

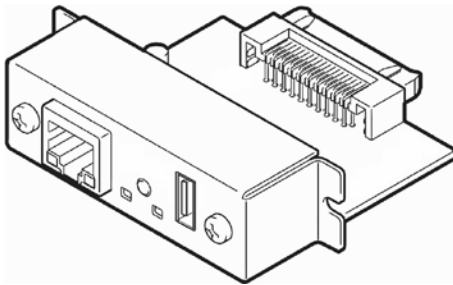
CITIZEN

IF1-WFXX

Wireless LAN (WLAN) Interface Board

User's Manual

Rev2.11



CITIZEN SYSTEMS JAPAN CO., LTD.

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Read before using

Be sure to read this manual carefully before using the product. After you read it, store it in a safe place so that you can reread it when necessary.

- Contents of this manual may be changed without notice.
- Reproducing and/or copying the contents of this manual by any means without permission are prohibited.
- We will not be responsible for any adverse occurrence that results from the use of this manual, regardless if it contains omissions, errors/misprints, etc.
- Note that we will not be responsible for (a) loss caused by improper operation or mishandling of the device by the user, or (b) loss due to operational environment.
- Data etc., are basically impermanent; long time or permanent storing/saving of data by the device is not possible.
- Note that we will not be responsible for any loss or loss of profits owing to loss of data due to breakdown, repairs, inspections, etc.
- Please contact us if there are omissions, errors, ambiguities, etc. in this manual.
- Refer to this document along with the user manual of the printer.
- This product operates by setting up a wireless connection between itself and other WLAN equipment for data transmission. Therefore, other WLAN equipment is required to use this product. While we have confirmed the operation of this product with certain WLAN equipment, operation with all types of WLAN equipment is not guaranteed. Carry out a sufficient evaluation before using this product.

Trademarks

- Microsoft, Windows XP, Windows Vista, Windows 7 and Windows 8 are registered trademarks of Microsoft Corporation U.S.A.
- Other company names and product names mentioned here are trademarks or registered trademarks of those companies.

Safety Instructions

- Before handling the product (removing from packaging, etc.), discharge static electricity by touching metal, etc.
- Do not spill liquid onto the device.
- Do not place the device in a humid place.
- Do not step on, or subject the network cable connected to the device to rough treatment.
- Do not connect a telephone line to the RJ45 connector on the device. Be sure to connect STP cable (category 5 or higher).
- Connect the product only to devices that operate on SELV voltage (safety extra-low voltage).
- Be sure to use the device inserted in the interface board slot of the printer. Do not use the device when it is not inserted in the interface board slot.

Important

FCC Radiation Exposure Statement

The radiation exposure from this equipment is within the FCC RF radiation exposure limits for an uncontrolled environment. It is recommended that you install and operate this equipment with a minimum of 20 cm between the radiator and your body.

This equipment is restricted to indoor operation only in the band 5150–5250 MHz.

CE Mark Warning

This equipment is classified as a Class B product and may cause radio interference in a home environment. In such cases, the user is requested to take the necessary countermeasures to resolve the interference.

Restrictions by Country

Frequency range: 2400.0 to 2483.5 MHz



Country	Restrictions	Notes
Bulgaria	None	Outdoor use and public service require general authorization.
France	Outdoor use is limited to 10 mW e.i.r.p. within the band 2,454 to 2,483.5 MHz	Used for military radiolocation. The 2.4 GHz band is being reformed to relax the current regulations. Full implementation is planned by 2012.
Italy	None	Outdoor use requires general authorization.
Luxembourg	None	Network and service supply (not for spectrum) require general authorization.
Norway	Implemented	The geographical area within a radius of 20 km from the center of Ny-Ålesund is excluded from this subsection.
Russian Federation	None	For indoor use only.

Note: Do not use this equipment outdoors in France.

1. Introduction

Thank you for purchasing the Citizen IF1-WFXX wireless LAN (WLAN) interface board.

By using the IF1-WFXX WLAN interface board (hereinafter referred to as the IF1-WFXX) with the CT-S801 and CT-S601 series of line thermal printers, CL-S400DT barcode printer, and other equipment, you can directly connect to various printers via a network and use computers on the network to print from the printers. In addition, the operational status, print settings, and other information about the printer can be checked from computers on the network.

1-1. Features

- Support for WLAN and Ethernet for configuration
- Support for 802.11a(IF1-WFX2 only) and 802.11b/g/n WLAN
- WPS function for easy WLAN setup (IF1-WF01 only)
- Support for WPA/WPA2 WLAN encryption
- Support for DHCP, static IP, and ZeroConf methods of IP address acquisition
- Configuration through a browser or utility software
- Support for Raw 9100 port and LPR printing methods
- Panel button to print configuration information and change the configuration mode
- LED indicators for connection, operation, and error statuses

1-2. Model Classification

IF1-WF01: 2.4GHz model (802.11b/g/n)

IF1-WFX2: 2.4/5GHz model (802.11a/b/g/n)

Remarks : Depending on the country, different Wi-Fi adapter may be used with IF1-WFX2 and model name can be changed by that. (Ex: IF1-WF12 is for Japan.)

Also there are countries where IF1-WFX1 is not available.

1-3. Specifications

Model number		IF1-WF01	IF1-WFX2
WLAN	Supported standards	IEEE802.11n, IEEE802.11g, IEEE802.11b	IEEE802.11n, IEEE802.11a, IEEE802.11g, IEEE802.11b
	Number of channels	1 to 13	2.4GHz band: 1 to 13 5GHz band: W52 (36 to 48), W53 (52 to 64), W56(100 to 140), W58 (149 to 164)
	Frequency band	2.4GHz band (2,412 to 2,472 MHz)	
	Transmission speed	IEEE802.11n: maximum 150 Mbps IEEE802.11g: maximum 54 Mbps IEEE802.11b: 11 Mbps	IEEE802.11n: maximum 150 Mbps IEEE802.11a: maximum 54 Mbps IEEE802.11g: maximum 54 Mbps IEEE802.11b: 11 Mbps
	Easy setting function	WPS support	WPS non support
	Access mode	Infrastructure, * Ad-Hoc	
	Security	WPA2-PSK (encryption: AES, TKIP)	
		WPA2-PSK (encryption: AES, TKIP)	
		WEP (Key size: 64 bit/128 bit)	
*Ethernet	Standards	100BASE-TX/10BASE-T, Full Duplex/Half Duplex auto negotiation	
	Port	RJ-45	
Network	IP Version	IPv4	
	Protocols	TCP, UDP, HTTP, ICMP, DHCP, SNMP	
	Port number for printing	RAW (port 9100 (Changeable)), LPR	
	IP address setting	Manual, DHCP	
Software	Setting methods	Browser, PC setting tool	
	Firmware upgrade	Browser, PC setting tool	
	Supported OS	Windows XP, Windows Vista, Windows 7、Windows8	
Hardware	Power supply	DC 5V \pm 5%	
	Power consumption	Approx. 1 W	
	Operation panel	LED: 4 (2 on panel, 2 on RJ45 connector) Button: 1	
	External dimensions	80 mm (W) x 70 mm (D) x 28 mm (H) (including connector protuberance)	
	Weight	Approx. 78 g	

1 Introduction

WLAN adapter	External dimensions	15mm(W) x 19.2mm(D) x 10mm(H)	15mm(W) x 35mm(D) x 8mm(H)
	Weight	Approx. 2.2 g	Approx. 4 g (IF1-WF12)
Compatible printers		CT-S801/851/601/651 Series, CL-S400DT (CT-S2000/4000/310, CD-S500, etc. are not supported)	
Operating temperature and humidity ranges		0 to 40°C, 20 to 80% RH (condensation free)	
Storage temperature and humidity ranges		-20 to 60°C, 20 to 85% RH (condensation free)	
Safety standards		VCCI Class A, FCC Part 15, CE Mark	Depends on the Wi-Fi adapter (WF1-WF12: VCCI Class A)

*The communication by “Ad-Hoc” does not work correctly in various cases due to various restrictions. If “Ad-Hoc” does not work correctly, we recommend “Infrastructure”.

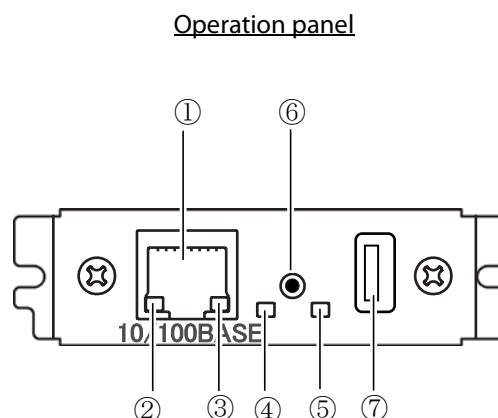
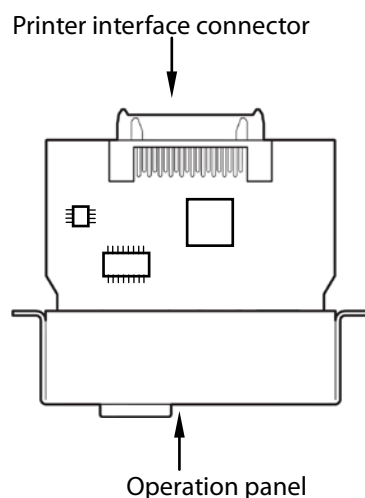
*The purpose of Ethernet port is to set up the WLAN interface board. And printing through the Ethernet port is not taken into the consideration. Therefore, depending on the used environment, the Ethernet port may not work properly for the printing.

*Only 2.412GHz~2.462GHz is allowed to be used in USA. Available 2.4GHz channels to choose for US users are only 1 – 11.

*Rules on the use of 5GHz band channels may vary according to different national laws.

Choose the 5GHz channel according to the law of the country to use this device.

1-4. Part Names and Functions

WLAN Interface Board Unit

- ① RJ45 connector (compatible with 10Base-T/100Base-TX)

Connection for network cable

- ② Ethernet transmission speed LED indicator (green)*1

Shows Ethernet transmission speed with steady/blinking light.

- ③ Ethernet status indicator LED (yellow)*1

Shows Ethernet connection status (disconnected, receiving data, etc.).

- ④ Ethernet/WLAN status LED indicator (green)*1

- ⑤ Ethernet/WLAN status LED indicator (red)*1

Shows transmission, connection, and error statuses of the IF1-WFXX with combinations of steady and blinking lights.

- ⑥ Panel button*2

Used to operate the IF1-WFXX.

- ⑦ USB connector

Connection for the Wi-Fi adapter.

*1 See 2-4, LED Functions (page 15) for indicator details.

*2 See 2-3, Using the Panel Button (page 14) for panel button operations.

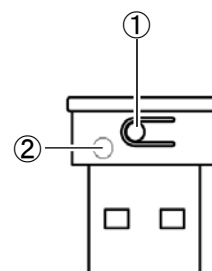
WLAN Adapter

- ① WPS button

Start settings using the WPS function.

- ② Wireless adapter status indicator LED*

Shows wireless adapter connection status (connecting, communicating, setting using WPS, etc.).



* As for IF1-WFX2, the shape of WLAN adapter may vary and WPS function is not available.

2. Preparation

2-1. Connecting the WLAN Interface Board Unit

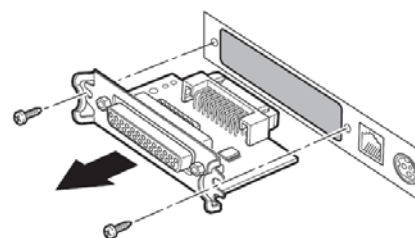
Warning

- Malfunctions may occur if the WLAN interface board is removed or re-inserted.
- To install the WLAN interface board, please contact your dealer or service person.
- If you work on your own, consider static electricity and other factors carefully, and then install WLAN interface board at your own responsibility.

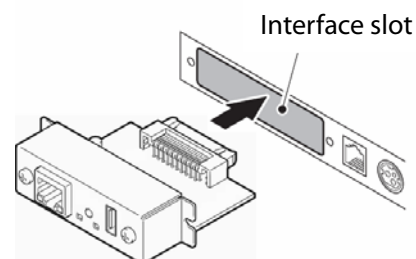
■ Connecting to the Printer

- 1) Switch off the power and remove the power cord from the printer.

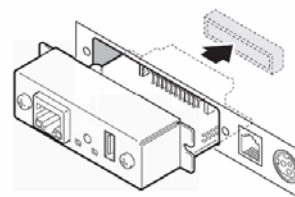
- 2) If another interface board is installed in the printer, remove it.



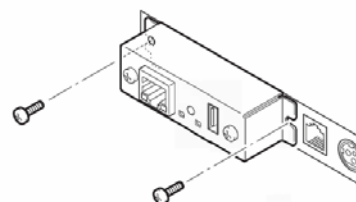
- 3) Insert the IF1-WFXX into the interface slot of the printer.



- 4) Connect the interface connector of the IF1-WFXX to the interface connector inside the printer.



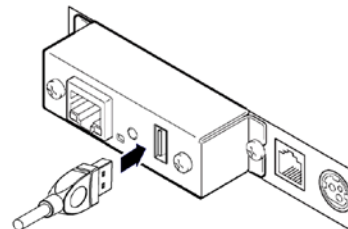
- 5) Fix the IF1-WFXX in place with screws.



■ Connecting the WLAN Adapter

- 1) Connect the USB extension cable to the USB connector of the IF1-WFXX.

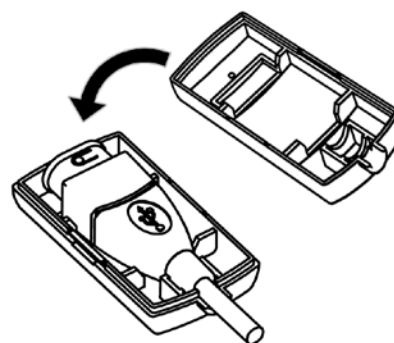
*If the installation location has good reception, the WLAN adapter can be directly connected without using the extension cable.



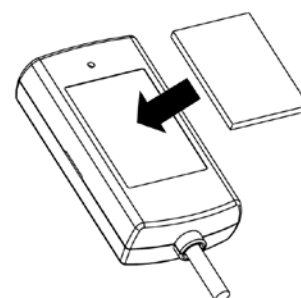
- 2) Connect the USB extension cable and WLAN adapter.



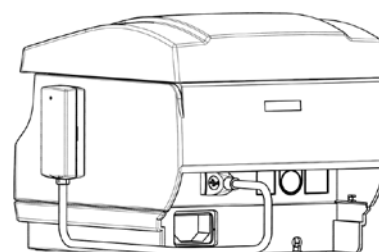
- 3) Set the WLAN adapter in the adapter cover.



- 4) Attach the double sided fixing tape to the adapter cover.



- 5) Fix the adapter cover to a flat surface, such as the printer or a wall, using the double sided tape.

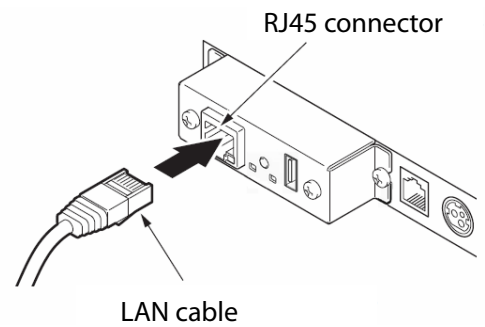


2 Preparation

■ Connecting the Ethernet*

- 1) Connect the network cable to the RJ45 connector of the IF1-WFXX.

* Connect the Ethernet when setting the WLAN.
If both wired LAN and WiFi module are connected simultaneously, only wired LAN (Ethernet) is valid



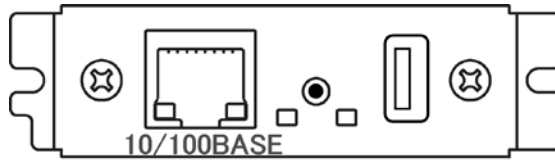
2-2. Installing the Printer

With an unobstructed view, the guideline transmission distance for the IF1-WFXX is approximately 30 m. The transmission distance depends on the setup environment. This includes electrical interference from the periphery, obstacles such as the printer, and the antenna location. Carefully consider these points before installing the IF1-WFXX.

2 Preparation

2-3. Using the Panel Button

The panel button on the operation panel is used to operate the IF1-WFXX.



■ Starting the WLAN Interface Board

Turn on the printer. The IF1-WFXX starts working approximately 20 seconds after the printer turns on.

■ Printing the WLAN Interface Board Configuration

Press the panel button. See 2-5, Printing the WLAN Interface Board Configuration (page 17) for details.

■ Switching to Setting Mode

Press and hold the panel button. The buzzer* will sound once, signaling a switch to setting mode.

- Setting mode enables the reading of the factory default settings.

- If there is no activity for three seconds in the setting mode, the buzzer* will sound once, signaling a return to normal mode.

* Note that the buzzer will not sound if the IF1-WFXX is connected to the barcode printer. In addition, the buzzer will not sound when the IF1-WFXX is used with the POS printer if the buzzer has been set to not sound.

■ Restoring to the Factory Default Settings

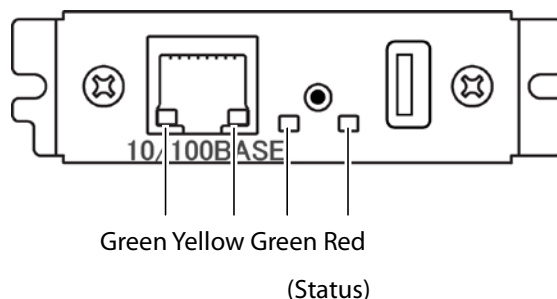
Switch to setting mode, then press and hold the panel button. The IF1-WFXX will return to the factory default settings.

Warning

When the operation is complete, the IF1-WFXX will restart automatically.
The settings are cleared so the wireless LAN must be configured again.

2-4. LED Functions

The following charts show what each LED indicator indicates.



① Ethernet transmission speed indicator

Transmission speed	LED (green)
100 Mbps	On
10 Mbps / Disconnected	Off

② Ethernet connection/transmission status indicator

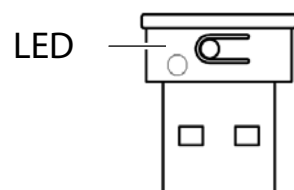
Connection status	LED (yellow)
Connected	On
Disconnected	Off
Transmitting data	Flashing

③ Wired/WLAN status indicator

Connection Status		LED (green)	LED (red)	Description
Printer disconnected		Off	-	Not connected to printer.
Printer connection	Network: disconnected	On	Off	Connected to printer.
	Ethernet connecting	On	Flashing (1-second cycle)	Seeking IP address from DHCP server via Ethernet.
	Ethernet working	On	On	Network operation via Ethernet.
	WLAN connecting	Flashing (2-second cycle)	Flashing (1-second cycle)	Connecting to access point or seeking IP address from DHCP server via WLAN.
	WLAN working	Flashing (2-second cycle)	On	Network operation via WLAN.
Resource error		Alternating blinking (1-second cycle)		The IF1-WFXX is malfunctioning.
System error		Alternating blinking (0.2-second cycle)		The IF1-WFXX is malfunctioning.

2 Preparation

- ③ WLAN adapter status indicator (IF1-WF01 only)



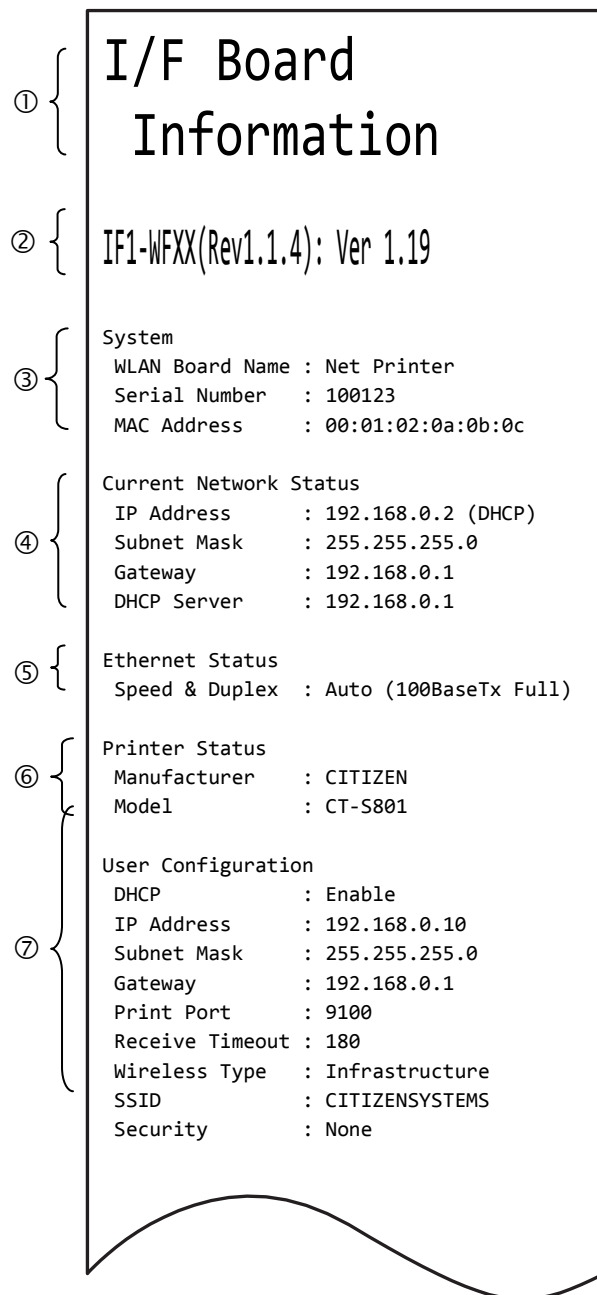
Status	LED
Connecting	Repeats short-cycle and long-cycle flashing.
Communicating	Irregular flashing (changes with data transmission status)
Setting using WPS	Short-cycle flashing.

2-5. Printing the WLAN Interface Board Configuration

Press the panel button to print out the configuration of the IF1-WFXX from the printer.

■ Ethernet Connection and DHCP On

- ① Title of the printout.
- ② Model name, hardware revision, and firmware version of the IF1-WFXX.
- ③ System information of the IF1-WFXX. The WLAN board name, serial number, and MAC address are printed.
- ④ Network information of the IF1-WFXX.
- ⑤ Ethernet information. Printed when connected by Ethernet.
- ⑥ Printer information. The name of the manufacturer and the model name of the printer connected to the IF1-WFXX are printed.
- ⑦ Configuration information of the IF1-WFXX. The information stored in the IF1-WFXX is printed and may be different from the connection status of the current network. Check the connection status using the network information of ④.



2 Preparation

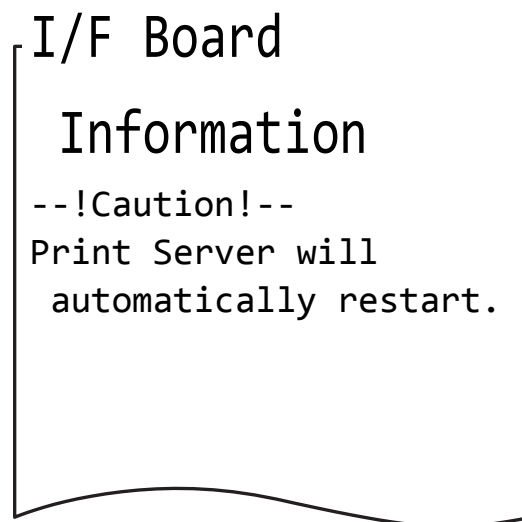
■ WLAN Connection and DHCP Off

- ① Title of the printout.
- ② Model name, hardware revision, and firmware version of the IF1-WFXX.
- ③ System information of the IF1-WFXX. The WLAN board name, serial number, and MAC address are printed.
- ④ Network information of the IF1-WFXX.
- ⑤ Information of WiFi module and access point that IF1-WFXX is connected.
“Module” is printed when USB WiFi module is in place.
Other 3 items are printed when connected with access point. Until establishing the connection, it is printed as “Scanning”.
- ⑥ Printer information. The name of the manufacturer and the model name of the printer connected to the IF1-WFXX are printed.
- ⑦ The configuration information of the IF1-WFXX. The information stored in the IF1-WFXX is printed and may be different from the connection status of the current network. Check the connection status using the network information of ④.

①	I/F Board Information
②	IF1-WFXX(Rev1.1.4): Ver 1.19
③	System WLAN Board Name : Net Printer Serial Number : 100123 MAC Address : 00:01:02:0a:0b:0b
④	Current Network Status IP Address : 192.168.10.10 (Fixed) Subnet Mask : 255.255.255.0 Gateway : 192.168.10.1 DHCP Server :
⑤	Wireless LAN Status Module : Module Name BSSID : AA:BB:CC:DD:EE:FF Channel : 11 Security : WPA2-PSK AES
⑥	Printer Status Manufacturer : CITIZEN Model : CL-S400DT
⑦	User Configuration DHCP : Disable IP Address : 192.168.0.10 Subnet Mask : 255.255.255.0 Gateway : 192.168.0.1 Print Port : 9100 Receive Timeout : 180 Wireless Type : Infrastructure SSID : CITIZENSYSTEMS Security : WPA2-PSK AES/TKIP

2-6. Returning the WLAN Interface Board Configuration to Factory Default Settings

- 1) Press and hold the panel button to switch to setting mode.
- 2) After the IF1-WFXX has switched to setting mode, press and hold the panel button again within three seconds. The following message is printed and the IF1-WFXX returns to factory default settings.



I/F Board
Information
--!Caution!--
Print Server will
automatically restart.

2 Preparation

2-7. Setting the WLAN

2-7-1. Settings

Classification	Item	Description	
General tab			
WLAN board Information	WLAN board Name	Set the ID of the IF1-WFXX. Net Printer (factory default)	
	TCP/IP	Select the IP address acquisition method. “Obtain an IP Address Automatically” (factory default) “Use the following IP Address”	
		IP Address	Set the IP address for a static address. 192.168.10.100 (factory default)
		Subnet Mask	Set the subnet mask for a static address. 255.255.255.0 (factory default)
		Default Gateway	Set the default gateway for a static address. 192.168.10.100 (factory default)
	UPnP Setting	UPnP Set the UPnP setting. Enable (factory default) Disable	
	Print Setting	Raw Port Number	Set the TCP port number for raw protocol printing. 9100 (factory default)
		Timeout for print data	Set the timeout duration of connection to the host. 0 to 65535 (seconds). When the setting is “0”, there is no timeout. 180 (factory default).
		Action at Timeout	Set the action when a timeout occurs with the host and other connections are open. Close all connections (factory default) Move to next connection
Wireless LAN tab			
Basic	Network Type	Set the access mode. Infrastructure (factory default) Ad Hoc	
	SSID	Set the SSID of the connection access point. CITIZENSYSTEMS (factory default)	

	Security	Security System	Select the encryption method. Disable (factory default) WEP WPA-PSK WPA2-PSK
		Authentication	Select the authentication method when WEP is selected. Open System (factory default) Shared Key
		Key Size	Select the key size when WEP was selected. 64 Bit (Hex-10 chars) (factory default) 64 Bit (ASCII-5 chars) 128 Bit (Hex-26 chars) 128 Bit (ASCII-13 chars)
		Key1 to Key4	When WEP is selected, enter the WEP key and select the key to be used. KEY1: 0123456789 (factory default)
		Key Format	Select the key format when WPA-PSK/WPA2-PSK is selected Passphrase (8-63 chars) (factory default) Hex (64 chars)
		Pre-Shared Key	Enter the shared key when WPA-PSK/WPA2-PSK is selected ABCDEF4321 (factory default)
		Encryption	Enter the encryption method when WPA-PSK/WPA2-PSK is selected TKIP (factory default) AES TKIP/AES mixed mode
	WPS Setting	WPS	Turn the WPS function on or off. Enable (factory default) Disable
	Within WPS Setting	Mode	Select the WPS mode. PBC (factory default) PIN
		PIN	Select the PIN allocation method. Random Generation (factory default) Manually Generation

2 Preparation

2-7-2. Example Settings

■ Use the WPS function and Configure Settings*

- 1) Connect the WLAN adapter to the IF1-WFXX.
- 2) Turn on the printer.
Confirm that the IF1-WFXX recognized the WLAN adapter. The WLAN adapter is recognized approximately 20 seconds after the printer is turned on. The status indicator LED (green) starts flashing.
- 3) Hold the WPS button on the WLAN adapter for 1 second or more. The LED on the WLAN adapter starts flashing.
If the adapter cover is being used, either open the cover or use a thin needle to press the WPS button from the hole in the cover.
- 4) Start the WPS function of the access point.*
- 5) When the configuration is complete, the LED of the WLAN adapter changes to transmission status.
You can confirm that the configuration was performed correctly by pressing the panel button to print out the configuration of the IF1-WFXX. See 2-5, Printing the WLAN Interface Board Configuration (page 17) for details.

* For the method to start the WPS function, see the manual of the access point. If the access point you are using does not support the WPS function, perform configuration by using the "Configuring using the Ethernet Adapter" method.

■ Configuring using the Ethernet Adapter

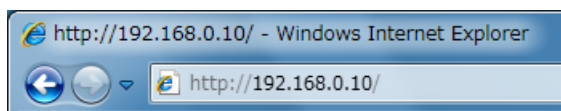
- 1) Connect the WLAN adapter to the IF1-WFXX.
- 2) Connect the Ethernet cable to the IF1-WFXX.
- 3) Turn on the printer.
After the printer is turned on and the IF1-WFXX starts, the IF1-WFXX will automatically obtain an IP address from the DHCP server within 90 seconds. If an IP address cannot be obtained automatically, use the ZeroConf function to allocate the IP address 169.254.XX.YY (XX.YY will differ by a setup environment). Allocate the IP address while referring to 4-3, Setup Window (page 43).
- 4) Use the Web manager to configure the WLAN.
Configure the wireless LAN while referring to 3, Web Manager (page 23).

3. Web Manager

The IF1-WFXX is equipped with a Web manager function, which allows you to access the IF1-WFXX from a web browser and check the status of the IF1-WFXX or change its settings.

3-1. Starting the Web Manager

- 1) Start a web browser.
- 2) In the address bar, enter the IP address and then press **Enter**.



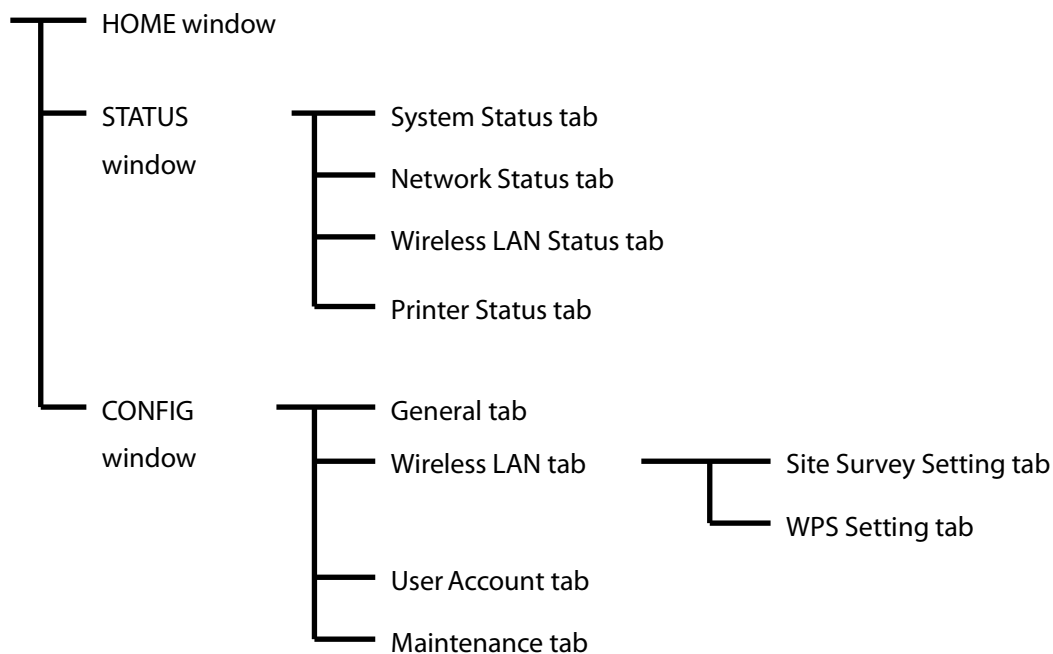
* The image to the left is a sample. Enter the actual allocated value for the IP address.

Warning

- The configuration window of the IF1-WFXX cannot be displayed if the network settings of your computer and the IF1-WFXX differ. Ensure that the IP address of the IF1-WFXX matches the settings of your network.
- The IP address of the IF1-WFXX can be confirmed by using the "Printing the Wireless LAN Interface Board Configuration" method.

Web Manager Window Layout

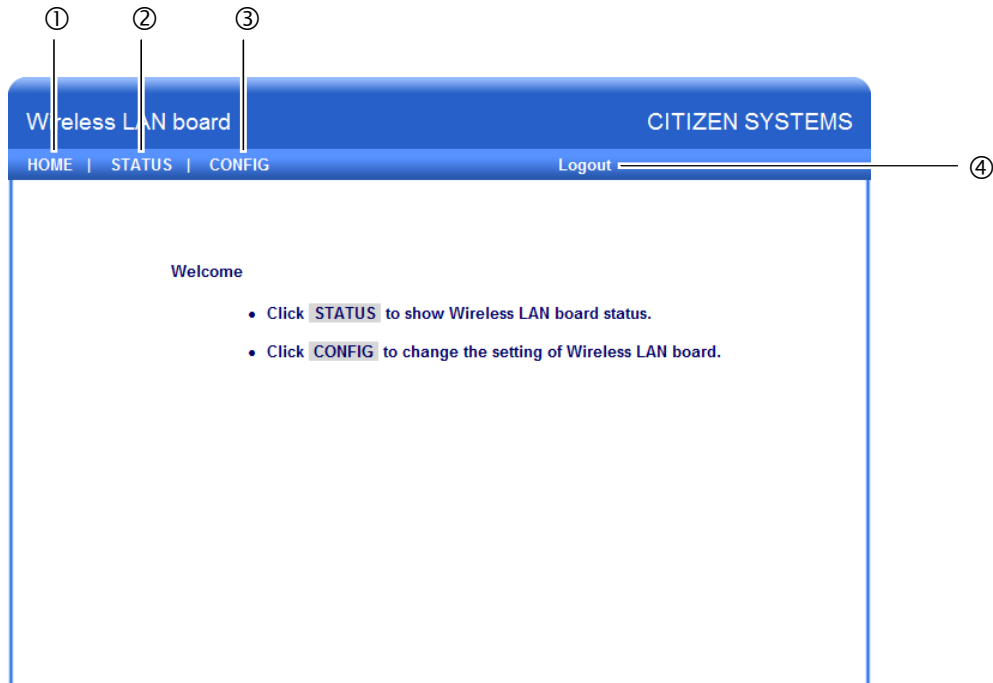
The Web manager consists of the following windows and tabs.



3 Web Manager

3-2. HOME Window

This is the Home window of the Web manager.



① HOME button

Display the Home window.

② STATUS button

Display the Status window. At the status window, you can check the status of the IF1-WFXX.

③ CONFIG button

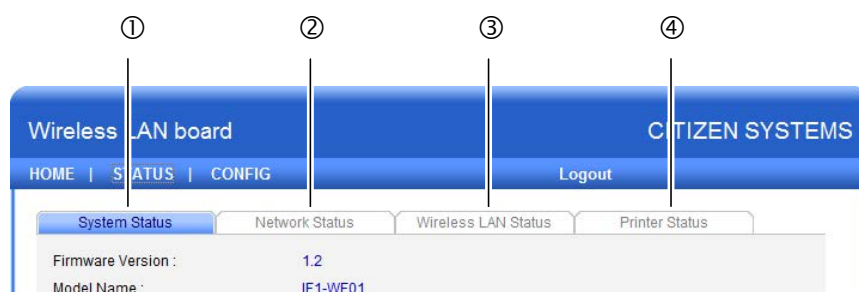
Display the CONFIG window. At the CONFIG window, you can configure the IF1-WFXX.

④ Logout button

Log out from the CONFIG window of the IF1-WFXX. It is not possible to open the CONFIG window at multiple PCs of the same time. You must log out to make settings using another Web manager or WLAN Setup Tool.

3-3. STATUS Window

Displays the status of the IF1-WFXX.



① System Status tab

See 3-3-1, System Status Tab (page 26).

② Network Status tab

See 3-3-2, Network Status Tab (page 27).

③ Wireless LAN Status tab

See 3-3-3, Wireless LAN Tab (page 28).

④ Printer Status tab

See 3-3-4, Printer Status Tab (page 29).

3 Web Manager

3-3-1. System Status Tab

System Status		Network Status	Wireless LAN Status	Printer Status
Firmware Version :	1.2			
Model Name :	IF1-WF01			
Serial Number :	10000123			
MAC Address :	00-11-E5-02-DF-2C			
Print Settings				
Raw Port Number :	9100			
Timeout for print data :	180			
LPR Queue Name :	lp			
UPnP :	Enable			

① Firmware Version

Displays the firmware version of the IF1-WFXX.

② Model Name

Displays the model name of the IF1-WFXX.

③ Serial Number

Displays the serial number of the IF1-WFXX.

④ MAC Address

Displays the MAC address of the IF1-WFXX.

⑤ RAW Port Number

Displays the TCP port number for RAW printing.

⑥ Timeout for print data

Displays the socket timeout duration during printing. When the host and the TCP/IP socket are connected and the host sends no data for this duration during printing, the socket is forced to close. When the setting is "0", the socket remains connected until a disconnection request is received from the host.

⑦ LPR Queue Name

Displays the LPR queue name.

⑧ UPnP

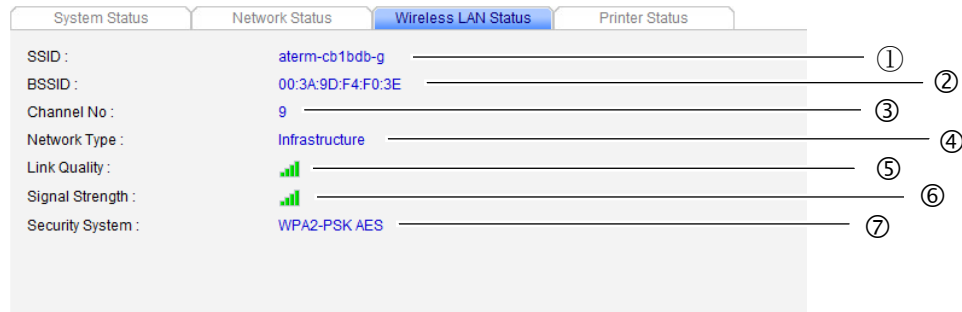
Displays the UPnP configuration status.

3-3-2. Network Status Tab

System Status	Network Status	Wireless LAN Status	Printer Status
WLAN board name : Net Printer ①			
IP Address : 192.168.0.2 (dhcp) ②			
Subnet Mask : 255.255.255.0 ③			
Default Gateway : 192.168.0.1 ④			
DHCP Server : 192.168.0.1 ⑤			
Lease Time : 36000 seconds ⑥			

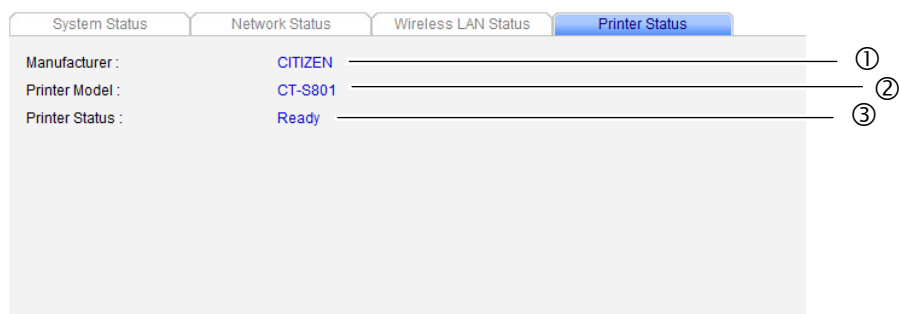
- ① WLAN board name
Displays the WLAN board name of the IF1-WFXX.
- ② IP Address
Displays the IP address of the IF1-WFXX.
- ③ Subnet Mask
Displays the subnet mask of the IF1-WFXX.
- ④ Default Gateway
Displays the default gateway of the IF1-WFXX.
- ⑤ DHCP Server
Displays the IP address of the DHCP server from which the IF1-WFXX obtained its IP address.
- ⑥ Lease Time
Displays the lease time of the IP address allocated by the DHCP server.

3-3-3. Wireless LAN Tab



- ① SSID
Displays the SSID of the access point to which the IF1-WFXX is connected.
- ② BSSID
Displays the BSSID of the WLAN to which the IF1-WFXX is connected. Generally, the BSSID is the MAC address of the access point.
- ③ Channel No
Displays the WLAN channel used by the IF1-WFXX.
- ④ Network Type
Displays the current access method (Infrastructure or Ad Hoc).
- ⑤ Link Quality
Displays the current link quality of the WLAN using four bars.
- ⑥ Signal Strength
Displays the signal strength of the WLAN using four bars.
- ⑦ Security System
Displays the security method of the WLAN to which the IF1-WFXX is currently connected.

3-3-4. Printer Status Tab

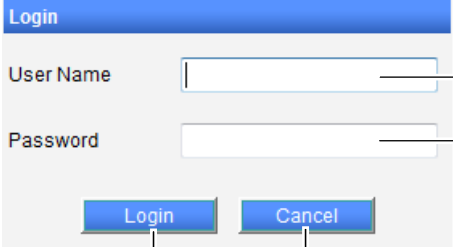


- ① Manufacturer
Displays "CITIZEN".
- ② Printer Model
Displays the model of the printer to which the IF1-WFXX is connected.
- ③ Printer Status
Displays the operational status of the printer to which the IF1-WFXX is connected.
 - Ready: Ready to print.
 - Offline: Not ready to print.
 - Paper Empty: Out of paper.
 - Error: Error status.

(Note) When the CT-S801/851/601/651 series is connected to the IF1-WFXX and the bi-directional port of the printer driver is enabled, the printer status is not correctly displayed. In such cases, confirm the printer status from the Windows spooler.

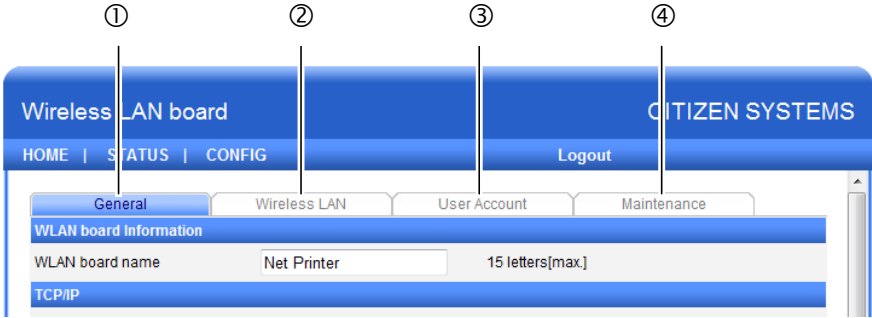
3-4. CONFIG Window

You can configure the IF1-WFXX after logging in as an administrator.



The diagram shows a 'Login' window with a blue header. It contains two input fields: 'User Name' and 'Password'. Below these fields are two buttons: 'Login' and 'Cancel'. Numbered callouts point to each element: ① points to the 'User Name' field, ② points to the 'Password' field, ③ points to the 'Login' button, and ④ points to the 'Cancel' button.

- ① User Name
Enter the name of the IF1-WFXX administrator. (Initial setting: admin)
- ② Password
Enter the administrator password. (Initial setting: admin)
- ③ Login button
Enter the administrator name and password, and then click "Login". The CONFIG window appears.
- ④ Cancel button
Cancel login.



The diagram shows the 'CONFIG' window. At the top is a blue header with 'Wireless LAN board' on the left and 'CITIZEN SYSTEMS' on the right. Below the header is a navigation bar with 'HOME | STATUS | CONFIG' on the left and 'Logout' on the right. Below the navigation bar are four tabs: 'General', 'Wireless LAN', 'User Account', and 'Maintenance'. The 'General' tab is selected. Below the tabs is a section titled 'WLAN board information' with a form containing 'WLAN board name' (with the value 'Net Printer' and a note '15 letters[max.]') and 'TCP/IP'.

- ① General tab
See 3-4-1 General Tab (page 31).
- ② Wireless LAN tab
See 3-4-2 Wireless LAN Tab (page 33).
- ③ Administrator tab
See 3-4-3 User Account Tab (page 36).
- ④ Maintenance tab
See 3-4-4 Maintenance Tab (page 37).

3-4-1. General Tab

General Wireless LAN User Account Maintenance

WLAN board Information

WLAN board name Net Printer 15 letters[max.]

TCP/IP

☒ Obtain an IP Address Automatically

☐ Use the following IP Address

IP Address 192.168.10.100 15 letters[max.]

Subnet Mask 255.255.255.0 15 letters[max.]

Default Gateway 192.168.10.100 15 letters[max.]

UPnP Setting

UPnP ☒ Enable ☐ Disable

LAN Setting

Priority to Ethernet ☒ Enable ☐ Disable

Print Settings

Raw Port Number 9100

Timeout for print data 180 0-65535[Seconds]

Action at Timeout ☒ Close all connections ☐ Move to next connection

Submit Reset

WLAN board Information

- WLAN board name (factory default: Net Printer)
Set the ID of the IF1-WFXX.

TCP/IP

- Obtain an IP Address Automatically (factory default)
Automatically obtain the IP address from the DHCP server.
- Use the following IP Address
Enter IP addresses in the IP Address, Subnet Mask, and Default Gateway fields.

UPnP Setting

- UPnP (factory default: Enable)
Set the UPnP setting.

LAN Setting

- Priority to Ethernet (factory default: Enable)
Enable: When Ethernet cable is connected, LAN (Ethernet) is chosen.
Disable: The connection is fixed for either LAN or WLAN chosen at boot.

	Enable	Disable
WLAN at boot	WLAN	WLAN
WLAN at boot + Ethernet connected later	LAN	WLAN
LAN at boot	LAN	LAN
LAN at boot + Ethernet disconnected later	WLAN	LAN

Print Settings

Configure the printing functions of the printer.

- Raw Port Number (factory default: 9100)

Set the TCP port number for RAW protocol printing.

- Timeout for print data

Set the timeout duration for the connection to the host.

- Action at Timeout

Select the action for other connections when a timeout occurs with the host. There are two selections: Close all connections and Move to next connection.

Submit button

Enter the changes.

Reset button

Cancel the changes.

3-4-2. Wireless LAN Tab

The screenshot shows the 'Wireless LAN' configuration page with the following sections:

- General** (selected): Network Type (Infrastructure), SSID (CITIZENSYSTEMS, 32 letters[max]).
- Security**: Security System (Disable).
- SCAN Access point**: SCAN AP (Start... button).
- WPS Setting**: WPS (Enable selected, Enter... button).
- Buttons**: Submit, Reset.

Basic

- Network Type (factory default: Infrastructure)
Select the access mode from Infrastructure and Ad Hoc.
- SSID (factory default: CITIZENSYSTEMS)
Enter the SSID specified for the connection access point.

Security

- Security System (factory default: Disable)
Select the encryption method from Disable, WEP, WPA-PSK, and WPA2-PSK.

For WEP

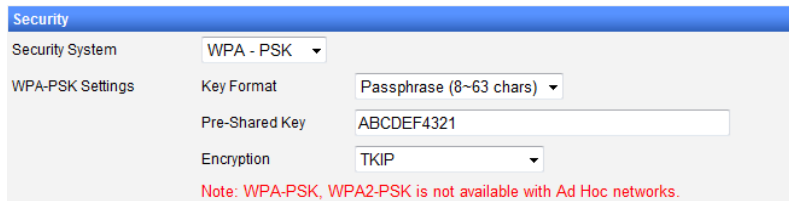
The screenshot shows the 'Security' configuration page with the following sections:

- Security System**: WEP (selected).
- WEP Settings**:
 - Authentication: Open System (selected)
 - Key Size: 64 Bit (Hex - 10 chars) (selected)
 - Key 1: 0123456789 (selected)
 - Key 2: (empty)
 - Key 3: (empty)
 - Key 4: (empty)

- Authentication (factory default: Open System)
Select the authentication method from Open System and Shared Key.
- Key Size (factory default: 64 Bit (Hex - 10 chars))
Select a key size from 64 Bit (Hex - 10 chars), 64 Bit (ASCII - 5 chars), 128 Bit (Hex - 26 chars), and 128 Bit (ASCII - 13 chars).
- Key 1 to Key 4 (factory default: Key 1=0123456789)
Enter the WEP key and then select the button of the key to be used.

3 Web Manager

For WPA - PSK and WPA2 - PSK



Security

Security System: WPA - PSK

WPA-PSK Settings

Key Format: Passphrase (8~63 chars)

Pre-Shared Key: ABCDEF4321

Encryption: TKIP

Note: WPA-PSK, WPA2-PSK is not available with Ad Hoc networks.

- Key Format (factory default: Passphrase (8-63 chars))
Select the key format from Passphrase (8-63 chars) and Hex (64 chars).
- Pre-Shared Key (factory default: ABCDEF4321)
Enter the shared key.

Site Survey Setting

This function searches for access points. An SSID can be selected when this function is used.

Click "Start" to display the following window.

General		Wireless LAN		User Account		Maintenance	
SSID	BSSID	Strength	Security	Mode	Channel		
<input type="radio"/> CTZ-00AA	00:01:8e:21:06:6a	<div><div></div><div></div><div></div><div></div></div>	WPA/WPA2-PSK TKIP/AES	Infra	11		
<input checked="" type="radio"/> CTZ-00BB	00:26:87:0e:c1:e8	<div><div></div><div></div><div></div><div></div></div>	WPA/WPA2-PSK TKIP/AES	Infra	13		
<input type="radio"/> SYSTEM_0123	00:80:4c:7d:65:91	<div><div></div><div></div><div></div><div></div></div>	WPA/WPA2-PSK TKIP/AES	Infra	4		
<input type="radio"/> SYSTEM_ABCD	00:0d:0b:11:76:8d	<div><div></div><div></div><div></div><div></div></div>	WPA-PSK TKIP	Infra	11		
<input type="radio"/> TEST0001	00:80:4c:7d:3f:5b	<div><div></div><div></div><div></div><div></div></div>	WPA/WPA2-PSK TKIP/AES	Infra	11		
<input type="radio"/> TEST0002	00:1d:93:34:af:fe	<div><div></div><div></div><div></div><div></div></div>	WPA-PSK TKIP/AES	Infra	8		
<input type="radio"/> TEST0003	00:1d:93:34:af:ff	<div><div></div><div></div><div></div><div></div></div>	WPA2-PSK AES	Infra	9		
<input type="radio"/> TEST0004	00:1d:93:07:4f:cc	<div><div></div><div></div><div></div><div></div></div>	WPA-PSK TKIP	Infra	1		
<input type="radio"/> CITIZEN_AAAA	00:0d:0b:1a:40:05	<div><div></div><div></div><div></div><div></div></div>	WEP	Infra	7		
<input type="radio"/> CITIZEN_BBBB	00:1d:93:07:4f:cd	<div><div></div><div></div><div></div><div></div></div>	WEP	Infra	7		
<input type="radio"/> CITIZEN_CCCC	00:02:2d:74:81:b0	<div><div></div><div></div><div></div><div></div></div>	NONE	Infra	1		
<div>Set Scan AP Back</div>							

Select the button of the access point you want to set, and then click "Set".

WPS Setting

- WPS (factory default: Enable)

Select the WPS function setting from Enable and Disable.

Click "Enter" to configure the WPS setting from the Web manager.

- Mode (factory default: PBC)

Select the mode from PBC and PIN.

For PBC

When "Start" is clicked, the WPS setting of the IF1-WFXX starts. Start the WPS setting of the access point.

For PIN

In PIN mode, the pin code set at the IF1-WFXX is specified at the access point and then the WPS setting is started.

- PIN (factory default: Random Generation)

Select the PIN allocation method from Random Generation and Manually Generation. With Random Generation, the pin code is generated automatically by the IF1-WFXX. With Manually Generation, the user specifies the PIN code.

When the pin code is set and "Start" is clicked, the WPS starts in PIN mode. At the access point, specify the pin code and start the WPS setting.

Submit button

Enter the changes.

Reset button

Cancel the changes

3 Web Manager

3-4-3. User Account Tab

You must log in as an administrator to change the settings of the IF1-WFXX. At this screen, the administrator name and password can be changed.

The screenshot shows the 'Set User' form within the 'User Account' tab. The form has a blue header bar with the text 'Set User'. Below the header, there are three input fields: 'New User name' with the value 'admin', 'New Password', and 'Confirm New Password'. Each field has a label to its right indicating a maximum length of 15 letters. At the bottom of the form, there are two buttons: 'Submit' and 'Reset'.

Field	Value	Limit
New User name	admin	15 letters[max.]
New Password		15 letters[max.]
Confirm New Password		15 letters[max.]

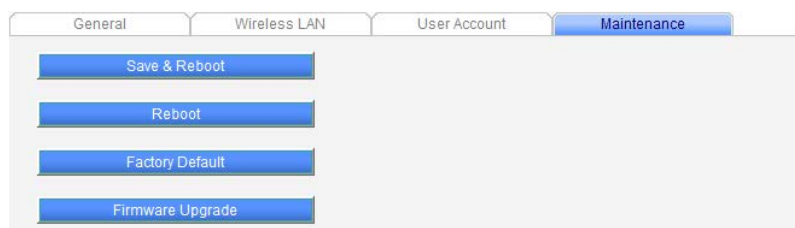
Set User

- New User name (factory default: admin)
Enter the new administrator name.
- New Password (factory default: admin)
Enter the new password.
- Confirm New Password
Enter the password again.

Warning

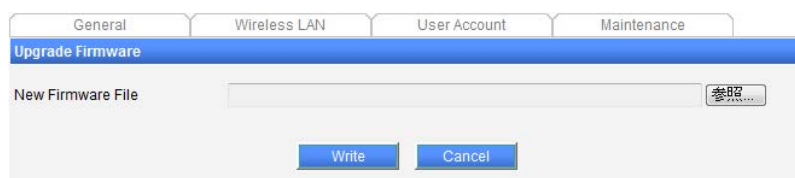
If you forget the new username and password, settings must be returned to the factory default settings.

3-4-4. Maintenance Tab



- Save & Restart button
Save changes, and restart the IF1-WFXX.
- Restart button
Restart the IF1-WFXX without saving changes.
- Factory Default button
Return the IF1-WFXX to the factory default settings.
- Firmware Upgrade button
Upgrade the firmware of the IF1-WFXX.

Firmware upgrade



- 1) Click "Browse", and select the firmware file.
- 2) Click "Write".

Warning

After the firmware upgrade starts, do not disconnect power or transmission to the printer until the upgrade is complete.

4. WLAN Setup Tool

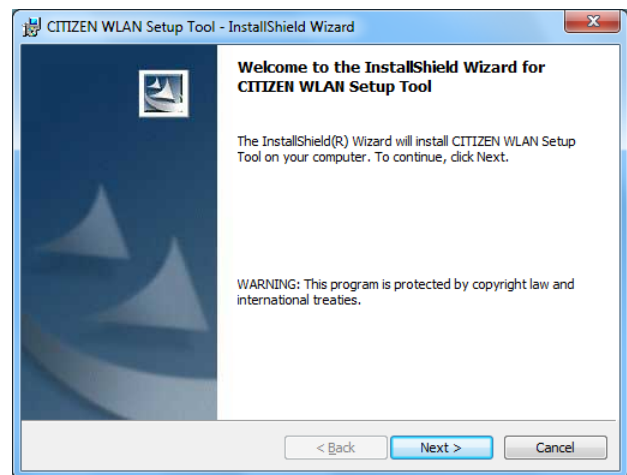
The “WLAN Setup Tool” utility software runs on the Windows operating system and can be used to change the settings of the IF1-WFXX.

4-1. Installing the WLAN Setup Tool

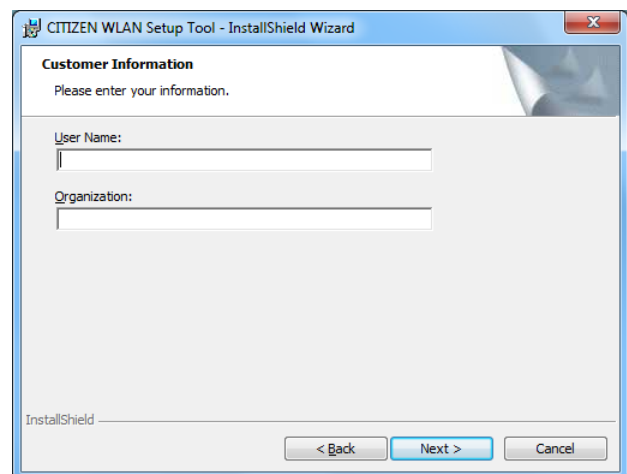
1) Acquire the file “WLANSetupToolSetup.exe” from the CD-ROM or our website. Double click the file.

2) If the “User Account Control” screen appears, click “Continue.”

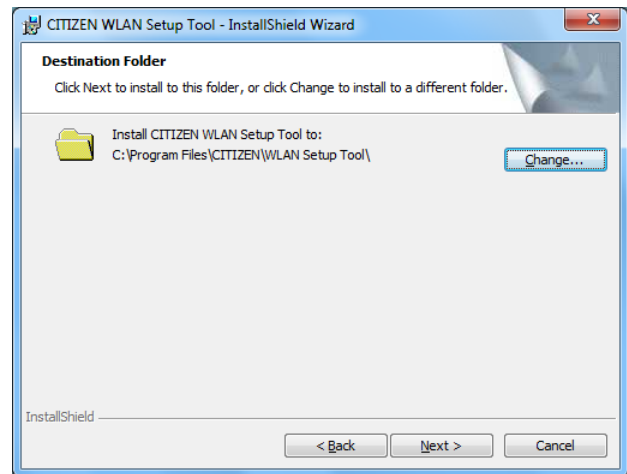
3) The screen shown on the right appears.
Click “Next.”



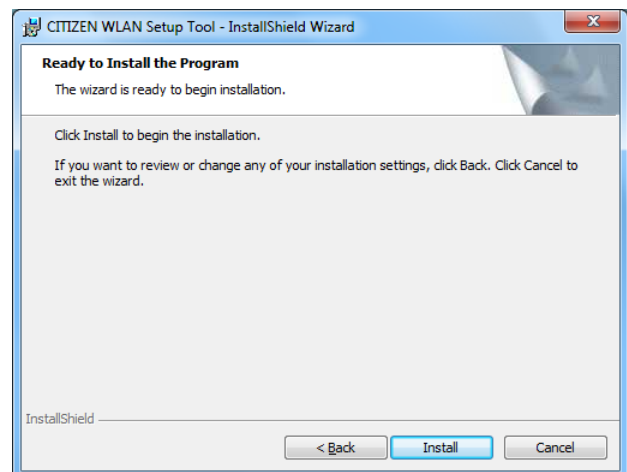
4) Enter a username and organization, and then click “Next”.



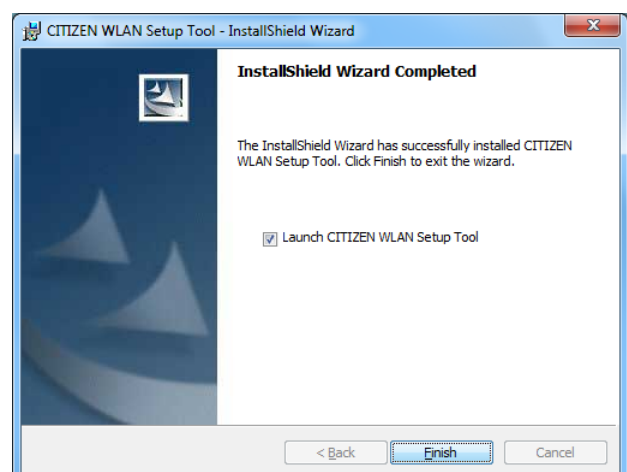
- 5) The screen shown on the right appears.
Click "Next."



- 6) The screen shown on the right appears.
Click "Install".

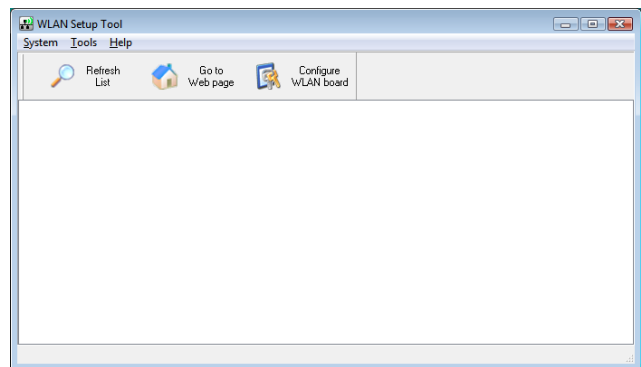


- 7) Click "Finish" to complete installation.



4 WLAN Setup Tool

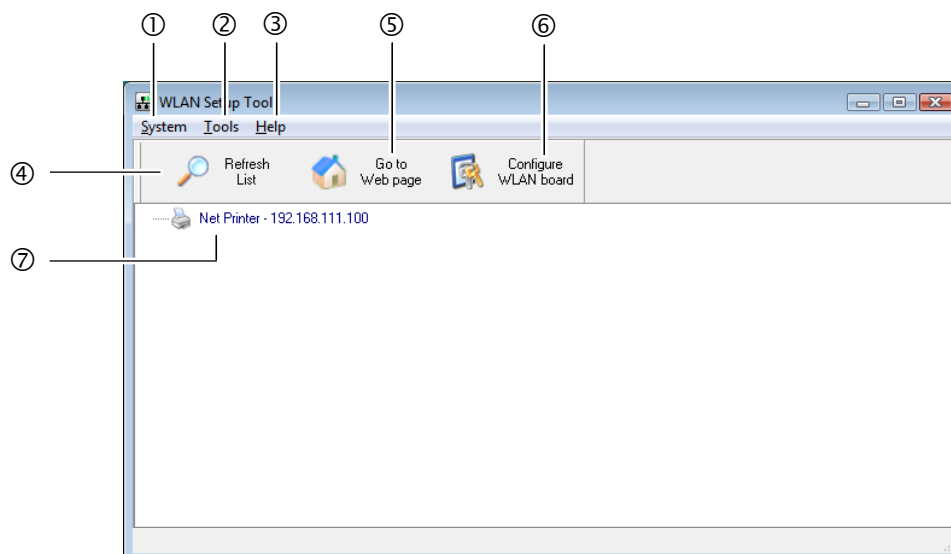
- 8) The PC setting tool starts. From the "System" menu, select "Exit".



- 9) The icon on the right is placed on the desktop of the computer. You can now start program by double clicking this icon.



4-2. Information List Window

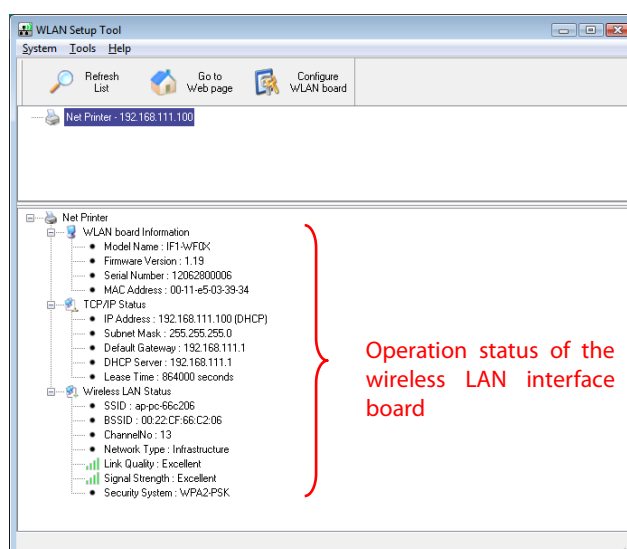
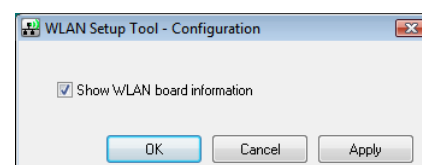


① "System"

Select "System" – "Exit" to exit the WLAN Setup Tool.

② "Tools"

Select "Tools" – "Settings" to switch the display of the WLAN interface board information. When the "Display WLAN board information" check box is selected, the WLAN interface board operation status can be displayed as shown below.



③ "Help" menu

4 WLAN Setup Tool

Select "Help" – "About" to display the version information of the WLAN Setup Tool.

④ "Refresh List" button

Refresh the list of the WLAN interface board. The application periodically refreshes the list, but you can refresh the list manually by clicking this button.

⑤ "Configure using a Web Browser" button

Select the WLAN interface board you want to configure, and then click "Configure using a web browser". The browser starts and displays the Web manager.

⑥ "Configure the WLAN Board" button

Select the WLAN interface board you want to configure, and then click "Configure the WLAN Board". See 4-3 Setup Window (page 43).

⑦ WLAN interface board list

The list displays the WLAN interface boards connected to the network. The WLAN interface boards connected to the same subnet are displayed.

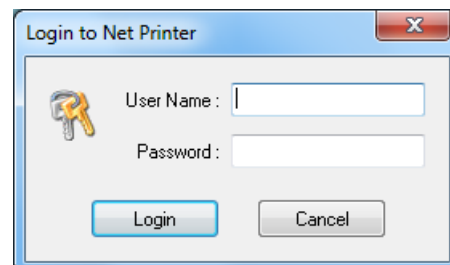
4-3. Setup Window

You can configure the WLAN interface board by selecting the WLAN interface board from the list screen and clicking "Configure the WLAN Board".

To login at the login screen, enter a username and password.

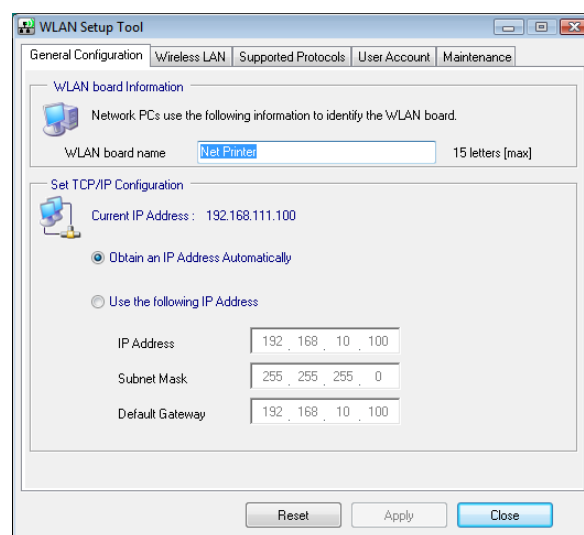
Username: admin (factory default)

Password: admin: (factory default)



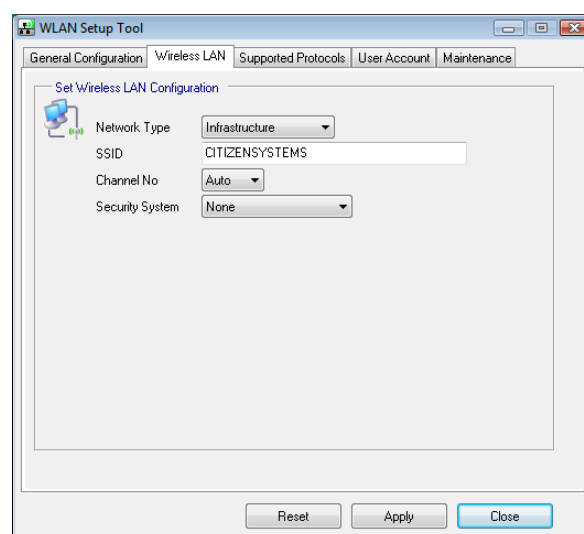
4-3-1. "General" Tab

Use the "General" tab to configure the WLAN board name and IP address



4-3-2. "Wireless LAN" Tab

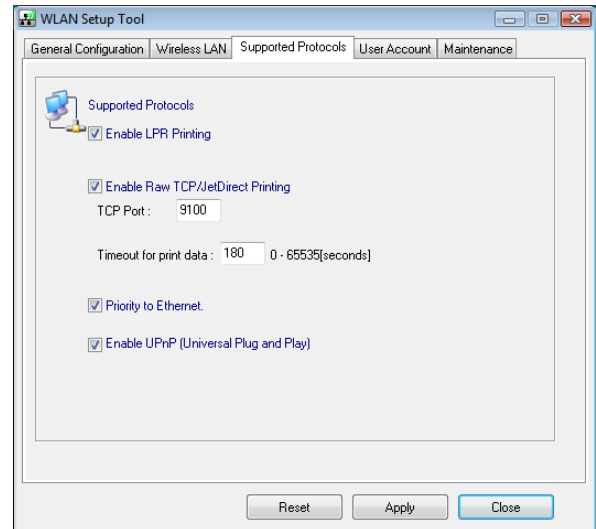
Use the "Wireless LAN" tab to configure the WLAN.



4 WLAN Setup Tool

4-3-3. "Protocol" Tab

Use the "Protocol" tab to enable LPR and the RAW protocol, set the printer timeout duration, enable "Priority to Ethernet", and enable UPnP.

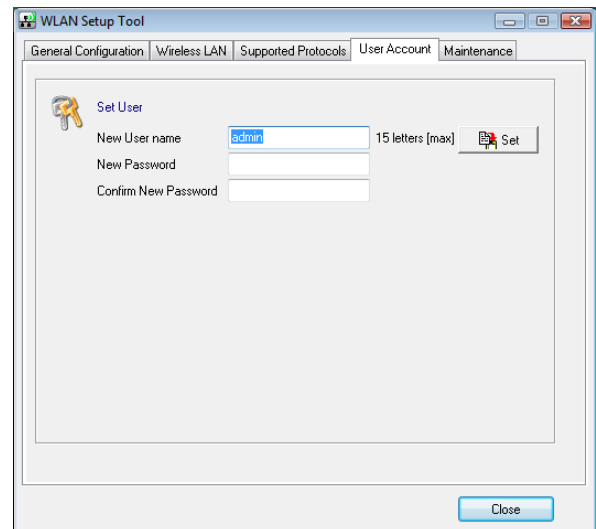


4-3-4. "User Account" Tab

Use the "User account" tab to change the administrator name and password.

Warning

If you forget the new username and password, settings must be returned to the factory default settings.

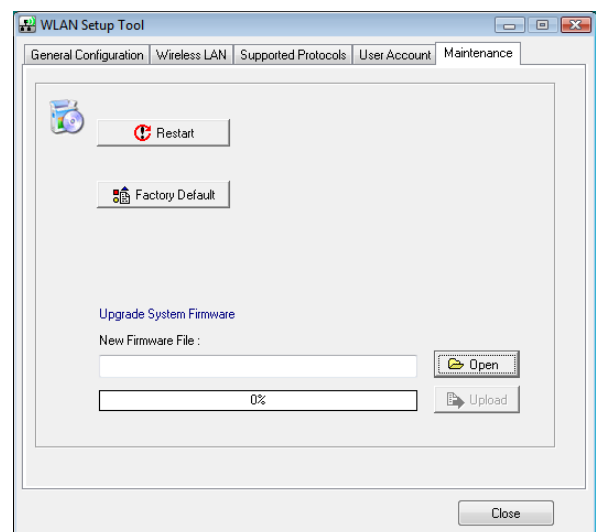


4-3-5. "Maintenance" Tab

Use the "Maintenance" tab to restart the WLAN interface board, return the settings to the factory default settings, and update the firmware.

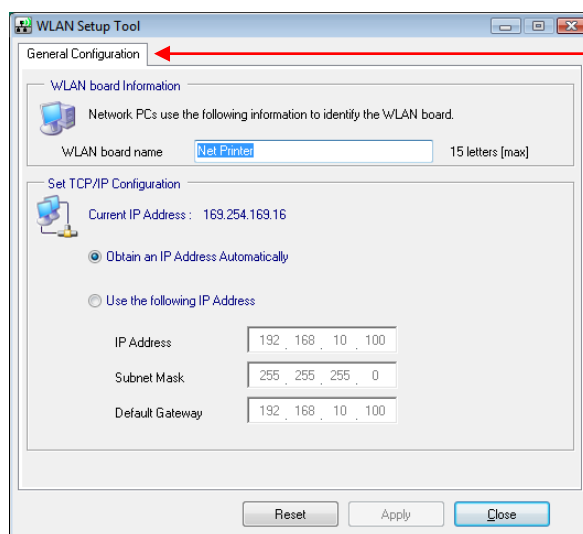
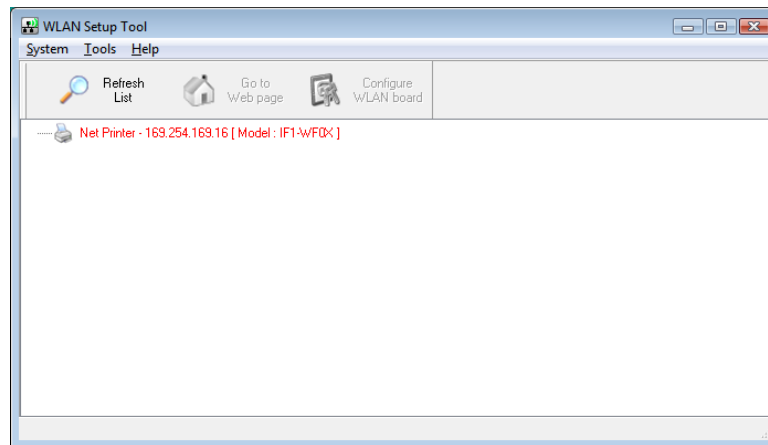
Note

After the firmware upgrade starts, do not disconnect power or transmission to the printer until the upgrade is complete.



Note: If the computer at which you are performing the configuration and the WLAN interface board have

different subnet values, a message like the one shown below appears in red letters. If this message appears, set the IP address using the “Configure the WLAN Board” button before configuring the WLAN interface board.



Only the server name and IP address can be configured. Configure the IP address correctly one time before configuring the wireless LAN interface board.