

Nikon

DIGITAL CAMERA

D7500

Menu Guide

This manual details menu options and provides information on accessories and connecting the camera to other devices.

En

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Menu Guide

Defaults

The default settings for the options in the camera menus are listed below.

■■ Playback Menu Defaults

Option	Default
Playback folder (□ 19)	All
Image review (□ 22)	Off
After delete (□ 22)	Show next
Auto image rotation (□ 23)	On
Rotate tall (□ 23)	On
Slide show (□ 24)	
Image type	Still images and movies
Frame interval	2 s

■ Photo Shooting Menu Defaults

Option	Default
Storage folder (□ 27)	
Rename	D7500
Select folder by number	100
File naming (□ 31)	DSC
Flash control (□ 32)	
Flash control mode (built-in)/Flash control mode (external)	TTL
Wireless flash options	Off
Choose image area (□ 35)	DX (24×16)
Image quality (□ 36)	JPEG normal
Image size (□ 37)	Large
NEF (RAW) recording (□ 37)	
NEF (RAW) compression	Lossless compressed
NEF (RAW) bit depth	14-bit
ISO sensitivity settings (□ 38)	
ISO sensitivity	100
Auto ISO sensitivity control	Off
White balance (□ 39)	Auto > Normal
Fine-tuning	A-B: 0, G-M: 0
Choose color temp.	5000 K
Preset manual	d-1
Set Picture Control (□ 40)	Auto
Color space (□ 44)	sRGB
Active D-Lighting (□ 44)	Off
Long exposure NR (□ 45)	Off
High ISO NR (□ 45)	Normal
Vignette control (□ 46)	Normal

Option	Default
Auto distortion control (□ 46)	Off
Flicker reduction (□ 47)	
Flicker reduction setting	Disable
Flicker reduction indicator	On
Remote control mode (ML-L3) (□ 49)	Off
Auto bracketing set (□ 49)	AE & flash bracketing
Multiple exposure (□ 50)*	
Multiple exposure mode	Off
Number of shots	2
Overlay mode	Average
Keep all exposures	On
HDR (high dynamic range) (□ 57)	
HDR mode	Off
HDR strength	Auto
Interval timer shooting (□ 58)	
Start options	Now
Interval	1 minute
No. of intervals×shots/interval	0001×1
Exposure smoothing	Off

* Photo shooting menu reset is not available while shooting is in progress.

■ Movie Shooting Menu Defaults

Option	Default
File naming (□ 67)	DSC
Choose image area (□ 67)	DX
Frame size/frame rate (□ 68)	1920×1080; 60p
Movie quality (□ 68)	High quality
Movie file type (□ 68)	MOV
ISO sensitivity settings (□ 69)	
Maximum sensitivity	51200
Auto ISO control (mode M)	Off
ISO sensitivity (mode M)	100
White balance (□ 70)	Same as photo settings
Fine-tuning	A-B: 0, G-M: 0
Choose color temp.	5000 K
Preset manual	d-1
Set Picture Control (□ 70)	Same as photo settings
Active D-Lighting (□ 70)	Off
High ISO NR (□ 71)	Normal
Flicker reduction (□ 71)	Auto
Microphone sensitivity (□ 72)	Auto sensitivity
Frequency response (□ 73)	Wide range
Wind noise reduction (□ 73)	Off
Electronic VR (□ 73)	Off
Time-lapse movie (□ 74)	Off
Interval	5 s
Shooting time	25 minutes
Exposure smoothing	On

■ Custom Settings Menu Defaults

Option	Default
a1 AF-C priority selection (□ 84)	Release
a2 AF-S priority selection (□ 85)	Focus
a3 Focus tracking with lock-on (□ 86)	3 (Normal)
a4 Number of focus points (□ 86)	51 points
a5 Store points by orientation (□ 87)	Off
a6 AF activation (□ 88)	Shutter/AF-ON
a7 Focus point wrap-around (□ 89)	No wrap
a8 Focus point options (□ 90)	
Focus point illumination	Auto
Manual focus mode	On
a9 Built-in AF-assist illuminator (□ 91)	On
a10 Manual focus ring in AF mode (□ 92)	Enable
b1 ISO sensitivity step value (□ 93)	1/3 step
b2 EV steps for exposure cntrl (□ 93)	1/3 step
b3 Easy exposure compensation (□ 94)	Off
b4 Matrix metering (□ 95)	Face detection on
b5 Center-weighted area (□ 95)	Ø 8 mm
b6 Fine-tune optimal exposure (□ 95)	
Matrix metering	0
Center-weighted metering	0
Spot metering	0
Highlight-weighted metering	0
c1 Shutter-release button AE-L (□ 96)	Off
c2 Standby timer (□ 96)	6 s
c3 Self-timer (□ 97)	
Self-timer delay	10 s
Number of shots	1
Interval between shots	0.5 s

	Option	Default
c4	Monitor off delay (□ 97)	
	Playback	10 s
	Menus	1 min
	Information display	4 s
	Image review	4 s
	Live view	10 min
c5	Remote on duration (ML-L3) (□ 97)	1 min
d1	CL mode shooting speed (□ 98)	3 fps
d2	Max. continuous release (□ 98)	100
d3	Exposure delay mode (□ 98)	Off
d4	Electronic front-curtain shutter (□ 99)	Disable
d5	File number sequence (□ 100)	On
d6	Viewfinder grid display (□ 101)	Off
d7	ISO display (□ 101)	Show frame count
d8	LCD illumination (□ 101)	Off
d9	Optical VR (□ 101)	On
e1	Flash sync speed (□ 102)	1/250 s
e2	Flash shutter speed (□ 104)	1/60 s
e3	Exposure comp. for flash (□ 104)	Entire frame
e4	Auto ISO sensitivity control (□ 105)	Subject and background
e5	Bracketing order (□ 105)	MTR > under > over

	Option	Default
f1	Custom control assignment (□ 106)	
	Fn1 button	Viewfinder virtual horizon
	Fn1 button + 	None
	Fn2 button	None
	Fn2 button + 	Choose image area
	AE-L/AF-L button	AE/AF lock
	AE-L/AF-L button + 	None
	BKT button + 	Auto bracketing
	Movie record button + 	None
f2	OK button (□ 114)	
	Shooting mode	Select center focus point
	Playback mode	Thumbnail on/off
	Live view	Select center focus point
f3	Customize command dials (□ 115)	
	Reverse rotation	Exposure compensation: <input type="checkbox"/> Shutter speed/aperture: <input type="checkbox"/>
	Change main/sub	Exposure setting: Off Autofocus setting: Off
	Menus and playback	Off
	Sub-dial frame advance	10 frames
f4	Release button to use dial (□ 117)	No
f5	Reverse indicators (□ 117)	
g1	Custom control assignment (□ 118)	
	Fn1 button	Index marking
	Fn2 button	Index marking
	AE-L/AF-L button	AE/AF lock
	Shutter-release button	Take photos

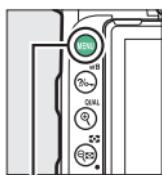
■ Setup Menu Defaults

Option	Default
Save user settings (□ 123)	
Save to U1	Shooting mode defaults to P
Save to U2	
Time zone and date (□ 126)	
Sync with smart device	Off
Daylight saving time	Off
Monitor brightness (□ 127)	
Menus/playback	0
Live view	0
Monitor color balance (□ 127)	A-B: 0, G-M: 0
Information display (□ 129)	Auto
Auto info display (□ 129)	On
Info display auto off (□ 130)	On
AF fine-tune (□ 130)	
AF fine-tune (On/Off)	Off
Clean image sensor (□ 134)	
Clean at startup/shutdown	Clean at startup & shutdown
Beep options (□ 142)	
Beep on/off	Off
Volume	2
Pitch	Low
Touch controls (□ 143)	
Enable/disable touch controls	Enable
Full-frame playback flicks	Left → Right
Flash warning	On

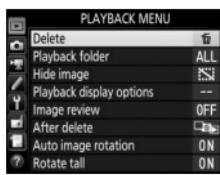
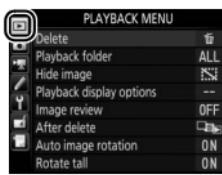
Option	Default
HDMI (□ 143)	
Output resolution	Auto
Advanced	
Output range	Auto
Output display size	100%
Live view on-screen display	On
Dual monitor	On
Location data (□ 144)	
Download from smart device	No
External GPS device options	
Standby timer	Enable
Set clock from satellite	Yes
Wireless remote (WR) options (□ 145)	
LED lamp	On
Link mode	Pairing
Assign remote (WR) Fn button (□ 147)	None
Airplane mode (□ 147)	Disable
Send to smart device (auto) (□ 149)	Off
Bluetooth (□ 150)	
Network connection	Disable
Send while off	On
Eye-Fi upload (□ 151)	Enable
Slot empty release lock (□ 153)	Enable release

► The Playback Menu: Managing Images

To display the playback menu, press **MENU** and select the **►** (playback menu) tab.



MENU button



Option	Page
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Playback folder	19
Hide image	20
Playback display options	22
Image review	22
After delete	22

Option	Page
Auto image rotation	23
Rotate tall	23
Slide show	24
Rating	25
Select to send to smart device	25



See Also

For menu defaults, see “Playback Menu Defaults” (□ 9).

Delete

MENU button →  playback menu

Delete multiple images.

Option	Description
 Selected	Delete selected pictures.
 Select date	Delete all pictures taken on a selected date.
ALL  All	Delete all pictures in the folder currently selected for playback.

Playback Folder

MENU button →  playback menu

Choose a folder for playback.

Option	Description
(Folder name)	Pictures in all folders created with the D7500 will be visible during playback. Folders can be renamed using the Storage folder > Rename option in the photo shooting menu.
All	Pictures in all folders will be visible during playback.
Current	Only pictures in the current folder will be visible during playback.

Hide Image

MENU button →  playback menu

Hide or reveal pictures. Hidden pictures are visible only in the **Hide image** menu and can only be deleted by formatting the memory card.

Option	Description
Select/set	Hide or reveal selected pictures.
Select date	Selecting this option displays a list of dates. To hide all pictures taken on a date, highlight the date and press  . Selected dates are marked by a  ; to reveal all pictures taken on a selected date, highlight it and press  . Press  to complete the operation.
Deselect all	Reveal all pictures.



Protected and Hidden Images

Revealing a protected image will also remove protection from the image.

Follow the steps below to hide or reveal selected pictures.

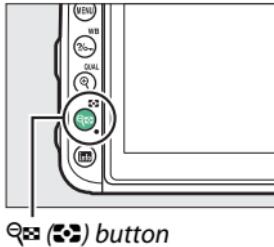
1 Choose **Select/set**.

Highlight **Select/set** and press .



2 Select pictures.

Use the multi selector to scroll through the pictures on the memory card (to view the highlighted picture full screen, press and hold the Q/QUAL button) and press $\text{Q} \blacksquare$ ($\text{Q} \blacksquare$) to select the current picture. Selected pictures are marked by a \blacksquare icon; to deselect a picture, highlight it and press $\text{Q} \blacksquare$ ($\text{Q} \blacksquare$) again. Continue until all the desired pictures have been selected.



3 Press OK .

Press OK to complete the operation.

Playback Display Options

MENU button →  playback menu

Choose the information available in the playback photo information display. Press  or  to highlight an option, then press  to select the option for the photo information display. A  appears next to selected items; to deselect, highlight an item and press . To return to the playback menu, press .

Image Review

MENU button →  playback menu

Choose whether pictures are automatically displayed in the monitor immediately after shooting. If **Off** is selected, pictures can only be displayed by pressing the  button.

After Delete

MENU button →  playback menu

Choose the picture displayed after an image is deleted.

Option	Description
 Show next	Display following picture. If deleted picture was last frame, previous picture will be displayed.
 Show previous	Display previous picture. If deleted picture was first frame, following picture will be displayed.
 Continue as before	If user was scrolling through pictures in order recorded, following picture will be displayed as described for Show next . If user was scrolling through pictures in reverse order, previous picture will be displayed as described for Show previous .

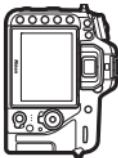
Auto Image Rotation

MENU button → ▶ playback menu

Photographs taken while **On** is selected contain information on camera orientation, allowing them to be rotated automatically during playback or when viewed in NX Studio. The following orientations are recorded:



Landscape (wide) orientation



Camera rotated 90° clockwise



Camera rotated 90° counter-clockwise

Camera orientation is not recorded when **Off** is selected. Choose this option when panning or taking photographs with the lens pointing up or down.

Rotate Tall

MENU button → ▶ playback menu

If **On** is selected, “tall” (portrait-orientation) pictures taken with **On** selected for **Auto image rotation** will be automatically rotated for display in the monitor. Pictures taken with **Off** selected for **Auto image rotation** will be displayed in “wide” (landscape orientation). Note that because the camera itself is already in the appropriate orientation during shooting, images are not rotated automatically during image review.

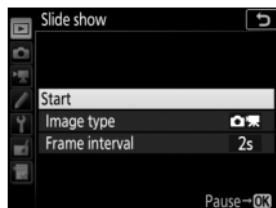
Slide Show

MENU button →  playback menu

Create a slide show of the pictures in the current playback folder (19). Hidden images (20) are not displayed.

Option	Description
Start	Start slide show.
Image type	Choose type of image displayed from Still images and movies , Still images only , and Movies only .
Frame interval	Choose how long each picture will be displayed.

To start the slide show, highlight **Start** and press . The following operations can be performed while the slide show is in progress:



To	Description
Skip back/skip ahead	Press  to return to the previous frame,  to skip to the next frame.
View additional photo info	Press  or  to change or hide the photo info displayed (still images only).
Pause	Press  to pause the slide show. To restart, highlight Restart and press  .
Adjust volume	Press  (QUAL) during movie playback to increase volume,  (SOUND) to decrease.
Exit to playback menu	Press MENU to end the slide show and return to the playback menu.
Exit to playback mode	Press  to end the slide show and exit to playback mode.
Exit to shooting mode	Press the shutter-release button halfway to return to shooting mode.

A dialog is displayed when the show ends. Select **Restart** to restart or **Exit** to return to the playback menu.



Rating

MENU button → playback menu

Highlight pictures using the multi selector and press and hold the (❖) while pressing or to choose ratings of from zero to five stars, or select to mark the picture as a candidate for later deletion. To view the highlighted picture full frame, press and hold the (QUAL). Press to put your selection into effect.



Select to Send to Smart Device

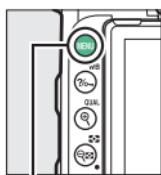
MENU button → playback menu

Select photos for upload to the smart device. Movies can not be selected for upload.

Option	Description
Select image(s)	Mark pictures for upload to the smart device.
Deselect all	Remove the upload markings from all pictures.

The Photo Shooting Menu: *Shooting Options*

To display the photo shooting menu, press **MENU** and select the  (photo shooting menu) tab.



MENU button

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Reset photo shooting menu*	27
Storage folder*	27
File naming	31
Flash control	32
Choose image area*	35
Image quality	36
Image size	37
NEF (RAW) recording	37
ISO sensitivity settings	38
White balance	39
Set Picture Control	40
Manage Picture Control*	41

Option	Page
Color space	44
Active D-Lighting	44
Long exposure NR	45
High ISO NR	45
Vignette control	46
Auto distortion control	46
Flicker reduction	47
Remote control mode (ML-L3)*	49
Auto bracketing set	49
Multiple exposure*	50
HDR (high dynamic range)	57
Interval timer shooting*	58

* Not included in the settings saved to **U1** or **U2** (□ 123).

See Also

For menu defaults, see “Photo Shooting Menu Defaults” (□ 10).

Reset Photo Shooting Menu

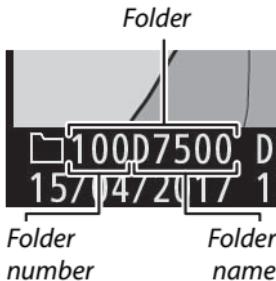
MENU button →  photo shooting menu

Select **Yes** to restore photo shooting menu options to their default values (□ 10).

Storage Folder

MENU button →  photo shooting menu

Rename folders and select the folder in which subsequent images will be stored.



■■ Rename

Folders are identified by a 5-character folder name preceded by a 3-digit folder number assigned automatically by the camera. The default folder name is "D7500"; to change the name assigned to new folders, select **Rename** and rename the folder as described in "Text Entry" (□ 28). If desired, the default name can be restored by pressing and holding the  (FORMAT) button while the keyboard is displayed. Existing folders can not be renamed.

Text Entry

A dialog is displayed when text entry is required. Tap the letters on the touch-screen keyboard. You can also use the multi selector to highlight the desired character in the keyboard area and press  to insert the highlighted character at the current cursor position (note that if a character is entered when the field is full, the last character in the field will be deleted). To delete the character under the cursor, press the  button. To move the cursor to a new position, tap the display or hold the  button and press  or . To complete entry and return to the previous menu, press the  (**QUAL**) button. To exit without completing text entry, press **MENU**.



■■ Select Folder by Number

To select folders by number or create a new folder with the current folder name and a new folder number:

1 Choose Select folder by number.

Highlight **Select folder by number** and press .

2 Choose a folder number.

Press  or  to highlight a digit, press  or  to change. If a folder with the selected number already exists, a , , or  icon will be displayed to the left of the folder number:

- : Folder is empty.
- : Folder is partially full.
- : Folder contains 999 pictures or a picture numbered 9999. No further pictures can be stored in this folder.



3 Save changes and exit.

Press  to complete the operation and return to the main menu (to exit without changing the storage folder, press the **MENU** button). If a folder with the specified number does not already exist, a new folder will be created. Subsequent photographs will be stored in the selected folder unless it is already full.

■ **Select Folder from List**

To choose from a list of existing folders:

1 Choose **Select folder from list**.

Highlight **Select folder from list** and press .



2 Highlight a folder.

Press  or  to highlight a folder.

3 Select the highlighted folder.

Press  to select the highlighted folder and return to the main menu. Subsequent photographs will be stored in the selected folder.

Folder and File Numbers

If the current folder is numbered 999 and contains 999 pictures or a photo numbered 9999, the shutter-release will be disabled and no further photographs can be taken (in addition, movie recording may be disabled if the current folder is numbered 999 and the next file would be the 992nd or numbered 9992 or higher). To continue shooting, create a folder with a number less than 999 or try changing the options selected for **Frame size/frame rate** and **Movie quality** (□ 68).

Startup Time

Additional time may be required for camera startup if the memory card contains a very large number of files or folders.

File Naming

MENU button →  **photo shooting menu**

Photographs are saved using file names consisting of “DSC_” or, in the case of images that use the Adobe RGB color space (44), “_DSC”, followed by a four-digit number and a three-letter extension (e.g., “DSC_0001.JPG”). The **File naming** option is used to select three letters to replace the “DSC” portion of the file name.

Extensions

The following extensions are used: “.NEF” for NEF (RAW) images, “.JPG” for JPEG images, “.MOV” for MOV movies, “.MP4” for MP4 movies, and “.NDF” for dust off reference data. In each pair of photographs recorded at image-quality settings of NEF (RAW)+JPEG, the NEF and JPEG images have the same file names but different extensions.

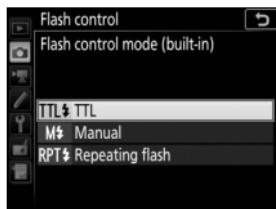
Flash Control

MENU button →  photo shooting menu

Choose the flash control mode for the built-in flash and for optional flash units mounted on the camera accessory shoe and adjust settings for off-camera flash photography. For more information on using optional flash units, see “Optional Flash Units” (188).

■ Flash Control Mode (Built-in)

The flash control mode for the built-in flash can be selected using the **Flash control** > **Flash control mode (built-in)** option in the photo shooting menu. The options available vary with the item selected.



- **TTL:** Flash level is adjusted automatically in response to shooting conditions.
- **Manual:** Flash level is selected using **Manual output amount**.
- **Repeating flash:** The flash fires repeatedly while the shutter is open, producing a multiple-exposure effect. Choose the flash level (**Output**), the maximum number of times the unit fires (**Times**), and the number of times the flash fires per second (**Frequency**, measured in Hertz). The options available for **Times** vary with the option selected for **Output**; the number of times the flash actually fires may be less at fast shutter speeds or lower frequencies.

“Times”

The options available for **Repeating Flash > Times** are determined by flash output.

Output	Options available for “Times”	Output	Options available for “Times”
1/4	2	1/32	2–10, 15
1/8	2–5	1/64	2–10, 15, 20, 25
1/16	2–10	1/128	2–10, 15, 20, 25, 30, 35

Flash Control for Optional Flash Units

When an optional SB-500, SB-400, or SB-300 flash unit is connected, the **Flash control > Flash control mode (built-in)** option in the photo shooting menu changes to **Flash control mode (external)** and the **Repeating flash** option is unavailable. Settings for other flash units can be adjusted using the controls on the device.

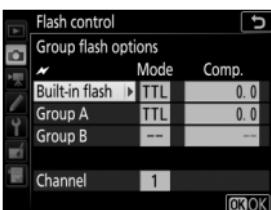
■ Wireless Flash Options

Adjust settings for simultaneous wireless control of multiple remote flash units. When an option other than **Off** is selected, **Group flash options** can be used to choose the flash mode and flash level for the flash units in each group.

Option	Description
Optical AWL	The remote flash units are controlled using low-intensity flashes emitted by the master flash. Available only when the built-in flash is raised or with an SB-500 mounted on the camera accessory shoe.
Optical/radio AWL	This option is for flash photography using both optically- and radio-controlled flash units and is available when an optional WR-R10 is attached and the built-in flash is raised.
Off	Remote flash photography disabled.

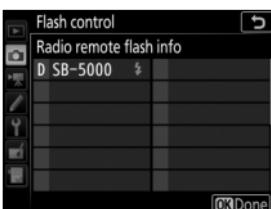
■ Group Flash Options

Adjust settings for the flash units in each group when using optional flash units (☞ 188).



■ Radio Remote Flash Info

View the flash units currently controlled using radio AWL when **Optical/radio AWL** is selected for **Wireless flash options**.



The WR-R10 Wireless Remote Controller

Be sure to update the WR-R10 firmware to the latest version; for information on firmware updates, see the Nikon website for your area.

Choose Image Area

MENU button →  photo shooting menu

Choose an image area from DX (24×16) and 1.3× (18×12).

Option	Description
 DX (24×16)	Pictures are recorded using a 23.5 × 15.7 mm image area (DX format).
 1.3× (18×12)	Pictures are recorded using a 18.0 × 12.0 mm image area, producing a telephoto effect without the need to change lenses.

Image Quality

MENU button →  photo shooting menu

Choose a file format and compression ratio (image quality).

Option	File type	Description
NEF (RAW)	NEF	RAW data from the image sensor are saved without additional processing. Settings such as white balance and contrast can be adjusted after shooting.
NEF (RAW)+ JPEG fine★/ NEF (RAW)+ JPEG fine	NEF/ JPEG	Two images are recorded, one NEF (RAW) image and one fine-quality JPEG image.
NEF (RAW)+ JPEG normal★/ NEF (RAW)+ JPEG normal	NEF/ JPEG	Two images are recorded, one NEF (RAW) image and one normal-quality JPEG image.
NEF (RAW)+ JPEG basic★/ NEF (RAW)+ JPEG basic	NEF/ JPEG	Two images are recorded, one NEF (RAW) image and one basic-quality JPEG image.
JPEG fine★/ JPEG fine	JPEG	Record JPEG images at a compression ratio of roughly 1 : 4 (fine quality).
JPEG normal★/ JPEG normal	JPEG	Record JPEG images at a compression ratio of roughly 1 : 8 (normal quality).
JPEG basic★/ JPEG basic	JPEG	Record JPEG images at a compression ratio of roughly 1 : 16 (basic quality).



JPEG Compression

Image quality options with a star ("★") use compression intended to ensure maximum quality; the size of the files varies with the scene. Options without a star use a type of compression designed to produce smaller files; files tend to be roughly the same size regardless of the scene recorded.

Image Size

MENU button →  photo shooting menu

Image size is measured in pixels. Choose from **L Large**, **M Medium**, or **S Small** (note that image size varies depending on the option selected for **Choose image area**):

Image area	Option	Size (pixels)	Print size (cm/in.) [*]
DX (24×16)	Large	5568 × 3712	47.1 × 31.4/18.6 × 12.4
	Medium	4176 × 2784	35.4 × 23.6/13.9 × 9.3
	Small	2784 × 1856	23.6 × 15.7/ 9.3 × 6.2
1.3× (18×12)	Large	4272 × 2848	36.2 × 24.1/14.2 × 9.5
	Medium	3200 × 2136	27.1 × 18.1/10.7 × 7.1
	Small	2128 × 1424	18.0 × 12.1/ 7.1 × 4.7

* Approximate size when printed at 300 dpi. Print size in inches equals image size in pixels divided by printer resolution in dots per inch (dpi; 1 inch = approximately 2.54 cm).

NEF (RAW) Recording

MENU button →  photo shooting menu

Choose a compression type and bit depth for NEF (RAW) photographs.

■■ NEF (RAW) Compression

Option	Description
ON  Lossless compressed	NEF images are compressed using a reversible algorithm, reducing file size by about 20–40% with no effect on image quality.
ON  Compressed	NEF images are compressed using a non-reversible algorithm, reducing file size by about 35–55% with almost no effect on image quality.

■ NEF (RAW) Bit Depth

Option	Description
12-bit 12-bit	NEF (RAW) images are recorded at a bit-depth of 12 bits.
14-bit 14-bit	NEF (RAW) images are recorded at a bit depth of 14 bits, producing files larger than those with a bit depth of 12 bits but increasing the color data recorded.

ISO Sensitivity Settings

MENU button →  **photo shooting menu**

Adjust ISO sensitivity settings for photographs.

Option	Description
ISO sensitivity	Adjust ISO sensitivity. Select from values between ISO 100 and 51200. Settings of from about 0.3 to 1 EV below ISO 100 and 0.3 to 5 EV above ISO 51200 are also available for special situations.
Auto ISO sensitivity control	If On is selected, the camera will automatically adjust ISO sensitivity when optimal exposure can not be achieved at the value selected for ISO sensitivity . You can choose the maximum sensitivity to prevent ISO sensitivity being raised too high and the shutter speed below which auto ISO sensitivity control will kick in to prevent under exposure in modes P and A (the minimum shutter speed; choose from values between $1/4000$ s and 30 s). The maximum ISO sensitivity for photos taken with a flash can be selected using Maximum sensitivity with $\frac{1}{2}$.

White Balance

MENU button →  photo shooting menu

Match white balance to the light source.

Option	Description
AUTO Auto	White balance is adjusted automatically. For best results, use type G, E or D lens. If built-in or optional flash fires, results are adjusted appropriately.
 Normal	
 Keep warm lighting colors	
 Incandescent	Use under incandescent lighting.
 Fluorescent	Use with: <ul style="list-style-type: none">Sodium-vapor lampsWarm-white fluorescentWhite fluorescentCool-white fluorescentDay white fluorescentDaylight fluorescentHigh temp. mercury-vapor
 Direct sunlight	Use with subjects lit by direct sunlight.
 Flash	Use with built-in or optional flash.
 Cloudy	Use in daylight under overcast skies.
 Shade	Use in daylight with subjects in the shade.
 Choose color temp.	Choose color temperature from list of values.
PRE Preset manual	Use subject, light source, or existing photograph as reference for white balance.

Set Picture Control

MENU button →  photo shooting menu

Choose how new photos will be processed. Select according to the type of scene or your creative intent.

Option	Description
 A Auto	The camera automatically adjusts hues and tones based on the Standard Picture Control. The complexions of portrait subjects will appear softer, and the foliage and sky in outdoor shots more vivid, than in pictures taken with the Standard Picture Control.
 SD Standard	Standard processing for balanced results. Recommended for most situations.
 NL Neutral	Minimal processing for natural results. Choose for photographs that will later be processed or retouched.
 VI Vivid	Pictures are enhanced for a vivid, photoprint effect. Choose for photographs that emphasize primary colors.
 MC Monochrome	Take monochrome photographs.
 PT Portrait	Process portraits for skin with natural texture and a rounded feel.
 LS Landscape	Produces vibrant landscapes and cityscapes.
 FL Flat	Details are preserved over a wide tone range, from highlights to shadows. Choose for photographs that will later be extensively processed or retouched.

Manage Picture Control

MENU button →  photo shooting menu

Create custom Picture Controls.

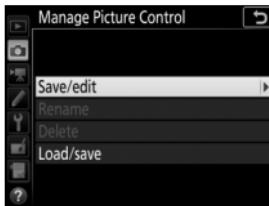
Option	Description
Save/edit	Create a new custom Picture Control based on an existing preset or custom Picture Control, or edit existing custom Picture Controls (41).
Rename	Rename a selected Picture Control.
Delete	Delete a selected Picture Control.
Load/save	<p>Use the following options to copy custom Picture Controls to and from memory cards. Once copied to memory cards, Picture Controls can be used with other cameras or compatible software.</p> <ul style="list-style-type: none">• Copy to card: Copy a custom Picture Control (C-1 through C-9) from the camera to a selected destination (1 through 99) on the memory card.• Copy to camera: Copy custom Picture Controls from the memory card to custom Picture Controls C-1 through C-9 on the camera and name them as desired.• Delete from card: Delete selected custom Picture Controls from the memory card.

■■ Creating Custom Picture Controls

The Picture Controls supplied with the camera can be modified and saved as custom Picture Controls.

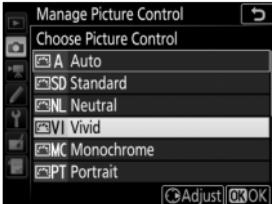
1 Select Save/edit.

Highlight **Save/edit** and press .



2 Select a Picture Control.

Highlight an existing Picture Control and press  or press  to proceed to Step 4 to save a copy of the highlighted Picture Control without further modification.



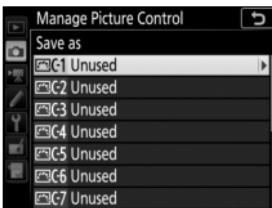
3 Edit the selected Picture Control.

To abandon any changes and start over from default settings, press the  button. Press  when settings are complete.



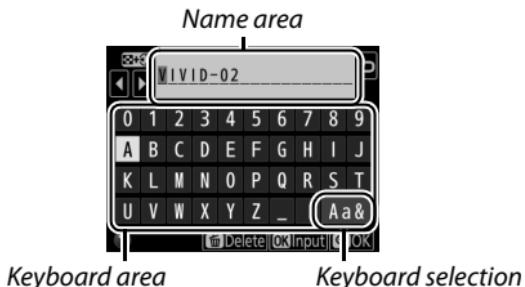
4 Select a destination.

Choose a destination for the custom Picture Control (C-1 through C-9) and press .



5 Name the Picture Control.

A text-entry dialog will be displayed. By default, new Picture Controls are named by adding a two-digit number (assigned automatically) to the name of the existing Picture Control; to choose a different name, rename the Picture Control as described in “Text Entry” (□ 28). Tap the keyboard selection button to cycle through the upper-case, lower-case, and symbol keyboards. Custom Picture Control names can be up to nineteen characters long. Any characters after the nineteenth will be deleted.



Custom Picture Control Options

The options available with custom Picture Controls are the same as those on which the custom Picture Control was based.

The Original Picture Control Icon

The original preset Picture Control on which the custom Picture Control is based is indicated by an icon in the top right corner of the edit display.

Original Picture Control icon



Color Space

MENU button →  photo shooting menu

The color space determines the gamut of colors available for color reproduction. **sRGB** is recommended for general-purpose printing and display, **Adobe RGB**, with its broader gamut of colors, for professional publication and commercial printing.

Adobe RGB

For accurate color reproduction, Adobe RGB images require applications, displays, and printers that support color management.

Color Space

The selected color space may be overwritten when pictures are opened in third-party software. NX Studio can open pictures in the color space selected on the camera.

Active D-Lighting

MENU button →  photo shooting menu

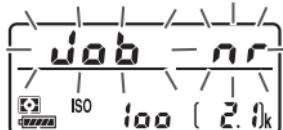
Preserve details in highlights and shadows, creating photographs with natural contrast.

Option	Description
Auto	The camera automatically adjusts Active D-Lighting according to shooting conditions.
Extra high/ High/Normal/ Low	Choose the Active D-Lighting level.
Off	Active D-Lighting off.

Long Exposure NR (Long Exposure Noise Reduction)

MENU button →  photo shooting menu

If **On** is selected, photographs taken at shutter speeds slower than 1 s will be processed to reduce noise (bright spots or fog). The time required for processing roughly doubles; during processing, “**Job nr**” will flash in the shutter speed/aperture displays and pictures can not be taken (if the camera is turned off before processing is complete, the picture will be saved but noise reduction will not be performed). In continuous release mode, frame rates will slow and while photographs are being processed, the capacity of the memory buffer will drop.



High ISO NR

MENU button →  photo shooting menu

Photographs taken at high ISO sensitivities can be processed to reduce “noise”.

Option	Description
High/ Normal/ Low	Reduce noise (randomly-spaced bright pixels), particularly in pictures taken at high ISO sensitivities. Choose the amount of noise reduction performed from High , Normal , and Low .
Off	Noise reduction is performed only as required and never at an amount as high as when Low is selected.

Vignette Control

MENU button →  photo shooting menu

“Vignetting” is a drop in brightness at the edges of a photograph. **Vignette control** reduces vignetting for type G, E, and D lenses (PC lenses excluded). Its effects vary from lens to lens and are most noticeable at maximum aperture. Choose from **High, Normal, Low, and Off**.

Vignette Control

Depending on the scene, shooting conditions, and type of lens, JPEG images may exhibit noise (fog) or variations in peripheral brightness, while custom Picture Controls and preset Picture Controls that have been modified from default settings may not produce the desired effect. Take test shots and view the results in the monitor. Vignette control does not apply to movies or multiple exposures.

Auto Distortion Control

MENU button →  photo shooting menu

Select **On** to reduce barrel distortion when shooting with wide-angle lenses and to reduce pin-cushion distortion when shooting with long lenses (note that the edges of the area visible in the viewfinder may be cropped out of the final photograph, and that the time needed to process photographs before recording begins may increase). This option does not apply to movies and is available only with type G, E, and D lenses (PC, fisheye, and certain other lenses excluded); results are not guaranteed with other lenses.

Retouch: Distortion Control

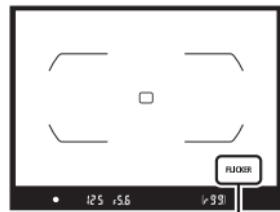
For information on creating copies of existing photographs with reduced barrel and pin-cushion distortion, see “Distortion Control” (□ 168).

Flicker Reduction

MENU button → *photo shooting menu*

Reduce banding or (in photographs taken in continuous release modes) uneven exposure or coloration caused by the flicker of such light sources as fluorescent or mercury-vapor lamps during viewfinder photography.

Option	Description
Flicker reduction setting	<p>When Enable is selected, the camera will time photographs to reduce the effects of flicker. Note that the frame rate may drop while flicker reduction is in effect.</p>
Flicker reduction indicator	<p>When On is selected, a FLICKER icon will be displayed in the viewfinder if flicker is detected when the shutter-release button is pressed halfway. If flicker is detected when Disable is selected for Flicker reduction setting, the icon will flash; to enable flicker reduction, select Enable for Flicker reduction setting.</p>



FLICKER icon

Flicker Reduction in the Photo Shooting Menu

Take a test shot and view the results before taking additional photographs. Flicker reduction can detect flicker at 100 and 120 Hz (associated respectively with AC power supplies of 50 and 60 Hz). Flicker may not be detected or the desired results may not be achieved with dark backgrounds, bright light sources, or decorative lighting displays and other non-standard lighting. Depending on the light source, there may be a slight delay before the shutter is released. During burst shooting, the frame rate may slow or become erratic; in addition, the desired results may not be achieved if the frequency of the power supply changes during shooting.

Flicker detection will not take effect at shutter speeds slower than $\frac{1}{100}$ s (including Bulb and Time) or when **MUP** is selected for release mode or exposure delay mode is on. Flicker reduction is available during flash photography but can not be used with remote wireless flash units.

Remote Control Mode (ML-L3)

MENU button →  photo shooting menu

Choose how the camera behaves when used with an optional ML-L3 remote control (222).

Option	Description
 2s Delayed remote	Shutter is released 2 s after ML-L3 shutter-release button is pressed.
 Quick-response remote	Shutter is released when ML-L3 shutter-release button is pressed.
 Remote mirror-up	Press ML-L3 shutter-release button once to raise mirror, again to release shutter and take photograph. Prevents blur caused by camera moving when mirror is raised.
 Off	The shutter can not be released using the ML-L3.

Auto Bracketing Set

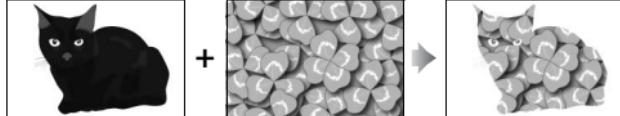
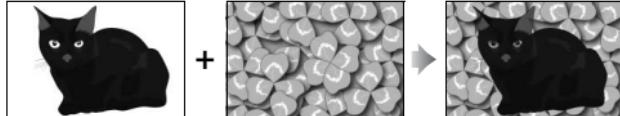
MENU button →  photo shooting menu

Choose the setting or settings bracketed when auto bracketing is in effect. Choose **AE & flash bracketing** (AE) to perform both exposure and flash-level bracketing, **AE bracketing** (AE) to bracket only exposure, **Flash bracketing** (F) to perform only flash-level bracketing, **WB bracketing** (WB) to perform white-balance bracketing, or **ADL bracketing** (ADL) to perform bracketing using Active D-Lighting. Note that white balance bracketing is not available at image quality settings of NEF (RAW) or NEF (RAW) + JPEG.

Multiple Exposure

MENU button →  photo shooting menu

Record two to ten NEF (RAW) exposures as a single photograph.

Option	Description
Multiple exposure mode	<ul style="list-style-type: none">ON  On (series): Take a series of multiple exposures. Select Off to resume normal shooting.On (single photo): Take one multiple exposure.Off: Exit without creating additional multiple exposures.
Number of shots	Choose the number of exposures that will be combined to form a single photograph.
Overlay mode	<ul style="list-style-type: none">Add: The exposures are overlaid without modification; gain is not adjusted.Average: Before the exposures are overlaid, the gain for each is divided by the total number of exposures taken (gain for each exposure is set to $1/2$ for 2 exposures, $1/3$ for 3 exposures, etc).Lighten: The camera compares the pixels in each exposure and uses only the brightest.  <ul style="list-style-type: none">Darken: The camera compares the pixels in each exposure and uses only the darkest. 
Keep all exposures	<ul style="list-style-type: none">On: Save the individual shots that make up each multiple exposure.Off: Discard the individual shots and save only the multiple exposure.

■■ Creating a Multiple Exposure

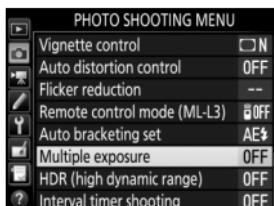
Multiple exposures can not be recorded in live view. Exit live view before proceeding.

Extended Recording Times

If the monitor turns off during playback or menu operations and no operations are performed for about 30 s, shooting will end and a multiple exposure will be created from the exposures that have been recorded to that point. The time available to record the next exposure can be extended by choosing longer times for Custom Setting c2 (Standby timer, 96).

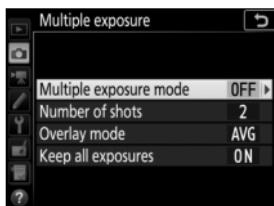
1 Select Multiple exposure.

Highlight **Multiple exposure** in the photo shooting menu and press .



2 Select a mode.

Highlight **Multiple exposure mode** and press , then press  or  to choose the desired mode and press  to select.



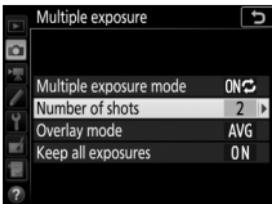
If **On (series)** or **On (single photo)** is selected, a  icon will be displayed in the control panel.



3 Choose the number of shots.

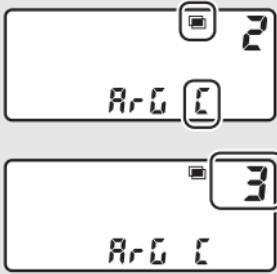
Highlight **Number of shots** and press .

Press  or  to choose the number of exposures that will be combined to form a single photograph and press .



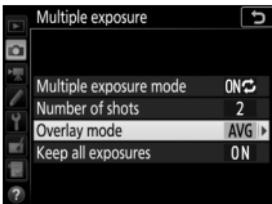
The BKT Button

If **Multiple exposure** is selected for Custom Setting f1 (**Custom control assignment**) > **BKT button +** (see 106), you can select the multiple exposure mode by pressing the **BKT** button and rotating the main command dial and the number of shots by pressing the **BKT** button and rotating the sub-command dial. The mode and number of shots are shown in the control panel: the icons representing the mode are  for **Off**,  for **On (single photo)**, and  for **On (series)**.



4 Choose the overlay mode.

Highlight **Overlay mode** and press , then press  or  to choose the desired mode and press  to select.



5 Choose whether to keep individual exposures.

To choose whether to keep or delete the individual shots that make up the multiple exposure, highlight **Keep all exposures** and press , then press  or  to choose the desired option and press  to select.

6 Frame a photograph, focus, and shoot.

In continuous release modes, the camera records all exposures in a single burst. If **On (series)** is selected, the camera will continue to record multiple exposures while the shutter-release button is pressed; if **On (single photo)** is selected, multiple exposure shooting will end after the first photograph. In self-timer mode, the camera will automatically record the number of exposures selected in Step 3, regardless of the option selected for Custom Setting c3 (**Self-timer**) > **Number of shots** (□ 97); the interval between shots is however controlled by Custom Setting c3 (**Self-timer**) > **Interval between shots**. In other release modes, one photograph will be taken each time the shutter-release button is pressed; continue shooting until all exposures have been recorded. For information on interrupting a multiple exposure before all photographs are recorded, see “Ending Multiple Exposures” (□ 55).

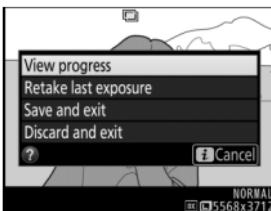
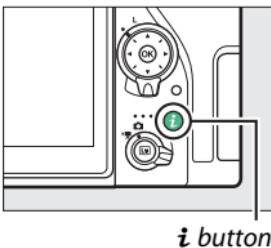
The  icon will flash until shooting ends. If **On (series)** is selected, multiple exposure shooting will only end when **Off** is selected for multiple exposure mode; if **On (single photo)** is selected, multiple exposure shooting ends automatically when the multiple exposure is complete. The  icon clears from the display when multiple exposure shooting ends.



■ Using the *i* Button

The options listed below can be accessed by pressing the  button during a multiple exposure and then pressing the *i* button. Use the touch screen or navigate the menu using the multi selector, pressing  or  to highlight items and pressing  to select.

- **View progress:** View a preview created from the exposures recorded to the current point.
- **Retake last exposure:** Retake the most recent exposure.
- **Save and exit:** Create a multiple exposure from the exposures taken to current point.
- **Discard and exit:** Exit without recording a multiple exposure. If **On** is selected for **Keep all exposures**, the individual exposures will be kept.

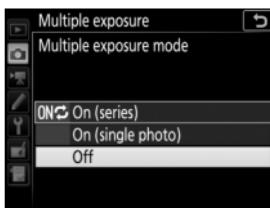


■■ Ending Multiple Exposures

To end a multiple exposure before the specified number of exposures have been taken, select **Off** for multiple exposure mode or press the **■** button followed by the **i** button and select either **Save and exit** or **Discard and exit**.

If shooting ends or you select **Save and exit** before the specified number of exposures have been taken, a multiple exposure will be created from the exposures that have been recorded to that point. If **Average** is selected for **Overlay mode**, gain will be adjusted to reflect the number of exposures actually recorded. Note that shooting will end automatically if:

- A two-button reset is performed
- The camera is turned off
- The battery is exhausted



Multiple Exposure

Multiple exposures may be affected by noise (randomly-spaced bright pixels, fog, or lines).

Do not remove or replace the memory card while recording a multiple exposure.

Live view is not available while shooting is in progress. Selecting live view resets **Multiple exposure mode** to **Off**.

The shooting information listed in the playback photo information display (including metering, exposure, shooting mode, focal length, date and time of recording, and camera orientation) is for the first shot in the multiple exposure.

Interval Timer Photography

If interval timer photography is activated before the first exposure is taken, the camera will record exposures at the selected interval until the number of exposures specified in the multiple exposure menu have been taken (the number of shots listed in the interval timer shooting menu is ignored). These exposures will then be recorded as a single photograph and interval timer shooting will end (if **On (single photo)** is selected for multiple exposure mode, multiple exposure shooting will also end automatically).

Other Settings

While a multiple exposure is being shot, memory cards can not be formatted and some menu items are grayed out and can not be changed.

HDR (High Dynamic Range)

MENU button →  photo shooting menu

Used with high contrast subjects, High Dynamic Range (HDR) preserves details in highlights and shadows by combining two shots taken at different exposures.

Option	Description
HDR mode	<ul style="list-style-type: none">ON  On (series): Take a series of HDR photographs. Select Off to resume normal shooting.On (single photo): Take one HDR photograph.Off: Exit without taking additional HDR photographs.
HDR strength	Choose the HDR strength. If Auto is selected, the camera will automatically adjust HDR strength to suit the scene.

Interval Timer Shooting

MENU button →  photo shooting menu

Take photographs at the selected interval until the specified number of shots has been recorded. Select a release mode other than self-timer (⌚) and mirror up (MUP) when using the interval timer.

Option	Description
Start	Start interval timer shooting, either after 3 s (Now selected for Start options) or at a selected date and time (Choose start day and start time). Shooting will continue at the selected interval until all shots have been taken.
Start options	Choose a start option. To start shooting immediately, select Now . To start shooting at a chosen date and time, select Choose start day and start time .
Interval	Choose the interval (hours, minutes, and seconds) between shots.
No. of intervals × shots/interval	Choose the number of intervals and the number of shots per interval.
Exposure smoothing	Selecting On allows the camera to adjust exposure to match previous shot in modes other than M (note that exposure smoothing only takes effect in mode M if auto ISO sensitivity control is on).

■ Interval Timer Photography

Before Shooting

Before beginning interval timer photography, take a test shot at current settings and view the results in the monitor. Once settings have been adjusted to your satisfaction, remove the rubber eyecup and cover the viewfinder with the supplied eyepiece cap to prevent light entering via the viewfinder interfering with photographs and exposure.

Before choosing a starting time, select **Time zone and date** in the setup menu and make sure that the camera clock is set to the correct time and date (126).

Use of a tripod is recommended. Mount the camera on a tripod before shooting begins. To ensure that shooting is not interrupted, be sure the camera battery is fully charged. If in doubt, charge the battery before use or use an AC adapter and power connector (available separately).

1 Select Interval timer shooting.

Highlight **Interval timer shooting** in the photo shooting menu and press  to display interval timer settings.

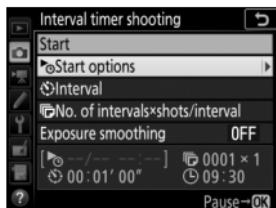
PHOTO SHOOTING MENU	
Vignette control	ON
Auto distortion control	OFF
Flicker reduction	--
Remote control mode (ML-L3)	OFF
Auto bracketing set	AE
Multiple exposure	OFF
HDR (high dynamic range)	OFF
Interval timer shooting	OFF

Interval timer shooting	
 Start	
 Start options	
 Interval	
 No. of intervals×shots/interval	0001 × 1
 Exposure smoothing	OFF
 -- / -- -- --	
 00:01' 00"	09:30
	Pause→OK

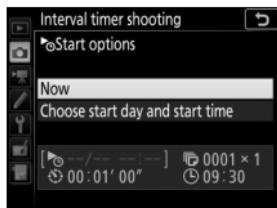
2 Adjust interval timer settings.

Choose a start option, interval, number of shots per interval, and exposure smoothing option.

- **To choose a start option:**



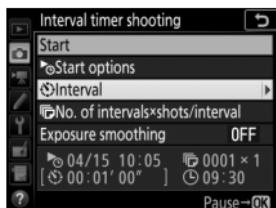
Highlight **Start options** and press .



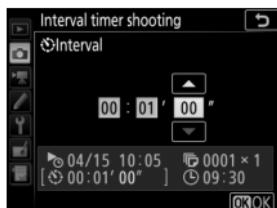
Highlight an option and press .

To start shooting immediately, select **Now**. To start shooting at a chosen date and time, select **Choose start day and start time**, then choose the date and time and press .

- **To choose the interval between shots:**

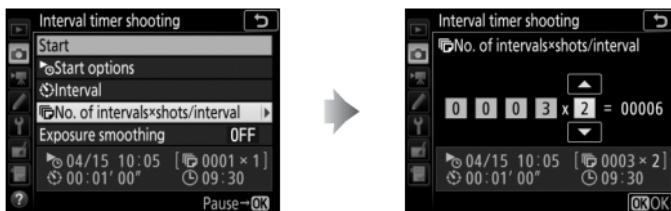


Highlight **Interval** and press .



Choose an interval (hours, minutes, and seconds) and press .

- To choose the number of shots per interval:

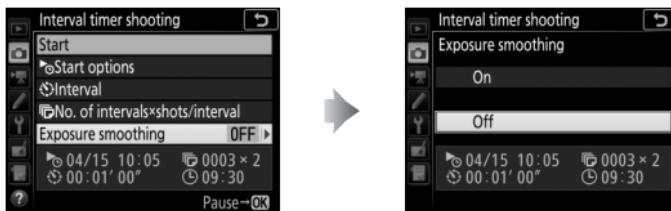


*Highlight **No. of intervals × shots/interval** and press .*

Choose the number of intervals and the number of shots per interval and press .

In **S** (single frame) mode, the photographs for each interval will be taken at the rate chosen for Custom Setting d1 (**CL mode shooting speed**; .

- To enable or disable exposure smoothing:

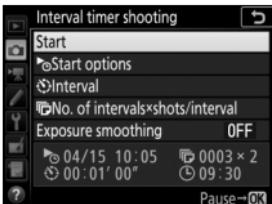


*Highlight **Exposure smoothing** and press .*

Highlight an option and press .

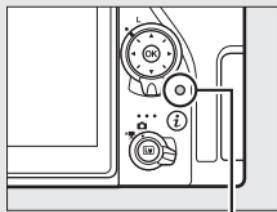
3 Start shooting.

Highlight **Start** and press **OK**. The first series of shots will be taken at the specified starting time, or after about 3 s if **Now** was selected for **Start options** in Step 2. Shooting will continue at the selected interval until all shots have been taken.



During Shooting

During interval timer photography, the memory card access lamp will flash. Immediately before the next shooting interval begins, the shutter speed display will show the number of intervals remaining, and the aperture display will show the number of shots remaining in the current interval. At other times, the number of intervals remaining and the number of shots in each interval can be viewed by pressing the shutter-release button halfway (once the button is released, the shutter speed and aperture will be displayed until the standby timer expires).



Memory card access lamp

Settings can be adjusted, the menus used, and pictures played back while interval timer photography is in progress. The monitor will turn off automatically about four seconds before each interval. Note that changing camera settings while the interval timer is active may cause shooting to end.

Release Mode

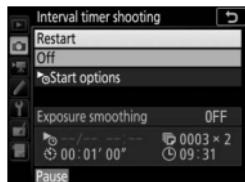
Regardless of the release mode selected, the camera will take the specified number of shots at each interval.

■■ Pausing Interval Timer Photography

Interval timer photography can be paused between intervals by pressing **OK** or selecting **Pause** in the interval timer menu.

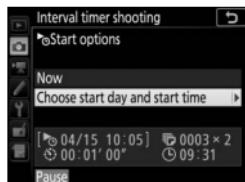
■■ Resuming Interval Timer Shooting

To resume shooting immediately, select **Restart**.

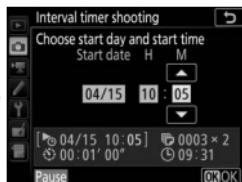


Highlight **Restart** and
press **OK**.

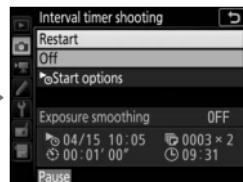
To resume shooting at a specified time:



For **Start options**,
highlight **Choose start
day and start time**
and press **OK**.



Choose a starting date
and time and press **OK**.



Highlight **Restart** and
press **OK**.

■■ Ending Interval Timer Shooting

To end interval timer photography before all the photos are taken, select **Off** in the interval timer menu.

■ **No Photograph**

The camera will skip the current interval if any of the following situations persist for eight seconds or more after the interval was due to start: the photograph or photographs for the previous interval have yet to be taken, the memory card is full, or the camera is unable to focus using single-servo autofocus (AF-S or single-servo autofocus selected for AF-A) or when **Focus** is selected for Custom Setting a1 (**AF-C priority selection**) in AF-C (note that the camera focuses again before each shot). Shooting will resume with the next interval.

Out of Memory

If the memory card is full, the interval timer will remain active but no pictures will be taken. Resume shooting (63) after deleting some pictures or turning the camera off and inserting another memory card.

Interval Timer Photography

Choose an interval longer than the time needed to take the selected number of shots and, if you are using a flash, the time needed for the flash to charge. If the interval is too short, the number of photos taken may be less than the total listed in Step 2 (the number of intervals multiplied by the number of shots per interval) or the flash may fire at less than the power needed for full exposure. Interval timer photography can not be combined with long time-exposures (bulb or time photography) or time-lapse movies (☞ 74) and is not available in live view or when **Record movies** is selected for Custom Setting g1 (**Custom control assignment**) > **Shutter-release button** (☞ 118).

Note that because the shutter speed, frame rate, and time needed to record images may vary from one interval to the next, the time between the end of one interval and the beginning of the next may vary. If shooting can not proceed at current settings (for example, if a shutter speed of **bulb** or **-** is currently selected in mode **M**, the interval is zero, or the start time is in less than a minute), a warning will be displayed in the monitor.

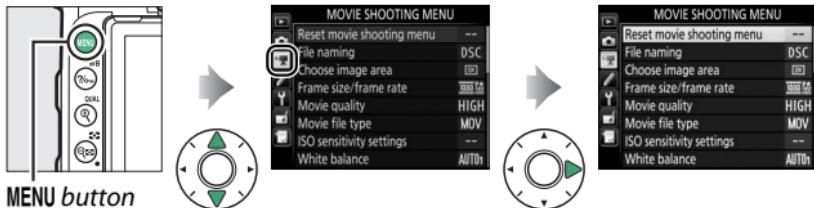
Interval timer shooting will pause when **⌚** (self-timer) is selected or if the camera is turned off and then on again (when the camera is off, batteries and memory cards can be replaced without ending interval timer photography). Pausing shooting does not affect interval timer settings.

Bracketing

Adjust bracketing settings before starting interval timer photography. If exposure, flash, or ADL bracketing is active while interval timer photography is in effect, the camera will take the number of shots in the bracketing program at each interval, regardless of the number of shots specified in the interval timer menu. If white balance bracketing is active while interval timer photography is in effect, the camera will take one shot at each interval and process it to create the number of copies specified in the bracketing program.

■ The Movie Shooting Menu: *Movie Shooting Options*

To display the movie shooting menu, press **MENU** and select the ■ (movie shooting menu) tab.



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* Not included in the settings saved to **U1** or **U2** (□ 123).

See Also

For menu defaults, see “Movie Shooting Menu Defaults” (□ 12).

Reset Movie Shooting Menu

MENU button →  movie shooting menu

Highlight **Yes** and press **OK** to restore movie shooting menu options to their default values (12).

File Naming

MENU button →  movie shooting menu

Choose the three-letter prefix used in naming the image files in which movies are stored. The default prefix is "DSC" (31).

Choose Image Area

MENU button →  movie shooting menu

Choose the image area for movies from **DX** and **1.3x**.

Frame Size/Frame Rate

MENU button →  movie shooting menu

Choose the movie frame size (in pixels) and frame rate.

Option ¹	Maximum bit rate (Mbps) (★ high quality/Normal)	Maximum length
  3840 × 2160 (4K UHD); 30p ²	144	29 min. 59 s ³
  3840 × 2160 (4K UHD); 25p ²		
  3840 × 2160 (4K UHD); 24p ²		
  1920 × 1080; 60p	48/24	29 min. 59 s ³
  1920 × 1080; 50p		
  1920 × 1080; 30p	24/12	
  1920 × 1080; 25p		
  1920 × 1080; 24p		
  1280 × 720; 60p		
  1280 × 720; 50p		

1 Actual frame rate is 29.97 fps for values listed as 30p, 23.976 fps for values listed as 24p, and 59.94 fps for values listed as 60p.

2 When this option is selected,  is displayed in the monitor and movie quality is fixed at "high".

3 Each movie will be recorded across up to 8 files of up to 4 GB each. The number of files and the length of each file vary with the options selected for **Frame size/frame rate** and **Movie quality**.

Movie Quality

MENU button →  movie shooting menu

Choose from **High quality** and **Normal**.

Movie File Type

MENU button →  movie shooting menu

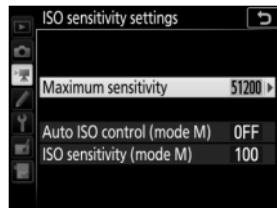
Choose the file format for movies from MOV and MP4.

ISO Sensitivity Settings

MENU button →  movie shooting menu

Adjust the following ISO sensitivity settings.

- **Maximum sensitivity:** Choose the upper limit for auto ISO sensitivity control from values between ISO 200 and Hi 5. Auto ISO sensitivity control is used in modes **P**, **S**, and **A** and when **On** is selected for **Auto ISO control (mode M)** in mode **M**.
- **Auto ISO control (mode M):** Select **On** for auto ISO sensitivity control in mode **M**, **Off** to use the value selected for **ISO sensitivity (mode M)**.
- **ISO sensitivity (mode M):** Choose the ISO sensitivity for mode **M** from values between ISO 100 and Hi 5. Auto ISO sensitivity control is used in other modes.



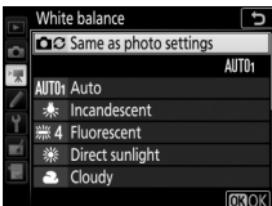
Auto ISO Sensitivity Control

At high ISO sensitivities, the camera may have difficulty focusing and noise (randomly-spaced bright pixels, fog, or lines) may increase. This can be prevented by choosing a lower value for **ISO sensitivity settings** > **Maximum sensitivity**.

White Balance

MENU button →  movie shooting menu

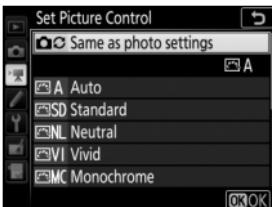
Choose the white balance for movies (□ 39). Select **Same as photo settings** to use the option currently selected for photos.



Set Picture Control

MENU button →  movie shooting menu

Choose a Picture Control for movies (□ 40). Select **Same as photo settings** to use the option currently selected for photos.



Manage Picture Control

MENU button →  movie shooting menu

Create custom Picture Controls (□ 41).

Active D-Lighting

MENU button →  movie shooting menu

Preserve details in highlights and shadows, creating movies with natural contrast. Select **Same as photo settings** to use the option currently selected for photos (□ 44).



High ISO NR

MENU button →  movie shooting menu

Reduce “noise” (randomly-spaced bright pixels) in movies recorded at high ISO sensitivities (45).

Flicker Reduction

MENU button →  movie shooting menu

Reduce flicker and banding when shooting under fluorescent or mercury-vapor lighting during live view or movie recording. Choose **Auto** to allow the camera to automatically choose the correct frequency, or manually match the frequency to that of the local AC power supply.

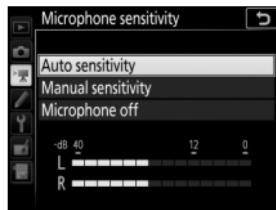
Flicker Reduction in the Movie Shooting Menu

If **Auto** fails to produce the desired results and you are unsure as to the frequency of the local power supply, test both the 50 and 60 Hz options and choose the one that produces the best results. Flicker reduction may not produce the desired results if the subject is very bright, in which case you should try choosing a smaller aperture (higher f-number). To prevent flicker, select mode **M** and choose a shutter speed adapted to the frequency of the local power supply: $1/125$ s, $1/60$ s, or $1/30$ s for 60 Hz; $1/100$ s, $1/50$ s, or $1/25$ s for 50 Hz.

Microphone Sensitivity

MENU button →  movie shooting menu

Turn the built-in or external microphones (224) on or off or adjust microphone sensitivity. Choose **Auto sensitivity** to adjust sensitivity automatically, **Microphone off** to turn sound recording off; to select microphone sensitivity manually, select **Manual sensitivity** and choose a sensitivity.



The Icon

 is displayed in full-frame and movie playback if the movie was recorded without sound.



Frequency Response

MENU button →  movie shooting menu

If **WIDE Wide range** is selected, the built-in and external microphones (224) will respond to a wide range of frequencies, from music to the bustling hum of a city street. Choose **VOICE Vocal range** to bring out human voices.

Wind Noise Reduction

MENU button →  movie shooting menu

Select **On** to enable the low-cut filter for the built-in microphone (optional stereo microphones are unaffected), reducing noise produced by wind blowing over the microphone (note that other sounds may also be affected). Wind-noise reduction for optional stereo microphones that support this feature can be enabled or disabled using microphone controls.

Electronic VR

MENU button →  movie shooting menu

Choose whether to enable electronic vibration reduction in movie mode.

Time-Lapse Movie

MENU button →  movie shooting menu

The camera automatically takes photos at selected intervals to create a silent time-lapse movie with the frame size, frame rate, movie quality, and image area currently selected in the movie shooting menu. Time-lapse recording is available in **AUTO**, **S**, **P**, **S**, **A**, **M**, and **SCENE** modes.

Option	Description
Start	Start time-lapse recording. Shooting starts after about 3 s and continues at the selected interval for the selected shooting time.
Interval	Choose the interval between shots in minutes and seconds.
Shooting time	Choose the shooting time (hours and minutes).
Exposure smoothing	Selecting On smooths abrupt changes in exposure in modes other than M (note that exposure smoothing only takes effect in mode M if auto ISO sensitivity control is on).

■■ Recording Time-Lapse Movies

Before Shooting

Before shooting a time-lapse movie, take a test shot at current settings and view the results in the monitor (time-lapse movies are shot using the movie crop; use live view so that you can check the composition). For consistent coloration, choose a white balance setting other than auto (39). Once settings have been adjusted to your satisfaction, remove the rubber eyecup and cover the viewfinder with the supplied eyepiece cap to prevent light entering via the viewfinder interfering with photographs and exposure.

Use of a tripod is recommended. Mount the camera on a tripod before shooting begins. To ensure that shooting is not interrupted, use an optional AC adapter and power connector or a fully-charged battery.

1 Select Time-lapse movie.

Highlight **Time-lapse movie** in the movie shooting menu and press  to display time-lapse movie settings.



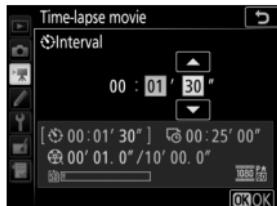
2 Adjust time-lapse movie settings.

Choose an interval, total shooting time, and exposure smoothing option.

- To choose the interval between frames:

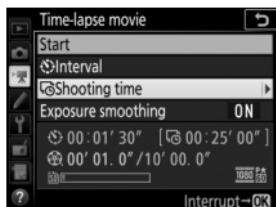


Highlight **Interval** and press .

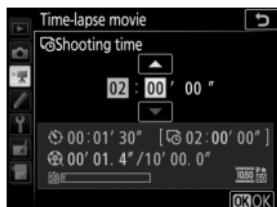


Choose an interval longer than the slowest anticipated shutter speed (minutes and seconds) and press .

- To choose the total shooting time:

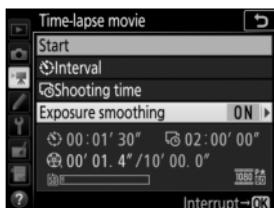


Highlight **Shooting time** and press .

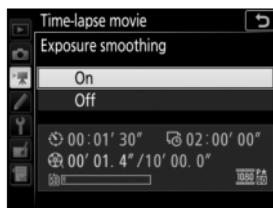


Choose shooting time (up to 7 hours 59 minutes) and press .

- To enable or disable exposure smoothing:



*Highlight **Exposure**
smoothing and press **OK**.*



*Highlight an option and
press **OK**.*

3 Start shooting.

Highlight **Start** and press **OK**.

Shooting starts after about 3 s. The camera takes photographs at the selected interval for the selected shooting time. When complete, time-lapse movies are recorded to the memory card.



3840 x 2160

If an option with a frame size 3840 x 2160 is selected for **Frame size**/**frame rate** in the movie shooting menu, the 1.3x DX crop indicator and 1.3x DX crop will be displayed in the viewfinder; rotate the live view selector to and frame the shot in live view.

■ **Ending Shooting**

To end shooting before all the photos are taken, highlight **Off** in the time-lapse movie menu and press **OK**, or press **OK** between frames or immediately after a frame is recorded. A movie will be created from the frames shot to the point where shooting ended. Note that shooting will end and no movie will be recorded if the power source is removed or disconnected or the memory card is ejected.

■ **No Photograph**

The camera will skip the current frame if it is unable to focus using single-servo autofocus (**AF-S** or single-servo autofocus selected for **AF-A**) or with **Focus** selected for Custom Setting a1 (**AF-C priority selection**) in **AF-C** (note that the camera focuses again before each shot). Shooting will resume with the next frame.

Time-Lapse Movies

Time-lapse is not available during live view or movie recording, at a shutter speed of **bu** **1** **b** or **-**, in special effects mode, or when the self-timer, bracketing (□ 49), High Dynamic Range (HDR, □ 57), multiple exposure (□ 50), or interval timer photography (□ 58) is active. Note that because shutter speed and the time needed to record the image to the memory card may vary from shot to shot, the interval between a shot being recorded and the start of the next shot may vary.

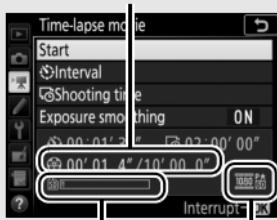
Shooting will not begin if a time-lapse movie can not be recorded at current settings (for example, if the memory card is full, the interval or shooting time is zero, or the interval is longer than the shooting time).

Shooting may end if camera controls are used or settings are changed or HDMI cable is connected. A movie will be created from the frames shot to the point where shooting ended. To end shooting and record a photograph, press the shutter-release button all the way down.

Calculating the Length of the Final Movie

The total number of frames in the final movie can be calculated by dividing the shooting time by the interval and rounding up. The length of the final movie can then be calculated by dividing the number of shots by the frame rate selected for **Frame size/frame rate** in movie shooting menu (68). A 48 frame movie recorded at **1920 x 1080; 24p**, for example, will be about two seconds long. The maximum length for time-lapse movies is 20 minutes.

Length recorded/maximum length



Memory card indicator

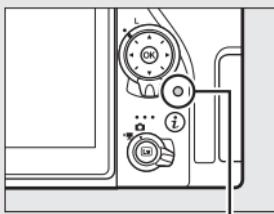
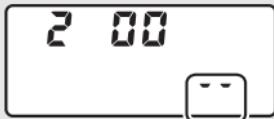
Frame size/frame rate

Flash Photography

To use the flash during time-lapse recording, select mode **P, S, A, or M** and press the **Fn** (22) button to raise the flash before shooting begins.

During Shooting

During shooting, the memory card access lamp will light and the time-lapse recording indicator will be displayed in the control panel. The time remaining (in hours and minutes) appears in the shutter-speed display immediately before each frame is recorded. At other times, the time remaining can be viewed by pressing the shutter-release button halfway. Regardless of the option selected for Custom Setting c2 (**Standby timer**, 96), the standby timer will not expire during shooting.



Memory card access lamp

To view current time-lapse movie settings or end shooting (78), press the **MENU** button between shots. While shooting is in progress, the time-lapse movie menu will show exposure smoothing, the interval, and the time remaining. These settings can not be changed while shooting is in progress, nor can pictures be played back or other menu settings adjusted.

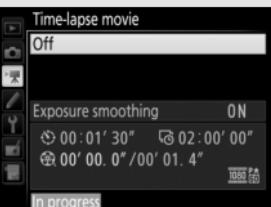


Image Review

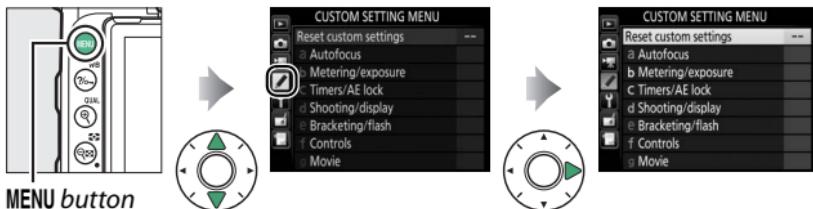
The **PLAY** button can not be used to view pictures while shooting is in progress, but the current frame will be displayed for a few seconds after each shot if **On** is selected for **Image review** in the playback menu (22). Other playback operations can not be performed while the frame is displayed.

See Also

For information on the beep that sounds when shooting is complete, see **Y > Beep options** (142).

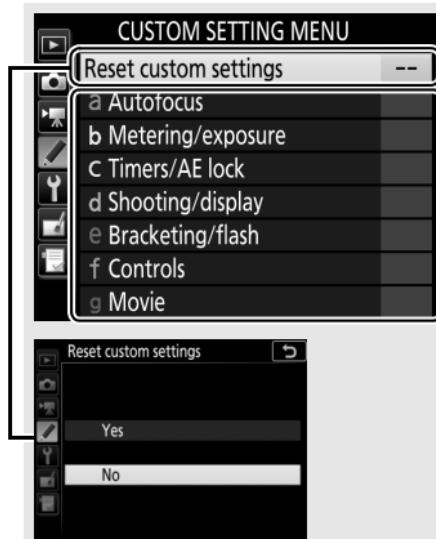
Custom Settings: Fine-Tuning Camera Settings

To display the Custom Settings menu, press **MENU** and select the  (Custom Settings menu) tab.



Custom Settings are used to customize camera settings to suit individual preferences.

Main menu



Reset custom settings (□ 84)

Custom Setting groups

a Autofocus	
a1 AF-C priority selection	
a2 AF-S priority selection	
a3 Focus tracking with lock-on	AF-F
b Metering/exposure	
b1 ISO sensitivity step value	1/3
b2 EV steps for exposure ctrnl	1/3
b3 Easy exposure compensation	OFF
c Timers/AE lock	
c1 Shutter-release button AE-L	OFF
c2 Standby timer	6s
c3 Self-timer	--
d Shooting/display	
d1 CL mode shooting speed	 3
d2 Max. continuous release	100
d3 Exposure delay mode	OFF
e Bracketing/flash	
e1 Flash sync speed	1/250
e2 Flash shutter speed	1/60
e3 Exposure comp. for flash	
f Controls	
f1 Custom control assignment	--
f2 OK button	--
f3 Customize command dials	--
g Movie	
g1 Custom control assignment	--

The following Custom Settings are available:

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a2	AF-S priority selection	85
a3	Focus tracking with lock-on	86
a4	Number of focus points	86
a5	Store points by orientation	87
a6	AF activation	88
a7	Focus point wrap-around	89
a8	Focus point options	90
a9	Built-in AF-assist illuminator	91
a10	Manual focus ring in AF mode*	92
b	Metering/exposure	
b1	ISO sensitivity step value	93
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b3	Easy exposure compensation	94
b4	Matrix metering	95
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e3	Exposure comp. for flash	104
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f1	Custom control assignment	106
f2	OK button	114
f3	Customize command dials	115
f4	Release button to use dial	117
f5	Reverse indicators	117
g	Movie	
g1	Custom control assignment	118

* Available only with lenses that support this item.

Note: If settings have been modified from default values (□ 13), an asterisk will be displayed adjacent to the altered settings in the second level of the Custom Settings menu.

Reset Custom Settings

MENU button →  Custom Settings menu

Select **Yes** to restore Custom Settings to their default values (□ 13).

a: Autofocus

a1: AF-C Priority Selection

MENU button →  Custom Settings menu

When **AF-C** is selected for viewfinder photography, this option controls whether photographs can be taken whenever the shutter-release button is pressed (*release priority*) or only when the camera is in focus (*focus priority*).

Option	Description
 Release	Photos can be taken whenever the shutter-release button is pressed.
 Focus	Photos can only be taken when the in-focus indicator (●) is displayed.

Regardless of the option selected, focus will not lock when **AF-C** is selected for autofocus mode. The camera will continue to adjust focus until the shutter is released.

a2: AF-S Priority Selection

MENU button →  Custom Settings menu

When **AF-S** is selected for viewfinder photography, this option controls whether photographs can be taken only when the camera is in focus (*focus priority*) or whenever the shutter-release button is pressed (*release priority*).

Option	Description
 Release	Photos can be taken whenever the shutter-release button is pressed.
 Focus	Photos can only be taken when the in-focus indicator (●) is displayed.

Regardless of the option selected, if the in-focus indicator (●) is displayed when **AF-S** is selected for autofocus mode, focus will lock while the shutter-release button is pressed halfway. Focus lock continues until the shutter is released.

a3: Focus Tracking with Lock-On

MENU button →  Custom Settings menu

This option controls how autofocus adjusts to sudden large changes in the distance to the subject when **AF-C** is selected or continuous-servo autofocus is selected when the camera is in **AF-A** mode for viewfinder photography.

Option	Description
AF 5 (Long)/ AF 4/ AF 3 (Normal)/ AF 2/ AF 1 (Short)	When the distance to the subject changes abruptly, the camera waits for the specified period before adjusting the distance to the subject. This prevents the camera from refocusing when the subject is briefly obscured by objects passing through the frame. Note that 2, 1 (Short) , and Off are equivalent to 3 (Normal) when 3D-tracking or auto-area AF is selected for AF-area mode.
Off	The camera immediately adjusts focus when the distance to the subject changes. Use when photographing a series of subjects at varying distances in quick succession.

a4: Number of Focus Points

MENU button →  Custom Settings menu

Choose the number of focus points available for manual focus-point selection.

Option	Description
AF51 51 points	Choose from 51 focus points.
AF11 11 points	Choose from 11 focus points. Use for quick focus-point selection.



a5: Store Points by Orientation

MENU button →  Custom Settings menu

Choose whether separate focus points can be selected for “wide” (landscape) orientation, for “tall” (portrait) orientation with the camera rotated 90° clockwise, and for “tall” orientation with the camera rotated 90° counterclockwise.

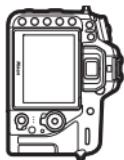
Select **Off** to use the same focus point regardless of camera orientation.



*Camera rotated
90°counter-clockwise*



*Landscape (wide)
orientation*



*Camera rotated
90°clockwise*

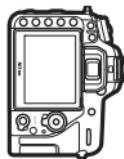
Choose **Yes** to enable separate focus-point selection.



*Camera rotated
90° counter-clockwise*



*Landscape (wide)
orientation*



*Camera rotated
90° clockwise*

a6: AF Activation

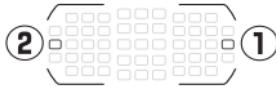
MENU button → *Custom Settings menu*

Choose whether the camera focuses when the shutter-release button is pressed halfway. If **AF-ON only** is selected, the camera will not focus when the shutter-release button is pressed halfway; focus using a button that has been assigned the AF-ON role in the Custom Settings menu (☞ 106).

a7: Focus Point Wrap-Around

MENU button →  Custom Settings menu

Choose whether focus-point selection “wraps around” from one edge of the viewfinder to another.

Option	Description
Wrap	Focus-point selection “wraps around” from top to bottom, bottom to top, right to left, and left to right, so that, for example, pressing  when a focus point at the right edge of the viewfinder display is highlighted (①) selects the corresponding focus point at the left edge of the display (②). 
No wrap	The focus-point display is bounded by the outermost focus points so that, for example, pressing  when a focus point at the right edge of the display is selected has no effect.

a8: Focus Point Options

MENU button →  *Custom Settings menu*

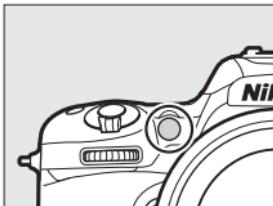
Choose from the following focus point display options.

Option	Description
Focus point illumination	<p>Choose whether the active focus point is highlighted in red in the viewfinder.</p> <ul style="list-style-type: none">• Auto: The selected focus point is automatically highlighted as needed to establish contrast with the background.• On: The selected focus point is always highlighted, regardless of the brightness of the background. Depending on the brightness of the background, the selected focus point may be difficult to see.• Off: The selected focus point is not highlighted.
Manual focus mode	Choose On to display the active focus point in manual focus mode, Off to display the focus point only during focus point selection.

a9: Built-in AF-assist Illuminator

MENU button →  Custom Settings menu

Choose whether the built-in AF-assist illuminator lights to assist the focus operation when lighting is poor.



Option	Description
On	<p>The AF-assist illuminator lights when lighting is poor (viewfinder photography only). AF-assist illumination is only available when both of the following conditions are met:</p> <ol style="list-style-type: none">1. AF-S is selected for autofocus mode or single-servo autofocus is selected when the camera is in AF-A mode.2. Auto-area AF is chosen for AF-area mode, or an option other than auto-area AF is chosen and the center focus point is selected.
Off	The AF-assist illuminator does not light to assist the focus operation. The camera may not be able to focus using autofocus when lighting is poor.

The AF-Assist Illuminator

The AF-assist illuminator has a range of about 0.5–3.0 m (1 ft 8 in.–9 ft 10 in.); when using the illuminator, remove the lens hood.

a10: Manual Focus Ring in AF Mode

MENU button →  *Custom Settings menu*

This item is displayed only with lenses that support it. Selecting **Enable** allows the lens focus ring to be used for manual focus when the camera is in autofocus mode. After pressing the shutter-release button halfway to focus, keep the button pressed halfway and adjust focus using the focus ring. To refocus using autofocus, lift your finger from the shutter-release button and then press it halfway again. To prevent the lens focus ring being used for manual focus when the camera is in autofocus mode, select **Disable**.

b: Metering/Exposure

b1: ISO Sensitivity Step Value

MENU button →  Custom Settings menu

Select the increments used when making adjustments to ISO sensitivity. If possible, the current ISO sensitivity setting is maintained when the step value is changed. If the current ISO sensitivity setting is not available at the new step value, ISO sensitivity will be rounded to the nearest available setting.

b2: EV Steps for Exposure Cntrl

MENU button →  Custom Settings menu

Select the increments used when making adjustments to shutter speed, aperture, exposure and flash compensation, and bracketing.

b3: Easy Exposure Compensation

MENU button →  Custom Settings menu

This option controls whether the  button is needed to set exposure compensation. If **On (Auto reset)** or **On** is selected, the 0 at the center of the exposure display will flash even when exposure compensation is set to ±0.

Option	Description
On (Auto reset)	Exposure compensation is set by rotating one of the command dials (see note below). The setting selected using the command dial is reset when the camera turns off or the standby timer expires (exposure compensation settings selected using the  button are not reset).
On	As above, except that the exposure compensation value selected using the command dial is not reset when the camera turns off or the standby timer expires.
Off	Exposure compensation is set by pressing the  button and rotating the main command dial.

Change Main/Sub

The dial used to set exposure compensation when **On (Auto reset)** or **On** is selected for Custom Setting b3 (**Easy exposure compensation**) depends on the option selected for Custom Setting f3 (**Customize command dials**) > **Change main/sub** (□ 115).

Customize command dials > Change main/sub			
		Off	On
Mode	P	Sub-command dial	Sub-command dial
	S	Sub-command dial	Main command dial
	A	Main command dial	Sub-command dial
	M		N/A

b4: Matrix Metering

MENU button →  Custom Settings menu

Choose **ON** **Face detection on** to enable face detection when shooting portraits with matrix metering during viewfinder photography.

b5: Center-Weighted Area

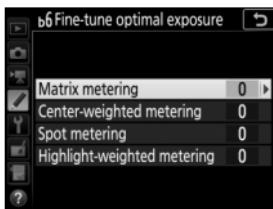
MENU button →  Custom Settings menu

Choose the size of the area given the most weight in center-weighted metering.

b6: Fine-Tune Optimal Exposure

MENU button →  Custom Settings menu

Use this option to fine-tune the exposure value selected by the camera. Exposure can be fine-tuned separately for each metering method by from +1 to -1 EV in steps of $\frac{1}{6}$ EV.



Fine-Tuning Exposure

Exposure fine-tuning is not affected by two-button resets. Note that as the exposure compensation (☒) icon is not displayed, the only way to determine how much exposure has been altered is to view the amount in the fine-tuning menu.

c: Timers/AE Lock

c1: Shutter-Release Button AE-L

MENU button →  *Custom Settings menu*

Choose whether exposure locks when the shutter-release button is pressed.

Option	Description
 ON On (half press)	Pressing the shutter-release button halfway locks exposure.
 ON On (burst mode)	Exposure only locks while the shutter-release button is pressed all the way down.
Off	Pressing the shutter-release button does not lock exposure.

c2: Standby Timer

MENU button →  *Custom Settings menu*

Choose how long the camera continues to meter exposure when no operations are performed. The shutter-speed and aperture displays in the control panel and viewfinder turn off automatically when the standby timer expires.

Choose a shorter standby timer delay for longer battery life.

c3: Self-Timer

MENU button →  *Custom Settings menu*

Choose the length of the shutter release delay, the number of shots taken, and the interval between shots in self-timer mode.

- **Self-timer delay:** Choose the length of the shutter-release delay.
- **Number of shots:** Press  and  to choose the number of shots taken each time the shutter-release button is pressed.
- **Interval between shots:** Choose the interval between shots when the **Number of shots** is more than 1.

c4: Monitor off Delay

MENU button →  *Custom Settings menu*

Choose how long the monitor remains on when no operations are performed during playback (**Playback**; defaults to 10 s) and image review (**Image review**; defaults to 4 s), when menus (**Menus**; defaults to 1 minute) or information (**Information display**; defaults to 4 s) are displayed, or during live view and movie recording (**Live view**; defaults to 10 minutes). Choose a shorter monitor-off delay for longer battery life.

c5: Remote on Duration (ML-L3)

MENU button →  *Custom Settings menu*

Choose how long the camera will remain on stand-by in remote release mode (49). If no operations are performed for the selected period, remote shooting will end and **Off** will automatically be selected for **Remote control mode (ML-L3)** in the photo shooting menu. Choose shorter times for longer battery life.

d1: CL Mode Shooting Speed

MENU button →  *Custom Settings menu*

Choose the maximum frame advance rate in **CL** (continuous low speed) mode.

d2: Max. Continuous Release

MENU button →  *Custom Settings menu*

The maximum number of shots that can be taken in a single burst in continuous mode can be set to any value between 1 and 100. Note that regardless of the option selected, there is no limit to the number of photos that can be taken in a single burst when a shutter speed of 4 s or slower is selected in mode **S** or **M**.

The Memory Buffer

Regardless of the option selected for Custom Setting d2, shooting will slow when the memory buffer fills ().

d3: Exposure Delay Mode

MENU button →  *Custom Settings menu*

In situations where the slightest camera movement can blur pictures, select **1 s**, **2 s**, or **3 s** to delay shutter release until one, two, or three seconds after the mirror is raised.

d4: Electronic Front-Curtain Shutter

MENU button →  *Custom Settings menu*

Select **Enable** to enable the electronic front-curtain shutter in **MUP** mode, eliminating blur caused by shutter motion. A mechanical shutter is used in other release modes.

The Electronic Front-Curtain Shutter

A type G, E, or D lens is recommended; select **Disable** if you notice lines or fog when shooting with other lenses. The fastest shutter speed and maximum ISO sensitivity available with the electronic front-curtain shutter are $1/2000$ s and ISO 51200, respectively. The electronic front-curtain shutter cannot be used with the ML-L3 remote control.

d5: File Number Sequence

MENU button →  Custom Settings menu

When a picture is taken, the camera names the file by adding one to the last file number used. This option controls whether file numbering continues from the last number used when a new folder is created, the memory card is formatted, or a new memory card is inserted in the camera.

Option	Description
On	When a new folder is created, the memory card formatted, or a new memory card inserted in the camera, file numbering continues from the last number used or from the largest file number in the current folder, whichever is higher. If a photograph is taken when the current folder contains a photograph numbered 9999, a new folder will be created automatically and file numbering will begin again from 0001.
Off	File numbering is reset to 0001 when a new folder is created, the memory card is formatted, or a new memory card is inserted in the camera. Note that a new folder is created automatically if a picture is taken when the current folder contains 999 pictures.
Reset	As for On , except that the next picture taken is assigned a file number by adding one to the largest file number in the current folder. If the folder is empty, file numbering is reset to 0001.

File Number Sequence

If the current folder is numbered 999 and contains either 999 pictures or a photograph numbered 9999, the shutter-release button will be disabled and no further pictures can be taken (in addition, movie recording may be disabled if the current folder is numbered 999 and the next file would be the 992nd or numbered 9992 or higher). Choose **Reset** for Custom Setting d5 (**File number sequence**) and then either format the current memory card or insert a new memory card.

d6: Viewfinder Grid Display

MENU button →  *Custom Settings menu*

Choose **On** to display on-demand grid lines in the viewfinder for reference when composing photographs.

d7: ISO Display

MENU button →  *Custom Settings menu*

Choose whether the viewfinder shows ISO sensitivity (**Show ISO sensitivity**) or the number of exposures remaining (**Show frame count**).

d8: LCD Illumination

MENU button →  *Custom Settings menu*

If **Off** is selected, the control panel backlight (LCD illuminator) will only light while the power switch is rotated toward . If **On** is selected, the control panel will be illuminated whenever the standby timer is active (□ 96). Select **Off** for increased battery life.

d9: Optical VR

MENU button →  *Custom Settings menu*

This item is displayed only with lenses that support it. Selecting **On** enables vibration reduction, which takes effect whenever the shutter-release button is pressed halfway. Select **Off** to disable vibration reduction.

e1: Flash Sync Speed

MENU button →  Custom Settings menu

This option controls flash sync speed.

Option	Description
1/320 s (Auto FP)	Auto FP high-speed sync is used when a compatible flash unit is attached. If the built-in flash or other flash units are used, shutter speed is set to 1/320 s. When the camera shows a shutter speed of 1/320 s in mode P or A , auto FP high-speed sync will be activated if the actual shutter speed is faster than 1/320 s.
1/250 s (Auto FP)	Auto FP high-speed sync is used when a compatible flash unit is attached. If the built-in flash or other flash units are used, shutter speed is set to 1/250 s. When the camera shows a shutter speed of 1/250 s in mode P or A , auto FP high-speed sync will be activated if the actual shutter speed is faster than 1/250 s.
1/250 s–1/60 s	Flash sync speed set to selected value.

Fixing Shutter Speed at the Flash Sync Speed Limit

To fix shutter speed at the sync speed limit in mode **S** or **M**, select the next shutter speed after the slowest possible shutter speed (30 s or - -). An X (flash sync indicator) will be displayed in the viewfinder and control panel together with the flash sync speed.

Auto FP High-Speed Sync

Auto FP high-speed sync allows the flash to be used at the highest shutter speed supported by the camera, making it possible to choose the maximum aperture for reduced depth of field even when the subject is backlit in bright sunlight. The information display flash mode indicator shows "FP" when auto FP high-speed sync is active.

■■ Auto FP High-Speed Sync

When **1/320 s (Auto FP)** or **1/250 s (Auto FP)** is selected for Custom Setting e1 (**Flash sync speed**, 102), the built-in flash can be used at shutter speeds as fast as $1/320$ s or $1/250$ s, while compatible optional flash units can be used at any shutter speed (Auto FP High-Speed Sync).

Shutter speed	Flash sync speed		1/320 s (Auto FP)		1/250 s (Auto FP)		1/250 s	
	Built-in flash	Optional flash unit	Built-in flash	Optional flash unit	Built-in flash	Optional flash unit	Built-in flash	Optional flash unit
From $1/8000$ to but not including $1/320$ s	—	Auto FP	—	Auto FP	—	—	—	—
From $1/320$ to but not including $1/250$ s		Flash sync*	—	Auto FP	—	—	—	—
$1/250$ –30 s	Flash sync							

* Flash range drops as shutter speed increases. Flash range will nevertheless be greater than that obtained at the same speeds with Auto FP.

e2: Flash Shutter Speed

MENU button →  Custom Settings menu

This option determines the slowest shutter speed available when using front- or rear-curtain sync or red-eye reduction in mode **P** or **A** (regardless of the setting chosen, shutter speeds can be as slow as 30 s in **S** and **M** modes or at flash settings of slow sync, slow rear-curtain sync, or red-eye reduction with slow sync).

e3: Exposure Comp. for Flash

MENU button →  Custom Settings menu

Choose how the camera adjusts flash level when exposure compensation is used.

Option	Description
   Entire frame	Both flash level and exposure compensation are adjusted to modify exposure over the entire frame.
 Background only	Exposure compensation applies to background only.

e4: Auto ↓ ISO Sensitivity Control

MENU button →  Custom Settings menu

Choose the reference used to set exposure when a flash is used with auto ISO sensitivity control.

Option	Description
 Subject and background	The camera takes both the main subject and background lighting into account when adjusting ISO sensitivity.
 Subject only	ISO sensitivity is adjusted only to ensure that the main subject is correctly exposed.

e5: Bracketing Order

MENU button →  Custom Settings menu

At the default setting of **MTR > under > over** (N), exposure, flash, and white balance bracketing are performed in the following order: the unmodified shot is taken first, followed by the shot with the lowest value, followed by the shot with the highest value. If **Under > MTR > over** (→+) is selected, shooting will proceed in order from the lowest to the highest value. This setting has no effect on ADL bracketing.

f1: Custom Control Assignment

MENU button →  Custom Settings menu

Choose the functions assigned to camera controls, whether used individually or in combination with the command dials.

■ Press

Choose the roles played by the following controls, highlight the desired option and press the **OK**:



Fn1	Fn1 button
Fn2	Fn2 button
AE-L/AFL	AE-L/AF-L button

"Press" and "Press + Command Dials"

Certain roles can not be assigned simultaneously to both the "press" and "press + command" functions for some controls. Assigning such a role to "press" when it is already assigned to "press + command dial" sets the "press + command dial" option **None**, while assigning such a role to "press + command dials" when it is already assigned to "press" sets the "press" option **None**.

The functions that can be assigned to these controls are as follows:

Option	Fn1/Fn2	AF-L
 FV lock	✓	✓
 AE/AF lock	✓	✓
 AE lock only	✓	✓
 AE lock (Reset on release)	✓	✓
 AE lock (Hold)	✓	✓
 AF lock only	✓	✓
 AF-ON	✓	✓
 Modeling flash	✓	—
 Flash off	✓	—
 Bracketing burst	✓	—
 + NEF (RAW)	✓	—
 Matrix metering	✓	—
 Center-weighted metering	✓	—
 Spot metering	✓	—
 Highlight-weighted metering	✓	—
 Viewfinder grid display	✓	—
 Viewfinder virtual horizon	✓	—
 MY MENU	✓	—
 Access top item in MY MENU	✓	—
 Playback	✓	—
None	✓	✓

The following options are available:

Option	Description
 FV lock	Press the control to lock flash value. Press again to cancel FV lock.
 AE/AF lock	Focus and exposure lock while the control is pressed.
 AE lock only	Exposure locks while the control is pressed.
 AE lock (Reset on release)	Exposure locks when the control is pressed, and remains locked until the control is pressed a second time, the shutter is released, or the standby timer expires.
 AE lock (Hold)	Exposure locks when the control is pressed, and remains locked until the control is pressed a second time or the standby timer expires.
 AF lock only	Focus locks while the control is pressed.
 AF-ON	Pressing the control initiates autofocus.
 Modeling flash	Press the control to test-fire the flash and check for shadows.
 Flash off	The flash will not fire in photos taken while the control is pressed.
 Bracketing burst	If the control is pressed while exposure, flash, or ADL bracketing is active in single frame or quiet shutter-release mode, all shots in the current bracketing program will be taken each time the shutter-release button is pressed. If white balance bracketing is active or a continuous release mode (mode CH , CL , or QC) is selected, the camera will repeat the bracketing burst while the shutter-release button is held down.

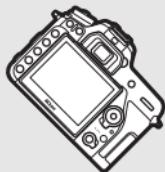
Option	Description
 +NEF (RAW)	If a JPEG option is currently selected for image quality, “RAW” will be displayed in the control panel and an NEF (RAW) copy will be recorded with the next picture taken after the control is pressed (the original image quality setting will be restored when you remove your finger from the shutter-release button). NEF (RAW) copies are recorded at the settings currently selected for NEF (RAW) recording in the photo shooting menu (□ 37). To exit without recording an NEF (RAW) copy, press the control again.
 Matrix metering	Matrix metering is activated while the control is pressed.
 Center-weighted metering	Center-weighted metering is activated while the control is pressed.
 Spot metering	Spot metering is activated while the control is pressed.
 * Highlight-weighted metering	Highlight-weighted metering is activated while the control is pressed.
 Viewfinder grid display	Press the control to turn the framing grid display in the viewfinder on or off.
 Viewfinder virtual horizon	Press the control to view a virtual horizon display in the viewfinder (□ 110).
 MY MENU	Pressing the control displays “MY MENU” (□ 183).
 Access top item in MY MENU	Press the control to jump to the top item in “MY MENU.” Select this option for quick access to a frequently-used menu item.
 Playback	The control performs same function as the  button. Select when using a telephoto lens or in other circumstances in which it is difficult to operate the  button with your left hand.
None	Pressing the control has no effect.

Virtual Horizon

Pressing a control to which **Viewfinder virtual horizon** has been assigned displays pitch and roll indicators in the viewfinder. Press the control a second time to clear the indicators from display.

Roll

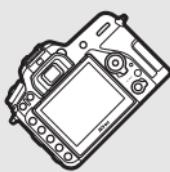
Camera tilted right



Camera level



Camera tilted left

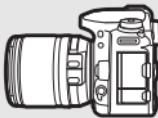


Pitch

Camera tilted forward



Camera level



Camera tilted back



The roles of the pitch and roll indicators are reversed when the camera is rotated to take pictures in "tall" (portrait) orientation. Note that the display may not be accurate when the camera is tilted at a sharp angle forward or back. If the camera is unable to measure tilt, the amount of tilt will not be displayed.

■ Press + Command Dials

To choose the roles played by the following controls in combination with the command dials, highlight the desired option and press the **OK**:



Fn1	Fn1 button +
Fn2	Fn2 button +
AE-L/AF-L	AE-L/AF-L button +
BKT	BKT button +
Movie record button	Movie record button + *

* Choose the role played by the movie-record button in combination with the command dials when the live view selector is rotated to .

The functions that can be assigned to these controls are as follows:

Option	Fn1	Fn2	AE-L	BKT	Movie record
Choose image area	✓	✓	—	✓	✓
1 step spd/aperture	✓	—	—	—	—
Active D-Lighting	✓	—	—	—	—
Exposure delay mode	✓	—	—	—	—
BKT Auto bracketing	—	—	✓	—	—
Multiple exposure	—	—	✓	—	—
HDR HDR (high dynamic range)	—	—	✓	—	—
WB White balance	—	—	—	—	✓
Metering	—	—	—	—	✓
None	✓	✓	✓	✓	✓

The following options are available:

Option	Description
 Choose image area	Press the control and rotate a command dial to choose an image area.
 1 step spd/aperture	If the control is pressed when the command dials are rotated, changes to shutter speed (modes S and M) and aperture (modes A and M) are made in increments of 1 EV, regardless of the option selected for Custom Setting b2 (EV steps for exposure cntrl , □ 93).
 Active D-Lighting	Press the control and rotate the command dials to adjust Active D-Lighting (□ 44).
 Exposure delay mode	Press the control and rotate a command dial to choose an exposure delay mode (□ 98).
 Auto bracketing	Press the control and rotate the main command dial to choose the number of shots in the bracketing sequence and the sub-command dial to choose the bracketing increment (□ 49).
 Multiple exposure	Press the control and rotate the main command dial to choose the mode and the sub-command dial to choose the number of shots (□ 50).
 HDR (high dynamic range)	Press the control and rotate the main command dial to choose an HDR mode and the sub-command dial to choose HDR strength (□ 57).
 White balance	Press the control and rotate the main command dial to choose a white balance option and the sub-command dial to fine-tune white balance (□ 39).
 Metering	Press the control and rotate the main command dial to choose a metering option.
None	No operation is performed when the command dials are rotated while the control is pressed.

The BKT Button

If high dynamic range or multiple exposure is active while another function is assigned to the **BKT** button, the **BKT** button can not be used in combination with a command dial until high dynamic range or multiple exposure photography ends.

f2: OK Button

MENU button →  Custom Settings menu

This option determines the role assigned to the  button during viewfinder photography, playback, and live view (regardless of the option selected, pressing  when a movie is displayed full frame starts movie playback).



■ Shooting Mode

Option	Role assigned to  button
RESET  Select center focus point	Select the center focus point.
  Highlight active focus point	Highlight the active focus point.
None	Pressing the  button has no effect in viewfinder photography.

■ Playback Mode

Option	Role assigned to  button
  Thumbnail on/off	Toggle between full-frame and thumbnail playback.
  View histograms	In both full-frame and thumbnail playback, a histogram is displayed while the  button is pressed.
  Zoom on/off	Toggle between full-frame or thumbnail playback and playback zoom. Choose the initial zoom setting from Low magnification (50%) , 1 : 1 (100%) , and High magnification (200%) . The zoom display will center on the active focus point.

■■ Live View

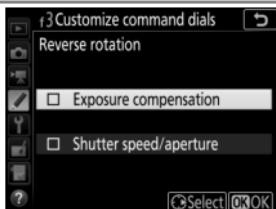
Option	Role assigned to  button
RESET	Select center focus point
 Zoom on/off	Press the  button to toggle zoom on and off. Choose the initial zoom setting from Low magnification (50%) , 1 : 1 (100%) , and High magnification (200%) . The zoom display will center on the active focus point.
None	Pressing the  button has no effect in live view.

f3: Customize Command Dials

MENU button →  Custom Settings menu

This option controls the operation of the main and sub-command dials.

Option	Description
 Reverse rotation	Reverse the direction of rotation of the command dials when they are used to make adjustments to Exposure compensation and/or Shutter speed/aperture . Highlight options and press  to select or deselect, then press  .



Option	Description
Change main/sub	<p>Exposure setting: If Off is selected, the main command dial controls shutter speed and the sub-command dial controls aperture. If On is selected, the main command dial will control aperture and the sub-command dial shutter speed. If On (Mode A) is selected, the main command dial will be used to set aperture in shooting mode A only.</p> <p>Autofocus setting: If On is selected, autofocus mode can be selected by keeping the AF-mode button pressed and rotating the sub-command dial, AF-area mode by keeping the AF-mode button pressed and rotating the main command dial.</p>
Menus and playback	<p>If Off is selected, the multi selector is used to choose the picture displayed during full-frame playback, highlight thumbnails, and navigate menus. If On or On (image review excluded) is selected, the main command dial can be used to choose the picture displayed during full-frame playback, move the cursor left or right during thumbnail playback, and move the menu highlight bar up or down. The sub-command dial is used in full-frame playback to skip forward or back according to the option selected for Sub-dial frame advance and in thumbnail playback to page up or down. While menus are displayed, rotating the sub-command dial right displays the sub-menu for the selected option, while rotating it left displays the previous menu. To make a selection, press OK or AE-L/OK. Select On (image review excluded) to prevent the command dials from being used for playback during image review.</p>
Sub-dial frame advance	<p>When On or On (image review excluded) is selected for Menus and playback, the sub-command dial can be rotated during full-frame playback to select a folder, to skip forward or back 10 or 50 frames at a time, or to skip to the next or previous protected image, photo, or movie.</p>

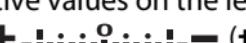
f4: Release Button to Use Dial

MENU button →  Custom Settings menu

Selecting **Yes** allows adjustments that are normally made by holding the , **ISO** (FORMAT), , **BKT**, , **WB**, , **QUAL**, , **ESP**, or AF-mode button and rotating a command dial to be made by rotating the command dial after the button is released. This also applies to controls to which **Active D-Lighting**, **Exposure delay mode**, **White balance**, or **Metering** has been assigned as a “press + command dial” option for Custom Setting f1 (**Custom control assignment**, □ 106). Setting ends when any of the affected buttons is pressed again, the shutter-release button is pressed halfway, or the standby timer expires.

f5: Reverse Indicators

MENU button →  Custom Settings menu

If  (-o+) is selected, the exposure indicators in the control panel, viewfinder, and information display are displayed with negative values on the left and positive values on the right. Select  (+o-) to display positive values on the left and negative values on the right.

g1: Custom Control Assignment

MENU button →  Custom Settings menu

Choose the functions assigned to camera controls, whether used individually or in combination with the command dials, when the live view selector is rotated to  in live view.

■ Press

To choose the roles played by the following controls, highlight an option and press :



 Fn1	Fn1 button
 Fn2	Fn2 button
 AE-L/AF-L	AE-L/AF-L button
 Shutter-release	Shutter-release button

The functions that can be assigned to these controls are as follows:

Option	Fn1	Fn2	AE-L/AF-L	Shutter-release
 Power aperture (open)	✓	—	—	—
 Power aperture (close)	—	✓	—	—
 Exposure compensation +	✓	—	—	—
 Exposure compensation -	—	✓	—	—
 Index marking	✓	✓	✓	—
 View photo shooting info	✓	✓	✓	—
 AE/AF lock	✓	✓	✓	—
 AE lock only	✓	✓	✓	—

Option	Fn1	Fn2	AEL AFL	
AE lock (Hold)	✓	✓	✓	—
AF lock only	✓	✓	✓	—
AF-ON	✓	✓	✓	—
Take photos	—	—	—	✓
Record movies	—	—	—	✓
None	✓	✓	✓	—

The following options are available:

Option	Description
Power aperture (open)	Aperture widens while the Fn1 button is pressed. Use in combination with Custom Setting g1 (Custom control assignment) > Fn2 button > Power aperture (close) for button-controlled aperture adjustment.
Power aperture (close)	Aperture narrows while the Fn2 button is pressed. Use in combination with Custom Setting g1 (Custom control assignment) > Fn1 button > Power aperture (open) for button-controlled aperture adjustment.
Exposure compensation +	Exposure compensation increases while the Fn1 button is pressed. Use in combination with Custom Setting g1 (Custom control assignment) > Fn2 button > Exposure compensation – for button-controlled exposure compensation.
Exposure compensation –	Exposure compensation decreases while the Fn2 button is pressed. Use in combination with Custom Setting g1 (Custom control assignment) > Fn1 button > Exposure compensation + for button-controlled exposure compensation.

Option	Description
 Index marking	<p>Press the control during movie recording to add an index at the current position. Indices can be used when viewing and editing movies.</p>
 View photo shooting info	<p>Press the control to display photo shooting data in place of movie recording information. Press again to return to the movie recording display.</p>
 AE/AF lock	<p>Focus and exposure lock while the control is pressed.</p>
 AE lock only	<p>Exposure locks while the control is pressed.</p>
 AE lock (Hold)	<p>Exposure locks when the control is pressed, and remains locked until the control is pressed a second time or the standby timer expires.</p>
 AF lock only	<p>Focus locks while the control is pressed.</p>
 AF-ON	<p>Pressing the control initiates autofocus.</p>
 Take photos	<p>Press the shutter-release button all the way down to end movie recording and take a photograph with an aspect ratio of 16 : 9.</p>
 Record movies	<p>Press the shutter-release button halfway to start live view. You can then press the shutter-release button halfway to focus (autofocus mode only) and press it all the way down to start or end movie recording. The shutter-release button can not be used for other purposes while the live view selector is rotated to . To end live view, press the  button. The shutter-release button on an optional wireless remote controller or remote cord (222) functions in the same way as the camera shutter-release button; the optional ML-L3 remote control, however, can not be used to record movies; the shutter-release button on the ML-L3 has no effect.</p>
None	<p>Pressing the control has no effect.</p>

Power Aperture

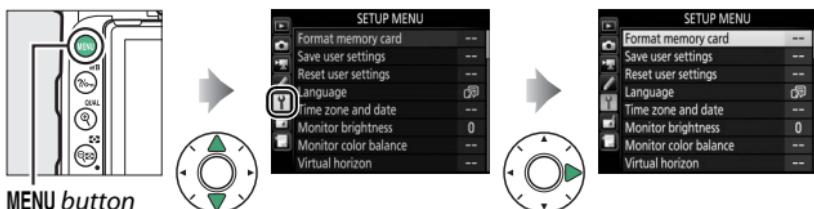
Power aperture is available only in modes **A** and **M** and can not be used while photo shooting info is displayed (a  icon indicates that power aperture can not be used). The display may flicker while aperture is adjusted.

"Record Movies"

When **Record movies** is selected for **Shutter-release button**, interval timer photography is not available.

¶ The Setup Menu: Camera Setup

To display the setup menu, press **MENU** and select the ¶ (setup menu) tab.



Option	Page
Format memory card	123
Save user settings	123
Reset user settings	125
Language	125
Time zone and date	126
Monitor brightness	127
Monitor color balance	127
Virtual horizon	128
Information display	129
Auto info display	129
Info display auto off	130
AF fine-tune	130
Clean image sensor	134
Lock mirror up for cleaning*	135
Image Dust Off ref photo	138
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Copyright information	141
Beep options	142
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HDMI	143
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Wireless remote (WR) options	145
Assign remote (WR) Fn button	147
Airplane mode	147
Connect to smart device	148
Send to smart device (auto)	149
Wi-Fi	149
Bluetooth	150
Eye-Fi upload	151
Conformity marking	152
Battery info	153
Slot empty release lock	153
Save/load settings	154
Reset all settings	156
Firmware version	156

* Not available when battery is low.

See Also

For menu defaults, see “Setup Menu Defaults” (□ 16).

Format Memory Card

MENU button →  setup menu

Memory cards must be formatted before first use or after being formatted in other devices. To begin formatting, highlight **Yes** and press **OK**. *Note that formatting permanently deletes all pictures and other data on the card.* Before formatting, be sure to make backup copies as required.

During Formatting

Do not turn the camera off or remove memory cards during formatting.

Two-Button Format

Memory cards can also be formatted by pressing the  (FORMAT) and ISO () buttons for more than two seconds.

Save User Settings

MENU button →  setup menu

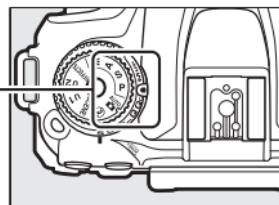
Assign frequently-used settings to the **U1** and **U2** positions on the mode dial.

Saving User Settings

1 Select a mode.

Rotate the mode dial to the desired mode.

Mode dial

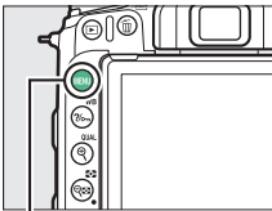


2 Adjust settings.

Make the desired adjustments to flexible program (mode **P**), shutter speed (modes **S** and **M**), aperture (modes **A** and **M**), exposure and flash compensation, flash mode, focus point, metering, autofocus and AF-area modes, bracketing, and settings in the photo shooting, movie shooting, and Custom Settings menus (26, 66, 81).

3 Select Save user settings.

Press the **MENU** button to display the menus. Highlight **Save user settings** in the setup menu and press **OK**.



MENU button



User Settings

The following can not be saved to **U1** or **U2**.

Photo shooting menu:

- Storage folder
- Choose image area
- Manage Picture Control
- Remote control mode (ML-L3)
- Multiple exposure
- Interval timer shooting

Movie shooting menu:

- Choose image area
- Manage Picture Control
- Time-lapse movie

Custom Settings menu:

- a10 (Manual focus ring in AF mode)
- d9 (Optical VR)

4 Select **Save to U1** or **Save to U2**.

Highlight **Save to U1** or **Save to U2** and press .

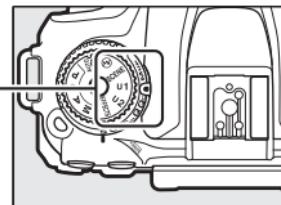
5 Save user settings.

Highlight **Save settings** and press  to assign the settings selected in Steps 1 and 2 to the mode dial position selected in Step 4.

■■ *Recalling User Settings*

Simply rotate the mode dial to **U1** to recall the settings assigned to **Save to U1**, or to **U2** to recall the settings assigned to **Save to U2**.

Mode dial



Reset User Settings

MENU button →  **setup menu**

To reset settings for **U1** or **U2** to default values.

1 Select **Reset U1** or **Reset U2**.

Highlight **Reset U1** or **Reset U2** and press .

2 Reset user settings.

Highlight **Reset** and press .

Language

MENU button →  **setup menu**

Choose a language for camera menus and messages.

Time Zone and Date

MENU button →  setup menu

Change time zones, set the camera clock, synchronize the clock with the clock on a smart device, choose the date display order, and turn daylight saving time on or off.

Option	Description
Time zone	Choose a time zone. The camera clock is automatically set to the time in the new time zone.
Date and time	Set the camera clock.
Sync with smart device	Choose whether the camera clock is updated to the time (Coordinated Universal Time, or UTC), time zone, and standard or daylight saving time supplied by the smart device. The camera clock can not be synchronized with the smart device during interval timer photography or if a GPS device is connected with Yes selected for Location data > External GPS device options > Set clock from satellite (□ 144).
Date format	Choose the order in which the day, month, and year are displayed.
Daylight saving time	Turn daylight saving time on or off. The camera clock will automatically be advanced or set back one hour. The default setting is Off .

If the clock is reset, a flashing  indicator will appear in the information display.

Monitor Brightness

MENU button →  setup menu

Press  or  to adjust monitor brightness. Choose higher values for increased brightness, lower values for reduced brightness.

Brightness can be adjusted separately for:

- **Menus/playback:** Adjust the brightness of the menu, information, and playback displays.
- **Live view:** Adjust the brightness of the live view display.

Monitor Color Balance

MENU button →  setup menu

Use the multi selector as shown below to adjust monitor color balance with reference to a sample image. The sample image is the last photograph taken or, in playback mode, the last photograph displayed; to choose a different image, press the  () button and select an image from a thumbnail list (to view the highlighted image full frame, press and hold ). If the memory card contains no photographs, an empty frame with a gray border will be displayed in place of the sample image. Press  to exit when adjustments are complete. Monitor color balance applies only to menus, playback, and the view through the lens displayed during live view; pictures taken with the camera are not affected.



Increase amount of green

Increase amount of blue

Increase amount of amber

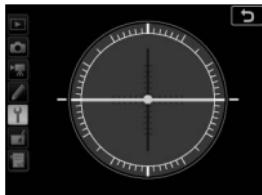
Increase amount of magenta



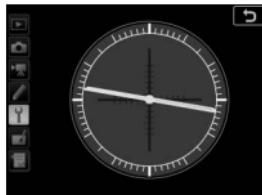
Virtual Horizon

MENU button →  setup menu

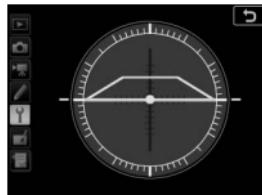
Display roll and pitch information based on information from the camera tilt sensor. If the camera is tilted neither left nor right, the roll reference line will turn green, while if the camera is tilted neither forward nor back, the dot in the center of the display will turn green. Each division is equivalent to 5°.



Camera level



Camera tilted left or right



Camera tilted forward or back

Tilting the Camera

The virtual horizon display is not accurate when the camera is tilted at a sharp angle forward or back. If the camera is unable to measure tilt, the amount of tilt will not be displayed.

See Also

For information on viewing a virtual horizon display in the viewfinder, see  > Custom Setting f1 (**Custom control assignment**; □ 106, 110).

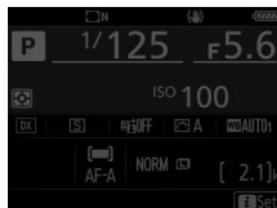
Information Display

MENU button →  setup menu

If **Auto (AUTO)** is selected, the color of the lettering in the information display will automatically change from black to white or white to black to maintain contrast with the background. To always use the same color lettering, select **Manual** and choose **Dark on light (B**; black lettering) or **Light on dark (W**; white lettering). Monitor brightness will automatically be adjusted for maximum contrast with the selected text color.



Dark on light



Light on dark

Auto Info Display

MENU button →  setup menu

If **On** is selected, the information display will appear in the monitor when the camera is turned on. If no operations are performed for the time selected for Custom Setting c4 (**Monitor off delay**) > **Information display**, the display will turn off but can be restored by pressing halfway and then releasing the shutter-release button. If **Off** is selected, the information display can be viewed by pressing the **info** button.

Info Display Auto Off

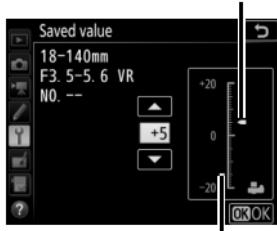
MENU button →  setup menu

If **On** is selected, the eye sensor will turn the information display off when you put your eye to the viewfinder. Selecting **Off** prevents the display turning off when you look through the viewfinder, but also increases the drain on the battery.

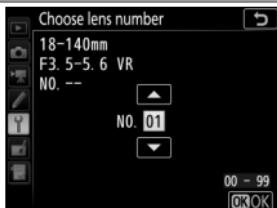
AF Fine-Tune

MENU button →  setup menu

Fine-tune focus for up to 20 lens types. Use only as required; AF tuning is not recommended in most situations and may interfere with normal focus. Auto fine-tuning is available in live view (□ 132). We recommend that you perform fine-tuning at a focus distance you use frequently; if you perform focus-tuning at a short focus distance, for example, you may find it less effective at longer distances.

Option	Description	
AF fine-tune (On/Off)	<ul style="list-style-type: none">On: Turn AF tuning on.Off: Turn AF tuning off.	
Saved value	Tune AF for the current lens (CPU lenses only). Press  to move focal point away from camera or  to move focal point toward camera; choose from values between +20 and -20. Values for up to 20 lens types can be stored. Only one value can be stored for each type of lens.	 <p>Current value</p> <p>Saved value 18-140mm F3.5-5.6 VR NO. --</p> <p>+20 0 -20</p> <p>OK Cancel</p> <p>Previous value</p>
Default	Choose the AF tuning value used when no previously saved value exists for the current lens (CPU lenses only).	

Option	Description
List saved values	<p>List previously saved AF tuning values. To delete a lens from the list, highlight the desired lens and press  (FORMAT). To change a lens identifier (for example, to choose an identifier that is the same as the last two digits of the lens serial number to distinguish it from other lenses of the same type in light of the fact that Saved value can be used with only one lens of each type), highlight the desired lens and press . A menu will be displayed; press  or  to choose an identifier and press  to save changes and exit.</p>



Live View Photography

Tuning is not applied to autofocus during live view photography.

Saved Value

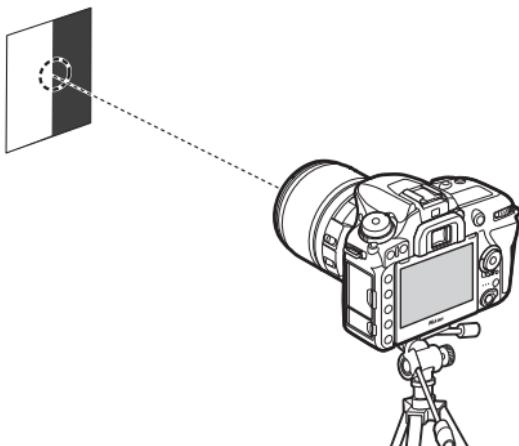
Only one value can be stored for each type of lens. If a teleconverter is used, separate values can be stored for each combination of lens and teleconverter.

■ Auto AF Fine-Tuning

Auto AF fine-tuning is performed as described below.

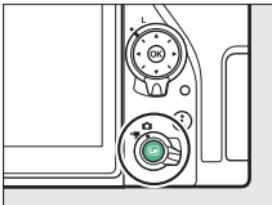
1 Ready the camera.

Mount the camera on a tripod and aim the camera at a flat, high-contrast subject parallel to the camera focal plane. Note that auto AF fine-tuning works best at maximum aperture and may not function in dark surroundings.



2 Start live view.

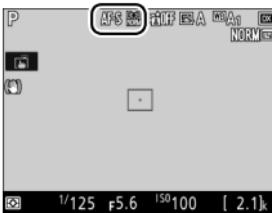
Rotate the live view selector to and press the button.



3 Adjust focus settings.

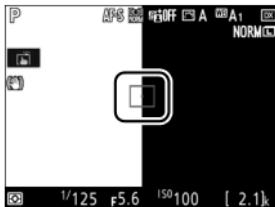
Rotate the focus-mode selector to **AF** and use the AF-mode button and command dials to select the following:

- **Autofocus mode:** **AF-S**
- **AF-area mode:** (wide) or (normal)



4 Select the center focus point.

Press **OK** to select the center focus point.

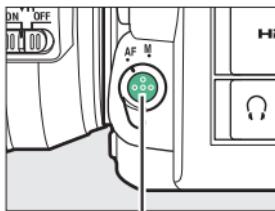


5 Focus.

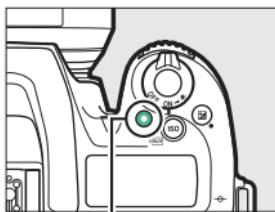
Press the shutter-release button halfway to focus, then zoom in on the view through the lens to confirm that the subject is in focus. Focus can be adjusted manually if necessary.

6 Perform auto AF fine-tuning.

Press the AF-mode and movie-record buttons simultaneously and keep them pressed until the dialog shown in Step 7 is displayed (this should take slightly over two seconds).



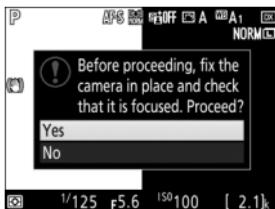
AF-mode button



Movie-record button

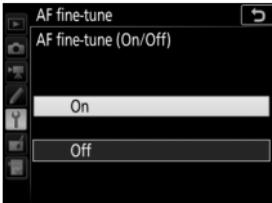
7 Save the new value.

Highlight **Yes** and press **OK** to add the AF fine-tuning value for the current lens to the saved values list (CPU lenses only). Note that only one value can be stored for each type of lens.



8 Enable AF fine-tuning.

In the camera setup menu, select **AF fine-tune > AF fine-tune (On/Off)**, then highlight **On** and press **OK**.



Clean Image Sensor

MENU button → **setup menu**

Dirt or dust entering the camera when lenses are exchanged or the body cap is removed may adhere to the image sensor and affect your photographs. The **Clean image sensor** option vibrates the sensor to remove dust.

Option	Description
Clean now	Perform image sensor cleaning immediately.
Clean at startup/ shutdown	<ul style="list-style-type: none">• ON Clean at startup: The image sensor is automatically cleaned each time the camera is turned on.• OFF Clean at shutdown: The image sensor is automatically cleaned during shutdown each time the camera is turned off.• ON Clean at startup & shutdown: The image sensor is cleaned automatically at startup and at shutdown.• Cleaning off: Automatic image sensor cleaning off.

Lock Mirror up for Cleaning

MENU button →  setup menu

Use this option to lock the mirror up so that dust that can not be removed using **Clean image sensor** can be removed manually. Note, however, that because the image sensor is easily damaged, we recommend that manual cleaning be performed only by a Nikon-authorized service representative.

■ Manual Cleaning

The sensor can be cleaned manually as described below.

1 Charge the battery or connect an AC adapter.

A reliable power source is required when inspecting or cleaning the image sensor. Turn the camera off and insert a fully-charged battery or connect an optional AC adapter and power connector. The **Lock mirror up for cleaning** option is only available in the setup menu if the camera is not connected to a smart device via Bluetooth and the battery level is over .

2 Remove the lens.

Turn the camera off and remove the lens.

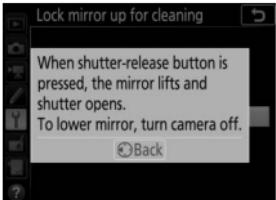
3 Select **Lock mirror up for cleaning**.

Turn the camera on and highlight **Lock mirror up for cleaning** in the setup menu and press .



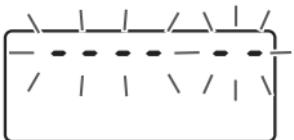
4 Press .

A message will be displayed in the monitor and a row of dashes will appear in the control panel and viewfinder. To restore normal operation without inspecting the image sensor, turn the camera off.



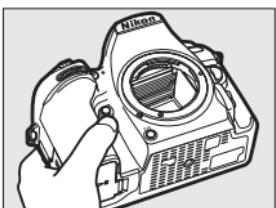
5 Raise the mirror.

Press the shutter-release button all the way down. The mirror will be raised and the shutter curtain will open, revealing the image sensor. The display in the viewfinder will turn off and the row of dashes in the control panel will flash.



6 Examine the image sensor.

Holding the camera so that light falls on the image sensor, examine the sensor for dust or lint. If no foreign objects are present, proceed to Step 8.



7 Clean the sensor.

Remove any dust and lint from the sensor with a blower. Do not use a blower-brush, as the bristles could damage the sensor. Dirt that can not be removed with a blower can only be removed by Nikon-authorized service personnel. Under no circumstances should you touch or wipe the sensor.



8 Turn the camera off.

The mirror will return to the down position and the shutter curtain will close. Replace the lens or body cap.

Use a Reliable Power Source

The shutter curtain is delicate and easily damaged. If the camera powers off while the mirror is raised, the curtain will close automatically. To prevent damage to the curtain, observe the following precautions:

- Do not turn the camera off or remove or disconnect the power source while the mirror is raised.
- If the battery runs low while the mirror is raised, a beep will sound and the self-timer lamp will flash to warn that the shutter curtain will close and the mirror will be lowered after about two minutes. End cleaning or inspection immediately.

Acquire reference data for the Image Dust Off option in NX Studio. Image Dust Off processes NEF (RAW) pictures to mitigate effects caused by dust adhering in front of the camera image sensor. For more information, refer to NX Studio's online help.

Image Dust Off ref photo is available only when a CPU lens is mounted on the camera. A lens with a focal length of at least 50 mm is recommended. When using a zoom lens, zoom all the way in.

1 Choose a start option.

Highlight one of the following options and press . To exit without acquiring image dust off data, press MENU.

- **Start:** A message will be displayed and “rEF” will appear in the viewfinder and control panel displays.
- **Clean sensor and then start:** Select this option to clean the image sensor before starting. A message will be displayed and “rEF” will appear in the viewfinder and control panel displays when cleaning is complete.



rEF

2 Frame a featureless white object in the viewfinder.

With the lens about ten centimeters (four inches) from a well-lit, featureless white object, frame the object so that it fills the viewfinder and then press the shutter-release button halfway.

In autofocus mode, focus will automatically be set to infinity; in manual focus mode, set focus to infinity manually.

3 Acquire dust off reference data.

Press the shutter-release button the rest of the way down to acquire Image Dust Off reference data. The monitor turns off when the shutter-release button is pressed.

If the reference object is too bright or too dark, the camera may be unable to acquire Image Dust Off reference data and a message will be displayed. Choose another reference object and repeat the process from Step 1.



Image Sensor Cleaning

Dust off reference data recorded before image sensor cleaning is performed can not be used with photographs taken after image sensor cleaning is performed. Select **Clean sensor and then start** only if the dust off reference data will not be used with existing photographs.

Image Dust Off Reference Data

The same reference data can be used for photographs taken with different lenses or at different apertures. Reference images can not be viewed using computer imaging software. A grid pattern is displayed when reference images are viewed on the camera.



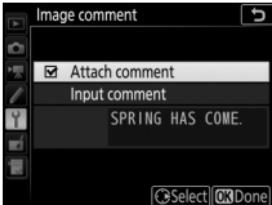
Image Comment

MENU button →  setup menu

Add a comment to new photographs as they are taken.

Comments can be viewed in the NX Studio **Info** tab.

- **Input comment:** Input a comment as described in “Text Entry” (28). Comments can be up to 36 characters long.
- **Attach comment:** Select this option to attach the comment to all subsequent photographs. **Attach comment** can be turned on and off by highlighting it and pressing . After choosing the desired setting, press  to exit.



Copyright Information

MENU button →  setup menu

Add copyright information to new photographs as they are taken. Copyright information can be viewed in the NX Studio **Info** tab.

- **Artist:** Enter a photographer name as described in “Text Entry” (28). Photographer names can be up to 36 characters long.
- **Copyright:** Enter the name of the copyright holder as described in “Text Entry” (28). Copyright holder names can be up to 54 characters long.
- **Attach copyright information:** Select this option to attach copyright information to all subsequent photographs. **Attach copyright information** can be turned on and off by highlighting it and pressing . After choosing the desired setting, press  to exit.



Copyright Information

To prevent unauthorized use of the artist or copyright holder names, make sure that **Attach copyright information** is not selected and that the **Artist** and **Copyright** fields are blank before lending or transferring the camera to another person. Nikon does not accept liability for any damages or disputes arising from the use of the **Copyright information** option.

Beep Options

MENU button →  setup menu

Choose the pitch and volume of the beep that sounds when the camera focuses using single-servo AF (**AF-S** or when single-servo AF is selected for **AF-A**), when focus locks during live view photography, while the release timer is counting down in self-timer and delayed remote release modes (49), when a photograph is taken in quick-response remote or remote mirror-up mode (49), if the shutter-release button is pressed when a write-protected memory card is inserted, or when the shutter-release button is pressed for a second time during mirror-up photography, time-lapse shooting ends, or the touch-screen is used for keyboard entry (28). Note that regardless of the option selected, a beep will not sound in movie mode or quiet-shutter release modes (modes **Q** and **Qc**). A beep will not sound when the camera focuses using single-servo AF if **Release** is selected for Custom Setting a2 (**AF-S priority selection**, 85).

Beep On/Off

Select **Off (touch controls only)** to mute the sounds the camera makes in response to touch-screen controls, or choose **Off** to prevent beeps from sounding altogether. When an option other than **Off** is selected,  appears in the information display.



Volume

Adjust beep volume.

Pitch

Choose the pitch of the beep from **High** and **Low**.

Touch Controls

MENU button →  setup menu

Adjust monitor touch control settings.

■■ **Enable/Disable Touch Controls**

Select **Disable** to prevent accidental use of touch-screen controls, or **Playback only** to enable touch-screen controls in playback mode only.

■■ **Full-Frame Playback Flicks**

Choose the gesture used to display the next image in full-frame playback: a flick from right to left or a flick from left to right.

Flash Warning

MENU button →  setup menu

If **On** is selected, the flash-ready indicator (⚡) will blink if the flash is required to ensure optimal exposure.

HDMI

MENU button →  setup menu

Adjust settings for connection to HDMI devices (☞ 220).

Location Data

MENU button →  setup menu

Adjust location data settings for use when the camera is connected to a GPS or smart device.

Option	Description
Download from smart device	Select Yes to download location data from the smart device and embed them in pictures taken over the next two hours. If the camera is connected to both a smart device and a GPS unit, location data will be downloaded from the GPS unit. Location data can not be acquired if the camera is off or the standby timer has expired.
Position	View the location data supplied by the GPS or smart device (the items displayed vary with the device).
External GPS device options	Adjust settings for connection to optional GPS devices. <ul style="list-style-type: none">• Standby timer: Choose whether the standby timer remains active while a GPS device is connected. If Enable is selected, the exposure meters will turn off automatically if no operations are performed for the period specified in Custom Setting c2 (Standby timer, □ 96), reducing the drain on the battery. If a GP-1 or GP-1A unit is connected, the unit will remain active for a set period after the timer expires; to allow the camera time to acquire location data, the delay is extended by up to one minute after exposure meters are activated or the camera is turned on. Select Disable to disable the standby timer when a GPS device is connected.• Set clock from satellite: Select Yes to synchronize the camera clock with the time reported by the GPS device.

Wireless Remote (WR) Options

MENU button →  setup menu

Adjust settings for optional WR-R10 wireless remote controllers and for optional radio-controlled flash units that support Advanced Wireless Lighting.

LED Lamp

Enable or disable the status LEDs on a WR-R10 wireless remote controller mounted on the camera. For more information, see the documentation supplied with the wireless remote controller.

■ **Link Mode**

Choose a link mode for WR-R10 wireless remote controllers mounted on other cameras or radio-controlled flash units that support Advanced Wireless lighting. Be sure that the same mode is selected for the other devices.

Option	Description
Pairing	To pair the camera with a WR-R10, mount the WR-R10 on the camera and press the pairing button.
PIN	Connect by entering the device PIN code. Press \circlearrowleft or \circlearrowright to highlight digits and press \circlearrowleft or \circlearrowright to change, then press @ to enter and display the selected PIN.



Regardless of the option selected for **Link mode**, signals from paired wireless remote controllers will always be received by the WR-R10. Users of the WR-1 remote controller will need to select pairing as the WR-1 link mode.



The WR-R10 Wireless Remote Controller

Be sure the firmware for the WR-R10 has been updated to the latest version. For information on firmware updates, see the Nikon website for your area.

Assign Remote (WR) Fn Button

MENU button →  setup menu

Choose the role played by the **Fn** button on optional wireless remote controllers equipped with an **Fn** button. See Custom Setting f1 (**Custom control assignment**,  106) for more information.

 FV lock	 Flash off
 AE/AF lock	 + NEF (RAW)
 AE lock only	 Live view *
 AE lock (Reset on release)	 Same as camera Fn1 button
 AF lock only	 Same as camera Fn2 button
 AF-ON	 Same as camera AE-ON button
 Modeling flash	None

* Performs the same function as the camera  button.

Airplane Mode

MENU button →  setup menu

Select **Enable** to disable the wireless features of Eye-Fi cards and Bluetooth and Wi-Fi connections to smart devices. Connections to other devices using a wireless transmitter can only be disabled by removing the transmitter from the camera.

Connect to Smart Device

MENU button →  setup menu

Adjust settings for connection to smart devices.

Option	Description
Start	<p>Follow on-screen instructions to connect to the smart device.</p>  <p>Use SnapBridge to send photos to your smart device and share them online.</p> <p>To skip this screen and set SnapBridge later from the SETUP MENU, press MENU.</p> <p>MENUSkip OKSet</p>
Password protection	<p>Choose a password for smart device connections and turn password protection on or off. For information on typing passwords, see "Text Entry" (□ 28).</p>

Security

Although one of the benefits of this product is that it allows others to freely connect for the wireless exchange of data anywhere within its range, the following may occur if security is not enabled:

- **Data theft:** Malicious third-parties may intercept wireless transmissions to steal user IDs, passwords, and other personal information.
- **Unauthorized access:** Unauthorized users may gain access to the network and alter data or perform other malicious actions. Note that due to the design of wireless networks, specialized attacks may allow unauthorized access even when security is enabled.

Send to Smart Device (Auto)

MENU button →  setup menu

If **On** is selected, new photos will automatically be uploaded to the smart device (if the camera is not currently connected to the smart device, the photos will be marked for upload and uploaded the next time a wireless connection is established). Movies are not uploaded. If you select **Off** when images are selected for upload, a confirmation dialog will be displayed; to remove upload marking from all images, highlight **Yes** and press **OK**.

Upload Marking

No more than 1000 photos can be marked for upload at a time.

Before changing the rating of photos that are marked for upload, select **Disable** for **Bluetooth** > **Network connection** or switch wireless off by selecting **Enable** for **Airplane mode**.

Wi-Fi

MENU button →  setup menu

Adjust Wi-Fi (wireless LAN) settings.

Option	Description
Establish Wi-Fi connection	Initiate a Wi-Fi connection to a smart device.
Network settings	Adjust settings for Wi-Fi connections.
Current settings	View current Wi-Fi settings.
Reset connection settings	Restore Wi-Fi settings to their default values.

Bluetooth

MENU button →  setup menu

List paired devices and adjust settings for connection to smart devices.

Option	Description
Network connection	Enable or disable Bluetooth.
Paired devices	View paired devices.
Send while off	Select Off to suspend wireless transmissions when the camera is turned off or the standby timer expires.

This option is displayed only when an Eye-Fi memory card (available separately from third-party suppliers) is inserted in the camera. Choose **Enable** to upload photographs to a preselected destination. Note that pictures will not be uploaded if signal strength is insufficient. Before uploading pictures via Eye-Fi, select **Disable** for **Airplane mode** (□ 147) and **Bluetooth > Network connection** (□ 150).

Observe all local laws concerning wireless devices and choose **Disable** where wireless devices are prohibited.

Eye-Fi Cards

Eye-Fi cards may emit wireless signals when **Disable** is selected.

A  icon displayed when **Disable** is selected indicates that the camera is unable to control the Eye-Fi card (□ 152); turn the camera off and remove the card.

Select longer values for Custom Setting c2 (**Standby timer**, □ 96) when using an Eye-Fi card.

See the manual provided with the Eye-Fi card, and direct any inquiries to the manufacturer. The camera can be used to turn Eye-Fi cards on and off, but may not support other Eye-Fi functions.

Airplane Mode (□ 147)

Enabling airplane mode disables Eye-Fi upload. To resume Eye-Fi upload, select **Disable** for **Airplane mode** before selecting **Enable** for **Eye-Fi upload**.

When an Eye-Fi card is inserted, its status is indicated by an icon in the information display:

- : Eye-Fi upload disabled.
- : Eye-Fi upload enabled but no pictures available for upload.
- (static): Eye-Fi upload enabled; waiting to begin upload.
- (animated): Eye-Fi upload enabled; uploading data.
- : Error — camera can not control Eye-Fi card. If a appears in the control panel or viewfinder, check that the Eye-Fi card firmware is up-to-date; if the error persists after the card firmware has been updated, insert a different card or format the card in the camera after copying any pictures it contains to a computer or other storage device. If the indicator is not flashing, pictures can be taken normally but you may be unable to change Eye-Fi settings.



Supported Eye-Fi Cards

Some cards may not be available in some countries or regions; consult the manufacturer for more information. Eye-Fi cards are for use only in the country of purchase. Be sure the Eye-Fi card firmware has been updated to the latest version.

Conformity Marking

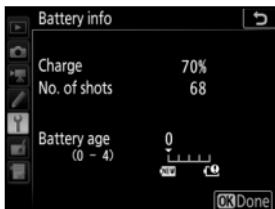
MENU button → setup menu

View a selection of the standards with which the camera complies.

Battery Info

MENU button →  setup menu

View information on the battery currently inserted in the camera.



Item	Description
Charge	The current battery level expressed as a percentage.
No. of shots	The number of times the shutter has been released with the current battery since the battery was last charged. Note that the camera may sometimes release the shutter without recording a photograph, for example when measuring preset white balance.
Battery age	A five-level display showing battery age. 0 () indicates that battery performance is unimpaired, 4 () that the battery has reached the end of its charging life and should be replaced. Note that fresh batteries charged at temperatures under about 5 °C (41 °F) may show a temporary drop in charging life; the battery age display will however return to normal once the battery has been recharged at a temperature of about 20 °C (68 °F) or higher.

Slot Empty Release Lock

MENU button →  setup menu

Selecting **Enable release** allows the shutter to be released when no memory card is inserted, although no pictures will be recorded (they will however be displayed in the monitor in demo mode). If **Release locked** is selected, the shutter-release button is only enabled when a memory card is inserted in the camera.

Save/Load Settings

MENU button →  setup menu

Select **Save settings** to save the following settings to the memory card (if the card is full, an error will be displayed). Use this option to share settings among D7500 cameras.

Menu	Option
Playback	Playback display options
	Image review
	After delete
	Auto image rotation
	Rotate tall
Photo shooting	File naming
	Flash control
	Choose image area
	Image quality
	Image size
	NEF (RAW) recording
	ISO sensitivity settings
	White balance (with fine-tuning and presets d-1–d-6)
	Set Picture Control (Custom Picture Controls are saved as Auto)
	Color space
	Active D-Lighting
	Long exposure NR
	High ISO NR
	Vignette control
	Auto distortion control
	Flicker reduction
	Remote control mode (ML-L3)
	Auto bracketing set

Menu	Option
Movie shooting	File naming
	Choose image area
	Frame size/frame rate
	Movie quality
	Movie file type
	ISO sensitivity settings
	White balance (with fine-tuning and presets d-1–d-6)
	Set Picture Control (Custom Picture Controls are saved as Auto)
	Active D-Lighting
	High ISO NR
	Flicker reduction
	Microphone sensitivity
	Frequency response
	Wind noise reduction
	Electronic VR
Custom settings	All Custom Settings
Setup	Language
	Time zone and date (excepting Date and time and Sync with smart device)
	Information display
	Auto info display
	Info display auto off
	Clean image sensor
	Image comment
	Copyright information
	Beep options
	Flash warning
	Touch controls
	HDMI
	Location data (excepting the option chosen for Download from smart device)

Menu	Option
Setup	Wireless remote (WR) options
	Assign remote (WR) Fn button
	Eye-Fi upload
	Slot empty release lock
My Menu/ Recent Settings	All My Menu items
	All recent settings
	Choose tab

Settings saved using the D7500 can be restored by selecting **Load settings**. Note that **Save/load settings** is only available when a memory card is inserted in the camera, and that the **Load settings** option is only available if the card contains saved settings.

Saved Settings

Settings are saved in a file with a name beginning with “NCSETUP” and ending with two characters that differ from camera to camera. The camera will not be able to load settings if the file name is changed.

Reset All Settings

MENU button →  setup menu

Reset all settings except **Language** and **Time zone and date** to their default values (□ 9). Copyright information and other user-generated entries are also reset. We recommend that you save settings using the **Save/load settings** option in the setup menu before performing a reset (□ 154).

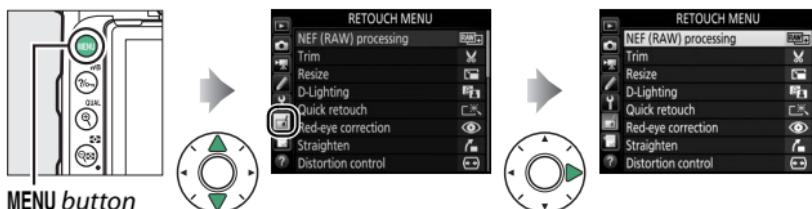
Firmware Version

MENU button →  setup menu

View the current camera firmware version.

4 The Retouch Menu: Creating Retouched Copies

To display the retouch menu, press **MENU** and select the  (retouch menu) tab.



The options in the retouch menu are used to create trimmed or retouched copies of existing pictures. The retouch menu is only displayed when a memory card containing photographs is inserted in the camera.

Option	
 NEF (RAW) processing	160
 Trim	163
 Resize	164
 D-Lighting	166
 Quick retouch	166
 Red-eye correction	167
 Straighten	167
 Distortion control	168
 Perspective control	169
 Fisheye	169
 Filter effects	170
Option	
 Monochrome	171
 Image overlay ¹	172
 Color outline	175
 Photo illustration	175
 Color sketch	176
 Miniature effect	177
 Selective color	178
 Painting	180
 Edit movie	180
 Side-by-side comparison ²	181

1 Can only be selected by pressing **MENU** and selecting  tab.

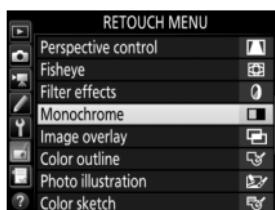
2 Available only if retouch menu is displayed by pressing **i** and selecting **Retouch** when a retouched image or original is displayed in full-frame playback.

Creating Retouched Copies

To create a retouched copy:

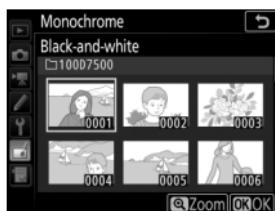
1 Select an item in the retouch menu.

Press \triangle or ∇ to highlight an item, \circlearrowright to select.



2 Select a picture.

Highlight a picture and press OK . To view the highlighted picture full screen, press and hold the QUAL (QUAL) button.



Retouch

In the case of images recorded at image quality settings of NEF + JPEG, only the NEF (RAW) image will be retouched. The camera may not be able to display or retouch images created with other devices.

3 Select retouch options.

For more information, see the section for the selected item. To exit without creating a retouched copy, press **MENU**.

Monitor off Delay

The monitor will turn off and the operation will be cancelled if no actions are performed for a brief period. Any unsaved changes will be lost. To increase the time the monitor remains on, choose a longer menu display time for Custom Setting c4 (**Monitor off delay**,  97).

4 Create a retouched copy.

Press **OK** to create a retouched copy.

Retouched copies are indicated by a  icon.



Retouching the Current Image

To create a retouched copy of the current image, press **i** and select **Retouch**.

Retouching Copies

Most options can be applied to copies created using other retouch options, although (with the exceptions of **Image overlay** and **Edit movie** > **Choose start/end point**) each option can be applied only once (note that multiple edits may result in loss of detail). Options that can not be applied to the current image are grayed out and unavailable.

Image Quality and Size

Except in the case of copies created with **Trim** and **Resize**, copies created from JPEG images are the same size as the original, while copies created from NEF (RAW) photos are saved as large fine★-quality JPEG images.

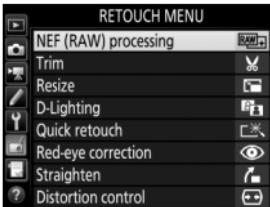
NEF (RAW) Processing

MENU button →  retouch menu

Create JPEG copies of NEF (RAW) photographs. If pressed the MENU button to display the retouch menu, you can use this option to copy multiple images.

1 Select NEF (RAW) processing.

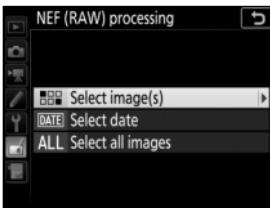
Highlight **NEF (RAW) processing** in the retouch menu and press .



2 Choose how images are selected.

Choose from the following options:

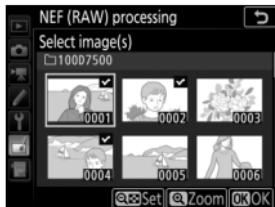
- **Select image(s):** Select one or more images manually.
- **Select date:** Create JPEG copies of all the NEF (RAW) images taken on selected dates.
- **Select all images:** Create JPEG copies of all the NEF (RAW) images on the memory card. If you selected this option, proceed to Step 4.



3 Select photographs.

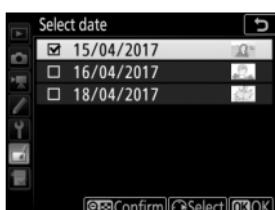
If you chose **Select image(s)** in Step 2, a picture selection dialog will be displayed listing only NEF (RAW) images created with this camera.

Highlight images using the multi selector and press  to select or deselect; selected images are indicated by a  icon. To view the highlighted image full screen, press and hold the  (QUAL) button. Press  to proceed to Step 4 when your selection is complete.



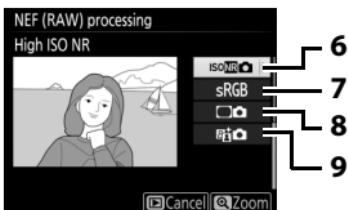
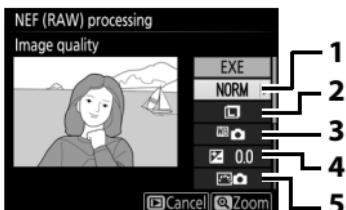
If you chose **Select date** in Step 2, a list of dates will be displayed.

Highlight dates using the multi selector and press  to select or deselect. Press  to select all NEF (RAW) pictures taken on the chosen dates and proceed to Step 4.



4 Choose settings for the JPEG copies.

Adjust the settings listed below, or select **Original** to use the setting in effect when the photograph was taken (the original settings are listed below the preview). Note that white balance and vignette control are not available with multiple exposures or pictures created with image overlay and that exposure compensation can only be set to values between -2 and $+2$ EV.



- 1 Image quality (☞ 36)
- 2 Image size (☞ 37)
- 3 White balance (☞ 39)
- 4 Exposure compensation
- 5 Set Picture Control (☞ 40)

- 6 High ISO NR (☞ 45)
- 7 Color space (☞ 44)
- 8 Vignette control (☞ 46)
- 9 Active D-Lighting (☞ 166)

5 Copy the photographs.

Highlight **EXE** and press **OK** to create a JPEG copy of the selected photograph (if multiple photos are selected, a confirmation dialog will be displayed; highlight **Yes** and press **OK** to create JPEG copies of the selected photos).

To exit without copying the photographs, press the **MENU** button.



Create a cropped copy of the selected photograph. The selected photograph is displayed with the selected crop shown in yellow; create a cropped copy as described below.

To	Description
Reduce size of crop	Press  (C) to reduce the size of the crop.
Increase size of crop	Press  (QUAL) to increase the size of the crop.
Change crop aspect ratio	Rotate the main command dial to choose the aspect ratio.
Position crop	Use multi selector to position the crop. Press and hold to move the crop rapidly to the desired position.
Create copy	Press  to save the current crop as a separate file.

Trim: Image Quality and Size

Copies created from NEF (RAW) or NEF (RAW) + JPEG photos have an image quality (□ 36) of JPEG fine★; cropped copies created from JPEG photos have the same image quality as the original. The size of the copy varies with crop size and aspect ratio and appears at upper left in the crop display.



Viewing Cropped Copies

Playback zoom may not be available when cropped copies are displayed.

Resize

MENU button →  retouch menu

Create small copies of selected photographs.

1 Select Resize.

To resize selected images, highlight **Resize** in the retouch menu and press .

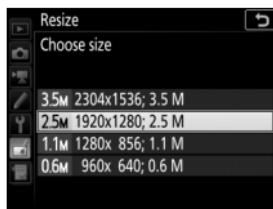


2 Choose a size.

Highlight **Choose size** and press .



Resize options will be displayed; highlight an option and press .



3 Choose pictures.

Highlight **Select image(s)** and press **OK**.

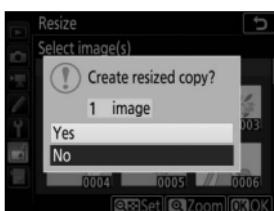


Highlight pictures and press the **Q** (Zoom) button to select or deselect (to view the highlighted picture full screen, press and hold the **Q/QUAL** button). Selected pictures are marked by a **■** icon. Press **OK** when the selection is complete.



4 Save the resized copies.

A confirmation dialog will be displayed. Highlight **Yes** and press **OK** to save the resized copies.



Viewing Resized Copies

Playback zoom may not be available when resized copies are displayed.

Image Quality

Copies created from NEF (RAW) or NEF (RAW) + JPEG photos have an image quality (□ 36) of JPEG fine★; copies created from JPEG photos have the same image quality as the original.

D-Lighting

MENU button →  retouch menu

D-Lighting brightens shadows, making it ideal for dark or backlit photographs.



Before



After

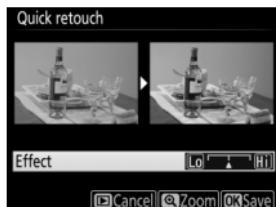
Press  or  to choose the amount of correction performed. The effect can be previewed in the edit display. Press  to save the retouched copy.

Quick Retouch

MENU button →  retouch menu

Create copies with enhanced saturation and contrast. D-Lighting is applied as required to brighten dark or backlit subjects.

Press  or  to choose the amount of enhancement. Press  to copy the photograph.



Red-Eye Correction

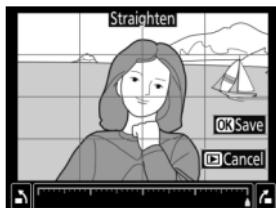
MENU button →  retouch menu

This option is used to correct “red-eye” caused by the flash, and is available only with photographs taken using the flash. The photograph selected for red-eye correction can be previewed in the edit display. Confirm the effects of red-eye correction and press **OK** to create a copy. Note that red-eye correction may not always produce the expected results and may in very rare circumstances be applied to portions of the image that are not affected by red-eye; check the preview thoroughly before proceeding.

Straighten

MENU button →  retouch menu

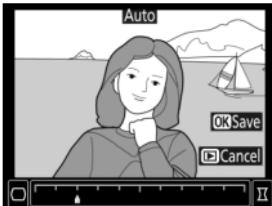
Create a straightened copy of the selected image. Press **Ⓐ** to rotate the image clockwise by up to five degrees in increments of approximately 0.25 degrees, **Ⓑ** to rotate it counterclockwise (the effect can be previewed in the edit display; note that edges of the image will be trimmed to create a square copy). Press **OK** to save the retouched copy.



Distortion Control

MENU button →  retouch menu

Create copies with reduced peripheral distortion. Select **Auto** to let the camera correct distortion automatically and then make fine adjustments using the multi selector, or select **Manual** to reduce distortion manually. Note that **Auto** is not available with photos taken using auto distortion control; see “Auto Distortion Control” (□ 46). Press  to reduce barrel distortion,  to reduce pincushion distortion (the effect can be previewed in the edit display; note that greater amounts of distortion control result in more of the edges being cropped out). Press  to save the retouched copy.



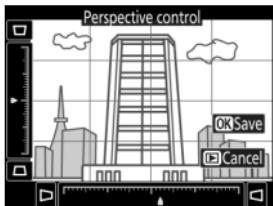
Auto

Auto is for use only with pictures taken with type G, E, and D lenses (PC, fisheye, and certain other lenses excluded). Results are not guaranteed with other lenses.

Perspective Control

MENU button →  retouch menu

Create copies that reduce the effects of perspective taken from the base of a tall object. Use the multi selector to adjust perspective (note that greater amounts of perspective control result in more of the edges being cropped out). The results can be previewed in the edit display. Press **OK** to save the retouched copy.



Before

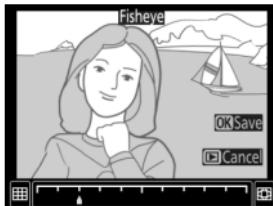


After

Fisheye

MENU button →  retouch menu

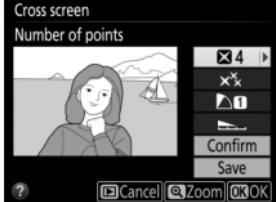
Create copies that appear to have been taken with a fisheye lens. Press **►** to increase the effect (this also increases the amount that will be cropped out at the edges of the image), **◀** to reduce it. Press **OK** to save the retouched copy.



Filter Effects

MENU button →  retouch menu

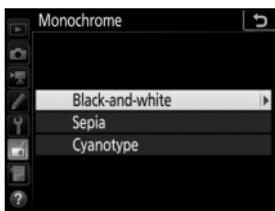
After adjusting filter effects as described below, press  to copy the photograph.

Option	Description
Skylight	Creates the effect of a skylight filter, making the picture less blue.
Warm filter	Creates a copy with warm tone filter effects, giving the copy a "warm" red cast.
Cross screen	<p>Add starburst effects to light sources.</p> <ul style="list-style-type: none">• Number of points: Choose from four, six, or eight.• Filter amount: Choose the brightness of the light sources affected.• Filter angle: Choose the angle of the points.• Length of points: Choose the length of points.• Confirm: Preview the effects of the filter. Press  to preview the copy full frame.• Save: Create a retouched copy.  <p>Cross screen Number of points x4 x6 x1 Confirm Save ? Cancel Zoom OK</p>
Soft	Add a soft filter effect. Press  or  to choose the filter strength.

Monochrome

MENU button →  retouch menu

Copy photographs in **Black-and-white**, **Sepia**, or **Cyanotype** (blue and white monochrome).



Selecting **Sepia** or **Cyanotype** displays a preview of the selected image; press  to increase color saturation,  to decrease. Press  to create a monochrome copy.



Image Overlay

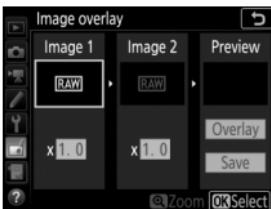
MENU button →  retouch menu

Image overlay combines two existing NEF (RAW) photographs to create a single picture that is saved separately from the originals; the results, which make use of RAW data from the camera image sensor, are noticeably better than photographs combined in an imaging application. The new picture is saved at current image quality and size settings; before creating an overlay, set image quality and size (36, 37; all options are available). To create an NEF (RAW) copy, choose an image quality of **NEF (RAW)**.



1 Select Image overlay.

Highlight **Image overlay** in the retouch menu and press . Image overlay options will be displayed, with **Image 1** highlighted; press  to display a list of the NEF (RAW) pictures created with this camera.



2 Select the first image.

Use the multi selector to highlight the first photograph in the overlay. To view the highlighted photograph full frame, press and hold the \diamond (QUAL) button. Press OK to select the highlighted photograph and return to the preview display.

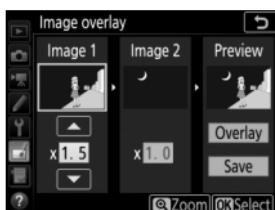


3 Select the second image.

The selected image will appear as **Image 1**. Highlight **Image 2** and press OK , then select the second photo as described in Step 2.

4 Adjust gain.

Highlight **Image 1** or **Image 2** and optimize exposure for the overlay by pressing \diamond or \heartsuit to select the gain from values between 0.1 and 2.0. Repeat for the second image. The default value is 1.0; select 0.5 to halve gain or 2.0 to double it. The effects of gain are visible in the **Preview** column.



5 Preview the overlay.

To preview the composition, press  or  to place the cursor in the **Preview** column, then press  or  to highlight **Overlay** and press  (note that colors and brightness in the preview may differ from the final image). To save the overlay without displaying a preview, select **Save**. To return to Step 4 and select new photos or adjust gain, press  ().



6 Save the overlay.

Press  while the preview is displayed to save the overlay. After an overlay is created, the resulting image will be displayed full-frame in the monitor.



Image Overlay

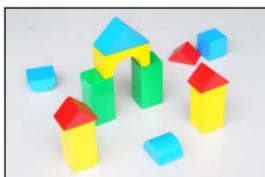
Only NEF (RAW) photographs with the same image area and bit depth can be combined.

The overlay has the same photo info (including date of recording, metering, shutter speed, aperture, shooting mode, exposure compensation, focal length, and image orientation) and values for white balance and Picture Control as the photograph selected for **Image 1**. The current image comment is appended to the overlay when it is saved; copyright information, however, are not copied. Overlays saved in NEF (RAW) format use the compression selected for **NEF (RAW) compression** in the **NEF (RAW) recording** menu and have the same bit depth as the original images.

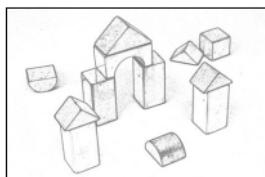
Color Outline

MENU button →  retouch menu

Create an outline copy of a photograph to use as a base for painting. Press **OK** to save the retouched copy.



Before



After

Photo Illustration

MENU button →  retouch menu

Sharpen outlines and simplify coloring for a poster effect. Press  or  to make outlines thicker or thinner. Press **OK** to save the retouched copy.



Before

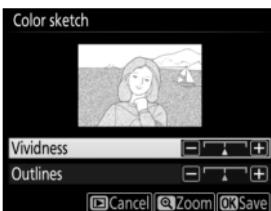


After

Color Sketch

MENU button →  retouch menu

Create a copy of a photograph that resembles a sketch made with colored pencils. Press  or  to highlight **Vividness** or **Outlines** and press  or  to change. Vividness can be increased to make colors more saturated, or decreased for a washed-out, monochromatic effect, while outlines can be made thicker or thinner. Thicker outlines make colors more saturated. Press  to save the retouched copy.



Miniature Effect

MENU button → *retouch menu*

Create a copy that appears to be a photo of a diorama. Works best with photos taken from a high vantage point. The area that will be in focus in the copy is indicated by a yellow frame.

To	Description
Choose orientation	Press  to choose the orientation of the area that will be in focus in the copy.
Choose position	Press  or  (wide orientation) or  or  (tall orientation) to position the frame showing the area that will be in focus in the copy.
Choose size	Press  or  to choose the height (wide orientation) or  or  to choose the width (tall orientation) of the area that will be in focus in the copy.
Preview copy	Press  (QUAL) to preview the copy.
Create copy	Press  to create the copy.

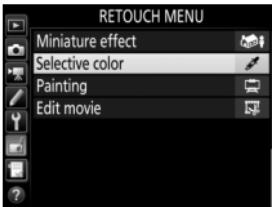
Selective Color

MENU button →  retouch menu

Create a copy in which only selected hues appear in color.

1 Select Selective color.

Highlight **Selective color** in the retouch menu and press  to display a picture selection dialog.



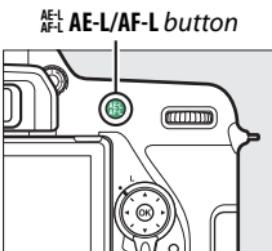
2 Select a photograph.

Use the multi selector to highlight a photograph (to view the highlighted photograph full frame, press and hold the /**QUAL** button). Press  to select the highlighted photograph and proceed to the next step.



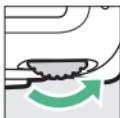
3 Select a color.

Use the multi selector to position the cursor over an object and press the  **AE-L/AF-L** button to select the color of the object as one that will remain in the final copy (the camera may have difficulty detecting unsaturated colors; choose a saturated color). To zoom in on the picture for precise color selection, press  (**QUAL**). Press  to zoom out.



4 Highlight the color range.

Rotate the main command dial to highlight the color range for the selected color.



Color range



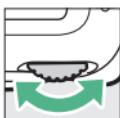
5 Choose the color range.

Press \circlearrowleft or \circlearrowright to increase or decrease the range of similar hues that will be included in the final photograph. Choose from values between 1 and 7; note that higher values may include hues from other colors. The effect can be previewed in the edit display.



6 Select additional colors.

To select additional colors, rotate the main command dial to highlight another of the three color boxes at the top of the display and repeat Steps 3–5 to select another color. Repeat for a third color if desired. To deselect the highlighted color, press [FORMAT] ; to remove all colors, press and hold [FORMAT] . A confirmation dialog will be displayed; select **Yes**.



7 Save the edited copy.

Press **OK** to save the retouched copy.



Painting

MENU button → retouch menu

Create a copy which emphasizes detail and color for a painterly effect. Press **OK** to save the retouched copy.



Before



After

Edit Movie

MENU button → retouch menu

Trim footage to create edited copies of movies or save selected frames as JPEG stills.

Option	Description
Choose start/end point	Create a copy from which unwanted footage has been removed.
Save selected frame	Save a selected frame as a JPEG still.

Side-by-Side Comparison

Compare retouched copies to the original photographs. This option is only available if the retouch menu is displayed by pressing the **i** button and selecting **Retouch** when a copy or original is played back full frame.

1 Select a picture.

Select a retouched copy (shown by a icon) or a photograph that has been retouched in full-frame playback. Press **i**, then highlight **Retouch** and press **OK**.



2 Select Side-by-side comparison.

Highlight **Side-by-side comparison** and press **OK**.

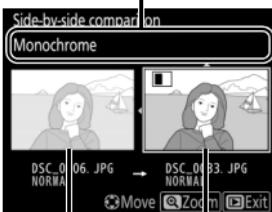


3 Compare the copy with the original.

The source image is displayed on the left, the retouched copy on the right, with the options used to create the copy listed at the top of the display. Press \textcircled{A} or \textcircled{B} to switch between the source image and the retouched copy. To view the highlighted picture full frame, press and hold the \textcircled{Q} (QUAL) button. If the copy was created from two source images using **Image**

overlay, or if the source has been copied multiple times, press \textcircled{A} or \textcircled{B} to view the other source image. To exit to playback, press the $\textcircled{■}$ button, or press \textcircled{OK} to exit to playback with the highlighted image selected.

Options used to create copy



Source image

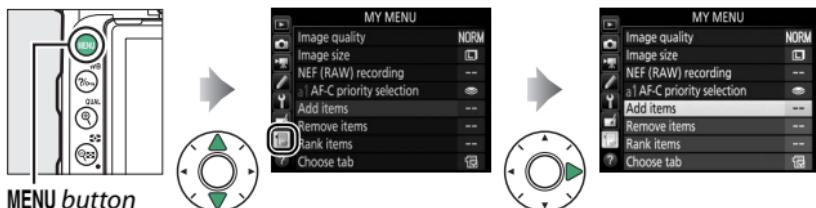
Retouched copy

Side-by-Side Comparison

The source image will not be displayed if the copy was created from a photograph that was protected or has since been deleted or hidden (□ 20).

My Menu/Recent Settings

To display My Menu, press **MENU** and select the  (My Menu) tab.



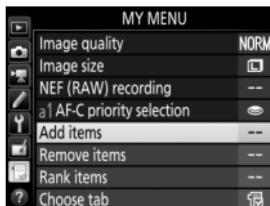
The **MY MENU** option can be used to create and edit a customized list of options from the playback, photo shooting, movie shooting, Custom Settings, setup, and retouch menus for quick access (up to 20 items). If desired, recent settings can be displayed in place of My Menu (□ 187).

Options can be added, deleted, and reordered as described below.

■■ Adding Options to My Menu

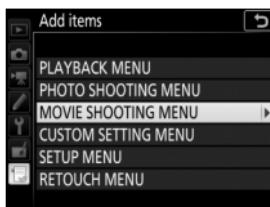
1 Select Add items.

In My Menu (□), highlight **Add items** and press .



2 Select a menu.

Highlight the name of the menu containing the option you wish to add and press .



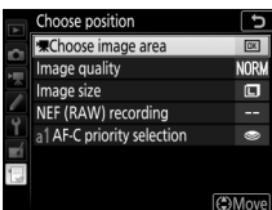
3 Select an item.

Highlight the desired menu item and press **OK**.



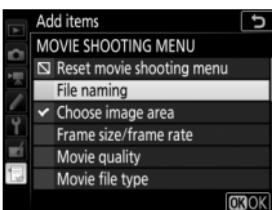
4 Position the new item.

Press **▲** or **▼** to move the new item up or down in My Menu. Press **OK** to add the new item.



5 Add more items.

The items currently displayed in My Menu are indicated by a check mark. Items indicated by a icon can not be selected. Repeat steps 1–4 to select additional items.



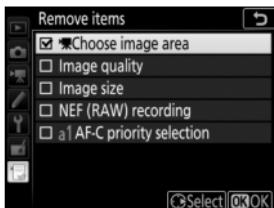
■■ **Deleting Options from My Menu**

1 Select Remove items.

In My Menu (≡), highlight **Remove items** and press ◎.

2 Select items.

Highlight items and press ◎ to select or deselect. Selected items are indicated by a check mark.



3 Delete the selected items.

Press ◎. A confirmation dialog will be displayed; press ◎ again to delete the selected items.



Deleting Items in My Menu

To delete the item currently highlighted in My Menu, press the  (FORMAT) button. A confirmation dialog will be displayed; press  (FORMAT) again to remove the selected item from My Menu.

■ **Reordering Options in My Menu**

1 Select Rank items.

In My Menu (☒), highlight **Rank items** and press **OK**.

2 Select an item.

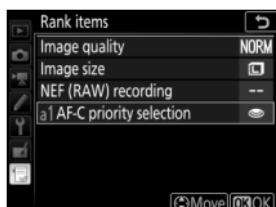
Highlight the item you wish to move and press **OK**.



3 Position the item.

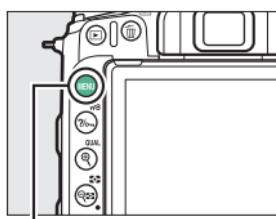
Press **↶** or **↷** to move the item up or down in My Menu and press **OK**.

Repeat Steps 2–3 to reposition additional items.

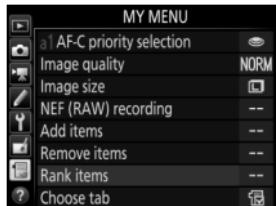


4 Exit to My Menu.

Press the **MENU** button to return to My Menu.



MENU button

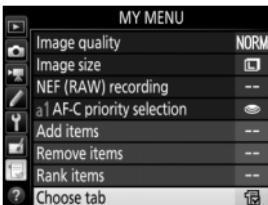


Recent Settings

To display the twenty most recently used settings, select  **RECENT SETTINGS** for  **MY MENU** > **Choose tab**.

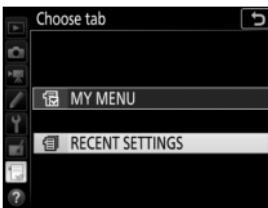
1 Select **Choose tab**.

In **My Menu** () , highlight **Choose tab** and press .



2 Select **RECENT SETTINGS**.

Highlight  **RECENT SETTINGS** and press . The name of the menu will change from "MY MENU" to "RECENT SETTINGS."



Menu items will be added to the top of the recent settings menu as they are used. To view **My Menu** again, select  **MY MENU** for  **RECENT SETTINGS** > **Choose tab**.

Removing Items from the Recent Settings Menu

To remove an item from the recent settings menu, highlight it and press the   button. A confirmation dialog will be displayed; press   again to delete the selected item.

Optional Flash Units

The camera can be used with optional external flash units in addition to the built-in flash.

Throughout this chapter, operations involving the built-in flash or a flash unit mounted on the camera accessory shoe are indicated by , operations involving remote flash units by . For more information on , see the manual provided with the flash unit.

Flash Control Options

You can take pictures using the built-in flash, a flash unit mounted on the camera accessory shoe, or one or more remote flash units.

Built-in or Camera-Mounted Flash

Take pictures using:

- **The built-in flash** (see the camera manual)



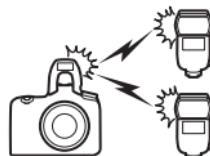
- **A flash unit mounted on the camera accessory shoe**
(see the manual provided with the flash unit)



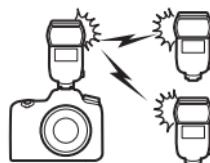
Remote Flash Photography

The following types of wireless flash control (Advanced Wireless Lighting, or AWL) can be used with one or more remote flash units:

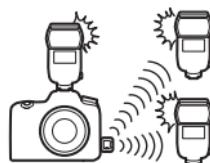
- **Optical AWL via the built-in flash** (☞ 190)



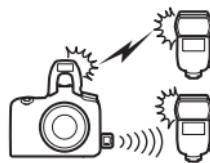
- **Optical AWL via a shoe-mounted flash unit** (☞ 190, 193)



- **Radio AWL using settings chosen with the SB-5000** (☞ 194)



- **Radio AWL combined with optical AWL via the camera's built-in flash** (☞ 198)



- **Radio AWL** (☞ 199)

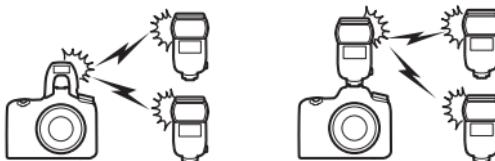


Optical AWL

Remote flash units can be controlled via optical signals (optical AWL) from the built-in flash or an optional flash unit mounted on the camera accessory shoe.

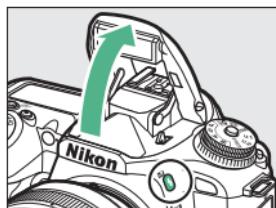
Built-in Flash/SB-500

Use the built-in flash or an optional SB-500 as a master flash controlling remote flash units.



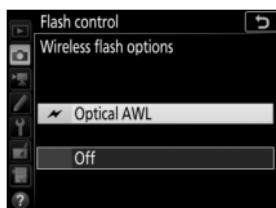
1 : Raise the built-in flash.

Press the () button to raise the built-in flash. If you will be using an SB-500 as the master flash, mount it on the camera accessory shoe.



2 : Enable optical AWL.

In the photo shooting menu, select **Optical AWL** for **Flash control** > **Wireless flash options**.



3 : Select Group flash options.

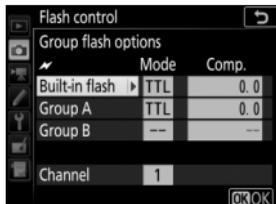
Select **Flash control** in the photo shooting menu, then highlight **Group flash options** and press .



4 Choose the flash control mode.

Choose the flash control mode and flash level for the master flash and the flash units in each group:

- **TTL:** i-TTL flash control.
-  **A:** Auto aperture (available only with compatible flash units; note that the built-in flash and SB-500 are not compatible with auto aperture).
- **M:** Choose the flash level manually.
- **-- (off):** The units do not fire and the flash level can not be adjusted.



Choose a channel for the master flash. If the remote flash units include an SB-500, you must choose channel 3, but otherwise you can choose any channel between 1 and 4.

5 Set the channel.

Set the remote flash units to the channel selected in Step 4.

6 Group the remote flash units.

Choose a group (A or B) for each remote flash unit. Although there is no limit on the number of remote flash units that may be used, the practical maximum is three per group. With more than this number, the light emitted by the remote flash units will interfere with performance.

7  : Compose the shot.

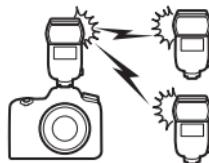
Compose the shot and arrange the flash units. See the documentation provided with the flash units for more information. After arranging the units, press the test buttons on the flash units to confirm that all flash units are functioning.

8  : Take photographs.

Confirm that the ready lamps on all flash units are lit before each shot.

Other Flash Units

For information on using optical AWL with other flash units, see the manual provided with the flash unit.



Optical AWL

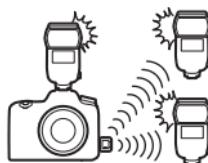
Position the sensor windows on the remote flash units to pick up the light from the master flash (particular care is required if the camera is not mounted on a tripod). Be sure that direct light or strong reflections from the remote flash units do not enter the camera lens (in TTL mode) or the photocells on the remote flash units (A mode), as this may interfere with exposure. To prevent low-intensity flashes emitted by the master flash from appearing in photographs taken at short range, choose low ISO sensitivities or small apertures (high f-numbers). After positioning the remote flash units, take a test shot and view the results in the camera monitor.

Flash Compensation

The flash compensation value selected with the  button and sub-command dial is added to the flash compensation values selected in the wireless flash options menu.  icons are displayed in the control panel and viewfinder when a flash compensation value other than ± 0 is selected for the master or remote flash units in TTL or A mode.

Radio AWL Using the Controls on an SB-5000

When an SB-5000 is mounted on the camera accessory shoe as a master unit for radio flash control, compatible remote flash units can be controlled by radio signals (radio AWL) from a WR-R10 wireless remote controller.



Establishing a Wireless Connection

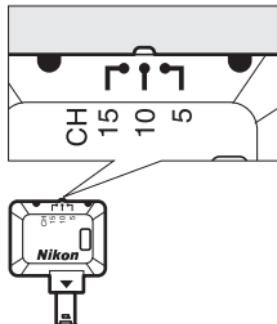
Before using radio AWL, establish a wireless connection between the WR-R10 and the remote flash units.

1 **Connect the WR-R10.**

Connect the WR-R10 to the camera. For more information, see the documentation provided with the WR-R10.

2 **Choose a channel.**

Set the WR-R10 channel selector to the desired channel.



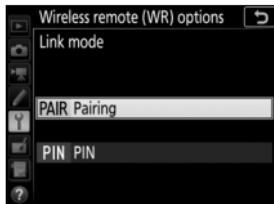
The WR-R10

Be sure to update the WR-R10 firmware to the latest version; for information on firmware updates, see the Nikon website for your area.

3 Choose a link mode.

Select **Wireless remote (WR)** **options** > **Link mode** in the setup menu (☞ 145) and choose from the following options:

- **Pairing:** Pair the remote flash units with the WR-R10.
- **PIN:** Connect the camera and remote flash units using a four-digit PIN.



4 Establish a wireless connection.

Set the remote flash units to radio AWL remote mode and set the devices to the channel you selected in Step 2, then pair each of the remote units with the WR-R10 according to the option selected in Step 3:

- **Pairing:** Initiate pairing on the remote unit and press the WR-R10 pairing button. Pairing is complete when the **LINK** lamps on the WR-R10 and flash unit flash orange and green; once a connection is established, the **LINK** lamp on the remote flash unit will light green.
- **PIN:** Use the controls on the remote flash unit to enter the PIN you selected in Step 3. The **LINK** lamp on the remote unit will light green once a connection is established.

Reconnecting

As long as the channel, link mode, and other settings remain the same, the WR-R10 will automatically connect to previously paired flash units when you select remote mode and Steps 2–4 can be omitted. The flash unit **LINK** lamp lights green when a connection is established.

Taking Photographs

Settings for the remote units must be adjusted using the controls on each unit. See the flash unit manuals for more information.

1 : Adjust settings for the master flash.

Using the controls on the master flash, choose the flash mode and flash level for the master flash.

2 : Adjust settings for the remote flash units.

Using the controls on the master flash, choose the flash mode and flash level for the remote flash units in each group.

3 : Group the remote flash units.

Choose a group (A–F) for each of the remote flash units. The master flash can control up to 18 flash units in any combination.

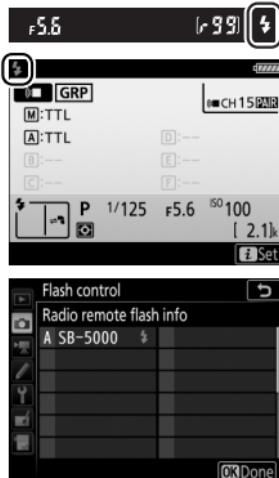
4 : Compose the shot.

Compose the shot and arrange the flash units. See the documentation provided with the flash units for more information. After arranging the flash units, perform a firing test to confirm that all flash units are functioning.

5 : Take photographs.

The flash-ready indicator will light in the camera viewfinder or flash information display when all flash units are ready.

The status of radio-controlled flash units can also be viewed by pressing the  button in the flash information display.

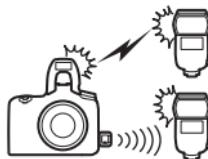


Flash Compensation

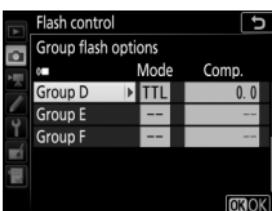
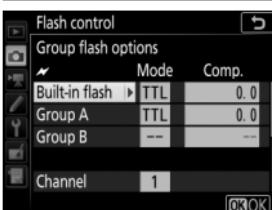
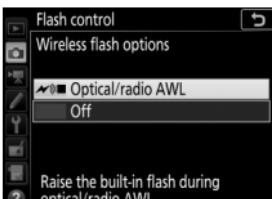
The flash compensation value selected with the  button and sub-command dial is added to the flash compensation values selected in the wireless flash options menu.  icons are displayed in the control panel and viewfinder when a flash compensation value other than ± 0 is selected for the master or remote flash units in TTL or  mode.

Optical/Radio AWL

For remote flash lighting that incorporates both optically- and radio-controlled flash units, raise the built-in flash and then attach a WR-R10 wireless remote controller and establish a wireless connection between the WR-R10 and any radio-controlled flash units (☞ 194).

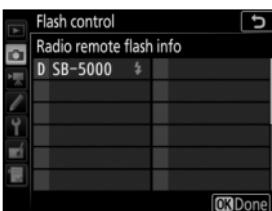


In the photo shooting menu, select **Optical/radio AWL** for **Flash control > Wireless flash options** and configure the built-in flash and remote flash units using **Flash control > Group flash options**. Place optically-controlled units in group A or B.



In **Group flash options**, press \triangle or ∇ to place radio-controlled units in group D, E, or F.

The status of radio-controlled flash units can also be viewed by pressing the i button in the flash information display.

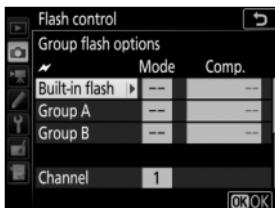
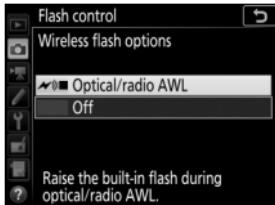


Radio AWL

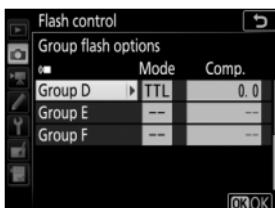
To use radio AWL with compatible flash units, raise the built-in flash and then attach a WR-R10 wireless remote controller and establish a wireless connection between the flash units and the WR-R10 (☞ 194).



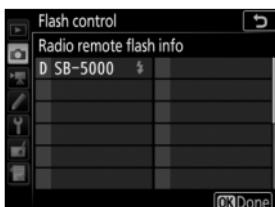
In the photo shooting menu, select **Optical/radio AWL** for **Flash control** > **Wireless flash options** and configure the built-in flash and remote flash units using **Flash control** > **Group flash options**, being sure to select -- (off) as the flash control mode for the built-in flash and the flash units in groups A and B.



In **Group flash options**, press or to place radio-controlled units in group D, E, or F.



The status of radio-controlled flash units can also be viewed by pressing the button in the flash information display.



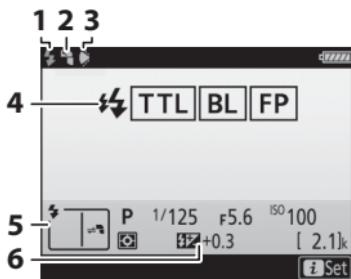
Viewing Flash Information

In modes **P**, **S**, **A**, and **M**, you can press the **info** button to view flash info in the camera information display when any of the following apply:

- An SB-500, SB-400, or SB-300 is mounted on the accessory shoe
- A WR-R10 is used to control an SB-5000 via radio AWL
- The built-in flash is raised for remote flash photography

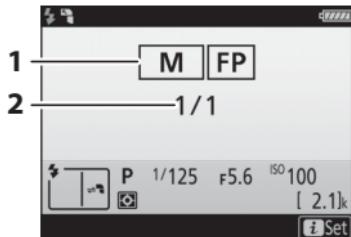
The information displayed varies with the flash control mode.

■ TTL



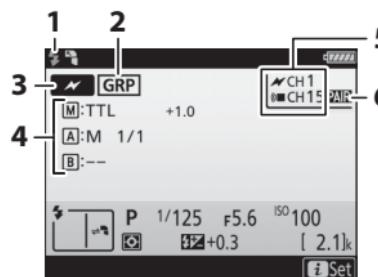
1	Flash-ready indicator	196
2	Bounce icon (displayed if flash head is tilted)	
3	Flash angle warning (displayed if angle of illumination is sub-optimal)	
4	Flash control mode	32
	FP indicator	102
5	Flash mode	
6	Flash compensation	193

■ Manual



1	Flash control mode	32
	FP indicator	102
2	Flash level	32

■ Group Flash



- 1 Displayed in radio AWL when all flash units are ready.
- 2 Optical AWL is indicated by , radio AWL by , joint optical and radio AWL by  and .
- 3 Icons are displayed for each group when joint optical and radio AWL is used.

Flash Info and Camera Settings

The flash information display shows selected camera settings, including shooting mode, shutter speed, aperture, and ISO sensitivity.



Flash Control Mode

The information display shows the flash control mode for optional flash units attached to the camera accessory shoe as follows:



	Flash sync	Auto FP (info 102)
i-TTL		
Auto aperture (info A)		
Non-TTL auto flash (A)		
Distance-priority manual (GN)		
Manual		
Repeating flash		—
Advanced wireless lighting		

The Nikon Creative Lighting System (CLS)

Nikon's advanced Creative Lighting System (CLS) offers improved communication between the camera and compatible flash units for improved flash photography.

■ **CLS-Compatible Flash Units**

The following features are available with CLS-compatible flash units:

		SB-910, SB-900, SB-800	SB-500	SB-700	SB-600	SB-500	SU-800	SB-R200	SB-400	SB-300	
Single flash	i-TTL	i-TTL balanced fill-flash for digital SLR ¹	✓	✓	✓	✓	✓	—	—	✓	✓
		Standard i-TTL fill-flash for digital SLR	✓ ²	✓ ²	✓	✓ ²	✓	—	—	✓	✓
	Ⓐ	Auto aperture	✓	✓ ³	—	—	—	—	—	—	—
	A	Non-TTL auto	— ⁴	✓ ³	—	—	—	—	—	—	—
	GN	Distance-priority manual	✓	✓	✓	—	—	—	—	—	—
	M	Manual	✓	✓	✓	✓	✓ ⁵	—	—	✓ ⁵	✓ ⁵
	RPT	Repeating flash	✓	✓	—	—	—	—	—	—	—

		SB-300		SB-400		SB-R200		SB-500		SU-800		SB-600		SB-700		SB-910, SB-900, SB-800		SB-5000	
Master	Remote flash control	✓	✓	✓	—	✓ ⁵	✓	—	—	—	—	—	—	—	—	—	—		
	i-TTL	✓	✓	✓	—	✓ ⁵	—	—	—	—	—	—	—	—	—	—	—		
	[A:B]	Quick wireless flash control	✓	—	✓	—	—	—	✓ ⁶	—	—	—	—	—	—	—	—		
	⊗A	Auto aperture	✓	✓	—	—	—	—	—	—	—	—	—	—	—	—	—		
	A	Non-TTL auto	—	— ⁷	—	—	—	—	—	—	—	—	—	—	—	—	—		
	M	Manual	✓	✓	✓	—	✓ ⁵	—	—	—	—	—	—	—	—	—	—		
	RPT	Repeating flash	✓	✓	—	—	—	—	—	—	—	—	—	—	—	—	—		
	i-TTL	i-TTL	✓	✓	✓	✓	✓	✓	—	✓	—	✓	—	—	—	—	—		
	[A:B]	Quick wireless flash control	✓	✓	✓	✓	✓	✓	—	✓	—	✓	—	—	—	—	—		
	⊗A/A	Auto aperture/Non-TTL auto	✓ ⁸	✓ ⁸	—	—	—	—	—	—	—	—	—	—	—	—	—		
Wireless Lighting	M	Manual	✓	✓	✓	✓	✓	✓	—	✓	—	✓	—	—	—	—	—		
	RPT	Repeating flash	✓	✓	✓	✓	✓	✓	—	✓	—	—	—	—	—	—	—		
	Radio-controlled Advanced Wireless Lighting		✓ ⁹	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
	Color Information Communication (flash)		✓	✓	✓	✓	✓	✓	—	—	✓	—	✓	✓	—	—	—		
Color Information Communication (LED light)		—	—	—	—	—	—	✓	—	—	—	—	—	—	—	—	—		

	SB-5000	SB-910, SB-900, SB-800	SB-700	SB-600	SB-500	SU-800	SB-R200	SB-400	SB-300
Auto FP High-Speed Sync ¹⁰	✓	✓	✓	✓	✓	✓	✓	—	—
FV lock ¹¹	✓	✓	✓	✓	✓	✓	✓	✓	✓
AF-assist for multi-area AF	✓	✓	✓	✓	—	✓ ¹²	—	—	—
Red-eye reduction	✓	✓	✓	✓	✓	—	—	✓	—
Camera modeling illumination	✓	✓	✓	✓	✓	✓	✓	—	—
Camera flash unit firmware update	✓	✓ ¹³	✓	—	✓	—	—	—	✓

1 Not available with spot metering.

2 Can also be selected with flash unit.

3 \otimes A/A mode selection performed on flash unit using custom settings. "A" will be selected when a non-CPU lens is used.

4 Non-TTL auto will be selected when a non-CPU lens is used.

5 Can only be selected using camera **Flash control** option.

6 Available only during close-up photography.

7 Non-TTL auto (A) is used with non-CPU lenses, regardless of mode selected with flash unit.

8 Choice of \otimes A and A depends on the option selected with master flash.

9 Supports the same features as remote flash units with optical AWL.

10 Available only in i-TTL, \otimes A, A, GN, and M flash-control modes.

11 Available only in i-TTL flash control mode or when flash is set to emit monitor pre-flashes in \otimes A or A flash control mode.

12 Available only in commander mode.

13 Firmware updates for the SB-910 and SB-900 can be performed from the camera.

The SU-800 Wireless Speedlight Commander: When mounted on a CLS-compatible camera, the SU-800 can be used as a commander for SB-5000, SB-910, SB-900, SB-800, SB-700, SB-600, SB-500, or SB-R200 flash units in up to three groups. The SU-800 itself is not equipped with a flash.

Flash Mode Selection for Optional Flash Units

The flash mode for optional flash units can be selected in the same way as the flash mode for the built-in flash, namely by holding the  button and rotating the main command dial.

Modeling Illumination

CLS-compatible flash units emit a modeling flash when you press the control to which **Modeling flash** has been assigned using Custom Setting f1 (**Custom control assignment**). This feature can be used with Advanced Wireless Lighting to preview the total lighting effect achieved with multiple flash units.

■■ Other Flash Units

The following flash units can be used in non-TTL auto and manual modes.

Flash mode	Flash unit	SB-80DX, SB-28DX, SB-28, SB-26, SB-25, SB-24	SB-50DX ¹	SB-30, SB-27 ² , SB-22S, SB-22, SB-20, SB-16B, SB-15	SB-23, SB-29 ³ , SB-21B ³ , SB-29S ³
A Non-TTL auto	✓	—	✓	—	
M Manual	✓	✓	✓	✓	
Flash Repeating flash	✓	—	—	—	
REAR Rear-curtain sync ⁴	✓	✓	✓	✓	

- 1 Select mode **P**, **S**, **A**, or **M**, lower built-in flash, and use optional flash unit only.
- 2 Flash mode is automatically set to TTL and shutter-release is disabled. Set flash unit to **A** (non-TTL auto flash).
- 3 Autofocus is available with AF-S VR Micro-Nikkor 105mm f/2.8G IF-ED and AF-S Micro NIKKOR 60mm f/2.8G ED lenses only.
- 4 Available when camera is used to select flash mode.

Using FV Lock with Optional Flash Units

FV lock is available with optional flash units (203) in i-TTL and (where supported) monitor pre-flash \otimes A and monitor pre-flash A flash control modes (see the manual provided with the flash unit for more information). Note that when Advanced Wireless Lighting is used to control remote flash units, you will need to set the flash control mode for the master or at least one remote group to TTL, \otimes A, or A.

Metering

The metering areas for FV lock when using optional flash unit are as follows:

Flash unit	Flash mode	Metered area
Stand-alone flash unit	i-TTL	4-mm circle in center of frame
	\otimes A	Area metered by flash exposure meter
Used with other flash units (Advanced Wireless Lighting)	i-TTL	Entire frame
	\otimes A	Area metered by flash exposure meter
	A	Area metered by flash exposure meter

Notes on Optional Flash Units

Refer to the flash unit manual for detailed instructions. If the flash unit supports CLS, refer to the section on CLS-compatible digital SLR cameras. The D7500 is not included in the “digital SLR” category in the SB-80DX, SB-28DX, and SB-50DX manuals.

If an optional flash unit is attached in shooting modes other than , , and , the flash will fire with every shot, even in modes in which the built-in flash can not be used.

i-TTL flash control can be used at ISO sensitivities between 100 and 12800. At values over 12800, the desired results may not be achieved at some ranges or aperture settings. If the flash-ready indicator () flashes for about three seconds after a photograph is taken in i-TTL or non-TTL auto mode, the flash has fired at full power and the photograph may be underexposed (CLS-compatible flash units only; for information on the exposure and flash charge indicators on other units, see the manual provided with the flash).

In i-TTL and auto aperture () flash control modes, the flash compensation selected with the optional flash unit or the **Flash control** option in the photo shooting menu is added to the flash compensation selected with the  () button and command dial.

When an SC-series 17, 28, or 29 sync cable is used for off-camera flash photography, correct exposure may not be achieved in i-TTL mode. We recommend that you select standard i-TTL fill-flash control. Take a test shot and view the results in the monitor.

In i-TTL, use the flash panel or bounce adapter provided with the flash unit. Do not use other panels such as diffusion panels, as this may produce incorrect exposure.

Notes on Optional Flash Units (Continued)

The SB-5000, SB-910, SB-900, SB-800, SB-700, SB-600, SB-500, and SB-400 provide red-eye reduction, while the SB-5000, SB-910, SB-900, SB-800, SB-700, SB-600, and SU-800 provide AF-assist illumination with the following restrictions:

- **SB-5000:** AF-assist illumination is available when 24–135 mm AF lenses are used with the focus points shown.

Focal length	24–30 mm	
31–48 mm		
49–135 mm		

- **SB-910 and SB-900:** AF-assist illumination is available when 17–135 mm AF lenses are used with the focus points shown.



- **SB-800, SB-600, and SU-800:** AF-assist illumination is available when 24–105 mm AF lenses are used with the focus points shown.

Focal length	24–31 mm	
32–105 mm		

- **SB-700:** AF-assist illumination is available when 24–135 mm AF lenses are used with the focus points shown.



Depending on the lens used and scene recorded, the in-focus indicator (●) may be displayed when the subject is not in focus, or the camera may be unable to focus and the shutter release will be disabled.

In mode **P**, the maximum aperture (minimum f-number) is limited according to ISO sensitivity, as shown below:

Maximum aperture at ISO equivalent of:							
100	200	400	800	1600	3200	6400	12800
4	5	5.6	7.1	8	10	11	13

If the maximum aperture of the lens is smaller than given above, the maximum value for aperture will be the maximum aperture of the lens.

Noise in the form of lines may appear in flash photographs taken with an SD-9 or SD-8A high-performance battery pack attached directly to the camera. Reduce ISO sensitivity or increase the distance between the camera and the power pack.

The AS-15 Sync Terminal Adapter

When the AS-15 sync terminal adapter (available separately) is mounted on the camera accessory shoe, flash accessories can be connected via a sync terminal.

Third-Party Flash Units

The camera cannot be used with flash units that would apply voltages over 250 V to the camera's X contacts or short-circuit contacts on the accessory shoe. Use of such flash units could not only interfere with normal operation of the camera but also damage the flash sync circuits of the camera and/or flash.

Technical Notes

Read this chapter for information on connecting to other devices and on compatible accessories.

Connections

Installing NX Studio

You will need an Internet connection when installing NX Studio. Visit the Nikon website for the latest information, including system requirements.

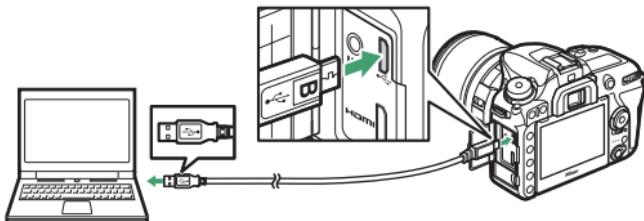
- Download the latest NX Studio installer from the website below and follow the on-screen instructions to complete installation.
<https://downloadcenter.nikonimglib.com/>
- Note that you may be unable to download pictures from the camera using earlier versions of NX Studio.

Copying Pictures to a Computer Using NX Studio

See online help for detailed instructions.

1 Connect the camera to the computer.

After turning the camera off and ensuring that a memory card is inserted, connect the supplied USB cable as shown.



Using a Card Reader

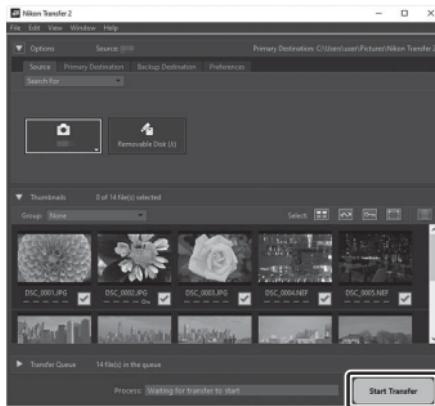
Pictures can also be copied from a memory card inserted in a third-party card reader. You should however check that the card is compatible with the card reader.

2 Turn the camera on.

- The Nikon Transfer 2 component of NX Studio will start. Nikon Transfer 2 image transfer software is installed as part of NX Studio.
- If a message is displayed prompting you to choose a program, select Nikon Transfer 2.
- If Nikon Transfer 2 does not start automatically, launch NX Studio and click the “Import” icon.

3 Click Start Transfer.

Pictures on the memory card will be copied to the computer.



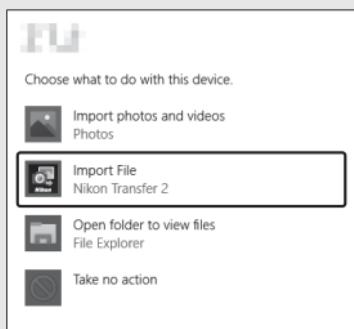
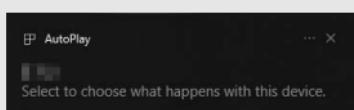
4 Turn the camera off.

Disconnect the USB cable when transfer is complete.

Windows 10 and Windows 8.1

Windows 10 and Windows 8.1 may display an AutoPlay prompt when the camera is connected.

Click the dialog and then click **Nikon Transfer 2** to select Nikon Transfer 2.



macOS

If Nikon Transfer 2 does not start automatically, confirm that the camera is connected and then launch Image Capture (an application that comes with macOS) and select Nikon Transfer 2 as the application that opens when the camera is detected.

Caution: Transferring Videos

Do not attempt to transfer videos from the memory card while it is inserted in a camera of a different make or model. Doing so could result in the videos being deleted without being transferred.

Cautions: Connecting to Computers

- Do not turn the camera off or disconnect the USB cable while transfer is in progress.
- Do not use force or attempt to insert the connectors at an angle. Be sure also to keep the connectors straight when disconnecting the cable.
- Always turn the camera off before connecting or disconnecting a cable.
- To ensure that data transfer is not interrupted, be sure the camera battery is fully charged.

USB Hubs

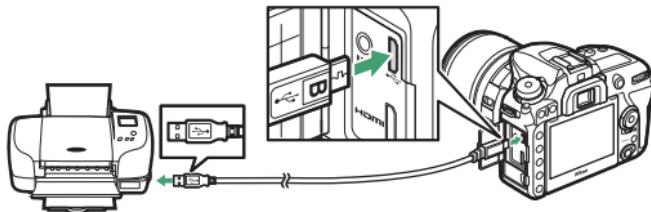
Connect the camera directly to the computer; do not connect the cable via a USB hub or keyboard. Connect the camera to a pre-installed USB port.

Printing Photographs

Selected JPEG images can be printed on a PictBridge printer connected directly to the camera.

■ Connecting the Printer

Connect the camera using the supplied USB cable. Do not use force or attempt to insert the connectors at an angle.



When the camera and printer are turned on, a welcome screen will be displayed in the monitor, followed by a PictBridge playback display.

✓ Selecting Photographs for Printing

NEF (RAW) photographs (□ 36) can not be selected for printing. JPEG copies of NEF (RAW) images can be created using the **NEF (RAW) processing** option in the retouch menu (□ 160).

▢ Printing Via Direct USB Connection

Be sure the battery is fully charged or use an optional AC adapter and power connector. When taking photographs to be printed via direct USB connection, set **Color space** to **sRGB** (□ 44).

▢ See Also

See the *User's Manual* for information on what to do if an error occurs during printing.

1 Display the desired picture.

Press or to view additional pictures. Press the (QUAL) button to zoom in on the current frame (press to exit zoom). To view six pictures at a time, press the (6P) button. Use the multi selector to highlight pictures, or press the (QUAL) button to display the highlighted picture full frame.

2 Adjust printing options.

Press to display the following items, then press or to highlight an item and press to view options (only options supported by the current printer are listed; to use the default option, select **Printer default**). After selecting an option, press to return to the printer settings menu.

Option	Description
Page size	Choose a page size.
No. of copies	This option is listed only when pictures are printed one at a time. Press or to choose number of copies (maximum 99).
Border	Choose whether to frame photos in white borders.
Print date	Choose whether to print the times and dates of recordings on photos.
Cropping	This option is listed only when pictures are printed one at a time. To exit without cropping, highlight No cropping and press . To crop the current picture, highlight Crop and press . A crop selection dialog will be displayed; press (QUAL) to increase the size of the crop, (6P) to decrease, and use the multi selector to position the crop. Note that print quality may drop if small crops are printed at large sizes.

3 Start printing.

Select **Start printing** and press  to start printing. To cancel before all copies have been printed, press .

■ **Printing Multiple Pictures**

1 Display the PictBridge menu.

Press the **MENU** button in the PictBridge playback display.

2 Choose an option.

Highlight one of the following options and press .

- **Print select:** Select pictures for printing. Use the multi selector to highlight pictures (to display the current picture full screen, press and hold the  button) and, keeping the  () button pressed, press  or  to choose the number of prints (maximum 99). To deselect a picture, set the number of prints to zero.
- **Select date:** Print one copy of all the pictures taken on a selected date. Press  or  to highlight a date and press  to select or deselect. To view the pictures taken on the selected date, press  (). Use the multi selector to scroll through the pictures, or press and hold  to view the current picture full screen. Press  () again to return to the date selection dialog.
- **Index print:** To create an index print of all JPEG pictures on the memory card, proceed to Step 3. Note that if the memory card contains more than 256 pictures, only the first 256 images will be printed. A warning will be displayed if the page size selected in Step 3 is too small for an index print.

3 Adjust printing options.

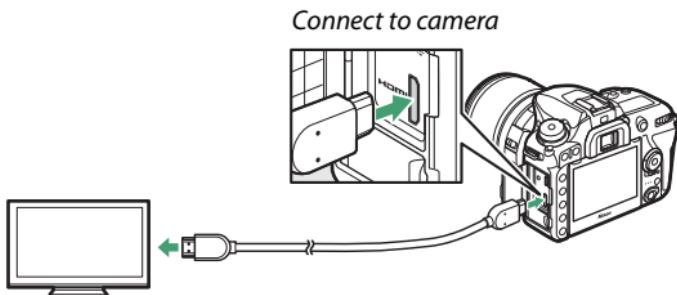
Adjust printer settings as described in Step 2 of “Printing Pictures One at a Time” (☞ 216).

4 Start printing.

Select **Start printing** and press **OK** to start printing. To cancel before all copies have been printed, press **OK**.

Viewing Photographs on TV

The optional High-Definition Multimedia Interface (HDMI) cable (222) or a type C HDMI cable (available separately from third-party suppliers) can be used to connect the camera to high-definition video devices. Always turn the camera off before connecting or disconnecting an HDMI cable.



*Connect to high-definition device
(choose cable with connector for HDMI device)*

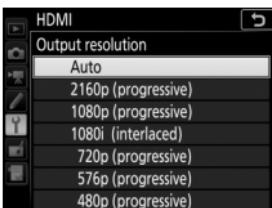
Tune the device to the HDMI channel, then turn the camera on and press the **■** button. During playback, images will be displayed on the television screen. Volume can be adjusted using television controls; the camera controls can not be used.

■ **HDMI Options**

The **HDMI** option in the setup menu (□ 143) controls output resolution and other advanced HDMI options.

Output Resolution

Choose the format for images output to the HDMI device. If **Auto** is selected, the camera will automatically select the appropriate format.



Advanced

Option	Description
Output range	<p>Auto is recommended in most situations. If the camera is unable to determine the correct RGB video signal output range for the HDMI device, you can choose from the following options:</p> <ul style="list-style-type: none">• Limited range: For devices with an RGB video signal input range of 16 to 235. Choose this option if you notice loss of detail in shadows.• Full range: For devices with an RGB video signal input range of 0 to 255. Choose this option if shadows are “washed out” or too bright.
Output display size	Choose horizontal and vertical frame coverage for HDMI output from 95% or 100%.
Live view on-screen display	If Off is selected when the camera is connected to an HDMI device, shooting information will not be displayed in the monitor during live view photography.
Dual monitor	Choose On to mirror the HDMI display on the camera monitor, Off to turn the camera monitor off to save power. Dual monitor turns on automatically when Live view on-screen display is Off .

Television Playback

Use of an AC adapter and power connector (available separately) is recommended for extended playback. If the edges of photographs are not visible in the television display, select **95%** for **HDMI > Advanced > Output display size** (□ 220).

Slide Shows

The **Slide show** option in the playback menu can be used for automated playback (□ 24).

HDMI and Live View

When the camera is connected via an HDMI cable, HDMI displays can be used for live view photography and movie recording.

Using Third-Party Recording Devices

The following settings are recommended when using third-party recorders:

- **HDMI > Advanced > Output display size: 100%**
- **HDMI > Advanced > Live view on-screen display: Off**

Other Accessories

At the time of writing, the following accessories were available for the D7500.

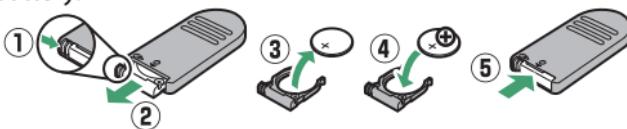
Power sources	<ul style="list-style-type: none">• EN-EL15a Rechargeable Li-ion Battery (□ 153): Additional EN-EL15a batteries are available from local retailers and Nikon service representatives. EN-EL15c/EN-EL15b/EN-EL15 batteries can also be used. Note, however, that you will not be able to take as many pictures on a single charge using EN-EL15 batteries.• MH-25a Battery Charger: The MH-25a can be used to recharge EN-EL15a batteries. MH-25 battery chargers can also be used.• EP-5B Power Connector, EH-5b/EH-5c AC Adapter: These accessories can be used to power the camera for extended periods. The EP-5B is required to connect the camera to the EH-5b/EH-5c; see “Attaching a Power Connector and AC Adapter” (□ 227) for details.
Accessory shoe covers	BS-1 Accessory Shoe Cover : A cover protecting the accessory shoe. The accessory shoe is used for optional flash units.
Body caps	BF-1B Body Cap/BF-1A Body Cap : The body cap keeps the mirror, viewfinder screen, and image sensor free of dust when a lens is not in place.
Viewfinder eyepiece accessories	<ul style="list-style-type: none">• DK-28 Rubber Eyecup: A rubber eyecup that attaches to the viewfinder eyepiece, reducing fatigue by making the image in the viewfinder easier to see.• DK-5 Eyepiece Cap: Prevents light entering via the viewfinder from appearing in the photograph or interfering with exposure.

Viewfinder eyepiece accessories	<ul style="list-style-type: none">• DK-20C Eyepiece Correction Lenses: Lenses are available with diopters of -5, -4, -3, -2, 0, $+0.5$, $+1$, $+2$, and $+3\text{ m}^{-1}$ when the camera diopter adjustment control is in the neutral position (-1 m^{-1}). Use eyepiece correction lenses only if the desired focus can not be achieved with the built in diopter adjustment control (-2 to $+1\text{ m}^{-1}$). Test eyepiece correction lenses before purchase to ensure that the desired focus can be achieved. The rubber eyecup can not be used with eyepiece correction lenses.• DK-21M Magnifying Eyepiece: The DK-21M magnifies the view through the viewfinder by approximately $1.17\times$ ($50\text{ mm f/1.4 lens at infinity; }-1.0\text{ m}^{-1}$) for greater precision when framing.• DG-2 Magnifier: The DG-2 magnifies the scene displayed in the center of the viewfinder for greater precision during focusing. Eyepiece adapter required (available separately). Note that because the DG-2 interferes with the eye sensor, you may find it necessary to select Off for the Info display auto off item in the setup menu (130) when this accessory is attached.• DK-22 Eyepiece Adapter: The DK-22 is used when attaching the DG-2 magnifier.• DR-6 Right-Angle Viewing Attachment: The DR-6 attaches at a right angle to the viewfinder eyepiece, allowing the image in the viewfinder to be viewed at right angles to the lens (for example, from directly above when the camera is horizontal). In addition, because the DR-6 interferes with the eye sensor, you may find it necessary to select Off for the Info display auto off item in the setup menu when this accessory is attached.
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Filters	<ul style="list-style-type: none">• Filters intended for special-effects photography may interfere with autofocus or the electronic rangefinder.• The D7500 can not be used with linear polarizing filters. Use the C-PL or C-PLII circular polarizing filter instead.• Neutral Color (NC) filters are recommended for protecting the lens.• To prevent ghosting, use of a filter is not recommended when the subject is framed against a bright light, or when a bright light source is in the frame.• Center-weighted metering is recommended with filters with exposure factors (filter factors) over 1x (Y44, Y48, Y52, O56, R60, X0, X1, C-PL, ND2S, ND4, ND4S, ND8, ND8S, ND400, A2, A12, B2, B8, B12). See the filter manual for details.
Microphones	<ul style="list-style-type: none">• ME-1 Stereo Microphone: Connect the ME-1 to the camera microphone jack to record stereo sound and reduce the chance of picking up equipment noise (such as the sounds produced by the lens during autofocusing).• ME-W1 Wireless Microphone: Use this wireless Bluetooth microphone for off-camera recording.

**Remote controls/
wireless remote controller/
remote cords**

- **ML-L3 Wireless Remote Control:** The ML-L3 uses a 3 V CR2025 battery.



Pressing the battery-chamber latch to the right (1), insert a fingernail into the gap and open the battery chamber (2). Ensure that the battery is inserted in the correct orientation (4).

- **WR-R10 Wireless Remote Controller/WR-T10 Wireless Remote Controller** (145, 147): When a WR-R10 wireless remote controller is attached, the camera can be controlled wirelessly using a WR-T10 wireless remote controller. The WR-R10 can also be used to control radio-controlled flash units.

- **WR-1 Wireless Remote Controller** (147): The WR-1 can function as either a transmitter or a receiver and is used in combination either with another WR-1 or a WR-R10 or WR-T10 wireless remote controller. For example, a WR-1 can be connected to the accessory terminal for use as a receiver, allowing camera settings to be changed or the shutter to be released remotely by another WR-1 acting as a transmitter.

Note: Be sure the firmware for the WR-R10 and WR-1 has been updated to the latest version. For information on firmware updates, see the Nikon website for your area.

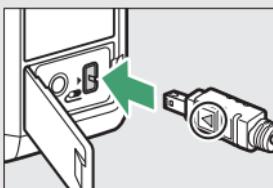
- **MC-DC2 Remote Cord:** Attach this 1 m (3 ft 3 in.) cord to the camera accessory terminal to release the shutter remotely.

GPS units	GP-1 GPS Unit/GP-1A GPS Unit: Connect to the camera accessory terminal to record the current latitude, longitude, altitude, and UTC (Coordinated Universal Time) with pictures taken with the camera (☞ 144).
USB cables	UC-E20 USB Cable (☞ 212, 215): A USB cable with a Micro-B connector for connection to the camera.
HDMI cables (☞ 219)	HC-E1 HDMI Cable: An HDMI cable with a type C connector for connection to the camera and a type A connector for connection to HDMI devices.
Software	<p>Camera Control Pro 2: Control the camera remotely from a computer and save photographs directly to the computer hard disk. When Camera Control Pro 2 is used to capture photographs directly to the computer, a PC connection indicator (PC) will appear in the control panel.</p> <p>Note: Use the latest versions of Nikon software; see the Nikon website for your region for the latest information on supported operating systems. At default settings, Nikon Message Center 2 will periodically check for updates to Nikon software and firmware while you are logged in to an account on the computer and the computer is connected to the Internet. A message is automatically displayed when an update is found.</p>

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

Using the Accessory Terminal

Connect accessories as shown, with the **◀** mark on the connector aligned with the **▶** next to the accessory terminal. To prevent malfunction caused by foreign matter on the terminal, close the camera connector cover when the terminal is not in use.

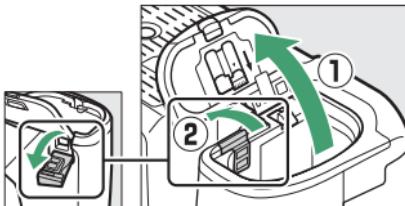


Attaching a Power Connector and AC Adapter

Turn the camera off before attaching an optional power connector and AC adapter.

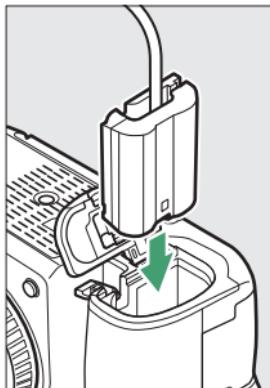
1 Ready the camera.

Open the battery-chamber (1) and power connector (2) covers.



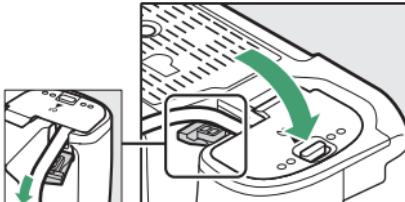
2 Insert the EP-5B power connector.

Be sure to insert the connector in the orientation shown, using the connector to keep the orange battery latch pressed to one side. The latch locks the connector in place when the connector is fully inserted.



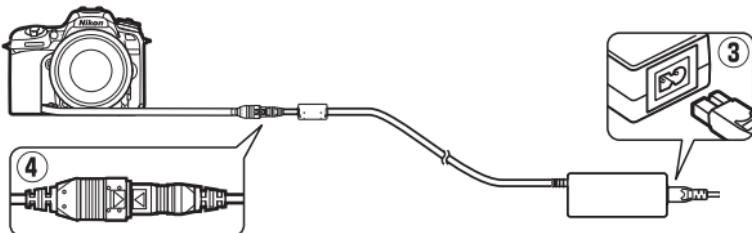
3 Close the battery-chamber cover.

Position the power connector cable so that it passes through the power connector slot and close the battery-chamber cover.



4 Connect the EH-5b/EH-5c AC adapter.

Connect the AC adapter power cable to the AC socket on AC adapter (3) and the power cable to the DC socket (4). A  icon is displayed in the monitor when the camera is powered by the AC adapter and power connector.



Available Settings

The following table lists the settings that can be adjusted in each mode. Note that some settings may be unavailable depending on the options selected.

Custom Settings	AUTO	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	⑭	⑮	⑯	⑰	⑱	⑲	⑳	⑳
	P, S, A, M	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
a9: Built-in AF-assist illuminator	✓	✓	✓	✓ ³	✓ ⁴	✓	✓	✓	✓	✓	—	✓	✓									
b3: Easy exposure compensation	—	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
b4: Matrix metering	—	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
b5: Center-weighted area	—	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
d4: Electronic front-curtain shutter	—	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
e2: Flash shutter speed	—	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
e3: Exposure comp. for flash	—	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
e4: Auto ISO sensitivity control	—	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
e5: Bracketing order	—	—	✓	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	

1 Auto ISO sensitivity control is not available.

2 Subject-tracking AF is not available.

3 Not available in  mode.

4 Available only in , , and  modes.

Lenses That May Block the Built-in Flash and AF-Assist Illuminator

The lenses listed in this section may block the built-in flash or AF-assist illuminator under some conditions.

■ AF-Assist Illumination

The AF-assist illuminator has a range of about 0.5–3.0 m (1 ft 8 in.–9 ft 10 in.); when using the illuminator, use a lens with a focal length of 18–200 mm. Some lenses may block the illuminator at certain focus distances. Remove lens hoods when using the illuminator.

AF-assist illumination is not available with the following lenses:

- AF-S NIKKOR 14–24mm f/2.8G ED
- AF-S NIKKOR 200mm f/2G ED VR II
- AF-S VR Nikkor 200mm f/2G IF-ED
- AF-S VR Zoom-Nikkor 200–400mm f/4G IF-ED
- AF-S NIKKOR 200–400mm f/4G ED VR II
- AF-S NIKKOR 200–500mm f/5.6E ED VR

At a range of 0.7 m (2 ft 4 in.) or less, the following lenses may block the AF-assist illuminator and interfere with autofocus when lighting is poor:

- AF-S Zoom-Nikkor 17–35mm f/2.8D IF-ED
- AF-S DX Zoom-Nikkor 17–55mm f/2.8G IF-ED
- AF-S DX NIKKOR 18–140mm f/3.5–5.6G ED VR
- AF-S DX NIKKOR 18–300mm f/3.5–6.3G ED VR
- AF Zoom-Nikkor 20–35mm f/2.8D IF
- AF Zoom-Nikkor 24–85mm f/2.8–4D IF
- AF-S NIKKOR 24–85mm f/3.5–4.5G ED VR
- AF-S VR Zoom-Nikkor 24–120mm f/3.5–5.6G IF-ED
- AF-S NIKKOR 35mm f/1.4G
- AF Micro-Nikkor 200mm f/4D IF-ED

At a range of 1.0 m (3 ft 4 in.) or less, the following lenses may block the AF-assist illuminator and interfere with autofocus when lighting is poor:

- AF-S DX VR Zoom-Nikkor 18–200mm f/3.5–5.6G IF-ED
- AF-S NIKKOR 24–70mm f/2.8G ED
- AF-S NIKKOR 24–70mm f/2.8E ED VR
- AF Zoom-Nikkor 24–120mm f/3.5–5.6D IF
- AF-S Zoom-Nikkor 28–70mm f/2.8D IF-ED
- AF Zoom Micro Nikkor ED 70–180mm f/4.5–5.6D
- AF-S VR Micro-Nikkor 105mm f/2.8G IF-ED

At a range of 1.5 m (4 ft 12 in.) or less, the following lenses may block the AF-assist illuminator and interfere with autofocus when lighting is poor:

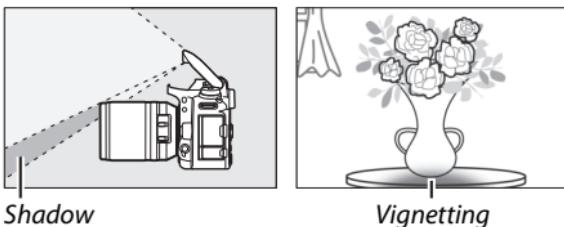
- AF-S DX NIKKOR 18–300mm f/3.5–5.6G ED VR
- AF-S NIKKOR 24–120mm f/4G ED VR
- AF-S NIKKOR 28–300mm f/3.5–5.6G ED VR
- AF-S DX NIKKOR 55–300mm f/4.5–5.6G ED VR
- AF-S NIKKOR 70–200mm f/2.8G ED VR II
- AF Zoom-Nikkor 80–200mm f/2.8D ED

At a range of 2.0 m (6 ft 7 in.) or less, the following lenses may block the AF-assist illuminator and interfere with autofocus when lighting is poor:

- AF-S VR Zoom-Nikkor ED 70–200mm f/2.8G (IF)
- AF-S NIKKOR 70–200mm f/4G ED VR
- AF-S Zoom Nikkor ED 80–200mm f/2.8D (IF)

■ The Built-in Flash

The built-in flash can be used with lenses with focal lengths of 16–300 mm, although in some cases the flash may be unable to entirely light the subject at some ranges or focal lengths due to shadows cast by the lens (see the illustration below), while lenses that block the subject's view of the red-eye reduction lamp may interfere with red-eye reduction. Peripheral illumination may drop at focal lengths under 16 mm. Remove lens hoods to prevent shadows.



The flash has a minimum range of about 0.6 m and can not be used in the macro range of macro zoom lenses. When **DX (24x16)** is selected for **Choose image area**, the flash may be unable to light the entire subject with the following lenses at ranges less than those given below:

Lens	Zoom position	Minimum distance without vignetting
AF-S DX NIKKOR 10–24mm f/3.5–4.5G ED	20 mm	1.0 m/3 ft 4 in.
	24 mm	No vignetting
AF-S DX Zoom-Nikkor 12–24mm f/4G IF-ED	18 mm	1.5 m/5 ft
	20 mm	1.0 m/3 ft 4 in.
	24 mm	No vignetting
AF-S DX NIKKOR 16–80mm f/2.8–4E ED VR	16 mm	1.5 m/5 ft
	24–80 mm	No vignetting

Lens	Zoom position	Minimum distance without vignetting
AF-S DX Zoom-Nikkor 17–55mm f/2.8G IF-ED	24 mm	1.0 m/3 ft 4 in.
	28–55 mm	No vignetting
AF-S DX NIKKOR 18–140mm f/3.5–5.6G ED VR	18 mm	1.0 m/3 ft 4 in.
	24–140 mm	No vignetting
AF-S DX VR Zoom-Nikkor 18–200mm f/3.5–5.6G IF-ED	18 mm	1.0 m/3 ft 4 in.
	24–200 mm	No vignetting
AF-S DX NIKKOR 18–200mm f/3.5–5.6G ED VR II	28 mm	1.5 m/5 ft
	50–300 mm	No vignetting
AF-S DX NIKKOR 18–300mm f/3.5–6.3G ED VR	35 mm	No vignetting
	24 mm	1.5 m/5 ft
AF-S NIKKOR 16–35mm f/4G ED VR	28 mm	1.0 m/3 ft 4 in.
	35 mm	No vignetting
AF-S Zoom-Nikkor 17–35mm f/2.8D IF-ED	20 mm	3.0 m/9 ft 11 in.
	24 mm	1.0 m/3 ft 4 in.
	28–35 mm	No vignetting
AF Zoom-Nikkor 18–35mm f/3.5–4.5D IF-ED	18 mm	1.5 m/5 ft
	24–35 mm	No vignetting
AF-S NIKKOR 24–70mm f/2.8G ED	28 mm	1.5 m/5 ft
	35 mm	1.0 m/3 ft 4 in.
	50–70 mm	No vignetting
AF-S NIKKOR 24–70mm f/2.8E ED VR	35 mm	1.5 m/5 ft
	50 mm	1.0 m/3 ft 4 in.
	70 mm	No vignetting
AF-S Zoom-Nikkor 28–70mm f/2.8D IF-ED	28 mm	1.5 m/5 ft
	35–70 mm	No vignetting
AF-S NIKKOR 14–24mm f/2.8G ED	When DX (24x16) is selected for Choose image area , the flash will be unable to light the entire subject at all ranges.	

When **1.3x (18x12)** is selected for **Choose image area**, the flash may be unable to light the entire subject with the following lenses at ranges less than those given below.

Lens	Zoom position	Minimum distance without vignetting
AF-S DX NIKKOR 10–24mm f/3.5–4.5G ED	15–24 mm	No vignetting
AF-S DX Zoom-Nikkor 12–24mm f/4G IF-ED	15 mm	1.0 m/3 ft 4 in.
	18–24 mm	No vignetting
AF-S DX Zoom-Nikkor 17–55mm f/2.8G IF-ED	20 mm	1.0 m/3 ft 4 in.
	24–55 mm	No vignetting
AF-S DX NIKKOR 18–300mm f/3.5–5.6G ED VR	28 mm	1.0 m/3 ft 4 in.
	50–300 mm	No vignetting
AF-S NIKKOR 14–24mm f/2.8G ED	24 mm	3.0 m/9 ft 11 in.
AF-S NIKKOR 16–35mm f/4G ED VR	20 mm	1.5 m/5 ft
	24 mm	1.0 m/3 ft 4 in.
	28–35 mm	No vignetting
AF-S Zoom-Nikkor 17–35mm f/2.8D IF-ED	17 mm	1.5 m/5 ft
	20 mm	1.0 m/3 ft 4 in.
	24–35 mm	No vignetting
AF-S NIKKOR 24–70mm f/2.8G ED	24 mm	1.5 m/5 ft
	28 mm	1.0 m/3 ft 4 in.
	35–70 mm	No vignetting
AF-S NIKKOR 24–70mm f/2.8E ED VR	28 mm	1.5 m/5 ft
	35 mm	1.0 m/3 ft 4 in.
	50–70 mm	No vignetting

The built-in flash can also be used with the following non-CPU lenses: Nikon Series E and 16–300 mm NIKKOR (AI-S, AI-, and AI-modifed). AI 50–300mm f/4.5, modified AI 50–300mm f/4.5, AI-S 50–300mm f/4.5 ED, and AI 50–300mm f/4.5 ED lenses must be used at a zoom position of 70 mm or above.

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