Hardware] → [Device Manager].
- For Windows Server 2003
 1. From the [Start] menu, select [Control Panel] → [System].
 2. Click [Hardware] → [Device Manager].
- For Windows Vista
 1. From the [Start] menu, select [Control Panel].
 2. Click [Hardware and Sound] → [View hardware and devices].



NOTE

If you are using Windows Vista and the [User Account Control] dialog box appears, click [Continue].

2 Double-click [Network adapters].

If "X" or "!" is displayed on the LAN adapter icon, the LAN adapter is not operating properly. See the instruction manual supplied with your LAN adapter to make it operate properly.

Installing NB-W2

2

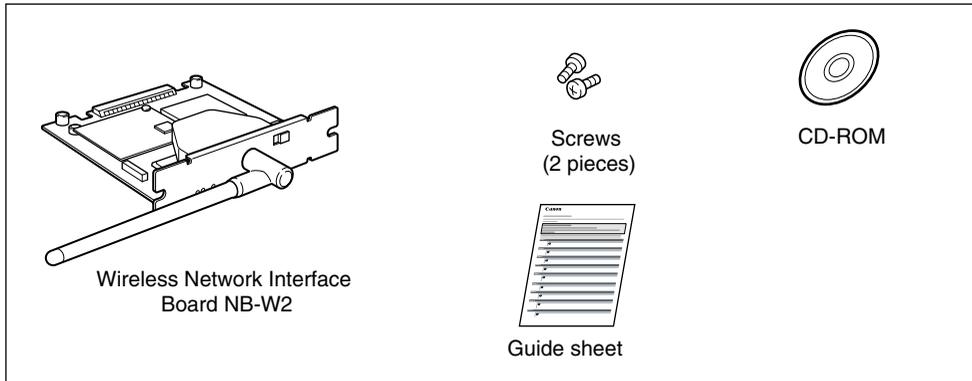
CHAPTER

This chapter describes the parts and functions of NB-W2 and the procedure for installing NB-W2.

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Confirming the Contents of the Box

Make sure that all the following items are contained in the box before installing NB-W2. If any items are missing or damaged, please contact your local authorized Canon dealer.



⚠ CAUTION

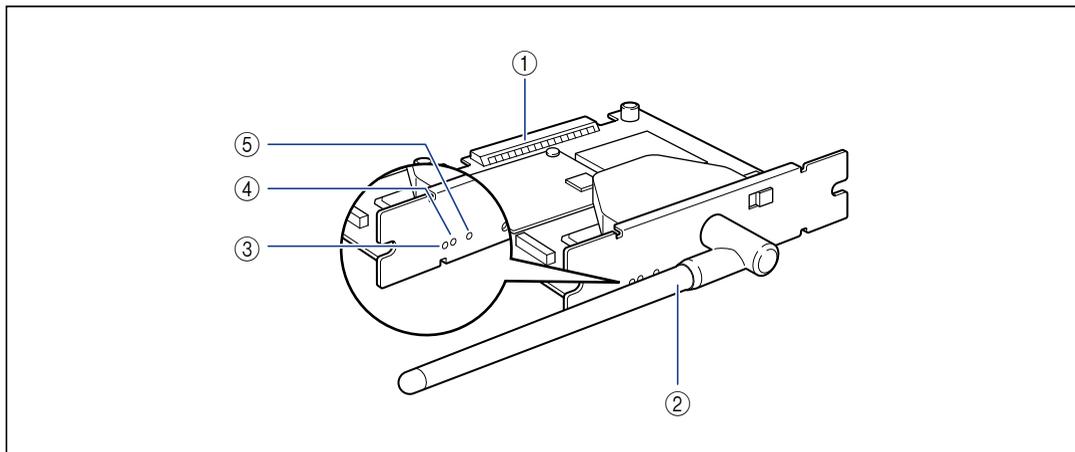
- Be sure to turn the printer OFF, and then disconnect all the interface cables and power cord from the printer before installing NB-W2. If you attempt to install NB-W2 when the printer is ON or when any cables are connected to the printer, this may result in an electrical shock.
- Be careful when handling NB-W2. Touching the edges or any sharp parts of NB-W2 may result in personal injury.

👤 IMPORTANT

NB-W2 contains components that are sensitive to static electricity. Observe the following precautions when handling NB-W2 to prevent damage from static electricity.

- Touch a metal object to dissipate static electricity before handling it.
- When handling it, do not touch anything that generates static electricity such as the computer display.
- Do not touch the NB-W2 parts, printed circuits, or connectors with your hands.
- To prevent NB-W2 from being affected by static electricity, keep it in the protective bag until it is ready to be installed. You will need the protective bag after you remove NB-W2 to hold it. Keep the protective bag. Do not discard it.

Parts and Their Functions



① Printer Connector

Connects to the printer. Do not touch the connector directly with your hands.

② Antenna

When you have difficulty communicating, rotate the antenna to make an adjustment.

③ LNK Indicator (Green)

Comes on if NB-W2 is connected to the network properly.

④ ERR2 Indicator (Orange)

Blinks in cases such as where a problem has occurred in the hardware of NB-W2.

⑤ ERR1 Indicator (Yellow)

Blinks in cases such as where there is a problem with the security settings and where an error has occurred during the authentication.

Installing NB-W2

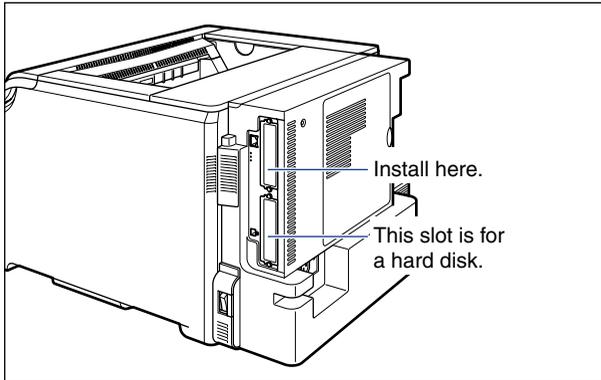
Install NB-W2 in the expansion slot of the printer unit using the following procedure. A Phillips screwdriver is required for installing NB-W2. Have a screwdriver ready in advance that matches the size of the screws.

2

Installing NB-W2

■ Mounting Location of NB-W2

Install NB-W2 in the following location.



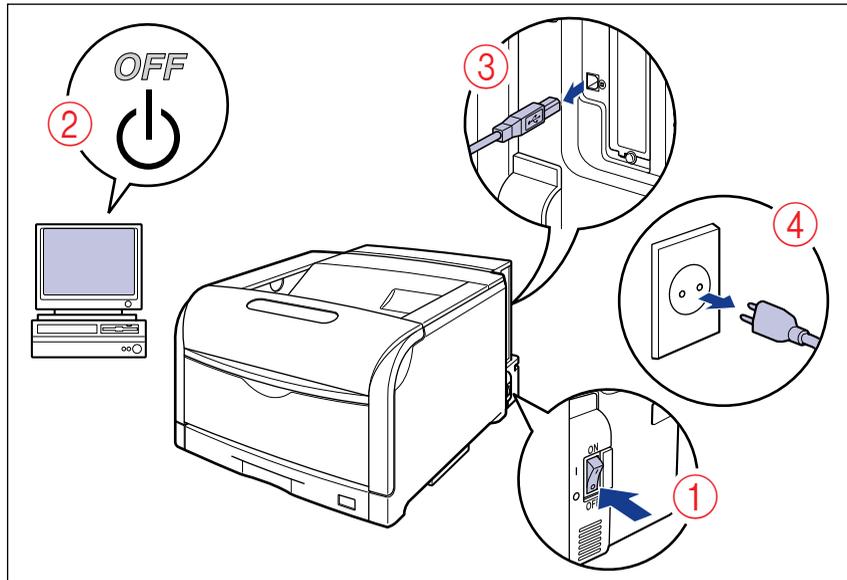
1 Perform the following procedure.

Turn the printer OFF ①.

If a USB cable is connected, turn the computer off ②, and then disconnect the USB cable from the printer ③.

Disconnect the power plug from the AC power outlet ④.

If you are using a hard disk in the printer, turn the printer OFF after performing a shutdown (See the manuals supplied with the printer).
If you are not using a hard disk, make sure that the Job indicator is off and that the printer is not printing by checking the display.



IMPORTANT

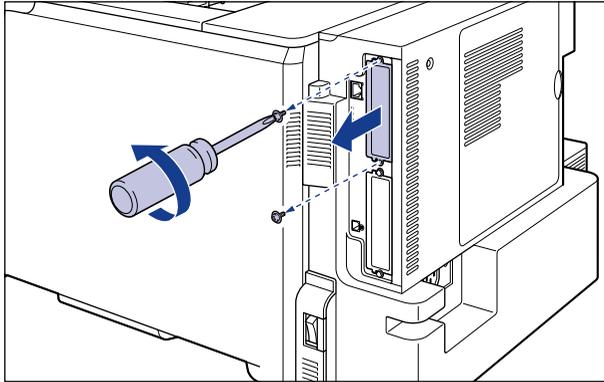
Be sure to turn the printer OFF before inserting or removing NB-W2. If you insert or remove NB-W2 with the printer ON, this may result in damage to NB-W2 or the printer.

2 Remove the power cord from the printer.

3 If a LAN cable is connected, disconnect it from the printer.

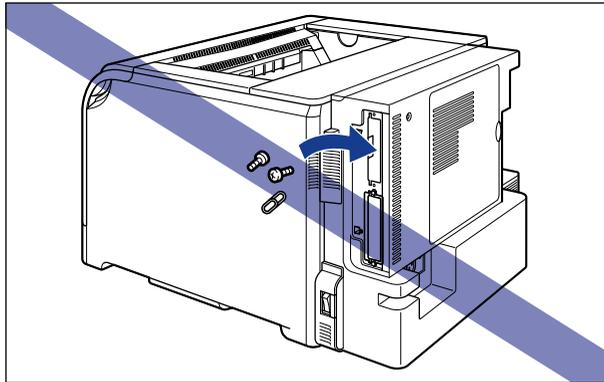
If there is insufficient space to install NB-W2, move the printer to a place where you can work easier.

4 Remove the screws and remove the protective plate for the expansion slot.

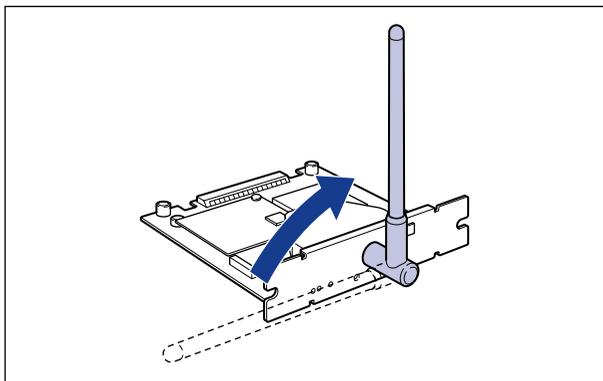


NOTE

- You will need the removed protective plate and screws when you remove NB-W2 in the future. Be sure not to misplace them.
- After removing the protective plate, do not drop screws, paper clips, staples, or other metal objects inside the expansion slot. If any of these objects should drop inside the expansion slot, do not plug the power plug into the AC power outlet and contact your local authorized Canon dealer.

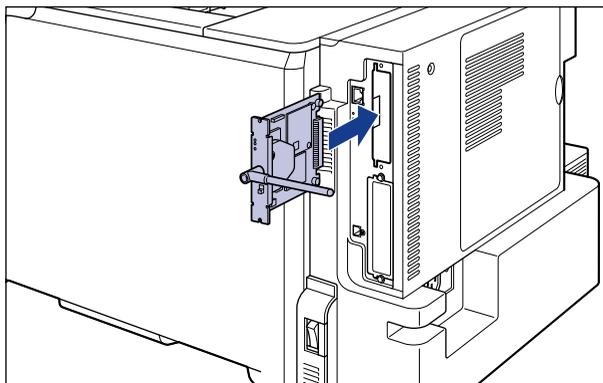


5 Rotate the antenna to the position shown in the figure.



6 Insert NB-W2 into the expansion slot.

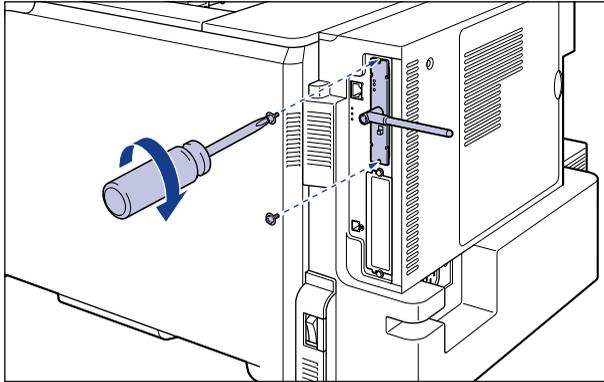
Hold the metal panel portions of NB-W2 and insert it straight while aligning it with the guide rails inside the expansion slot.



IMPORTANT

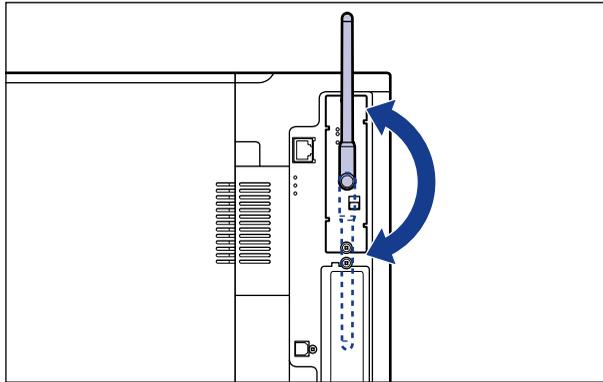
- Insert NB-W2 securely.
- Do not touch the NB-W2 parts, printed circuits, or connectors with your hands.

7 Secure the top and bottom portions of NB-W2 with the two screws supplied with NB-W2.



IMPORTANT

- Rotate the antenna back to its original position after securing NB-W2 with the screws.
- When you have difficulty communicating, rotate the antenna in the following range to make an adjustment.



- 8** Connect the LAN cable to the printer.
- 9** Connect the power cord to the printer.
- 10** Plug the power plug into the AC power outlet.
- 11** Connect the USB cable to the printer as needed.

The installation of NB-W2 is completed. Next, set the IP address. (See p. 3-2)

Settings for NB-W2

3

CHAPTER

This chapter describes the procedures for setting NB-W2 to use on a network as well as for specifying the security settings.

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IP Address Setting (IP v. 4)

You need to set the IP address for NB-W2 so that it can communicate with your access point and computer. Set the IP address using any one of the following methods.

IMPORTANT

You can assign different IP addresses to the printer (standard network) and NB-W2. If "Primary Network Setting" is set to "NB-W2", the IP address assigned to NB-W2 is enabled (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103).

■ IP Address Setting Using the Remote UI (See p. 3-3)

Set the IP address using the Remote UI. The Remote UI is software that allows you to access the printer via a network from your web browser and specify the settings such as the network settings.

IMPORTANT

To use the Remote UI, your network environment needs to fulfill the following conditions.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

■ IP Address Setting Using the Printer's Control Panel (See p. 3-8)

Set the IP address using the printer's control panel.

Settings Using the Remote UI

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

3

Settings for NB-W2

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

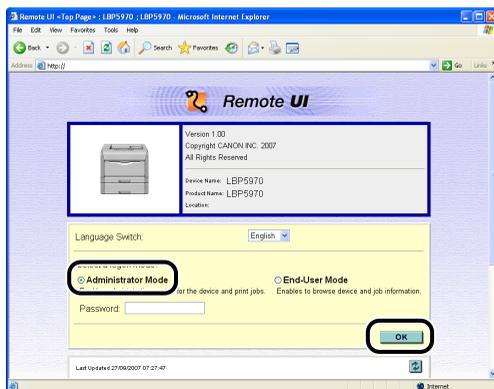
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

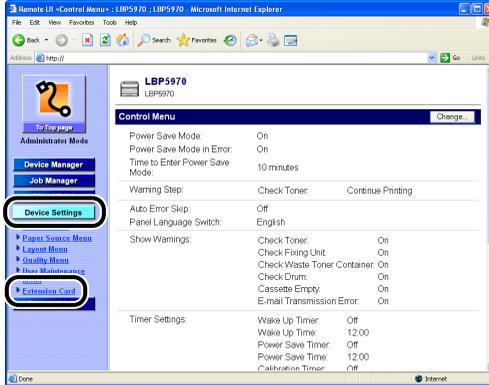
2 Select [Administrator Mode], then click [OK].



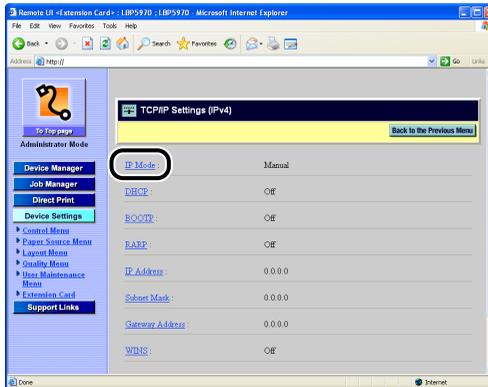
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [TCP/IP Settings (IPv4)] → [IP Mode].

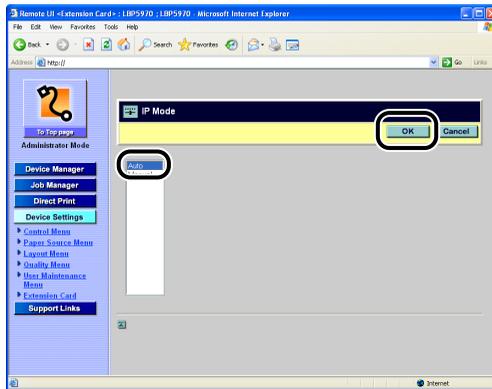


3

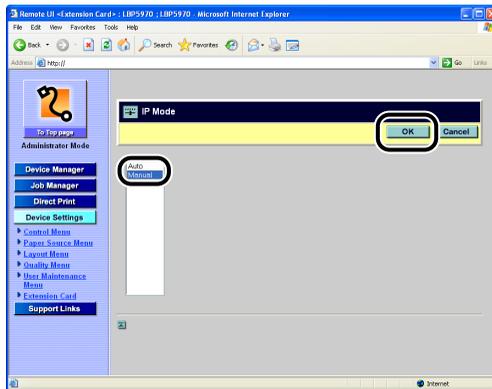
Settings for NB-W2

5 Select the method for setting the IP address.

- If you want to specify the IP address using DHCP, BOOTP, or RARP
 - Select [Auto], then click [OK].



- If you want to assign the IP address directly
 - Select [Manual], then click [OK].

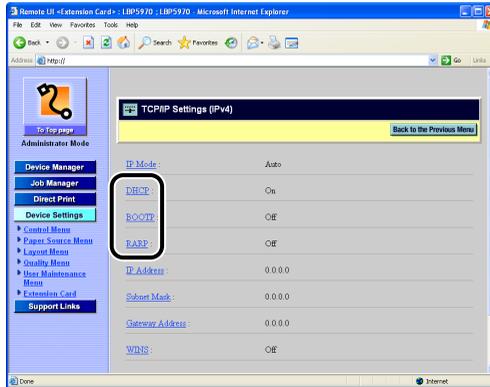


- Confirmation messages are displayed twice. Click [OK] each time.

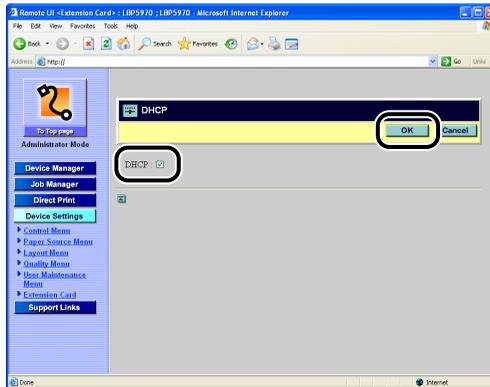
6 Specify the IP address.

● If you selected [Auto] in Step 5

- Click [DHCP], [BOOTP], or [RARP].



- Select the check box, then click [OK].



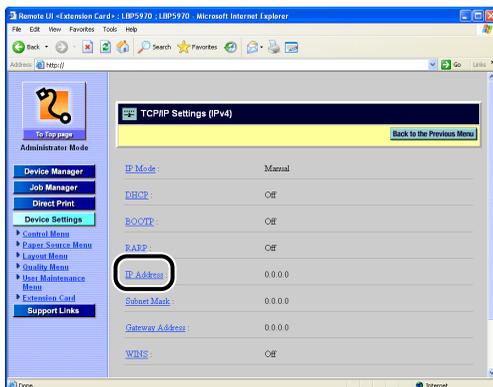
NOTE

- You can select only one from DHCP, BOOTP, and RARP.
- To assign the IP address using DHCP, RARP, or BOOTP, the server (or daemon) for respective protocols needs to be running on the network. For example, if you want to use DHCP, you need the DHCP server (or daemon).
- Because it takes approximately two minutes to check whether DHCP, BOOTP, and RARP are available, it is recommended that you do not select the check box(es) for the unused protocol(s).
- If you specify the setting so that the IP address is automatically assigned to NB-W2 by the functions of the DHCP server, the printer may not be able to print after you cycle the power of the printer. This is because a different IP address from the one that has been used is assigned.
If you want to use the functions of the DHCP server, consult your network administrator and perform either of the following settings.

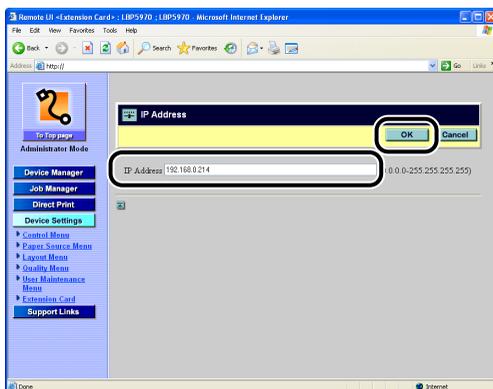
- Specifying the DNS Dynamic Update function (See Network Guide)
 - Specifying the settings so that the same IP address is always assigned when the printer starts up (Consult your network administrator)
- Confirmation messages are displayed twice. Click [OK] each time.

● If you selected [Manual] in Step 5

- Click [IP Address].



- Enter [IP Address], then click [OK].



- Confirmation messages are displayed twice. Click [OK] each time.

The IP address setting is now completed.

If you want to specify the network settings other than the IP address setting, perform the following settings.

- Network Settings (See p. 3-17)

If you do not want to specify the network settings other than the IP address setting, perform the following settings.

- Security Settings for the Access Point and Computer (See p. 3-20)

Settings Using the Printer's Control Panel



IMPORTANT

- When you want to go back up the hierarchy, press [▲].
- For details on the procedures for setting the control panel, see "User's Guide" (PDF manual) supplied with the printer.

1 Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].

2 Select EXTENSION CARD using [◀] and [▶], then press [OK].

3 Select NB-W2 using [◀] and [▶], then press [OK].

4 Select TCP/IP (IP V.4) using [◀] and [▶], then press [OK].

5 Select IP MODE using [◀] and [▶], then press [OK].

6 Select the method for setting the IP address.

● If you want to specify the IP address using DHCP, BOOTP, or RARP

Select AUTO using [◀] and [▶], then press [OK].

● If you want to assign the IP address directly

Select MANUAL using [◀] and [▶], then press [OK].

7 Specify the IP address of the printer.

● If you selected AUTO in Step 6

Select DHCP, BOOTP, or RARP using [◀] and [▶], then press [OK].

Select ON using [◀] and [▶], then press [OK].



NOTE

- You can select only one from DHCP, BOOTP, and RARP.

- To assign the IP address using DHCP, RARP, or BOOTP, the server (or daemon) for respective protocols needs to be running on the network. For example, if you want to use DHCP, you need the DHCP server (or daemon).
- Because it takes approximately two minutes to check whether DHCP, BOOTP, and RARP are available, it is recommended that you set the unused protocol(s) to OFF.
- If you specify the setting so that the IP address is automatically assigned to NB-W2 by the functions of the DHCP server, the printer may not be able to print after you cycle the power of the printer. This is because a different IP address from the one that has been used is assigned.
If you want to use the functions of the DHCP server, consult your network administrator and perform either of the following settings.
 - Specifying the DNS Dynamic Update function (See Network Guide)
 - Specifying the settings so that the same IP address is always assigned when the printer starts up (Consult your network administrator)

● If you selected **MANUAL** in Step 6

- Select IP ADDRESS using [◀] and [▶], then press [OK].
- Enter the IP address, then press [OK].



NOTE

To enter IP ADDRESS, press [◀] or [▶] to move the cursor to each field (an area separated by periods to enter three-digit numbers) in which you want to enter respective values of the address. The numbers in the field blinks, allowing you to enter the value. Pressing [▲] increases the value and [▼] decreases the value. After entering values in all the fields, press [OK] to confirm the setting.

The IP address setting is now completed.

If you want to specify the settings for IP v. 6, perform the following settings.

- Settings for Using IP v. 6 (See p. 3-10)

If you want to specify the network settings other than the IP address setting, perform the following settings.

- Network Settings (See p. 3-17)

If you do not want to specify the settings for IP v. 6 or the network settings other than the IP address setting, perform the following settings.

- Security Settings for the Access Point and Computer (See p. 3-20)
-

Settings for Using IP v. 6

This section describes the procedure for setting TCP/IP v. 6. Specify the settings for TCP/IP v. 6 using the Remote UI or printer's control panel after specifying the settings for TCP/IP v. 4.

IMPORTANT

- You cannot use only the IP v. 6 functions without using the IP v. 4 functions.
- To use the IP v. 6 functions, you need an access point that supports IP v. 6.
- IPsec encryption (Security Architecture for Internet Protocol) is not supported.

NOTE

- If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].
- INTERFACE MENU → EXTENSION CARD → NB-W2 → TCP/IP (IP V.6)
The settings for IP v. 6 are displayed. Specify each setting.
However, you cannot enter an address from the printer's control panel. Enter it from the Remote UI.
- You can register up to seven IP v. 6 addresses in NB-W2. IP v. 6 communication allows you to use multiple IP v. 6 addresses simultaneously.

■ IP v. 6 Address Categories

Type	Registrable Number	Overview
Link-Local Address	1	A link-local address is automatically set with a combination of the specific prefix "fe80::" (information which indicates the network to which NB-W2 belongs) and the interface identifier created from the MAC address of NB-W2. Because this address is valid only within the same prefix, it cannot traverse the router. One link-local address is specified for NB-W2 whenever the IP v. 6 is being used.
Manual Address	0 to 1	This is an address that you can enter manually. By specifying the IP address manually, you can specify the prefix length and the default router address.

Type	Registrable Number	Overview
Stateless Address	0 to 6	A stateless address is automatically set with a combination of the prefix included in RA (Router Advertisement) sent by the router and the MAC address of NB-W2.
Stateful Address	0 to 1	You can obtain a stateful address from the DHCP server using DHCP v. 6.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

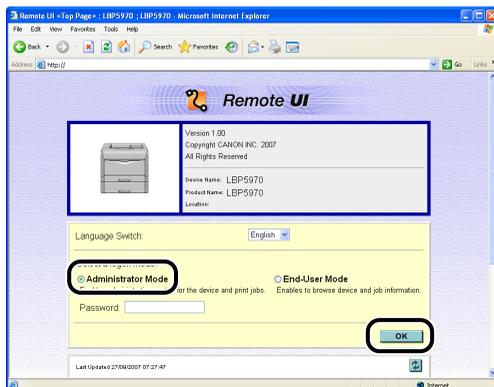
http://<the IP address or name of the printer (standard network or NB-W2)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

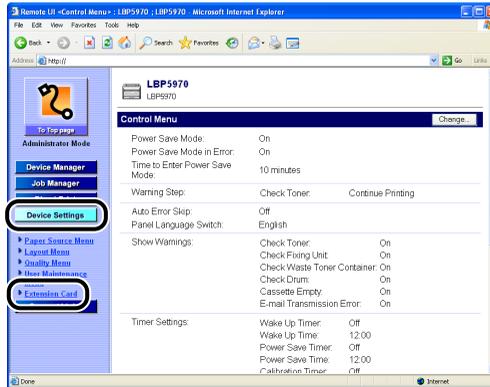
2 Select [Administrator Mode], then click [OK].



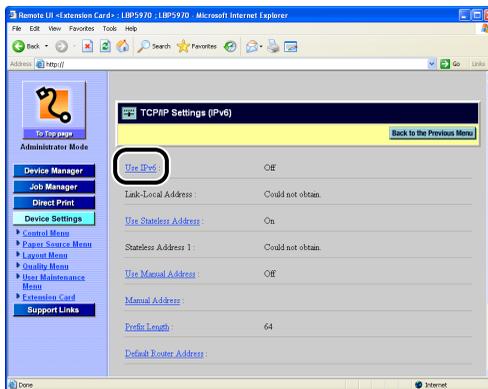
 **NOTE**

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

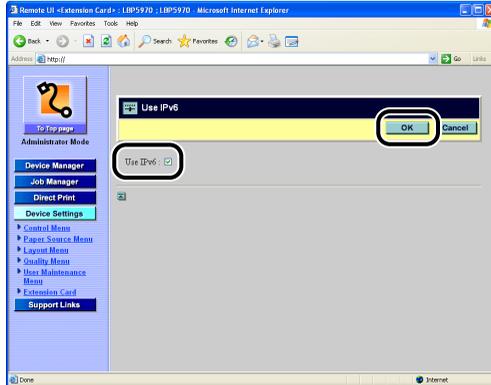
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [TCP/IP Settings (IPv6)] → [Use IPv6].



5 Select the [Use IPv6] check box, then click [OK].



6 Confirmation messages are displayed twice. Click [OK] each time.

7 Specify the stateless address.

If you do not want to use a stateless address, proceed to Step 8.

- Click [Use Stateless Address].
- Select the [Use Stateless Address] check box, then click [OK].



- Confirmation messages are displayed twice. Click [OK] each time.



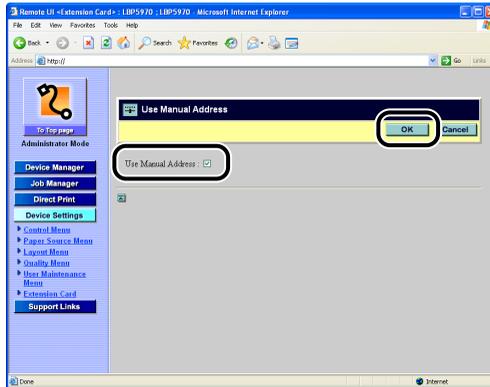
NOTE

The stateless address will be discarded when you restart this product (when you turn the printer ON).

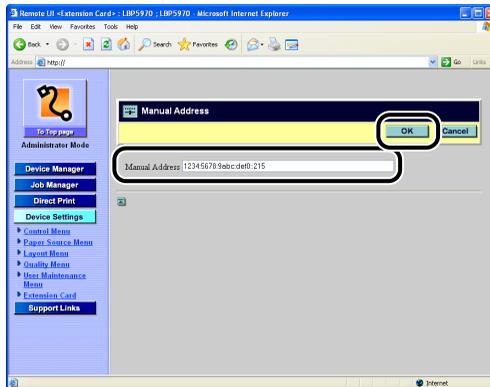
8 If you want to use a manual address, specify the following settings.

If you do not want to use a manual address, proceed to Step 9.

- Click [Use Manual Address].
- Select the [Use Manual Address] check box, then click [OK].

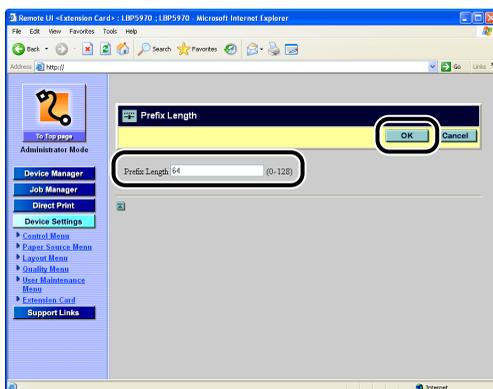


- Confirmation messages are displayed twice. Click [OK] each time.
- Click [Manual Address].
- Enter [Manual Address], then click [OK].



- Confirmation messages are displayed twice. Click [OK] each time.
- Click [Prefix Length].

- ❑ Enter [Prefix Length], then click [OK].



- ❑ Confirmation messages are displayed twice. Click [OK] each time.
- ❑ If required, click [Default Router Address], enter [Default Router Address], and then click [OK].
- ❑ Confirmation messages are displayed twice. Click [OK] each time.



IMPORTANT

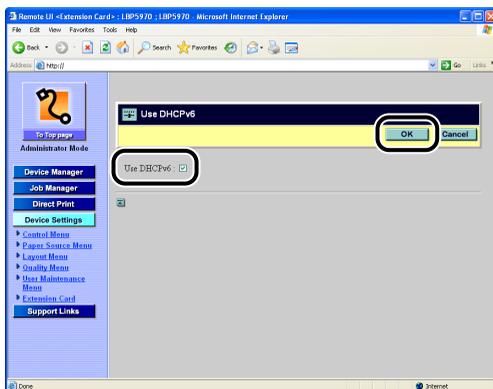
You cannot enter the following kinds of addresses in [Manual Address] and [Default Router Address].

- Multicast address (an address which starts with "ff")
- An address which consists of all zeros

9 Specify DHCP v. 6.

If you do not want to use a stateful address, proceed to Step 10.

- ❑ Click [Use DHCPv6].
- ❑ Select the [Use DHCPv6] check box, then click [OK].



- ❑ Confirmation messages are displayed twice. Click [OK] each time.

10 The settings for IP v. 6 is completed.

If you want to specify other network settings, perform the following settings.

- Network Settings (See p. 3-17)

If you do not want to specify other network settings, perform the following settings.

- Security Settings for the Access Point and Computer (See p. 3-20)
-

Network Settings

NB-W2 allows you to specify the following network settings, other than the settings specified in "IP Address Setting (IP v. 4)," on p. 3-2. Specify the settings using the Remote UI or the printer's control panel as needed. For more details on the settings, see "Network Guide" (PDF manual) supplied with the printer.

NOTE

- After specifying the settings, you need to perform a hard reset or cycle the power of the printer. After performing a hard reset or restarting the printer, the settings are effective.
- The setting value specified in the standard network is reflected for the settings (such as the settings for SMB and SNMP) that are not described in this section. For details on the procedure for setting the standard network, see the manuals supplied with the printer.

■ Options related to TCP/IP (IP v. 4)

- * Specify the settings in "TCP/IP Settings (IPv4)" ("Extension Card" → "NB-W2" → "Wireless LAN Settings" (select only in the Remote UI) → "TCP/IP Settings (IPv4)").

Option	Setting
[Subnet Mask]	Enter the subnet mask.
[Gateway Address]	Enter the gateway address.
[WINS]	Specify if you want to use WINS.
[WINS Server Address]	Enter the IP address of the WINS server.

■ Options related to DNS (IP v. 4)

- * Specify the settings in "DNS Settings (IPv4)" ("Extension Card" → "NB-W2" → "Wireless LAN Settings" (select only in the Remote UI) → "DNS Settings (IPv4)").

Option	Setting
[Primary DNS Server Address]	Enter the IP address of the primary DNS server.
[Secondary DNS Server Address]	Enter the IP address of the secondary DNS server.
[DNS Host Name]	Specify the host name to be added to the DNS server.
[DNS Domain Name]	Enter the name of the domain to which the printer belongs.
[Dynamic DNS]	Specify if you want to use the Dynamic DNS function.

■ Options related to DNS (IP v. 6)

* Specify the settings in "DNS Settings (IPv6)" ("Extension Card" → "NB-W2" → "Wireless LAN Settings" (select only in the Remote UI) → "DNS Settings (IPv6)").

Option	Setting
[Primary DNS Server Address]	Enter the IP address of the primary DNS server.
[Secondary DNS Server Address]	Enter the IP address of the secondary DNS server.
[Use IPv4 Host/Domain Name]	Specify if you want to use the same name as the one for IP v. 4.
[DNS Host Name]	Specify the host name to be added to the DNS server.
[DNS Domain Name]	Enter the name of the domain to which NB-W2 belongs.
[Dynamic DNS]	Specify if you want to use the Dynamic DNS function.
[Register Stateless Address]	Register the stateless address in the DNS server.
[Register Manual Address]	Register the manual address in the DNS server.
[Register Stateful Address]	Register the stateful address in the DNS server.

■ Options related to NetWare

* Specify the settings in "NetWare Settings" ("Extension Card" → "NB-W2" → "Wireless LAN Settings" (select only in the Remote UI) → "NetWare Settings").

Option	Setting
[NetWare]	Specify whether to use NetWare.
[Frame Type]	Specify the frame type being used in your system environment.

■ Options related to AppleTalk

* Specify the settings in "AppleTalk Settings" ("Extension Card" → "NB-W2" → "Wireless LAN Settings" (select only in the Remote UI) → "AppleTalk Settings").

Option	Setting
[AppleTalk]	Specify whether to make the printer detected on the AppleTalk network.
[Service Name]	Enter the printer name. The name specified in this option is displayed on Chooser or the printer list of Macintosh.

Option	Setting
[Zone]	If any zones are set up on the network, enter the zone name.

■ **Other options**

- * Specify the settings in "Startup Time Settings" ("Extension Card" → "NB-W2" → "Wireless LAN Settings" (select only in the Remote UI) → "Startup Time Settings").

Option	Setting
[Startup Waiting Time(Sec.)]	Specify the time from when the printer is turned ON to when the protocol starts.

After completing the network settings, specify the following settings next.

- Security Settings for the Access Point and Computer (See p. 3-20)
-

Security Settings for the Access Point and Computer

After completing the network settings for NB-W2, specify the security settings for the access point to be used and your computer.

■ Security settings for the access point

If you have not specified the security settings for the access point yet, specify the security settings.

When doing so, refer to the following sections because you need to specify the same security settings as those for NB-W2.

- Security Settings (General Network Environment: Not Using an Authentication Server) (See p. 3-27)
- Security Settings (Enterprise Environment: Using an Authentication Server) (See p. 3-47)

NOTE

For details on the security settings for the access point, see the instruction manual supplied with the access point.

■ Security settings for the computer

If you have not specified the security settings for the wireless LAN adapter in the computer that performs printing yet, specify the security settings.

NOTE

- For details on the security settings for the wireless LAN adapter, see the instruction manual supplied with your operating system or the wireless LAN adapter as well as its Help.
- If your access point and computer are connected by a LAN cable, you do not need to specify the settings.

After completing the security settings for the access point and computer, specify the following settings next.

- SSID Settings (See p. 3-21)
-

SSID Settings

Specify the settings for SSID using the following procedures. Use the Remote UI or printer's control panel.

There are the following two ways to specify the settings for SSID.

■ Detecting and selecting the access point

NB-W2 has the function to detect access points.

Specify the settings for SSID by selecting the detected access point.

IMPORTANT

If you select an access point, the following options are specified automatically.

- [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security]*
- [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Encryption for WPA/WPA2] (only if WPA/WPA2 is selected)

* If you select an access point in which [WEP] is displayed for its security mode, [Security] is set to [WEP].
If you want to use 802.1X/EAP + WEP (Dynamic WEP), set [Security] to [802.1X/EAP + WEP]. (See "802.1X/EAP + WEP Settings," on p. 3-47)

■ Specifying SSID by entering it manually

If the access point is not detected, enter the SSID of the access point manually.

NOTE

If the access point is set to "Any Rejection" or "Stealth Mode", it cannot be detected. For this kind of access point, specify its SSID by entering it manually.

Settings Using the Remote UI

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

- 1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

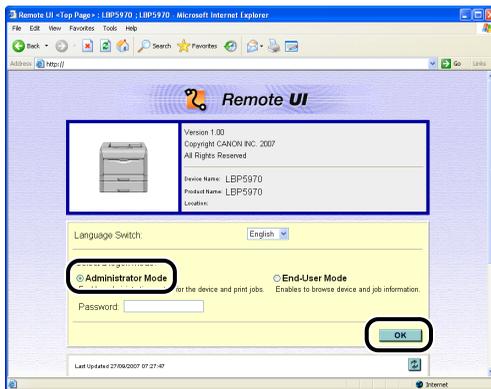
http://<the IP address or name of the printer (standard network or NB-W2)>/
Input Example: http://192.168.0.215/



NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

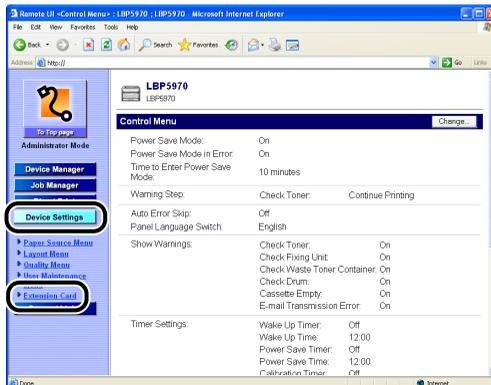
- 2 Select [Administrator Mode], then click [OK].



NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

- 3 Click [Device Settings] on the left, then click [Extension Card].

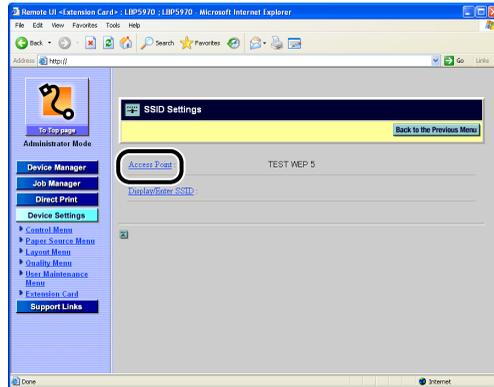


4 Specify the settings for SSID.

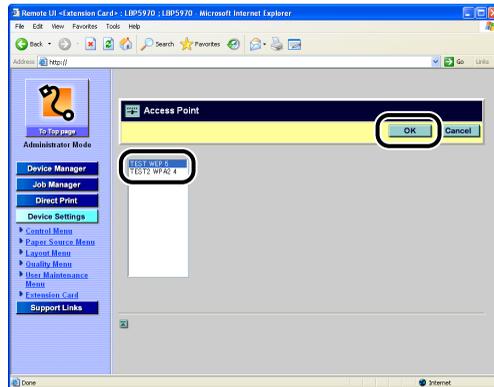
- If you want to detect and select the access point (See p. 3-23)
- If you want to specify SSID by entering it manually (See p. 3-24)

● If you want to detect and select the access point

- Click [NB-W2] → [Wireless LAN Settings] → [SSID Settings] → [Access Point].



- Select the SSID of the access point to communicate, then click [OK].



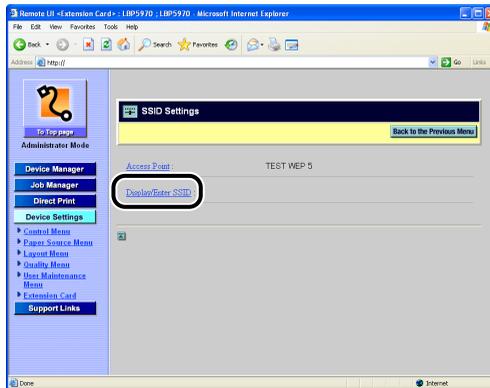
NOTE

- SSIDs may not be able to be detected if you are using NB-W2 with the following access point or in the following communication environment.
 - An access point other than an IEEE 802.11b/IEEE 802.11g access point is being used.
 - NB-W2 is far away from the access point.
 - A wall or partition exists between NB-W2 and the access point.
 - Radio interference (from a microwave oven, amateur radio stations, etc.) is present.
- The value for SSID is displayed as "'SSID' 'security mode' 'signal strength'".
Example: SAMPLE WPA 1

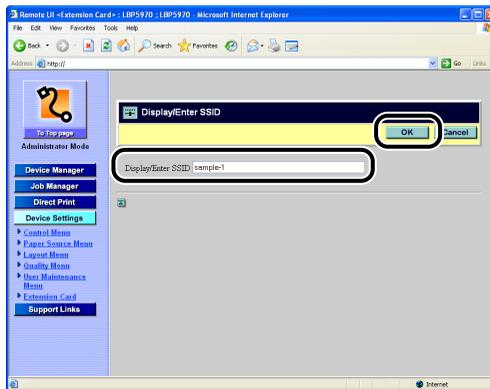
- Up to 10 SSIDs are displayed. If the number of the detected SSIDs exceeds 10, the 10 SSIDs with the greatest signal strength are displayed, in order of signal strength.
 - Up to 21 characters for SSID are displayed. If the number of the characters exceeds 21, the first 21 characters are displayed.
 - Undisplayable characters are displayed as "." (period).
- Confirmation messages are displayed twice. Click [OK] each time.

● **If you want to specify SSID by entering it manually**

- Click [NB-W2] → [Wireless LAN Settings] → [SSID Settings] → [Display/Enter SSID].



- Enter the SSID of the access point to communicate, then click [OK].



NOTE

You can enter up to 32 characters for SSID.

- Confirmation messages are displayed twice. Click [OK] each time.

After completing the SSID settings, specify any one of the following settings next.

- Security Settings (General Network Environment: Not Using an Authentication Server) (See p. 3-27)
 - Security Settings (Enterprise Environment: Using an Authentication Server) (See p. 3-47)
-

Settings Using the Printer's Control Panel

- 1** Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].
- 2** Select EXTENSION CARD using [◀] and [▶], then press [OK].
- 3** Select NB-W2 using [◀] and [▶], then press [OK].
- 4** Select SSID SETTINGS using [◀] and [▶], then press [OK].
- 5** Specify the settings for SSID.

- **If you want to detect and select the access point**

- Select ACCESS POINT using [◀] and [▶], then press [OK].
- Select SSID using [◀] and [▶], then press [OK].



NOTE

- SSIDs may not be able to be detected if you are using NB-W2 with the following access point or in the following communication environment.
 - An access point other than an IEEE 802.11b/IEEE 802.11g access point is being used.
 - NB-W2 is far away from the access point.
 - A wall or partition exists between NB-W2 and the access point.
 - Radio interference (from a microwave oven, amateur radio stations, etc.) is present.
- The value for SSID is displayed as "'SSID' 'security mode' 'signal strength'".
Example: SAMPLE PSK 1
- Up to 10 SSIDs are displayed. If the number of the detected SSIDs exceeds 10, the 10 SSIDs with the greatest signal strength are displayed, in order of signal strength.
- Up to 9 characters for SSID are displayed. If the number of the characters exceeds 9, the first 9 characters are displayed.

- Undisplayable characters are displayed as "." (period).

● **If you want to specify SSID by entering it manually**

- Select DISPLAY/ENTER using [◀] and [▶], then press [OK].
- Move the cursor using [◀] and [▶] and enter the SSID of the access point to communicate using [▲] and [▼], and then press [OK].



NOTE

You can enter up to 32 characters for SSID.

After completing the network settings, specify any one of the following settings next.

- Security Settings (General Network Environment: Not Using an Authentication Server) (See p. 3-27)
 - Security Settings (Enterprise Environment: Using an Authentication Server) (See p. 3-47)
-

Security Settings

(General Network Environment: Not Using an Authentication Server)

This section describes the procedures for the security settings for using NB-W2 in a small network environment such as a SOHO environment.

NOTE

If you want to perform 802.1X authentication using a RADIUS authentication server, see "Security Settings (Enterprise Environment: Using an Authentication Server)," on p. 3-47.

Security Mode Types

NOTE

For details on the security modes which perform 802.1X authentication (such as 802.1X/EAP + WEP and WPA/WPA2 + 802.1X/EAP), see "Security Settings (Enterprise Environment: Using an Authentication Server)," on p. 3-47.

■ WEP (Static WEP)

WEP is encryption technology which is generally used for wireless LANs. Because WEP allows you to encrypt data sent from an access point, the data content is difficult to decode even if the data is intercepted by a third party.

Also, because an encryption key is specified for both the access point and the computer, unauthorized access by a third party who does not know the encryption key can be prevented. However, because the WEP encryption key is fixed, there is a possibility that it will be decoded.

If you want to use an access point for which WEP is specified, specify the settings for the printer according to those for the access point.

For details on the setting procedure, see "WEP Settings," on p. 3-28.

■ WPA/WPA2 + PSK

WPA and WPA2 are encryption technologies that address the weaknesses of WEP for increased security.

Because the WEP encryption key is fixed, there is a possibility that it will be decoded. However, WPA has a function to update the encryption key automatically. Also, it allows the access point to have the user authentication function.

NB-W2 supports "WPA-PSK" as an authentication method.

"WPA-PSK" is an authentication method for using WPA in the environment where no authentication server exists. It is generally used in a small network environment such as a SOHO environment.

For details on the setting procedure, see "WPA/WPA2 + PSK Settings," on p. 3-37.

WEP Settings

To use WEP, specify the following settings.

Setting Procedure

Selecting the security mode	Set "Security" to "WEP". * If the access point is detected and specified in "SSID Settings" (See p. 3-21), this setting is not necessary, because the setting for "Security" is specified automatically.
Entering the WEP key	Up to 4 WEP keys can be entered.
Selecting the WEP key	Select any one of the entered WEP keys.
Selecting the authentication mode	Select the authentication mode according to the access point.
Saving the settings	Save the settings. Whether the specified settings have any problems is checked also.

Settings Using the Remote UI

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

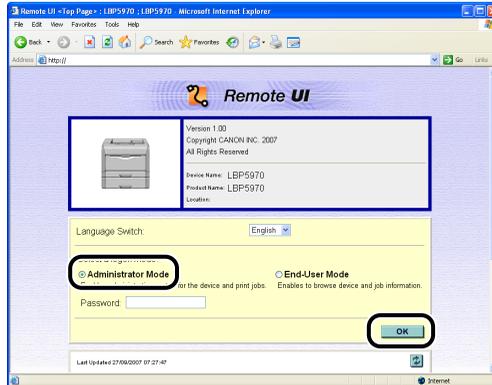
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

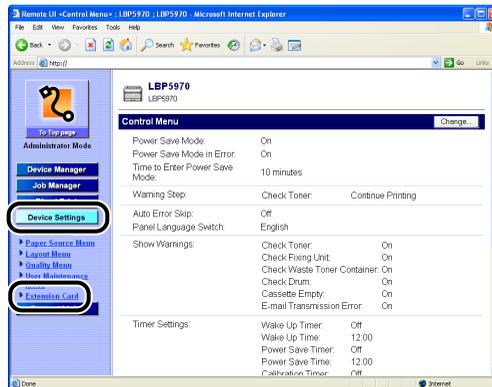
2 Select [Administrator Mode], then click [OK].



NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

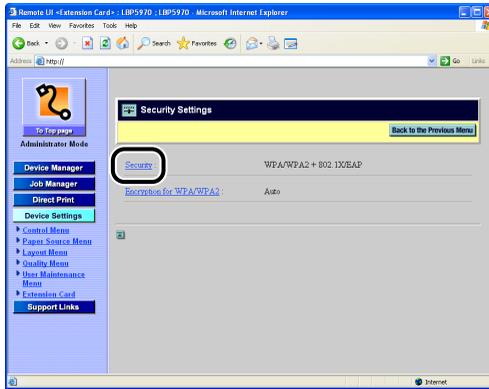
3 Click [Device Settings] on the left, then click [Extension Card].



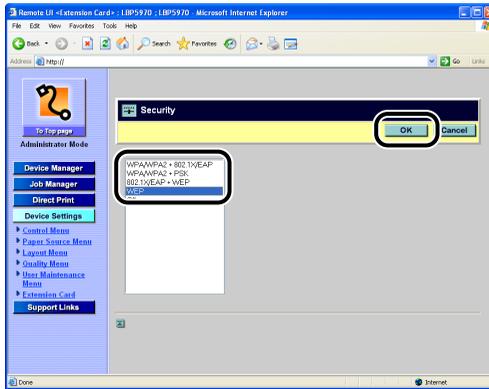
3

Settings for NB-W2

- 4** Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].



- 5** Select [WEP], then click [OK].

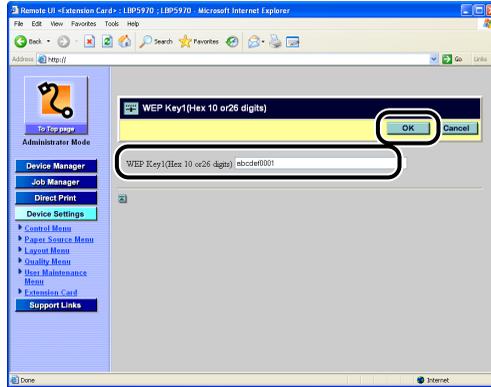


- 6** Confirmation messages are displayed twice. Click [OK] each time.

- 7** Click [Back to the Previous Menu].

10 Enter the WEP key, then click [OK].

Enter a WEP key using a hexadecimal number, which consists of numbers (0 to 9), alphabets ("A" to "F" or "a" to "f"), and delimiters ("hyphen", "space", or "colon").

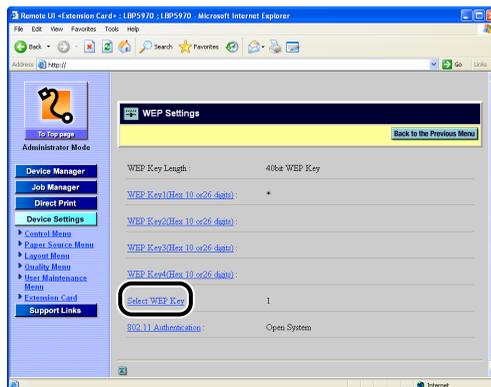


NOTE

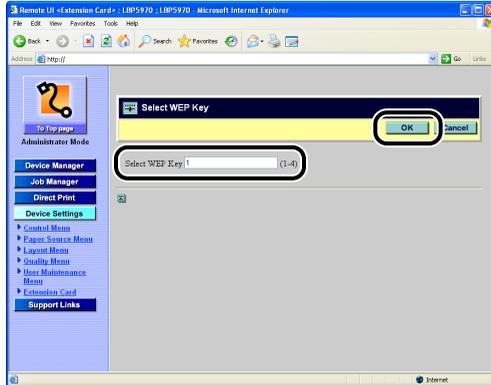
- If a WEP key is entered already, "*" (for a 40-bit WEP key) or "*" (for a 104-bit WEP key) is displayed.
- Enter the following number of digits for WEP keys.
 - For a 40-bit WEP key: 10 characters
 - For a 104-bit WEP key: 26 characters
- You can enter a delimiter after every two digits (Delimiters are not counted as digits.).

11 Confirmation messages are displayed twice. Click [OK] each time.

12 Click [Select WEP Key].

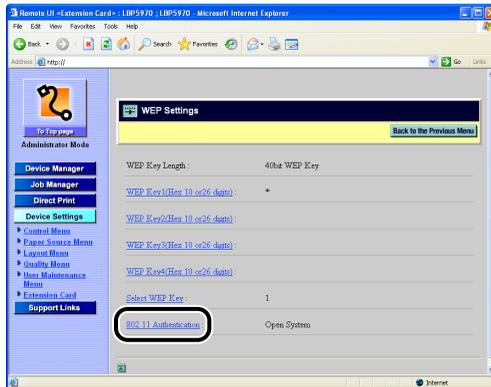


13 Enter the number for the WEP key to be used, then click [OK].

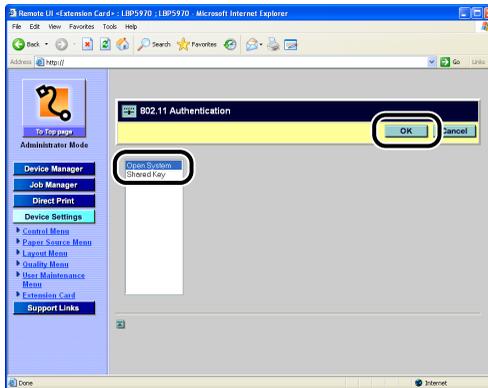


14 Confirmation messages are displayed twice. Click [OK] each time.

15 Click [802.11 Authentication].



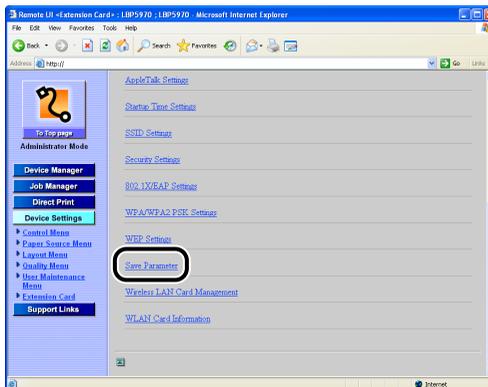
- 16** Select the authentication mode appropriate to the access point, then click [OK].



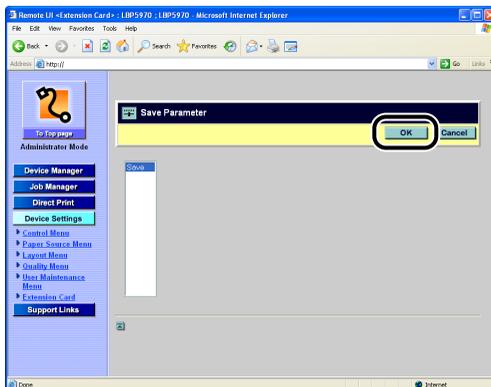
- 17** Confirmation messages are displayed twice. Click [OK] each time.

- 18** Click [Back to the Previous Menu].

- 19** Click [Save Parameter].



20 Click [OK].



21 Confirmation messages are displayed twice. Click [OK] each time.

After completing the WEP settings, specify the following settings next.

- Switching the Network to Be Used (Switching between Standard Network and NB-W2) (See p. 3-103)
-

Settings Using the Printer's Control Panel

- 1** Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].
- 2** Select EXTENSION CARD using [◀] and [▶], then press [OK].
- 3** Select NB-W2 using [◀] and [▶], then press [OK].
- 4** Select SECURITY SET. using [◀] and [▶], then press [OK].
- 5** Select SECURITY using [◀] and [▶], then press [OK].
- 6** Select WEP using [◀] and [▶], then press [OK].
- 7** Press [▲] once.
- 8** Select WEP SETTINGS using [◀] and [▶], then press [OK].
- 9** Select any WEP KEY N (N = 1, 2, 3, 4) using [◀] and [▶], then press [OK].

Up to 4 WEP keys can be specified. One of the specified WEP keys is to be selected in Step 11.

- 10** Move the cursor using [◀] and [▶] and enter the WEP key using [▲] and [▼], and then press [OK].

Enter a WEP key using a hexadecimal number, which consists of numbers (0 to 9), alphabets ("A" to "F" or "a" to "f"), and delimiters ("hyphen", "space", or "colon").



NOTE

- If a WEP key is entered already, "" (for a 40-bit WEP key) or "" (for a 104-bit WEP key) is displayed.
- Enter the following number of digits for WEP keys.
 - For a 40-bit WEP key: 10 characters
 - For a 104-bit WEP key: 26 characters
- You can enter a delimiter after every two digits (Delimiters are not counted as digits.).

- 11** Select SELECT WEP KEY using [◀] and [▶], then press [OK].
- 12** Select the number for the WEP key to be used using [◀] and [▶], then press [OK].
- 13** Select 802.11 AUTHENT. using [◀] and [▶], then press [OK].
- 14** Select the authentication mode appropriate to the access point using [◀] and [▶], then press [OK].
- 15** Press [▲] once.
- 16** Select SAVE PARAMETER using [◀] and [▶], then press [OK].
- 17** Press [OK].

After completing the WEP settings, specify the following settings next.

- Switching the Network to Be Used (Switching between Standard Network and NB-W2) (See p. 3-103)
-

WPA/WPA2 + PSK Settings

To use WPA/WPA2 + PSK, specify the following settings.

Setting Procedure

Selecting the security mode	Set "Security" to "WPA/WPA2 + PSK". * If the access point is detected and specified in "SSID Settings" (See p. 3-21), this setting is not necessary, because the setting for "Security" is specified automatically.
Selecting the encryption method	Select the encryption method for WPA/WPA2.
Entering Pre-Shared Key	Enter the passphrase in ASCII format or the key in hexadecimal format.
Saving the settings	Save the settings. Whether the specified settings have any problems is checked also.

Settings Using the Remote UI

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

http://<the IP address or name of the printer (standard network)>/

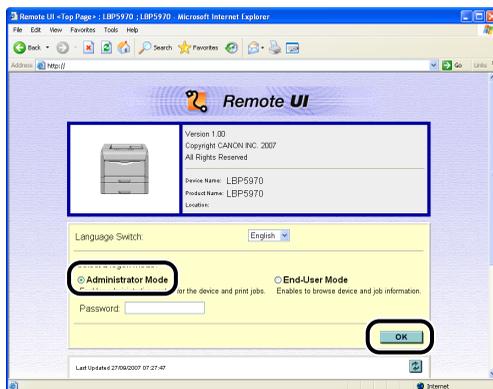
Input Example: http://192.168.0.215/



NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

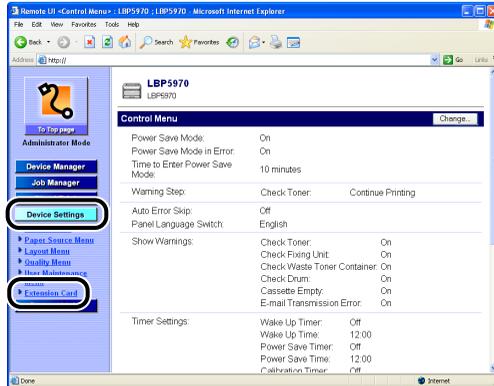
2 Select [Administrator Mode], then click [OK].



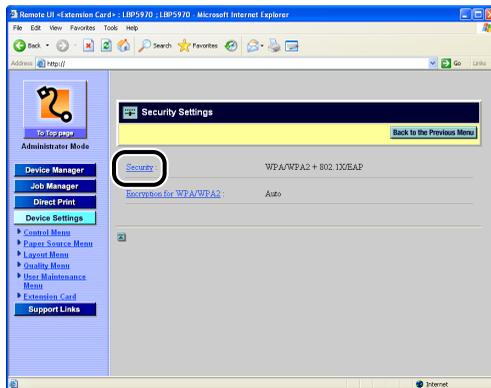
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

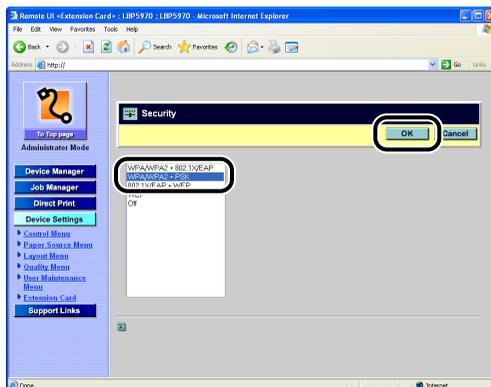
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].

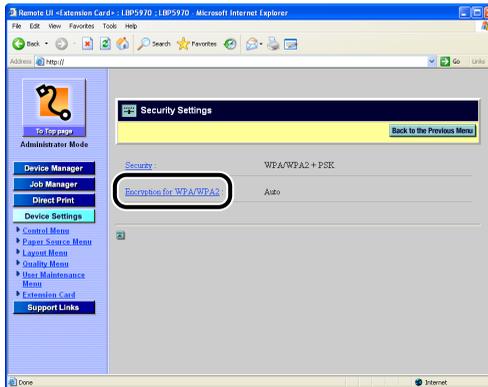


5 Select [WPA/WPA2 + PSK], then click [OK].



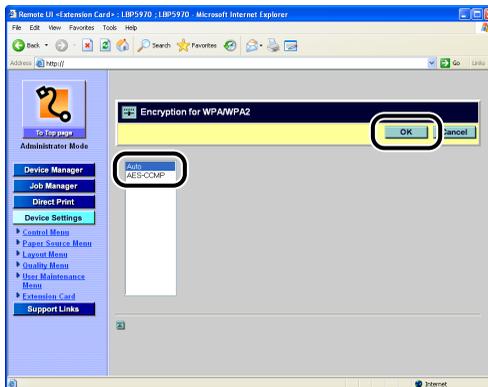
6 Confirmation messages are displayed twice. Click [OK] each time.

7 Click [Encryption for WPA/WPA2].



8 Select the encryption method, then click [OK].

Select the encryption method according to the specifications of the access point. If [Auto] is specified, both AES-CCMP and TKIP are supported.



9 Confirmation messages are displayed twice. Click [OK] each time.

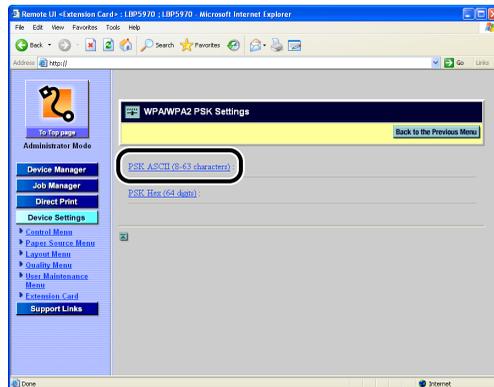
10 Click [Back to the Previous Menu].

11 Click [WPA/WPA2 PSK Settings].



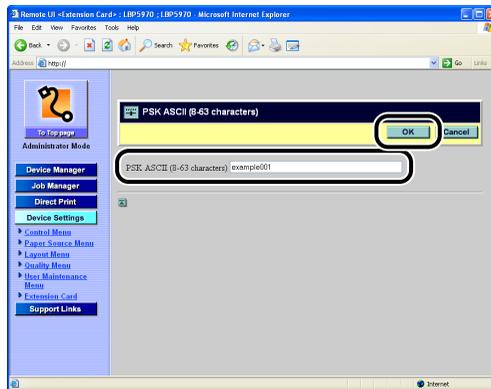
12 Enter the same PSK (Pre-Shared Key) as that for the access point.

- If you want to enter PSK in ASCII format
 - Click [PSK ASCII (8-63 characters)].



- ❑ Enter a character string of 8 to 63 characters, which consists of numbers (0 to 9), alphabets ("A" to "Z" or "a" to "z"), and the symbols in the following table, and then click [OK].

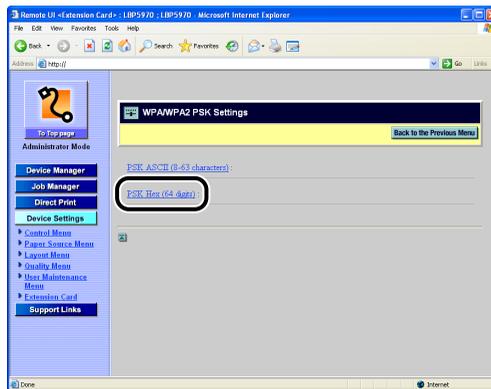
!	"	#	\$	%	&	'	(
)	*	+	,	-	.	/	:
;	<	=	>	?	@	[\
]	^	_	`	{		}	~



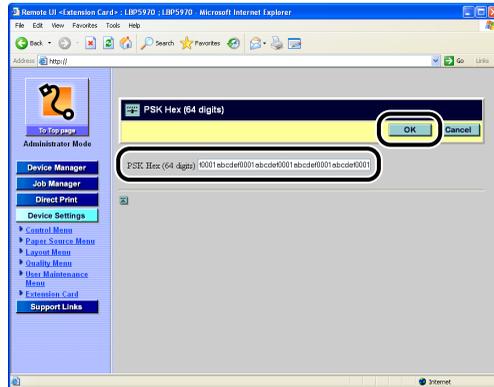
- ❑ Confirmation messages are displayed twice. Click [OK] each time.

● If you want to enter PSK in hexadecimal format

- ❑ Click [PSK Hex (64 digits)].



- ❑ Enter a hexadecimal number (64 digits), which consists of numbers (0 to 9) and alphabets ("A" to "F" or "a" to "f"), and then click [OK].



- ❑ Confirmation messages are displayed twice. Click [OK] each time.

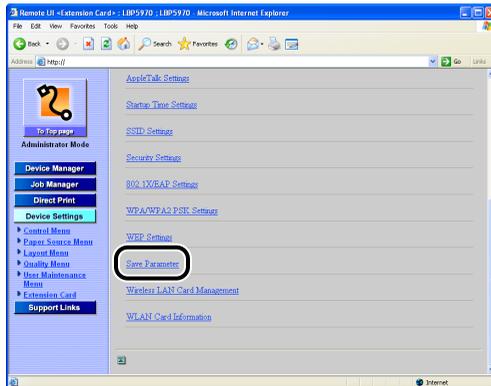


NOTE

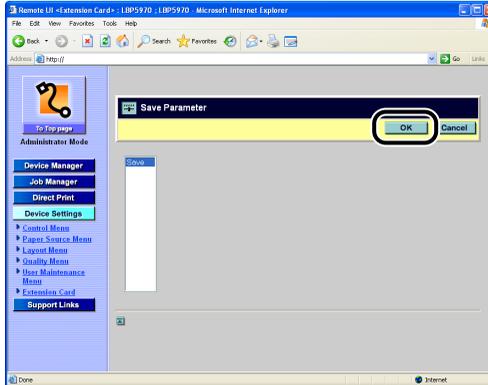
- If PSK is entered already, it is displayed as "*" (an asterisk).
- If you want to specify PSK in hexadecimal format, be sure to enter 64 digits. You cannot specify PSK using other than 64 digits.

13 Click [Back to the Previous Menu].

14 Click [Save Parameter].



15 Click [OK].



16 Confirmation messages are displayed twice. Click [OK] each time.

After completing the WPA/WPA2 + PSK settings, specify the following settings next.

- Switching the Network to Be Used (Switching between Standard Network and NB-W2) (See p. 3-103)
-

Settings Using the Printer's Control Panel

- 1** Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].
- 2** Select EXTENSION CARD using [◀] and [▶], then press [OK].
- 3** Select NB-W2 using [◀] and [▶], then press [OK].
- 4** Select SECURITY SET. using [◀] and [▶], then press [OK].
- 5** Select SECURITY using [◀] and [▶], then press [OK].
- 6** Select WPA/2 + PSK using [◀] and [▶], then press [OK].
- 7** Select WPA/2 ENCRYPT. using [◀] and [▶], then press [OK].
- 8** Select the encryption method using [◀] and [▶], then press [OK].

Select the encryption method according to the specifications of the access point. If AUTO is specified, both AES-CCMP and TKIP are supported.
- 9** Press [▲] once.
- 10** Select WPA/2 PSK SET. using [◀] and [▶], then press [OK].
- 11** Enter the same PSK (Pre-Shared Key) as that for the access point.
 - If you want to enter PSK in ASCII format
 - Select ASCII 8-63 CHAR using [◀] and [▶], then press [OK].

- Move the cursor using [◀] and [▶] and enter a character string of 8 to 63 characters, which consists of numbers (0 to 9), alphabets ("A" to "Z" or "a" to "z"), and the symbols in the following table, using [▲] and [▼].

!	"	#	\$	%	&	'	(
)	*	+	,	-	.	/	:
;	<	=	>	@	[\]
^	_	`	{		}	~	

- Press [OK].

● If you want to enter PSK in hexadecimal format

- Select HEX (64 DIGITS) using [◀] and [▶], then press [OK].
- Move the cursor using [◀] and [▶] and enter a hexadecimal number (64 digits), which consists of numbers (0 to 9) and alphabets ("A" to "F" or "a" to "f"), using [▲] and [▼].



NOTE

- If PSK is entered already, it is displayed as "***" (an asterisk).
 - If you want to specify PSK in hexadecimal format, be sure to enter 64 digits. You cannot specify PSK using other than 64 digits.
- Press [OK].

12 Press [▲] once.

13 Select SAVE PARAMETER using [◀] and [▶], then press [OK].

14 Press [OK].

After completing the WPA/WPA2 + PSK settings, specify the following settings next.

- Switching the Network to Be Used (Switching between Standard Network and NB-W2) (See p. 3-103)
-

Security Settings

(Enterprise Environment: Using an Authentication Server)

This section describes the procedures for the security settings for performing 802.1X authentication in an enterprise environment or another environment.

 **NOTE**

If you do not want to perform 802.1X authentication, see "Security Settings (General Network Environment: Not Using an Authentication Server)," on p. 3-27.

Security Mode Types

 **NOTE**

For details on the security modes which do not perform 802.1X authentication (such as Static WEP and WPA/WPA2 + PSK), see "Security Settings (General Network Environment: Not Using an Authentication Server)," on p. 3-27.

■ 802.1X/EAP + WEP

This security mode performs 802.1X authentication using a RADIUS authentication server.

This mode periodically updates the WEP key automatically to make it even harder to decode the WEP key.

For details on the setting procedure, see "802.1X/EAP + WEP Settings," on p. 3-47.

■ WPA/WPA2 + 802.1X/EAP

In this security mode, security can be further improved by combining WPA with 802.1X authentication for which a RADIUS authentication server is used.

For details on the setting procedure, see "WPA/WPA2 + 802.1X/EAP Settings," on p. 3-55.

802.1X/EAP + WEP Settings

To use 802.1X/EAP + WEP, specify the following settings.

Setting Procedure

Selecting the security mode	Set "Security" to "802.1X/EAP + WEP". * If the access point is detected and specified in "SSID Settings" (See p. 3-21), specify the setting here, because the setting for "Security" is set to "WEP".
Selecting the authentication method	Select PEAP/TTLS or TLS.

Specifying the settings for 802.1X authentication	Specify the settings required for authentication of PEAP, TTLS, or TLS.
Saving the settings	Save the settings. Whether the specified settings have any problems is checked also.

Settings Using the Remote UI

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

http://<the IP address or name of the printer (standard network)>/

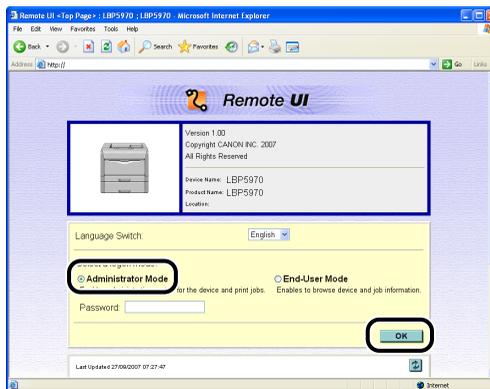
Input Example: http://192.168.0.215/



NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

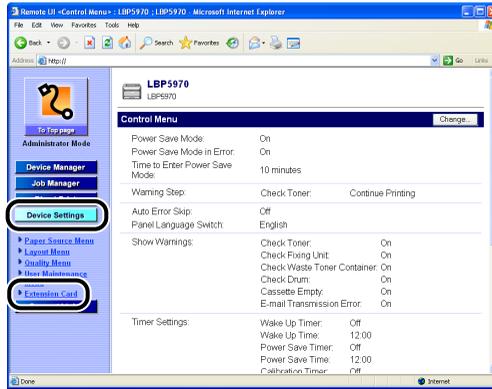
2 Select [Administrator Mode], then click [OK].



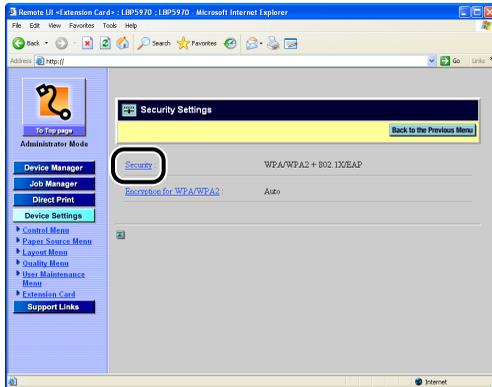
 **NOTE**

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

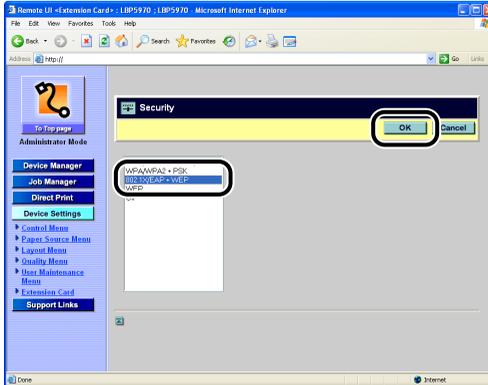
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].



5 Select [802.1X/EAP + WEP], then click [OK].



6 Confirmation messages are displayed twice. Click [OK] each time.

7 Click [Back to the Previous Menu].

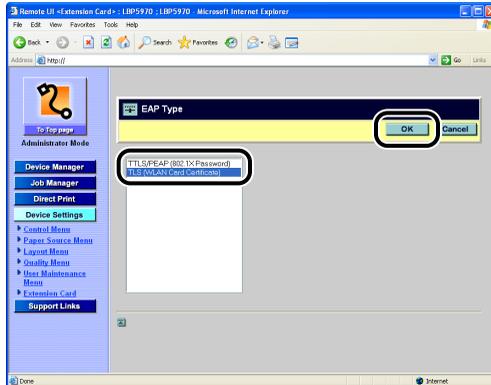
8 Click [802.1X/EAP Settings].



9 Click [EAP Type].



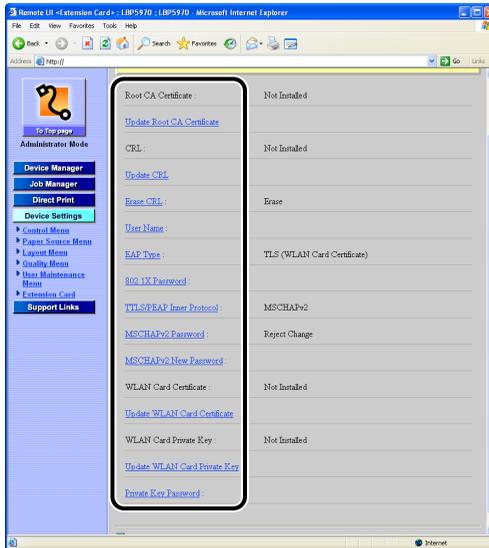
10 Select the EAP type to be used, then click [OK].



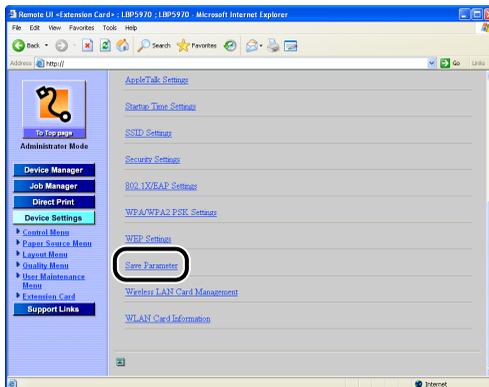
11 Confirmation messages are displayed twice. Click [OK] each time.

12 Specify the settings required for 802.1X authentication.

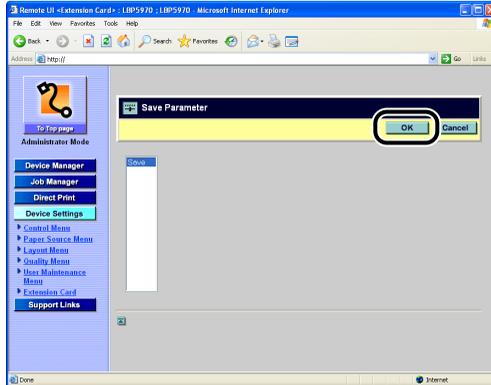
For details on the setting procedure, see "802.1X Authentication Settings," on p. 3-63.



13 Display the following screen, then click [Save Parameter].



14 Click [OK].



15 Confirmation messages are displayed twice. Click [OK] each time.

After completing the 802.1X/EAP + WEP settings, specify the following settings next.

- Switching the Network to Be Used (Switching between Standard Network and NB-W2) (See p. 3-103)
-

Settings Using the Printer's Control Panel

IMPORTANT

You cannot specify some of the "802.1X authentication" settings to be performed in Step 11 using the printer's control panel. Specify the settings from the Remote UI when you do so for the first time after installing NB-W2.

- 1** Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].
- 2** Select EXTENSION CARD using [◀] and [▶], then press [OK].
- 3** Select NB-W2 using [◀] and [▶], then press [OK].
- 4** Select SECURITY SET. using [◀] and [▶], then press [OK].

- 5** Select SECURITY using [◀] and [▶], then press [OK].
- 6** Select 802.1X + WEP using [◀] and [▶], then press [OK].
- 7** Press [▲] once.
- 8** Select 802.1X/EAP SET. using [◀] and [▶], then press [OK].
- 9** Select EAP TYPE using [◀] and [▶], then press [OK].
- 10** Select the EAP type to be used using [◀] and [▶], then press [OK].
- 11** Specify the settings required for 802.1X authentication.
For details on the setting procedure, see "802.1X Authentication Settings," on p. 3-63.
- 12** Display SAVE PARAMETER, then press [OK].
- 13** Press [OK].

After completing the 802.1X/EAP + WEP settings, specify the following settings next.

- Switching the Network to Be Used (Switching between Standard Network and NB-W2) (See p. 3-103)
-

WPA/WPA2 + 802.1X/EAP Settings

To use WPA/WPA2 + 802.1X/EAP, specify the following settings.

Setting Procedure

Selecting the security mode	Set "Security" to "WPA/WPA2 + 802.1X/EAP". * If the access point is detected and specified in "SSID Settings" (See p. 3-21), this setting is not necessary, because the setting for "Security" is specified automatically.
Selecting the encryption method	Select the encryption method for WPA/WPA2.
Selecting the authentication method	Select PEAP/TTLS or TLS.
Specifying the settings for 802.1X authentication	Specify the settings required for authentication of PEAP, TTLS, or TLS.
Saving the settings	Save the settings. Whether the specified settings have any problems is checked also.

Settings Using the Remote UI

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

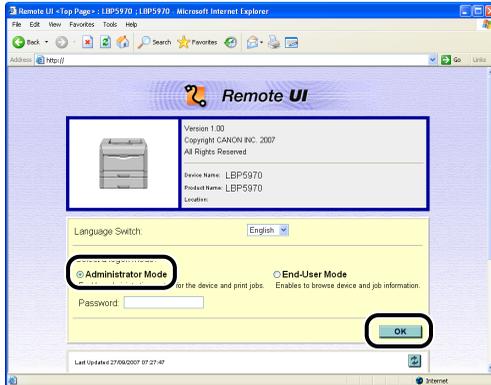
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

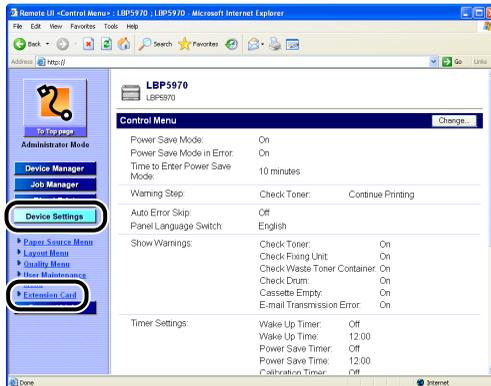
2 Select [Administrator Mode], then click [OK].



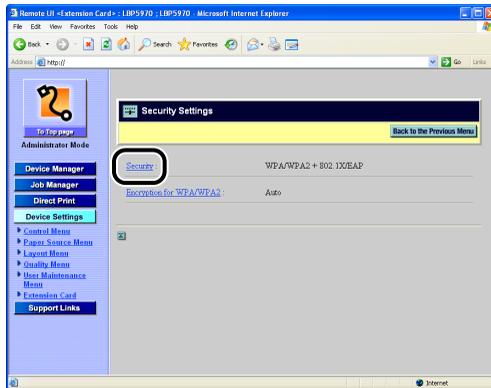
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

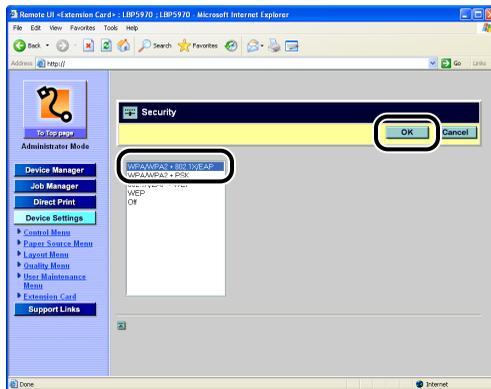
3 Click [Device Settings] on the left, then click [Extension Card].



- 4** Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].

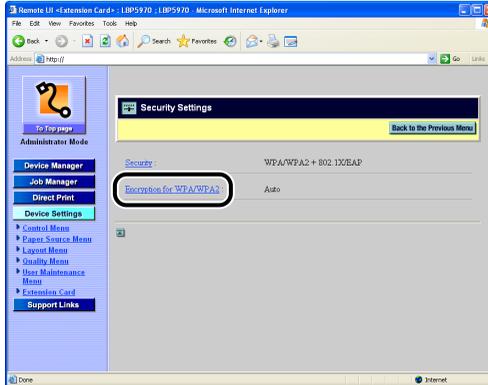


- 5** Select [WPA/WPA2 + 802.1X/EAP], then click [OK].



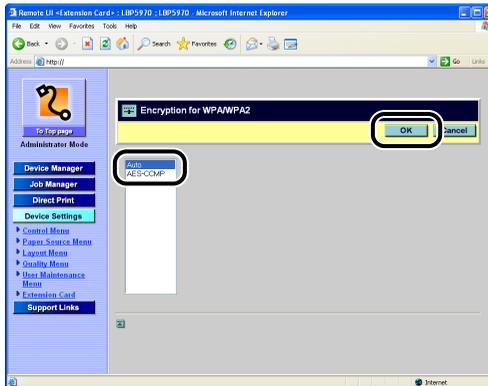
- 6** Confirmation messages are displayed twice. Click [OK] each time.

7 Click [Encryption for WPA/WPA2].



8 Select the encryption method, then click [OK].

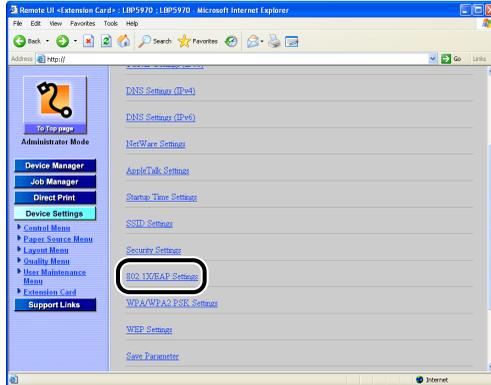
Select the encryption method according to the specifications of the access point. If [Auto] is specified, both AES-CCMP and TKIP are supported.



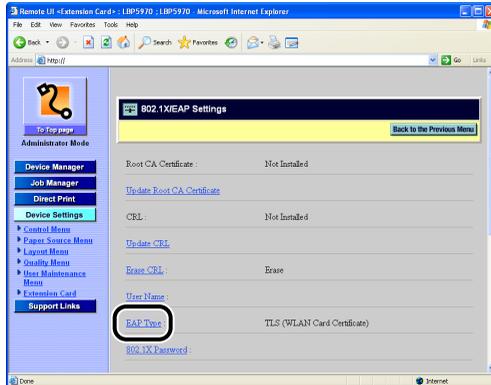
9 Confirmation messages are displayed twice. Click [OK] each time.

10 Click [Back to the Previous Menu].

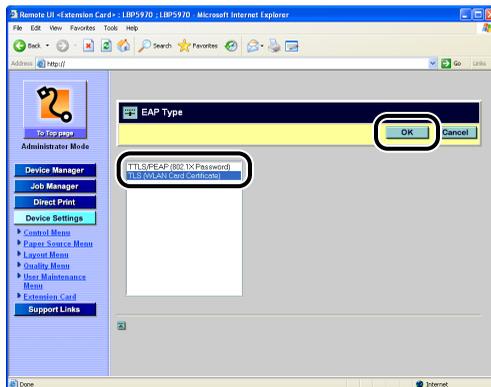
11 Click [802.1X/EAP Settings].



12 Click [EAP Type].



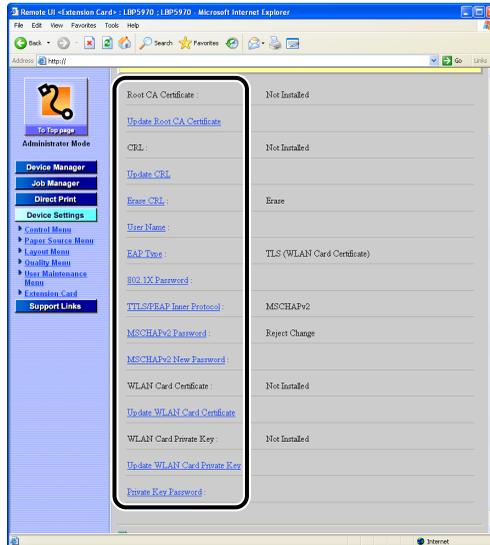
13 Select the EAP type to be used, then click [OK].



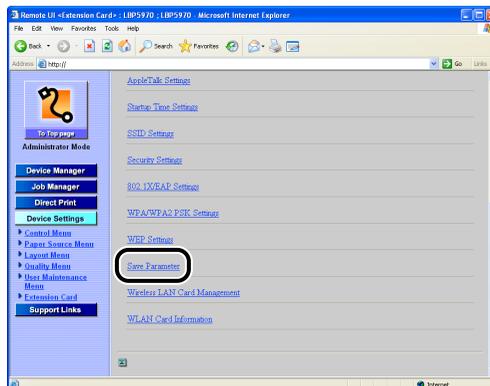
14 Confirmation messages are displayed twice. Click [OK] each time.

15 Specify the settings required for 802.1X authentication.

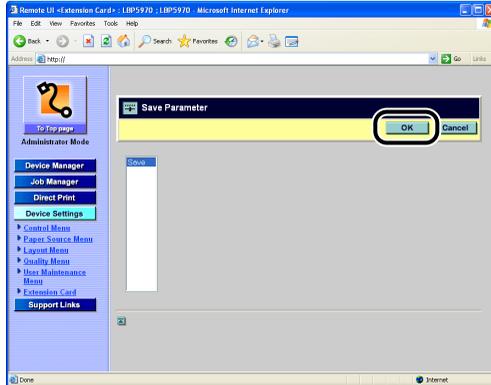
For details on the setting procedure, see "802.1X Authentication Settings," on p. 3-63.



16 Display the following screen, then click [Save Parameter].



17 Click [OK].



18 Confirmation messages are displayed twice. Click [OK] each time.

After completing the WPA/WPA2 + 802.1X/EAP settings, specify the following settings next.

- Switching the Network to Be Used (Switching between Standard Network and NB-W2) (See p. 3-103)

Settings Using the Printer's Control Panel

IMPORTANT

You cannot specify some of the "802.1X authentication" settings to be performed in Step 13 using the printer's control panel. Specify the settings from the Remote UI when you do so for the first time after installing NB-W2.

- 1** Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].
- 2** Select EXTENSION CARD using [◀] and [▶], then press [OK].
- 3** Select NB-W2 using [◀] and [▶], then press [OK].
- 4** Select SECURITY SET. using [◀] and [▶], then press [OK].

- 5** Select SECURITY using [◀] and [▶], then press [OK].
- 6** Select WPA/2 + 802.1X using [◀] and [▶], then press [OK].
- 7** Select WPA/2 ENCRYPT. using [◀] and [▶], then press [OK].
- 8** Select the encryption method using [◀] and [▶], then press [OK].

Select the encryption method according to the specifications of the access point. If AUTO is specified, both AES-CCMP and TKIP are supported.
- 9** Press [▲] once.
- 10** Select 802.1X/EAP SET. using [◀] and [▶], then press [OK].
- 11** Select EAP TYPE using [◀] and [▶], then press [OK].
- 12** Select the EAP type to be used using [◀] and [▶], then press [OK].
- 13** Specify the settings required for 802.1X authentication.

For details on the setting procedure, see "802.1X Authentication Settings," on p. 3-63.
- 14** Display SAVE PARAMETER, then press [OK].
- 15** Press [OK].

After completing the WPA/WPA2 + 802.1X/EAP settings, specify the following settings next.

- Switching the Network to Be Used (Switching between Standard Network and NB-W2) (See p. 3-103)
-

802.1X Authentication Settings

This section allows you to specify an authentication method for EAP using IEEE 802.1X. There are three authentication methods: "PEAP", "EAP-TTLS", and "EAP-TLS". The options required to be specified vary depending on the authentication method to be used, as follows.

■ Common Settings

Authentication Method	Option	Setting	See
PEAP EAP-TTLS EAP-TLS	[Update Root CA Certificate]* ¹	Specify the authentication server certificate issued by a certificate authority.	p. 3-64
	[Update CRL]* ^{1*2}	Specify the certificate revocation list.	p. 3-67
	[Erase CRL]	Erase the certificate revocation list.	p. 3-70
	[User Name]	Specify the user name for IEEE 802.1X authentication. It is used for handshake in EAP-TLS.	p. 3-73
	[EAP Type]	Specify the authentication method. Select TTLS/PEAP or TLS.	p. 3-76

■ PEAP/EAP-TTLS Settings

Authentication Method	Option	Setting	See
PEAP EAP-TTLS	[802.1X Password]	Specify the password for IEEE 802.1X authentication.	p. 3-79
	[TTLS/PEAP Inner Protocol]	Specify the inner protocol to be used for the authentication protocol.	p. 3-81
	[MSCHAPv2 Password]	Specify the response to a password change request.	p. 3-84
	[MSCHAPv2 New Password]	Specify a new password to be used when the password change is allowed.	p. 3-87

■ EAP-TLS Settings

Authentication Method	Option	Setting	See
EAP-TLS	[Update WLAN Card Certificate]* ¹	Specify the wireless LAN card certificate to be used.	p. 3-90
	[Update WLAN Card Private Key]* ¹	Specify the private key to be used.	p. 3-93
	[Private Key Password]	Specify the password for the private key.	p. 3-96

*¹ Can be specified only in the Remote UI.

*² Specify only if issued by a certificate authority.

Update Root CA Certificate

Specify the authentication server certificate issued by a root certificate authority.

An authentication server certificate is issued by a "trusted root certificate authority" that proves the authenticity of the server certificate (and certificate path) of the RADIUS server that will authenticate NB-W2. You can specify the setting for the certificate using the Remote UI.



IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

http://<the IP address or name of the printer (standard network)>/

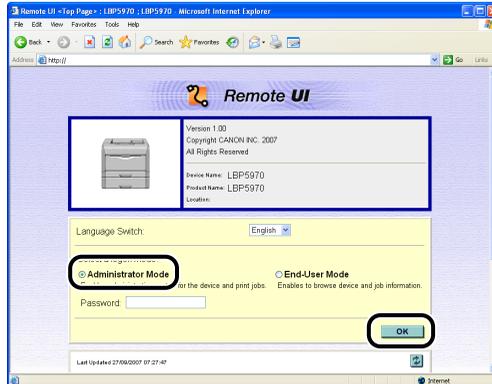
Input Example: http://192.168.0.215/



NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

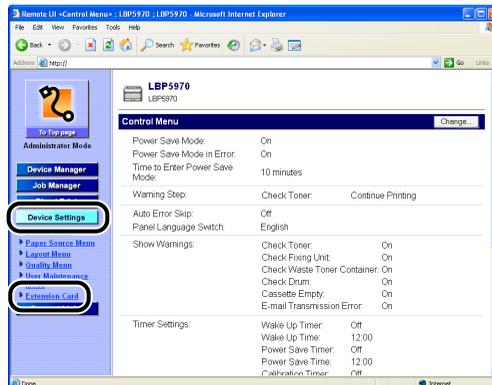
2 Select [Administrator Mode], then click [OK].



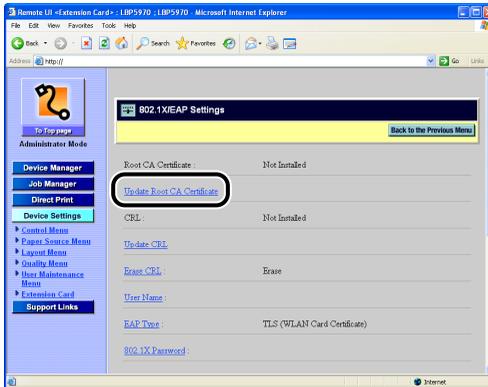
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

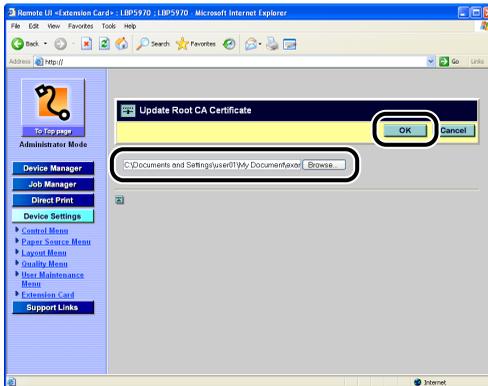
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [Update Root CA Certificate].



5 Click [Browse] and select the file, or enter the path and click [OK].



NOTE

The following type of certificate can be used.

- File size of 8 KB or less
- X.509 certificate format
- Binary (DER) or Base64 Encode (PEM) file format
- X.509 certificate versions 1 to 3
- Not expired

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

Update CRL

Specify the certificate revocation list. You can specify the setting for the certificate revocation list using the Remote UI.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

NOTE

Specify only if the certificate revocation list is issued by a certificate authority.

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

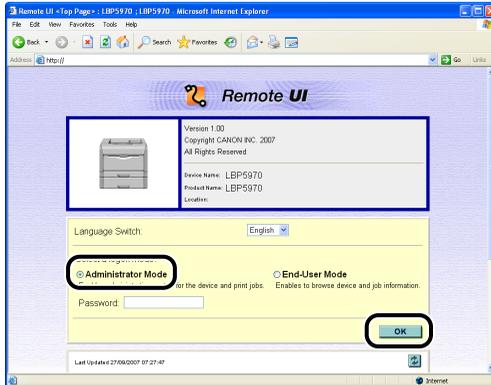
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

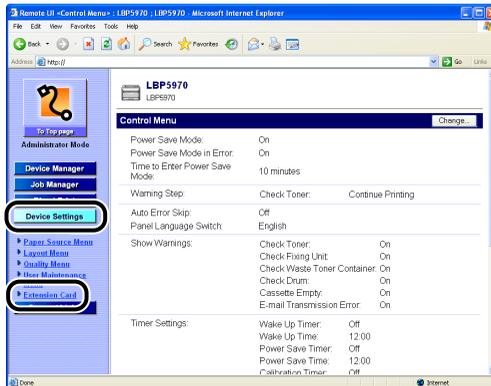
2 Select [Administrator Mode], then click [OK].



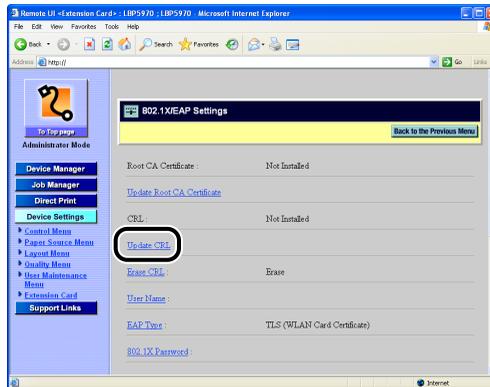
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [Update CRL].



5 Click [Browse] and select the file, or enter the path and click [OK].



NOTE

The following type of certificate can be used.

- File size of 64 KB or less
- X.509 CRL format
- Binary (DER) or Base64 Encode (PEM) file format
- Base CRL X.509 CRL version 2

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

Erase CRL

Erase the certificate revocation list. You can perform the setting using the Remote UI or printer's control panel.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

NOTE

If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].

- INTERFACE MENU → EXTENSION CARD → NB-W2 → 802.1X/EAP SET. → ERASE CRL
- A confirmation message is displayed. Press [OK].

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

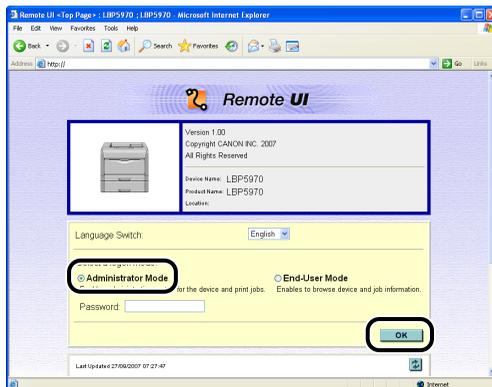
`http://<the IP address or name of the printer (standard network)>/`

Input Example: `http://192.168.0.215/`

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

2 Select [Administrator Mode], then click [OK].



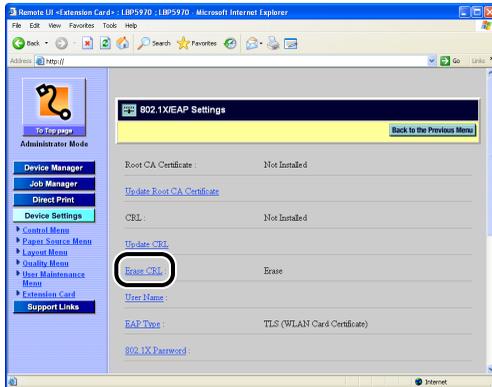
 **NOTE**

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

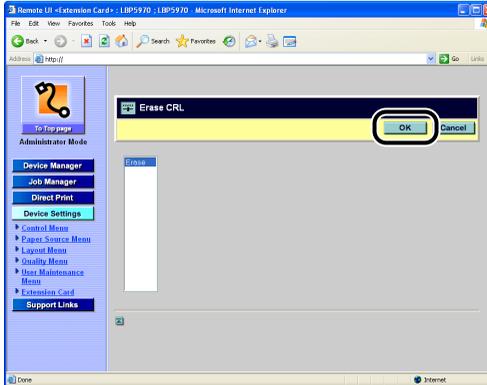
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [Erase CRL].



5 Click [OK].



6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

User Name

Specify the user name for IEEE 802.1X authentication. Also, it is used for handshake in EAP-TLS. You can specify the user name using the Remote UI or printer's control panel.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

NOTE

If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].

- INTERFACE MENU → EXTENSION CARD → NB-W2 → 802.1X/EAP SET. → USER NAME
- Move the cursor using [◀] and [▶] and enter the user name using [▲] and [▼].

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

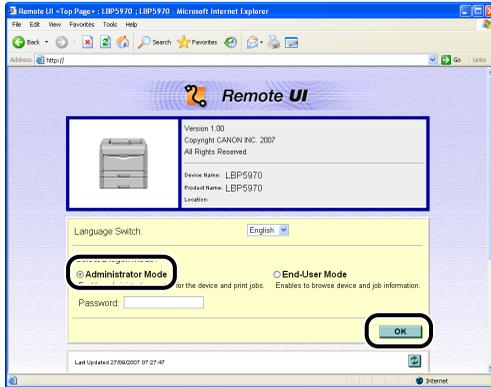
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

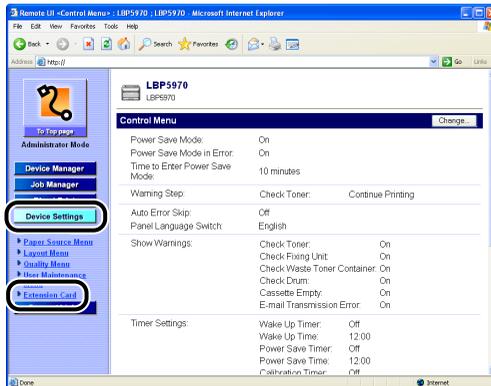
2 Select [Administrator Mode], then click [OK].



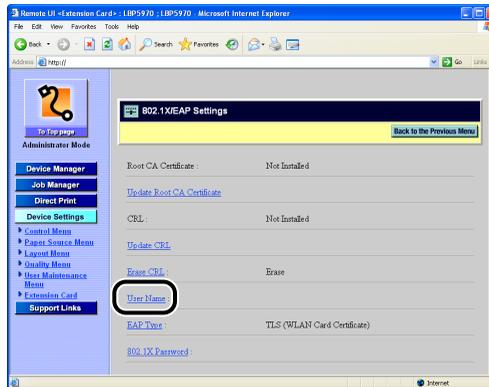
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

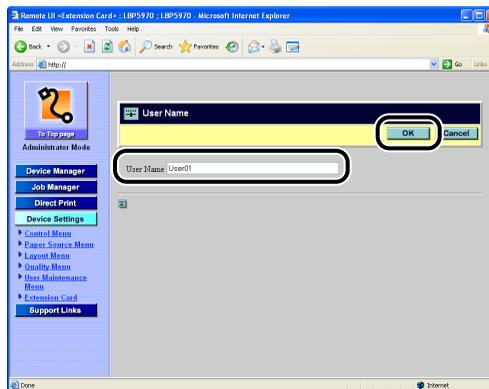
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [User Name].



5 Enter the user name, then click [OK].



NOTE

- You can enter up to 64 characters for a user name.
- Depending on the authentication server, you need to add the domain name when you enter a user name (such as "DOMAIN/USER" and "user@domain"). See the instruction manual supplied with the authentication server.

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

EAP Type

Specify whether you want to use "EAP-TTLS or PEAP" or "EAP-TLS" as the authentication method. You can perform the setting using the Remote UI or printer's control panel.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

NOTE

- NB-W2 supports "Microsoft PEAP" and "CISCO PEAP".
- If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].
 - INTERFACE MENU → EXTENSION CARD → NB-W2 → 802.1X/EAP SET. → EAP TYPE
 - Select TLS or TTLS/PEAP using [◀] and [▶], then press [OK].

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

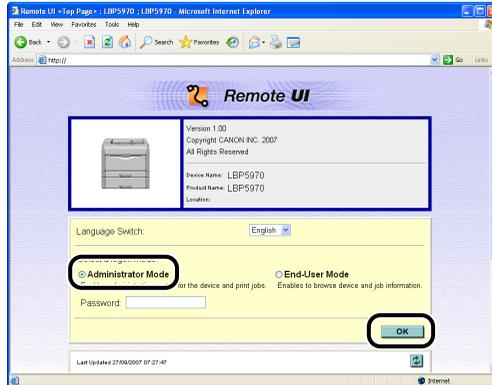
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

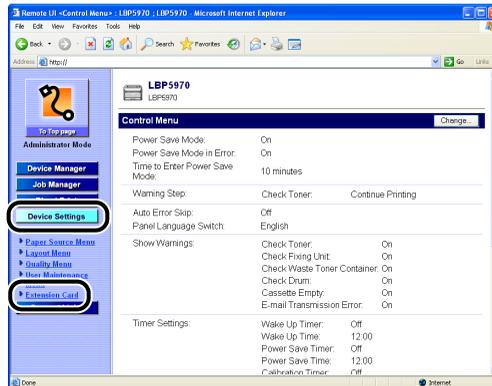
2 Select [Administrator Mode], then click [OK].



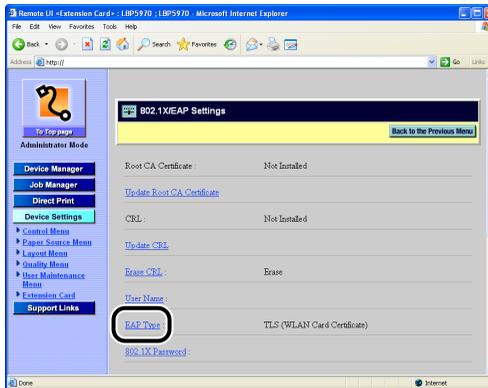
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

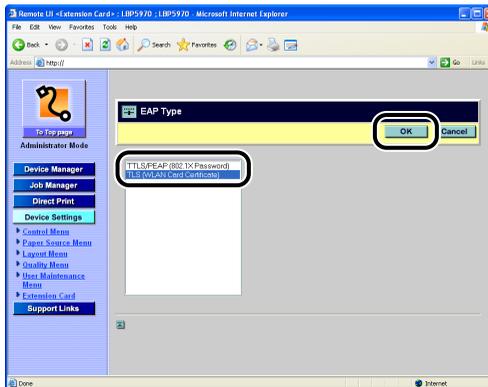
3 Click [Device Settings] on the left, then click [Extension Card].



- 4** Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [EAP Type].



- 5** Select [TTLS/PEAP (802.1X Password)] or [TLS (WLAN Card Certificate)], then click [OK].



- 6** Confirmation messages are displayed twice. Click [OK] each time.

- 7** Click [OK].

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

802.1X Password

Specify the password for IEEE 802.1X authentication. You can specify the password using the Remote UI or printer's control panel.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

NOTE

If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].

- INTERFACE MENU → EXTENSION CARD → NB-W2 → 802.1X/EAP SET. → 802.1X PASSWORD
- Move the cursor using [◀] and [▶] and enter the password using [▲] and [▼].

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

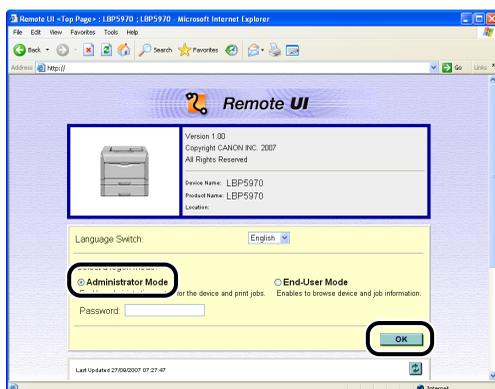
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

2 Select [Administrator Mode], then click [OK].

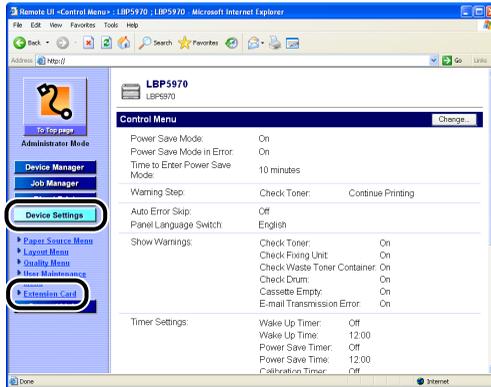




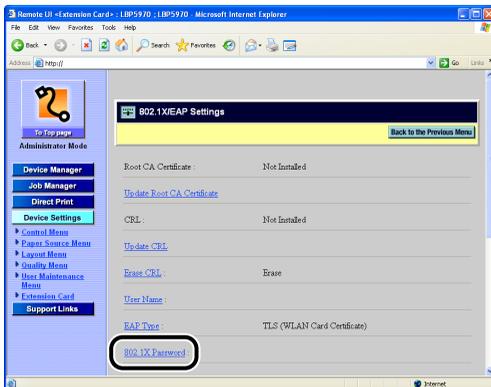
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

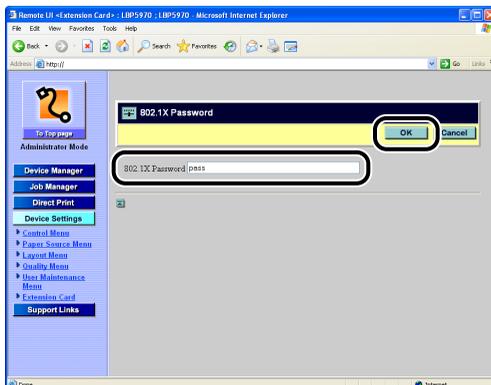
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [802.1X Password].



5 Enter the password, then click [OK].



NOTE

- If the password is entered already, it is displayed as "*" (an asterisk).
- You can enter up to 64 characters for a password.

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

TTLS/PEAP Inner Protocol

Specify the inner protocol to be used for the authentication protocol. You can specify the setting using the Remote UI or printer's control panel.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

 **NOTE**

If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].

- INTERFACE MENU → EXTENSION CARD → NB-W2 → 802.1X/EAP SET. → INNER PROTOCOL
- Select the protocol to be used using [◀] and [▶], then press [OK].

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

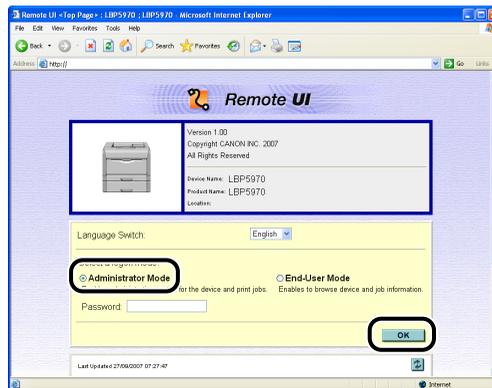
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

 **NOTE**

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

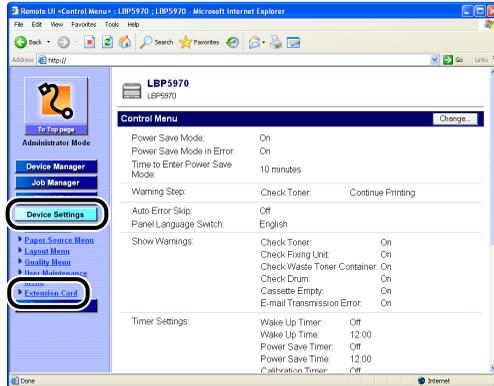
2 Select [Administrator Mode], then click [OK].



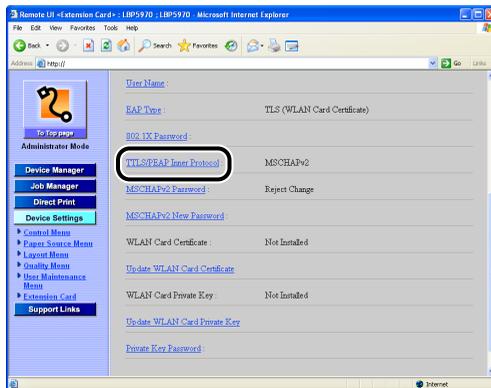
 **NOTE**

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

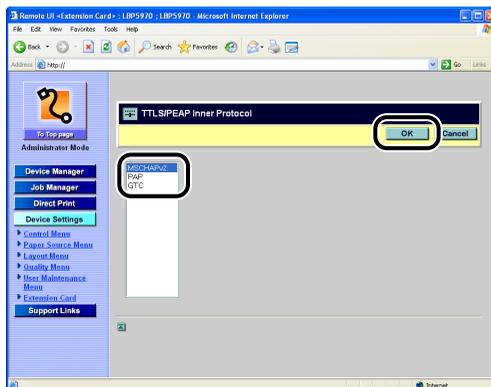
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [TTLS/PEAP Inner Protocol].



5 Select the protocol to be used, then click [OK].





NOTE

- If you are using PEAP, you cannot use [PAP].
- If you are using EAP-TTLS, you cannot use [GTC].
- If you select [GTC], you cannot use a one-time password. Use a fixed password.

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

MSCHAPv2 Password

Specify the response to a password change request of the MSCHAPv2 protocol.

If the password change is allowed, the password specified in "MSCHAPv2 New Password" (See p. 3-87) is specified as the new password on the change request. You can specify the setting using the Remote UI or printer's control panel.



IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)



NOTE

If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].

- INTERFACE MENU → EXTENSION CARD → NB-W2 → 802.1X/EAP SET. → MSCHAPv2 PW
- Select ALLOW CHANGE or REJECT CHANGE using [◀] and [▶], then press [OK].

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

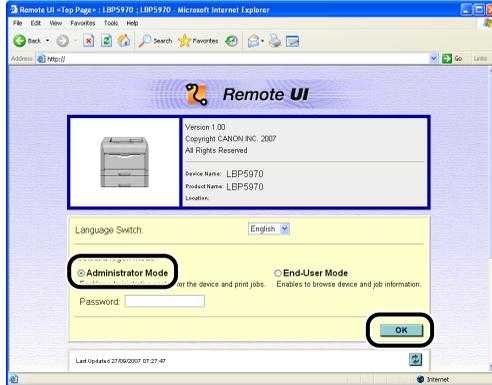
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

 **NOTE**

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

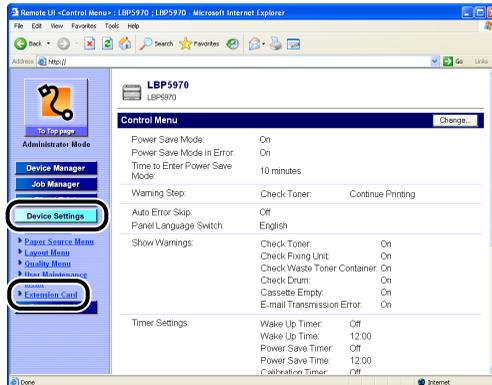
2 Select [Administrator Mode], then click [OK].



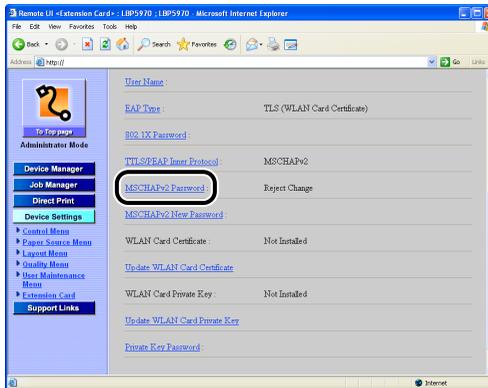
 **NOTE**

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

3 Click [Device Settings] on the left, then click [Extension Card].



- 4** Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [MSCHAPv2 Password].



- 5** Select [Allow Change] or [Reject Change], then click [OK].



- 6** Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

MSCHAPv2 New Password

Specify the password to be used on a password change request of the MSCHAPv2 protocol.

Specify the password only if you allowed the password change in "MSCHAPv2 Password," on p. 3-84. You can specify the password using the Remote UI or printer's control panel.



IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)



NOTE

If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].

- INTERFACE MENU → EXTENSION CARD → NB-W2 → 802.1X/EAP SET. → MSCHAPv2 NEW PW
- Move the cursor using [◀] and [▶] and enter the password using [▲] and [▼].

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

http://<the IP address or name of the printer (standard network)>/

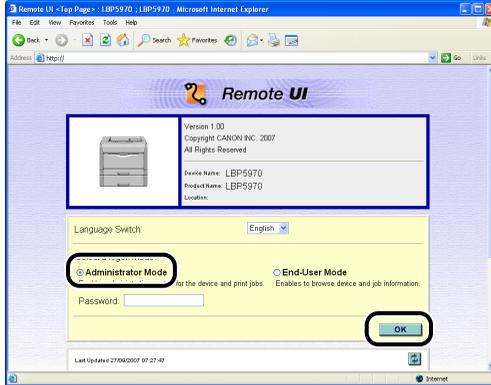
Input Example: http://192.168.0.215/



NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

2 Select [Administrator Mode], then click [OK].



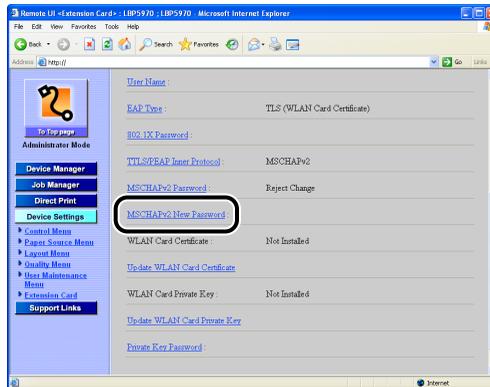
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

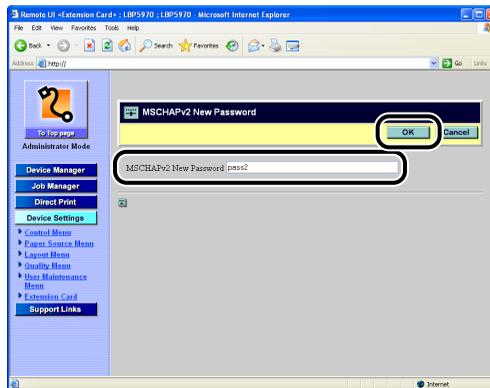
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [MSCHAPv2 New Password].



5 Enter the password, then click [OK].



NOTE

- If the password is entered already, it is displayed as "*" (an asterisk).
- You can enter up to 64 characters for a password.

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

Update WLAN Card Certificate

Specify the wireless LAN card certificate to be used on TLS authentication. You can specify the setting for the wireless LAN card certificate using the Remote UI.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

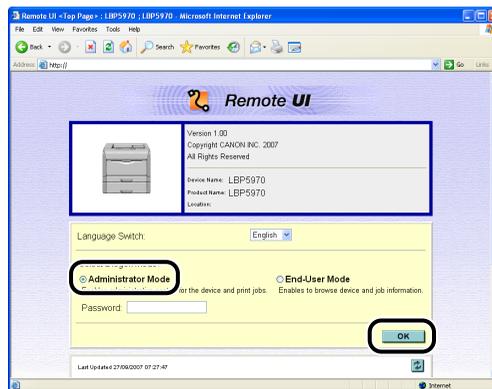
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

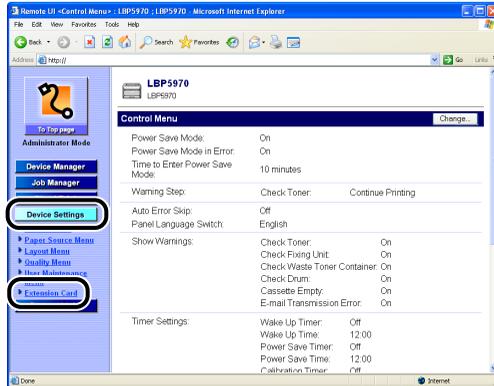
2 Select [Administrator Mode], then click [OK].



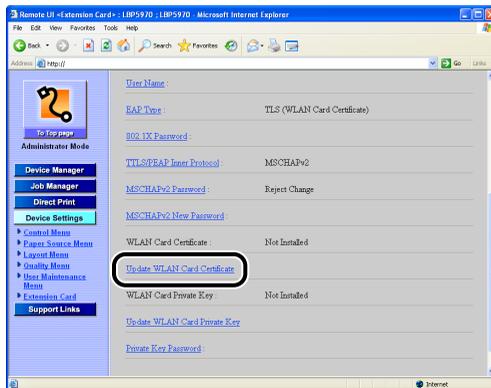
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

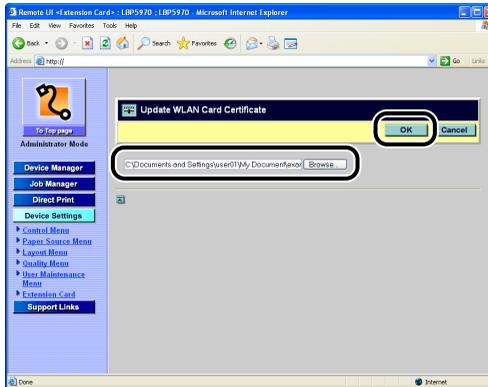
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [Update WLAN Card Certificate].



5 Click [Browse] and select the file, or enter the path and click [OK].



NOTE

- The following type of certificate can be used.
 - File size of 64 KB or less
 - X.509 certificate format (or PKCS#7/PKCS#12 format that includes a certificate in X.509 certificate format)
 - Binary (DER) or Base64 Encode (PEM) file format
 - X.509 certificate version 3
 - Not expired
- If you use PKCS#12 format that includes a certificate in X.509 certificate format in "Update WLAN Card Private Key" (See p. 3-93), the wireless LAN card certificate is also updated at the same time.

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

Update WLAN Card Private Key

Specify the private key to be used on TLS authentication. You can specify the setting using the Remote UI.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

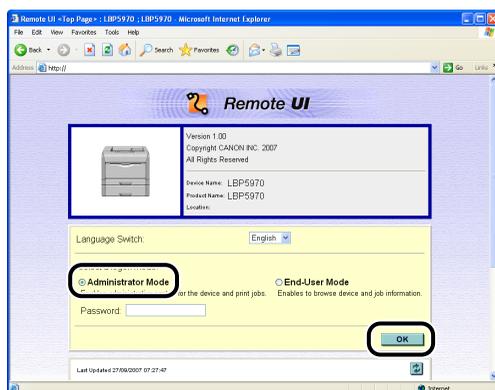
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

2 Select [Administrator Mode], then click [OK].



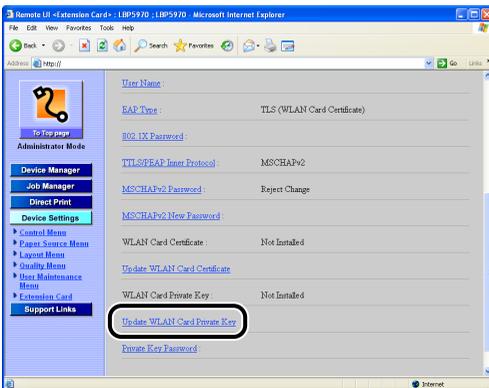
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

3 Click [Device Settings] on the left, then click [Extension Card].



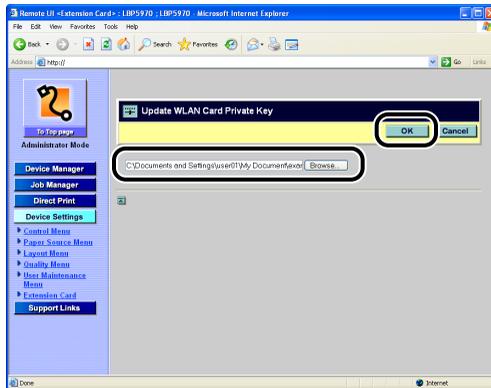
4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [Update WLAN Card Private Key].



3

Settings for NB-W2

5 Click [Browse] and select the file, or enter the path and click [OK].



NOTE

- The following type of private key can be used.
 - File size of 8 KB or less
 - PKCS#8 format (or PKCS#12 format that includes a certificate in X.509 certificate format and a PKCS#8 format private key)
 - Binary (DER) or Base64 Encode (PEM) file format
- If you use PKCS#12 format that includes a certificate in X.509 certificate format, the wireless LAN card certificate is also updated at the same time. (See "Update WLAN Card Certificate," on p. 3-90)

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

Private Key Password

Specify the password for the private key. You can specify the password for the private key using the Remote UI or printer's control panel.

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

NOTE

If you want to specify the setting using the printer's control panel, press [Settings], select the following items in order using [◀] and [▶], and then press [OK].

- INTERFACE MENU → EXTENSION CARD → NB-W2 → 802.1X/EAP SET. → PRIVATE KEY PW
- Move the cursor using [◀] and [▶] and enter the password using [▲] and [▼].

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

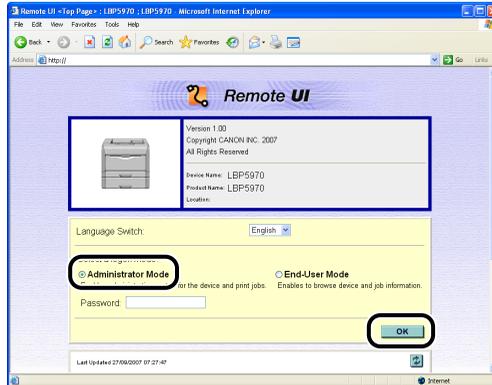
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

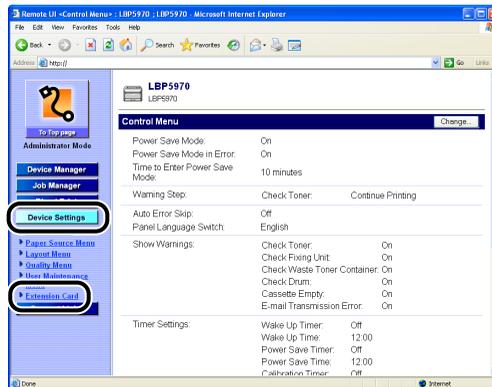
2 Select [Administrator Mode], then click [OK].



NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

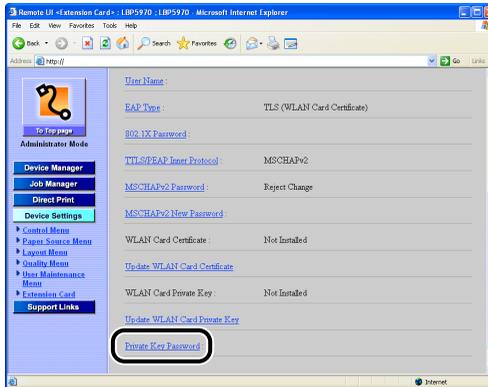
3 Click [Device Settings] on the left, then click [Extension Card].



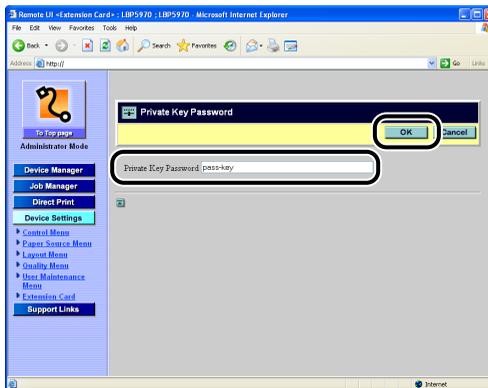
3

Settings for NB-W2

4 Click [NB-W2] → [Wireless LAN Settings] → [802.1X/EAP Settings] → [Private Key Password].



5 Enter the password, then click [OK].



NOTE

- If the password is entered already, it is displayed as "*" (an asterisk).
- You can enter up to 64 characters for a password.

6 Confirmation messages are displayed twice. Click [OK] each time.

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

Enabling the Settings

If you changed the settings for NB-W2, enable the changed settings using the following procedure. To enable the settings for NB-W2, use the Remote UI or printer's control panel.

IMPORTANT

The following settings cannot be enabled even if you perform the procedures in this section. To enable the settings, you need to perform a hard reset or cycle the power of the printer. After performing a hard reset or restarting the printer, the settings are effective.

- "Primary Network Setting"
- All the options in "NB-W2" → "Wireless LAN Settings" → "TCP/IP Settings (IPv4)"/"TCP/IP Settings (IPv6)"/"AppleTalk Settings"/"Startup Time Settings"

To perform a hard reset, click [Status] from the [Device Manager] menu on the left in the Remote UI, and then click [Device Control]. Select [Hard Reset] in the [Device Control] page, and then click [Execute].

Settings Using the Remote UI

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

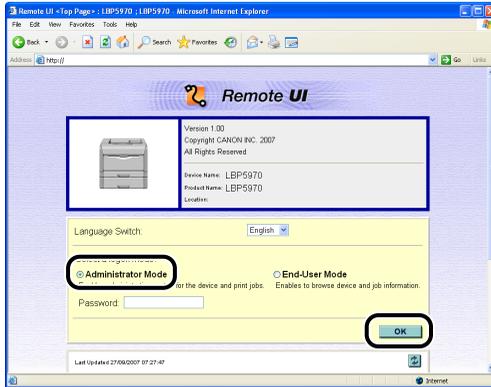
http://<the IP address or name of the printer (standard network or NB-W2)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

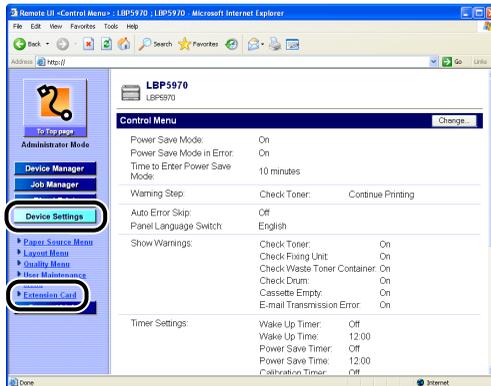
2 Select [Administrator Mode], then click [OK].



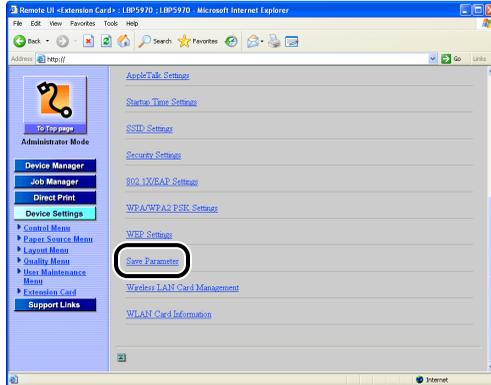
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

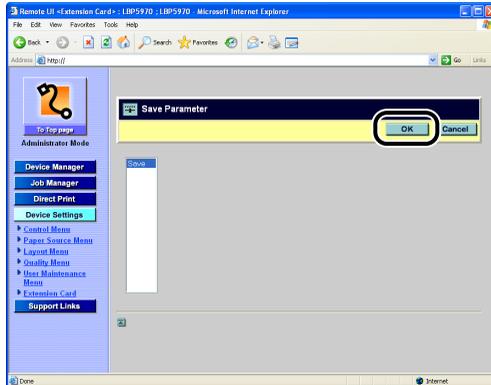
3 Click [Device Settings] on the left, then click [Extension Card].



4 Click [NB-W2] → [Wireless LAN Settings] → [Save Parameter].



5 Click [OK].



The settings are enabled after whether the specified settings have any problems is checked. If there are any problems with the specified settings, an error message appears. For details on the error message, see "Error Message," on p. 4-4.

6 Confirmation messages are displayed twice. Click [OK] each time.

Settings Using the Printer's Control Panel

- 1** Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].
- 2** Select EXTENSION CARD using [◀] and [▶], then press [OK].
- 3** Select NB-W2 using [◀] and [▶], then press [OK].
- 4** Select SAVE PARAMETER using [◀] and [▶], then press [OK].
- 5** Press [OK].

The settings are enabled after whether the specified settings have any problems is checked. If there are any problems with the specified settings, an error message appears. For details on the error message, see "Error Message," on p. 4-4.

Switching the Network to Be Used

(Switching between Standard Network and NB-W2)

As well as the network interface equipped with the printer (standard network), you can use two network interfaces by installing NB-W2 in the printer. Because you cannot enable both interfaces at the same time, specify which interface to use. Since the standard network is enabled by default, set the primary network to "NB-W2" to use NB-W2.

Specify the setting using the Remote UI or printer's control panel.

IMPORTANT

If you remove NB-W2 from the printer with the primary network set to "NB-W2", you cannot use the LAN connector supplied with the printer due to this setting. Before you remove NB-W2 from the printer, set the primary network to "Standard Network".

Settings Using the Remote UI

IMPORTANT

If you want to specify the settings from the Remote UI, make sure that your network environment fulfills the following conditions in advance.

- Your computer and the printer are connected to the network by LAN cables.
- The settings for the printer's standard network have been specified (The printer is ready to use the standard network.). (See "Network Guide" (PDF manual) supplied with the printer)
- "Primary Network Setting" is set to "Standard Network". (See "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103)

1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

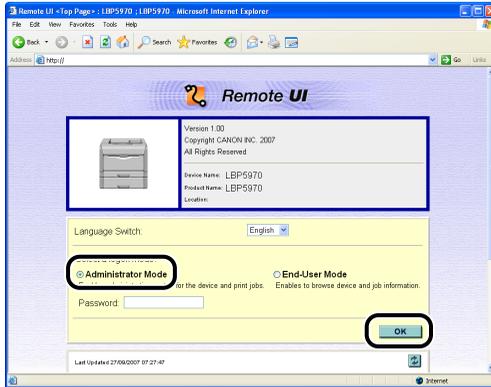
http://<the IP address or name of the printer (standard network)>/

Input Example: http://192.168.0.215/

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

2 Select [Administrator Mode], then click [OK].



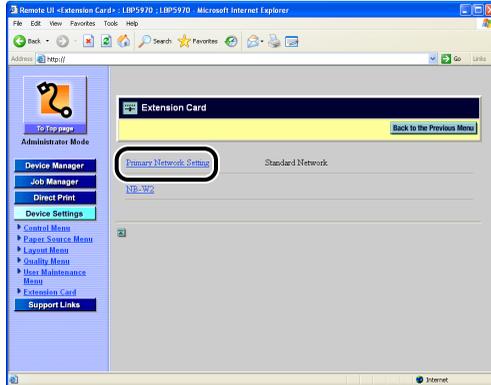
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

3 Click [Device Settings] on the left, then click [Extension Card].

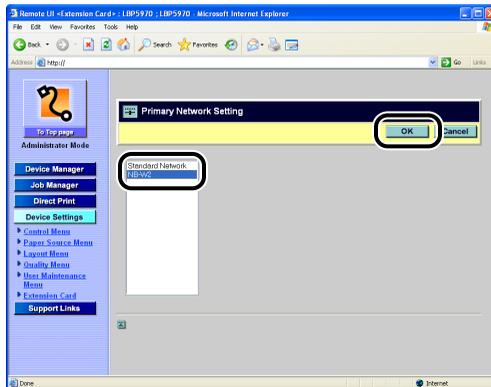


4 Click [Primary Network Setting].



5 Select [NB-W2], then click [OK].

Selecting [Standard Network] enables the network equipped with the printer.



6 Confirmation messages are displayed twice. Click [OK] each time.

7 Perform a hard reset or cycle the power of the printer.

After performing a hard reset or restarting the printer, the settings are effective.

NOTE

To perform a hard reset, click [Status] from the [Device Manager] menu on the left, and then click [Device Control]. Select [Hard Reset] in the [Device Control] page, and then click [Execute].

Settings Using the Printer's Control Panel

- 1** Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].
- 2** Select EXTENSION CARD using [◀] and [▶], then press [OK].
- 3** Select PRIMARY NETWORK using [◀] and [▶], then press [OK].
- 4** Select NB-W2 using [◀] and [▶], then press [OK].

Selecting STD NETWORK enables the network equipped with the printer.

- 5** Perform a hard reset or cycle the power of the printer.

After performing a hard reset or restarting the printer, the settings are effective.



NOTE

For details on a hard reset, see "User's Guide" (PDF manual) supplied with the printer.

Printing a Test Page

Before using NB-W2 for the first time, be sure to print a test page to check the operations using the following procedure.



IMPORTANT

To print a test page, the printer driver needs to be installed on the computer you are using. If the printer driver is not installed, see "Driver Guide" (PDF manual) supplied with the printer.



NOTE

This section describes the procedure, taking Windows as an example.

1 Display the [Printers and Faxes] folder or the [Printers] folder.

- For Windows 2000:
From the [Start] menu, select [Settings] → [Printers].
- For Windows XP Professional/Server 2003:
From the [Start] menu, select [Printers and Faxes].
- For Windows XP Home Edition:
From the [Start] menu, select [Control Panel], and then click [Printers and Other Hardware] → [Printers and Faxes].
- For Windows Vista:
From the [Start] menu, select [Control Panel], and then click [Printer].

2 Right-click the icon for this printer, then select [Properties] from the pop-up menu.

3 Click [Print Test Page] in the [General] sheet.

4 If the page is printed correctly, click [OK] or [Close].

If the test page is not printed properly, see "Chapter 4 Troubleshooting".

Troubleshooting

4

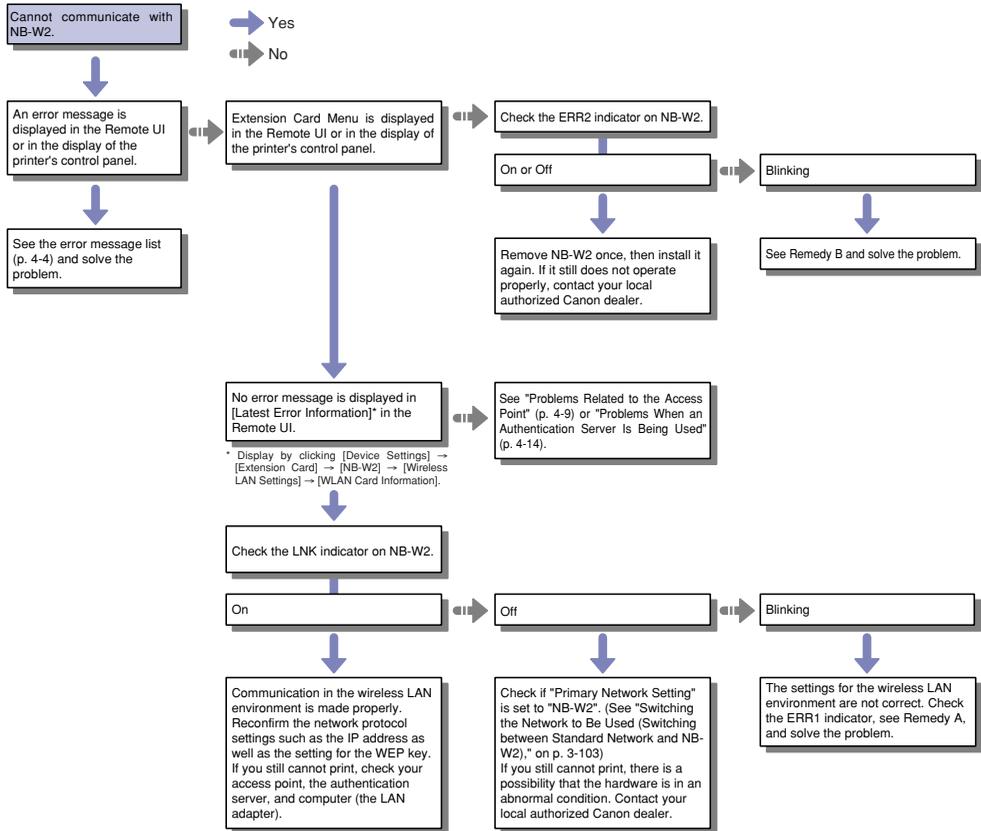
CHAPTER

This chapter describes the troubleshooting procedures for problems that occur when using NB-W2.

Troubleshooting Flowchart	4-2
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Troubleshooting Flowchart

If you cannot communicate with NB-W2 (for example, when you cannot print or when you cannot specify the settings for NB-W2), perform the following procedure to check problems.



■ Remedy A

Unit of the ERR1 Indicator's Blink (How many times it blinks at a time)	Error Detail	Remedy
Once	Unsupported EAP is received.	Use PEAP, TTLS, or TLS.

Unit of the ERR1 Indicator's Blink (How many times it blinks at a time)	Error Detail	Remedy
Twice	The certificate is invalid.	Use a valid certificate.
Three times	Time is not set.	Set the printer's clock.
Four times	Invalid authentication packets are received.	Send valid authentication packets.
Five times	The server rejected the authentication.	Check if the authentication settings are correct.

■ Remedy B

Unit of the ERR2 Indicator's Blink (How many times it blinks at a time)	Error Detail	Remedy
Once	NB-W2 is in an abnormal condition.	Contact your local authorized Canon dealer.
Twice		
Three times		
Four times	NB-W2 is being initialized to the default settings.	Please wait a moment. The ERR2 indicator goes off after the initialization. After completing the initialization, restart the printer in the normal mode following the procedure in "Initializing the Network Settings," on p. 5-8.
Five times	NB-W2 is starting in the emergency startup mode.	Please wait a moment. After completing the startup, restart the printer in the normal mode following the procedure in "Emergency Startup Mode," on p. 5-17.

Error Message

This section describes the various messages that appear in the Remote UI or in the display of the printer's control panel along with possible causes and remedies.

Take the necessary measures according to the displayed message.

The following is a list of error messages, along with their possible causes and remedies.

Remote UI: <Operation is not permitted.>

Cause You have logged on in End-User Mode.

Remedy Log on in Administrator Mode.

Remote UI: <WEP key digit no. incorrect.>

Control Panel: <WEP KEY DIGIT ER>

Cause The number of the digits for the entered WEP key is not correct.

Remedy Enter the WEP key using 10 digits (a 40-bit WEP key) or 26 digits (a 104-bit WEP key) in hexadecimal format.
You can enter a delimiter ("hyphen", "space", or "colon") after every two digits, and the delimiters are not counted as digits.

Remote UI: <Set the WEP key.>

Control Panel: <SET WEP KEY>

Cause Although "WEP" is specified for the security mode, the setting for the WEP key is not specified.

Remedy 1 Specify the setting for WEP keys and select the one to be used. (See "WEP Settings," on p. 3-28)

Remedy 2 Perform the following procedure to change the security mode to the usable one (This section describes the procedure, taking the Remote UI as an example.).

1. Click [Device Settings], then click [Extension Card].
 2. Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].
 3. Select the usable security mode, then click [OK].
 4. Confirmation messages are displayed twice. Click [OK] each time.
 5. Click [Back to the Previous Menu] → [Save Parameter], then click [OK].
 6. Confirmation messages are displayed twice. Click [OK] each time.
-

Remote UI: <Enter hexadecimal number.>

Control Panel: <ENTER HEX NUMBER>

Cause 1 Characters other than hexadecimal alphanumeric characters and delimiters are entered for the WEP key.

Remedy Enter the WEP key using a hexadecimal number, which consists of numbers (0 to 9), alphabets ("A" to "F" or "a" to "f"), and delimiters ("hyphen", "space", or "colon").

You can enter a delimiter after every two digits, and the delimiters are not counted as digits.

Cause 2 Characters other than hexadecimal alphanumeric characters are entered for PSK.

Remedy If you want to enter PSK in hexadecimal format, enter it using numbers (0 to 9) and alphabets ("A" to "F" or "a" to "f").

Remote UI: <Enter ASCII.>

Control Panel: <ENTER ASCII>

Cause Characters other than ASCII characters are entered for PSK.

Remedy Enter a character string of 8 to 63 characters, which consists of numbers (0 to 9), alphabets ("A" to "Z" or "a" to "z"), and the symbols in the following table.

!	"	#	\$	%	&	'	(
)	*	+	,	-	.	/	:
;	<	=	>	?	@	[\
]	^	_	`	{		}	~

Remote UI: <Not enough characters.>

Control Panel: <TOO FEW CHARS>

Cause The number of the characters for PSK is not sufficient.

Remedy If you want to enter the characters in ASCII format, enter 8 or more characters, and in hexadecimal format, enter 64 digits.

Remote UI: <Set the pre-shared key.>

Control Panel: <SET PSK>

Cause Although "WPA/WPA2 + PSK" is specified for the security mode, the setting for PSK is not specified.

Remedy 1 Specify the setting for PSK. (See "WPA/WPA2 + PSK Settings," on p. 3-37)

Remedy 2 Perform the following procedure to change the security mode to the usable one (This section describes the procedure, taking the Remote UI as an example.).

1. Click [Device Settings], then click [Extension Card].
2. Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].
3. Select the usable security mode, then click [OK].
4. Confirmation messages are displayed twice. Click [OK] each time.
5. Click [Back to the Previous Menu] → [Save Parameter], then click [OK].
6. Confirmation messages are displayed twice. Click [OK] each time.

Remote UI: <Root CA certificate error>

Cause Although "WPA/WPA2 + 802.1X/EAP" or "802.1X/EAP + WEP" is specified for the security mode, the setting for "Update Root CA Certificate" is not specified.

Remedy 1 Specify the setting for "Update Root CA Certificate". (See "Update Root CA Certificate," on p. 3-64)

Remedy 2 Perform the following procedure to change the security mode to the usable one (This section describes the procedure, taking the Remote UI as an example.).

1. Click [Device Settings], then click [Extension Card].
2. Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].
3. Select the usable security mode, then click [OK].
4. Confirmation messages are displayed twice. Click [OK] each time.
5. Click [Back to the Previous Menu] → [Save Parameter], then click [OK].
6. Confirmation messages are displayed twice. Click [OK] each time.

Remote UI: <Set the user name.>

Control Panel: <SET USER NAME>

Cause Although "WPA/WPA2 + 802.1X/EAP" or "802.1X/EAP + WEP" is specified for the security mode, the setting for "User Name" is not specified.

Remedy 1 Specify the setting for "User Name". (See "User Name," on p. 3-73)

Remedy 2 Perform the following procedure to change the security mode to the usable one (This section describes the procedure, taking the Remote UI as an example.).

1. Click [Device Settings], then click [Extension Card].

2. Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].
3. Select the usable security mode, then click [OK].
4. Confirmation messages are displayed twice. Click [OK] each time.
5. Click [Back to the Previous Menu] → [Save Parameter], then click [OK].
6. Confirmation messages are displayed twice. Click [OK] each time.

Remote UI: <WLAN card certificate error>

Cause Although "EAP Type" in "802.1X/EAP Settings" is set to "TLS (WLAN Card Certificate)", the setting for "Update WLAN Card Certificate" is not specified.

Remedy 1 Specify the setting for "Update WLAN Card Certificate". (See "Update WLAN Card Certificate," on p. 3-90)

Remedy 2 Set "EAP Type" to "TTLS/PEAP (802.1X Password)". (See "EAP Type," on p. 3-76)

Remote UI: <Set the private key.>

Cause Although "EAP Type" in "802.1X/EAP Settings" is set to "TLS (WLAN Card Certificate)", the setting for "Update WLAN Card Private Key" is not specified.

Remedy 1 Specify the setting for "Update WLAN Card Private Key". (See "Update WLAN Card Private Key," on p. 3-93)

Remedy 2 Set "EAP Type" to "TTLS/PEAP (802.1X Password)". (See "EAP Type," on p. 3-76)

Remote UI: <Certificate is 64KB or less.>

Cause The file size of the wireless LAN card certificate exceeds 64 KB.

Remedy Reduce the file size of the wireless LAN card certificate to 64 KB or less.

Remote UI: <Certificate is 8KB or less.>

Cause The file size of the root CA certificate exceeds 8 KB.

Remedy Reduce the file size of the root CA certificate to 8 KB or less.

Remote UI: <Private key is 8KB or less.>

Cause The file size of the private key exceeds 8 KB.

Remedy Reduce the file size of the private key to 8 KB or less.

Remote UI: <Check file format.>

Cause 1 The file format of the root CA certificate is not correct.

Remedy Make sure that the file format of the root CA certificate is "X.509 Certificate".

Cause 2 The file format of the certificate revocation list is not correct.

Remedy Make sure that the file format of the certificate revocation list is "X.509 CRL".

Cause 3 The file format of the wireless LAN card certificate is not correct.

Remedy Make sure that the file format of the wireless LAN card certificate is "X.509 Certificate", "PKCS#7"*, or "PKCS#12"*.

* Needs to include an "X.509" certificate.

Cause 4 The file format of the wireless LAN card private key is not correct.

Remedy Make sure that the file format of the wireless LAN card private key is "PKCS#8" or "PKCS#12"*.

* Needs to include an "X.509" certificate and a "PKCS#8" private key.

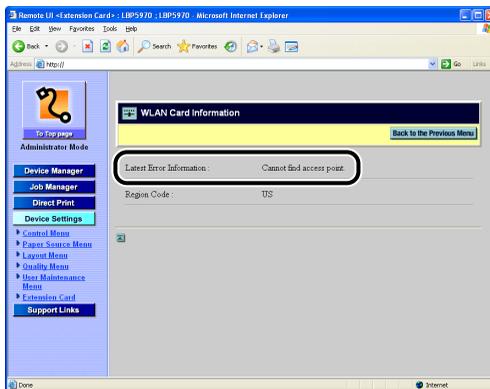
Problems Related to the Access Point

If a problem has occurred between the access point and NB-W2, a message appears in the following locations. Take the measures according to the message.

NOTE

If the displayed message is not described in this section, see "Problems When an Authentication Server Is Being Used," on p. 4-14.

■ Remote UI ([Device Settings] → [Extension Card] → [NB-W2] → [Wireless LAN Settings] → [WLAN Card Information])



■ Extension Card List

WEP Key4(Hex 10 or26 digits) :
Select WEP Key : 1
802.11 Authentication : Open System
Save Parameter
Save Parameter : Save
Wireless LAN Card Management
Initialize Settings Values : Initialize (WLAN Off)
Erase Security Settings : Erase (Wireless LAN Off)
Import Settings
WLAN Card Information
Latest Error Information : Cannot find access point.
Region Code : US
Update Data

* For details on the printing procedure, see "Confirming the Settings for NB-W2 (Printing the Extension Card List)," on p. 4-23.

<Cannot find access point.>

Cause 1 The access point is not turned on.

Remedy Turn on the access point.

Cause 2 The SSID specified in "SSID Settings" (See p. 3-21) is not correct. (The SSID of another access point is specified.)

Remedy Specify the correct SSID.

Cause 3 You are using the devices in the following communication environment.

- NB-W2 is far away from the access point.
- A wall or partition exists between NB-W2 and the access point.
- Radio interference (from a microwave oven, amateur radio stations, etc.) is present.

Remedy Install the devices where they can communicate with each other easily.

Cause 4 The settings for NB-W2 and the access point are different.

Remedy Check the settings for the access point (See the instruction manual of the access point). Then, specify the same settings for NB-W2 as those for the access point.

Cause 5 The settings for the access point are not correct.

Remedy Check the settings for the access point (the settings such as MAC address restriction and IP address restriction) (See the instruction manual of the access point).

Cause 6 An unusable channel is specified for the access point.

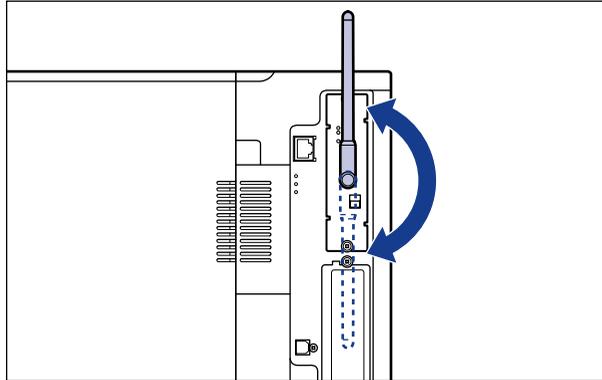
Remedy Specify between "1" and "11" for the channel of the access point.

Cause 7 An access point other than an IEEE 802.11b/IEEE 802.11g access point is being used.

Remedy Use an access point of a communication standard that supports NB-W2.

Cause 8 The angle of the antenna of NB-W2 is not proper.

Remedy Rotate the antenna in the following range to make an adjustment.



<Select WPA/WPA2 + 802.1X/EAP>

Cause 1 The SSID specified in "SSID Settings" (See p. 3-21) is not correct. (The SSID of another access point is specified.)

Remedy Specify the correct SSID.

Cause 2 "WPA/WPA2 + 802.1X/EAP" is not specified for the security mode.

Remedy Specify "WPA/WPA2 + 802.1X/EAP" for the security mode, and then specify the settings for 802.1X authentication. (See "802.1X Authentication Settings," on p. 3-63)

If you want to specify "WPA/WPA2 + 802.1X/EAP" for the security mode, perform the following procedure (This section describes the procedure, taking the Remote UI as an example.).

1. Click [Device Settings], then click [Extension Card].
2. Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].
3. Select [WPA/WPA2 + 802.1X/EAP], then click [OK].
4. Confirmation messages are displayed twice. Click [OK] each time.
5. Click [Back to the Previous Menu] → [Save Parameter], then click [OK].
6. Confirmation messages are displayed twice. Click [OK] each time.

Cause 3 The settings for the access point are not correct.

Remedy Correct the settings for the access point. (See the instruction manual of the access point)

<Select WPA/WPA2 + PSK>

Cause 1 The SSID specified in "SSID Settings" (See p. 3-21) is not correct. (The SSID of another access point is specified.)

Remedy Specify the correct SSID.

Cause 2 "WPA/WPA2 + PSK" is not specified for the security mode.

Remedy Specify "WPA/WPA2 + PSK" for the security mode, then specify the setting for PSK. (See "WPA/WPA2 + PSK Settings," on p. 3-37)
If you want to specify "WPA/WPA2 + PSK" for the security mode, perform the following procedure (This section describes the procedure, taking the Remote UI as an example.).

1. Click [Device Settings], then click [Extension Card].
2. Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].
3. Select [WPA/WPA2 + PSK], then click [OK].
4. Confirmation messages are displayed twice. Click [OK] each time.
5. Click [Back to the Previous Menu] → [Save Parameter], then click [OK].
6. Confirmation messages are displayed twice. Click [OK] each time.

Cause 3 The settings for the access point are not correct.

Remedy Correct the settings for the access point. (See the instruction manual of the access point)

<Set Security to Off.>

Cause 1 The SSID specified in "SSID Settings" (See p. 3-21) is not correct. (The SSID of another access point is specified.)

Remedy Specify the correct SSID.

Cause 2 "Off" is not specified for the security mode.

Remedy Perform the following procedure to specify "Off" for the security mode (This section describes the procedure, taking the Remote UI as an example.).

1. Click [Device Settings], then click [Extension Card].
2. Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Security].
3. Select [Off], then click [OK].
4. Confirmation messages are displayed twice. Click [OK] each time.
5. Click [Back to the Previous Menu] → [Save Parameter], then click [OK].
6. Confirmation messages are displayed twice. Click [OK] each time.

Cause 3 The settings for the access point are not correct.

Remedy Correct the settings for the access point (See the instruction manual of the access point).

<Set Encryption to auto.>

Cause 1 "Encryption for WPA/WPA2" is set to "AES-CCMP".

Remedy Perform the following procedure in the Remote UI.

1. Click [Device Settings], then click [Extension Card].
2. Click [NB-W2] → [Wireless LAN Settings] → [Security Settings] → [Encryption for WPA/WPA2].
3. Select [Auto], then click [OK].
4. Confirmation messages are displayed twice. Click [OK] each time.
5. Click [Back to the Previous Menu] → [Save Parameter], then click [OK].
6. Confirmation messages are displayed twice. Click [OK] each time.

Cause 2 The settings for the access point are not correct.

Remedy Correct the settings for the access point. (See the instruction manual of the access point)

<Check PSK settings.>

Cause 1 The setting for PSK is not correct (The setting for PSK is different between NB-W2 and the access point.).

Remedy Specify the same setting as that for the access point. (See "WPA/WPA2 + PSK Settings," on p. 3-37)

Cause 2 The settings for the access point are not correct.

Remedy Correct the settings for the access point. (See the instruction manual of the access point)

<A MIC error has occurred.>

Cause A MIC error was detected (NB-W2 is being attacked from the outside.).

Remedy NB-W2 is automatically ready to communicate when the attack is over.

<Access point settings error.>

Cause An unsupported encryption method is specified for the access point.

Remedy Correct the settings for the access point. (See the instruction manual of the access point)

Problems When an Authentication Server Is Being Used

If a problem has occurred between the authentication server and NB-W2, a message appears in the following locations. Take the measures according to the message.

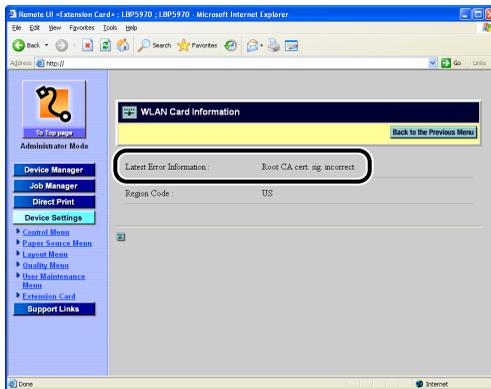
NOTE

If the displayed message is not described in this section, see "Problems Related to the Access Point," on p. 4-9.

4

Troubleshooting

■ Remote UI ([Device Settings] → [Extension Card] → [NB-W2] → [Wireless LAN Settings] → [WLAN Card Information])



■ Extension Card List

WEP Key4(Hex 10 or26 digits) :
Select WEP Key : 1
802.11 Authentication : Open System
Save Parameter
Save Parameter : Save
Wireless LAN Card Management
Initialize Settings Values : Initialize (WLAN Off)
Erase Security Settings : Erase (Wireless LAN Off)
Import Settings

WLAN Card Information
Latest Error Information : Root CA cert. sig. incorrect
Region Code : US

Update Data

* For details on the printing procedure, see "Confirming the Settings for NB-W2 (Printing the Extension Card List)," on p. 4-23.

<Root CA cert. sig. incorrect>

Cause 1 The digital signature of the root CA certificate is not correct.

Remedy Use a root CA certificate of the correct digital signature. (See "Update Root CA Certificate," on p. 3-64)

Cause 2 The root CA certificate is corrupted (modified).

Remedy Use the correct root CA certificate. (See "Update Root CA Certificate," on p. 3-64)

<Root CA cert. valid date er.>

Cause 1 The issue date of the root CA certificate is not correct.

Remedy Use a root CA certificate of the correct issue date. (See "Update Root CA Certificate," on p. 3-64)

Cause 2 The printer's clock is slow.

Remedy Adjust the printer's clock. (See "User's Guide" (PDF manual) supplied with the printer)

<Root CA cert. expired.>

Cause 1 The root CA certificate is expired.

Remedy Use an unexpired root CA certificate. (See "Update Root CA Certificate," on p. 3-64)

Cause 2 The printer's clock is fast.

Remedy Adjust the printer's clock. (See "User's Guide" (PDF manual) supplied with the printer)

<CRL signature is incorrect.>

Cause 1 The signature of the certificate revocation list is not correct.

Remedy Use a certificate revocation list of the correct signature. (See "Update CRL," on p. 3-67)

Cause 2 The certificate revocation list is corrupted (modified).

Remedy Use the correct certificate revocation list. (See "Update CRL," on p. 3-67)

<CRL valid date error.>

Cause 1 The issue date of the certificate revocation list is not correct.

Remedy Use a certificate revocation list of the correct issue date. (See "Update CRL," on p. 3-67)

Cause 2 The printer's clock is slow.

Remedy Adjust the printer's clock. (See "User's Guide" (PDF manual) supplied with the printer)

 **NOTE**

Even if this message appears, the certificate revocation list is regarded as being effective.

<Update CRL.>

Cause 1 The certificate revocation list is not updated.

Remedy Use the new certificate revocation list. (See "Update CRL," on p. 3-67)

Cause 2 The printer's clock is fast.

Remedy Adjust the printer's clock. (See "User's Guide" (PDF manual) supplied with the printer)

 **NOTE**

Even if this message appears, the certificate revocation list is regarded as being effective.

<CRL is not installed.>

Cause The certificate revocation list is not specified.

Remedy Specify the certificate revocation list as needed. (See "Update CRL," on p. 3-67)

<Cannot find server cert.>

Cause No certificate is sent from the authentication server.

Remedy Check the settings for the authentication server or the access point. (See the instruction manual of the authentication server; the instruction manual of the access point)

<Server cert. issuer error.>

Cause 1 The issuer of the root in the certificate sent from the authentication server does not match the one in the root CA certificate.

Remedy Specify the correct root CA certificate. (See "Update Root CA Certificate," on p. 3-64)

Cause 2 The address of the authentication server specified for the access point is not correct.

Remedy Correct the settings for the access point. (See the instruction manual of the access point)

Cause 3 The settings for the authentication server are not correct.

Remedy Correct the settings for the authentication server. (See the instruction manual of the authentication server)

<Cannot verify server cert.>

Cause The certificate sent from the authentication server is not correct (The signature verification by the root CA certificate failed.).

Remedy Check the settings for the authentication server or the access point.

<Server cert. valid date er.>

Cause 1 The issue date of the certificate sent from the authentication server is not correct.

Remedy Correct the settings for the authentication server. (See the instruction manual of the authentication server)

Cause 2 The printer's clock is slow.

Remedy Adjust the printer's clock. (See "User's Guide" (PDF manual) supplied with the printer)

<Server cert. expired.>

Cause 1 The certificate sent from the authentication server is expired.

Remedy Correct the settings for the authentication server. (See the instruction manual of the authentication server)

Cause 2 The printer's clock is fast.

Remedy Adjust the printer's clock. (See "User's Guide" (PDF manual) supplied with the printer)

<Server cert. revoked.>

Cause The certificate sent from the authentication server is on the certificate revocation list.

Remedy Correct the settings for the access point and the authentication server. (See the instruction manual of the access point; the instruction manual of the authentication server)

<No auth. server reply.>

Cause 1 A communication problem has occurred between the access point and the authentication server.

Remedy Check if the access point and the authentication server are communicating properly, as well as if the authentication server is operating properly.

Cause 2 The settings for the access point or the authentication server are not correct.

Remedy Correct the settings for the access point and the authentication server. (See the instruction manual of the access point; the instruction manual of the authentication server)

<No username on auth. server.>

Cause 1 The user name specified in "User Name" (See p. 3-73) is not correct.

Remedy 1 Specify the correct user name.

Remedy 2 Specify using a format (such as "DOMAIN/USER" and "user@domain") appropriate to the authentication server.

Cause 2 The settings for the authentication server are not correct.

Remedy Correct the settings for the authentication server. (See the instruction manual of the authentication server)

<Select EAP-TTLS/PEAP>

Cause 1 The setting for "EAP Type" (See p. 3-76) is not correct.

Remedy Set "EAP Type" to "TTLS/PEAP (802.1X Password)".

Cause 2 The settings for the access point or the authentication server are not correct.

Remedy Correct the settings for the access point and the authentication server. (See the instruction manual of the access point; the instruction manual of the authentication server)

<Select EAP-TLS>

Cause 1 The setting for "EAP Type" (See p. 3-76) is not correct.

Remedy Set "EAP Type" to "TLS (WLAN Card Certificate)".

Cause 2 The settings for the access point or the authentication server are not correct.

Remedy Correct the settings for the access point and the authentication server. (See the instruction manual of the access point; the instruction manual of the authentication server)

<Cannot log in now.>

Cause You tried to log on at a time when log on is not allowed.

Remedy Wait until you can log on or change the settings for the authentication server. (See the instruction manual of the authentication server)

<User name is disabled.>

Cause You cannot access the authentication server with the user name specified in "User Name," on p. 3-73.

Remedy Change the user name or the settings for the authentication server. (See the instruction manual of the authentication server)

<MSCHAPv2 password expired.>

Cause The password specified in "802.1X Password" (See p. 3-79) is expired.

Remedy Change the settings for the authentication server. (See the instruction manual of the authentication server)

<Dial-in error.>

Cause Dialing in using the user name specified in "User Name" (See p. 3-73) is not allowed.

Remedy Change the settings for the authentication server. (See the instruction manual of the authentication server)

<Username/802.1X password er.>

Cause 1 The content specified in "User Name" (See p. 3-73) or "802.1X Password" (See p. 3-79) is not correct.

Remedy Correct the setting.

Cause 2 No account exists in the authentication server.

Remedy Create an account. (See the instruction manual of the authentication server)

<Cannot use GTC inner prot.>

Cause 1 The content specified in "TTLS/PEAP Inner Protocol" (See p. 3-81) is not correct.

Remedy Specify "MSCHAPv2" or "PAP".

Cause 2 The settings for the authentication server are not correct.

Remedy Enable PEAP for the EAP type in the authentication server. (See the instruction manual of the authentication server)

<Cannot use PAP inner prot.>

Cause 1 The content specified in "TTLS/PEAP Inner Protocol" (See p. 3-81) is not correct.

Remedy Specify "MSCHAPv2" or "GTC".

Cause 2 The settings for the authentication server are not correct.

Remedy Enable TTLS for the EAP type in the authentication server. (See the instruction manual of the authentication server)

<802.1X password expired.>

Cause The password specified in "802.1X Password" (See p. 3-79) is expired.

Remedy 1 Set "MSCHAPv2 Password" to "Allow Change", then enter a password in "MSCHAPv2 New Password". (See "MSCHAPv2 Password," on p. 3-84, "MSCHAPv2 New Password," on p. 3-87)

Remedy 2 Change the settings for the authentication server (such as the setting to make the password indefinitely valid). (See the instruction manual of the authentication server)

<MSCHAPv2 new password error.>

Cause 1 The password specified in "MSCHAPv2 New Password" (See p. 3-87) is not correct.

Remedy Change the password to a correct one (which fulfills the security policy of the authentication server.).

Cause 2 (If the authentication server is an odyssey server) the user name specified in "User Name" (See p. 3-73) does not include "DOMAIN".

Remedy Change the user name to the correct one.

Cause 3 The settings for the authentication server are not correct.

Remedy Correct the settings for the authentication server. (See the instruction manual of the authentication server)

<WLAN card cert. date error>

Cause 1 The issue date of the wireless LAN card certificate is not correct.

Remedy Use a wireless LAN card certificate of the correct issue date.

Cause 2 The printer's clock is slow.

Remedy Adjust the printer's clock. (See "User's Guide" (PDF manual) supplied with the printer)

<WLAN card cert. expired.>

Cause 1 The wireless LAN card certificate is expired.

Remedy Use an unexpired wireless LAN card certificate.

Cause 2 The printer's clock is fast.

Remedy Adjust the printer's clock. (See "User's Guide" (PDF manual) supplied with the printer)

<Set private key password.>

Cause 1 The password specified in "Private Key Password" (See p. 3-96) is not correct.

Remedy Change the password to the correct one.

Cause 2 The private key specified in "Update WLAN Card Private Key" (See p. 3-93) is not correct.

Remedy Change the private key to the correct one.

<WLAN card cert. revoked.>

Cause The wireless LAN card certificate specified in "Update WLAN Card Certificate" (See p. 3-90) is not correct or is revoked.

Remedy Change the wireless LAN card certificate to the correct one.

<WLAN card cert. incorrect.>

Cause 1 The wireless LAN card certificate specified in "Update WLAN Card Certificate" (See p. 3-90) is not correct.

Remedy Change the wireless LAN card certificate to the correct one.

Cause 2 The certificate for the root certificate authority in the certificate path, which issued the wireless LAN card certificate, is not registered in the authentication server as the one for a trusted certificate authority.

Remedy Register it in the authentication server. (See the instruction manual of the authentication server)

<WLAN card cert. auth error.>

Cause 1 The wireless LAN card certificate specified in "Update WLAN Card Certificate" (See p. 3-90) is not correct.

Remedy Change the wireless LAN card certificate to the correct one.

Cause 2 The private key specified in "Update WLAN Card Private Key" (See p. 3-93) is not correct.

Remedy Change the private key to the correct one.

Cause 3 No certificate account exists in the authentication server.

Remedy Change the settings for the authentication server account. (See the instruction manual of the authentication server)

Confirming the Settings for NB-W2 (Printing the Extension Card List)

NB-W2 is provided with a function of the extension card list that allows you to check its version as well as the settings. Use this function when required after setting the network environment or performing the security settings, for example when you want to check the operation of NB-W2. You can print the extension card list using the Remote UI or printer's control panel.

NOTE

The extension card list is designed to be printed on A4 size paper. Load A4 size paper.

Printing the Extension Card List from the Remote UI

- 1 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.**

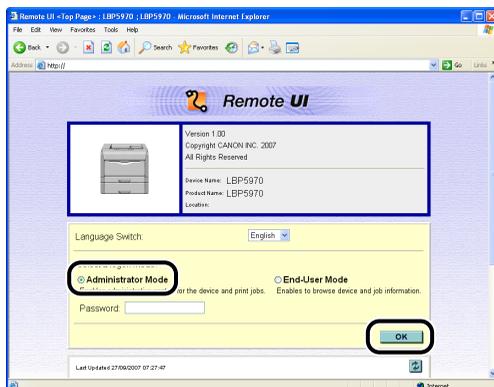
`http://<the IP address or name of the printer (standard network or NB-W2)>/`

Input Example: `http://192.168.0.215/`

NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

- 2 Select [Administrator Mode], then click [OK].**

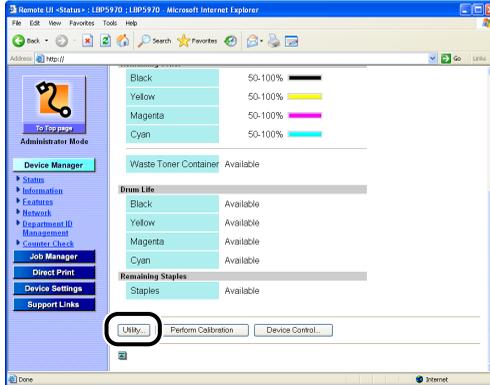




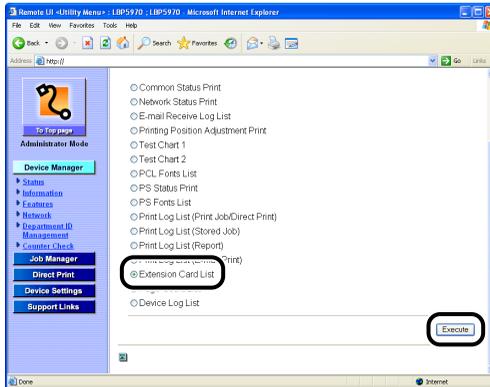
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

3 Click [Utility] in the [Status] page.



4 Select [Extension Card List], then click [Execute].



The extension card list is printed.

Printing the Extension Card List from the Printer's Control Panel

1 Make sure that the printer is online.

If the printer is not online, press [Online].

2 Press [Utility], then select EXT. CARD LIST using [◀] and [▶].

3 Press [OK].

The extension card list is printed.

This chapter describes the network setting items in a list and the specifications of NB-W2.

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Removing NB-W2

Remove NB-W2 using the following procedure. Have ready the protective plate and screws for the expansion slot removed when NB-W2 was installed.

CAUTION

- Be sure to turn the printer OFF, and then disconnect all the interface cables and power cord from the printer before removing NB-W2. If you attempt to remove NB-W2 when the printer is ON or when any cables are connected to the printer, this may result in an electrical shock.
 - Be careful when handling NB-W2. Touching the edges or any sharp parts of NB-W2 may result in personal injury.
-

1 Specify "Standard Network" for the primary network.

IMPORTANT

If you remove NB-W2 from the printer with the primary network set to "NB-W2", you cannot use the LAN connector supplied with the printer due to this setting. Before you remove NB-W2 from the printer, set the primary network to "Standard Network". For details on the procedure for setting the primary network, see "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103.

2 Turn the printer OFF.

If you are using a hard disk in the printer, turn the printer OFF after performing a shutdown (See the manuals supplied with the printer).

3 If a USB cable is connected, turn the computer off, and then disconnect the USB cable from the printer.

4 Disconnect the power plug from the AC power outlet.

5 Remove the power cord from the printer.

6 If a LAN cable is connected, disconnect it from the printer.

7 Rotate the antenna so that you can work easier, and then remove the two screws securing both sides of NB-W2.



IMPORTANT

You will need the two removed screws when you install NB-W2 again. Be sure not to misplace them.

8 Pull NB-W2 out.

Store NB-W2 in the protective bag that it came in.

9 Attach the protective plate to the expansion slot and secure it with the screws.

Network Setting Items

You can change the settings for NB-W2 by using the web browser (Remote UI) or the printer's control panel. The setting items you can change are as follows. For details on the items for the network settings other than the following, see "Network Guide" (PDF manual) supplied with the printer.

O: Specifiable

-: Not specifiable

Option	Contents	Default	Settings Using the Remote UI	Settings Using the Control Panel
[Primary Network Setting]	Specify so that you can use NB-W2.	Standard Network	O	O
[Access Point]	Select the access point to be used with the detected SSID.	(Blank)	O	O
[Display/Enter SSID]	Enter the SSID of the access point to be used.	(Blank)	O	O
[Security]	Specify the security mode.	WPA/WPA2 + 802.1X/EAP	O	O
[Encryption for WPA/WPA2]	Specify the encryption method.	Auto	O	O
[Update Root CA Certificate]	Specify the authentication server certificate issued by a certificate authority.	(Blank)	O	-
[Update CRL]	Specify the certificate revocation list.	(Blank)	O	-
[Erase CRL]	Erase the certificate revocation list.	Erase	O	O

Option	Contents	Default	Settings Using the Remote UI	Settings Using the Control Panel
[User Name]	Specify the user name for IEEE 802.1X authentication (used for handshake in EAP-TLS).	(Blank)	<input type="radio"/>	<input type="radio"/>
[EAP Type]	Specify the authentication method.	TLS (WLAN Card Certificate)	<input type="radio"/>	<input type="radio"/>
[802.1X Password]	Specify the password for IEEE 802.1X authentication.	(Blank)	<input type="radio"/>	<input type="radio"/>
[TTLS/PEAP Inner Protocol]	Specify the inner protocol to be used for the authentication protocol.	MSCHAPv2	<input type="radio"/>	<input type="radio"/>
[MSCHAPv2 Password]	Specify the response to a password change request.	Reject Change	<input type="radio"/>	<input type="radio"/>
[MSCHAPv2 New Password]	Specify a new password to be used when the password change is allowed.	(Blank)	<input type="radio"/>	<input type="radio"/>
[Update WLAN Card Certificate]	Specify the wireless LAN card certificate to be used.	(Blank)	<input type="radio"/>	-
[Update WLAN Card Private Key]	Specify the private key to be used.	(Blank)	<input type="radio"/>	-
[Private Key Password]	Specify the password for the private key.	(Blank)	<input type="radio"/>	<input type="radio"/>
[PSK ASCII (8-63 characters)]	Specify PSK (Enter in ASCII format.).	(Blank)	<input type="radio"/>	<input type="radio"/>
[PSK Hex (64 digits)]	Specify PSK (Enter in hexadecimal format.).	(Blank)	<input type="radio"/>	<input type="radio"/>
[WEP Key1 to 4 (Hex 10 or 26 digits)]	Specify the WEP key.	(Blank)	<input type="radio"/>	<input type="radio"/>

Option	Contents	Default	Settings Using the Remote UI	Settings Using the Control Panel
[Select WEP Key]	Select the WEP key to be used.	1	<input type="radio"/>	<input type="radio"/>
[802.11 Authentication]	Specify the authentication mode.	Open System	<input type="radio"/>	<input type="radio"/>
[Save Parameter]	Save the specified settings.	-	<input type="radio"/>	<input type="radio"/>
[Initialize Settings Values]	Reset the specified settings to the default values.	-	<input type="radio"/>	<input type="radio"/>
[Erase Security Settings]	Erase all the specified settings and reset the settings to the default values.	-	<input type="radio"/>	<input type="radio"/>
[Import Settings]	NB-W2 does not support this function.	(Blank)	-	-
[Update Data]	Specify the file and update the firmware.	(Blank)	<input type="radio"/>	-

Software That Can Be Used for the Network Settings

You can perform the network settings using the following software.

O: Specifiable

-: Not specifiable

Setting	Remote UI	Control Panel
IP Address Setting (See p. 3-2)	O	O
IP v. 6 Settings (See p. 3-10)	O	O* ²
SSID Settings (See p. 3-21)	O	O
Security Settings (See p. 3-27)	O	O* ²
Initializing the Network Settings (See p. 5-8)	O	O
Updating the Firmware (See p. 5-13)	O	-
Settings Shared with "Standard Network"* ¹	O	O* ²

*¹ For details on the settings, see "Network Guide" (PDF manual) supplied with the printer.

*² Some settings are specifiable (See "Network Setting Items," on p. 5-4)

Initializing the Network Settings

There are two kinds of network settings, and each has a different initialization method.

■ Initializing the Card Settings

Initialize the settings for NB-W2, such as the IP address setting and the subnet mask setting (the settings displayed by clicking [Device Settings] → [Extension Card] for the Remote UI), using the following procedures.

Remote UI	<ol style="list-style-type: none">1. Click [Device Settings] on the left, then click [Extension Card] → [NB-W2] → [Wireless LAN Settings] → [Wireless LAN Card Management] → [Initialize Settings Values].2. Select [Initialize (WLAN Off)], then click [OK].3. Perform a hard reset or cycle the power of the printer.
Printer's Control Panel	<ol style="list-style-type: none">1. Press [Settings], then select the following items in order using [◀] and [▶], then press [OK]. INTERFACE MENU → EXTENSION CARD → NB-W2 → WLAN CARD MGMT → INIT.SET VALUES2. <WLAN OFF. OK?> is displayed. Press [OK].3. Perform a hard reset or cycle the power of the printer.

Even if none of the above procedures work, you can initialize NB-W2 by manipulating the DIP switches. (See p. 5-9)

IMPORTANT

If you select [Erase Security Settings] (ERASE SEC.SET) in Step 1 above, all the setting values are erased. Perform the procedure on such occasions as when you dispose of NB-W2.

■ Initializing the Settings Shared with "Standard Network"

Initialize the settings for Raw printing, IP address restriction, and others (the settings displayed by clicking [Device Manager] → [Information] or [Device Manager] → [Network] for the Remote UI) using the following procedures.

Remote UI	Click [Device Manager] on the left, then click [Network] → [Show Parameter List] → [Initialize Network Settings].
Printer's Control Panel	Press [Settings], then select the following items in order using [◀] and [▶], then press [OK]. INTERFACE MENU → NETWORK MENU → INIT.N/W SET.

Initializing NB-W2

When you want to initialize NB-W2, switch over the DIP switches on NB-W2 using the following procedure. If you initialize NB-W2 by manipulating the DIP switches, the network settings are reset to the default settings. A Phillips screwdriver is required for performing the following task. Have a screwdriver ready in advance that matches the size of the screws.

1 Turn the printer OFF.

If you are using a hard disk in the printer, turn the printer OFF after performing a shutdown (See the manuals supplied with the printer).

2 If a USB cable is connected, turn the computer off, and then disconnect the USB cable from the printer.

3 Disconnect the power plug from the AC power outlet.

4 Remove the power cord from the printer.

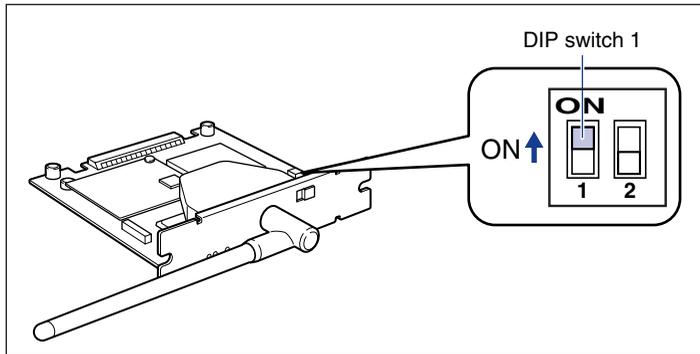
5 If a LAN cable is connected, disconnect it from the printer.

6 Rotate the antenna so that you can work easier, and then remove the two screws securing both sides of NB-W2.

7 Pull NB-W2 out.

8 Switch the DIP switch 1 (A) to ON.

Set the DIP switches with a small tool such as the tip of a ball-point pen.



IMPORTANT

When setting the DIP switches, be careful not to damage the main board with a small tool such as the tip of a ball-point pen. Do not use a sharp object such as a mechanical pencil.

9 Insert NB-W2 into the expansion slot.

Hold the metal panel portions of NB-W2 and insert it straight while aligning it with the guide rails inside the expansion slot.

IMPORTANT

- Insert NB-W2 securely.
- Do not touch the NB-W2 parts, printed circuits, or connectors with your hands.

10 Secure the top and bottom portions of NB-W2 with the two screws supplied with NB-W2.

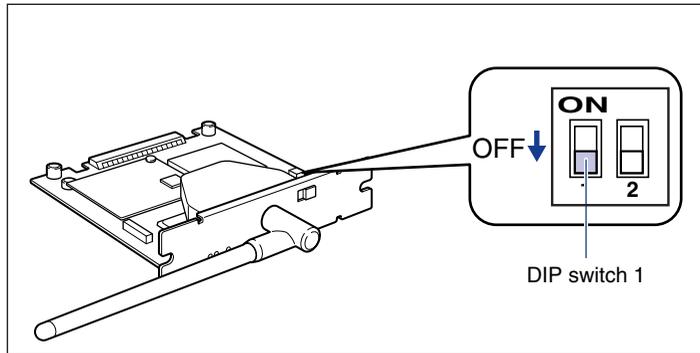
11 Connect the power cord to the printer.

12 Turn the printer ON, wait until the ERR2 indicator goes off, and then turn the printer OFF.

13 Remove the power cord from the printer.

14 Remove NB-W2, then reset the DIP switch 1 (A) to OFF.

Set the DIP switches with a small tool such as the tip of a ball-point pen.



IMPORTANT

When setting the DIP switches, be careful not to damage the main board with a small tool such as the tip of a ball-point pen. Do not use a sharp object such as a mechanical pencil.

15 Install NB-W2.

16 Connect the LAN cable to the printer as needed.

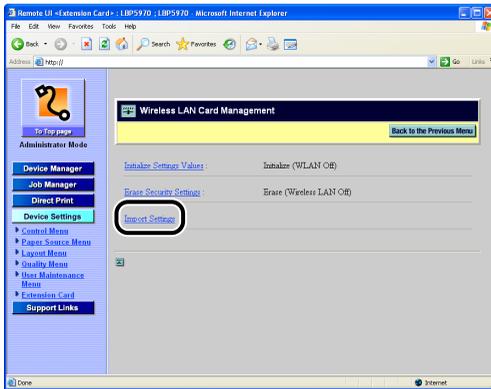
17 Connect the power cord to the printer.

18 Plug the power plug into the AC power outlet.

19 Connect the USB cable to the printer as needed.

Import Settings

Currently, NB-W2 does not support the "Import Settings" function.



Updating the Firmware

To update the firmware, specify the update file, then update the firmware of NB-W2.



IMPORTANT

- Before updating the firmware, be sure to read the README file supplied with the firmware.
- If you cannot update the firmware properly, due to a reason such as power-off during the update, the printer may start up in the emergency startup mode. For details on the emergency startup mode, see "Emergency Startup Mode," on p. 5-17.
- Make sure that the printer is not operating before updating the firmware. Do not print during the firmware update. Otherwise, the firmware cannot be updated properly.



NOTE

You can update the firmware only when you have logged on in Administrator Mode.

1 Read the contents of the README file supplied with the firmware.

2 Switch the setting for "Primary Network Setting" to "Standard Network".

For details on the procedure for switching the setting for "Primary Network Setting", see "Switching the Network to Be Used (Switching between Standard Network and NB-W2)," on p. 3-103.



IMPORTANT

If you try to update the firmware with "Primary Network Setting" set to "NB-W2", you may fail to do so depending on the state of radio waves.

3 Connect your computer and the printer to the network using LAN cables.

4 Run the web browser, enter the following URL in the address entry field, and then press the [ENTER] key on your keyboard.

`http://<the IP address or name of the printer (standard network)>/`

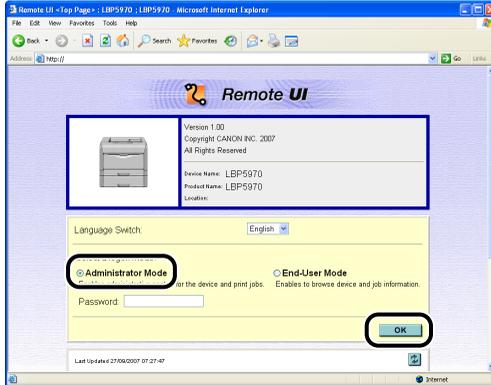
Input Example: `http://192.168.0.215/`



NOTE

For more details on the Remote UI, see "Remote UI Guide" (PDF manual) supplied with the printer.

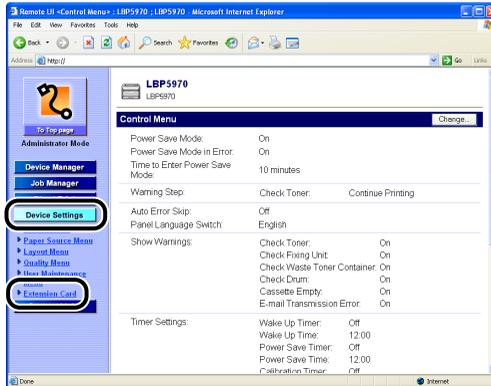
5 Select [Administrator Mode], then click [OK].



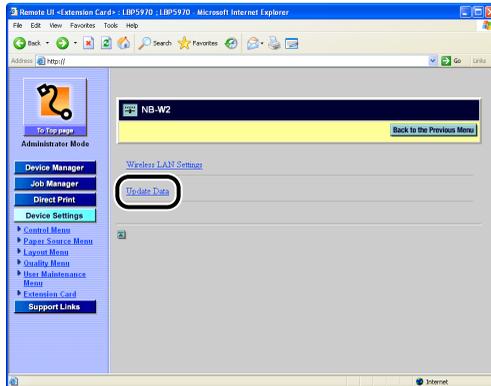
NOTE

If a password is specified for the printer, enter the password, and then click [OK]. If the password is not specified, it is not required to enter any value.

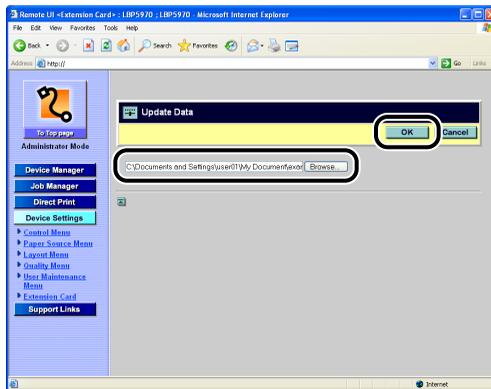
6 Click [Device Settings] on the left, then click [Extension Card].



7 Click [NB-W2] → [Update Data].

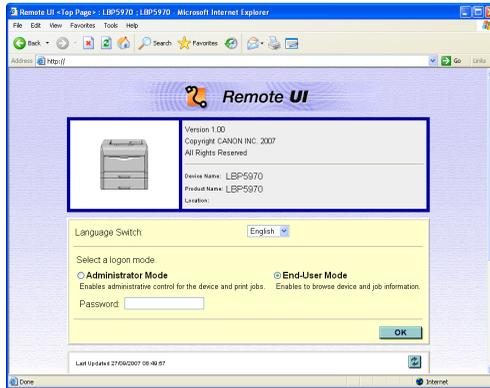


8 Click [Browse] and select the file, or enter the path and click [OK].



9 Confirmation messages are displayed three times. Click [OK] each time.

10 Wait until the following screen appears.



The firmware update is completed.

NOTE

If the printer does not restart automatically after the firmware update, perform a hard reset or cycle the power of the printer.

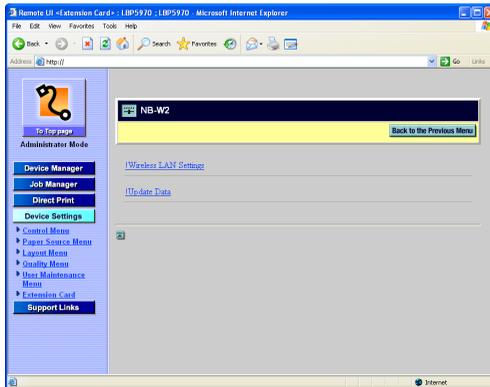
To perform a hard reset, click [Status] from the [Device Manager] menu on the left, and then click [Device Control]. Select [Hard Reset] in the [Device Control] page, and then click [Execute].

Emergency Startup Mode

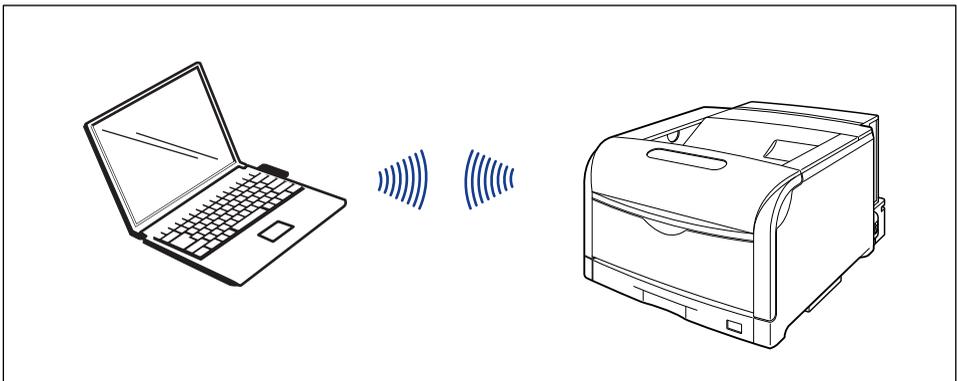
If you cannot update the firmware properly, due to a reason such as power-off during the update, the printer may start up in the emergency startup mode.

If the printer starts up in the emergency startup mode, the following states occur.

- "!" is added to the setting items displayed in the Remote UI or printer's control panel.



- SSID is fixed at "NB-W2_XXXXXX" (XXXXXX is the last 6 digits of the MAC address (A to F are in capitals)).
- The security mode is fixed at "WEP".
- Communication in "Ad Hoc Mode", which does not communicate via an access point, becomes possible.
(However, do not use "Ad Hoc Mode" if you can connect the computer and printer to the network using LAN cables.)



If the printer started up in the emergency startup mode, update the firmware again using the following procedure.

<Recommended Method>

Connect the computer and printer to the network using LAN cables.



If "NB-W2" is specified for the primary network setting, specify "Standard Network". (See p. 3-103)

<If the Computer and Printer Cannot Be Connected By LAN Cables>

Specify the setting for the WEP key as needed. (See p. 3-28)



Specify "NB-W2_XXXXXX (the last 6 digits of the MAC address)" for the SSID setting for the wireless LAN adapter. The MAC address is indicated in the extension card list. (See p. 4-23)



Specify the channels for the wireless LAN adapter and NB-W2 as needed. For details on specifying the channel for NB-W2, see "Specifying the Channel," on p. 5-19.

Enabling the Settings (See p. 3-99)

Confirm and update the specified settings.

Updating the Firmware (See p. 5-13)

Update the firmware again.

Specifying the Channel

"7" is specified for the channel by default. Specify the channel using the following procedure as needed. Specify the channel using the printer's control panel.

- 1** Press [Settings], select INTERFACE MENU using [◀] and [▶], then press [OK].
- 2** Select EXTENSION CARD using [◀] and [▶], then press [OK].
- 3** Select !NB-W2 using [◀] and [▶], then press [OK].
- 4** Select !BASIC SETTINGS using [◀] and [▶], then press [OK].
- 5** Select !CHANNEL using [◀] and [▶], then press [OK].
- 6** Specify the channel using [▲] and [▼], then press [OK].

If you do not want to continue the settings, be sure to see "Enabling the Settings" (p. 3-99) and confirm the consistency of the settings before updating them. If you do not update the settings, the specified settings cannot be enabled.

Specifications

CPU	Freescale MPC8241 166 MHz
Standard	IEEE 802.11g/IEEE 802.11b
Transmission Method	DS-SS method/OFDM method
Frequency Range	2412 to 2462 MHz
Data Transmission Speed	IEEE 802.11g: 6/9/12/18/24/36/48/54 Mbps IEEE 802.11b: 1/2/5.5/11 Mbps
Communication Modes	Infrastructure Mode/Ad Hoc Mode (only for emergency startup)
Security	WEP, IEEE 802.1X/EAP (TLS/TTLS/PEAP), PSK, WPA (AES)
Indicators	3 pieces (LNK, ERR1, ERR2)



IMPORTANT

If NB-W2 is installed in the printer, the printer does not enter the Deep Sleep mode. For details on Power Save Mode, see "User's Guide" (PDF manual) supplied with your printer.

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Canon