

UB-R04

Technical Reference Guide

Product Overview

This chapter explains the features of the product.

Installation

This chapter explains how to connect the UB-R04 to the TM printer and use it.

Application Development Information

This chapter explains necessary information when you develop applications.

Programming Samples

This chapter explains information for programming.

UB-R04 Specifications

This chapter explains the specification of the UB-R04.

Exchange from the UB-R03

This chapter explains how to replace the UB-R03 with the UB-R04.

Cautions

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Radio wave radiation

The influence on the environment of radio wave radiation

- ❑ The Radio Frequency module that can be installed in this product radiates the same high frequency energy as some other high frequency devices but the level of the energy radiated from it is suppressed so that it is much lower than the electromagnetic energy radiated from radio equipment like cell phones.
- ❑ Under some situations and in certain environments, the use of this equipment is sometimes limited by the owner of the building or a representative with responsibility for the group. For example, it may be restricted in the following case:
 - Use in an environment where it may cause interference with other devices and services.
- ❑ If you do not understand the radio device usage policy in a specific group or environment, such as an airport, ask permission before turning on the power of this product.

The influence on the human body of radio wave radiation

The output power radiated from the Radio Frequency module that can be installed in this product is much lower than the radiation limit specified in the safety standard. However, it is best to avoid allowing this product to contact your body during usual operation. While using, be especially careful not to touch the cover of the antenna.

Note about interference

- ❑ The Radio Frequency module that can be installed in this product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.
- ❑ 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 your dealer or an experienced radio/TV technician for help.
- ❑ Never disassemble or modify this product or the installed Radio Frequency module.
- ❑ Seiko Epson Corporation shall not be liable for interference to radio/TV resulting from changes or modifications to this product or the installed Radio Frequency module not expressly approved by Seiko Epson Corporation.
- ❑ Other radio equipment sometimes uses the same frequency band that this unit uses. To prevent radio wave interference with other radio equipment, pay attention to the following matters when you use this product:
 - The Radio Frequency module that can be installed in this product uses the Industrial Scientific and Medical band (2.4 GHz), DSSS/OFDM modulation, and the interference distance is 40 m.
 - Other equipment that uses the same frequency band used by the Radio Frequency module that can be installed in this product includes equipment for industry, science and medical treatment, microwave ovens, HomeRF, and radio and other broadcasting equipment (both ones that require a license and ones that do not require a license).
 1. Confirm that radio and other broadcasting equipment are not used nearby before using this product.
 2. When trouble occurs, for example, if the Radio Frequency module causes problems such as radio wave interference, consult your dealer.
- ❑ Because not all the combinations of the printer and wireless LAN devices have been checked for operation, the operation of the printer in combination with all the wireless LAN devices is not guaranteed. Especially in the ad-hoc mode, the printer may not operate normally, depending on the combination of the device to connect with. Be sure to carry out through evaluation of the operation before use.
 - Examine the radio wave situation in the surrounding area before use.
 - Avoid using the same channel that is used in the neighboring shops where wireless LAN is used.

Notes on using the printer

When using the printer in environments where kitchen microwaves and other devices that may interfere radio waves are installed, observe the following points.

- Keep the printer away from the devices, such as kitchen microwaves, that may cause radio wave interference.
- Use channels that are away from the frequency bands that may cause radio wave influence.
- Place shields between the printer and the devices that may cause radio wave interference.
- Select either 2.4 GHz or 5 GHz, whichever is free from radio wave interference.
- In auto channel setting for the access point, do not select a channel in which the devices may cause radio wave interference.

Note about Security

This section describes security concerns when using a wireless LAN by using the Radio Frequency module that can be installed in this product.

Security is important for the protection of the user's privacy

A wireless LAN has the advantage that information can be exchanged by using radio waves instead of a cable. However, radio waves are not confined to a cable and can be received in a fairly wide area and through obstacles such as walls, so if security is not used, the following problems may occur.

Communication data can be received by stealth

A third person can receive private communication data by intercepting the radio waves intentionally. Such a person could receive items such as the following:

- Personal information, such as an ID and password or credit card number
- The contents of e-mail.
- Data which is communicated between the PC and printer.

Illegal access

A third person can access the network and cause damage such as the following:

- Personal information and secret information can be removed.
- Invalid information can be sent as if it were from a legitimate user of the network.
- Intercepted communication contents can be re-written and sent.
- Data and the system can be destroyed by an electronic virus.

This product, the wireless LAN card, and the access point have security mechanisms to counter these problems. If you use the security settings for this product, you can nearly eliminate these problems.

In some cases, the wireless LAN equipment is not set up before it is sold to the user. Therefore, to attempt to prevent security problems, always use all the security settings for the wireless LAN equipment according to the manual.

CAUTION

The security functions, however, cannot guarantee 100% security. Please understand this when you use this product.

Seiko Epson Corporation suggests that the security setting is set by the judgment and the responsibility of user after understanding the possible problems resulting from using this product without the security settings.

When you cannot set the security by yourself, please ask your dealer.

When you purchase this product, the security setting is already set up for this product (default setting: WPA2-Personal).

For Safety

Key to Symbols

The symbols in this manual are identified by their level of importance, as defined below. Read the following carefully before handling the product.

 WARNING	You must follow warnings carefully to avoid serious bodily injury.
 CAUTION	Provides information that must be observed to prevent damage to the equipment or loss of data. <ul style="list-style-type: none">• Possibility of sustaining physical injuries.• Possibility of causing physical damage.• Possibility of causing information loss.
CAUTION	Provides information that must be observed to avoid damage to your equipment or a malfunction.
NOTE	Provides important information and useful tips.

Warnings

 WARNING	<ul style="list-style-type: none">• To avoid risk of electric shock, do not set up this product or handle cables during a thunderstorm.• Shut down your equipment immediately if it produces smoke, a strange odor, or unusual noise. Continued use may lead to fire. Immediately unplug the equipment and contact qualified service personnel.• Never attempt to repair this product yourself. Improper repair work can be dangerous.• Never disassemble or modify this product. Tampering with this product may result in injury or fire.• Do not allow foreign matter to fall into the equipment. Penetration by foreign objects may lead to fire.• If water or other liquid spills into this equipment, do not continue to use it. Continued use may lead to fire. Unplug the power cord immediately and contact qualified service personnel.• Do not use aerosol sprayers containing flammable gas inside or around this product. Doing so may cause fire.
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Cautions



- **Do not connect cables in ways other than those mentioned in this manual.**
Different connections may cause equipment damage or fire.
- **Be sure to set this equipment on a firm, stable, horizontal surface.**
The product may break or cause injury if it falls.
- **Do not use this product in locations subject to high humidity or dust levels.**
Excessive humidity and dust may cause equipment damage or fire.
- **Do not place heavy objects on top of this product. Never stand or lean on this product.**
Equipment may fall or collapse, causing breakage and possible injury.
- **To ensure safety, unplug this product before leaving it unused for an extended period.**

Restriction of Use

When this product is used for applications requiring high reliability/safety, such as transportation devices related to aviation, rail, marine, automotive, etc.; disaster prevention devices; various safety devices, etc.; or functional/precision devices, etc., you should use this product only after giving consideration to including fail-safes and redundancies into your design to maintain safety and total system reliability. Because this product was not intended for use in applications requiring extremely high reliability/safety, such as aerospace equipment, main communication equipment, nuclear power control equipment, or medical equipment related to direct medical care, etc., please make your own judgment on this product's suitability after a full evaluation.

About this Manual

Aim of the Manual

This manual is aimed to provide all the necessary information for development engineers to develop, design, and install POS system, or to develop and design printer applications.

Manual Content

The manual is made up of the following sections:

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Chapter 2	Installation
Chapter 3	Application Development Information
Chapter 4	Programming Samples
Chapter 5	UB-R04 Specifications
Appendix	Exchange from the UB-R03

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Product Overview

This chapter explains the product overview.

Features

The UB-R04 is installed in the TM-series printers as an interface board to provide Wireless Ethernet communications.

Wireless LAN

- IEEE802.11a/b/g/n (2.4 GHz band or 5 GHz band) compatible
- Infrastructure mode and 802.11 Ad-Hoc mode are supported.
- The following communication speeds are supported.
 - IEEE802.11a (5 GHz): Automatic change
 - IEEE802.11b (2.4 GHz): Automatic change
 - IEEE802.11g (2.4 GHz): Automatic change
 - IEEE802.11n (2.4 GHz): Automatic change (65 Mbps at maximum)
 - IEEE802.11n (5 GHz): Automatic change (65 Mbps at maximum)
- Equipped with WPA/WPA2-PSK, WPA/WPA2-Enterprise (EAP-TLS), 64/128-bit WEP
- Please prepare the access point (for the Infrastructure mode) or the computer for the wireless LAN (for Ad-Hoc mode) for your system.

Network Function

- IPv4 capable. Not IPv6 capable.
- Supports DHCP, APIPA.
- ENPC, SNMP capable. The status of the printer can be acquired by using ENPC, SNMP.

Setting

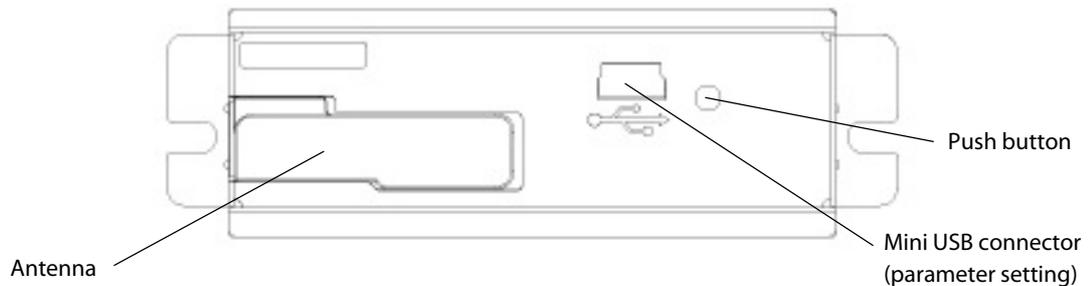
- The same as for the previous wireless interface (UB-R03), you can set the network parameters from the computer that is connected by using wireless LAN or USB.
- You can print and check the settings for the current network parameters using the push button.

NOTE

- You need to use the EpsonNet Config when making settings using a USB connection. See "[Setting Using the USB Connection](#)" on page 26 for details.
- The USB connector is only for making settings and cannot be used for printing.

Product Information

Parts Name and Function



Push button

A push button is provided to perform the following functions.

- Dynamic status sheet printing
Push and hold the push button for 3 seconds or more when the TM printer is ready for printing (paper is set and the power supply is turned on); the network parameter status is printed.

NOTE

A leased IP address will be printed if the IP address setting is DHCP or APIPA. Before leasing, an IP address cannot be printed.

- Setting initialization
Push and hold the push button while turning on the power supply. Keep pushing the push button (about 30 seconds) until the initialization start message (Resetting to Factory Default) is printed. All settings are reset to the factory settings.

USB connector (parameter setting)

The UB-R04 has a USB connector to set the internal parameters.

- Set the internal parameters by connecting with a computer installed with the dedicated utility (EpsonNet Config) via a USB cable.
- Set the parameters of TM printers by connecting with a computer installed with the dedicated utility (Epson Deployment Tool) via a USB cable.

NOTE

The USB connector can be used only for setting the internal parameters. The USB connector cannot be used for other purposes, such as printing. Be sure to use the USB connector only for the use mentioned above, otherwise disconnect the USB cable.

Countries and Regions Where This Product Can be Used

The Radio Frequency module that is installed in the UB-R04 can be used in the following countries and regions.

For North/South America model (617)

USA, Canada, Costa Rica, and Brazil

CAUTION

- Using W53 (CH52 - CH64), and W56 (CH100 - CH140) in ad-hoc mode is prohibited.
- Using W52 (CH36 - CH48) outdoors is prohibited (excluding Costa Rica).
- With W56, CH120, 124, and 128 are unavailable.

For European model (613)

Austria, Belgium, Germany, Luxembourg, Netherlands, Switzerland, France, Italy, Greece, Spain, Portugal, Denmark, Finland, Ireland, Sweden, UK, Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland, Slovenia, Slovak Republic, Norway, Bulgaria, Romania, Australia, New Zealand, Hong Kong, and South Africa*

*: Applied only to the products on which the radio law approval label is placed.

CAUTION

- Using W53 (CH52 - CH64), and W56 (CH100 - CH140) in ad-hoc mode is prohibited.
- Using W52 (CH36 - CH48) outdoors is prohibited.
- Using W53 (CH52 - CH64) outdoors is prohibited. (South Africa, Australia, and Hong Kong only.)
- W58 (CH149 - CH165) is unavailable.

For India model (614)

India

CAUTION

- Using W52 (CH36 - CH48), W53 (CH52 - CH64) and W58 (CH149 - H165) in ad-hoc mode is prohibited.
- Using W52 (CH36 - CH48), W53 (CH52 - CH64) and W58 (CH149 - H165) outdoors is prohibited.
- W56 (CH100 - H140) is unavailable.

Supported TM Printers

The UB-R04 can be used with the following TM printers:

TM-U220, TM-T88IV, TM-T70, TM-T88V, TM-H2000, TM-H6000IV, TM-T90, TM-L90, TM-T70II, TM-T90II

For the following TM printers, check the printer firmware version. The UB-R04 can be used when any of the listed firmware versions or later one is used.

Printer	Firmware version
TM-T70	Ver. 1.03ESC/POS, 1.02ESC/POS-J, 1.01ESC/POS-J(80)
TM-T88IV	Ver. 10.03ESC/POS, 10.03ESC/POS(58)

Communication Distance

- The communication distance is 30 meters {98 feet}.
- The communication distance depends on the surrounding environment of the electric wave, any obstacles, the placing and so on. Make a thorough evaluation when setting up.

Unpacking

- UB-R04
- UB-R04 User's Manual
- Label

Space Required for Installation

The position of the UB-R04 is different for different printers. For example, when it is installed in the back of one model, it increases the depth of printer by 30 mm (1.26"). Take this into consideration for your installation.

Environmental Specifications

Temperature

Operating Conditions	0 to 50°C {32 to 122°F}, 10 to 90% RH non-condensation
Storage Conditions	-10 to 50°C {14 to 122°F}, 10 to 90% RH non-condensation

Limitations

Limitations for the TM printer

- AC adapter connection (Note about TM-U200, TM-U210)
When combining and using the TM-U200 or TM-U210 and the UB-R04, the PA, PB series AC adapter packed with the TM-U200 and TM-U210 cannot be used. Use the PS-180.
- Be sure to use the connector cover with the UB-R04 to avoid malfunction due to electrostatic discharge when it is installed in the TM-T90 or TM-L90.

Limitations for wireless communication

- The transmission of the radio waves cannot be stopped. The only way to stop the transmission of radio waves is to turn the TM printer off.
- For other limitations, see the cautions in ["Countries and Regions Where This Product Can be Used" on page 18](#).
- When setting the encryption type, there are the following restrictions:
 - WPA/WPA2-PSK is not available in the Ad-Hoc mode.
- When using the UB-R04 in the Ad-Hoc mode, printing a dynamic status sheet is subject to the following restrictions:
 - Even if there is no host computer to connect to, "Connect" appears as the Link Status.
 - Between power-on and the time when the printer to connect is found, "0dBm" appears as the Signal Level. If the host computer connected to the TM printer discontinues communication, the value that had been obtained immediately before discontinuation of communication is held appears.
- W53 and W56 channels are not available to connect to a stealth SSID access point.
- For combination with wireless LAN devices, in the Ad-Hoc mode, the printer may not operate normally (wireless connection may frequently be disconnected or connection may not be possible), depending on the combination of the device to connect with. In that case, consider the following:
 - When setting up: If wireless connection is not possible and an IP address cannot be set, set using another PC or the USB connection.
 - When printing: For more stable printing, it is recommended to use the infrastructure mode.

Limitation for customer display use

When the UB-R04 is connected, the DM-D connector on the TM unit cannot be used.

Limitations using USB connector (parameter setting)

When the power supply is turned on under the following conditions, the wireless LAN function of the interface does not operate.

- The UB-R04 is connected to the computer with a USB cable.
- The TM printer is off-line. (No paper or cover open, etc.)

Unplug the USB cable or correct off-line condition at the TM printer to operate the wireless LAN function.

The USB connector (parameter setting) can be used only for setting the internal parameters.

It cannot be used for other purposes, such as printing.

Open Source Software License

1. This product includes open source software programs listed in Section 4) according to the license terms of each open source software program.
2. We provide the source code of the GPL Programs and LGPL Programs (each is defined in Section 4) to you on a CD-ROM for a charge covering the cost of performing such distribution, such as the cost of media, shipping and handling until five (5) years after the discontinuation of same model of this product. If you desire to receive the source code above, please contact the customer support for your region.
3. The open source software programs are WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. See the license agreements of each open source software program for more details, which are described on "OPEN SOURCE SOFTWARE LICENSE TERMS" in this documentation.
4. The list of open source software programs included with this printer product and the whole license agreements of each license can be found in the following URL.
<http://xxx.xxx.xxx.xxx/licenses.html>
* For the underlined part in the above URL, input each printer's IP address.



Installation

This chapter describes the UB-R04 installation. The UB-R04 is an interface board on which is installed the Radio Frequency module for Epson TM printers. The Radio Frequency module is installed on the UB-R04 at the factory.

To set up the printer, install the UB-R04 in the Epson TM printer and initialize the UB-R04 to return it to its default setting. Set the PC to be able to communicate with the UB-R04. Then change the setting of the UB-R04 using the setting PC. The UB-R04 can be set by using the dedicated utility EpsonNet Config.

Installation Precautions Cautions and Note



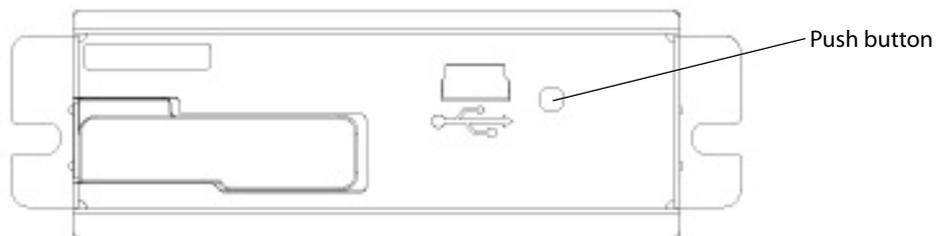
- Before installing, disconnect the Power Unit from the TM Printer (as well as turning the power switch off).
Even when the power switch is off, voltage is still present at some points on the circuit board. Changing components while the Power Unit is connected can cause damage to the UB-R04 and the printer.
- A grounded wrist strap should be worn during installation to avoid damage from static electricity.
- To avoid damage from static electricity when the unit is removed, place it on an static-safe surface such as conductive foam.
- Protect the unit from vibration and shock that could damage to the unit.
- Do not attempt to wire this product other than as described in this document. Improper wiring could cause damage, fire or explosion.
- Never disassemble or modify this product. Tampering with this product may result in injury, fire, or electric shock.



Because the default IP address for all the wireless printers is the same, you should power on and configure only one printer at a time.

Connect the UB-R04 to the TM Printer

- 1** Confirm items in the pack. ("[Unpacking](#)" on page 19)
- 2** Remove the two screws of the universal interface connector of the TM Printer and connect the UB-R04, and fix it with two screws.
- 3** Set the DIP switch of the TM Printer. The interface of the TM printer must be selected as "parallel" with the appropriate settings. If a TM printer that can set the reset signal for pin 31 is used, set to "enable." When using the printer which supports both the USB vendor-defined class and the USB printer class, select the USB vendor-defined class.
Refer to the Technical Reference Guide for each TM printer for these settings for details. Also, set the memory switches according to your needs.
- 4** Power on the printer. Then, after waiting a little, hold down the push button on the interface card for more than 3 seconds. The printer prints the status sheet for the UB-R04. You can check all setting values necessary for the network connection.



- 5** Turn the power switch of the TM Printer on while pressing the Feed button. The printer prints current status of the printer on the paper.
- 6** Turn off the TM Printer.

How to Set the UB-R04

There are two ways to set the UB-R04.

- Setting with the USB connection

Connect the computer to the USB connector (parameter setting) of this product with the USB cable. This setting is possible without connecting to the network. Moreover, you can check the wireless LAN setting at any time, and if you make a mistake in the setting, you can correct it easily. This setting is recommended.

- Setting with the wireless LAN connection

Prepare the setting computer for wireless LAN and set it with the wireless LAN. If a setting that cannot be communicated in the wireless LAN environment of the computer is set, the connection is cut while setting and you cannot check the setting. Also the wrong setting can prevent communication.

NOTE

When you set up the access point at the same time, set the access point in advance and check that the UB-R04 operates correctly.

Setting Using the USB Connection

Setting the UB-R04 by connecting the computer to the USB connector (parameter setting) using the USB cable.

Procedure for Setting the UB-R04 Using the USB Connection

The preparation of the computer

Install the EpsonNet Config in the computer used for the setting.



Setting of the UB-R04

Connect the UB-R04 to the computer and set the wireless LAN setting.



Confirming the operation

Confirm the operation of the UB-R04 using a Web browser.

The Preparation of the Computer

Prepare the computer before setting up the UB-R04.

Needs

- TM printer : UB-R04 is installed
- Computer for setting : Windows 10/8/7
- Computer for network : Setting computer can be used
- Utility for setting : EpsonNet Config
- USB cable (with USB Mini-B plug)

Installing the EpsonNet Config to the computer used for setting

Download the EpsonNet Config and install it in the computer, following the on-screen instructions.

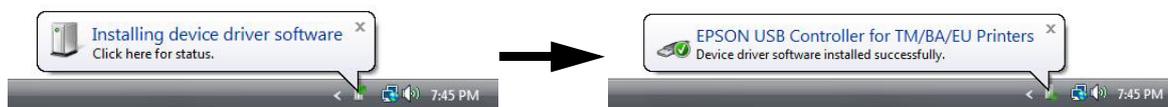
NOTE

- Use the latest version of EpsonNet Config. You may not be able to use some functions if you are using an older version.
- For details on using the EpsonNet Config, install it, and then see the EpsonNet Config manual (operation guide) or the EpsonNet Config online help.

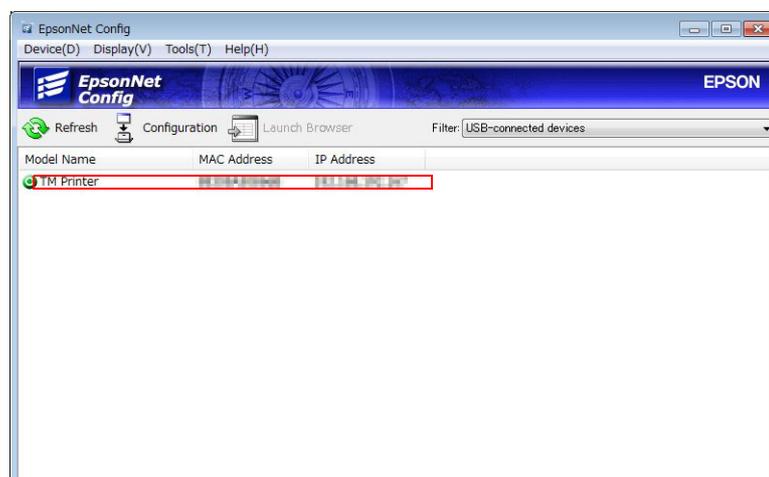
Setting of the UB-R04

Set the UB-R04 according to the following steps.

- 1 Turn the power supply of the TM printer off, connect the computer to the USB connector (parameter setting) with the USB cable.
- 2 Set paper in the TM printer and turn it on.
When the first connecting to the setting computer, the “Installing device driver software” message is displayed, then the hardware setup is started automatically. Wait about one or two minutes until the setting is completed.



- 3 Start up the EpsonNet Config in the computer for setting.
- 4 The “EpsonNet Config” window is displayed. Select the printer for setting and click the [Configuration] button.



5 Configure the [Network] settings and the [TCP/IP] settings.

For details on making settings, see the EpsonNet Config manual (operation guide) or the EpsonNet Config online help.

6 Disconnect the USB cable, turn off the printer, and then turn it back on.

CAUTION

Be sure to disconnect the USB cable, turn off the printer, and then turn it back on after using EpsonNet Config via the USB interface.

NOTE

If you need to configure other settings, use EpsonNet Config (Web version). For information about EpsonNet Config (Web version), see "[EpsonNet Config \(Web Version\)](#)" on page 41.

Confirming the Operation

Confirm that the printer equipped with the UB-R04 is connected to the network. There are three confirmation methods.

- Confirm using a Web browser.
- Conform using EpsonNet Config.
- Conform using the PING command from the command prompt.

This section describes how to confirm using a Web browser.

- 1 Confirm that the network is running; then start up the computer of the network.
- 2 Start up the Web browser and enter the IP Address for the UB-R04 in the address bar.
Address: `http://(IP Address of the UB-R04)/`
- 3 The “EpsonNet Config” window is displayed.



The screenshot displays the EpsonNet Config web interface. The main content area shows the 'Information - Network' section, specifically 'Basic Information'. The printer's status is 'Online', indicated by a green bar. The interface includes a navigation menu on the left and a 'Refresh' button at the bottom.

Information - Network	
Basic Information	
Administrator Name	
Location	
Interface Card Model Name	UB-R04
MAC Address	00:02:83:00:00:01
Hardware Version	05.00
Software Version	01.00
Model Name	UB-R04
Communication Standard	802.11b/g/n
Network Mode	Infrastructure
SSID	EPSON_000
Channel	11
Transmission Rate	72.0Mbps
Access Point MAC Address	00:02:83:00:00:01
Signal Condition	Excellent
Printer Status	Online

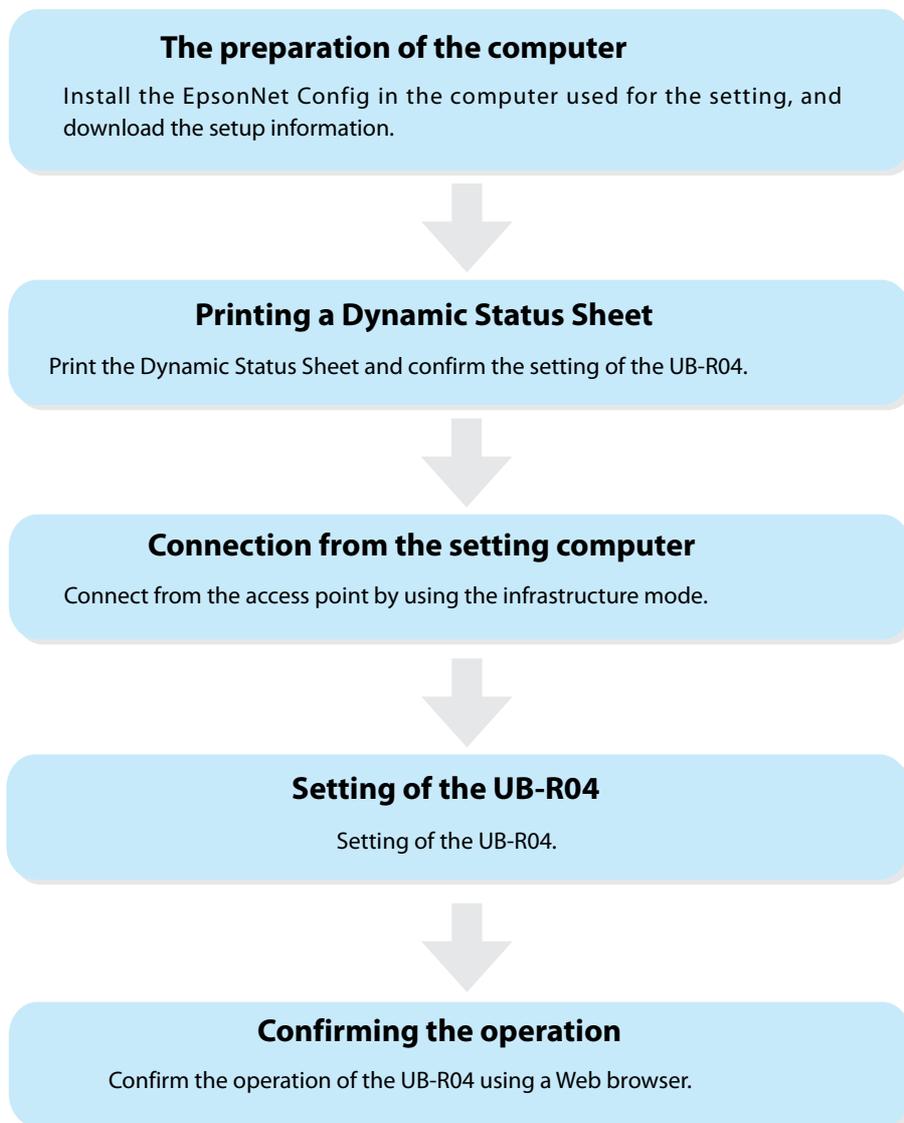
NOTE

If the EpsonNet Config (Web version) screen is not displayed, the network may not be set correctly. Connect a USB cable, and then check the settings again.

Setting Using the Wireless LAN Connection

Prepare the setting computer for the wireless LAN and set it using the wireless LAN. For setting using the wireless LAN connection, there are two procedures. One is installing the EpsonNet Config in the setting computer for the wireless LAN and the other is setting by using a Web browser. This section describes the procedure of installing the EpsonNet Config in the setting computer for the wireless LAN. For the procedure of setting by using a Web browser, see "[EpsonNet Config \(Web Version\)](#)" on page 41.

Procedure for Setting the UB-R04 Using the Wireless LAN Connection



Preparation of the Computer

Prepare the computer before setting up the UB-R04.

Needs

- TM Printer : The UB-R04 installed
- Computer for setting : Windows 10/8/7/Windows Vista/Windows XP/Windows 2000
Computer equipped with wireless LAN function
- Computer for network : Setting computer can be used
- Utility for setting : EpsonNet Config
- Access point : The default setting of the UB-R04 is Infrastructure mode.

Installing the EpsonNet Config in the computer used for setting

Download the EpsonNet Config and install it in the computer, following the on-screen instructions. (See the EpsonNet Config manual (operation guide) or the EpsonNet Config online help for information on how to use the EpsonNet Config after you have installed it.)

Printing a Dynamic Status Sheet

Print a Dynamic Status Sheet to confirm the setting of the UB-R04.

Printing a Dynamic Status Sheet

Power on the printer. Then, after waiting for about 20 seconds, hold down the push button on the interface card with a thin tool, such as an extended paper clip or a pen point, for more than 3 seconds. The printer prints the status sheet for the UB-R04. You can check all setting values necessary for the network connection.

An example of a Dynamic Status Sheet

```
*** Dynamic Status Sheet ***

802.11 Interface
  MAC Address      :xx-xx-xx-xx-xx-xx
  Hard Version     :x.xx
  Soft Version     :x.xx

Wireless Status
  SSID             :EpsonNet
  Network Mode     :Infrastructure
  Comm Standard    :802.11b/g/n
  Encryption Type  :WPA-PSK(AES)
  Link Status      :Disconnect
  Channel          :1
  Transmission Rate:65Mbps
  Access Point     :xx.xx.xx.xx.xx.xx
  Signal Level     :-55dBm

TCP/IP Status
  Acquiring        :Manual
  IP Address       :192.168.192.168
  Subnet Mask      :255.255.255.0
  Default Gateway  :0.0.0.0

Other Status
  TimeServer Status:Success
  Stored Date/Time :yyyy/mm/dd hh:mm:ss
```

Necessary items for the network setting

Connection from the Setting Computer

Connect the setting computer to the access point by the wired LAN. The setting of the access point is set for the Dynamic Status Sheet. The setting items are as follows.

NOTE

As for the setting method of the setting computer, refer to the manual of the computer used.

- SSID (Ex: EpsonNet)
- IP Address (Ex: 192.168.192.2)
(Don't set the same address as the IP Address of the printer to the setting computer and the access point. Example: If the IP Address is 192.168.192.168, the IP Address of the setting computer should be set to another number, such as 192.168.192.2. The same address (192.168.192.168) cannot be used.)
- Channel (Ex: 11 ch)
- Security setting (Ex: WPA2-PSK)
- Passphrase (Ex: EpsonNet)

CAUTION

When you set up more than one TM printers equipped with wireless LAN interface, turn on only one printer. If more than one printer is turned on at the same time, the TM printer cannot be set up.

At this stage, the TM printer can communicate with the setting computer.

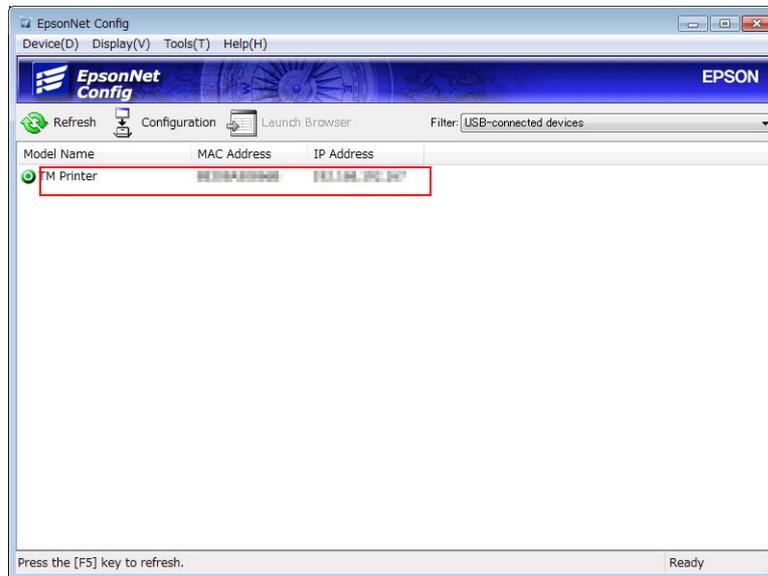
Setting of the UB-R04

Set up the UB-R04 according to the following steps.

- 1 Start up the EpsonNet Config of the setting computer.

- 2 The “EpsonNet Config” window is displayed. Select the printer for setting and click the [Configuration] button.

If the printer is not displayed, click the [Refresh] button. If the printer is still not displayed, the wireless LAN connection is not established. Confirm the setting of the setting computer again.



- 3 Configure the [Network] settings and the [TCP/IP] settings.
For detailed information about EpsonNet Config, see the EpsonNet Config manual (operation guide) or the EpsonNet Config online help.
- 4 The configuration is completed.
At this stage, the wireless LAN of the UB-R04 is changed. The connection with the setting computer is cut according to the setting item and it is not displayed in the “EpsonNet Config” window.

NOTE

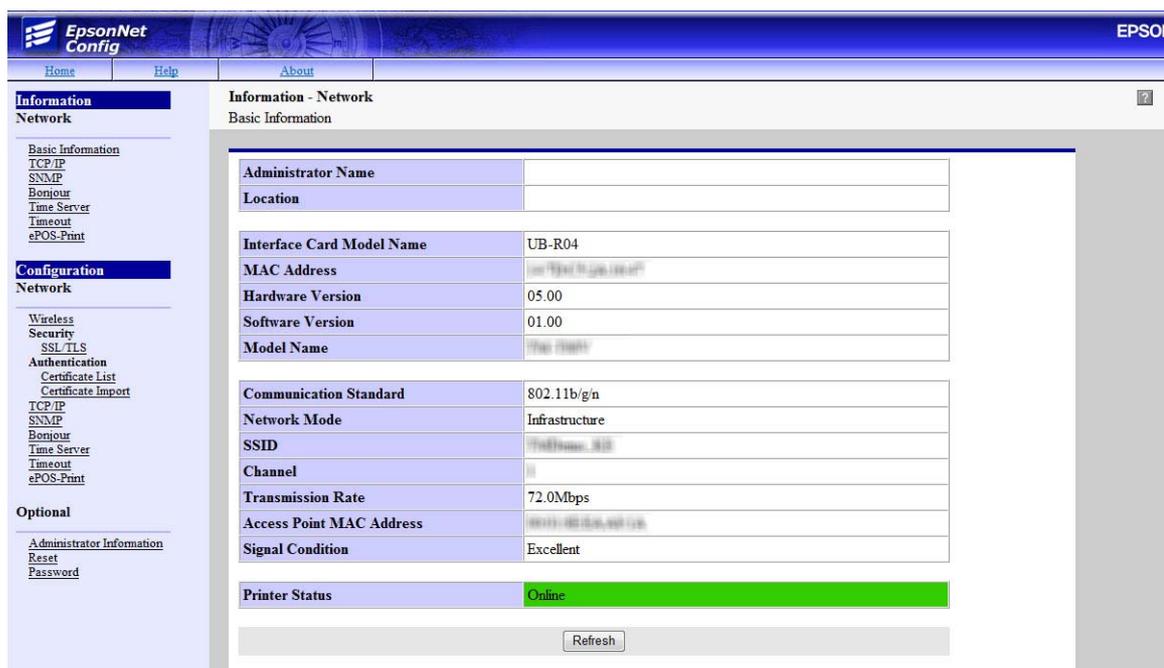
If you need to configure other settings, use EpsonNet Config (Web version). For information about EpsonNet Config (Web version), see "[EpsonNet Config \(Web Version\)](#)" on page 41.

Confirming the Operation

Confirm that the printer equipped with the UB-R04 wireless LAN interface is connected to the network. There are three confirmation methods.

- Confirm with a Web browser.
- Confirm with EpsonNet Config.
- Confirm with the PING command from the command prompt.

- 1 Confirm that the network has been running, and start up the network computer.
- 2 Start up the Web browser and enter the IP Address for the UB-R04 on the address bar. **Address: http://(IP Address of the UB-R04)/**
- 3 The "EpsonNet Config" window is displayed.



NOTE

If the "EpsonNet Config" window is not displayed, print the Dynamic Status Sheet and confirm the setting. When it is not possible to set it, initialize the UB-R04. Then perform setting according to the information from "[Printing a Dynamic Status Sheet](#)" on page 31.

Initializing the UB-R04

The UB-R04 setting can be reset to the default using the following method. The default setting is as follows.

Communication standard:	802.11b/g/n
Network mode:	Infrastructure mode
SSID:	EpsonNet
Encryption Type:	WPA-PSK(AES)
Passphrase:	EpsonNet
IP address:	192.168.192.168
Subnet mask:	255.255.255.0

* You can connect to a WPA2-PSK (AES) access point using the settings above.

- 1** Set the roll paper for the TM printer to print.
- 2** Turn off the TM printer.
- 3** While holding down the Push button, turn the TM printer on.
Push the Push button using an extended paper clip or a pen point.
- 4** Wait for about 30 seconds without letting the Push button up. A receipt as shown below is printed.

Resetting to Factory Default!
Please Wait...

**WARNING: DO NOT
TURN OFF POWER**

CAUTION

Do not turn the printer off until the initialization is completed.

- 5 After about 20 to 25 seconds, a message notifying the completion of initialization is printed.

Reset to Factory Default Finished!

- 6 After the completion message, a Dynamic Status Sheet is printed.

Changing of the Setting

There are three methods for changing the setting of the UB-R04 connected with the network.

- Change the setting with a Web browser.
Settings can be changed by a computer on the same network.
- Change the setting using EpsonNet Config (USB connection).
This method is similar to the initial setting procedure. It is suited for setting with other networks because the connection with the UB-R04 is not cut.
- Change the setting using EpsonNet Config (By network).
It is suited for changing the setting in the same network.

Change Using a Web Browser

Change the setting of the UB-R04 using a Web browser. It is suited for some changes in the same network. After changing the setting of the UB-R04, the TM printer should be reset. If the UB-R04 is set to another network, the connection will be cut.

Change method

- 1 Start up the computer of the network.
- 2 Start up the Web browser and enter the IP Address set for the UB-R04 in the address bar. The "EpsonNet Config" window is displayed.
Address: [http://\(IP Address of the UB-R04\)/](http://(IP Address of the UB-R04)/)

3 Select the item in the configuration and change the setting.

The screenshot shows the EpsonNet Config web interface. The left sidebar has a 'Configuration' menu with 'Network' selected, highlighted by a red box and a red arrow labeled 'Selection'. The main content area displays 'Information - Network Basic Information' with a table of network settings.

Administrator Name	
Location	
Interface Card Model Name	UB-R04
MAC Address	08:00:02:00:00:00
Hardware Version	05.00
Software Version	01.00
Model Name	TM-R04
Communication Standard	802.11b/g/n
Network Mode	Infrastructure
SSID	TM-R04_001
Channel	11
Transmission Rate	72.0Mbps
Access Point MAC Address	08:00:02:00:00:00
Signal Condition	Excellent
Printer Status	Online

Refresh

4 When the setting is completed, click the [Send] button.

The set content should be reflected in the UB-R04 when you click the [Send] button of each “EpsonNet Config” window. If the window is switched without clicking the [Send] button, the input contents are cleared.

5 When the setting is completed, the message is displayed. Turn off the TM printer and turn it on again.

Confirm after changing

After changing of the setting, start up the Web browser of the computer on the network and enter the IP Address of the UB-R04 in the address bar.

Confirm that the “EpsonNet Config” window is displayed.

Address: [http://\(IP Address of the UB-R04\)/](http://(IP Address of the UB-R04)/)

Change the Setting Using EpsonNet Config (USB Connection)

Connect the UB-R04 to the setting computer with the USB connection, and change the setting from EpsonNet Config.

This method is similar to the initial setting procedure. It is suited for setting with other networks because the connection with the UB-R04 is not cut.

Changing method

For the details of the changing method, refer to ["Setting Using the USB Connection" on page 26](#).

Confirm after changing

After changing of the setting, start up the Web browser of the computer on the network and enter the IP Address of the UB-R04 in the address bar.

For the details of the confirming, refer to ["Confirm after changing" on page 39](#).

Change the Setting Using EpsonNet Config (By Network)

It is suited for changing the setting in the same network.

Changing method

For the details of the changing method, refer to ["Setting Using the Wireless LAN Connection" on page 30](#).

Confirm after changing

After changing of the setting, start up the Web browser of the computer on the network and enter the IP Address of the UB-R04 in the address bar.

For the details of the confirming, refer to ["Confirm after changing" on page 39](#).

NOTE

- When you initialize or change the printer settings, the printer is reset to reflect the settings. It may take about 1 minute depending on the network settings or environment. Also, your application may indicate power off during the time waiting for reset. In that case, wait for about 1 minute, and then reconnect to the printer.
- Where wireless LAN communication is in heavy traffic, your application may falsely recognize that the communication is disconnected and indicate power off due to response delay. In that case, disable Power Save to improve the trouble.

Application Development Information

This chapter gives information useful for printer application development.

EpsonNet Config (Web Version)

EpsonNet Config (Web version) is a utility to configure the network and other settings on a web browser. (The screenshots used in this chapter were captured using Internet Explorer. If you are using another browser, the screenshots may differ from those of your browser, however, there is no difference in the setting items and procedures themselves.)

Starting EpsonNet Config (Web Version)

Follow the steps below to start up EpsonNet Config (Web version).

- 1 Start up a PC connected to the network.
- 2 Start up the web browser and enter the IP address for the UB-R04 in the address bar.
Address: [http://\(IP Address of the UB-R04\)/](http://(IP Address of the UB-R04)/)

NOTE

- You can check the IP address of the UB-R04 using the dynamic status sheet.
- A user name and a password will be required on the authentication screen. The default setting for the password varies depending on the firmware version.

Firmware version	User name	Password
Before 1.20	"epson"	"epson"
1.20 or later	"epson"	Product serial number (10 alphanumeric characters, case sensitive)

You can check the firmware version using the dynamic status sheet.

You can check the serial number using the printer's self-test or on the manufacturing nameplate attached to the printer.

- The password can be changed in [Password] in the [Optional] setting menu.
- In the initial setting, a warning message for authentication may appear when you access EpsonNet Config (Web version) from a browser.
- To print the dynamic status sheet, see "[Printing a Dynamic Status Sheet](#)" on page 31.

EpsonNet Config starts.

The screenshot displays the EpsonNet Config web interface. The top navigation bar includes the EpsonNet Config logo, the EPSON logo, and links for Home, Help, and About. The left sidebar contains a menu with sections: Information (Network), Configuration (Network), and Optional. The main content area is titled 'Information - Network' and 'Basic Information'. It features a table of network parameters and a 'Printer Status' indicator.

Information - Network	
Basic Information	
Administrator Name	
Location	
Interface Card Model Name	UB-R04
MAC Address	00:02:83:00:00:00
Hardware Version	05.00
Software Version	01.00
Model Name	UB-R04
Communication Standard	802.11b/g/n
Network Mode	Infrastructure
SSID	EPSON_UB-R04
Channel	11
Transmission Rate	72.0Mbps
Access Point MAC Address	00:02:83:00:00:00
Signal Condition	Excellent
Printer Status	Online

Refresh

Settings

Select from the menu list on the left to check or configure the settings.

CAUTION

Enable the time server when using a certificate. Otherwise, the printer's Stored Date/Time may not be set correctly and the wireless LAN may be unavailable. If this happens, enable the time server, or initialize the Stored Date/Time from one of the following:

- * EpsonNet Config
- * EpsonNet Config (Web Version)
- * Wireless Communication Setting Initializing Mode

You can check the printer's Stored Date/Time from the dynamic status sheet.

Information menu

You can check the settings as shown in the table below.

Menu		Settings
Basic Information		Administrator Name, Location, interface Card Model Name, MAC Address, Hardware Version, Software Version, Model Name, Communication Standard, Network Mode, SSID, Channel, Transmission Rate, Access Point MAC Address, Signal Condition, Printer Status
TCP/IP	IPv4 Address	IP Address Settings (Acquiring the IP Address, IP Address, Subnet Mask, Default Gateway) Set Using Automatic Private IP Addressing (APIPA)
	DNS/DDNS	DNS Server Addresses (IPv4) Settings (Acquire DNS Server Address Automatically, DNS Server Addresses) Domain Name Setting (Acquire Domain Name Automatically, Fully Qualified Domain Name, Register the Network Interface's Address to DNS Server)
SNMP		Community (Read Only) IP Trap (Trap1/2, Address, Community)
Bonjour		Bonjour (Disable/Enable) Bonjour Name, Bonjour Printer Name, Location
Time Setting		Use Time Server Time Server Address, Update Interval, Time Server Status
Timeout		Print (LPR, RAW (Port9100))
ePOS-Print		Version, ePOS-Print (Disable/Enable), Device ID

Configuration menu

You can configure the settings as shown in the table below.

Menu		Settings
Wireless		Wireless Settings (Communication Standard, Network Mode, SSID, Channel, Encryption Type) WPA Pre-Shared Key, Default WEP Key, WEP Key 1/2/3/4 Authentication Algorithm Power Save
Security	SSL/TLS	Server Certificate, Encryption Strength, Automatic Redirect HTTP to HTTPS
Authentication	Certificate List	Self-Signed Certificate (Status, Subject) CA-Signed Certificate 1–3 (Status, Subject) CA Certificate 1-3 (Status, Subject)
	Certificate Import	Certificate Import (File Type, File Name, Password)
TCP/IP	IPv4 Address	IP Address Settings (Acquiring the IP Address, IP Address, Subnet Mask, Default Gateway) Set Using Automatic Private IP Addressing (APIPA)
	DNS/DDNS	DNS Server Addresses (IPv4) Settings (Acquire DNS Server Address Automatically, DNS Server Addresses) Host Name and Domain Name Setting (Acquire Host Name and Domain Name Automatically, Host Name, Domain Name, Register the Network Interface's Address to DNS Server)
SNMP		Community (Read Only) IP Trap (Trap1/2, Address, Community)
Bonjour		Bonjour (Disable/Enable) Bonjour Name, Bonjour Printer Name, Location
Time Setting		Use Time Server Time Server Address, Update Interval
Timeout		Print (LPR, RAW (Port9100))
ePOS-Print		Version, ePOS-Print (Disable/Enable), Device ID

NOTE

You can also select the following functions from the optional configuration menu.

- **Administrator Information:** Use to register administrator name and the printer location.
- **Reset:** Use to reset the interface card or restore the default settings.
- **Password:** Use to change the password.

- 3** After changing the parameters with the menu, click the [Send] button to send the changed content to the printer.
- 4** To enable the setting, click the [Reset] button on the web page that appears after the changed content has been sent.

If you change the setting, such as the IP address or SSID, you need to set the same setting as the printer by changing the setting of the host computer and the access point.

Software and Manuals

The following software and manuals are provided for application development.

How to Get Software and Manuals

You can obtain software and manuals from one of the following URLs.

For customers in North America, go to the following web site:

www.epson.com/support/

For customers in other countries and regions, go to the following web site:

www.epson-biz.com/

Printer Drivers

Software	Manual
EPSON Advanced Printer Driver (APD): In addition to ordinary Windows driver functions, this driver has controls specific to POS, such as controls for paper cut, a cash drawer, or customer display. The Status API (Epson original DLL) that monitors printer status and sends ESC/POS commands is also attached to this driver.	<ul style="list-style-type: none">• APD Install Manual• APD TM/BA/EU Printer Manual• APD Printer Specification• Devmode API/PRINTERINFO Manual• Status API Manual• Sample Program Guide
OPOS ADK: This OCX driver can control POS peripherals using OLE technology* ¹ . Because controlling POS peripherals with original commands is not required on the application side, efficient system development is possible.	<ul style="list-style-type: none">• OPOS Installation Manual• User's Manual• Application Development Guide• UnifiedPOS Retail Peripheral Architecture*²• Sample Program Guide
OPOS ADK for .NET: OPOS ADK for .NET allows you to develop applications that are compatible with Microsoft POS for .NET. When developing applications, use a separate development environment such as Microsoft Visual Studio .NET.	<ul style="list-style-type: none">• OPOS ADK for .NET Installation Guide• UnifiedPOS Retail Peripheral Architecture*²• User's Reference (SetupPOS)• Application Development Guide

Software	Manual
<p>JavaPOS ADK:</p> <p>JavaPOS is the standard specification which defines an architecture and device interface (API) to access various POS devices from a Java based system. Using JavaPOS standard API allows control with Java-based applications of functions inherent to each device. A flexible design with Java language and JavaPOS enables many different types of computer systems, such as stand alone or network configuration, to use a same application. You can use JavaPOS to build applications and drivers independently of platforms. This allows flexible configurations using thin clients to meet the system requirements.</p>	<p>JavaPOS ADK Installation Guide</p>

*1: OLE technology developed by Microsoft divides software into part blocks. The OPOS driver is presupposed to be used with a development environment, such as Visual Basic, unlike ordinary Windows drivers. It is not a driver to be used for printing from commercial applications.

*2: This guide describes general information on how to control printers using the OPOS ADK (in the chapter “POS Printer” and “Appendix A”). It does not describe Epson’s specific functions.

ePOS-Print

ePOS-Print is functionality to control POS printers in a multi-platform environment. Using ePOS-Print, data can be directly printed from personal computers, smart phones, or tablet computers to ePOS-Print supported TM printers. In addition, print images rendered in HTML5 Canvas on Web browsers can be printed.



For detailed information about ePOS-Print, see the ePOS-Print API User’s Manual or ePOS-Print XML User’s Manual.

Utilities

CAUTION

After using the following utilities via the USB interface, be sure to disconnect the USB cable, turn off the printer, and then turn it back on.

- EpsonNet Config
- TM Automatic Restore Utility

Software	Manual
<p>EpsonNet Config: Use for wireless LAN setting. For Windows and Mac.</p>	EpsonNet Config manual (operation guide) or EpsonNet Config online help
<p>Monitoring Tool: Use to check a list of status for the Epson printers connected to the network. You can also update certificates for multiple printers used for WPA-Enterprise in a batch.</p>	Monitoring Tool User's Manual
<p>Deployment Tool: Use to configure network/Wi-Fi settings and printer/driver settings in a batch via the USB interface. It enables deploying more than one printer/driver efficiently and quickly for initial installation.</p>	Deployment Tool User's Manual
<p>Firmware Update Tool Utility to update the product's firmware.</p>	ReadMe

Programming Samples

This chapter describes the information for the programming of a TM printer that is set up for the wireless LAN system.

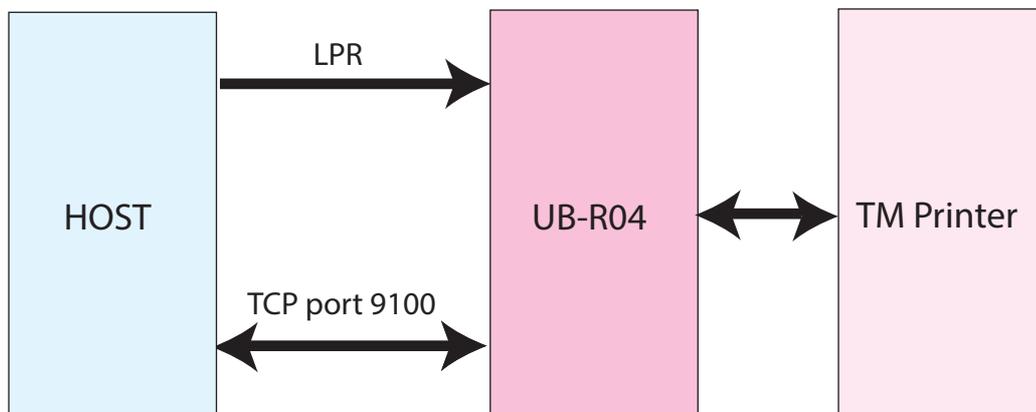
- Method of printing to the UB-R04
- Direct printing by PORT9100
- Monitoring of the ASB status
- More than one connection demands

Method of Printing to the UB-R04

The UB-R04 is equipped with lpr protocols as general print protocols. It is easy to print by using lpr protocols because the printing is also supported by the operating system.

However, the command statuses sent by the printer are ignored because the printing by lpr applies only to output of the printer.

The UB-R04 supports direct printing by TCP PORT9100. It is possible to control the printer directly by an application with the ESC/POS commands through writing and reading to the TCP PORT9100.



Direct Printing by PORT 9100

For Windows Console

The program is a sample of printing "EPSON UB-R04" to a TM printer with the UB-R04 from the Windows shell, through the Ethernet connection.

```
-----  
/* TCP9100 programming sample for Win32  
* HOW TO BUILD  
* cl tcp9100.c wsock32.lib  
*/  
#include <stdio.h>  
#include <winsock.h>  
  
int main(int argc, char* argv[])  
{  
    WSADATA data;  
    SOCKET sock;  
    struct sockaddr_in addr;  
  
    if (argc != 2) {  
        printf("usage: tcp9100 IP_ADDRESS\n");  
        exit(1);  
    }  
  
    /* Initialize windows sockets */  
    WSStartup(0x0101, &data);  
    /* Create sockets */  
    if ((sock = socket(AF_INET, SOCK_STREAM, 0)) == INVALID_SOCKET) {  
        fprintf(stderr, "Error socket(): %d\n", WSAGetLastError());  
        exit(1);  
    }  
  
    /* initialize the parameter */  
    memset(&addr, 0, sizeof(addr));  
    addr.sin_family = AF_INET;  
    addr.sin_port = htons(9100);  
    addr.sin_addr.s_addr = inet_addr(argv[1]);  
  
    /* connect */  
    if (connect(sock, (struct sockaddr*)&addr, sizeof(addr)) < 0) {  
        fprintf(stderr, "Error connect(): %d\n", WSAGetLastError());  
        exit(1);  
    }  
    printf("connected\n");  
  
    /* send data */  
    send(sock, "\x1b@EPSON UB-R04\x0a", 8, 0);  
  
    /* close socket */  
    closesocket(sock);  
    return 0;  
}  
-----
```

For Linux

The program is a sample of printing "EPSON UB-R04" to a TM printer with the UB-R04 from the Linux shell, through the Ethernet connection.

```

-----
/* TCP9100 programming sample for linux
 * HOW TO BUILD
 * cc tcp9100.c
 */
#include <stdio.h>
#include <string.h>
#include <sys/types.h>
#include <sys/socket.h>
#include <netinet/in.h>
#include <netdb.h>

int main(int argc, char* argv[])
{
    int sockfd;
    struct sockaddr_in addr;
    if (argc != 2) {
        printf("usage: tcp9100 IP_ADDRESS\n");
        exit(1);
    }

    /* create socket */
    sockfd = socket(AF_INET, SOCK_STREAM, 0);
    if (sockfd < 0) {
        perror("socket()");
        exit(1);
    }

    /* initialize the parameter */
    memset(&addr, 0, sizeof(addr));
    addr.sin_family = AF_INET;
    addr.sin_port = htons(9100);
    addr.sin_addr.s_addr = inet_addr(argv[1]);

    /* connect */
    if (connect(sockfd, (struct sockaddr*)&addr, sizeof(addr)) < 0) {
        perror("connect()");
    }
    printf("connected\n");

    /* send data */
    send(sockfd, "EPSON UB-R04\x0a", 13, 0);
    /* close socket */
    close(sockfd);
    return 0;
}
-----

```

Monitoring of the ASB Status

The ASB status function of the printer is used for the UB-R04 to check the state of the printer. Therefore, when the transmission data from the application includes the command to nullify the ASB status function, the UB-R04 cannot control the state of the printer.

Take care not to transmit the command to nullify the ASB status function to check the state of the printer correctly by the UB-R04. Or retransmit the command that makes the ASB status function effective again.

More Than One Connection Demands

The UB-R04 accepts up to two connection demands from LPR/Port9100. However, the TM printer can print only the first accepted connection.

Other connection demands enter the standby status until the connection being printed is closed.

When more than one connection is demanded and the host printer leaves the connection open after printing is complete, or the connection is cut without being closed because of some error, other connecting demands are not processed until the time-out of connection.

Close the connection at once after finishing printing by an application.

NOTE

The time-out of connection can be set with EpsonNet Config. The default value is approximately 1 minute.
--

UB-R04 Specifications

This chapter describes the specifications of the UB-R04.

Software Specifications

Supported Protocols

The UB-R04 supports the following protocols.

Protocol	Application
IP, ARP, ICMP, UDP, TCP	Basic communications protocols for various functions.
LPR, TCP Socket Port	Protocol for printing.
DHCP, APIPA	Protocol for automatic settings of IP address, etc.
SNMP, ENPC	Protocol for settings and watch.
HTTP/HTTPS	Protocol for using EpsonNet Config. Protocol for printing with ePOS-Print* (transferring XML printing data). *: HTTPS does not support ePOS-Print with this product.
DNS, DDNS, mDNS (Bonjour)	Protocol for host name resolution.
SNTP	Protocol for acquiring time information from the Time Server.

Printing protocols

The UB-R04 uses the following protocol for printing.

- LPR : Transfers printing data.

Port number	515
Maximum Simultaneous Connections	2
Number of connections that can print	1 (Other users must wait until the printing has completed.)
Time Out	Default: approx. 1 minute Can be set with EpsonNet Config.
Job cancellation	Not supported
Banner printing	Not supported
Printing Job Queue	Not supported

- TCP Socket Port : Transfers printing data and printer status by direct socket communications (bi-directional).

Port type	TCP communication port for direct printing
Port number	9100
Port communication direction	Bi-directional
Maximum Simultaneous Connections	2
Number of connections that can print	1 (Other users must wait until the printing has completed.)
Time Out	Default: approx. 1 minute Can be set with EpsonNet Config.
Job cancellation	Not supported

Automatic IP address assignment protocols

The UB-R04 supports DHCP and APIPA, the protocols that assign an IP Address automatically.

Automatic IP address assignment is performed with the protocols in the order of descending priorities shown in the table below. If automatic assignment with one protocol results in "disabled" or "failure," the subsequent protocol is used.

Protocol	Priority	Explanation
DHCP	1	Demand the assignments of the IP Address, the subnet mask and the gateway address to the DHCP server and set them.
APIPA	2	Assign only IP Address from following IP addresses. 169.254.1.0 to 169.254.254.255 In this case, it is not possible to communicate exceeding the router.
Manual assignment	3	When the automatic IP Address assignment protocol is set to unused, the manually controlled address is set.

Protocol for check and setting

The following protocols are used for the UB-R04 to check and set.

- **SNMP** : SNMP is used to acquire the status and set the TM printer by OPOS/APD or the universal MIB administration tool.

SNMP Version	SNMP v1 (RFC1157) compliant (SNMP v2/SNMP v3 not supported)
Transport Protocol	UDP/IP
Server Port Number	161
Trap Sending Port Number	162
Trap Destination	Up to two settable IP Addresses (Default: Undefined)
Supported PDU type	Get Request, Get Next Request, Get Response, Set Request, Trap
Community	Each community name can be set with 16 ASCII characters or less.

- **ENPC** : ENPC is used to acquire the status and set the TM printer by the dedicated setup utility (EpsonNet Config) or driver software OPOS/APD.

Protocol	UDP/IP
UDP Port Number	3289
Supported Packet Type	Probe, Initialize, Query, Setup, Notify

HTTP/HTTPS

The EpsonNet Config function is the exclusive Web page to acquire and change the network parameter of the UB-R04. The HTTP/HTTPS protocol is used.

HTTP Version	HTTP/1.1
Server Port number	80
Supported Language	English
Maximum Simultaneous Connections	1

Protection with a password

You can set a password for protecting the set content.

User Name	"epson" (User name cannot be changed.)
Password	Default : "epson" or the product serial number (10 alphanumeric characters, case sensitive)* Type of characters settable : ASCII characters Number of characters settable : Maximum 20

*The default setting for the password varies depending on the firmware version.

Firmware version	Password
Before 1.20	"epson"
1.20 or later	Product serial number (10 alphanumeric characters, case sensitive)

You can check the firmware version using the dynamic status sheet. To print the dynamic status sheet, see ["Printing a Dynamic Status Sheet" on page 31](#).

You can check the serial number using the printer's self-test or on the manufacturing nameplate attached to the printer.

NOTE

The password set by the EpsonNet Config function (Web version) is used as a password when setting by using the EpsonNet Config.

Security

Security functions are as follows.

NOTE

- You can configure other settings by using EpsonNet Config (Web version). For detailed information, see ["EpsonNet Config \(Web Version\)" on page 41](#), or the EpsonNet Config manual or online help.
- Enable the time server when using a certificate.

SSL/TLS

Certificates used for HTTPS

- Self-Signed certificate: 1
- CA-Signed certificate: Maximum 3 can be imported. File type: PKCS#12

Authentication

Certificate used for WPA-Enterprise

- CA-Signed certificate: Maximum 3 can be imported. File type: PKCS#12
- CA certificate: Maximum 10 can be imported. File type: PEM/DER

EAP method

The following EAP methods are supported.

- EAP-TLS
- PEAP-TLS
- PEAP-MSCHAPv2

Network Parameter of the UB-R04

The following table shows whether Initial value and Refer/Setting are printed by printing of the Dynamic Status Sheet.

Articles		Parameters	Initial Value	EpsonNet Config		Dynamic Status Sheet
				Refer	Setting	
IP address		-	192.168.192.168	Yes	Yes	Yes
Subnet mask		-	255.255.255.0	Yes	Yes	Yes
Gateway		-	0.0.0.0	Yes	Yes	Yes
Acquiring the IP Address (DHCP)		Auto/Manual	Manual	Yes	Yes	Yes
APIPA		Enable/Disable	Disable	Yes	Yes	No
Network Mode		Ad-Hoc/ Infrastructure	Infrastructure	Yes	Yes	Yes
Communication Standard		802.11b/g/n 802.11b/g 802.11b 802.11a/n 802.11a Auto	802.11b/g/n	Yes	Yes	Yes
SSID		0-32 characters	EpsonNet	Yes	Yes	Yes
Channel*	802.11b/g/n	Model 612: 1-11 Model 613/614: 1-13	1	Yes	Yes	Yes
	802.11a/n	Model 612: 36, 40, 44, 48, 149, 153, 157, 161, 165 Model 613: 36, 40, 44, 48 Model 614: Ad-Hoc mode is prohibited.	36			
MAC address		-	(unique value)	Yes	No	Yes
Encryption Type		None/WEP/WPA2- PSK/WPA-Enterprise	WPA2-PSK(AES)	Yes	Yes	Yes
Authentication Algorithm		Open System/Shared Key	Open System	Yes	Yes	No
Default WEP Key		Key1-4	-	Yes	Yes	No
WEP Key Size		64 bits/128 bits	-	Yes	Yes	No
WEP Key 1-4		-	(no value)	Yes	Yes	No
Transmission Rate		Auto	Auto	Yes	No	Yes

Articles	Parameters	Initial Value	EpsonNet Config		Dynamic Status Sheet
			Refer	Setting	
WPA/WPA2 Pre-Shared Key	0-63 ASCII characters, or 64 Hexadecimal characters	EpsonNet	Yes	Yes	No
Administrator Name	0-255 ASCII characters	(no value)	Yes	Yes	No
Location/Person	0-255 ASCII characters	(no value)	Yes	Yes	No
Password	0-32 ASCII characters	(no value)	Yes	No	No
Model Name	-	UB-R04	Yes	Fixed	No
Community name 1	-	public	Yes	Fixed	No
Community name 2	0-16 ASCII characters	(no value)	Yes	Yes	No
IP Trap 1 Enable	Enable/Disable	Disable	Yes	Yes	No
IP Trap 2 Enable	Enable/Disable	Disable	Yes	Yes	No
Community name (IP Trap #1)	0-16 characters	None	Yes	Yes	No
Community name (IP Trap #2)	0-16 characters	None	Yes	Yes	No
IP trap #1 address	-	0.0.0.0	Yes	Yes	No
IP trap #2 address	-	0.0.0.0	Yes	Yes	No
SNMP General Current Operator	0-127 characters	(no value)	No	No	No
SNMP General Service Person	0-127 characters	(no value)	No	No	No
SNMP Input Media Name	0-63 characters	(no value)	No	No	No
Socket Timeout	1-300 sec	60 sec	Yes	Yes	No
Time Server	Enable/Disable	Disable	Yes	Yes	Yes
TimeServer Status	Success/Failure/Invalid	-	No	No	Yes
Stored Date/Time	-	2012/01/01 00:00:00	No	No	Yes
ePOS-Print	Enable/Disable	Disable	No	No	Yes

*: Channel selection is available only for Ad-Hoc mode.

Setting of the Network Parameter of the UB-R04

The network parameter of the UB-R04 can be set by the following methods:

- EpsonNet Config
- Setting using a Web browser (EpsonNet Config function)
- Using the ARP address (Only the IP Address)

How to Check the Mac Address

The Mac address of the UB-R04 can be checked with the following methods:

- Printing the Dynamic status sheet
- EpsonNet Config
- Web browser (EpsonNet Config function)

System Bootup Time

The UB-R04 requires some bootup time for initializing the system or network functions after power-on or system reset. The required bootup time is as follows. The network communication functions are unavailable during system bootup.

When setting the IP address in the Manual mode : Approximately 6 to 10 seconds

When setting the IP address automatically : Approximately 13 to 17 seconds

(Above values may vary, depending on the response time of the DHCP server.)

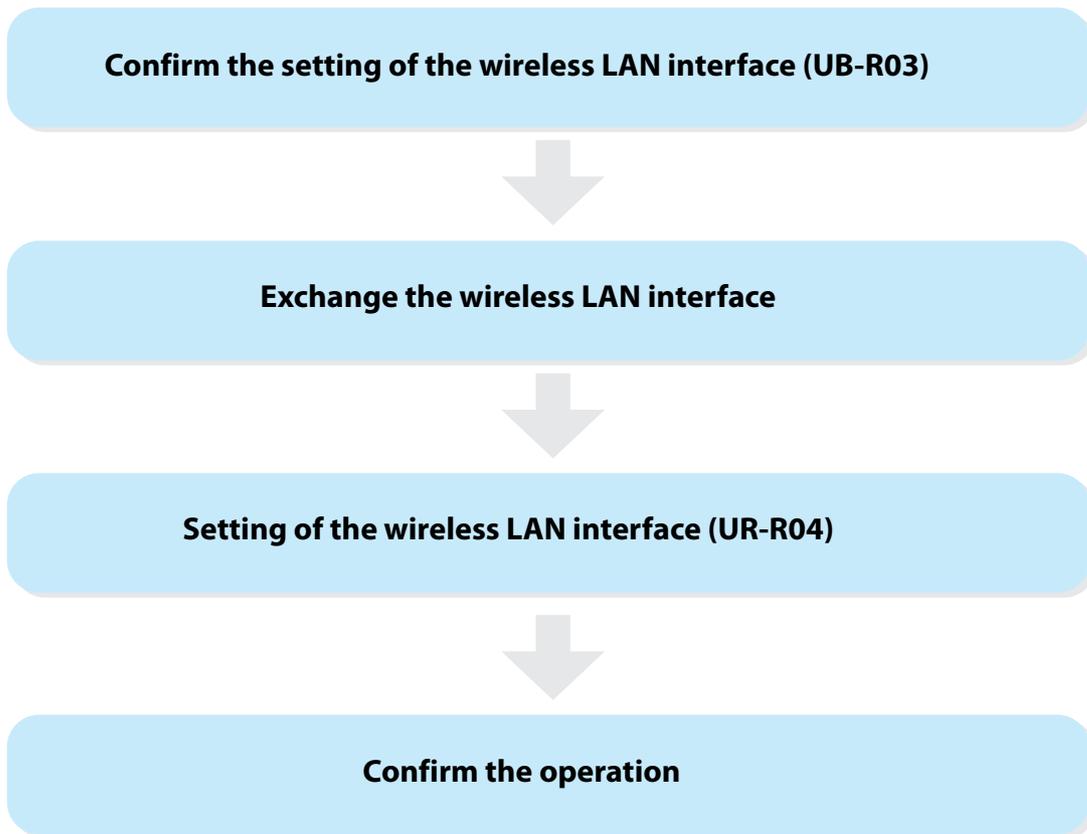
Exchange from the UB-R03

This chapter explains how to replace the UB-R03 with the UB-R04. This operation can be done without changing the application.

Comparison of the UB-R03 and the UB-R04

		UB-R03	UB-R04
Basic Specification	Wireless LAN standard	802.11b	802.11a/b/g/n
	Frequency	2.4 GHz	2.4 GHz/5 GHz
	Default value of wireless mode	Ad-Hoc	Infrastructure
	Default value of SSID	EpsonNetIBSS	EpsonNet
	Supported channel	1-11 ch	Model 612: 1-11 ch Model 613/614: 1-13 ch
	Supported security	WEP WPA WPA2-Personal	WEP WPA WPA2-Personal/Enterprise
	Default value of security	None	WPA2-Personal
Composition	EpsonNet Config	Ver. 4.0 or later	Ver. 4.5 or later
	Epson TMNetWinConfig	Ver. 3.0 or later	Not supported
	DHCP	Supported	
	APIPA	Supported	
	ARP+Ping	Supported	Not supported
	DDNS	Not supported	Supported
	SNTP	Not supported	Supported
	USB connector (Parameter Setting)	Supported	
Supported Driver	OPOS	Supported	
	JavaPOS	Supported	
	APD	Supported	
	Port9100	Supported	
	LPR	Supported	
	Timeout for printing port (LPR, Port9100)	5 minutes	Approx. 1 minute
Environmental Specifications	Temperature	0 to 50°C {32 to 122°F}	
	Humidity	10 to 90% RH	
Function	Self-test printing	Printing the wireless setting for On-board USB compatible models	Not printing the wireless setting for On-board USB compatible models
	ePOS-Print	Not supported	Supported

Procedure for Exchanging



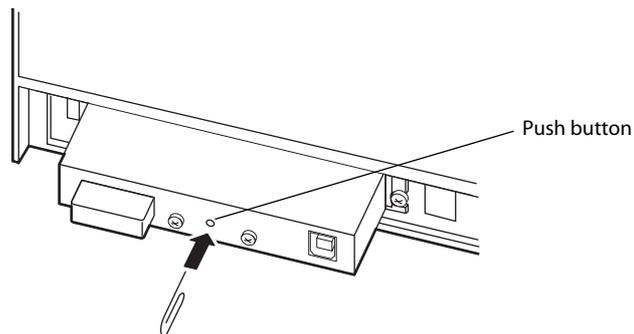
Confirm the Setting of the Wireless LAN Interface (UB-R03)

Confirm the shifting data after printing the parameter sheet of the printer.

The method of printing of the parameter sheet of the UB-R03 is as follows.

Power on the TM Printer, and after waiting for 5 to 6 seconds, hold down the push button of the UB-R03 for more than 3 seconds by using an extended paper clip or a pen point.

The parameter sheet of the UB-R03 is printed. The setting value necessary to connect the network can be confirmed.



An example of a parameter sheet

```

*****
MAC:**:**:**:**:**
HW/SW:1.00/1.20
WLAN:4.4.1/8.10.1

SSID:EpsonNetIBSS
Mode:Ad-hoc
Link:Connect
Channel:11
Tx Rate:Auto
RTS Thresh.:512
AP Density:Low
Auth.:Open System
WEP:OFF
AP:**-**-**-**-**-**

GET IP:Manual
APIPA:OFF
PING:OFF
IP:192.168.192.168
Mask:255.255.255.0
GW:0.0.0.0

Legacy APD:OFF
Factory 1:ON
*****

```

Necessary items for the network setting

WEP key

The WEP key is not printed on the parameter sheet. Please acquire it from the network administrator.

Exchanging of the Wireless LAN Interface

Uninstall the UB-R03 from the printer and install the UB-R04 in the printer. See ["Installation" on page 23](#).

Setting of the Wireless LAN Interface (UR-R04)

Set the network setting of the UB-R04. See ["How to Set the UB-R04" on page 25](#).

Confirm the Operation

Confirm whether the print is actually possible in a new environment.

Confirm the operation in the user's environment (OS, application, and driver).