Nikon

D4S

Network Guide

En

What Networks Can Do for You

This manual describes how to connect to a network, access the camera remotely, and upload images to computers and ftp servers over Ethernet connections. Once a connection has been established, you can:

1 Upload existing photos and movies

FTP upload (🕮41)

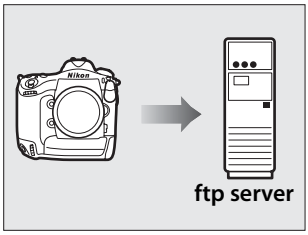
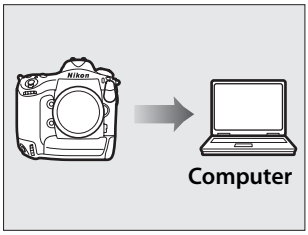
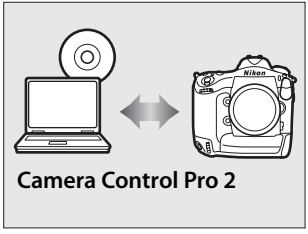


Image transfer (🕮15)

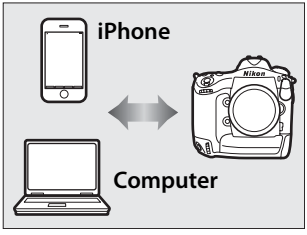


2 Take or browse photos remotely

Camera control (🕮19)

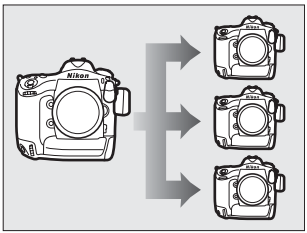


HTTP server (🕮22)



3 Control multiple cameras
(requires optional WT-5 wireless transmitter)

Synchronized release (🕮45)



Tip

See page 7 for information on configuring the camera for connection to a host computer, page 35 for information on configuring the camera for connection to an ftp server. The camera can also be used with optional WT-4 wireless transmitters or UT-1 communication units.

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Background Knowledge

This guide assumes basic knowledge of ftp servers, local area networks (LANs), and wireless networks. For more information on installing, configuring, and using the devices in a network, contact the manufacturer or network administrator. Information on configuring computers for connection to wireless networks may be found in the on-line help for the Wireless Transmitter Utility.

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.nikonusa.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 appearance and content of the software and operating system dialogs, messages, and displays shown in this manual may vary with the operating system used. For information on basic computer operations, see the documentation provided with the computer or operating system.

WT-4 Wireless Transmitters and UT-1 Communication Units

For information on using optional WT-4 wireless transmitters or UT-1 communications units, see the documentation for the devices in question. The options described in the product manual as being in the device info and device settings menus can be accessed from **Network** > **Device info and settings** in the D4S setup menu.

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Introduction

This guide describes how to use the camera in (chiefly Ethernet) network environments, including connecting to and operating the camera in a network. Be sure to read this guide and the camera manual thoroughly and to keep them where they will be read all those who use the product. Information on using optional WT-5 and WT-4 wireless transmitters and UT-1 communication units can be found in the manuals for the devices in question.

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 guide.

Network Options

The camera can be connected to Ethernet or wireless networks using the built-in Ethernet port or an optional WT-5 or WT-4 wireless transmitter. Note that an Ethernet cable (available separately from commercial sources) is required for an Ethernet connection.

■■ *The Built-in Ethernet Port and WT-5 Wireless Transmitter*

The following modes are available when the camera is connected to a network using the built-in Ethernet port or an optional WT-5 wireless transmitter:

FTP upload (□41)	Upload existing photos and movies to a computer or ftp server, or upload new photos as they are taken.
Image transfer (□15)	
Camera control (□19)	Control the camera using optional Camera Control Pro 2 software and save new photos and movies directly to the computer.
HTTP server (□22)	View and take pictures remotely using a browser-equipped computer or iPhone.
Synchronized release (with WT-5 only; □45)	Synchronize the shutter releases for multiple remote cameras with a master camera.

■■ *The WT-4 Wireless Transmitter*

The WT-4 can be used in any of the following modes. For more information on the features available with the WT-4, see the manual supplied with the WT-4.

Transfer mode	Upload existing photos and movies to a computer or ftp server, or upload new photos as they are taken.
PC mode	Control the camera using optional Camera Control Pro 2 software and save new photos and movies directly to the computer.

Optional UT-1 Communications Units

In place of the built-in Ethernet port, an optional UT-1 communication unit can be used to connect the camera to a local area network (LAN). The UT-1 supports the same modes as the WT-4 and can be used with Ethernet networks or combined with an optional WT-5 wireless transmitter for connection to wireless networks.

Ethernet Connection

Ethernet connections require no adjustments to wireless LAN settings.

FTP Servers

Servers can be configured using standard ftp services, such as IIS (Internet Information Services), available with supported operating systems. 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.

Routers

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

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.

Installing Software

Before connecting to a network, install the Wireless Transmitter Utility, available for free download from the Nikon website using the supplied ViewNX 2 CD (an Internet connection is required). The Wireless Transmitter Utility is required for pairing in image transfer and camera control modes (🕮14) and can be used to create network profiles.

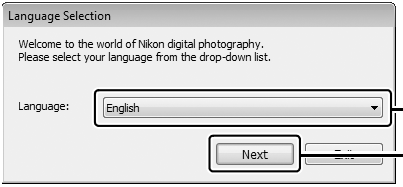
Before installing the Wireless Transmitter Utility, confirm that your computer meets the system requirements (🕮6) and that the product firmware (including the firmware for the camera and wireless transmitter or communication unit) and any supplied software have been updated to the latest versions.

1 Double-click the installer icon.

After downloading the installer, double-click the installer icon.

2 Select a language (Windows only).

Select a language and click **Next**.



3 Start the installer.

Click **Next** (Windows) or **Continue** (Mac) and follow the on-screen instructions.

Windows

Click **Next**

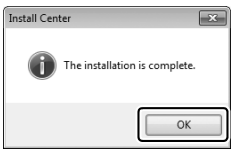
Mac

Click **Continue**

4 Exit the installer.

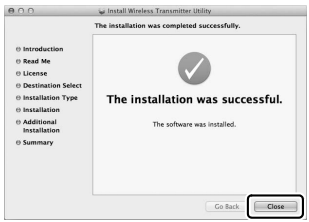
Click **OK** (Windows) or **Close** (Mac) when installation is complete.

Windows



Click **OK**

Mac



Click **Close**

The WT-4 Setup Utility

The Wireless Transmitter Utility must be reinstalled if the WT-4 Setup Utility is uninstalled after installation is complete.

Wireless Transmitter Utility System Requirements

Windows	
CPU	Intel Celeron, Pentium 4, or Core series, 1.6 GHz or better
OS	Pre-installed versions of Windows 8.1, Windows 7, Windows Vista, and Windows XP; note that the application runs in 32-bit compatible mode in 64-bit versions of Windows 8.1, Windows 7, and Windows Vista, while 64-bit versions of Windows XP are not supported
Memory (RAM)	• **32-bit Windows 8.1, Windows 7, or Windows Vista**: 1 GB or more (2 GB or more recommended) • **64-bit Windows 8.1, Windows 7, or Windows Vista**: 2 GB or more (4 GB or more recommended) • **Windows XP**: 512 MB or more (2 GB or more recommended)
Hard-disk space	A minimum of 1 GB available on the startup disk (3 GB or more recommended)
Graphics	• **Resolution**: 1024 × 768 pixels (XGA) or more; 1280 × 1024 pixels or more recommended • **Color**: 24-bit color (True Color) or more

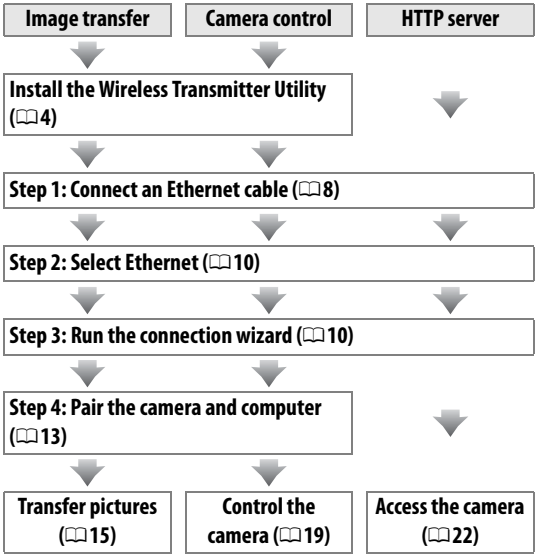
Mac	
CPU	Intel Core or Xeon series
OS	OS X 10.9, 10.8, or 10.7
Memory (RAM)	2 GB or more (4 GB or more recommended)
Hard-disk space	A minimum of 1 GB available on the startup disk (3 GB or more recommended)
Graphics	• **Resolution**: 1024 × 768 pixels (XGA) or more; 1280 × 1024 pixels or more recommended • **Color**: 24-bit color (millions of colors) or more

See the websites listed on page vi for the latest information on supported operating systems.

Transfer, Control, and HTTP

Ethernet Connections

Follow the steps below to connect to a computer in image transfer, camera control, and http server modes.



For information on using the WT-5 to connect to wireless networks, see the WT-5 manual.

Choosing a Power Source

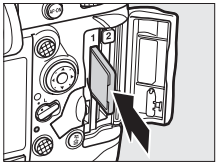
To prevent the camera powering off unexpectedly during setup or data transfer, use a fully-charged battery or an optional AC adapter. For more information, see the camera manual.

Step 1: Connecting an Ethernet Cable

After starting the computer and logging in, ready the camera as described below. Do not turn the camera off or disconnect the Ethernet cable while data are being transferred to the computer.

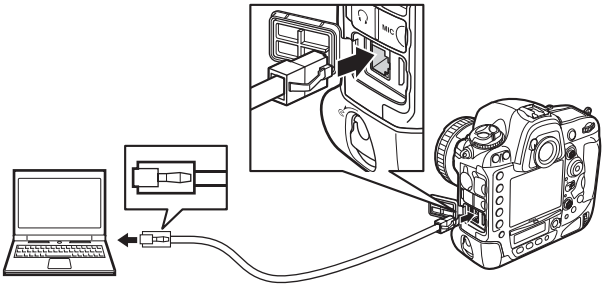
1 Insert a memory card.

Turn the camera off and insert a memory card. This step can be omitted in camera control mode (🕮19).



2 Connect an Ethernet cable.

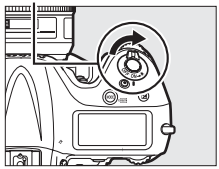
Connect the Ethernet cable as shown below. Do not use force or insert the connectors at an angle.



3 Turn the camera on.

Rotate the power switch to turn the camera on.

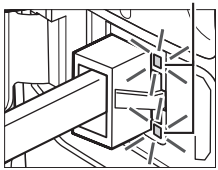
Power switch



Connection Status

Connection status is shown by the LEDs next to the camera's Ethernet connector.

LEDs



Green LED	Yellow LED	Status
● (off)	● (off)	Network functions disabled (🕮51) or Ethernet cable not connected.
○ (on)	● (off)	Waiting to connect.
○ (on)	○ (on)	Connecting.
○ (on)	☼ (flashes)	Connected.
☼ (flashes)	☼ (flashes)	Error.

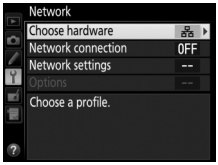
The Viewfinder Display

Connection status is also shown in the camera viewfinder. 品 is displayed when the camera is connected via Ethernet, 📶 when it is connected to a wireless network, and a flashing when an error has occurred.

Step 2: Enabling the Ethernet

Select the Ethernet 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.



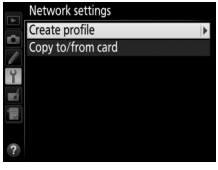
2 **Select Wired LAN.**
Highlight **Wired LAN** and press ⊛ to select the highlighted option and return to the network menu.

Step 3: The Connection Wizard

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

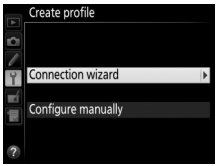
1 **Display network profiles.**
In the network menu, highlight **Network settings** and press ▶ to display the profiles list and other network settings.

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 (📖53).



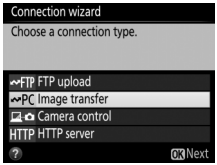
3 Start the connection wizard.

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



4 Choose a connection type (🕮2).

Highlight **Image transfer**, **Camera control**, or **HTTP server** and press ⊛.



5 Name the new network profile.

Enter the name that will appear in the profile list and press ⊛. Profile names can be up to 16 characters long.

Text Entry

The following dialog is displayed when text entry is required.

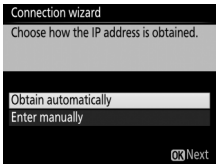
Keyboard area: Use multi selector to highlight letters, press center to select.

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 🗑 (FORMAT) button. To move the cursor to a new position, hold ⊠ and press ◀ or ▶.

To complete entry and return to the previous menu, press ⊛. To exit to the previous menu without completing text entry, press MENU.

6 Obtain or select an IP address.

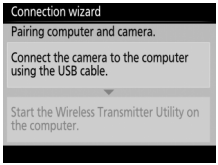


Highlight one of the following options and press ⓚ.

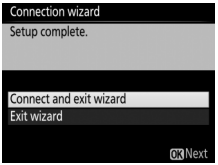
- **Obtain automatically**: Select this option if the network is configured to supply the IP address automatically.
- **Enter manually**: When prompted, enter an IP address and subnet mask by pressing ◀ and ▶ to highlight segments and ▲ and ▼ to change. Press ⓚ to proceed when entry is complete.

7 Choose your next step.

The IP address will be displayed; press ⓚ. Your next step depends on the connection type selected in Step 4 on page 11:



If you chose Image transfer or Camera control, pair the camera and computer as described on page 13.



If you chose HTTP server, proceed to Step 8.

Routers

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

8 Exit the wizard.

Highlight one of the following options and press ⓚ.

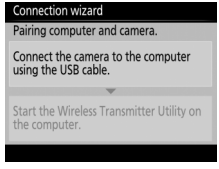
- **Connect and exit wizard**: Save the new network profile and connect to the server.
- **Exit wizard**: Save the new network profile and exit.

Proceed to "HTTP Server" (🕮22).

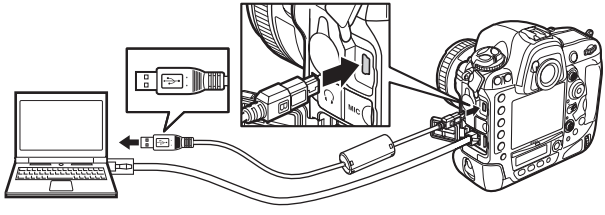
Step 4: Pairing

If you selected **Image transfer** or **Camera control** in Step 4 of the connection wizard (🕮11), pair the camera with the computer as described below. Pairing allows the computer to connect to the camera.

1 Connect the camera to the computer via USB.

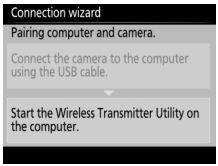


When prompted, connect the camera to the computer using the USB cable supplied with the camera.



2 Start the Wireless Transmitter Utility.

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



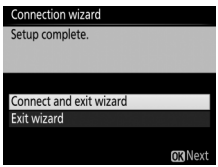
3 Disconnect the camera.

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

4 Exit the wizard.

Highlight one of the following options and press ⓚ.

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



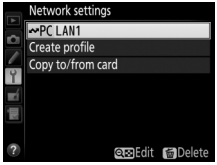
Proceed to "Image Transfer" (🕮15) or "Camera Control" (🕮19).

Image Transfer

Image transfer is used to upload photographs and movies to the computer from a camera memory card. The explanation that follows assumes that existing pictures are used.

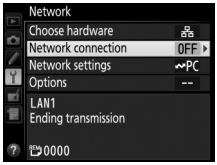
1 Display network profiles.

In the setup menu, select **Network** > **Network settings** to display the profiles list. Image transfer profiles are indicated by a ⁓PC icon. Highlight a profile and press ⓚ to select the highlighted profile and return to the network menu.



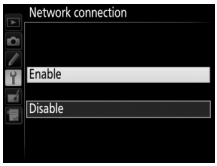
2 Select Network connection.

Highlight **Network connection** and press ▶.

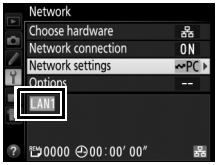


3 Select Enable.

Highlight **Enable** and press ⓚ to connect to the network and return to the network menu.



The profile name will be displayed in green when a connection is established.



4 View pictures.

Press the ▶ button to view pictures. Display the first picture to be sent in single-image playback or highlight it in the thumbnail list.

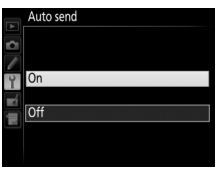
5 Upload pictures.

Press ⓞ and the center of the multi selector. A white transfer icon will appear on the picture and upload will begin immediately. The transfer icon turns green during upload, and turns blue when upload is complete. Additional pictures will be uploaded in the order selected.

To upload a picture that has already been uploaded once, press ⓞ and the center of the multi selector once to remove the blue transfer icon, and then press ⓞ and the center of the multi selector again to mark the image with a white transfer icon.

Uploading New Photographs as They Are Taken

To upload new photographs as they are taken, select **On** for **Network** > **Options** > **Auto send** in the setup menu (🕮57).



Interrupting Transmission/Removing Transfer Marking

To cancel transmission of images marked with white or green transfer icons, select the images during playback and press ⊛ and the center of the multi selector. The transfer icon will be removed. Any of the following actions will also interrupt transmission:

- Turning the camera off (transfer marking is saved, and transfer will resume when the camera is next turned on)
- Selecting **Yes** for **Network** > **Options** > **Deselect all?** (🕮58; this option also removes transfer marking from all images)

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 camera.

Interval Timer Photography

Shooting will be interrupted if the standby timer expires while interval timer photography is in progress. Choose a long standby time before starting the interval timer.

Voice Memos

Voice memos can not be uploaded separately, but will be included when the associated pictures are transmitted.

During Upload

Do not remove the memory card or disconnect the Ethernet cable during upload.

Loss of Signal

Wireless transmission via the WT-5 may be interrupted if the signal is lost. Transmission can be resumed by turning the camera off and then on again.

Destination Folders

By default, images are uploaded to the following folders:

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

The destination folder can be selected using the Wireless Transmitter Utility.

Transfer Status

During playback, the status of images selected for upload is shown as follows:

: "Send"

Images that have been selected for upload are marked with a white transfer icon.

: "Sending"

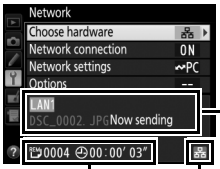
A green transfer icon is displayed during upload.

: "Sent"

Images that have been uploaded successfully are marked with a blue transfer icon.

Network Status

Network status can be viewed in the top level of the network menu.



Status area: The status of the connection to the host. The profile name is displayed in green when a connection is established. While files are being transferred, the display shows "Now sending" followed by the name of the file being sent. Errors that occur during transfer are also displayed here (🕮84).

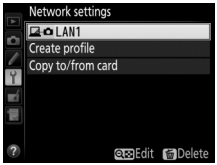
REM, : The number of images remaining and the estimated time required to send them.

Signal strength: Wireless signal strength. Ethernet connections are shown by .

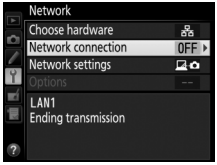
Camera Control

Select this option to control the camera from a computer running Camera Control Pro 2 (available separately) and save photographs directly to the computer hard disk instead of the camera memory card (movies will still be saved to the camera memory card; insert a memory card before shooting movies). Note that the camera standby timer will not expire when the camera is in camera control mode.

1 **Display network profiles.**
In the setup menu, select **Network** > **Network settings** to display the profiles list. Camera control profiles are indicated by a icon. Highlight a profile and press ⓚ to select the highlighted profile and return to the network menu.

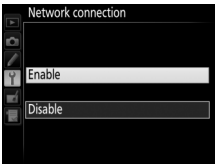


2 **Select Network connection.**
Highlight **Network connection** and press ▶.

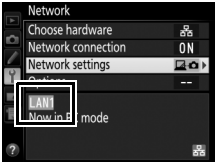


3 Select **Enable.**

Highlight **Enable** and press ⓚ to connect to the network and return to the network menu.



The profile name will be displayed in green when a connection is established.



4 Start Camera Control Pro 2.

Start the copy of Camera Control Pro 2 (available separately) installed on the host computer. For information on using Camera Control Pro 2, see the Camera Control Pro 2 manual (pdf).

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 camera.

Ethernet Networks

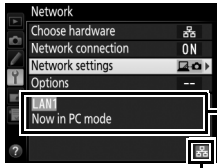
Do not disconnect the Ethernet cable while the camera is on.

Wireless Networks

Operations may take longer on wireless networks. If the signal is disrupted while pictures are being transferred to Camera Control Pro 2, the LED on the WT-5 will flash yellow; disable and re-enable the network connection (🕮51). Transfer will resume when the connection is re-established. Note that transfer can not be resumed if you turn the camera off before transfer is complete.

Network Status

Network status can be viewed in the top level of the network menu.



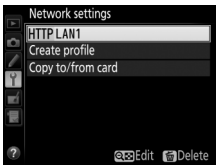
Status area: The status of the connection to the host. The profile name is displayed in green when a connection is established. Errors are also displayed here (🕮84).

Signal strength: Wireless signal strength. Ethernet connections are shown by 🖧.

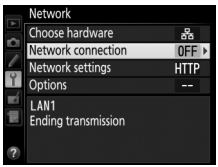
HTTP Server

Select **HTTP server** to view the pictures on the camera memory card or take photographs from the web browser on a computer or iPhone (see page 27 for system requirements). Up to five users can access the camera at one time, although only one can take photographs. Note that the standby timer will not expire automatically when the camera is in http server mode.

1 **Display network profiles.**
In the setup menu, select **Network** > **Network settings** to display the profiles list. HTTP server profiles are indicated by a HTTP icon. Highlight a profile and press OK to select the highlighted profile and return to the network menu.

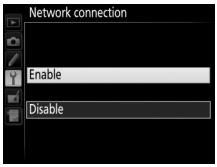


2 **Select Network connection.**
Highlight **Network connection** and press ▶.

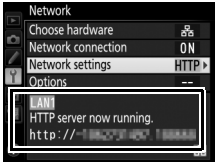


3 Select **Enable.**

Highlight **Enable** and press ⓚ to connect to the network and return to the network menu.



The URL used for connection to the camera is displayed when a connection is established.

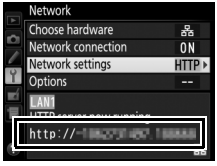


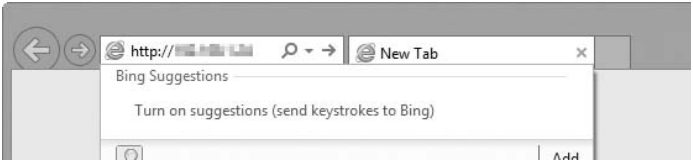
4 Launch the web browser.

Launch the web browser on the computer or iPhone.

5 Enter the camera URL.

Enter the camera URL ("http://" followed by the camera IP address, as shown in the network menu) in the browser window address field.



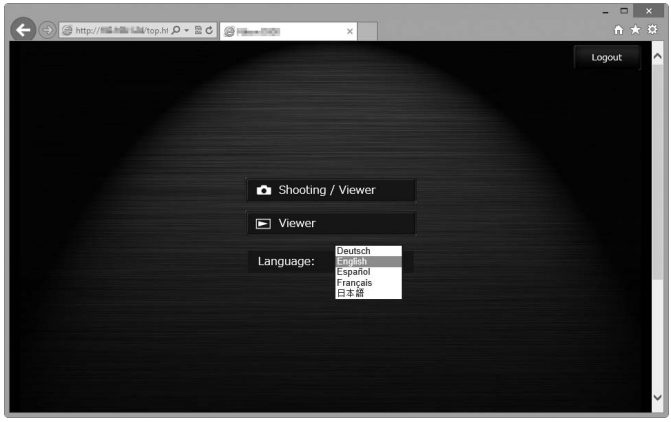


6 Log in.

Enter your user name and password in the web browser login dialog (the user name and password are set using **Network settings** > **Options** > **HTTP user settings** in the network menu as described on page 58; the default user name is “nikon” while the default password is blank).

7 Choose a language.

Click **Language** and choose English, French, German, Japanese, or Spanish.

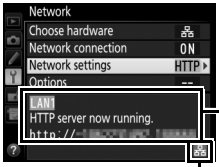


8 Choose an operating mode.

Choose **Shooting/Viewer** to take pictures (🕮28, 32) and **Shooting/Viewer** or **Viewer** to view existing pictures (🕮30, 33). Up to five users at a time can connect using **Viewer**, but only one user at a time can connect using **Shooting/Viewer** (if another user is already connected using **Shooting/Viewer**, **Shooting/Viewer** will not be displayed and only four users will be able to connect using **Viewer**).

Network Status

Network status can be viewed in the top level of the network menu.



Status area: The status of the connection to the host. The camera URL is displayed in green when a connection is established. Errors are also displayed here (🕮84).

Signal strength: Wireless signal strength. Ethernet connections are shown by 🖧.

HTTP Server System Requirements

Windows	
OS	Pre-installed versions of Windows 8.1, Windows 7, Windows Vista, and Windows XP; note that the application runs in 32-bit compatible mode in 64-bit versions of Windows 8.1, Windows 7, and Windows Vista, while 64-bit versions of Windows XP are not supported
Browser	• **Windows 8.1**: Internet Explorer 11 • **Windows 7**: Internet Explorer 10 • **Windows Vista**: Internet Explorer 9 • **Windows XP**: Internet Explorer 8
Graphics	• **Resolution**: 1024 × 768 pixels (XGA) or more; 1280 × 1024 pixels or more recommended • **Color**: 24-bit color (True Color) or more

Mac	
OS	OS X version 10.9, 10.8, or 10.7
Browser	• **OS X version 10.9**: Safari 7 • **OS X versions 10.8 and 10.7**: Safari 6
Graphics	• **Resolution**: 1024 × 768 pixels (XGA) or more; 1280 × 1024 pixels or more recommended • **Color**: 24-bit color (millions of colors) or more

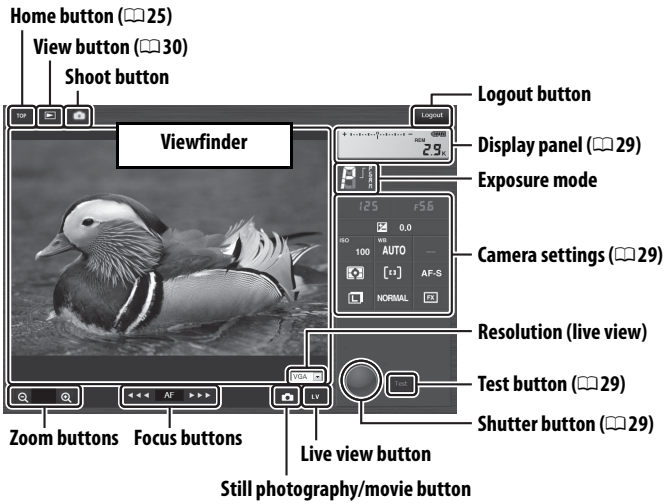
iPhone	
OS	iOS 7 or iOS 6
Browser	Safari (supplied with iOS)

Computer Web Browsers

This section describes the http server displays for computer web browsers (dialogs are shown with all buttons displayed for explanatory purposes). Click to adjust camera settings. For information on the displays for iPhones, see page 32.

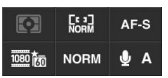
■■ *The Shooting Window*

The following controls can be accessed by selecting **Shooting/ Viewer** on the server home page or clicking the shoot button in the viewer window.



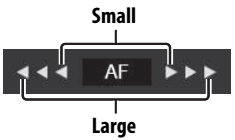
Movie Live View

The information at right appears in the camera settings area (📖29) in movie live view.



Focus Buttons

The size of the focus adjustment increases with the distance of the button from the center of the display.



Display panel	Contains the exposure indicator and shows the battery level and number of exposures remaining.
Camera settings	Shows such settings as shutter speed, aperture, exposure compensation, ISO sensitivity, white balance, metering, AF-area mode, focus mode, image area (live view photography only), microphone sensitivity (movie live view only), and either photo image quality and size or movie quality and frame size/frame rate. See the camera manual for more information. Settings can be adjusted by clicking the icons in the camera settings panel.
Shutter button	Take a photograph or to start and end movie recording. To focus, click the desired subject in the viewfinder area.
Test button	Take a test photo and display it in the viewfinder without recording it to the camera memory card. Not available in movie live view.

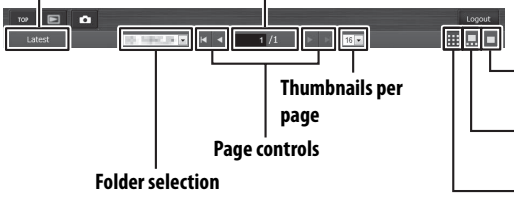
■■ *The Viewer Window*

The viewer window can be accessed by selecting **Viewer** on the server home page or clicking the view button in the shooting window. The viewer window for computer web browsers offers a choice of thumbnail, film-strip (🕮31), and full-frame views (🕮31).

Thumbnail View

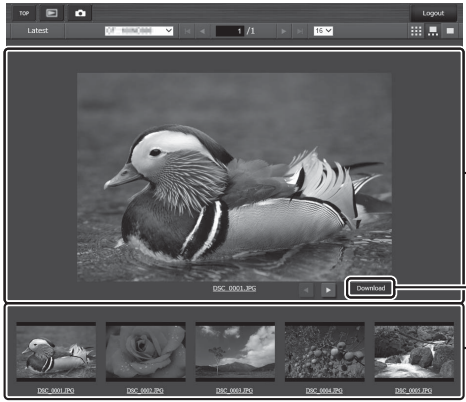
View multiple small ("thumbnail") images per page. The controls at the top of the window can be used for navigation.

Navigation Controls



Film-Strip View

Choose the picture displayed from the thumbnails at the bottom of the window.



Current picture (click ◀ or ▶ to view additional pictures)

Copy current picture to computer

Thumbnails (click to select)

Full-Frame View

View pictures full frame.

Current picture (click ◀ or ▶ to view additional pictures)

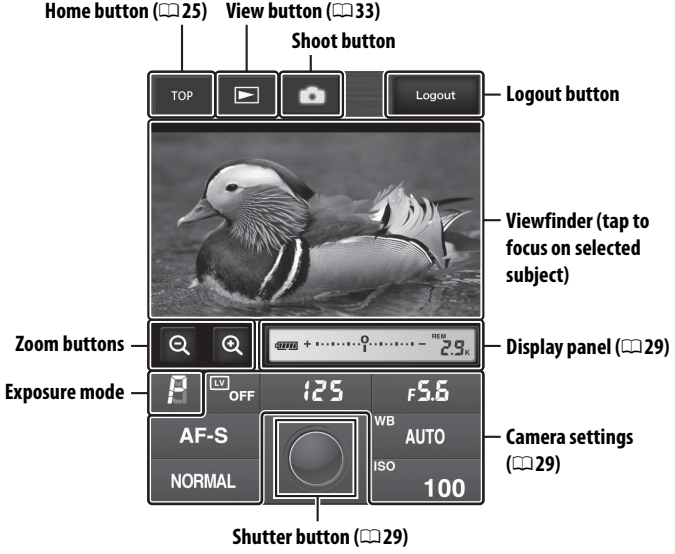
Copy current picture to computer

iPhone Web Browsers

This section describes the http server displays for iPhone web browsers (dialogs are shown with all buttons displayed for explanatory purposes). Tap to adjust camera settings. For information on computer displays, see page 28.

■■ *The Shooting Window*

The following controls can be accessed by selecting **Shooting/ Viewer** on the server home page or tapping the shoot button in the viewer window.

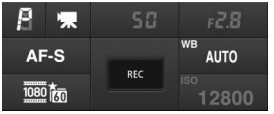


Live view button

Tap to choose from live view off, photo live view, and movie live view.

Movie Live View

The information at right appears in the camera settings area (□29) in movie live view.

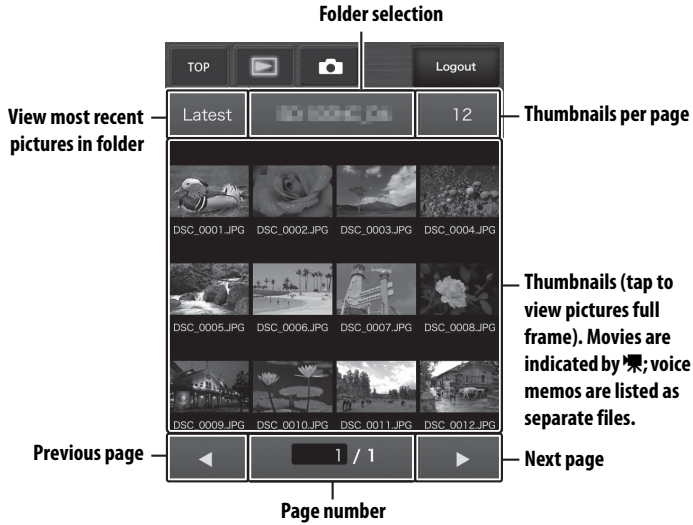


■■ *The Viewer Window*

The viewer window can be accessed by selecting **Viewer** on the server home page or tapping the view button in the shooting window. The viewer window for iPhone web browsers offers a choice of thumbnail and full-frame views (🕮34).

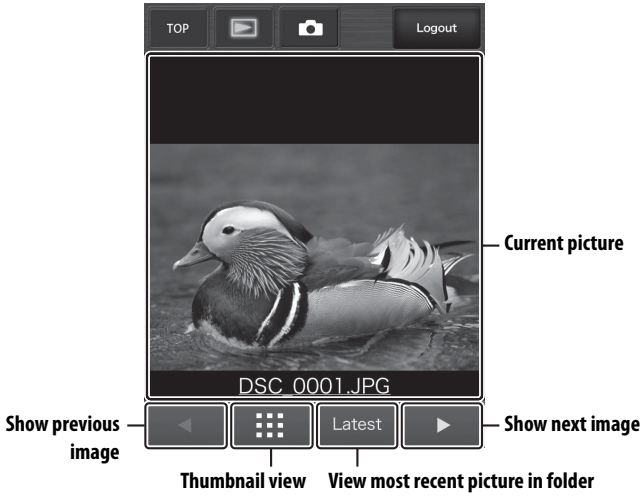
Thumbnail View

View multiple small ("thumbnail") images per page.



Full-Frame View

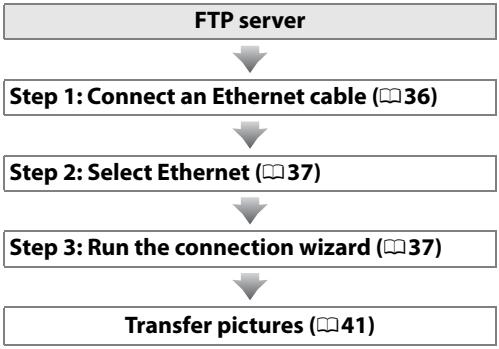
View pictures full frame.



FTP

Ethernet Connections

Follow the steps below to connect to an ftp server.



For information on using the WT-5 to connect to wireless networks, see the WT-5 manual.

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. For more information, see the camera manual.

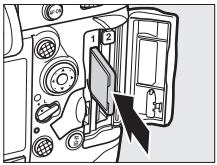
FTP Servers

This guide assumes that you are connecting to an existing ftp server. Servers can be configured using standard ftp services, such as IIS (Internet Information Services), available with supported operating systems (📖63). Connection to computers on other networks via a router, Internet ftp connections and ftp servers running third-party software are not supported.

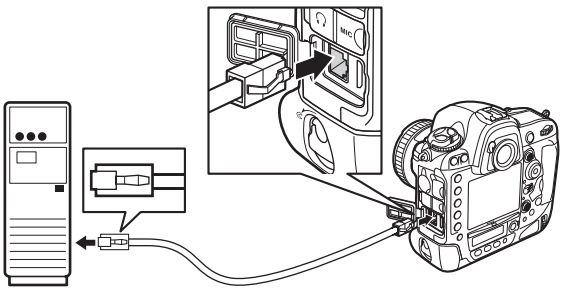
Step 1: Connecting an Ethernet Cable

After starting the ftp server, connect the camera as described below. Do not turn the camera off or disconnect the Ethernet cable while data are being exchanged with the ftp server.

1 **Insert a memory card.**
Turn the camera off and insert a memory card.

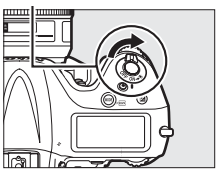


2 **Connect an Ethernet cable.**
Connect the camera to the ftp server as shown below. Do not use force or insert the connectors at an angle.



3 **Turn the camera on.**
Rotate the power switch to turn the camera on.

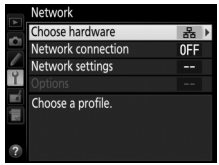
Power switch



Step 2: Enabling the Ethernet

Select the Ethernet 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.

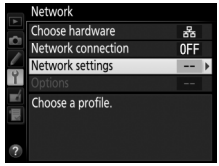


2 **Select Wired LAN.**
Highlight **Wired LAN** and press OK to select the highlighted option and return to the network menu.

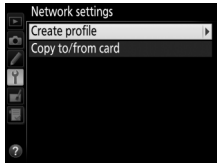
Step 3: The Connection Wizard

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.

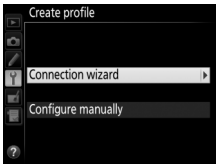


2 **Select Create profile.**
Highlight **Create profile** and press ▶. Note that if the list already contains nine profiles, you will need to delete an existing profile using the 🗑 (FORMAT) button before proceeding.



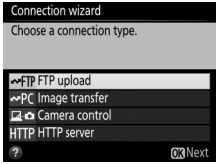
3 Start the connection wizard.

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



4 Choose a connection type.

Highlight **FTP upload** and press OK.

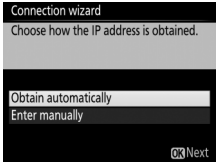


5 Name the new network profile.

Enter the name that will appear in the profile list and press OK (📖11; to use the default name, press OK without making any changes). Profile names can be up to 16 characters long.

6 Obtain or select an IP address.

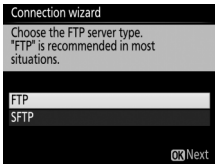
Highlight one of the following options and press OK.



- **Obtain automatically**: Select this option if the network is configured to supply the IP address automatically. Press OK to proceed to Step 7.
- **Enter manually**: When prompted, enter an IP address and subnet mask by pressing ◀ and ▶ to highlight segments and ▲ and ▼ to change. Press OK to exit when entry is complete, then press OK again to proceed to Step 7.

7 Choose the server type.

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

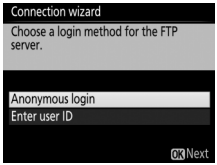


8 Enter the IP address.

Enter the server URL or IP address (🕮11) and press ⓚ to connect.

9 Log in.

Highlight one of the following options and press ⓚ.

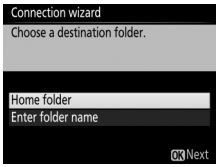


- **Anonymous login**: Select this option if the server does not require a user ID or password.
- **Enter user ID**: Enter a user ID and password when prompted and press ⓚ.

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.

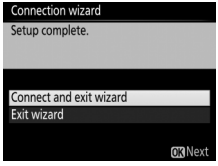
10 Choose a destination folder.



Highlight one of the following options and press ⓚ.

- **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 folder (the folder must already exist on the server). Enter a folder name and path when prompted and press ⓚ.

11 Exit the wizard.



Highlight one of the following options and press ⓚ.

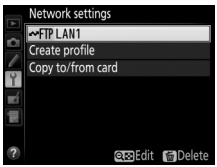
- **Connect and exit wizard**: Save the new network profile and connect to the server.
- **Exit wizard**: Save the new network profile and exit.

Proceed to "FTP Upload" (🕮41).

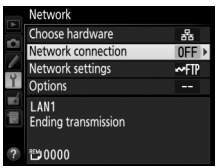
FTP Upload

Photos and movies can be uploaded from camera memory cards to an ftp server as described below, or photos can be uploaded as they are taken. For information on setting up an ftp server, see page 63.

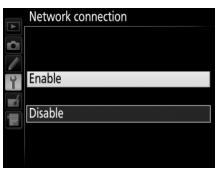
1 **Display network profiles.**
In the setup menu, select **Network** > **Network settings** to display the profiles list. FTP server profiles are indicated by a FTP icon. Highlight a profile and press OK to select the highlighted profile and return to the network menu.



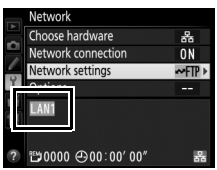
2 **Select Network connection.**
Highlight **Network connection** and press ▶.



3 **Select Enable.**
Highlight **Enable** and press OK to connect to the network and return to the network menu.



The profile name will be displayed in green when a connection is established.



4 View pictures.

Press the ▶ button to view pictures. Display the first picture to be sent full frame or highlight it in the thumbnail list.

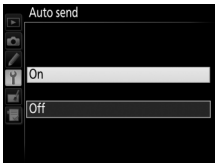
5 Upload pictures.

Press ⊛ and the center of the multi selector. A white transfer icon will appear on the picture and upload will begin immediately. The transfer icon turns green during upload, and turns blue when upload is complete. Additional pictures will be uploaded in the order selected.

To upload a picture that has already been uploaded once, press ⊛ and the center of the multi selector once to remove the blue transfer icon, and then press ⊛ and the center of the multi selector again to mark the image with a white transfer icon.

Uploading New Photographs as They Are Taken

To upload new photographs as they are taken, select **On** for **Network** > **Options** > **Auto send** in the setup menu (🕮57).



Interrupting Transmission/Removing Transfer Marking

To cancel transmission of images marked with white or green transfer icons, select the images during playback and press ⊛ and the center of the multi selector. The transfer icon will be removed. Any of the following actions will also interrupt transmission:

- Turning the camera off (transfer marking is saved, and transfer will resume when the camera is next turned on)
- Selecting **Yes** for **Network** > **Options** > **Deselect all?** (🕮58; this option also removes transfer marking from all images)

☑ During Upload

Do not remove the memory card or disconnect the Ethernet cable during upload.

✎ Interval Timer Photography

Shooting will be interrupted if the standby timer expires while interval timer photography is in progress. Choose a long standby time before starting the interval timer.

✎ Voice Memos

Voice memos can not be uploaded separately, but will be included when the associated pictures are transmitted.

✎ Loss of Signal

Wireless transmission via the WT-5 may be interrupted if the signal is lost, but can be resumed by turning the camera off and then on again.

Transfer Status

During playback, the status of images selected for upload is shown as follows:

: "Send"

Images that have been selected for upload are marked with a white transfer icon.

: "Sending"

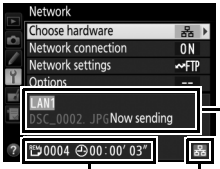
A green transfer icon is displayed during upload.

: "Sent"

Images that have been uploaded successfully are marked with a blue transfer icon.

Network Status

Network status can be viewed in the top level of the network menu.



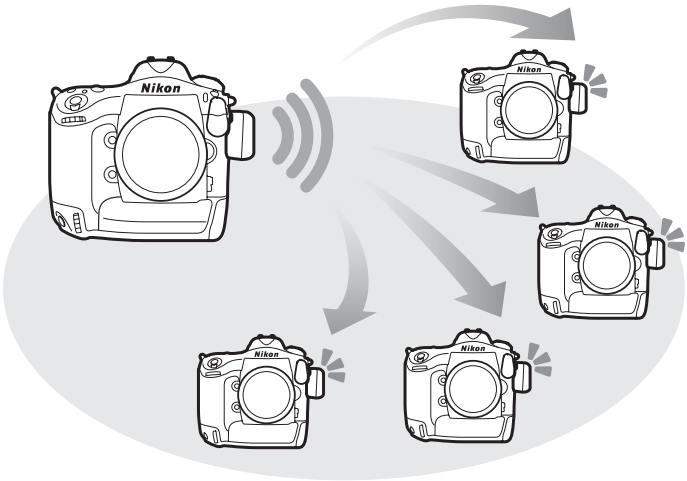
Status area: The status of the connection to the host. The profile name is displayed in green when a connection is established. While files are being transferred, the display shows "Now sending" followed by the name of the file being sent. Errors that occur during transfer are also displayed here (🕮84).

REM, : The number of images remaining and the estimated time required to send them.

Signal strength: Wireless signal strength. Ethernet connections are shown by .

Synchronized Release

Synchronized release groups one master D4S camera with up to ten remote cameras and synchronizes the shutters on the remote D4S camera with the release on the master camera. The master and remote cameras must all be equipped with optional WT-5 wireless transmitters. Note that the standby timer will not expire automatically when the camera is in synchronized release mode.

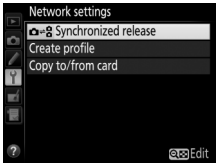


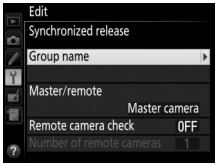
D4 Cameras

Synchronized release can also be used with D4 cameras to which WT-5 wireless transmitter have been connected.

Synchronized Release Options

The following options are available for synchronized release: **Group name**, **Master/remote**, **Remote camera check**, and **Number of remote cameras**. To view synchronized release settings, select **Network** > **Network settings** in the setup menu, highlight **Synchronized release**, and press ⊛.





■■ *Master Camera*

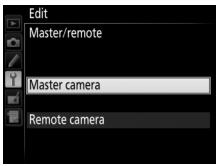
Configure the master camera as follows:

Group Name

Enter a group name of up to 16 characters (🕮11). The master and remote cameras must all be in the same group.

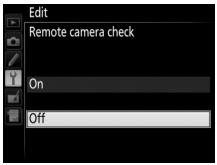
Master/Remote

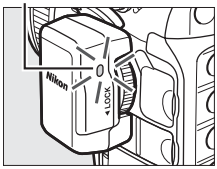
Select **Master camera** to designate the current camera as the master camera. Each group can have only one master; pressing the shutter-release button on the master releases the shutters on the remote cameras.



Remote Camera Check

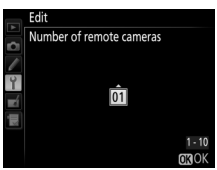
Select **On** to check whether the remote cameras are ready. The LED on the WT-5 will flash yellow to warn if the number of cameras returning "ready" is less than that selected for **Number of remote cameras**.





Number of Remote Cameras

Enter the number (1–10) of remote cameras in the group. This option is available only if **On** is selected for **Remote camera check**.



■■ *Remote Cameras*

Configure the remote cameras as follows:

Group Name

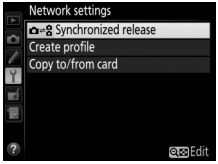
Enter a group name of up to 16 characters (🕮11). The master and remote cameras must all be in the same group.

Master/Remote

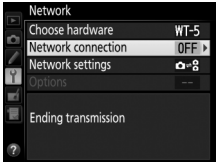
Select **Remote camera** to designate the current camera as a remote camera. The shutters on the remote cameras will be released when the shutter-release button on the camera selected as the **Master camera** is pressed.

1 **Display network settings.**
In the setup menu, select **Network** > **Network settings**.

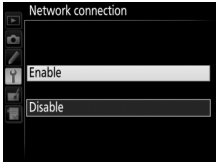
2 **Select Synchronized Release.**
Highlight **Synchronized release**, press ⊖⊠, and adjust the settings for master and remote cameras as described on pages 46 and 47. Press ⊛ to select synchronized release and return to the network menu.



3 **Select Network connection.**
Highlight **Network connection** and press ▶.

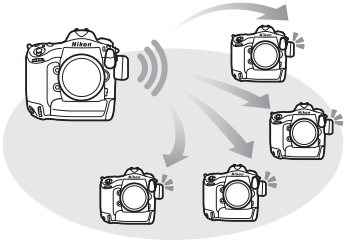


4 **Select Enable.**
Highlight **Enable** and press ⊛ to connect to the network and return to the network menu.



5 Take pictures.

Pressing the shutter-release button on the master camera releases the shutters on the remote cameras.

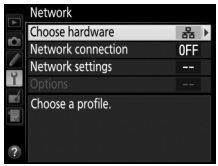


Remote Camera Check

If remote camera check (🕮47) is on, warnings will be displayed if any of the remote cameras are not ready.

Menu Guide

This section describes the items in the **Network** menu.



Choose Hardware

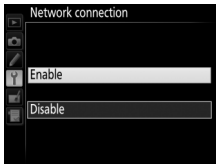
setup menu ➜ Network

Choose the hardware used to connect to the network: Ethernet, WT-5, or WT-4 (🕮2).

Network Connection

setup menu ➜ Network

Choose **Enable** to enable the network connection. Note that this increases the drain on the battery; **Disable** is recommended when the network is not in use.

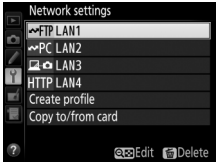


Network Settings

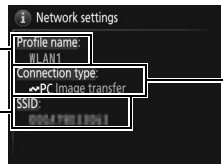
setup menu ➜ Network

Highlight **Network settings** and press ▶ to display the network profiles list, where you can create new profiles or select an existing profile.

The Profile List



The camera can store up to nine network profiles. Highlight a profile and press OK to connect to the highlighted host computer or ftp server, or press 🗑 (FORMAT) to delete the highlighted profile (📖53). To view information on the highlighted profile, press O┳ (⊡/?).



To edit the highlighted profile, press ⊖⊠ (📖54).

■■ *Create Profile*

Choose **Connection wizard** to create network profiles with the help of a wizard (🕮10, 37), **Configure manually** to enter ftp and http server settings manually (🕮82).

■■ *Copy to/from Card*

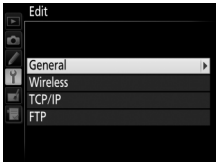
This option is available only with ftp and http server connections. Select **Copy profile from card** to copy profiles from the memory card to the profile list. Selecting **Copy profile to card** displays the camera profile list; highlight a profile and press ⓚ to copy the profile (excluding the encryption key and ftp password) to the card (password-protected profiles can not be copied; 🕮54). If there are two memory cards inserted in the camera, the card in the primary slot will be used for both "copy from" and "copy to" operations.

■■ *Deleting Network Profiles*

Press 🗑 (FORMAT) to delete the profile currently highlighted in the profile list. A confirmation dialog will be displayed; highlight **Yes** and press ⓚ.

■■ *Editing Network Profiles*

To edit the profile currently highlighted in the profile list, press ⊛ and choose from the following options:

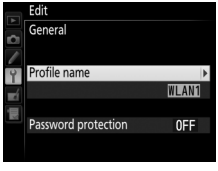


General	Edit the profile name and password (🕮54).
Wireless	Edit wireless settings (wireless connections only; 🕮55).
TCP/IP	Edit TCP/IP settings (🕮56).
FTP	Edit ftp settings (🕮56).

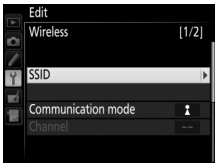
> **☑ Editing Profiles**
> If the shutter-release button is pressed while menus are displayed, the monitor will turn off and any changes to the current profile will be lost.

General

Choose **Profile name** to edit the profile name, **Password protection** to enter a profile password and enable or disable password protection. Enabling password protection prevents others from viewing network settings.



Wireless



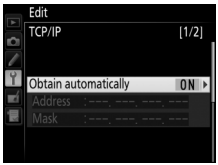
Edit the following wireless settings:

- **SSID**: Enter the name (SSID) of the network on which the host computer or ftp server is located.
- **Communication mode**: Select **Infrastructure** for wireless communication via a wireless network access point, **Ad hoc** if the camera is connected to the ftp server or computer directly.
- **Channel**: Select a channel (ad hoc only; in infrastructure mode, the channel will be selected 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
  Shared: 64- or 128-bit WEP
  WPA-PSK: TKIP; AES
  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 matching that used by the access point or host computer. A key index is not required when **No encryption** is selected.

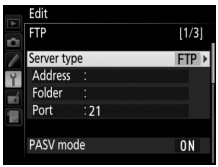
TCP/IP



If the network is configured to supply IP addresses automatically, select **Enable** for **Obtain automatically**. Otherwise select **Disable** and enter the following information:

- **Address/Mask**: Enter an IP address and subnet mask.
- **Gateway**: If the network requires a gateway address, select **Enable** and enter the address supplied by the network administrator.
- **Domain Name Server (DNS)**: If a Domain Name Server exists on the network, select **Enable** and enter the address supplied by the network administrator.

FTP



Edit the following ftp settings:

- **Server type**: Choose ftp or sftp and enter the URL or IP address (required), destination folder, and port number.
- **PASV mode**: Select **Enable** to enable PASV mode.
- **Anonymous login**: Select **Enable** for anonymous login, or select **Disable** to supply a **User ID** and **Password**.
- **Proxy server**: If a proxy server is required for ftp, select **Enable** and enter the address and port number for the proxy server.

Edit the following settings.

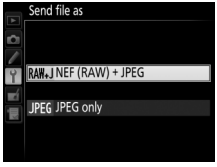
■■ *Auto Send*

If **On** is selected for image transfer or ftp server connections, photos will automatically be uploaded to the server as they are taken (note, however, that photos can only be taken when a memory card is inserted in the camera). Movies can not be uploaded using this option; transfer movies during playback as described on pages 15 and 41.

■■ *Delete After Send*

Select **Yes** to delete photographs from the camera memory card automatically once upload is complete (image transfer and ftp server connections only; files marked for transfer before this option is selected are unaffected). Sequential file numbering is used while this option is in effect, regardless of the item selected for Custom Setting d5 in the camera menus. Deletion may be suspended during some camera operations.

■■ *Send File As*



When transferring NEF+JPEG images to a computer or ftp server (image transfer and ftp server connections only), choose whether to upload both the NEF (RAW) and JPEG files or only the JPEG copy.

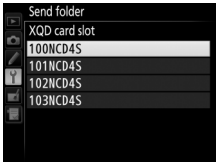
■■ *Overwrite If Same Name*

Choose **Yes** to overwrite files with duplicate names during upload to an ftp server, **No** to add numbers to the names of newly uploaded files as necessary to prevent existing files being overwritten.

■■ *Protect If Marked for Upload*

Select **Yes** to automatically protect files marked for upload to an ftp server. Protection is removed as the files are uploaded.

■■ *Send Folder*

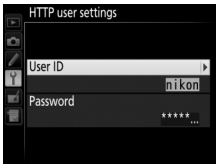


Select a folder for upload (image transfer and ftp server connections only). All photos in the selected folder (including those already marked as "sent") will be uploaded, beginning immediately. Movies can not be uploaded using this option; transfer movies during playback as described on pages 15 and 41.

■■ *Deselect All?*

Select **Yes** to remove transfer marking from all images selected for upload to a computer or ftp server (image transfer and ftp server connections only). Upload of images with a "sending" icon will immediately be terminated.

■■ *HTTP User Settings*

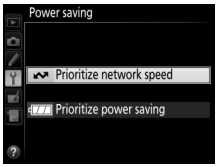


Enter a user name and password for connection to an http server (http server connections only).

■■ *MAC Address*

Display the MAC address of the hardware selected for **Choose hardware** (📖51). This option is available only when **Enable** is selected for **Network connection**.

■■ *Power Saving*



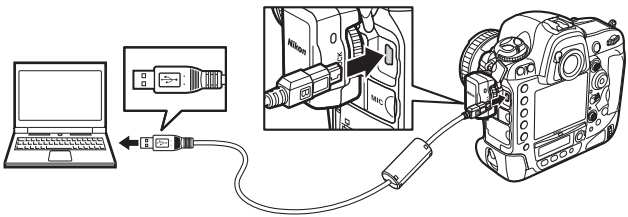
Choose **Prioritize network speed** for faster network speeds, **Prioritize power saving** for reduced power consumption. **Prioritize network speed** ensures that LAN connections remain active even when data are not being exchanged with the server and allows Ethernet connections using the high-speed 1000BASE-T standard. **Prioritize power saving** ensures that LAN connections are terminated automatically when data transfer ends and limits Ethernet connections to 100BASE-TX.

Appendices

Creating Profiles on a Computer

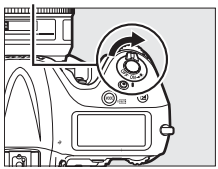
The Wireless Transmitter Utility (📖4) can be used to create network profiles.

1 Connect the camera.
Start the computer and connect the camera using the supplied USB cable 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.**
Double-click the Wireless Transmitter Utility icon on the desktop (Windows) or click the Wireless Transmitter Utility icon in the Dock (Mac).

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

Creating an FTP Server

Images can be uploaded to ftp servers created using the standard ftp services included with Windows 8.1, Windows 8.1 Enterprise/Pro, Windows 7 (Professional/Enterprise/Ultimate), Windows Vista (Ultimate/Business/Enterprise), and Windows XP Professional. Under Windows, Internet Information Services (IIS) are required to configure ftp servers (installation instructions are available from Microsoft). Be sure to use only characters that appear in the keyboard area of the camera text-entry dialog (🕮11) for such settings as user ID, password, and folder names.

The following settings are used below for illustrative purposes:

ftp server

IP address: 192.168.1.3
Subnet mask: 255.255.255.0
ftp server port: 21

- Windows 8.1/Windows 7 ..... 🕮64
- Windows Vista ..... 🕮71
- Windows XP ..... 🕮78

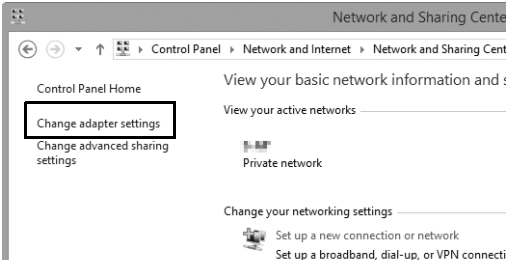
Windows 8.1/Windows 7

1 Go to **Network and Sharing Center.**

Select **Network and Internet** > **Network and Sharing Center** in the **Control Panel**.

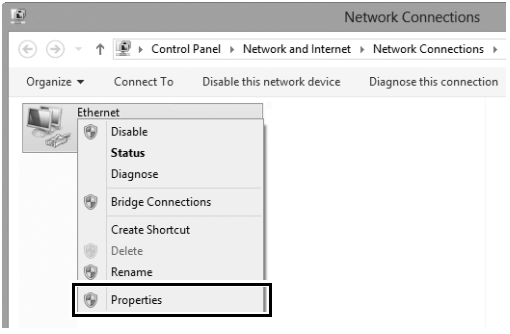
2 Display the network adapter list.

Click **Change adapter settings**.



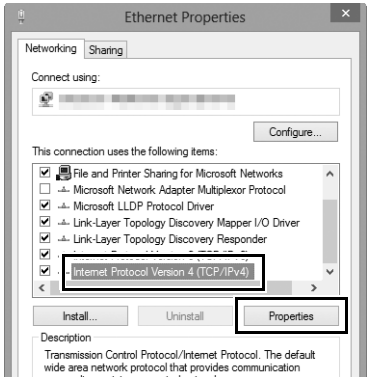
3 Open the network properties dialog.

If you are connecting via Ethernet, right-click **Ethernet** (Windows 8.1) or **Local Area Connection** (Windows 7) and select **Properties**. If you are connecting via a wireless LAN adapter, right-click **Wi-Fi** (Windows 8.1) or **Wireless Network Connection** (Windows 7) and select **Properties**.



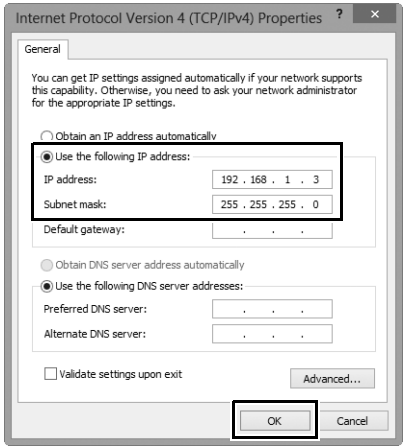
4 Display TCP/IP settings.

Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



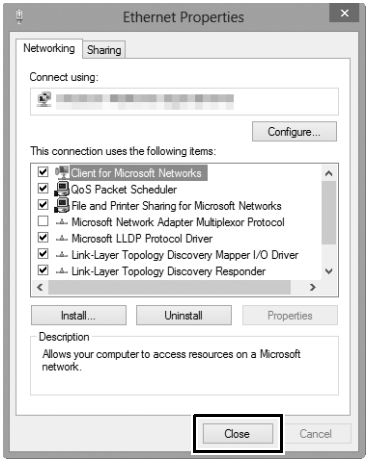
5 Enter an IP address and subnet mask.

Enter an IP address and subnet mask for the ftp server and click **OK**.



6 Close the network properties dialog.

Click **Close**.

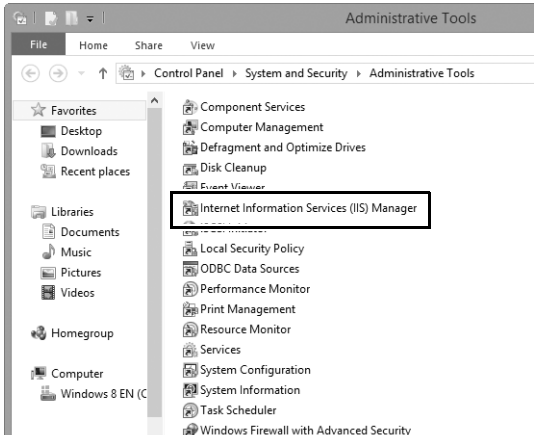


7 Open Administrative Tools.

Select **System and Security** > **Administrative Tools** in the **Control Panel**.

8 Open the IIS manager.

Double-click **Internet Information Services (IIS) Manager**.

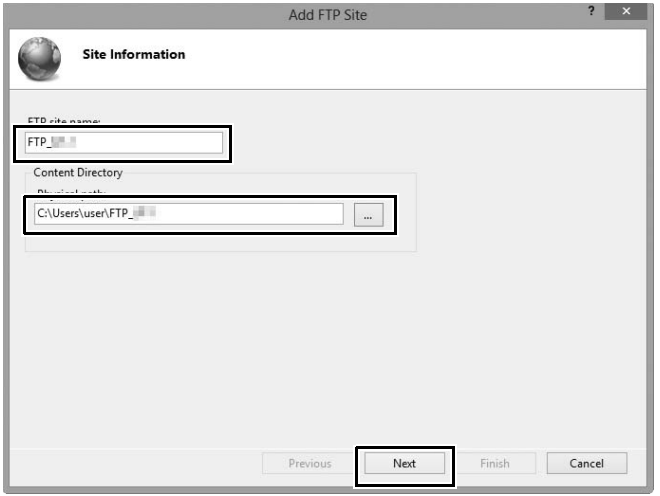


9 Select **Add FTP Site…**.

Right-click the computer user name and select **Add FTP Site…**.

10 Enter site information.

Name the site and choose the path to the folder that will be used for ftp upload. Click **Next** to proceed.

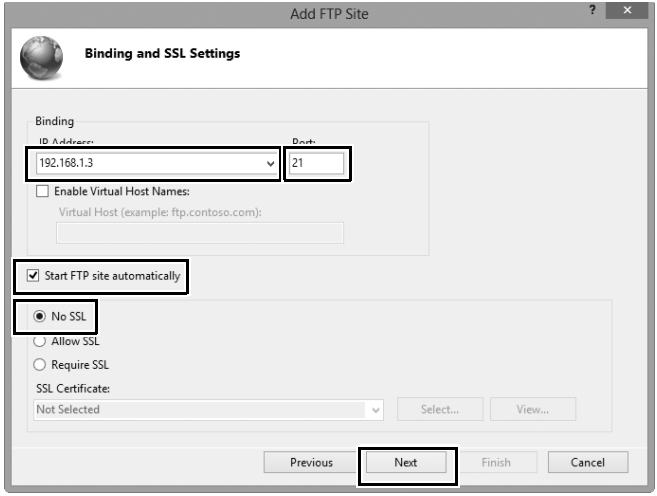


Anonymous Login

To allow anonymous login, select a folder in the user's public folder as the content directory.

11 Choose binding and SSL options.

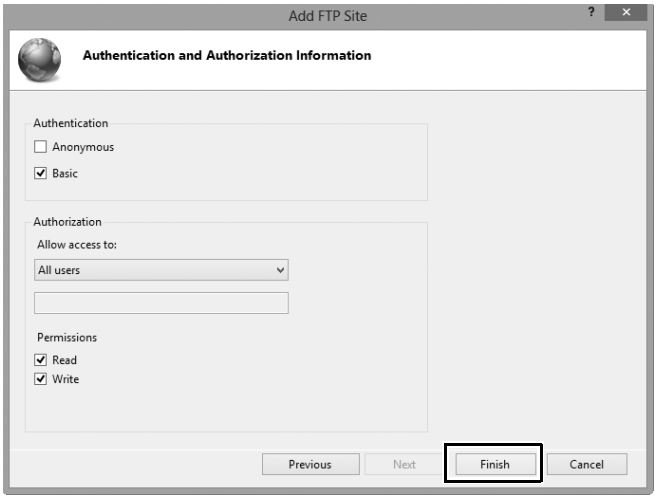
Select the IP address entered in Step 5, note the port number, select **Start FTP site automatically**, and check **No SSL**. Click **Next** to proceed.



12 Choose authentication options.

Adjust settings as described below and click **Finish**.

- **Authentication**: Basic
- **Allow access to**: All users
- **Permissions**: Read/Write



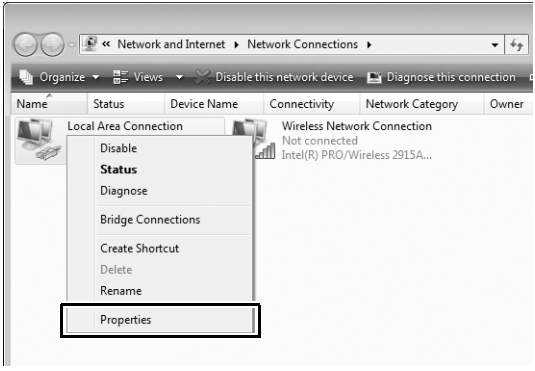
Windows Vista

1 Display network connections.

Click **Start** > **Control Panel** > **Network and Internet Settings** > **Network Connections** > **Manage Network Connections**.

2 Open the network properties dialog.

If you are connecting via Ethernet, right-click **Local Area Connection** and select **Properties**. If connection is via a wireless LAN adapter, select **Properties** in the context menu for **Wireless Network Connection**.

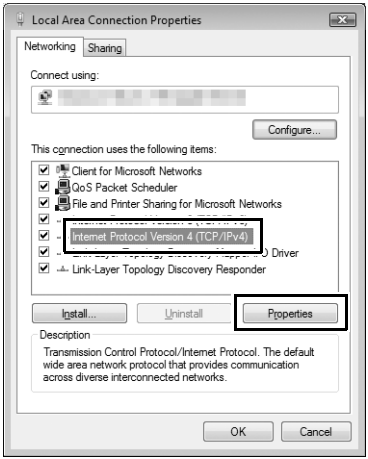


3 Click Allow.

A "User Account Control" dialog will be displayed; click **Allow**.

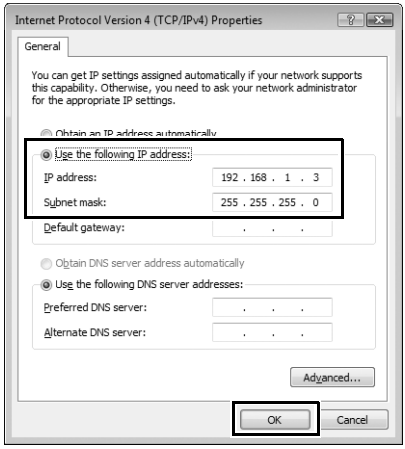
4 Display TCP/IP settings.

Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



5 Enter an IP address and subnet mask.

Enter an IP address and subnet mask for the ftp server and click **OK**.

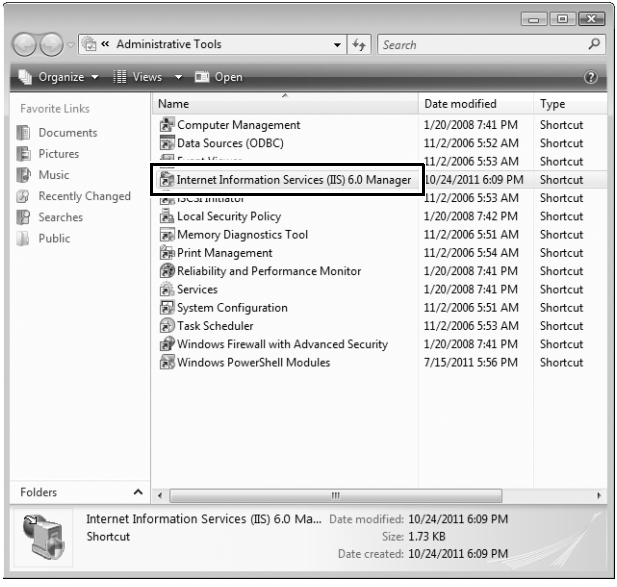


6 Open Administrative Tools.

Click **Start** > **Control Panel** > **System and Maintenance** > **Administrative Tools**.

7 Open the IIS manager.

Double-click **Internet Information Services (IIS) 6.0 Manager**.

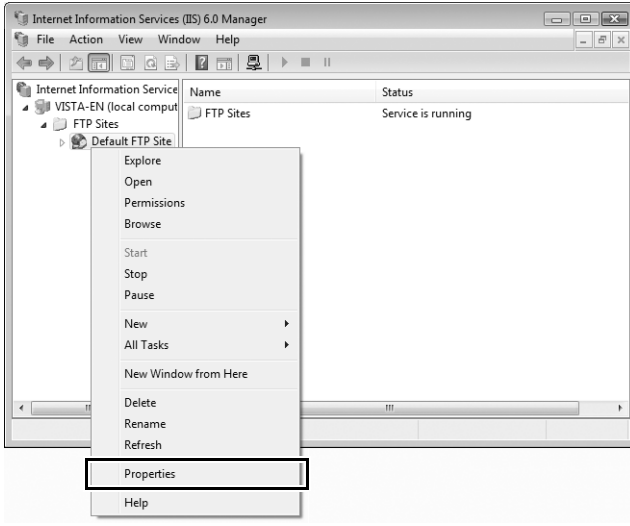


8 Click Allow.

A “User Account Control” dialog will be displayed; click **Allow**.

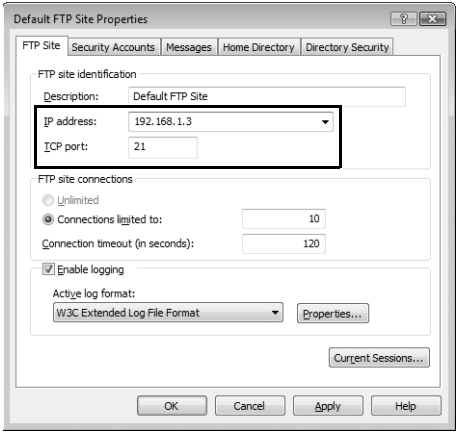
9 Display ftp site properties.

Right-click **Default FTP Site** and select **Properties**.



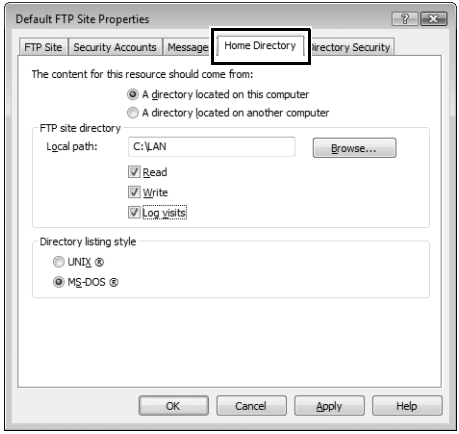
10 Select the address and port number.

Select the IP address entered in Step 5 and enter a **TCP port** number.



11 Choose a home directory.

Open the **Home Directory** tab and select **A directory located on this computer**. The root directory for images uploaded to the ftp server is listed in the **Local path** text box; choose a folder and select **Read**, **Write**, and **Log visits**. Click **OK** to close the properties dialog.



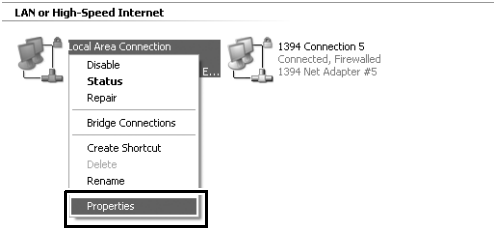
Windows XP

1 Display network connections.

Click **Start** > **Control Panel** > **Network and Internet Settings** > **Network Connections**.

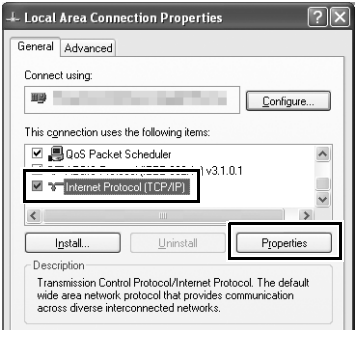
2 Open the network properties dialog.

If you are connecting via Ethernet, right-click **Local Area Connection** and select **Properties**. If connection is via a wireless LAN adapter, select **Properties** in the context menu for **Wireless Network Connection**.



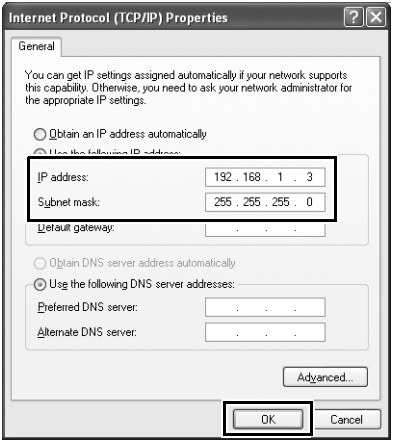
3 Display TCP/IP settings.

Select **Internet Protocol (TCP/IP)** and click **Properties**.



4 Enter an IP address and subnet mask.

Enter an IP address and subnet mask for the ftp server and click **OK**.

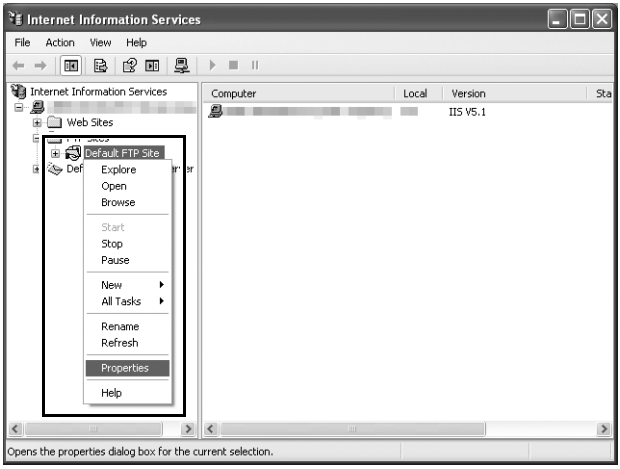


5 Open Internet Information Services.

Click **Start** > **Control Panel** > **System and Maintenance** > **Administrative Tools** and open the **Internet Information Services** console.

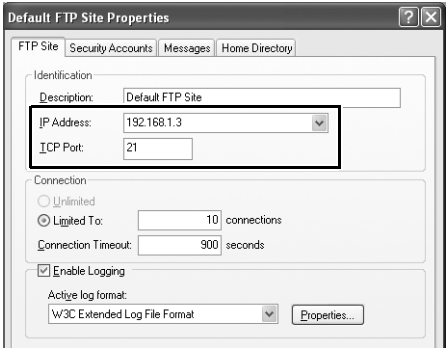
6 Display ftp site properties.

Right-click **Default FTP Site** and select **Properties**.



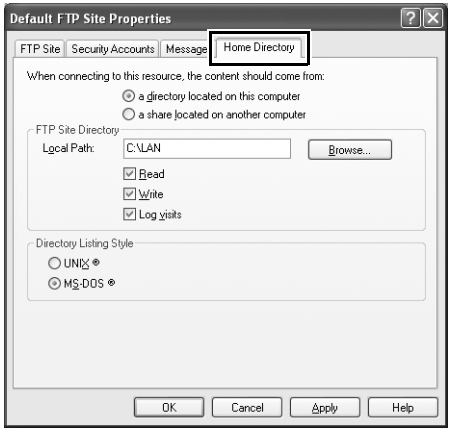
7 Select the address and port number.

Select the IP address entered in Step 4 and enter a **TCP port** number.



8 Choose a home directory.

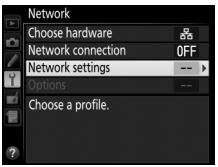
Open the **Home Directory** tab and select **a directory located on this computer**. The root directory for images uploaded to the ftp server is listed in the **Local path** text box; choose a folder and select **Read**, **Write**, and **Log visits**. Click **OK** to close the properties dialog.



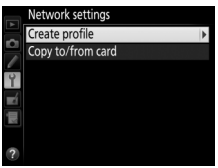
Manual Profile Creation

Follow the steps below to manually configure the camera for connection to ftp and http servers. Note that changes to the current profile will be lost if the camera is turned off during setup; to prevent unexpected loss of power, use a fully-charged battery or an optional AC adapter. If you are connecting to an ftp server behind a firewall, you may also need to adjust firewall settings to create exceptions for the ftp ports used by the camera (ports 21, 22, and 32768 through 61000).

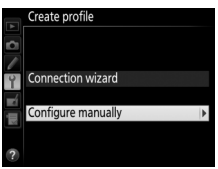
1 **Display network profiles.**
Select **Network** in the setup menu, then highlight **Network settings** and press ▶ to display the profiles list and other network settings.



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 (📖53).

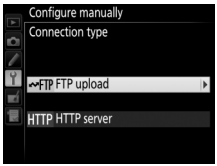


3 **Select Configure manually.**
Highlight **Configure manually** and press ▶.



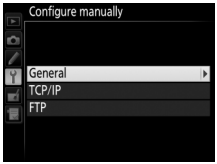
4 Select a connection type.

Highlight **FTP upload** or **HTTP server** and press ▶.



5 Adjust settings.

Adjust settings as described in "Editing Network Profiles" (🕮54).



Editing Profiles

If the shutter-release button is pressed while menus are displayed, the monitor will turn off and any changes to the current profile will be lost. Choose a longer monitor off delay for Custom Setting c4 in the camera menus.

Troubleshooting

Problem	Solution	Page
The camera displays a TCP/IP or ftp error.	Check settings for the host and/or wireless LAN adapter and adjust camera settings appropriately.	10, 37, 54
	Check firewall settings.	17, 20, 39
	Confirm that you can write to the destination folder on the ftp server.	70, 77, 81
	Change the current PASV mode setting.	56
"Connecting to PC" does not clear from the camera display.	Check firewall settings.	17, 20
The camera displays the message, "Ethernet cable is not connected".	Connect an Ethernet cable or select a wireless transmitter for **Choose hardware.**	8, 36
The camera displays a memory card error.	Confirm that the card is properly inserted.	8, 36
Transfer is interrupted before all photographs are sent.	Transfer will resume if the camera is turned off and then on again.	17, 43

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