

Nikon

Wireless Transmitter

WT-5

.....
User's Manual



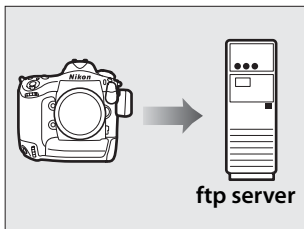
En

What the WT-5 Can Do for You

This manual describes how to use the WT-5 to connect the camera to a computer or ftp server over a wireless network. Once a connection has been established, you can:

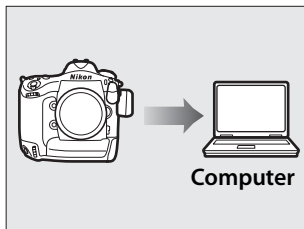
1 Upload existing photos and movies

FTP upload



See the Network Guide, 41

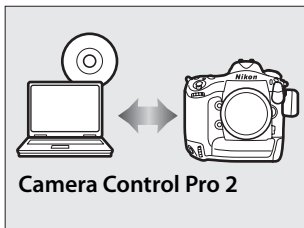
Image transfer



See the Network Guide, 15

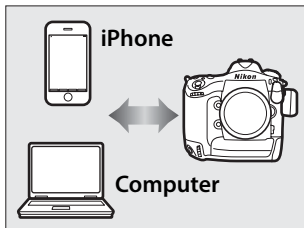
2 Take or browse photos remotely

Camera control



See the Network Guide, 19

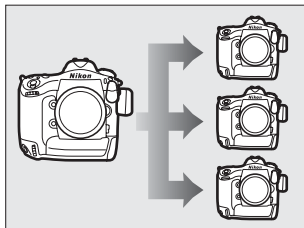
HTTP server



See the Network Guide, 22

3 Control multiple cameras

Synchronized release



See the Network Guide, [□ 45](#)

See “Wireless Connections” ([□ 5](#)) for more information.

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Apple Public Source License

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<http://developer.apple.com/opensource/>.

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For Your Safety

To prevent damage to your Nikon product or injury to yourself or to others, read the following safety precautions in their entirety before using this equipment. Keep these safety instructions where all those who use the product will read them.

The consequences that could result from failure to observe the precautions listed in this section are indicated by the following symbol:



This icon marks warnings, information that should be read before using this Nikon product to prevent possible injury.

■ ■ WARNINGS



Do not disassemble

Failure to observe this precaution could result in fire, electric shock, or other injury. Should the product break open as the result of a fall or other accident, disconnect the camera power source and take the product to a Nikon-authorized service representative for inspection.



Cut power immediately in the event of malfunction

Should you notice smoke or an unusual smell coming from the equipment, immediately unplug the AC adapter and remove the battery, taking care to avoid burns. Continued operation could result in injury. After removing the battery, take the equipment to a Nikon-authorized service representative for inspection.



Do not use in the presence of flammable gas

Failure to observe this precaution could result in explosion or fire.



Keep dry

Do not immerse in or expose to water or rain. Failure to observe this precaution could result in fire or electric shock.



Do not handle with wet hands

Failure to observe this precaution could result in electric shock.



Keep out of reach of children

Failure to observe this precaution could result in injury.

⚠ Do not remain in contact with the camera or charger for extended periods while the devices are on or in use

Parts of the device become hot. Leaving the device in direct contact with the skin for extended periods may result in low-temperature burns.

⚠ Do not expose to high temperatures

Do not leave the device in a closed vehicle under the sun or in other areas subject to extremely high temperatures. Failure to observe this precaution could result in fire or in damage to the casing or internal parts.

⚠ Follow the instructions of hospital and airline personnel

This device emits radio frequency radiation that could interfere with medical or navigational equipment. Do not use this device in a hospital or on board an airplane without first obtaining the permission of hospital or airline staff.

■ ■ *Warning on use of wireless functions*

Any users with implantable cardiac pacemakers should make this product apart from the pacemakers by 30 cm or longer.

The pacemakers may be influenced by radio waves radiated from this product.

In places where people may be close to one another such as crowded trains, turn off the power of the WT-5 or disable the wireless LAN feature.

This is because WT-5 may be close to people using medical devices including cardiac pacemakers or hearing aids and have bad influences on the medical devices.

Turn off this product or turn off all wireless communication functions, such as wireless LAN, where medical institutions prohibit use of this product. Turn off this product or turn off all wireless communication functions, such as wireless LAN, if a medical device is used nearby, even if use of this product is permitted by a relevant medical institution.

Failure to follow this instruction may have some influences on medical equipment to cause accidents by malfunctions. For details, contact the medical institutions where this product may be used.

Turn off this product or turn off the wireless communication functions, such as wireless LAN, when use of wireless or electronic devices in aircraft is prohibited.

This product may have bad influences on electronic devices to cause accidents. For details, contact airline companies operating aircraft where this product may be used.

If this product induces radio disturbance to other devices during use of some wireless feature, disable the wireless feature or stop using this product.

Failure to follow this instruction may have some influences on other devices to cause accidents by malfunctions.

Notices

- No part of the manuals included with this product may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form, by any means, without Nikon's prior written permission.
- Nikon reserves the right to change the specifications of the hardware and software described in these manuals at any time and without prior notice.
- Nikon will not be held liable for any damages resulting from the use of this product.
- While every effort has been made to ensure that the information in these manuals is accurate and complete, we would appreciate it were you to bring any errors or omissions to the attention of the Nikon representative in your area (address provided separately).

This product, which contains encryption software developed in the United States, is controlled by the United States Export Administration Regulations and may not be exported or re-exported to any country to which the United States embargoes goods. As of September 2011 the following countries were subject to embargo: Cuba, Iran, North Korea, Sudan, and Syria.

Notices for Customers in the U.S.A.

This device complies with Part 15 of FCC Rules and RSS-Gen of IC Rules. Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of this device.

Nikon WT-5A

FCC ID: CGJ1148EA

IC: 4634A-1148EA

FCC WARNING

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC Radio Frequency Interference Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

Use of 5.15-5.25GHz band

5.15-5.25GHz band is restricted to indoor operations only.

Compliance with FCC requirement 15.407(c)

Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinues transmission in case of either absence of information to transmit or operational failure.

Co-location

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

FCC/IC RF Exposure Statement

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. WT-5A has been tested and found to comply with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules. Please refer to the SAR test report that was uploaded to FCC website.

Notice for Customers in the State of California, U.S.A.

WARNING: Handling the cord on this product will expose you to lead, a chemical known to the State of California to cause birth defects or other reproductive harm. ***Wash hands after handling.***

Nikon Inc.,
1300 Walt Whitman Road, Melville, New York
11747-3064, U.S.A. Tel.: 631-547-4200

Notices for Customers in Canada

IC RSS-Gen Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Use of 5.15-5.25GHz band

5.15-5.25GHz band is restricted to indoor operations only.

Co-location

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

FCC/IC RF Exposure Statement

The available scientific evidence does not show that any health problems are associated with using low power wireless devices. There is no proof, however, that these low power wireless devices are absolutely safe. Low power Wireless devices emit low levels of radio frequency energy (RF) in the microwave range while being used. Whereas high levels of RF can produce health effects (by heating tissue), exposure of low-level RF that does not produce heating effects causes no known adverse health effects. Many studies of low-level RF exposures have not found any biological effects. Some studies have suggested that some biological effects might occur, but such findings have not been confirmed by additional research. WT-5A has been tested and found to comply with FCC/IC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines in Supplement C to OET65 and RSS-102 of the IC radio frequency (RF) Exposure rules. Please refer to the SAR test report that was uploaded to FCC website.

Notices for Customers in Europe

R&TTE Directive



We, the manufacturer (Nikon Corporation) hereby declare that this Wireless Transmitter (WT-5) is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

| | | | | | | | |
|------|----|----|----|----|----|----|----|
| AT | BE | BG | CY | CZ | DK | EE | FI |
| FR * | DE | GR | HU | IE | IT | LV | LT |
| LU | MT | NL | PL | PT | RO | SK | SI |
| ES | SE | GB | IS | LI | NO | CH | |

* Outdoor use limited to 10mW eirp within the band 2454-2483.5MHz

Notice for Customers in France

Outdoor use of wireless transceivers is prohibited within the band 2454-2483.5MHz

Symbol for Separate Collection in European Countries

The following apply only to users in European countries: This symbol indicates that this product is to be collected separately.

- This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- For more information, contact the retailer or the local authorities in charge of waste management.



Declaration of Conformity

A copy of the original DoC for our products as it relates to R&TTE can be found at the following website:

http://imaging.nikon.com/support/pdf/DoC_WT-5.pdf

This device complies with radio-frequency regulations. The content of certification labels not affixed to the device is given below.



Notice for Customers in Thailand

This telecommunication equipment conforms to NTC technical requirement.

Available Channels

The WT-5 is available in five versions, each destined for use in a different region in compliance with local regulations governing the use of wireless devices (for information on countries not listed in the following table, contact a Nikon representative). Use each model only in the region for which it is intended.

| Version | For use in | Channels | |
|---------|--|--------------|-------------------|
| | | 2.4 GHz band | 5 GHz band |
| WT-5 | The 31 countries of the EU-EFTA (Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, the United Kingdom), Australia, Japan, New Zealand, South Africa | 1–13* | 36–64, 100–140 |
| WT-5A | Brazil, Canada, U.S.A. | 1–11 | 36–64, 149–165 |
| WT-5B | Korea, Russia, Singapore | 1–13 | 36–64 |
| WT-5C | China, Hong Kong | 1–13 | 149–165 |
| WT-5D | Argentina, Chile, Mexico, Panama, Taiwan, Thailand | 1–11 | Not supported |

* Outdoor use prohibited in France.

IEEE802.11a

The channels available for IEEE802.11a are listed below.

| Version | Location | Mode | Channels | | | |
|---------|----------|----------------|------------|------------|---------|---------|
| | | | W52 | W53 | W56 | W58 |
| | | | 36–48 | 52–64 | 100–140 | 149–165 |
| WT-5 | Indoor | Infrastructure | ✓ | ✓ | ✓ | — |
| | | Ad hoc | ✓ | — | ✓ | — |
| | Outdoor | Infrastructure | Prohibited | Prohibited | ✓ | — |
| | | Ad hoc | Prohibited | — | ✓ | — |
| WT-5A | Indoor | Infrastructure | ✓ | ✓ | — | ✓ |
| | | Ad hoc | Prohibited | — | — | ✓ |
| | Outdoor | Infrastructure | Prohibited | ✓ | — | ✓ |
| | | Ad hoc | Prohibited | — | — | ✓ |
| WT-5B | Indoor | Infrastructure | ✓ | ✓ | — | — |
| | | Ad hoc | ✓ | — | — | — |
| | Outdoor | Infrastructure | ✓ | ✓ | — | — |
| | | Ad hoc | ✓ | — | — | — |
| WT-5C | Indoor | Infrastructure | — | — | — | ✓ |
| | | Ad hoc | — | — | — | ✓ |
| | Outdoor | Infrastructure | — | — | — | ✓ |
| | | Ad hoc | — | — | — | ✓ |

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Introduction

Thank you for your purchase of an WT-5 wireless transmitter for compatible Nikon digital cameras. The WT-5 is for use exclusively in the country of sale; operation in other jurisdictions is not guaranteed. Users who are unsure as to the country of purchase are requested to contact a Nikon-authorized service representative for more information. Please read this manual thoroughly and keep it where all those who use the product can read it.

The principal difference between the WT-5 and WT-5A/B/C/D is in the number of channels supported; unless otherwise stated, all references to the WT-5 also apply to the WT-5A/B/C/D.

Symbols and Conventions

The following symbols and conventions are used throughout this manual:



This icon marks cautions, information that should be read before use to prevent damage to the product.



This icon marks notes, information that should be read before using the device.



This icon marks references to other pages in this manual.

Background Knowledge

This manual assumes basic knowledge of ftp servers and local area networks (LANs). For more information on installing, configuring, and using devices in a network, contact the manufacturer or network administrator.

Life-Long Learning

As part of Nikon's "Life-Long Learning" commitment to ongoing product support and education, continually-updated information is available on-line at the following sites:

- For users in the U.S.A.: <http://www.nikonusa.com/>
- For users in Europe and Africa: <http://www.europe-nikon.com/support/>
- For users in Asia, Oceania, and the Middle East: <http://www.nikon-asia.com/>

Visit these sites to keep up-to-date with the latest product information, tips, answers to frequently-asked questions (FAQs), and general advice on digital imaging and photography. Additional information may be available from the Nikon representative in your area. See the following URL for contact information: <http://imaging.nikon.com/>

Illustrations

The camera shown in this manual is a D4. Save where otherwise noted, all software and operating system dialogs, messages, and displays are taken from Windows 7 Ultimate or Mac OS X. Their actual appearance and content may vary with the operating system used. For information on basic computer operations, see the documentation provided with the computer or operating system.

Connection Types

The WT-5 offers a choice of the following connection types:

| | |
|-----------------------------|--|
| FTP upload | Upload existing photos and movies to a computer or ftp server, or upload new photos as they are taken. |
| Image transfer | |
| Camera control | Control the camera using optional Camera Control Pro 2 software and save new photos and movies directly to the computer. |
| HTTP server | View and take pictures remotely using a browser-equipped computer or iPhone. |
| Synchronized release | Synchronize the shutter releases for multiple remote cameras with a master camera. |

For more information, see the network guide supplied with the camera.

FTP Servers

Servers can be configured using standard ftp services, such as IIS (Internet Information Services), available with supported operating systems. See the network guide supplied with the camera for more information. Image transfer and camera control do not support connection to computers on other networks via a router, Internet ftp connections and ftp servers running third-party software.

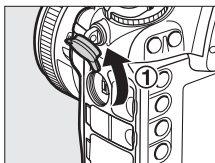
HTTP Sever Mode

Internet connections are not supported in http server mode.

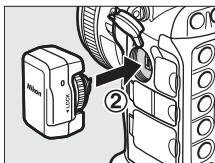
Firewall Settings

Ports 21 and 32768 through 61000 are used for ftp, ports 22 and 32768 through 61000 for sftp, while image transfer and camera control modes use TCP port 15740 and UDP port 5353. File transfer may be blocked if the server firewall is not configured to allow access to these ports.

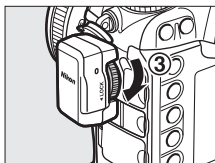
Connecting the WT-5



① Open the camera's peripheral connector cover and rotate it up out of the way.



② Fully insert the WT-5 connector into the camera peripheral connector.



③ Rotate the locking wheel to lock the WT-5 in place.

✓ Power Source

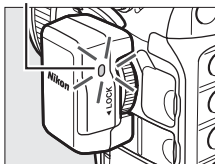
The WT-5 is not equipped with a battery or power switch. Power is supplied from the camera.

✎ Connection Status

Connection status is shown by the LED on the WT-5.

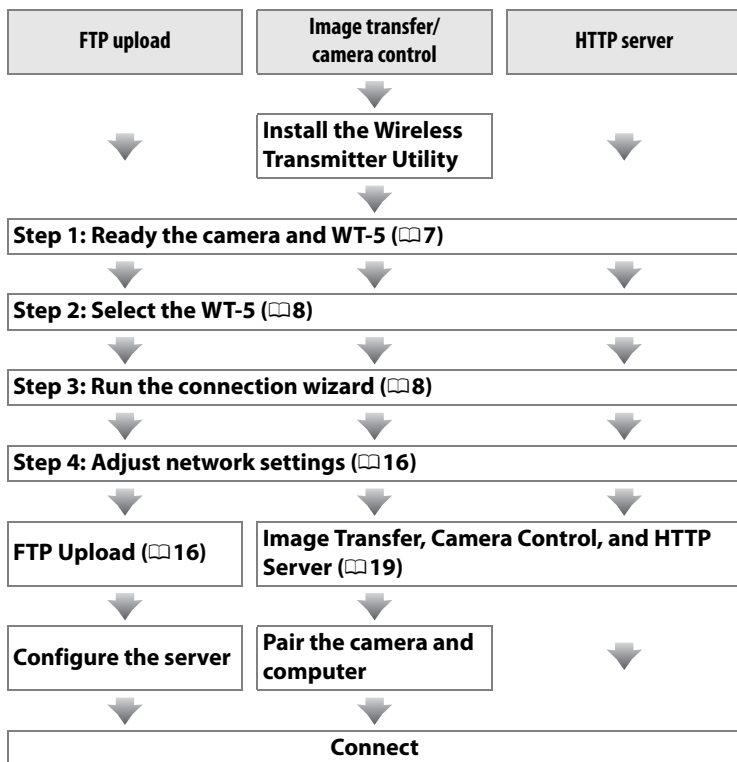
| LED | Status |
|-----------------------|-------------------|
| ○ (glows green) | Connected. |
| ⚡ (flashes green) | Ready to connect. |
| ⚡ (flashes yellow) | Error. |

LED



Wireless Connections

Follow the steps below to connect to a wireless network.



Network Guide

For information on using a wireless network once the camera and WT-5 are connected, see the network guide supplied with the camera.

Choosing a Power Source

To prevent the camera powering off unexpectedly during setup or data transfer, use a fully-charged battery or an optional AC adapter designated for use with your camera. For more information, see the camera manual.

The Wireless Transmitter Utility

The Wireless Transmitter Utility must be installed on computers connecting to the camera in image transfer or camera control mode. See the network guide supplied with the camera for installation instructions.

Synchronized Release

Network profiles are not required in synchronized release mode. For more information, see the network guide supplied with the camera.

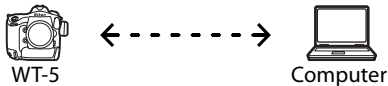
Infrastructure and Ad Hoc Modes

Wireless networks may be either infrastructure or ad hoc.

Infrastructure mode: Connection via a wireless LAN access point.



Ad hoc mode: A direct peer-to-peer connection.



Wireless LANs

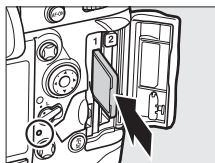
These instructions are intended for customers with an existing wireless LAN, and in the case of infrastructure networks assume that the computer and access point are already connected to the network.

Step 1: Getting Ready

After starting the computer and logging in, ready the camera and WT-5 as described below.

1 Insert a memory card.

Turn the camera off and insert a memory card (do not turn the camera off while data are being transferred to the computer). This step can be omitted in camera control mode (☞ii).

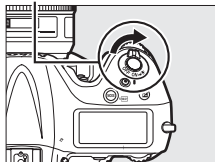


2 Attach the WT-5 (☞4).

3 Turn the camera on.

Rotate the power switch to turn the camera on.

Power switch



☑ Removing the WT-5

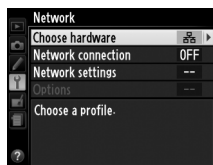
Turn the camera off, remove the WT-5, and replace the peripheral connector cover.

Step 2: Selecting the WT-5

Select the WT-5 as the network device used by the camera.

1 Display the hardware list.

In the setup menu, select **Network**, then highlight **Choose hardware** and press ► to view the hardware list.



2 Select WT-5.

Highlight **WT-5** and press OK to select the highlighted option and return to the network menu.

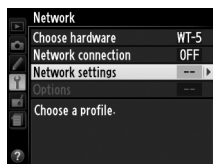


Step 3: The Connection Wizard

Follow the on-screen instructions to create a network profile.

1 Display network profiles.

In the network menu, highlight **Network settings** and press ► to display the profiles list and other network settings.



2 Select Create profile.

Highlight **Create profile** and press ►. Note that if the list already contains nine profiles, you will need to delete an existing profile using the (FORMAT) button before proceeding.



The Wireless Transmitter Utility

The Wireless Transmitter Utility (☞6) can also be used to create network profiles. See page 33.

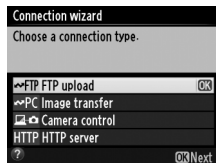
3 Start the connection wizard.

Highlight **Connection wizard** and press ► to start the connection wizard.



4 Choose a connection type. (📖3)

Highlight a connection type and press ►.



5 Name the new network profile.

Enter the name that will appear in the profile list and press ⏎ (to use the default name, press ⏎ without making any changes). Profile names can be up to 16 characters long.






Text Entry


The following dialog is displayed when text entry is required.

Keyboard area: Use multi selector to highlight letters, press center to select.







Text display area: Text appears in this area. To move cursor, press ◀ or ▶ while pressing .

Use the multi selector to highlight the desired character in the keyboard area and press the center of the multi selector to insert the highlighted character at the current cursor position (note that if a character is entered when the field is full, the last character in the field will be deleted). To delete the character under the cursor, press the  (DELETE) button. To move the cursor to a new position, hold  and press ◀ or ▶.

To complete entry and close the dialog, press . To exit without completing text entry, press MENU.

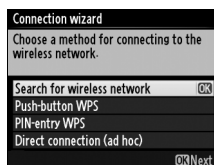
6 Choose a connection method.

Highlight the connection method used by the network and press ▶. More information can be found on the pages listed below.

| | | |
|------------------------------------|---|--|
| Search for wireless network | Choose from a list of networks detected by the camera. |  11 |
| Push-button WPS | Choose for wireless LAN access points with push-button WPS. |  12 |
| PIN-entry WPS | Choose for wireless LAN access points with PIN-entry WPS. |  14 |
| Direct connection (ad hoc) | Connect directly to a host computer or ftp server in ad hoc mode. |  15 |

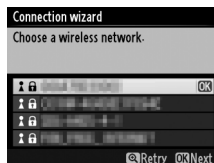
■ Search for Wireless Network

Select **Search for wireless network** in Step 6 on page 10 to choose from a list of the networks (wireless LAN access points or host computers) detected by the camera.



1 Choose a network.

Selecting **Search for wireless network** displays a list of SSIDs. The network type is indicated by the icons to the left of the ID:



| | |
|--|-----------------------|
| | Signal encrypted |
| | Infrastructure/ad hoc |

Highlight a network and press **OK** (if the desired network is not displayed, press **Retry** to search again).

Hidden SSIDs

Networks with hidden SSIDs are indicated by blank entries in the network list. If you select a network with a hidden SSID, you will be prompted to provide the network name; enter a name and press **OK** to proceed to Step 2.



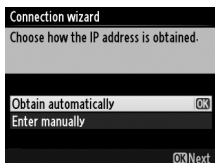
2 Enter the encryption key.

Enter the encryption key and press **OK** (if the network uses open authentication, this dialog will not be displayed; proceed to Step 3).

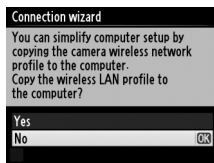


3 Choose your next step.

The message at right is displayed when a connection is established. Your next step depends on the connection type selected in Step 4 on page 9:



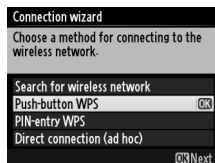
If you chose FTP upload, go to page 16.



If you chose Image transfer, Camera control, or HTTP server, go to page 19.

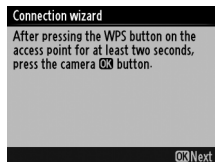
■ Push-Button WPS

Choose **Push-button WPS** in Step 6 on page 10 if the wireless LAN access point uses push-button WPS.



1 Press the WPS button on the wireless LAN access point.

For more information, see the documentation provided with the wireless LAN access point.



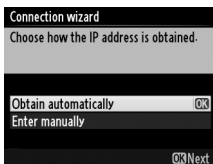
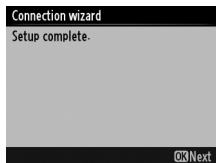
2 Press **OK** button on the camera.

The camera will connect to the access point automatically.

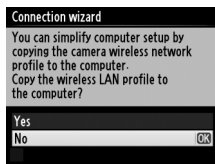


3 Choose your next step.

The message at right is displayed when a connection is established. Your next step depends on the connection type selected in Step 4 on page 9:



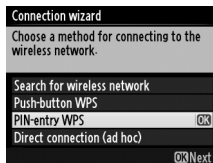
If you chose FTP upload, go to page 16.



If you chose Image transfer, Camera control, or HTTP server, go to page 19.

■ ■ PIN-Entry WPS

Choose **PIN-entry WPS** in Step 6 on page 10 if the wireless LAN access point uses PIN-entry WPS.



1 Enter the PIN for the wireless LAN access point.

From a computer, enter the PIN for the wireless LAN access point. For more information, see the documentation provided with the wireless LAN access point.



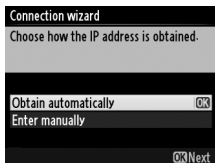
2 Press **OK** button on the camera.

The camera will connect to the access point automatically.

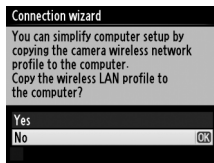


3 Choose your next step.

The message at right is displayed when a connection is established. Your next step depends on the connection type selected in Step 4 on page 9:



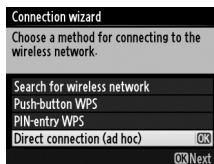
If you chose FTP upload, go to page 16.



If you chose Image transfer, Camera control, or HTTP server, go to page 19.

■ Direct Connection (Ad Hoc)

To connect directly to an ftp server or computer in ad hoc mode, select **Direct connection (ad hoc)** in Step 6 on page 10.



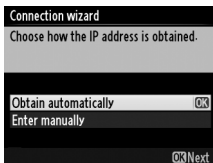
1 Enter the SSID.

Enter a network name (SSID) and press **OK**. The default name is "WT" followed by the MAC address of the WT-5.

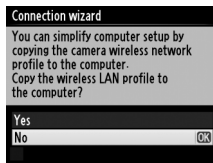


2 Enter the encryption key.

Enter an encryption key and press **OK** (the default key is "nikon"). Your next step depends on the connection type selected in Step 4 on page 9:



If you chose FTP upload, go to page 16.



If you chose Image transfer, Camera control, or HTTP server, go to page 19.

Step 4: Network Settings

■ FTP Upload

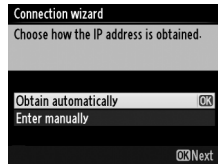
If you selected **FTP upload** in Step 4 on page 9, follow the steps below to connect to an existing ftp server.

Step 4: Network Settings

1 Obtain or select an IP address.

Highlight one of the following options and press ►.

- **Obtain automatically:** Select this option if the network is configured to supply the IP address automatically.
- **Enter manually:** When prompted, enter an IP address and subnet mask by pressing ◀ and ▶ to highlight segments and ▲ and ▼ to change. Press Ⓞ to proceed when entry is complete.



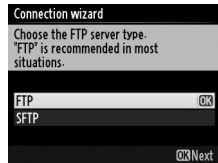
2 Confirm the IP address.

The camera IP address will be displayed as shown at right; press Ⓞ.



3 Choose the server type.

Highlight **FTP** or **SFTP** (secure ftp) and press ►.

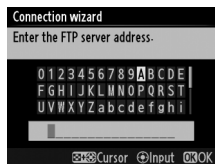


Firewall Settings

Ports 21 and 32768 through 61000 are used for ftp, ports 22 and 32768 through 61000 for sftp. File transfer may be blocked if the server firewall is not configured to allow access to these ports.

4 Enter the IP address.

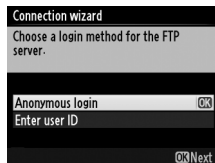
Enter the server URL or IP address (📖 10) and press **OK** to connect.



5 Log in.

Highlight one of the following options and press **OK**.

- **Anonymous login:** Select this option if the server does not require a user ID or password.
- **Enter a user ID:** Enter a user ID and password when prompted and press **OK**.



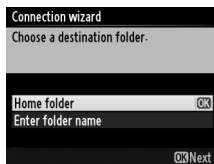
MAC Address Filtering

If the network using MAC address filtering, the filter must be supplied with the MAC address of the WT-5. After attaching the WT-5 to the camera, choose **Network > Options > MAC address** from the camera setup menu and note the MAC address.

6 Choose a destination folder.

Highlight one of the following options and press **OK**.

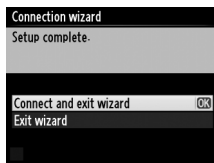
- **Home folder:** Select this option to upload pictures to the server's home folder.
- **Enter folder name:** Select this option to upload pictures to another of the folders existing on the server. Enter a folder name and path when prompted and press **OK**.



7 Exit the wizard.

Highlight one of the following options and press **OK**.

- **Connect and exit wizard:** Save the new network profile and connect to the server.
- **Exit wizard:** Save the new network profile and exit.



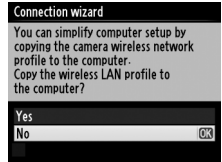
For more information on using wireless networks, see the *Network Guide* supplied with the camera.

■ Image Transfer, Camera Control, and HTTP Server

If you selected any of the above options in Step 4 on page 9, follow the steps below to connect to an existing network.

1 Choose whether to copy the profile to the computer.

Highlight one of the options at right and press ►. To copy the new WT-5 network profile to the computer (□ 22), select **Yes** (note that ad hoc settings can not be copied to a computer running Mac OS X and that infrastructure settings can not be copied under Mac OS X 10.4 and 10.5, and that network settings for other operating systems may be overwritten).



Routers

Connection to computers on other networks via a router is supported only when HTTP server is selected.

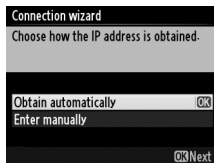
MAC Address Filtering

If the network using MAC address filtering, the filter must be supplied with the MAC address of the WT-5. After attaching the WT-5 to the camera, choose **Network settings > Options > MAC address** from the camera setup menu and note the MAC address.

2 Obtain or select an IP address.

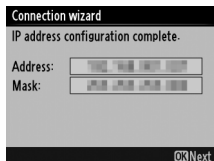
Highlight one of the following options and press ►.

- **Obtain automatically:** Select this option if the network is configured to supply the IP address automatically.
- **Enter manually:** When prompted, enter an IP address and subnet mask by pressing ◀ and ▶ to highlight segments and ▲ and ▼ to change. Press Ⓞ to proceed when entry is complete.



3 Confirm the IP address.

The camera IP address will be displayed as shown at right; press Ⓞ. If **Image transfer** or **Camera control** is selected, proceed to Step 4; otherwise, proceed to Step 7.



4 Connect the camera to the computer.

When prompted, connect the camera to the computer using the USB cable supplied with the camera.

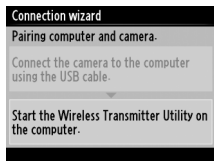


Firewall Settings

Image transfer and camera control modes use TCP port 15740 and UDP port 5353. Computer firewalls must be configured to allow access to these ports, as otherwise the computer may not be able to access the WT-5.

5 Start the Wireless Transmitter Utility.

When prompted, start the copy of the Wireless Transmitter Utility installed on the computer (📄6). Pairing will begin automatically.



6 Disconnect the camera.

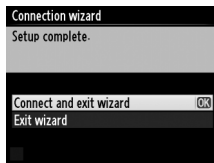
The message at right will be displayed when pairing is complete. Disconnect the USB cable.



7 Exit the wizard.

Highlight one of the following options and press Ⓚ.

- **Connect and exit wizard:** Save the new network profile and connect to the network.
- **Exit wizard:** Save the new network profile and exit.



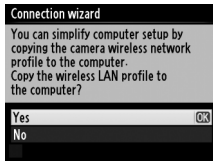
For more information on using wireless networks, see the *Network Guide* supplied with the camera.

Copying Profiles

Camera network profiles can be copied to a computer, which will then automatically be configured for wireless connection (profiles can not be copied over a wireless network in ad hoc mode. Mac OS X 10.6.8 or later is required when profiles are copied in infrastructure mode).

1 Enable copying.

When the connection wizard prompts you to choose whether to copy the profile to a computer (☞ 19), highlight **Yes** and press ►.



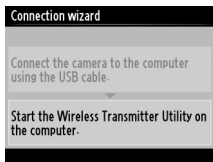
2 Connect the camera to the computer.

When prompted, connect the camera to the computer using the USB cable supplied with the camera.



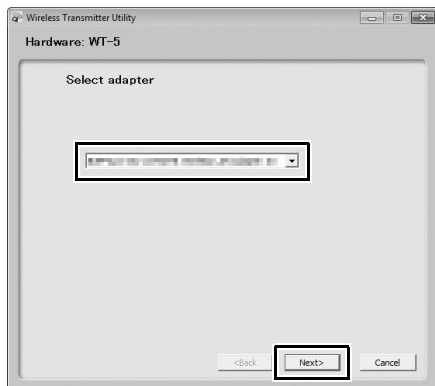
3 Start the Wireless Transmitter Utility.

When prompted, start the copy of the Wireless Transmitter Utility installed on the computer (☞ 6).



4 Choose an adapter.

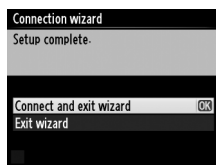
Choose an adapter from the pull-down menu and click **Next**. If **Image transfer** or **Camera control** is selected, the Wireless Transmitter Utility will automatically pair the camera and computer.



5 Disconnect the camera.

The message at right will be displayed when the process is complete. Disconnect the USB cable.

The options shown at right will be displayed; choose an option to exit the wizard.



Ad Hoc Mode

The camera will not automatically connect in ad hoc mode. Choose the network profile on the computer before connecting.

Appendices

Accessing the Camera

After creating a network profile, turn the camera on and follow the steps below to access the camera from a computer or iPhone.

| | |
|---------------------|----|
| Windows 7 | 25 |
| Windows Vista | 27 |
| Windows XP | 29 |
| Mac OS X | 30 |
| iPhone | 31 |

■ Windows 7

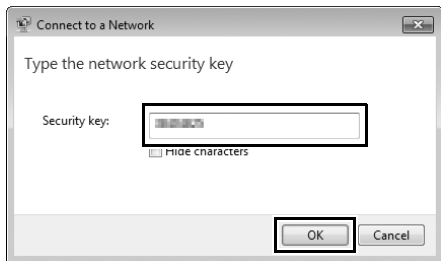
1 Click the Internet Access icon in the taskbar.



2 Select the network name (SSID) and click **Connect**.



3 Enter the encryption key and click **OK**.

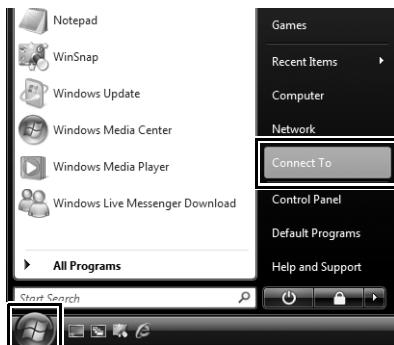


4 Confirm that the connection is successful.

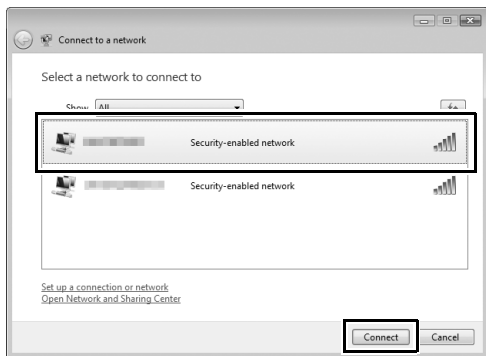
An icon is displayed in the taskbar when a connection is established.



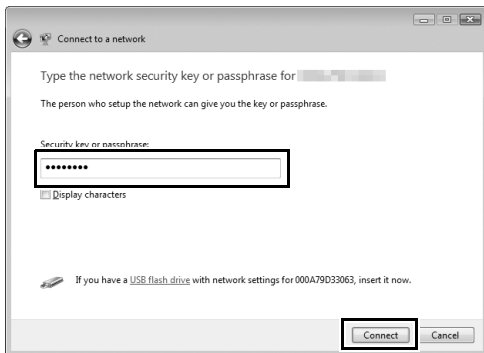
1 Click the “Start” orb and select **Connect to**.



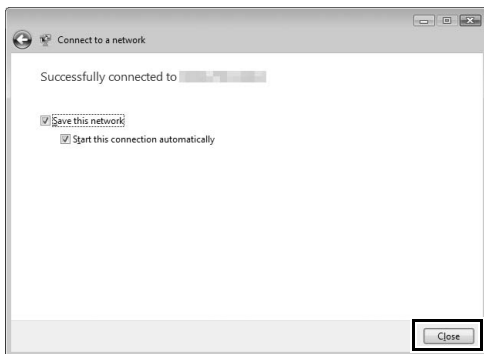
2 Select the network name (SSID) and click **Connect**.



3 Enter the encryption key and click Connect.



4 Click Close.



5 Confirm that the connection is successful.

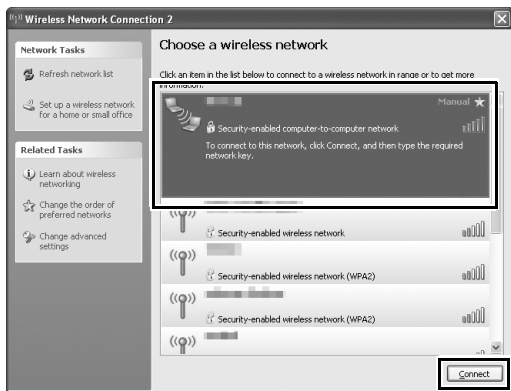
The icon shown at right is displayed in the taskbar when a connection is established.



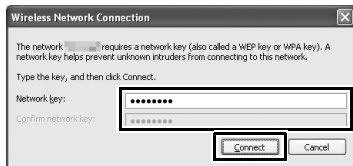
- 1 Click the wireless network connection icon in the taskbar.



- 2 Select the network name (SSID) and click Connect.



- 3 Enter the encryption key and click Connect.

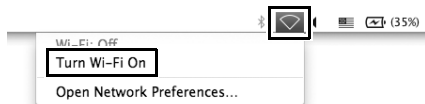


- 4 Confirm that the connection is successful.

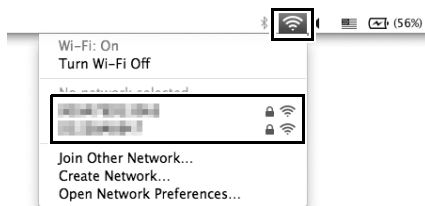
The icon shown at right is displayed in the taskbar when a connection is established.



1 Click the Wi-Fi icon and select Turn Wi-Fi On.



2 Click the Wi-Fi icon and select the network name (SSID).



3 Enter the encryption key and click Join.



4 Confirm that the connection is successful.

The icon shown at right is displayed in the taskbar when a connection is established.



1 Tap **Settings** in the iPhone “Home” screen.

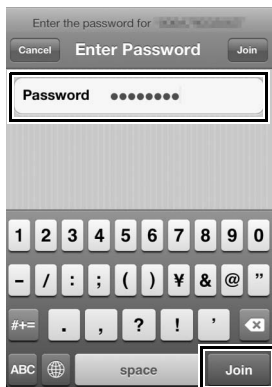
2 Tap **Wi-Fi**.



3 Tap **On** and select the network name (SSID).

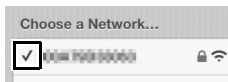


4 Enter the encryption key and tap Join.



5 Confirm that the connection is successful.

A check appears next to the network name when a connection is established.

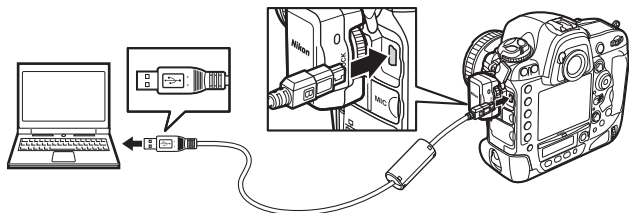


Creating Network Profiles with the Wireless Transmitter Utility

Network profiles can be created using the Wireless Transmitter Utility installed on the computer (□6).

1 Connect the camera.

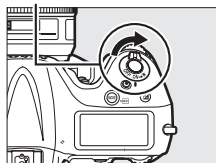
Use the USB cable supplied with the camera to connect the camera to the computer as shown below.



2 Turn the camera on.

Rotate the power switch to turn the camera on.

Power switch



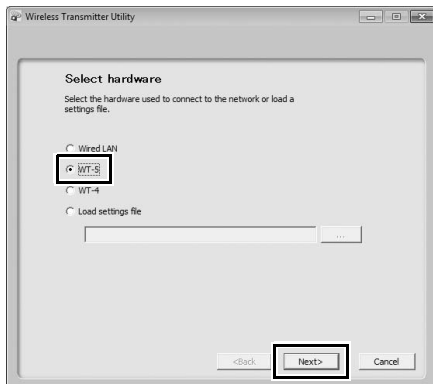
3 Start the Wireless Transmitter Utility.

- **Windows:** Double-click the Wireless Transmitter Utility icon on the desktop.
- **Mac OS:** Click the Wireless Transmitter Utility icon in the Dock.

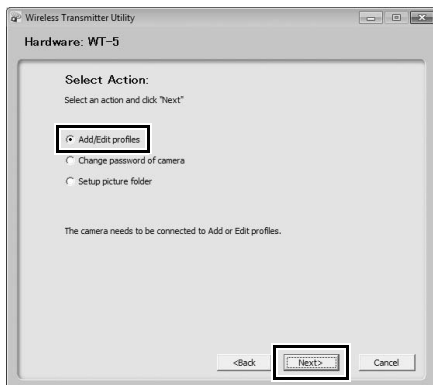
4 Click Next.



5 Select WT-5 and click Next.



6 Select Add/edit profiles and click Next.



"Setup Picture Folder"

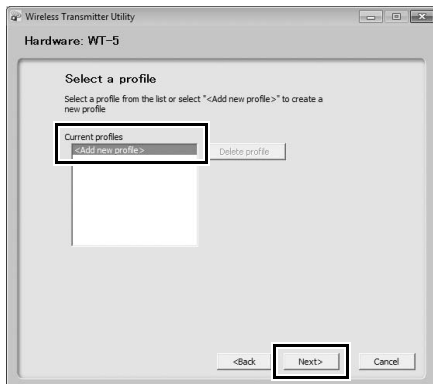
To choose the destination for images uploaded to the computer in image transfer mode, select **Setup picture folder** in Step 6 and click **Next**. The dialog at right will be displayed; click the ... button and choose a destination. If you do not choose another destination, pictures will be uploaded to:

- **Windows:** \Users\user name)\Pictures\Wireless Transmitter Utility
- **Mac OS:** /Users/(user name)/Wireless Transmitter Utility

To display pictures in ViewNX 2 when the connection with the WT-5 is terminated, select **Show it with ViewNX 2**. This option is only available if ViewNX 2 is installed.

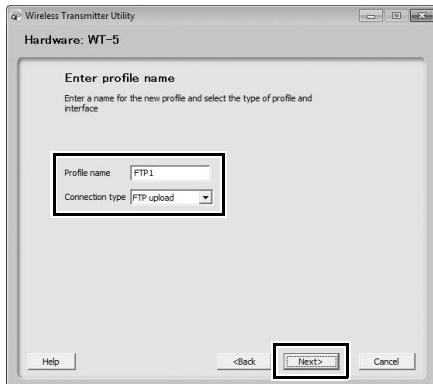


7 Select Add new profile and click Next.

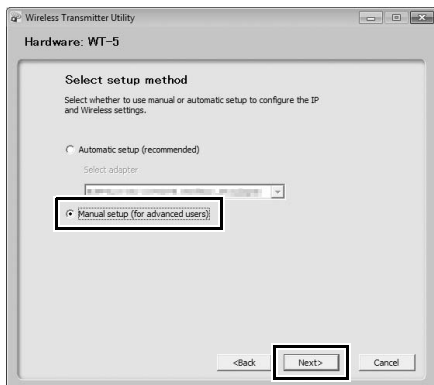


8 Enter the following information and click Next.

- **Profile name:** Enter a name of up to 16 characters.
- **Connection type:** Choose FTP upload, Image transfer, Camera control, or HTTP server (ⓘ).

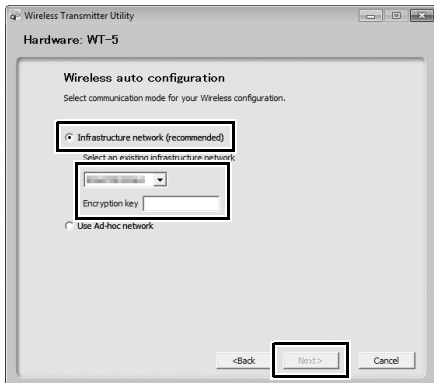


9 Select Manual setup and click Next.



"Automatic Setup"

When connecting to an infrastructure network for the first time, select **Automatic setup (recommended)**. The following dialog will be displayed; select **Infrastructure network (recommended)**, choose the network from the pull-down menu, and click **Next** to proceed to Step 12 (□42).



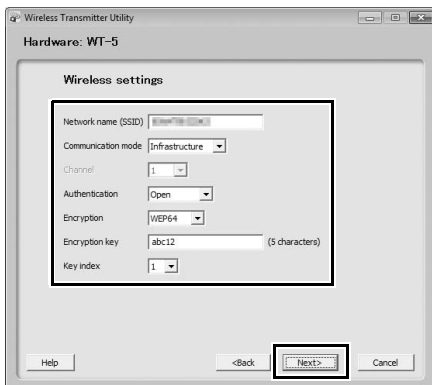
Automatic setup is not available for connection to networks for which a profile already exists or to third-party wireless LAN adapters, networks using static IP addresses, or computers running Mac OS X or that are not configured for connection to a wireless LAN access point.

10 Enter the following information and click Next.

- **Network name:** Enter the name of the network on which the host computer or ftp server is located.
- **Communication mode:** Select **Infrastructure** or **Ad hoc**.
- **Channel:** Select a channel (ad hoc only; in infrastructure mode, the WT-5 will choose the channel automatically). Note that if a matching SSID is found on a different channel, the WT-5 may change the channel automatically.
- **Authentication:** The authentication used on the network. Choose from open system, shared key, WPA-PSK, and WPA2-PSK (infrastructure) or open system and shared key (ad hoc).
- **Encryption:** The encryption used on the network. The options available depend on the authentication used.
 - Open:** None; 64- or 128-bit WEP
 - WPA-PSK:** TKIP; AES
 - Shared:** 64- or 128-bit WEP
 - WPA2-PSK:** AES
- **Encryption key:** If the network uses encryption, enter the network key. The number of characters required depends on the type of key used:

| | WEP (64-bit) | WEP (128-bit) | TKIP, AES |
|------------------------------|--------------|---------------|-----------|
| Number of characters (ASCII) | 5 | 13 | 8–63 |
| Number of characters (hex) | 10 | 26 | 64 |

- **Key index:** If **WEP64** or **WEP128** is selected for **Encryption**, choose a key index (the default index is **1**). A key index is not required when **None** is selected.



The screenshot shows a window titled "Wireless Transmitter Utility" with the hardware identified as "WT-5". The "Wireless settings" section contains the following fields:

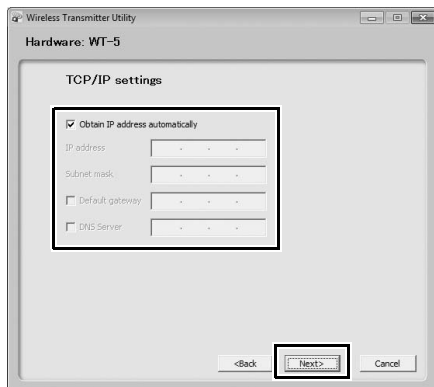
- Network name (SSID): [Empty text box]
- Communication mode: [Infrastructure]
- Channel: [1]
- Authentication: [Open]
- Encryption: [WEP64]
- Encryption key: [abc12] (5 characters)
- Key index: [1]

At the bottom of the dialog, there are four buttons: "Help", "<Back", "Next>", and "Cancel". The "Next>" button is highlighted with a black border.

11 Enter IP address information and click Next.

If the network is configured to supply IP addresses automatically using a DHCP server or Auto IP, select Obtain IP address automatically. Otherwise remove the check from this option and enter the following information:

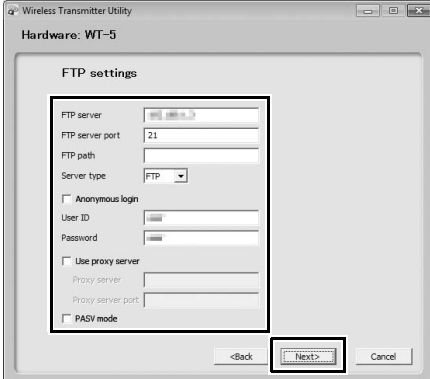
- **IP address/Subnet mask:** Enter an IP address and subnet mask for the WT-5. Choose an IP address that is not already assigned to other devices on the network.
- **Default gateway:** If the network requires a gateway address, select this option and enter the address supplied by the network administrator.
- **DNS Server:** If a Domain Name Server exists on the network, select this option and enter the address supplied by the network administrator.



12 Enter ftp settings and click Next.

The following options will be displayed if you selected FTP upload in Step 8 (□ 36). If you selected another option, proceed to Step 13 (□ 43).

- **FTP server:** Enter the URL or IP address of the ftp server.
- **FTP server port:** Enter the port number for the ftp server.
- **FTP path:** Choose the folder to which pictures will be uploaded.
- **Server type:** Choose **FTP** or **SFTP**.
- **Anonymous login:** Select this option for anonymous login, or leave this option unchecked to supply a User ID and Password.
- **Use proxy server:** If a proxy server is required for ftp, select this option and enter the server name and port number for the proxy server.
- **PASV mode:** Select this option to use PASV mode.



Wireless Transmitter Utility
Hardware: WT-5

FTP settings

FTP server: [192.168.1.1]

FTP server port: 21

FTP path: []

Server type: FTP

Anonymous login

User ID: []

Password: []

Use proxy server

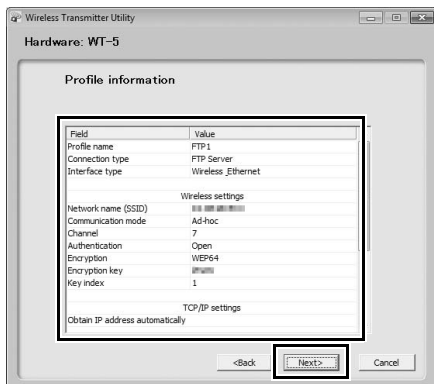
Proxy server: []

Proxy server port: []

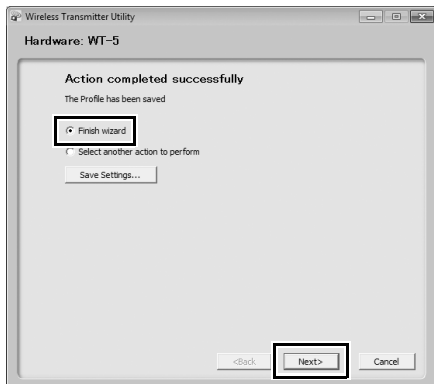
PASV mode

<Back Next> Cancel

13 Confirm that settings are correct and click Next.



14 Select Finish wizard and click Next.



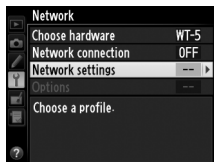
15 Turn the camera off and disconnect the USB cable.

16 Connect the WT-5.

Insert a memory card in the camera, connect the WT-5, and turn the camera on.

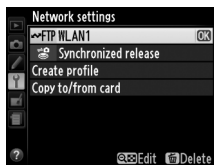
17 Display network profiles.

Select **Network** in the camera setup menu, then highlight **Network settings** and press ► to display the profiles list.



18 Select the new network profile.

Highlight the new network profile and press ► to return to the network menu.



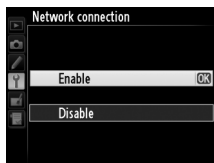
19 Select Network connection.

Highlight **Network connection** and press ►.



20 Select Enable.

Highlight **Enable** and press ► to connect to the network.



Troubleshooting

| Problem | Solution | Page |
|--|---|--------|
| The WT-5 is not available for Choose hardware . | Confirm that the WT-5 is connected. | 4 |
| Excessive radio interference. | Adjust the position of the wireless access point or host computer. | — |
| The camera displays a TCP/IP error. | Check settings for the host and/or wireless LAN adapter and adjust camera settings appropriately. | 5 |
| | Check firewall settings. | 16, 20 |
| “Connecting to PC” does not clear from the camera display. | Check firewall settings. | 20 |
| The camera displays a wireless error. | Confirm that the host and wireless LAN adapter are on. | — |
| | Confirm that there are no obstacles between the WT-5 and the adapter. | — |
| | Check settings for the host and/or wireless LAN adapter and adjust camera settings appropriately. | 5 |
| The camera displays a memory card error. | Confirm that the card is properly inserted. | 7 |
| Transfer is interrupted before all photographs are sent. | Transfer will resume if the camera is turned off and then on again. | — |
| No connection is established when the camera URL is entered in a web browser (http server connections only). | Confirm that the browser is not using a proxy connection. | — |

Specifications

■ Wireless Transmitter WT-5/WT-5A/WT-5B/WT-5C/WT-5D

| Wireless | |
|------------------------------------|---|
| Standards | WT-5/WT-5A/WT-5B/WT-5C: 802.11a/b/g/n WT-5D: 802.11b/g/n |
| Communications protocols | IEEE802.11a: OFDM IEEE802.11g: OFDM IEEE802.11b: DSSS IEEE802.11n: OFDM |
| Operating frequency (MHz) | WT-5: 5180-5320 MHz (36/40/44/48/52/56/60/64 ch) 5500-5700 MHz (100/104/108/112/116/120/124/ 128/132/136/140 ch) 2412-2472 MHz (1-13 ch) WT-5A: 5180-5320 MHz (36/40/44/48/52/56/60/ 64 ch) 5745-5825 MHz (149/153/157/161/165 ch) 2412-2462 MHz (1-11 ch) WT-5B: 5180-5320 MHz (36/40/44/48/52/56/60/64 ch) 2412-2472 MHz (1-13 ch) WT-5C: 5745-5825 MHz (149/153/157/161/165 ch) 2412-2472 MHz (1-13 ch) WT-5D: 2412-2462 MHz (1-11 ch) |
| Approximate range (line of sight)* | Approximately 180 m (590.5 ft) |
| Data rates † | IEEE 802.11a/g: 6, 9, 12, 18, 24, 36, 48 and 54 Mbps IEEE 802.11b: 1, 2, 5.5 and 11 Mbps IEEE 802.11n-HT20: 72 Mbps maximum IEEE 802.11n-HT40: 150 Mbps maximum |
| Security | Authentication: Open system, shared key, WPA-PSK, WPA2-PSK Encryption: 128/64 bit WEP, TKIP, AES |
| Wireless setup | Supports WPS |
| Access protocols | Infrastructure, ad hoc |

| | |
|--------------------------------|---|
| Data transfer protocols | PTP-IP, ftp, sftp |
| Power consumption | 1.2 W maximum |
| Operating environment | Temperature: 0–40 °C/32–104 °F Humidity: Less than 85% (no condensation) |
| Weight | Approximately 27 g/0.96 oz (body only) |
| Dimensions (W × H × D) | Approximately 32.0 mm × 41.5 mm × 30.0 mm (1.3 in. × 1.7 in. × 1.2 in.) |

* With large antenna at wireless LAN access point. Range varies with signal strength and presence or absence of obstacles.

† Maximum logical data rates according to IEEE standard. Actual rates may differ.

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