# Nikon

**DIGITAL CAMERA** 

1 52

# **User's Manual**







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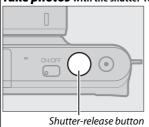
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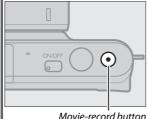
# **Getting the Most from Your Camera**

# **Take photos** with the shutter-release button.=



See page 6 for more information.

# Shoot movies with the movie-record button.=



Movie-record button

Movies can be recorded by pressing the movie-record button in auto (page 17), creative (page 26), and advanced movie (page 38) modes.

#### **About This Manual**

For a complete guide to using your digital camera, see the Reference Manual (page v). To get the most from your camera, please be sure to read this *User's Manual* thoroughly and keep it where it will be read by all who use the product.

#### **Camera Settings**

The explanations in this manual assume that default settings are used.

#### **Symbols and Conventions**

To make it easier to find the information you need, the following symbols and conventions are used:



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



This icon marks notes; information that should be read before using the camera.



This icon marks references to other pages in this manual.

The lens generally used in this manual for illustrative purposes is a 1 NIKKOR VR 10-30mm f/3.5-5.6 PD-ZOOM.

#### Nikon Manual Viewer 2



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#### ⚠ For Your Safety

Before using the camera for the first time, read the safety instructions in "For Your Safety" ( vi-viii) and "Caring for the Camera and Battery: Cautions" (\$\Pi\$ 85).

#### The Reference Manual

For more information on using your Nikon camera, download a pdf copy of the camera *Reference Manual* from the website listed below. The *Reference Manual* can be viewed using Adobe Reader or Adobe Acrobat Reader 5.0 or later.

- 1 On your computer, launch a web browser and open the Nikon manual download site at http://nikonimglib.com/manual/
- 2 Navigate to the page for the desired product and download the manual.

# **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. To prevent possible injury, read all warnings before using this Nikon product.

#### **III**WARNINGS

- sun well out of the frame when shooting backlit subjects. Sunlight focused into the camera when the sun is in or close to the frame could cause a fire.
- **↑** Turn off immediately in the event of malfunction. Should you notice smoke or an unusual smell coming from the equipment or AC adapter (available and remove the battery immediately. taking care to avoid burns. Continued operation could result in injury. After removing the battery, take the equipment to a Nikon-authorized service center for inspection.
- qas. Do not use electronic equipment in the presence of flammable gas, as this could result in explosion or fire.
- ∧ Keep drv. Do not immerse in or expose to water or handle with wet hands. Failure to keep the product dry could result in damage to the product, fire, or electric shock, while handling the product with wet hands could result in electric shock.

- ↑ Keep the sun out of the frame. Keep the ↑ Do not disassemble. Touching the product's internal parts could result in injury. In the event of malfunction, the product should be repaired only by a qualified technician. Should the product break open as the result of a fall or other accident, remove the battery and/or AC adapter and then take the product to a Nikon-authorized service center for inspection.
  - separately), unplug the AC adapter  $\wedge$  Keep out of reach of children. Failure to observe this precaution could result in injury. In addition, note that small parts constitute a choking hazard. Should a child swallow any part of this equipment, consult a physician immediately.
- No not use in the presence of flammable No not place the strap around the neck of an infant or child. Placing the camera strap around the neck of an infant or child could result in strangulation.

⚠ Follow the instructions of airline and hospital personnel. This camera transmits radio frequencies that could interfere with medical equipment or aircraft navigation. Disable the wireless network feature and remove all wireless accessories from the camera before boarding an aircraft, and turn the camera off during take off and landing. In medical facilities, follow staff instructions regarding the use of wireless devices.

⚠ Do not remain in contact with the camera, battery, 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 leave the product where it will be exposed to extremely high temperatures, such as in an enclosed automobile or in direct sunlight. Failure to observe this precaution could cause damage or fire.

♠ Do not aim the flash at the operator of a motor vehicle. Failure to observe this precaution could result in accidents.

#### **♠** Observe caution when using a flash.

- Using the camera with the flash in close contact with the skin or other objects could cause burns.
- Using a flash close to the subject's eyes could cause temporary visual impairment. The flash should be no less than one meter (3 ft 4 in.) from the subject. Particular care should be observed when photographing infants.

Avoid contact with liquid crystal. Should the display break, care should be taken to avoid injury due to broken glass and to prevent the liquid crystal from the display touching the skin or entering the eyes or mouth.

♠ Do not carry tripods with a lens or camera attached. You could trip or accidentally strike others, resulting in injury.

instructions regarding the use of wireless devices.

Do not remain in contact with the camera, battery, or charger for extended periods while the devices are on or in use. Parts of when handling batteries may leak or explode if improperly handled. Observe the following precautions when handling batteries for use in this product:

- Use only batteries approved for use in this equipment.
- Do not short or disassemble the battery.
- Be sure the product is off before replacing the battery. If you are using an AC adapter, be sure it is unplugged.
- Do not attempt to insert the battery upside down or backwards.
- Do not expose the battery to flame or to excessive heat.
- Do not immerse in or expose to water.
- Replace the terminal cover when transporting the battery. Do not transport or store the battery with metal objects such as necklaces or hairpins.
- Batteries are prone to leakage when fully discharged. To avoid damage to the product, be sure to remove the battery when no charge remains

- attach the terminal cover and store in a cool, dry place.
- The battery may be hot immediately after use or when the product has been used on battery power for an extended period. Before removing the battery turn the camera off and allow the battery to cool.
- Discontinue immediately use should you notice any changes in the battery, such as discoloration or deformation.

#### **№ Observe proper precautions when handling** the charger:

- Keep dry. Failure to observe this precaution could result in injury or product malfunction due to fire or electric shock.
- Do not short the charger terminals. Failure to observe this precaution could result in overheating and damage to the charger.
- Dust on or near the metal parts of the plug should be removed with a dry cloth. Continued use could result in fire.
- Do not go near the charger during thunderstorms. Failure to observe this precaution could result in electric shock.
- Do not handle the plug or charger with wet hands. Failure to observe this precaution could result in injury or product malfunction due to fire or electric shock.
- Do not use with travel converters or adapters designed to convert from one voltage to another or with DCto-AC inverters. Failure to observe this precaution could damage the product or cause overheating or fire.

- When the battery is not in use, ! Use appropriate cables. When connecting cables to the input and output iacks, use only the cables provided or sold by Nikon for the purpose to maintain compliance with product regulations.
  - ware or manuals should not be played back on audio CD equipment. Playing CD-ROMs on an audio CD player could cause hearing loss or damage the equipment.

#### **Notices**

- with this product may be reproduced, transmitted, transcribed, stored in a retrieval system, or trans- • While every effort has been made to lated into any language in any form, by any means, without Nikon's prior written permission.
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- No part of the manuals included Nikon will not be held liable for any damages resulting from the use of this product.
  - 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).

# Notice for Customers in Canada

CAN ICES-3 B / NMB-3 B

### **Notice for Customers in Europe**

CAUTION: RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

This symbol indicates that electrical and electronic equipment is to be collected separately.



The following apply only to users in European countries:

- This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- helps conserve natural resources and prevent negative consequences for human health and the environment that might result from incorrect disposal.
- For more information, contact the retailer or the local authorities in charge of waste management.

This symbol on the battery indicates that the battery is to be collected separately.



The following apply only to users in European countries:

- · All batteries, whether marked with this symbol or not, are designated for separate collection at an appropriate collection point. Do not dispose of as household waste.
- Separate collection and recycling For more information, contact the retailer or the local authorities in charge of waste management.

The Battery Charger

# IMPORTANT SAFETY INSTRUCTIONS—SAVE THESE INSTRUCTIONS

# DANGER—TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, CAREFULLY FOLLOW THESE INSTRUCTIONS

For connection to a supply not in the U.S.A., use an attachment plug adapter of the proper configuration for the power outlet if needed. This power unit is intended to be correctly oriented in a vertical or floor mount position.

#### Federal Communications Commission (FCC) Radio Frequency Interference Statement

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 pro- CAUTIONS tection 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.
- 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/television technician for help.



Nikon 1.52

#### Modifications

The FCC requires the user be notified that any changes or modifications made to this device that are not expressly approved by Nikon Corporation may void the user's authority to operate the equipment.

#### Interface Cables

Use the interface cables sold or provided by Nikon for your equipment. Using other interface cables may exceed the limits of Class B Part 15 of the FCC rules.

Notice for Customers in the State of California WARNING: Handling the cord on this product may expose you to lead, a chemical known to the State of Cali-• Increase the separation between the fornia to cause birth defects or other reproductive harm. Wash hands after handlina.

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# tions

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#### **Disposing of Data Storage Devices**

Please note that deleting images or formatting memory cards or other data storage devices does not completely erase the original image data. Deleted files can sometimes be recovered from discarded storage devices using commercially available software, potentially resulting in the malicious use of personal image data. Ensuring the privacy of such data is the user's responsibility.

Before discarding a data storage device or transferring ownership to another person, erase all data using commercial deletion software, or format the device and then completely refill it with images containing no private information (for example, pictures of empty sky). Care should be taken to avoid injury when physically destroying data storage devices.

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#### **Temperature Warnings**

The camera may become warm to the touch during use; this is normal and does not indicate a malfunction. At high ambient temperatures, after extended periods of continuous use, or after several photographs have been taken in quick succession, a temperature warning may be displayed, following which the camera will turn off automatically to minimize damage to its internal circuits. Wait for the camera to cool before resuming use.

#### **Use Only Nikon Brand Electronic Accessories**

Nikon cameras are designed to the highest standards and include complex electronic circuitry. Only Nikon brand electronic accessories (including chargers, batteries, AC adapters, and lens accessories) certified by Nikon specifically for use with this Nikon digital camera are engineered and proven to operate within the operational and safety requirements of this electronic circuitry.

The use of non-Nikon electronic accessories could damage the camera and may void your Nikon warranty. The use of thirdparty rechargeable Li-ion batteries not bearing the Nikon holo-



graphic seal shown at right could interfere with normal operation of the camera or result in the batteries overheating, igniting, rupturing, or leaking.

For more information about Nikon brand accessories, contact a local authorized Nikon dealer.

#### **✓** Use Only Nikon Brand Accessories

Only Nikon brand accessories certified by Nikon specifically for use with your Nikon digital camera are engineered and proven to operate within its operational and safety requirements. THE USE OF NON-NIKON ACCESSORIES COULD DAMAGE YOUR CAMERA AND MAY VOID YOUR NIKON WARRANTY.

#### Servicing the Camera and Accessories

The camera is a precision device and requires regular servicing. Nikon recommends that the camera be inspected by the original retailer or a Nikon-authorized service representative once every one to two years, and that it be serviced once every three to five years (note that fees apply to these services). Frequent inspection and servicing are particularly recommended if the camera is used professionally. Any accessories regularly used with the camera, such as lenses, should be included when the camera is inspected or serviced.

#### Before Taking Important Pictures

Before taking pictures on important occasions (such as at weddings or before taking the camera on a trip), take a test shot to ensure that the camera is functioning normally. Nikon will not be held liable for damages or lost profits that may result from product malfunction.

#### 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:

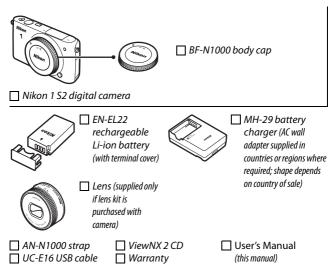
- For users in the U.S.A.: http://www.nikonusa.com/
- For users in Europe and Africa: http://www.europe-nikon.com/support/
- For users in Asia, Oceania, and the Middle East: http://www.nikon-asia.com/

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. For contact information, visit <a href="http://imaging.nikon.com/">http://imaging.nikon.com/</a>

# Introduction

# **Package Contents**

Confirm that the package contains the following items:



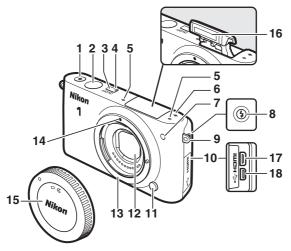
Memory cards are sold separately.

# **Parts of the Camera**

Take a few moments to familiarize yourself with camera controls and displays. You may find it helpful to bookmark this section and refer to it as you read through the rest of the manual.

# The Camera Body



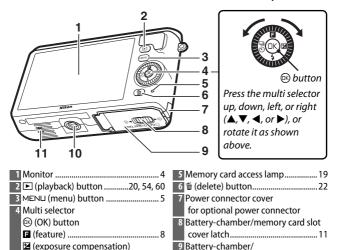


1 Movie-record button 38, 39	9 Eyelet for camera strap10
2 Shutter-release	10 Connector cover
button43, 49, 52, 57	11 Lens release button13
3 Power switch14	12 Dust shield84, 85
4 Power lamp14	13 Lens mount12
5 Microphone	14 Mounting mark12
6 Focal plane mark (→)	15 Body cap82
7 AF-assist illuminator	16 Built-in flash65
Self-timer lamp64	17 HDMI connector
Red-eye reduction lamp66, 68	18 USB connector79
8 Flash pop-up button67	

### The Camera Body (Continued)

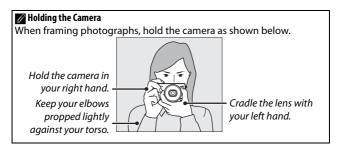
memory card slot cover.....11

10 Tripod socket



**\$** (flash mode)......65

₹ (continuous shooting/



3

<sup>\*</sup>Camera does not support TA-N100 tripod mounting spacer.

-1-



<sup>\*</sup>Available only when **Detailed** is selected for **Display** > **Shooting** in the setup menu (\$\sup\$75).

35 Recording indicator......39

Note: Display shown with all indicators lit for illustrative purposes.

18 Exposure compensation

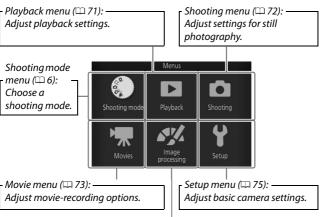
#### The MENU Button

The shooting mode and most shooting, playback, and setup options can be accessed from the camera menus. Press the MENU button to display the menu selection dialog shown below, then use the multi selector to highlight the icon for the desired menu and press .



MEN⊔ button





- Image processing menu (🕮 74): 🗕

Adjust white balance, ISO sensitivity, Picture Controls, and other image processing settings for photographs and movies.

# ■ Choosing a Shooting Mode

To display the shooting mode menu, press the MENU button, highlight **Shooting mode**, and press . Use the multi selector to highlight a shooting mode and press to select the highlighted option.



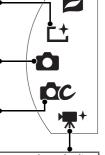
-1-

■ Motion Snapshot mode (□ 56): Each time the shutter is released, the camera records a still image and about 1.6 s of movie footage. When the resulting "Motion Snapshot" is viewed on the camera, the movie will play back in slow motion over approximately 4 s, followed by the still image.

L' Best moment capture mode (□ 47): Choose Active Selection to select the best picture from ten shots in temporary storage or Smart Photo Selector to let the camera pick the best shot based on composition and movement.

▲ Auto mode (🗆 17): Let the camera pick the settings for photographs and movies.

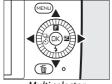
**⚠C** Creative mode (☐ 26): For photographs in which you want to use special effects, match settings to the scene, or control shutter speed and aperture.



★ Advanced movie mode (□ 38): Choose an exposure mode and adjust shutter-speed or aperture or record movies in slow or fast motion or with other special effects.

### II Using the Menus

Use the multi selector ( $\square$  3) to navigate the playback, shooting, movie, image processing, and setup menus.



Multi selector

# 1 Select an item.

Press ▲ or ▼ to highlight menu items and press ▶ to view options for the highlighted item.





# 2 Select an option.

Press ▲ or ▼ to highlight the desired option and press <sup>®</sup> to select.



#### **Using the Menus**

The items listed may vary with camera settings. Items displayed in gray are not currently available. To exit the menus and return to shooting mode, press the shutter-release button halfway ( $\square$  19).

### Choosing a Menu

To display another menu, press  $\blacktriangleleft$  in Step 1 and then press  $\blacktriangle$  or  $\blacktriangledown$  to highlight the desired icon. Press  $\blacktriangleright$  to position the cursor in the highlighted menu.

-1-

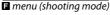
# The 🖪 (Feature) Menu

To display the feature menu and adjust camera settings or access playback options, press (feature) on the multi selector.











■ menu (playback)

#### 1 Select an item.

Use the multi selector to highlight an item and press ® to display options (to exit the menu, press the shutter-release button halfway as described on page 19 or highlight and press ®).





# 2 Select an option.

Highlight the desired option or value and press ® to select.



# The ■ Menu

The Immenu is context-sensitive: its contents vary with camera settings or the type of image displayed; options that are currently unavailable are shown in gray. In auto mode, pressing Immediately displays the shooting mode menu (Immediately 6).



# **First Steps**

### 1 Attach the camera strap.

Attach the strap securely to the two camera eyelets.



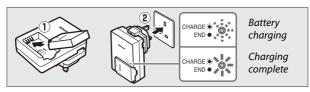






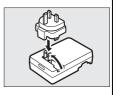
# 2 Charge the battery.

Insert the battery into the charger ① and plug the charger in ②. An exhausted battery fully charges in about three hours. Unplug the charger and remove the battery when charging is complete.



# The Plug Adapter

Depending on the country or region of purchase, a plug adapter may be supplied with the charger. The shape of the adapter varies with the country or region of purchase. If a plug adapter is supplied, raise the wall plug and connect the plug adapter as shown at right, making sure

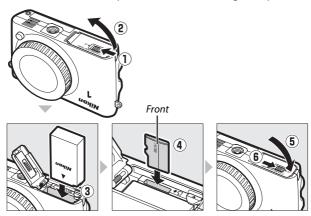


the plug is fully inserted. Attempting to forcibly remove the plug adapter could damage the product.



# 3 Insert the battery and a memory card.

The camera stores pictures on microSD, microSDHC, and microSDXC memory cards (available separately;  $\square$  83). Before inserting the battery or memory cards, check that they are in the correct orientation. Using the battery to keep the orange battery latch pressed to one side, slide the battery in until it latches, and then slide in the memory card until it clicks into place. Do not attempt to insert the card at an angle; failure to observe this precaution could damage the product.



### Formatting Memory Cards

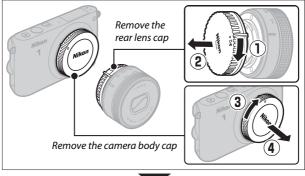
If this is the first time the memory card will be used in the camera or if the card has been formatted in another device, select **Format memory card** in the setup menu and follow the on-screen instructions to format the card (\$\sup\$75). Note that this permanently deletes any data the card

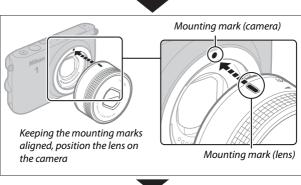


may contain. Be sure to copy any photographs and other data you wish to keep to a computer before proceeding ( $\square$  79).

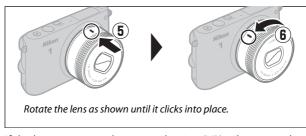
# 4 Attach a lens.

Be careful to prevent dust from entering the camera when the lens or body cap is removed.





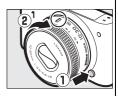




If the lens supports vibration reduction (VR), vibration reduction can be controlled from the camera ( $\square$  73,  $\square$  74).

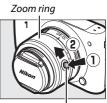
### Detaching the Lens

Be sure the lens is retracted before removal. To remove the lens, turn the camera off, then press and hold the lens release button (①) while turning the lens clockwise (②). After removing the lens, replace the camera body cap, the rear lens cap, and, if applicable, the front lens cap.



#### Lenses with Retractable Lens Barrel Buttons

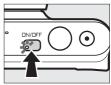
Lenses with retractable lens barrel buttons can not be used when retracted. To unlock and extend the lens, readying the camera for use, keep the retractable lens barrel button pressed (1) while rotating the zoom ring as shown (2). The lens can be retracted and the zoom ring locked by pressing the button and rotating the ring in the opposite direction. Be careful not to press the retractable lens barrel button while attaching or removing the lens.



Retractable lens barrel button

# 5 Turn the camera on.

Press the power switch to turn the camera on. The power lamp will briefly light green and the monitor will turn on. If the lens is equipped with a front lens cap, remove the cap before shooting. If a 1 NIKKOR VR 10–30mm f/3.5–5.6 PD-ZOOM lens is attached, the lens will automatically extend when the camera is turned on and retract when the camera is turned off



# Turning the Camera Off

To turn the camera off, press the power switch again. The monitor will turn off.

#### Auto Power Off

If no operations are performed for about a minute, the display will turn off and the power lamp start to flash. The camera can be reactivated by operating the shutter-release button. If no operations are performed for about three minutes after the display has turned off, the camera will turn off automatically.

### Lenses with Retractable Lens Barrel Buttons

The camera will turn on automatically when the retractable lens barrel lock is released; in addition, if the view through the lens is displayed or the monitor is off, the camera will turn off when the lens barrel is locked (in the case of 1 NIKKOR VR 10–30mm f/3.5–5.6 and 1 NIKKOR VR 30–110mm f/3.8–5.6 lenses, firmware version 1.10 or later is required if locking the lens barrel is to turn the camera off when the monitor is off; for information on updating lens firmware, visit the Nikon website for your area).



# 6 Choose a language.

A language-selection dialog will be displayed the first time the camera is turned on. Use the multi selector and button to choose a language.







#### 7 Set the clock.

Use the multi selector and (S) button (C) 3) to set the time and date. *Note that the camera uses a 24-hour clock.* 









Press  $\triangleleft$  or  $\triangleright$  to highlight time zone and press  $\bigcirc$ .



Press  $\triangle$  or  $\nabla$  to highlight date format and press  $\otimes$ .



Press  $\blacktriangle$  or  $\blacktriangledown$  to highlight daylight saving time option and press  $\circledcirc$ .



Press ◀ or ▶ to highlight items and press ▲ or ▼ to change. Press to exit to shooting display when setup is complete.

**Note:** Language and clock can be changed at any time using **Language**  $(\square 75)$  and **Time zone and date**  $(\square 75)$  options in setup menu.

# 8 Check the battery level and memory card capacity.

Check the battery level and number of exposures remaining in the monitor ( $\square$  4).





Exposures remaining

This chapter describes how to take, view, and delete photographs in auto and creative mode.

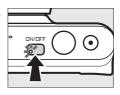
# Point-and-Shoot Photography (Auto Mode)

Follow the steps below to take photographs in auto mode, a "point-and-shoot" mode in which the camera automatically detects the subject type and adjusts settings according to the subject and situation.



#### 1 Turn the camera on.

Press the power switch to turn the camera on.



# 2 Select 🗖 mode.

Press the MEN⊔ button to display the menus. Select **Shooting mode**, then highlight **□** (auto) and press **®** (□ 6).





# 3 Ready the camera.

Hold the camera securely with both hands, being careful not to obstruct the lens, AF-assist illuminator, or microphone. Rotate the camera as shown at lower right when taking pictures in "tall" (portrait) orientation.





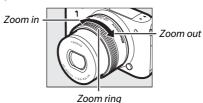
# 4 Frame the photograph.

Position your subject in the center of the frame.



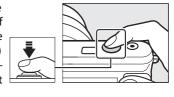
# Using a Zoom Lens

Use the zoom ring to zoom in on the subject so that it fills a larger area of the frame, or zoom out to increase the area visible in the final photograph. During movie recording with the 1 NIKKOR VR 10–30mm f/3.5–5.6 PD-ZOOM, the zoom rate is unaffected by the speed with which the ring is rotated.



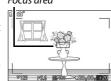
### 5 Focus.

Press the shutter-release button halfway to focus. If the subject is poorly lit, the flash may pop up (\$\square\$ 65) and the AF-assist illuminator (\$\square\$ 2) may light to assist the focus operation.



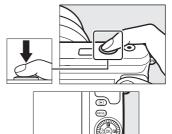
If the camera is able to focus, the selected focus area will be highlighted in green and a beep will sound (a beep may not sound if the subject is moving).

If the camera is unable to focus, the focus area will be displayed in red.



# 6 Shoot.

Smoothly press the shutterrelease button the rest of the way down to release the shutter and record the photograph. The memory card access lamp will light and the photograph will be displayed in the monitor for a few seconds (the photo will automatically clear from the display when the shutter-release button is pressed halfway). Do not eject the memory card or remove the battery until the lamp has gone out and recording is complete.

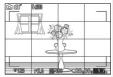


Memory card access lamp



# The Framing Grid

A framing grid can be displayed by selecting **On** for **Display** > **Grid display** in the setup menu (\$\square\$ 75).



# Viewing Photographs

Press to display your most recent photograph full frame in the monitor (full-frame playback).



▶ button



Press ◀ or ▶ or rotate the multi selector to view additional pictures.



To zoom in on the center of the current image, press (18) and rotate the multi selector clockwise. Rotate counterclockwise to zoom out. To view multiple images, rotate the multi selector counterclockwise when the picture is displayed full frame.

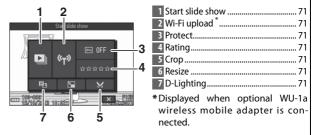




To end playback and return to shooting mode, press the shutterrelease button halfway.

# 

The following options can be accessed by pressing **G** when a photo is displayed:



# See Also

The **Display > Playback** option in the setup menu can be used to toggle photo info on or off ( $\square$  75). The **Slide show** option in the playback menu can also be used for slide shows.

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# **Deleting Pictures**

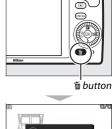
To delete the current picture, press  $\tilde{\mathbf{m}}$ . Note that once deleted, pictures can not be recovered.

# 1 Display the photograph.

Display the photograph you wish to delete as described on the preceding page.

## 7 Press 恒.

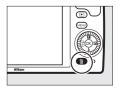
A confirmation dialog will be displayed.





# 3 Delete the photograph.

Press magain to delete the picture and return to playback, or press ▶ to exit without deleting the picture.



### Deleting Multiple Pictures

The **Delete** option in the playback menu ( $\square$  71) can be used to delete all or selected pictures.

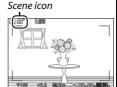
The camera detects and focuses on portrait subjects (face priority). A double yellow border will be displayed if a portrait subject is detected facing the camera (if multiple faces, up to a maximum of five, are detected, the camera will select the closest subject). Press the shutter-release button halfway to focus



on the subject in the double yellow border. The border will clear from the display if the camera can no longer detect the subject (because, for example, the subject has looked away).

#### Automatic Scene Selection

In auto mode, the camera automatically analyzes the subject and selects the appropriate scene. The selected scene is shown in the monitor.



**2 Portrait**: Human portrait subjects.

**Landscape**: Landscapes and cityscapes.

Night portrait: Portrait subjects framed against dark backgrounds.

Close up: Subjects close to the camera.

**■ Night landscape**: Poorly-lit landscapes and cityscapes.

Auto: Subjects that do not fall into the categories listed above.

## **Live Image Control**

Live image controls let you preview how changes to each control will affect the final photograph. To choose a live image control for auto mode, press to display the live image control menu, then use the multi selector to highlight a control and press to view the effect. Rotate the multi selector to choose a setting and press to select.





Increase effect

Reduce effect

**Active D-Lighting:** Preserve details in highlights and shadows for natural contrast.



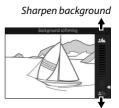


Active D-Lighting: High Active D-Lighting: Low

**Background softening:** Soften background details to make your subject stand out, or bring both background and foreground







Background sharp

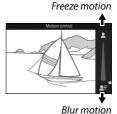
Background softened

Soften background

Motion control: Suggest motion by blurring moving objects, or "freeze" motion to capture moving objects clearly.







Freeze motion

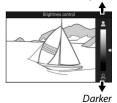
Rlur motion

Brighter

# Brightness control: Make pictures brighter or darker.







Brighter

Live Image Control

Continuous shooting is not available (\$\square\$ 61) and the built-in flash can not be used when live image control is in effect. Pressing the movierecord button cancels live image control.

# **Choosing a Creative Mode**

Choose creative mode to match settings to the subject or situation, take photos using special effects, or control shutter speed and aperture.

# 1 Select c mode.

Press the MENU button to display the menus. Highlight **Shooting mode** and press 8, then highlight ac (creative mode) and press 8 ( $\textcircled{\square}$  6).





# 2 Choose an option.

Press (feature) on the multi selector to display the menu, then highlight Creative and press . Highlight an option suited to your subject and creative intent (27) and press .









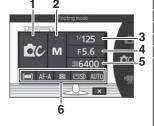
# Choosing a Mode That Matches the Subject or Situation

Choose a creative mode according to the subject or situation:

Option	Description	
Programmed auto (P)	The camera sets shutter speed and aperture for optimal exposure (\$\sim\$ 29). Recommended for snapshots	
rogrammed date (r)	and in other situations in which there is little time to adjust camera settings.	
Shutter-priority auto (S)	You choose the shutter speed; the camera selects an aperture for best results ( $\square$ 30). Use to freeze or blur motion.	
Aperture-priority auto (A)	You choose the aperture; the camera selects a shutter speed for best results (  31). Use to blur the background or bring both foreground and background into focus.	
Manual (M) You control both shutter speed and aperture (		
Creative Palette ( <b>O</b> )	Rotate the palette to choose creative effects while previewing them in the display (\$\square\$ 34).	
HDR (HDR)	Photograph high-contrast scenes (\$\square\$ 35).	
Soft (3)	Shoot photographs with a soft filter effect. Use the <b>(</b> feature) menu ( $\square$ 28) to select the amount of softening and to choose how softening applies to portraits.	
Miniature effect (🕬)	The top and bottom of each photo is blurred so that the subject appears to have been a diorama photographed at short range. Works best when shooting from a high vantage point.	
Selective color ( )	Take photos in which only a selected hue appears in color ( $\square$ 36).	
Cross process (≫)	Choose a base color to create photographs with different hues ( $\square$ 37).	
Toy camera effect (♥)	Alter color saturation and reduce peripheral illumination for a toy camera effect ( $\square$ 73). The effect can be adjusted using the $\blacksquare$ menu ( $\square$ 28).	



Pressing **I** in creative mode displays the items listed below. The items available vary with the option selected for creative mode (\$\square\$ 27).



1	Shooting mode	6
2	Creative	26
3	Shutter speed	30, 32
4	Aperture	31, 32
5	ISO sensitivity	74
6	AF-area mode	73
	Focus mode	
	Metering	73
	Picture Control	74
	White balance	74
	Select color	36
	Filter strength	
	Portrait	
	Hue	37
	Saturation	73
	Vianettina	73



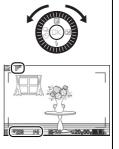
#### **III** P Programmed Auto

In this mode, the camera automatically adjusts shutter speed and aperture for optimal exposure in most situations. This mode is recommended for snapshots and other situations in which you want to leave the camera in charge of shutter speed and aperture.

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#### Choosing a Combination of Shutter Speed and Aperture

Although the shutter speed and aperture chosen by the camera will produce optimal results, you can also choose from other combinations that will produce the same exposure ("flexible program"). Rotate the multi selector clockwise for large apertures (low f-numbers) that blur background details or fast shutter speeds that "freeze" motion. Rotate the multi selector counterclockwise for small apertures (high f-numbers) that increase depth of field or slow shutter speeds that blur motion. \*\* is displayed while flexible program is in effect.



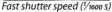
#### Restoring Default Shutter Speed and Aperture Settings

To restore default shutter speed and aperture settings, rotate the multi selector until **x** is no longer displayed or turn the camera off. The default shutter speed and aperture is automatically restored when the camera enters standby mode.

# **III** S Shutter-Priority Auto

In shutter-priority auto, you choose the shutter speed while the camera automatically selects the aperture that will produce the optimal exposure. Use slow shutter speeds to suggest motion by blurring moving subjects, fast shutter speeds to "freeze" motion.





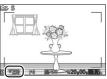


Slow shutter speed (1 s)

# **Choosing a Shutter Speed**

Rotate the multi selector to choose from shutter speeds between 30 s and  $\frac{1}{16,000}$  s. Rotate the selector clockwise for faster shutter speeds, counterclockwise for slower shutter speeds.





# Continuous Shooting

The selected shutter speed may change when a frame rate of 10 fps or faster is selected in continuous shooting mode ( $\square$  61).

In aperture-priority auto, you choose the aperture while the camera automatically selects the shutter speed that will produce the optimal exposure. Large apertures (low f-numbers) reduce depth of field, blurring objects behind and in front of the main subject. Small apertures (high f-numbers) increase depth of field, bringing out details in the background and foreground. Short field depths are generally used in portraits to blur background details, long field depths in landscape photographs to bring the foreground and background into focus.





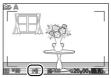


Small aperture (f/16)

# **Choosing an Aperture**

Rotate the multi selector counterclockwise for larger apertures (lower f-numbers), clockwise for smaller apertures (higher f-numbers). The minimum and maximum values depend on the lens currently in use.





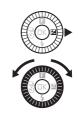
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#### **II** M Manual

In manual mode, you control both shutter speed and aperture.

# **Choosing Shutter Speed and Aperture**

Adjust shutter speed and aperture with reference to the exposure indicator (see below). Press ▶ to highlight shutter speed or aperture and rotate the multi selector to choose a value, then repeat for the remaining item. Rotate the selector clockwise for faster shutter speeds or smaller apertures (higher f-numbers), counterclockwise for slower shutter speeds and larger apertures (lower fnumbers). Shutter speeds can be set to values as fast as 1/16,000 s or as slow as 30 s, or to "Bulb" to hold the shutter open indefinitely for a long time-exposure. Aperture can be set to values between the minimum and maximum for the lens.

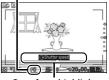


Shutter speed



Press ► to highlight aperture.

#### Aperture



Press ► to highlight shutter speed.

#### The Exposure Indicator

When shutter speeds other than "Bulb" are selected, the exposure indicator shows whether the photograph would be under-or over-exposed at current settings.



Optimal exposure	Underexposed by 1/3 EV	Overexposed by over 2 EV
+	+	<u>,</u> +
-	-	ļ <u>-</u>
-	-	<b> </b>
-0	<u>-</u> 0	= o
•	-	-
-	-	-
_	_	_

#### ISO Sensitivity (P, S, A, and M Modes)

When an "auto" option is selected for **ISO sensitivity** ( $\square$  74), the camera will automatically adjust sensitivity within the selected range if optimal exposure can not be achieved at the selected shutter speed or aperture.

#### The Creative Palette

Choose a creative effect. Rotate the multi selector to choose the effect while previewing the results in the monitor. The effect changes gradually as the multi selector is rotated.





Press the shutter-release button all the way down to take a picture with the selected effect. The built-in flash can not be used.

# Scene Detection

The camera automatically adjusts settings to suit the subject and situation. The effects available vary with the type of subject detected. To reset the palette, press \$ while the creative palette is displayed.

#### **HDR**

Details in highlights and shadows are preserved using HDR (high dynamic range). Each time the shutter-release button is fully pressed, the camera takes two shots in quick succession and combines them to preserve details in highlights and shadows in high-contrast scenes; the built-in flash does not fire. Some time may be required to process the pictures; the final photograph will be displayed when processing is complete.



# Framing HDR Photographs

The edges of the image will be cropped out. The desired results may not be achieved if the camera or subject moves during shooting. Depending on the scene, shading may be uneven and shadows may appear around bright objects or halos around dark objects.

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#### **Selective Color**

Take black-and-white pictures in which one hue appears in a color.

# 1 Choose Select color.

Press **1** to display the **1** (feature) menu, then highlight **Select color** and press **8**.



#### 2 Choose a color.

Use the multi selector to choose a color and press ®.



# 3 Take pictures.

Press the shutter-release button all the way down to take pictures. Only the selected hue will appear in color; all other hues will be recorded in shades of gray.

#### **Cross Process**

Select a base hue to take pictures with modified colors.

#### 1 Select Hue.

Press **1** to display the **1** (feature) menu, then highlight **Hue** and press **1**.



# 2 Choose a color.

Use the multi selector to choose a base color (red, green, blue, or yellow) and press <sup>(1)</sup>.



# 3 Take pictures.

Press the shutter-release button all the way down to take pictures with modified colors.

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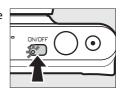
# **Recording and Viewing Movies**

# **Recording Movies**

Use the movie-record button to record movies in auto, creative, and advanced movie mode.

#### 1 Turn the camera on.

Press the power switch to turn the camera on.



# 2 Choose a shooting mode.

Press the MENU button to display the menus, then highlight **Shooting mode** and press 

(auto), 

(creative), or 

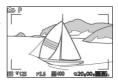
(creative)





# 3 Frame the opening shot.

Frame the opening shot with your subject in the center of the display. If **Slow motion** is selected in advanced movie mode (\$\square\$41\$), press the shutter-release button halfway to focus.



#### The is loon

A is icon indicates that movies can not be recorded.

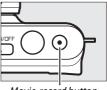


#### 4 Start recording.

Press the movie-record button to begin recording. A recording indicator, the time elapsed, and the time available are displayed while recording is in progress.

# Audio Recording

Be careful not to cover the microphone and note that the built-in microphone may record sounds made by the camera or lens. Except when recording slowmotion movies, the camera focuses continuously.



Movie-record button

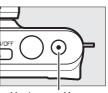
Recording indicator/ Time elapsed



Time available

#### 5 End recording.

Press the movie-record button again to end recording. Recording will end automatically when the maximum length is reached, the memory card is full, the lens is removed, or the camera becomes hot ( $\square$  xii).



Movie-record button

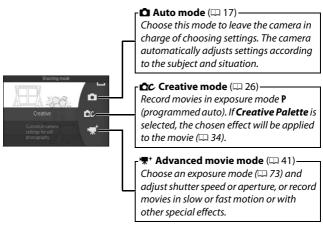
#### Maximum Length

The camera can record movies up to 4 GB in size; note that depending on memory card write speed, shooting may end before this length is reached  $(\square 83)$ .



# **■** Shooting Mode

Movies can be recorded in the shooting modes listed below. Movies can not be recorded in best moment capture or Motion Snapshot modes.



#### Movie Sound

The **Movie sound options** item in the movie menu offers microphone sensitivity and wind noise options ( $\square$  74).

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# **■■** Advanced Movie Options

In \*\pi^+ (advanced movie) mode, the following options can be accessed by pressing **G** and selecting **Advanced movie** in the **G** (feature) menu.

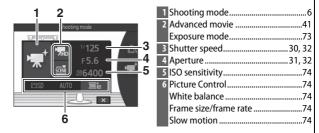


'∰ HD movie	Record high-definition (HD) movies.		
	Record up to about 2 seconds of silent slow-motion footage. Slow-motion movies are recorded at 400 fps and play back at about 30 fps.		
♥ Slow motion	Recording		
	Playback		
	Record silent fast-motion footage that plays back at about 4 times normal speed. Playback time is one quarter the recording time.		
'∰ Fast motion	Recording		
	Playback		
	Record silent jump-cut movies. Recording pauses every other second for a drop-frame effect.		
₩ Jump cut	Recording		
	Playback		
ૠ 4-second movie	Record a 4-second movie clip. Multiple clips can be joined into a single movie using the <b>Combine 4-second movies</b> option in the playback menu (\$\square\$ 71).		



# 

Pressing **I** in advanced movie mode displays the items listed below. The items available vary with the type of movie selected ( $\square$  41).



# 嘌

#### Slow Motion

When slow motion is selected in advanced movie mode, the camera can be focused by pressing the shutter-release button halfway before recording begins. The camera focuses on the subject at the center of the display; face detection ( $\square$  23) is not available. Focus and exposure can not be adjusted during recording. The frame rate can be chosen using the **Slow motion** item in the movie menu ( $\square$  74).

#### Recording Time

The following table lists the approximate maximum recording times for individual movies shot at the default frame rate in each shooting mode.

Auto mode	20 minutes	
Creative mode	20 minutes	
Advanced movie mode		
HD movie	20 minutes	
Slow motion	2 seconds	
Fast motion	5 minutes	
Jump cut	10 minutes	
4-second movie	4 seconds	
4-second movie	4 seconds	

# **Taking Photographs During Movie Recording**

Press the shutter-release button all the way down to take a photograph without interrupting movie recording. Photographs taken during movie recording have an aspect ratio of 3:2.





#### ✓ Taking Photographs During Movie Recording

Up to 10 photographs can be taken with each movie shot. Please note that photographs can not be taken with slow-motion movies.

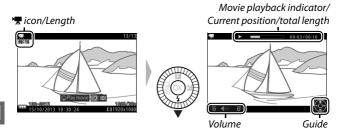
#### Focus Lock

If **Single AF** is selected for **Focus mode** in the movie menu for advanced movie mode, focus will lock while the shutter-release button is pressed halfway (\$\sup\$ 74).



# **Viewing Movies**

Movies are indicated by a  $\P$  icon in full-frame playback ( $\square$  20). Press  $\P$  to start playback.

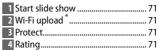


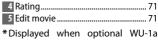
The following operations can be performed:

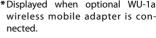
То	Use	Description
Pause		Pause playback.
Play	©K	Resume playback when the movie is paused or during rewind/advance.
Advance/ rewind		Press ◀ to rewind, ▶ to advance. Speed increases with each press, from 2× to 4× to 8× to 16×. If playback is paused, the movie rewinds or advances one frame at a time; keep the button pressed for continuous rewind or advance.
Adjust volume		Rotate the multi selector to adjust volume.
Return to full-frame playback	<b>P</b>	Press ▲ or ▶ to exit to full-frame playback.

# 

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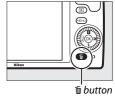




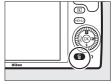
# **Deleting Movies**

To delete the current movie, press m. A confirmation dialog will be displayed; press m again to delete the movie and return to playback, or press to exit without deleting the movie. Note that once deleted, movies can not be recovered.

⊡ OFF









#### See Also

The **Edit movie** option in the playback menu can be used to trim unwanted footage from existing movies ( $\square$  71).

Use the **Frame Size/Frame Rate** option in the movie menu to choose the frame size and rate for HD movies ( $\square$  74), the **Slow motion** option to choose the frame rate for slow-motion movies ( $\square$  74).

#### Recording Movies

Flicker, banding, or distortion may be visible in the display and in the final movie under fluorescent, mercury vapor, or sodium lamps or if the camera is panned horizontally or an object moves at high speed through frame (flicker and banding can be reduced by choosing a **Flicker reduction** option that matches the frequency of the local AC power supply, but note that the slowest shutter speed available is ½00 s at **50 Hz**, ½0 s at **60 Hz**; flicker reduction is not available with slowmotion movies). Bright light sources may leave after-images when the camera is panned. Jagged edges, color fringing, moiré, and bright spots may also appear. When recording movies, avoid pointing the camera at the sun or other strong light sources. Failure to observe this precaution could result in damage to the camera's internal circuitry.

#### The Movie Crop

The movie crop is shown in the monitor.



Normal crop (16:9)



Slow-motion movie crop
(8:3)

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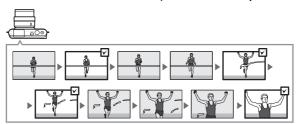
# **Other Shooting Modes**

# 

Choose a shot from 10 frames recorded to temporary storage shortly before or after the shutter is released (Active Selection) or let the camera choose the best shot based on composition and movement (Smart Photo Selector).

# Choosing a Shot Manually (Active Selection)

Choose up to 10 shots from 10 frames recorded shortly before or after the shutter-release button is pressed all the way down.





## 1 Select mode.

Press the MEN⊔ button to display the menus. Highlight **Shooting mode** and press ®, then highlight L⁴ (best moment capture) and press ® (□ 6).







# 2 Choose Active Selection.

Press (feature) to display the menu. Highlight **Best moment capture** and press (hen highlight **Active Selection** and press (so).





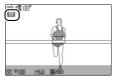
# 3 Frame the photograph.

Compose the photograph with your subject in the center of the frame.



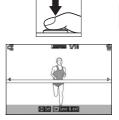
Press the shutter-release button half-way to focus (\$\square\$19)\$. A \$\square\$1 icon will be displayed as the camera begins recording images to the memory buffer.





# 5 Shoot.

Smoothly press the shutter-release button the rest of the way down. The 10 frames recorded to the buffer in the moments before and after the shutter-release button was pressed all the way down will be copied to temporary storage.



# 6 Select up to 10 frames.

Press  $\blacktriangleleft$  or  $\blacktriangleright$  to scroll through the frames and press  $\blacktriangle$  or  $\blacktriangledown$  to select or deselect. Selected images are indicated by a  $\boxtimes$  icon, while the remaining images are marked with  $\varpi$  icons to show that they will be deleted.



#### 7 Save the selected frames.

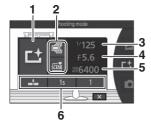
Press ® to save the selected frames to the memory card. The memory card access lamp will light while recording is in progress; note that some time may be required to save the selected images.



#### Active Selection

#### 

Pressing **1** in best moment capture mode displays the items listed below. The items available vary with the mode selected ( $\square$  47, 51).



Number of shots saved.....

Best Moment Capture Mode

Movies can not be recorded, and pressing the movie-record button has no effect. The flash can not be used.



The Smart Photo Selector helps you capture a fleeting expression on the face of a portrait subject or other hard-to-time shots such as group photos in party scenes. Each time the shutter is released, the camera automatically selects the best shot and four best shot candidates based on composition and motion.





#### 

Press the MENU button to display the menus. Highlight **Shooting mode** and press <sup>®</sup>, then highlight <sup>™</sup> (best moment capture) and press <sup>®</sup> (<sup>™</sup> 6).





# 2 Choose Smart Photo Selector.

Press (feature) to display the menu. Highlight Best moment capture and press (hen highlight Smart Photo Selector and press (hen best of the selector).







# 3 Frame the photograph.

Compose the photograph with your subject in the center of the frame.



# 4 Begin buffering photographs.

Press the shutter-release button half-way to focus (\$\sime\$ 19). A \$\subset\$ icon will be displayed as the camera begins recording images to the memory buffer. The camera continuously adjusts focus to account for changes in the distance to the subject while the shutter-release button is pressed halfway.





#### 5 Shoot.

Smoothly press the shutter-release button the rest of the way down. The camera will compare shots recorded to the buffer both before and after the shutter-release button was pressed all the way down, and select five to copy to the memory card. Note that some time may be required. The best picture is displayed in the monitor when recording is complete.





#### Smart Photo Selector

The camera automatically chooses a scene mode appropriate to the subject.



#### ■ Viewing Photos Taken with the Smart Photo Selector

Press ▶ and use the multi selector to display photographs taken with the Smart Photo Selector (□ 20; pictures taken with the Smart Photo Selector are indicated by a ♣ icon). Of the photographs recorded by the Smart Photo Selector, only the best shot will be displayed (when you press ▶ to view the next picture, the camera will skip over the best shot candidates, with the result that the next picture displayed will not have a file number that immediately follows that of the current picture). To end playback and return to shooting mode, press the shutter-release button halfway.



**▶** button



#### **Choosing the Best Shot**

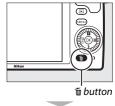
When a photograph taken with the Smart Photo Selector is displayed, you can choose the best shot by pressing ▼. Press ◀ or ▶ to view the other pictures in the sequence and press ® to select the current picture as the best shot. To return to normal playback, press ▶.





# **II** Deleting Pictures

Pressing when a picture taken with the Smart Photo Selector is selected displays a confirmation dialog; press again to delete the best shot and the best shot candidates, or press to exit without deleting the pictures. Note that once deleted, pictures can not be recovered.









# Deleting Individual Photographs

Pressing the fi button in the best shot selection dialog displays the following options; highlight an option using the multi selector and press (©) to select.



- This image: Delete the current photo (note that the picture currently selected as the best shot can not be deleted).
- All except best shot: Delete the best shot candidates, but not picture currently selected as the best shot.

A confirmation dialog will be displayed; to delete the selected image or images, highlight **Yes** and press m.

# Combining Photos with Brief Movie Vignettes (Motion Snapshot Mode)

Record brief movie vignettes with your photographs. Each time the shutter is released, the camera records a still image and about 1.6 s of movie footage. When the resulting "Motion Snapshot" is viewed on the camera, the movie will play back in slow motion over approximately 4 s, followed by the still image.





### 1 Select **mode**.

Press the MEN⊔ button to display the menus. Highlight **Shooting mode** and press ®, then highlight **□** (Motion Snapshot), and press ® (□ 6).





# 2 Frame the picture.

Compose the photograph with your subject in the center of the frame.



Press the shutter-release button half-way to focus (\$\sup\$19). A \$\sup\$icon will be displayed as the camera begins recording footage to the memory buffer.





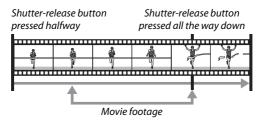
# 4 Shoot.

Smoothly press the shutter-release button the rest of the way down. The camera will record a photograph, together with about 1.6 s of movie footage beginning before and ending after the time the shutter-release button was pressed all the way down. Note that some time may be required. When recording is complete, the photograph will be displayed for a few seconds.

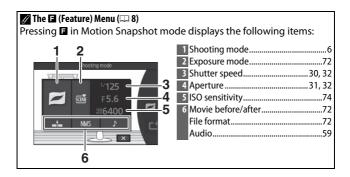


#### Ending the Vignette with a Photograph

To make the photograph the same as the last frame in the movie vignette, select **1.6 s:0 s** for **Movie before/after** (\$\square\$ 72).



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To record about four seconds of sound with Motion Snapshots beginning at the start of movie recording, use the multi selector and ® button to select **Ambient** for **Audio** in the **I** (feature) menu ( 58). Motion Snapshots can also be recorded with background music (**Background music**) or no sound (**None**).









#### Motion Snapshot Mode

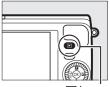
Movies can not be recorded using the movie-record button and the flash can not be used.

#### See Also

Use the **File format** option in the shooting menu to save Motion Snapshots in a format that can be viewed in most movie playback software ( $\square$  72). Use the **Combine NMS movies** option in the playback menu to combine the movie portions of multiple Motion Snapshots into a single movie ( $\square$  71).

# **Viewing Motion Snapshots**

Press And use the multi selector to display a Motion Snapshot (\$\square\$ 20; Motion Snapshots are indicated by a **icon**. Pressing ▼ when a Motion Snapshot is displayed plays back the movie portion in slow motion over a period of about 4 s. followed by the photo; playback is accompanied by the audio track selected using the **Audio** option (\$\square\$ 59). To end playback and return to shooting mode, press the shutter-release button halfway.



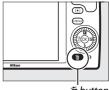
▶ button





## **Deleting Motion Snapshots**

To delete the current Motion Snapshot, press fa. A confirmation dialog will be displayed; press magain to delete the photo and movie and return to playback, or press **b** to exit without deleting the file. Note that once deleted, Motion Snapshots can not be recovered.



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# More on Photography

This section describes other features you can use when taking pictures.

#### **Continuous Mode**

Shoot a continuous series (burst) of photographs.

# 1 Display release mode options.

Press  $\blacktriangleleft$  ( $\stackrel{\square}{\circ}$ ) to display release mode options.



## 2 Select 및.

Highlight ☐ (continuous) and press ► to display frame rate options.



# 3 Select a frame rate.

Highlight the desired frame rate and press <sup>®</sup>. Frame rate is expressed in terms of the number of frames recorded per second (fps); choose from frame rates of approximately 5, 10, 20, 30, and 60 fps (<sup>□</sup>, <sup>□</sup>10, <sup>□</sup>20, <sup>□</sup>30, and <sup>□</sup>60, respectively). Except when <sup>□</sup>1 is selected, the maximum number of shots that can be recorded in a single burst is 10.



## 4 Frame your subject and shoot.

Press the shutter-release button all the way down to shoot the burst.



#### Continuous Mode

While photographs are being recorded to the memory card, the memory card access lamp will light. Depending on shooting conditions and memory card write speed, recording may take some time. If the battery is exhausted before all photographs are recorded, the shutter release will be disabled and the remaining images transferred to the memory card.

Continuous shooting is not available in creative modes other than P, S, A, or M, in best moment capture, advanced movie, or Motion Snapshot mode, or when live image control is used in auto mode  $(\square 24)$ .

#### Single Frame

To take only one picture each time the shutter-release button is pressed all the way down, select **S** (single frame) for release mode.



#### **Self-Timer Modes**

The self-timer is used to delay shutter release until 10 or 2 seconds after the shutter-release button is pressed all the way down.

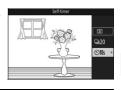
## 1 Display release mode options.

Press  $\blacktriangleleft$  ( $\stackrel{\square}{\otimes}$ ) to display release mode options.



## 7 Select හ්.

Highlight **③** (self-timer) and press ▶ to display self-timer options.



## 3 Select the desired self-timer option.

Use the multi selector to highlight 🗞 or 🗞 and press 🔊.



#### 4 Mount the camera on a tripod.

Mount the camera on a tripod or place the camera on a stable, level surface. Press the shutter-release button halfway to focus, and then press the button the rest of the way down. The selftimer lamp will start to flash and a beep will begin to sound. Two seconds before the photo is taken, the lamp will stop flashing and the beeping will become more rapid.





Note that the timer may not start or a photograph may not be taken if the camera is unable to focus or in other situations in which the shutter can not be released. Turning the camera off cancels the self-timer.

#### Movie Mode

To record movies using the self-timer, select advanced movie mode and use the movie-record button to start the timer. Movie recording ends when the movie-record button is pressed a second time.

#### Raising the Flash

In **P, S, A**, or **M** mode, press the flash pop-up button to raise the flash before shooting. Shooting will be interrupted if the flash is raised while the timer is counting down.

#### See Also

The **Sound settings** option in the setup menu controls the beeps that sound when the self-timer is used (\$\sup\$ 75).

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Use the built-in flash for additional lighting when the subject is poorly lit or to "fill-in" (illuminate) back-lit subjects. The built-in flash is available in the following shooting modes, but note that some camera settings automatically disable the built-in flash:

## **Auto Pop-up Modes**

In (auto) mode and when soft, miniature effect, selective color, cross process, or toy camera effect is selected in (creative) mode, the flash will pop-up automatically and fire when required.

#### 1 Choose a flash mode.

Press ▼ (≰) on the multi selector to display a list of flash modes, then use the multi selector to highlight the desired mode and press ® to select.

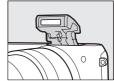




# 2 Take pictures.

Press the shutter-release button halfway to focus and the rest of the way down to shoot. The flash will pop up and fire when required.





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#### II Flash Modes

The following flash modes are available in  $\square$  (auto),  $\bigcirc$  (soft),  $\bigcirc$  (miniature effect),  $\nearrow$  (selective color),  $\nearrow$  (cross process), and  $\bigcirc$  (toy camera effect) modes:

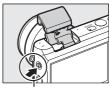
- \$AITI (auto flash): When lighting is poor or the subject is backlit, the flash pops up automatically when the shutter-release button is pressed halfway and fires as required.
- In (auto with red-eye reduction): Use for portraits. The flash pops up and fires as required, but before it fires, the red-eye reduction lamp lights to help reduce "red-eye."
- (S) (off): The flash does not fire.



When **P**, **S**, **A**, or **M** is selected in  $\mathbf{CC}$  (creative) mode, the flash must be raised manually. The flash will not fire if it is not raised.

#### 1 Raise the flash.

Press the flash pop-up button to raise the flash.

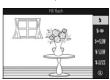


Flash pop-up button

#### 2 Choose a flash mode.

Press ▼ (‡) on the multi selector to display a list of flash modes, then use the multi selector to highlight the desired mode and press ® to select.

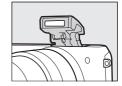




## 3 Take pictures.

The flash will fire with every shot. To disable the flash, press it gently downward until it latches.





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#### II Flash Modes

The following flash modes are available when **P**, **S**, **A**, or **M** is selected in **C** (creative) mode:

- 4 (fill flash): The flash fires with every shot.
- • (red-eye reduction): Use for portraits. The flash fires with every shot, but before it fires, the red-eye reduction lamp lights to help reduce "red-eye."
- ★◎ NW (red-eye reduction with slow sync): As for "red-eye reduction", above, except that shutter speed slows automatically to capture background lighting at night or under low light. Use when you want to include background lighting in portraits. Available only in modes P and A.
- \$\mathbb{M}\text{ (fill flash + slow sync): As for "fill flash", above, except that shutter speed slows automatically to capture background lighting at night or under low light. Use when you want to capture both subject and background. Available only in modes P and A.
- \$\frac{\kappa \kappa \kappa
- \$REAR (rear-curtain sync): The flash fires just before the shutter closes, creating a stream of light behind moving light sources as shown below at right. Available only in modes S and M.





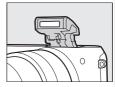


Rear-curtain sync

• (off): The flash does not fire. Available only when built-in flash is raised.

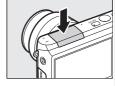
## Raising the Flash

When using the flash, be sure it is fully raised as shown at right. Do not touch the flash during shooting.



## Lowering the Built-in Flash

To save power when the flash is not in use, press it gently downward until the latch clicks into place. *Do not use force.* Failure to observe this precaution could result in product malfunction.



#### The Flash-Ready Indicator

The flash-ready indicator (\$\frac{1}{2}\) lights to show that the flash is fully charged when the shutter-release button is pressed halfway.

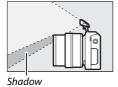
#### Preventing the Built-in Flash from Firing

Lowering the flash prevents it firing in modes P, S, A, and M. The flash can also be turned off by selecting a flash mode of (\$) (off).

If the flash is fired multiple times in quick succession, the flash and shutter may be temporarily disabled to protect the flash. Shooting can be resumed after a brief pause.

Objects close to the camera may be overexposed in photographs taken with the flash at high ISO sensitivities.

To avoid vignetting, remove lens hoods and shoot at ranges of at least 0.6 m (2 ft). Some lenses may cause vignetting at greater distances or obstruct the red-eye reduction lamp, interfering with red-eye reduction. The following illustrations show the effect of vignetting caused by shadows cast by the lens when the built-in flash is used.



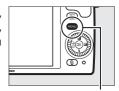


Aperture, Sensitivity, and Flash Range

Flash range varies with sensitivity (ISO equivalency) and aperture.

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To display the playback, shooting, movie, image processing, and setup menus, press the MENU button. Following menu options are available:



MEN⊔ button

## ■ Playback Menu Options

Option	Description		
Delete	Delete multiple images.		
Slide show	View movies and photos in a slide show.		
Image review	Choose whether pictures are displayed after shooting.		
Rotate tall	Rotate "tall" (portrait-orientation) pictures for display during playback.		
Wi-Fi upload	Upload selected photos to smart devices via wireless networks when a WU-1a wireless mobile adapter is connected.		
DPOF print order	der Create digital "print orders".		
Protect	Protect pictures from accidental deletion.		
Rating	Rate pictures.		
D-Lighting	Brighten shadows in dark or back-lit photos, creating a retouched copy that is saved separately from the unmodified original.		
Resize	Create small copies of selected pictures.		
Crop	Create cropped copies of selected pictures.		
Face-priority zoom	Choose whether ◀ and ▶ can be used during playback zoom to select faces detected with face priority.		
Edit movie	Create copies of movies from which unwanted footage has been trimmed.		
Combine 4-second movies	Combine multiple 4-second movies into a single movie.		
Combine NMS movies	Make a movie from the movie portions of multiple Motion Snapshots.		



# ■ Shooting Menu Options

Option	Description		
Reset shooting options	Reset shooting options to default values.		
Creative	Choose a creative mode.		
Best moment capture	Choose from Active Selection and Smart Photo Selector.		
Exposure mode	Choose how the camera sets shutter speed and aperture in Motion Snapshot mode (\$\square\$ 56) and when		
	<b>Active Selection</b> is chosen in best moment capture mode ( $\square$ 47).		
Image quality	Choose a file format and compression ratio.		
Image size	Choose a size for new photos.		
Active Selection	Choose the frames Active Selection (\$\Pi\$ 47) records to temporary storage, the length of time over which the frames are captured, and the default number of frames saved.		
Number of shots saved	Choose the number of shots selected by the Smart Photo Selector (\$\Pi\$ 51).		
Movie before/after	Choose when the movie portion of Motion Snapshots is recorded (□ 56).		
File format	Choose a file format for new Motion Snapshots (□ 56).		
Audio	Choose the audio recorded with Motion Snapshots (\$\square\$ 56).		
Select color	Choose the hue that appears in color in pictures taken with <b>Selective color</b> selected in creative mode.		
Soft	Choose amount of softening applied to pictures taken with <b>Soft</b> selected in creative mode. You can also choose how softening applies to pictures with portrait subjects.		



Option Description	
Hue	Choose base hue for pictures taken with <b>Cross</b>
nue	process selected in creative mode.
Toy camera effect	Adjust saturation and vignetting for pictures taken
ioy camera effect	with <b>Toy camera effect</b> selected in creative mode.
Metering	Choose how the camera meters exposure.
Auto distortion	Choose whether the camera corrects barrel and pin-
control	cushion distortion.
Active D-Lighting	Avoid loss of detail in highlights and shadows.
Long exposure NR	Reduce noise in long time-exposures.
Ontire LVD	Choose whether to use optical vibration reduction
Optical VR	with compatible 1 NIKKOR lenses.
	Choose whether to use electronic vibration
Electronic VR	reduction in Motion Snapshot mode (🕮 56). This
Electronic vr	feature is available even if vibration reduction is not
	offered by the attached 1 NIKKOR lens.
Focus mode	Choose how the camera focuses.
AF-area mode	Choose how the focus area is selected.
Face-priority	Turn face priority on or off.
Built-in AF assist	Control the built-in AF-assist illuminator.
Flash control	Choose a flash mode for the built-in flash.
Flash compensation	Control flash output.
Underwater flash	Choose <b>Enable</b> when using an optional underwater
unuerwater nash	flash unit.

# **■■** Movie Menu Options

Option	Description	
Reset movie options	Reset movie menu options to their default values.	
Advanced movie	Choose a movie type for advanced movie mode.	
Evnosure mode	Choose how the camera sets exposure in advanced movie mode.	

Option	Description	
Slow motion	Choose a frame rate for slowmotion movies recorded in advanced movie mode ( $\square$ 41).	
Frame size/ frame rate	Choose a frame size and rate for movies recorded in auto and creative modes and when <b>HD movie</b> is selected in advanced movie mode (\$\square\$ 41).	
Metering	Choose how the camera meters exposure.	
Movie sound options Choose sound recording options.		
Optical VR	Choose whether to use optical vibration reduction with compatible 1 NIKKOR lenses.	
Electronic VR	Choose whether to use electronic vibration control when recording movies. This feature is available even if vibration reduction is not offered by the attached 1 NIKKOR lens.	
Focus mode	Choose how the camera focuses.	
AF-area mode Choose how the focus area is selected.		
Face-priority	Turn face priority on or off.	
Auto image capture	Choose whether the camera takes photos automatically during movie recording and select the number of pictures taken per minute.	



# **■■** Image Processing Menu Options

Option	Description	
Reset processing	Reset image processing options to their default	
options	values.	
White balance	Adjust settings for different types of lighting.	
ISO sensitivity	Control the camera's sensitivity to light.	
<b>Picture Control</b> Choose how the camera processes pictures.		
Custom Picture	Create custom Picture Controls.	
Control		
High ISO noise reduction	Reduce noise at high ISO sensitivities.	

# ■ Setup Menu Options

Option	Description		
Reset setup options	Reset setup menu options to default values.		
Format memory card	format the memory card.		
Slot empty release	Allow the shutter to be released when no memory		
lock	card is inserted in the camera.		
	Adjust display brightness, view or hide a framing		
Display	grid, and choose the information displayed in the		
	monitor.		
Silent photography	Mute the sounds made during shooting.		
Sound settings	Choose the sounds made during shooting.		
Auto power off	Choose the auto power off delay.		
Shutter button AE	Choose whether exposure locks when the shutter-		
lock	release button is pressed halfway.		
	Choose whether remote controls for HDMI-CEC		
HDMI device control	devices to which the camera is connected can be		
	used to operate the camera.		
Flicker reduction	Reduce flicker or banding.		
Reset file numbering	Reset file numbering.		
Time zone and date	Set the camera clock.		
Language	Choose a language for the camera displays.		
Auto image rotation	tion Record camera orientation with pictures.		
Wireless mobile	Enable or disable the wireless mobile adapter.		
adapter	·		
Pixel mapping	Check and optimize the camera image sensor and		
	image processors.		
Firmware version	Display the current firmware version.		

<sup>\*</sup> Available only when optional WU-1a wireless mobile adapter is attached.

# **Connecting to a Computer**

# **Installing the Supplied Software**

Install the supplied software to copy pictures to your computer for viewing and editing. Before installing the software, confirm that your system meets the requirements on page 77.

#### 1 Launch the installer.

Start the computer, insert the ViewNX 2 installer CD, and launch the installer. A language-selection dialog will be displayed; if the desired language is not available, click **Region Selection** to choose a different region and then choose the desired language (region selection is not available in the European release).

#### ) Start the installer.

Click **Install** and follow the on-screen instructions.

#### 3 Exit the installer.

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

#### 4 Remove the installer CD from the CD-ROM drive.

# Supplied Software

Be sure to update to the latest versions of the supplied software. Nikon Message Center 2 will periodically check for updates while the computer is connected to the Internet.

#### Motion Snapshots

ViewNX 2 is required to view Motion Snapshots saved using the **File format** > **NMS files** option in the shooting menu ( $\square$  72).

#### Supported Operating Systems

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

The system requirements for ViewNX 2 are:

Windows		
	• Photos: Intel Celeron, Pentium 4, Core Series; 1.6 GHz or	
	better	
	• Movies (playback): Pentium D 3.0 GHz or better; Intel Core i5	
CPU	or better recommended when viewing movies with a	
Cro	frame size of $1280 \times 720$ or more at a frame rate of 30 fps	
	or above or movies with a frame size of $1920 \times 1080$ or	
	more	
	Movies (editing): Intel Core i5 or better	
OS	Pre-installed versions of Windows 8.1, Windows 7, or	
03	Windows Vista	
	• 32-bit Windows 8.1, Windows 7, or Windows Vista: 1 GB or more	
Memory	(2 GB or more recommended)	
(RAM)	• 64-bit Windows 8.1, Windows 7, or Windows Vista: 2 GB or more	
	(4 GB or more recommended)	
Hard disk	A minimum of 1 GB available on the startup disk (3 GB or more	
space	recommended)	
	• <b>Resolution</b> : $1024 \times 768$ pixels (XGA) or more $(1280 \times 1024$ pixels or	
Graphics	more recommended)	
	Color: 24-bit color (True Color) or more	



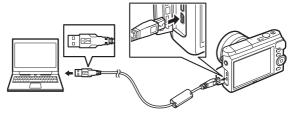
Mac		
	Photos: Intel Core or Xeon series	
СРИ	Movies (playback): Core Duo 2 GHz or better; Intel Core i5 or better recommended when viewing movies with a frame size of 1280 × 720 or more at a frame rate of 30 fps or above or movies with a frame size of 1920 × 1080 or more     Movies (editing): Intel Core i5 or better	
OS	OS X 10.9, 10.8, or 10.7	
Memory (RAM)	2 GB or more (4 GB or more recommended)	
Hard disk	A minimum of 1 GB available on the startup disk (3 GB or more	
space	recommended)	
	• <b>Resolution</b> : $1024 \times 768$ pixels (XGA) or more ( $1280 \times 1024$ pixels or	
Graphics	more recommended)	
	• Color: 24-bit color (millions of colors) or more	



# **Viewing and Editing Pictures on a Computer**

## **Transferring Pictures**

- 1 Choose how pictures will be copied to the computer.
  Choose one of the following methods:
  - Direct USB connection: Turn the camera off and ensure that the memory card is inserted in the camera. Connect the camera to the computer using the supplied USB cable (do not use force or insert the connectors at an angle) and then turn the camera on.



- Card slot: If your computer is equipped with a slot for microSD memory cards, the card can be inserted directly in the slot.
- Card reader: Connect a card reader (available separately from third-party suppliers) to the computer and insert the memory card.

## 2 Start the Nikon Transfer 2 component of ViewNX 2.

If a message is displayed prompting you to choose a program, select Nikon Transfer 2.

#### Windows 7

If the following dialog is displayed, select Nikon Transfer 2 as described below.

1 Under Import pictures and videos, click Change program. A program selection dialog will be displayed; select Import File using Nikon Transfer 2 and click OK.



Double-click **Import file**.

#### 3 Click Start Transfer.

At default settings, all the pictures on the memory card will be copied to the computer.



#### 4 Terminate the connection.

If the camera is connected to the computer, turn the camera off and disconnect the USB cable. If you are using a card reader or card slot, choose the appropriate option in the computer operating system to eject the removable disk corresponding to the memory card and then remove the card from the card reader or card slot.



## **Viewing Pictures**

Pictures are displayed in ViewNX 2 when transfer is complete.

#### Starting ViewNX 2 Manually

- Windows: Double-click the ViewNX 2 shortcut on the desktop.
- Mac: Click the ViewNX 2 icon in the Dock.



#### **II** Retouching Photographs

To crop pictures and perform such tasks as adjusting sharpness and tone levels, click the **Edit** button in the toolbar.



#### **II** Printing Pictures

Click the **Print** button in the toolbar. A dialog will be displayed, allowing you to print pictures on a printer connected to the computer.





#### For More Information

Consult online help for more information on using ViewNX 2.



Read this chapter for information on compatible accessories, cleaning and storing the camera, and what to do if an error message is displayed or you encounter problems using the camera.

# **Optional Accessories**

1 mount lenses

Lenses

At the time of writing, the following accessories were available for your camera.

renses	1 illoulit lelises		
Mount adapters	Mount Adapter FT1		
Power sources	, , ,		
	EN-EL22 batteries are available from local retailers and		
	Nikon-authorized service representatives.		
	• Battery Charger MH-29 ( 10): Recharge EN-EL22 batteries.		
	• Power Connector EP-5E, AC Adapter EH-5b: These accessories		
	can be used to power the camera for extended periods		
	(EH-5a and EH-5 AC adapters can also be used). An		
	EP-5E power connector is required to connect the cam-		
	era to the EH-5b, EH-5a, or EH-5.		
Waterproof	Waterproof Case WP-N3: In addition to protecting the cam-		
cases	era from rain, snow, and spray, this waterproof case can		
	be used to take photographs underwater.		
Underwater	Underwater Speedlight SB-N10: Use with the optional WP-N3		
flash units	waterproof case.		
Body caps	Body Cap BF-N1000: The body cap keeps the dust shield free		
	of dust when a lens is not in place.		
Wireless mobile	Wireless Mobile Adapter WU-1a: Supports two-way communi-		
adapters	cation between the camera and smart devices running		
	the Wireless Mobile Utility app. Use the Wireless Mobile		
	Utility to take pictures remotely or download existing		
	pictures to the smart device.		

## **Optional Accessories**

Availability may vary with country or region. See our website or brochures for the latest information.

## **Approved Memory Cards**

The following cards have been tested and approved for use in the camera. Cards with class 6 or faster write speeds are recommended for movie recording. Recording may end unexpectedly when cards with slower write speeds are used.

	microSD cards	microSDHC cards <sup>2</sup>	microSDXC cards <sup>3</sup>
SanDisk			64 GB
Toshiba	2 GB <sup>1</sup>	4 GB, 8 GB, 16 GB, 32 GB	
Panasonic			_

- 1 Check that any card readers or other devices with which the card will be used support 2 GB cards.
- 2 Check that any card readers or other devices with which the card will be used are SDHC-compliant. The camera supports UHS-I.
- **3** Check that any card readers or other devices with which the card will be used are SDXC-compliant. The camera supports UHS-I.



Other cards have not been tested. For more details on the above cards, please contact the manufacturer.



## **Storage and Cleaning**

## Storage

If the camera will not be used for an extended period, remove the battery and store it in a cool, dry area with the terminal cover in place. To prevent mold or mildew, store the camera in a dry, well-ventilated area. Do not store your camera with naphtha or camphor moth balls or in locations that:

- are poorly ventilated or subject to humidities of over 60%
- are next to equipment that produces strong electromagnetic fields, such as televisions or radios
- are exposed to temperatures above +50 °C (122 °F) or below –10 °C (14 °F)

## Cleaning

	Camera body	Use a blower to remove dust and lint, then wipe gently with a soft, dry cloth. After using the camera at the beach or seaside, wipe off sand or salt with a cloth lightly dampened in distilled water and dry thoroughly. Important: Dust or other foreign matter inside the camera may cause damage not covered under warranty.
	Lens	Lenses are easily damaged. Remove dust and lint with a blower. If using an aerosol blower, keep the can vertical to prevent the discharge of liquid. To remove fingerprints and other stains, apply a small amount of lens cleaner to a soft cloth and clean with care.
	Monitor	Remove dust and lint with a blower. When removing finger- prints and other stains, wipe the surface lightly with a soft cloth or chamois leather. Do not apply pressure, as this could result in damage or malfunction.
	Dust shield	The dust shield is easily damaged. Remove dust and lint with a blower.

Do not use alcohol, thinner, or other volatile chemicals.



**Do not drop:** The product may malfunction if subjected to strong shocks or vibration.

**Keep dry:** This product is not waterproof, and may malfunction if immersed in water or exposed to high levels of humidity. Rusting of the internal mechanism can cause irreparable damage.

Avoid sudden changes in temperature: Sudden changes in temperature, such as those that occur when entering or leaving a heated building on a cold day, can cause condensation inside the device. To prevent condensation, place the device in a carrying case or plastic bag before exposing it to sudden changes in temperature.

Keep away from strong magnetic fields: Do not use or store this device in the vicinity of equipment that generates strong electromagnetic radiation or magnetic fields. Strong static charges or the magnetic fields produced by equipment such as radio transmitters could interfere with the display, damage data stored on the memory card, or affect the product's internal circuitry.

**Keep the lens mount covered:** Be sure to attach the body cap if the camera is without a lens.

**Do not touch the dust shield**: The dust shield covering the image sensor is

easily damaged. Under no circumstances should you exert pressure on the shield or poke it with cleaning tools. These actions could scratch or otherwise damage the shield.

Turn the product off before removing or disconnecting the power source: Do not unplug the product or remove the battery while the product is on or while images are being recorded or deleted. Forcibly cutting power in these circumstances could result in loss of data or in damage to product memory or internal circuitry. To prevent an accidental interruption of power, avoid carrying the product from one location to another while the AC adapter is connected.

Cleaning: When cleaning the camera body, use a blower to gently remove dust and lint, then wipe gently with a soft, dry cloth. After using the camera at the beach or seaside, wipe off any sand or salt using a cloth lightly dampened in pure water and then dry the camera thoroughly.

Lenses are easily damaged. Dust and lint should be gently removed with a blower. When using an aerosol blower, keep the can vertical to prevent discharge of liquid. To remove fingerprints and other stains from the lens, apply a small amount of lens cleaner to a clean, soft cloth and wipe the lens carefully.



Storage: To prevent mold or mildew, store the camera in a cool, dry, well-ventilated area. If you are using an AC adapter, unplug the adapter to prevent fire. If the product will not be used for an extended period, remove the battery to prevent leakage and store the camera in a plastic bag containing a desiccant. Do not, however, store the camera case in a plastic bag, as this may cause the material to deteriorate. Note that desiccant gradually loses its capacity to absorb moisture and should be replaced at regular intervals.

To prevent mold or mildew, take the camera out of storage at least once a month. Turn the camera on and release the shutter a few times before putting it away.

Store the battery in a cool, dry place. Replace the terminal cover before putting the battery away.

Notes on the monitor: The monitor is constructed with extremely high precision; at least 99.99% of pixels are effective, with no more than 0.01% being missing or defective. Hence while these displays may contain pixels that are always lit (white, red, blue, or green) or always off (black), this is not a malfunction and has no effect on images recorded with the device.

Images in the monitor may be difficult to see in a bright light.

Do not apply pressure to the display, as this could cause damage or malfunction. Dust or lint on the display can be removed with a blower. Stains can be removed by wiping lightly with a soft cloth or chamois leather. Should the monitor break, care should be taken to avoid injury from broken glass and to prevent liquid crystal from the display touching the skin or entering the eyes and mouth.

Do not leave the lens pointed at the sun: Do not leave the lens pointed at the sun or other strong light source for an extended period. Intense light may cause the image sensor to deteriorate or produce a white blur effect in photographs.

Moiré: Moiré is an interference pattern created by the interaction of an image containing a regular, repeating grid, such as the pattern of weave in cloth or windows in a building, with the camera image sensor grid. In some cases, it may appear in the form of lines. If you notice moiré in your photographs, try changing the distance to the subject, zooming in and out, or changing the angle between the subject and the camera.

**Lines:** Noise in the form of lines may in rare cases appear in pictures of extremely bright or backlit subjects.

**Batteries**: Batteries may leak or explode if improperly handled. Observe the following precautions when handling batteries:

- Use only batteries approved for use in this equipment.
- Do not expose the battery to flame or excessive heat.
- Keep the battery terminals clean.
- Turn the product off before replacing the battery.
- Remove the battery from the camera or charger when not in use and replace the terminal cover. These devices draw minute amounts of charge even when off and could draw the battery down to the point that it will no longer function. If the battery will not be used for some time, insert it in the camera and run it flat before removing it and storing it in a location with an ambient temperature of 15 °C to 25 °C (59 °F to 77 °F; avoid hot or extremely cold locations). Repeat this process at least once every six months.
- Turning the camera on and off repeatedly when the battery is fully discharged will shorten battery life. Batteries that have been fully discharged must be charged before use

- The internal temperature of the battery may rise while the battery is in use. Attempting to charge the battery while the internal temperature is elevated will impair battery performance, and the battery may not charge or charge only partially. Wait for the battery to cool before charging.
- Continuing to charge the battery after it is fully charged can impair battery performance.
- A marked drop in the time a fully charged battery retains its charge when used at room temperature indicates that it requires replacement. Purchase a new EN-EL22 battery.
- Charge the battery before use. When taking photographs on important occasions, ready a spare EN-EL22 battery and keep it fully charged. Depending on your location, it may be difficult to purchase replacement batteries on short notice. Note that on cold days, the capacity of batteries tends to decrease. Be sure the battery is fully charged before taking photographs outside in cold weather. Keep a spare battery in a warm place and exchange the two as necessary. Once warmed, a cold battery may recover some of its charge.
- Used batteries are a valuable resource; recycle in accord with local regulations.



• Do not use the battery at ambient temperatures below 0°C (32°F) or above 40°C (104°F); failure to observe this precaution could damage the battery or impair its performance. Capacity may be reduced and charging times may increase at battery temperatures from 0°C (32°F) to 10°C (50°F) and from 45°C (113°F) to 60°C (140°F); the battery will not charge if its temperature is below 0°C (32°F) or above 60°C (140°F).

The battery charger: Charge the battery at ambient temperatures between 5°C (41°F) and 35°C (95°F). If the CHARGE lamp flashes quickly during charging, cease use immediately and take battery and charger to your retailer or a Nikonauthorized service representative.

Do not move the charger or touch the battery during charging. Failure to observe this precaution could in very rare instances result in the charger showing that charging is complete when the battery is only partially charged. Remove and reinsert the battery to begin charging again. Use the charger with compatible batteries only. Unplug when not in use.

#### **Memory Cards:**

- Do not remove memory cards from the camera, turn the camera off, or remove or disconnect the power source during formatting or while data are being recorded, deleted, or copied to a computer. Failure to observe these precautions could result in loss of data or in damage to the camera or card.
- Do not touch the card terminals with your fingers or metal objects.
- Do not bend, drop, or subject to strong physical shocks.
- Do not apply force to the card casing. Failure to observe this precaution could damage the card.
- Do not expose to water, heat, high levels of humidity, or direct sunlight.
- Do not format memory cards in a computer.

## Servicing the Camera and Accessories

The camera is a precision device and requires regular servicing. Nikon recommends that the camera be inspected by the original retailer or Nikon-authorized service representative once every one to two years, and that it be serviced once every three to five years (note that fees apply to these services). Frequent inspection and servicing are particularly recommended if the camera is used professionally. Any accessories regularly used with the camera, such as lenses, should be included when the camera is inspected or serviced.



# **Troubleshooting**

If the camera fails to function as expected, check this list of common problems before consulting your retailer or Nikon representative.

## **Battery/Display**

The camera is on but does not respond: Wait for recording or any other processing to end. If the problem persists, turn the camera off. If the camera still does not respond, remove and replace the battery or disconnect and reconnect the AC adapter, but note that this will delete any data not yet saved. Data already saved to the memory card are unaffected.

#### The display is off:

- The camera is off ( $\square$  14) or the battery is exhausted ( $\square$  4).
- The display has turned off automatically to save power. The display can be reactivated by pressing the shutter-release button.
- The camera is connected to a computer (\$\square\$ 79) or television.

#### The camera turns off without warning:

- The battery is low (\$\sime\$ 4).
- The display has turned off automatically to save power (

  14). The display can be reactivated by pressing the shutter-release button.
- The camera's internal temperature is high (□ xii, 93). Wait for the camera to cool before turning it on again.

Indicators are not displayed: Use the Display > Shooting and Display > Playback options in the setup menu to choose the information displayed.



## Shooting (All Modes)

The camera takes time to turn on: Delete files or format the memory card. The shutter-release is disabled:

- The battery is exhausted ( 4).
- The memory card is full.
- The flash is charging (\$\square\$ 69).
- The camera is not in focus (\$\square\$ 19).
- You are currently filming a slow-motion movie ( 43).

Smudges appear in photographs: Clean the front and rear lens elements or the dust shield  $(\square 84)$ .

Flicker or banding appears in movies or in the display: Choose a Flicker reduction setting that matches the local AC power supply (275).

No flash: The flash will not fire when off ( $\square$  66, 68); in P, S, A, and M modes, the flash will not fire when lowered.

**Menu items are unavailable:** Some options are only available in particular shooting or exposure modes or when wireless mobile adapter is attached.

#### Movies



**Cannot record movies:** The movie-record button can not be used to record movies in best moment capture or Motion Snapshot mode ( $\square$  50, 59).

No sound is recorded for movies:

- Microphone off is selected for Movie sound options > Microphone
   (□ 74).

## Playback

"Tall" (portrait) orientation photos are displayed in "wide" (landscape) orientation:

- Select On for Rotate tall ( 71).
- The photos were taken with **Auto image rotation** off ( $\square$  75).
- Camera was pointed up or down when the photo was taken.
- Photo is displayed in image review.

#### Cannot hear movie sound:

- Rotate the multi selector clockwise to raise the volume (
   44). If the
   camera is connected to a television, use the controls for the TV to
   adjust the volume.

Cannot delete images: Remove protection from the files before deletion.

#### Miscellaneous

The date of recording is not correct: Set the camera clock.

**Menu items are unavailable**: Some options are only available at particular settings or when a memory card is inserted.



# **Error Messages**

This section lists the error messages that appear in the display.

Message	Solution
(Shutter-speed or aperture display flashes)	If the subject is too bright, lower ISO sensitivity or choose a faster shutter speed or smaller aperture (higher f-number).  If the subject is too dark, raise ISO sensitivity,
	use the flash, or choose a slower shutter speed or larger aperture (lower f-number).
Keeping the zoom ring	A lens with a retractable lens barrel button is
button pressed, rotate	attached with the lens barrel retracted. Keep-
the zoom ring to extend the lens.	ing the retractable lens barrel button pressed, rotate the zoom ring to extend the lens.
Check lens. Pictures can only be taken when a lens is attached.	Attach a lens.
Start-up error. Turn the camera off and then on again.	Turn the camera off, remove and replace the battery, and then turn the camera on.
The clock has been reset.	Set the camera clock.
No memory card.	Turn the camera off and confirm that the card is correctly inserted.
This memory card cannot be used. Card may be damaged; insert a different card.	<ul> <li>Use an approved card.</li> <li>Format the card. If the problem persists, the card may be damaged. Contact a Nikon-authorized service representative.</li> <li>Insert a new memory card.</li> </ul>
This memory card is not formatted. Format the memory card?	Select <b>Yes</b> to format the card, or turn the camera off and insert another memory card.



Message	Solution	
Memory card is full.	You may be able to record additional images	
	if you reduce image quality or size.	
	Delete unwanted images.	
	Insert another memory card.	
	If the current folder is numbered 999 and con-	
	tains either 999 photographs or a photograph	
Cannot create	numbered 9999, the shutter-release button will	
additional folders on	be disabled and no further photographs can be	
memory card.	taken. Choose <b>Yes</b> for <b>Reset file numbering</b> and	
	then either format the current memory card or	
	insert a new memory card.	
The movie-record	The movie-record button can not be used in	
button cannot be used	d best moment capture or Motion Snapsh	
in this mode.	modes.	
Photographs cannot be	The shutter-release button can not be used to	
recorded in this mode.	take photographs while a slow-motion movie	
recorded in this mode.	is being recorded.	
The camera's internal		
temperature is high. The	Wait for the camera to cool.	
camera will now turn	Walt for the camera to cool.	
off.		
Memory card contains	To view pictures, insert a memory card con-	
no images.	taining images.	
	The file has been created or modified on a	
Cannot display this file.	computer or different make of camera, or is	

corrupt.

# **Specifications**

# Nikon 1 S2 Digital Camera

Туре			
Туре	Digital camera with support for interchangeable		
	lenses		
Lens mount	Nikon 1 mount		
Effective angle of view	Approx. 2.7× lens focal length (35 mm format		
	equivalent)	equivalent)	
Effective pixels	14.2 million		
Image sensor			
Image sensor	13.1 mm × 8.8 mm CMOS sensor (Nikon CX for-		
	mat)		
Storage			
Image size (pixels)	Still images taken in auto, crea	tive, and best moment	
	capture modes (aspect ratio 3 :	2)	
	• 4592 × 3072	• 3440 × 2296	
	• 2288 × 1528		
	Still images taken during movie recording (aspect ratio 3 : 2)		
		• 4592 × 3072 (1080/60p, 1080/30p)	
	• 1280 × 856 (720/60p, 7		
	Motion Snapshots (photo porti	on, aspect ratio 16 : 9)	
	4592 × 2576		
File format	NEF (RAW): 12-bit, compressed		
	• JPEG: JPEG-Baseline compliant with fine (approx.		
	1:4), normal (approx. 1:8)	<u> </u>	
Picture Control system	Standard, Neutral, Vivid, Monochrome, Portrait,		
	Landscape; selected Picture Control can be mod-		
	ified; storage for custom Picture Controls		
Media	microSD (micro Secure Digital), microSDHC, and		
	microSDXC memory cards		
File system	DCF 2.0, DPOF, Exif 2.3, P	ictBridge	



Ch 41	-	
Shooting modes	□ auto; □ creative, with a choice of the following options: P, S, A, M, ○ creative palette, □ HDR, ○ soft, ਯ miniature effect, ✓ selective color, ☆ cross process, and □ toy camera effect; □ best moment capture (■ Active Selection and □ Smart Photo Selector); ★ advanced movie (★ HD movie, ▼ slow motion, ▼ jump cut, ★ fast motion and ★ 4-second movie), □ Motion Snapshot	
Shutter		
Туре	Electronic shutter	
Speed	1√16,000 – 30 s in steps of 1/3 EV; Bulb	
	<b>Note</b> : Bulb ends automatically after approximately 2 minutes	
Flash sync speed	Synchronizes with shutter at X=1/60 s or slower	
Release		
Mode	Single frame, continuous	
	• Self-timer	
Frame advance rate	Approx. 5, 10, 20, 30, or 60 fps	
Self-timer	2 s, 10 s	
Exposure		
Metering	TTL metering using image sensor	
Metering method	Matrix     Center-weighted: Meters 4.5 mm circle in center of	
	frame	
	• <b>Spot</b> : Meters 2 mm circle centered on selected focus area	
Mode	P programmed auto with flexible program; 5 shutter-priority auto; A aperture-priority auto;	
	M manual;  scene auto selector	
Exposure compensation	-3−+3 EV in increments of 1/3 EV	
Exposure lock	Luminosity locked at metered value when shut-	
	ter-release button is pressed halfway	
ISO sensitivity	ISO 200-12800 in steps of 1 EV; 12800 (NR); auto	
(Recommended Exposure	ISO sensitivity control (ISO 200–6400, 200–3200, 200–	
Index)	800) available (user controlled in P, S, A, and M modes)	
Active D-Lighting	On, off	





Movie		
Metering	TTL metering using image sensor	
Metering method	Matrix	
metering method	• Center-weighted: Meters 4.5 mm circle in center of	
	frame	
	• Spot: Meters 2 mm circle centered on selected	
	focus area	
Frame size (pixels)/	HD movies (aspect ratio 16 : 9)	
recording rate	• 1920 × 1080/60p (59.94 fps)	
	• 1920 × 1080/30p (29.97 fps)	
	• 1280 × 720/60p (59.94 fps)	
	• 1280 × 720/30p (29.97 fps)	
	Slow-motion movies (aspect ratio 8 : 3)	
	• $640 \times 240/400$ fps (plays at $30p/29.97$ fps)	
	• $320 \times 120/1200$ fps (plays at $30p/29.97$ fps)	
	Fast-motion, jump-cut, and 4-second movies (aspect ratio	
	16 : 9)   1920 × 1080/30p (29.97 fps)  Motion Snapshots (movie portion, aspect ratio 16 : 9)	
	1280 × 720/60p (59.94 fps) (plays at 24p/23.976 fps)	
File format	MOV	
Video compression	H.264/MPEG-4 Advanced Video Coding	
Audio recording format	PCM	
Audio recording device	Built-in stereo microphone; sensitivity adjustable	
Monitor	7.5 cm (3-in.), approx. 460k-dot, TFT LCD with	
	brightness adjustment	
Playback	,	
riayvack	Full-frame and thumbnail (4, 9, or 16 images or	
	calendar) playback with playback zoom, movie	
	playback, slide show, histogram display, auto	
	image rotation, and rating option	
Interface		
USB	Hi-Speed USB	
HDMI output	Type D HDMI connector	

Supported languages	Arabic, Bengali, Bulgarian, Chinese (Simplified and Traditional), Czech, Danish, Dutch, English, Finnish, French, German, Greek, Hindi, Hungarian, Indonesian, Italian, Japanese, Korean, Marathi, Norwegian, Persian, Polish, Portuguese (European and Brazilian), Romanian, Russian, Serbian, Spanish, Swedish, Tamil, Telugu, Thai, Turkish, Ukrainian, Vietnamese	
Power source	source	
Battery	One rechargeable Li-ion EN-EL22 battery	
AC adapter	EH-5b AC adapter; requires EP-5E power connector (available separately)	
Tripod socket	1/4-in. (ISO 1222)	
Dimensions/weight		
Dimensions (W $\times$ H $\times$ D)	Approx. 101.0 × 60.8 × 29.4 mm (4.0 × 2.4 ×	
	1.2 in.), excluding projections	
Weight	Approx. 230 g (8.1 oz) with battery and memory	



Operating environment

Temperature Humidity

Unless otherwise stated, all figures are for a camera with a fully-charged battery operating at the temperature specified by the Camera and Imaging Products Association (CIPA): 23 ±3 °C (73.4 ±5.4 °F).

0°C-40°C (+32°F-104°F)

85% or less (no condensation)

camera body only

card but without body cap; approx. 190 g (6.7 oz),

 Nikon reserves the right to change the specifications of the hardware and software described in this manual at any time and without prior notice.
 Nikon will not be held liable for damages that may result from any mistakes that this manual may contain.

MH-29 battery charger		
Rated input	AC 100-240 V, 50-60 Hz, 0.2 A	
Rated output	DC 8.4 V/0.6 A	
Supported batteries	Nikon EN-EL22 rechargeable Li-ion batteries	
Charging time	Approx. 3 hours at an ambient temperature of	
	25 °C (77 °F) when no charge remains	
Operating temperature	0 °C-40 °C (+32 °F-104 °F)	
Dimensions (W $\times$ H $\times$ D)	Approx. $67.0 \times 28.0 \times 94.0 \text{ mm} (2.6 \times 1.1 \times 3.7 \text{ in})$	
	excluding plug adapter	
Weight	Approx. 83 g (2.9 oz), excluding plug adapter	
EN-EL22 rechargeable Li-io	on battery	
Туре	Rechargeable lithium-ion battery	
Rated capacity	7.2 V, 1010 mAh	
Operating temperature	0 °C-40 °C (+32 °F-104 °F)	
Dimensions (W $\times$ H $\times$ D)	Approx. $30.7 \times 50.0 \times 13.0 \text{ mm} (1.2 \times 2.0 \times 0.5 \text{ in.})$	
Weight	Approx. 39 g (1.4 oz), excluding terminal cover	
1 NIKKOR VR 10–30mm f/3.5–5.6 PD-ZOOM		
Туре	1 mount lens	
Focal length	10-30 mm	
Maximum aperture	f/3.5-5.6	
Construction	9 elements in 7 groups (including 4 aspherical lens ele-	
	ments, 1 ED lens element, and HRI lens elements)	
Angle of view	77°-29° 40′	
Vibration reduction	Lens shift using voice coil motors (VCMs)	
Minimum focus distance	0.2 m (0.7 ft) from focal plane at all zoom positions	
Diaphragm blades	7 (rounded diaphragm opening)	
Diaphragm	Fully automatic	
Aperture range	• 10 mm focal length: f/3.5 – 16	
	• 30 mm focal length: f/5.6–16	
Dimensions	Approx. 58 mm diameter × 28 mm (distance from	
	camera lens mount flange when lens is retracted)	
Weight	Approx. 85 g (3.0 oz)	

1 NIKKOR 11-27.5mm f/3.	1 NIKKOR 11–27.5mm f/3.5–5.6	
Туре	1 mount lens	
Focal length	11–27.5 mm	
Maximum aperture	f/3.5-5.6	
Construction	8 elements in 6 groups (including 1 ED lens element and	
	1 aspherical lens element), 1 protective glass element	
Angle of view	72°-32° 20′	
Minimum focus distance	0.3 m (1.0 ft) from focal plane at all zoom positions	
Diaphragm blades	7 (rounded diaphragm opening)	
Diaphragm	Fully automatic	
Aperture range	• 11 mm focal length: f/3.5 – 16	
	• <b>27.5 mm focal length</b> : f/5.6–16	
Filter-attachment size	40.5 mm (P=0.5 mm)	
Dimensions	Approx. 57.5 mm diameter × 31 mm (distance from	
	camera lens mount flange when lens is retracted)	
Weight	Approx. 83 g (3.0 oz)	

Specifications subject to change without notice. Nikon will not be held liable for damages that may result from any mistakes that this manual may contain.



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# **Battery Life**

The number of shots or movie footage that can be recorded with fully-charged batteries varies with the condition of the battery, temperature, the interval between shots, and the length of time menus are displayed. Sample figures for EN-EL22 (1010 mAh) batteries are given below.

- Still images: Approximately 270 shots
- Movies: Approximately 65 minutes at 1080/30p

Measured according to CIPA standards at  $23 \pm 3$  °C ( $73.4 \pm 5.4$  °F) with the camera at default settings, a fully-charged battery, a 1 NIKKOR VR 10–30mm f/3.5–5.6 PD-ZOOM lens, and a 16GB SanDisk SDSDQXP-016G-J35 UHS-I microSDHC card. Value for still images obtained under the following test conditions: photographs taken at intervals of 30 s with the built-in flash fired with every other shot and the camera turned off and then on after every ten shots. Value for movies obtained under the following test conditions: a series of 20 minute movies with a file size of up to 4 GB were recorded; recording was only interrupted when temperature warning was displayed.



The following can reduce battery life:

- Keeping the shutter-release button pressed halfway
- Repeated autofocus operations
- Taking NEF (RAW) photographs
- Slow shutter speeds
- Using a wireless mobile adapter
- Using vibration reduction mode with VR lenses
- Using zoom with power zoom lenses

To ensure that you get the most from rechargeable Nikon EN-EL22 batteries:

- Keep the battery contacts clean. Soiled contacts can reduce battery performance.
- Use batteries immediately after charging. Batteries will lose their charge if left unused.

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