Nikon

Z 8 Reference Guide

(Supplement for Firmware Version 2.00)

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Features Available with "C" Firmware Version 2.00

The *Z 8 Reference Guide* is for "C" firmware version 1.01 (the latest version of the *Z 8 Reference Guide* is available from the Nikon Download Center). This chapter details the new features and changes introduced with camera "C" firmware version 2.00. The two documents are to be read together.

"Firmware Version"

To view the camera firmware version or update the camera firmware, select [**Firmware version**] in the setup menu.

Updates can be performed using a computer or smart device.

- **Computer**: Check the Nikon Download Center for new versions of the camera firmware. Information on performing updates is available via the firmware download page.
  https://downloadcenter.nikonimglib.com/
- **Smart device**: If the smart device has been paired with the camera using the SnapBridge app, the app will automatically notify you when updates become available, and you can then download the update to the camera memory card via the smart device. For information on performing updates, see SnapBridge online help. Note that automatic notifications may not be displayed at exactly the same time as the updates are made available on the Nikon Download Center.

Changes Made with "C" Firmware Version 2.00

The features added or updated with camera "C" firmware version 2.00 are summarized below. More information is available on the pages listed. For information on the menu items and defaults for "C" firmware version 2.00, see 'Menu Items and Defaults for "C" Firmware Version 2.00' (📖 90).

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New AF Subject Detection Option: "Birds"

[**Birds**] has been added to the subject detection options available in [**AF subject detection options**] in the photo shooting and video recording menus.
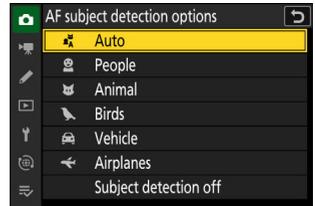
- In the case of the video recording menu, the choice of subject is made via [**AF subject detection options**] > [**Subject detection**]. Separate subject types can be selected for photo and video modes.

- If a bird is detected when [**Birds**] is selected, the focus point will appear over the face of the bird in question. If the camera detects the subject's eyes, the focus point will instead appear over one or the other of their eyes. If the camera can detect neither face nor eyes, it will display a focus point over the detected bird.

✅ Cautions: Subject Detection Using "Birds"

- Subject detection may not perform as expected if:
  - the subject's face is too large or small relative to the frame,
  - the subject's face is too brightly or dimly lit,
  - the subject's face or eyes are obscured by feather or the like,
  - the subject's face and eyes are of similar colors, or
  - the subject moves excessively during shooting.
- The camera may display a border around subjects that are not birds, but which resemble them. If the camera often mistakenly detects the subjects other than birds, changing to an AF-area mode with smaller focus points may improve focus performance.
- Flickering is more likely to occur if photos are taken under fluorescent, mercury-vapor, or similar lighting, compared to other environments.
  - Selecting [**ON**] for [**Photo flicker reduction**] in the photo shooting menu reduces flickering effects.
  - We recommend selecting [**OFF**] for [**Photo flicker reduction**] in the photo shooting menu if there is no flickering.
- The light from the AF-assist illuminator may adversely affect the eyes of some birds; select [**OFF**] for Custom Setting a12 [**Built-in AF-assist illuminator**] when using autofocus.

New Bracketing Increments

New options are available to the bracketing increments when [**AE & flash bracketing**], [**AE bracketing**], or [**Flash bracketing**] is selected for [**Auto bracketing**] > [**Auto bracketing set**] in the photo shooting menu.
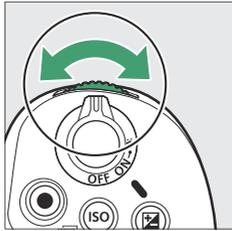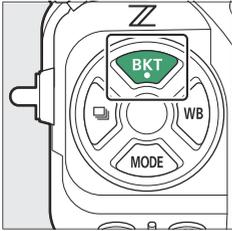
- Increments of 1.3, 1.7, 2.3, and 2.7 EV have been added to options available when $\frac{1}{3}$ step is selected for Custom Setting b2 [**EV steps for exposure cntrl**].
- Increments of 1.5 and 2.5 EV have been added to options available when $\frac{1}{2}$ step is selected for Custom Setting b2 [**EV steps for exposure cntrl**].
- Bracketing programs with increments of 2.0 EV or more offer a maximum of 5 shots.

Tip: Exposure Bracketing and Interval-Timer Photography
These new options have also been added to the bracketing increments available for [**Interval timer shooting**] > [**Options**] > [**AE bracketing**] in the photo shooting menu.

New Items Added to Picture Control

The following 3 items have been added to [**Set Picture Control**] in the photo shooting and video recording menus.

Option		Description
FM	[**Flat Monochrome**]	Features gentle gradations from highlights to shadows, producing soft monochrome pictures.
DM	[**Deep Tone Monochrome**]	Choose for slightly darker tones in the range from shadows to mid-tones, with brightness rapidly increasing as tones progress from mid-tones to highlights.
RP	[**Rich Tone Portrait**]	Produces more vivid results than [**Portrait**] while capturing details of the subject's complexion and avoiding loss of detail in highlights. Choose for pictures that will later be processed or retouched.

- [**Flat Monochrome**], [**Deep Tone Monochrome**] and [**Rich Tone Portrait**] have also been added to the original Picture Control on which the custom Picture Control is based in [**Manage Picture Control**] in the photo shooting and video recording menus.

☑ **Limits When Using "Flat Monochrome" and "Deep Tone Monochrome"**
The [**Portrait impression balance**] options in the photo shooting and video recording menus are disabled when using [**Flat Monochrome**] and [**Deep Tone Monochrome**].

Picture Control Settings

- The options available when [**Flat Monochrome**] or [**Deep Tone Monochrome**] is selected are as follows.
  - [**Quick sharp**]
    - [**Sharpening**]
    - [**Mid-range sharpening**]
    - [**Clarity**]
  - [**Contrast**]
  - [**Brightness**]
  - [**Filter effects**]
  - [**Toning**]
- The options available when [**Rich Tone Portrait**] is selected are as follows.
  - [**Quick sharp**]
    - [**Sharpening**]
    - [**Mid-range sharpening**]
    - [**Clarity**]
  - [**Contrast**]
  - [**Brightness**]
  - [**Saturation**]
  - [**Hue**]

✅ Using "Filter Effects" with "Deep Tone Monochrome"

[**Deep Tone Monochrome**] features a strong built-in red filter effect that applies even when [**OFF**] is selected for [**Filter effects**]. Because [**Filter effects**] cannot be applied more than once, selecting an option other than [**OFF**] will disable the built-in red filter effect. Contrast can be reduced by enabling [**Y**], [**O**], and [**R**].

Addition of "Large" to Size Options Available for "JPEG Primary - JPEG Secondary" and "HEIF Primary - HEIF Secondary"

[**Large**] has been added to the size options available for copies recorded to the memory card in the secondary slot when [**JPEG primary - JPEG secondary**] or [**HEIF primary - HEIF secondary**] is selected for [**Secondary slot function**] in the photo shooting menu. The size can be selected by pressing ⊛ when [**JPEG primary - JPEG secondary**] or [**HEIF primary - HEIF secondary**] is highlighted.
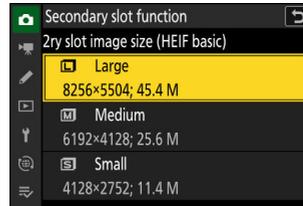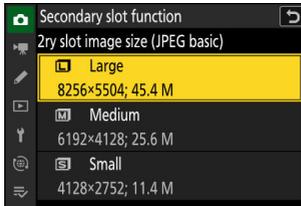
New Menu Item: "Pixel Shift Shooting"

A [**Pixel shift shooting**] item has been added to the photo shooting menu. The camera automatically shoots a series of NEF (RAW) photos, changing the position of the image sensor with each one. The photos can be blended using Nikon's NX Studio software to create a single high-resolution image.

Option	Description
[**Pixel shift shooting mode**]	• [**On (series)**]: Take multiple series of pixel shift photos. To end pixel shift photography, select [**Pixel shift shooting mode**] again and choose [**Off**]. • [**On (single photo)**]: End pixel shift photography after recording a single series. • [**Off**]: End pixel shift photography.
[**Number of shots**]	Choose the number of photos taken each time the shutter-release button is pressed. Long series require more time to record but produce better-quality results when blended into a single image.
[**Delay**]	Choose the delay between the shutter-release button being pressed all the way down and the start of pixel shift photography.
[**Interval until next shot**]	Choose the interval between shots, in seconds.

Taking Photos Using Pixel Shift

☑ **Before Shooting**
- Pixel shift is intended for pictures of landscapes, buildings, and other static subjects shot with the camera on a tripod. The desired results may consequently not be achieved with moving subjects or shots taken without a tripod.
- To improve the image quality of the resulting pixel-shift blended pictures, we recommend performing pixel mapping via [**Pixel mapping**] in the setup menu before shooting.
- Take a test shot at current settings.
- We recommend using one of the following power sources to prevent loss of power while shooting is in progress:
  - A fully-charged battery
  - An optional EH-7P charging AC adapter
  - An optional EH-8P AC adapter with a UC-E25 USB cable (featuring Type C connectors at both ends)
  - An optional EP-5B power connector with an EH-5d, EH-5c, or EH-5b AC adapter

☑ **NX Studio**
Be sure to download and install the latest version from the Nikon Download Center. Earlier versions may not support pixel shift blending.

1 **Mount the camera on a tripod or take other measures to keep it steady.**

2 **Highlight [Pixel shift shooting] in the photo shooting menu and press ⊛.**

📷	PHOTO SHOOTING MENU	❓
🎬	Multiple exposure	0FF >
✏	HDR overlay	0FF >
▶	Interval timer shooting	0FF >
🔧	Time-lapse video	0FF >
	Focus shift shooting	0FF >
🌐	Pixel shift shooting	0FF >
≂	Auto capture	>
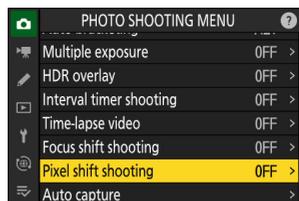
3 **Select a [Pixel shift shooting mode].**

- Highlight [**Pixel shift shooting mode**] and press ⏵.
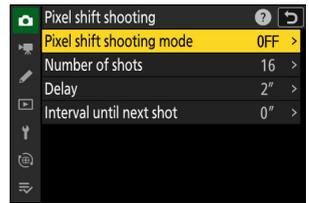
- Press ⏶ or ⏷ to select [**On (series)**] or [**On (single photo)**], then press ⏺.
  - Image quality will be fixed at [**RAW**].
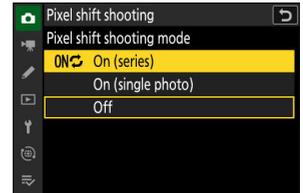
- An icon will appear in the shooting display.
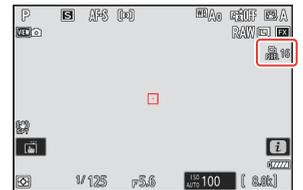
4 **Choose the [Number of shots].**

- Highlight [**Number of shots**] and press ⏵.
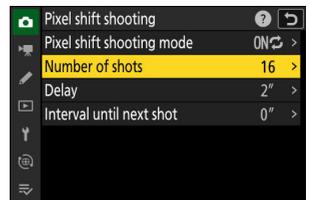
- Choose the number of shots using ⏶ or ⏷ and press ⏺.
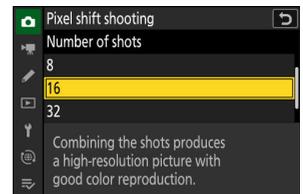
5 Choose a value for [Delay].

• Highlight [**Delay**] and press ⊛. Choose the delay between the shutter-release button being pressed all the way down and the start of pixel shift photography.
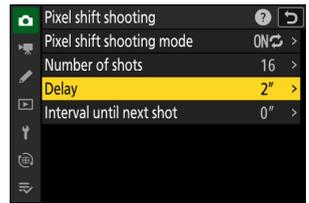
• Choose a delay (in seconds) using ⊛ or ⊛ and press ⊛.
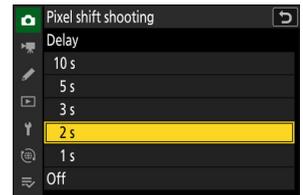
6 Choose a value for [Interval until next shot].

• Highlight [**Interval until next shot**] and press ⊛. Choose the interval between shots, in seconds.
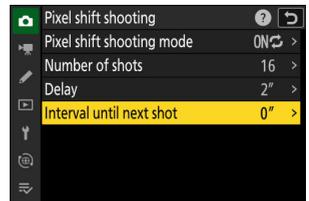
• Choose an interval (in seconds) using ⊛ or ⊛ and press ⊛.

7 **Frame the photograph, focus, and shoot.**

- Press the shutter-release button all the way down; the number selected for [**Number of shots**] will be displayed in the control panel, and the camera will begin taking NEF (RAW) photos after the time selected for [**Delay**], continuing until the selected number of shots has been taken.
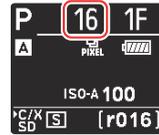
- Shooting may continue for some time depending on the value selected for [**Number of shots**].
- If [**On (series)**] is selected for [**Pixel shift shooting mode**], you can continue to take photographs using pixel shift until [**Off**] is selected.
- If [**On (single photo)**] is selected for [**Pixel shift shooting mode**], pixel shift will end automatically after a single series.

8 **Blend the NEF (RAW) photos using NX Studio.**

- See NX Studio's online help for detailed instructions.
- The desired results may not be achieved if the subject moved or lighting changed during shooting.

Ending Pixel Shift

To end pixel-shift photography before all the photos in the current series have been taken, press the shutter-release button halfway or press the ⊗ button between shots.

✔ During Shooting

A 🖼 icon flashes in the control panel during shooting.
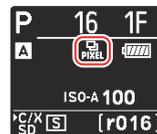
✅ Cautions: Pixel Shift

- In continuous release modes, the camera will not shoot continuously while the shutter-release button is held all the way down.
- Changing camera settings while pixel shift is in progress may cause shooting to end.
- Long time-exposures ("Bulb" or "Time") are not supported. If the shutter speed is set to **Bulb** or **Time**, [**Bulb**] or [**Time**] will flash in the shooting display and control panel.
- The focus mode for autofocus is fixed at **AF-S**. If the option currently selected for AF-area mode is available only with **AF-C**, the AF-area mode will switch to single-point AF.
- Custom Setting d6 [**Extended shutter speeds (M)**] is fixed at [**OFF**].

✅ Pixel Shift: Restrictions

Pixel shift cannot be combined with some camera features, including:

- video recording,
- the self-timer,
- high-speed frame capture +,
- long exposure noise reduction,
- photo flicker reduction,
- vibration reduction,
- bracketing,
- multiple exposures,
- HDR overlay,
- interval-timer photography,
- time-lapse video recording,
- focus shift,
- auto capture,
- exposure delay mode, and
- energy saving (photo mode).

New Menu Item: "Auto Capture"

[**Auto capture**] items have been added to the photo shooting and video recording menus. These items are used to shoot bursts or record video automatically when the camera detects that the subject meets certain conditions, for example that it is in the frame, within a certain range of distances, and moving in a certain direction. They can even help photographers take photographs or record videos automatically without being present.

Option	Description
[**Start**]	Display auto capture settings and adjust auto capture criteria. After reviewing the selected criteria in the settings confirmation dialog to determine whether they will behave as predicted, press the video-record button to initiate auto capture.

[**Select user preset**]	• Auto capture criteria can be saved to user presets [**User preset 1**] through [**User preset 5**]. Highlighting a preset and pressing ⊕ displays a menu where you can rename the preset and view settings or copy them to another preset.
	  - [**View settings**]: View the settings in the selected preset.
	  - [**Rename**]: Rename the preset. Preset names can be up to 19 characters long.
	  - [**Copy**]: Highlight the destination and press ⊛ to copy settings to the selected preset.
	• To immediately initiate auto capture using the criteria in a previously-saved preset, select the preset then choose [**Start**].

The Auto Capture Settings Display

The auto capture settings display can be viewed by selecting [**Start**] for [**Auto capture**] in the photo shooting or video recording menu. Highlight items and press ⊗ to display options for the selected item.
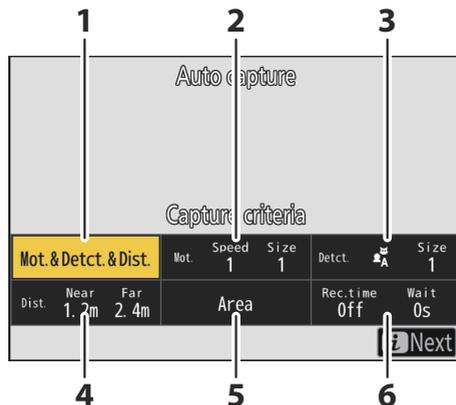
1 [**Capture criteria**]
2 [**Advanced: Motion**]
3 [**Advanced: Subject detection**]

4 [**Advanced: Distance**]
5 [**Target area**]
6 [**Timing options**]

Option	Description

[**Capture criteria**]	• Adjust auto capture criteria.
	  - [**Motion**]: Select (☑) this option to include the direction the subject is moving as one of the criteria that must be satisfied to trigger the start of auto capture shooting.
	  - [**Subject detection**]: Select (☑) this option to include detection of a subject as one of the criteria that must be satisfied to trigger the start of auto capture shooting.
	  - [**Distance**]: If this option is selected (☑), shooting will continue while the subject is within the specified range of distances.
	• Auto capture will be triggered only if all the selected criteria are satisfied.

[**Advanced: Motion**]	This option will take effect only if [**Motion**] is selected (☑) for [**Capture criteria**]. It is used to choose the direction of motion, size, and speed of subjects that will trigger auto capture (□ 30).

Option	Description
[**Advanced: Subject detection**]	This option will take effect only if [**Subject detection**] is selected (☑) for [**Capture criteria**]. It is used to choose the type and size of subjects that will trigger auto capture (📖 33).
[**Advanced: Distance**]	This option will take effect only if [**Distance**] is selected (☑) for [**Capture criteria**]. It is used to choose the range of distances at which the presence of a subject will trigger auto capture (📖 35). Shooting will continue while the subject is within the specified range of distances.
[**Target area**]	Choose the focus points used for subject detection when [**Auto-area AF**] is selected for AF-area mode. Auto capture will be triggered if a subject that meets the trigger conditions is detected in any of the selected focus points. Target-area selection can be used to disable focus points in areas of the frame that are blocked by obstacles or can otherwise be ignored for purposes of subject detection, ensuring that the desired subject can be detected more reliably.
[**Timing options**]	Choose values for [**Recording time selection**] and [**Wait after shooting**]. • [**Recording time selection**]: Choose how long the camera will shoot once auto capture is triggered. Shooting will continue for the selected time even if the trigger conditions are no longer met. - Depending on camera settings, shooting may end before the expiration of the selected time. • [**Wait after shooting**]: Choose the minimum time the camera will wait after a burst. Once the burst is complete, shooting will pause for the selected duration even if the trigger conditions are met.

Taking Pictures Using Auto Capture

☑ Before Shooting

• We recommend using one of the following power sources to prevent loss of power while shooting is in progress:
  - A fully-charged battery
  - An optional EH-7P charging AC adapter
  - An optional EH-8P AC adapter with a UC-E25 USB cable (featuring Type C connectors at both ends)
  - An optional EP-5B power connector with an EH-5d, EH-5c, or EH-5b AC adapter
• In photo mode, only [**FX (36×24)**] and [**DX (24×16)**] image areas are available. Auto capture cannot be used when [**1:1 (24×24)**] or [**16:9 (36×20)**] is selected.

1 **Mount the camera on a tripod or take other measures to keep it steady.**

Fix the camera in place after framing the shot.

Tip: Framing the Shot
We recommend that you choose a wider angle than usual until you have grown used to auto capture.

2 **Select the desired mode (photo or video) using the photo/ video selector.**
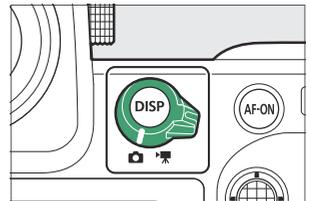
3 **If you are using auto capture for photographs, select a continuous release mode: [Continuous high-speed], [Continuous low-speed], [C30], [C60] or [C120].**

- If you are using auto capture to record videos, proceed to Step 4.
- If single-frame or self-timer mode is selected, the camera will temporarily switch to continuous high-speed mode when auto capture begins.
- If you selected continuous low-speed or continuous high-speed mode, choose the frame advance rate before proceeding.

4 **Position the focus point.**

Choose an AF-area mode and position the focus point in the area of the frame in which you anticipate the subject will appear.
- If autofocus is enabled, the camera will temporarily switch to focus mode **AF-C** during auto capture.
- If [**Auto-area AF**] is selected for AF-area mode, the actual frame rate drops to 15 fps when a frame advance rate of 20 fps is selected in continuous high-speed mode.
- When using manual focus, slide the lens focus-mode switch to [**M**] and adjust focus manually. Manual focus is available only with lenses equipped with a focus-mode switch.

5 **Highlight [Auto capture] in the photo shooting or video recording menu and press ⊛.**
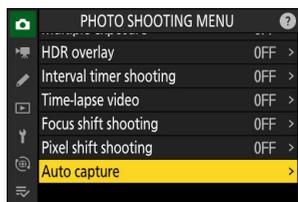
6 **Choose [Select user preset], then highlight a destination preset for the auto capture settings and press ⊛.**

Choose a destination from presets [**User preset 1**] through [**User preset 5**].
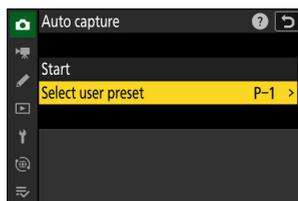
7 **Highlight [Start] and press ⊛.**

Auto capture settings will be displayed.
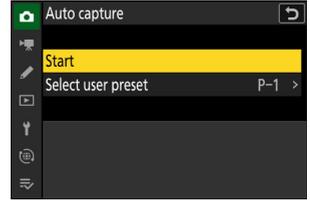
8 **Highlight [Capture criteria] and press ⊛.**
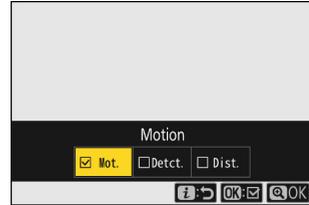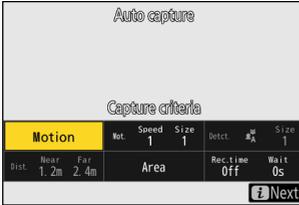
- Adjust auto capture criteria. Highlight options and press ⊛ to select (☑) or deselect (☐).
- Press ⊕ to save changes and return to the auto capture settings display.

9 **Adjust settings for each of the criteria selected for [Capture criteria].**

- For information on the criteria available when [**Motion**] is enabled (☑), see '"**Capture Criteria**" > "**Motion**"' (📖 30).
- For information on the criteria available when [**Subject detection**] is enabled (☑), see '"**Capture Criteria**" > "**Subject Detection**"' (📖 33).
- For information on the criteria available when [**Distance**] is enabled (☑), see '"**Capture Criteria**" > "**Distance**"' (📖 35).
- Although multiple [**Capture criteria**] can be used together, we recommend that you enable (☑) only one criterion at a time until you have grown used to auto capture.

10 Highlight [Target area] and press ⊛.
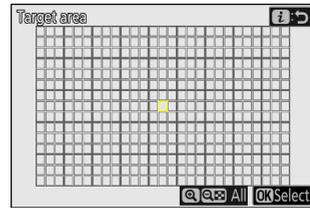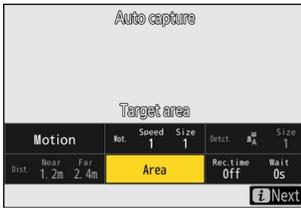
- Choose the focus points used for subject detection when [**Auto-area AF**] is selected for AF-area mode. Target-area selection is not available in other AF-area modes. If another mode is selected, proceed to Step 11.
- Target-area selection can be used to disable focus points in areas of the frame that are blocked by obstacles or can otherwise be ignored for purposes of subject detection, ensuring that the desired subject can be detected more reliably.
- Press ⊛ to prevent focus points being used for subject detection (disabled focus points are displayed in red). Press ⊛ again to clear (re-enable) the focus point.
- Press ⊕ to enable all focus points.
- Press ⊟ (**?**) to disable all focus points.
- Focus points can be enabled and disabled nine at a time (in 3 × 3 grids) by tapping the monitor.
- Press *i* to save changes and return to the auto capture settings display.

☑ Disabled Focus Points
Subjects meeting the [**Capture criteria**] will be detected only in the vicinity of the chosen focus points. For example, the camera will ignore motion in disabled focus points even when [**Motion**] is enabled (☑).

---

11 **Highlight [Timing options] and press ⊛.**

- Use [**Recording time selection**] to choose the length of each individual burst or video recording; options include [**OFF**] (no limit) and values of from 1 second to 30 minutes. When an option other than [**OFF**] is selected, shooting will continue for the selected time even if the trigger conditions are no longer met.
- The minimum length of time the camera will wait before beginning shooting again can be selected using [**Wait after shooting**], which offers a choice of values of from 0 seconds to 30 minutes.
- Press ⊛ to save changes and return to the auto capture settings display.

12 **Press the *i* button.**

- The settings confirmation dialog will be displayed.
- The currently selected (☑) [**Capture criteria**] are listed in the top left corner of the dialog.

13 **Check that the camera can detect subjects as desired using the selected criteria.**

- Subjects detected by the camera are shown by green boxes in the settings confirmation dialog.
- You can choose the focus point when an option other than [**Auto-area AF**] is selected for AF-area mode.
- If you select [**Wide-area AF (C1)**] or [**Wide-area AF (C2)**] for AF-area mode, you can choose the size of the focus area by holding the focus-mode button and pressing ⊛, ⊛, ⊛, or ⊛.
- You can select AF-area mode from the settings confirmation dialog by pressing the focus-mode button and rotating the sub-command dial.
- If green boxes are not displayed as expected, press the *i* button and repeat Steps 9 and 10 until the desired results are achieved.
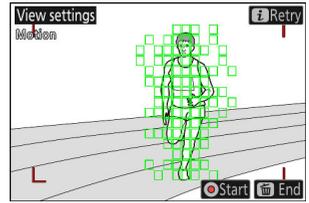
14 **Initiate auto capture.**

- To initiate auto capture, press the video-record button in the settings confirmation dialog.
- Shooting will begin when a subject that meets the selected criteria is detected and continue while the criteria are met.
- Auto capture will be triggered only if all the options selected for [**Capture criteria**] are satisfied.
- The shooting display will turn off to save power if no operations are performed for about three minutes, but auto capture will remain active. The display can be reactivated by pressing the **DISP** button or pressing the shutter-release button halfway.

⚠️ The Auto Capture Standby Display

- "**A- CAP**" will be displayed in the control panel.

- An 🄰🄲🄰🄿 icon will flash in the shooting display.

Tip: Pre-Release Capture

The settings selected for Custom Setting d3 [**Pre-Release Capture options**] apply when [**C30**], [**C60**] or [**C120**] is selected for release mode.

Tip: Silent Mode

Silent mode can be enabled by selecting [**ON**] for [**Silent mode**] in the setup menu.
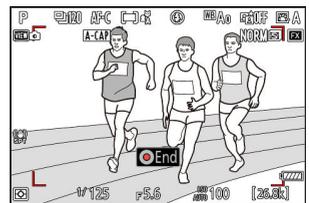
▌ "Capture Criteria" > "Motion"

This option is used to choose the direction of motion, size, and speed of subjects that will trigger auto capture.

1 **Highlight [Advanced: Motion] in the auto capture settings display and press ⊛.**

Motion criteria will be displayed.
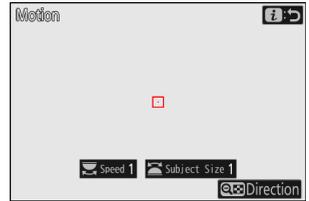
2 **Press the ⊝⊠ (?) button and select directions.**

- Direction criteria will be displayed.
- Highlight directions and press ⊛ to select (☑) or deselect (☐).
- Press ⊕ to save changes and return to the motion settings display.

3 **Rotate the main command dial to choose the subject speed.**

Rotate the main command dial to choose a [**Speed**] of [**1**] to [**5**]. Choose higher values to restrict subject detection to faster-moving subjects, lower values to include subjects moving at slower speeds.
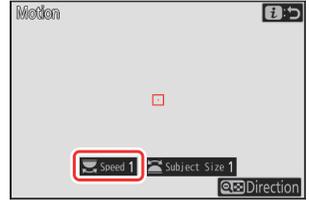
Tip: Size and Speed
- Subjects that meet the criteria for [**Subject Size**] and [**Speed**] are shown by green boxes in the motion settings display.
- [**Speed**] is measured as the time taken for the subject to cross the frame horizontally. The approximate time for each value is listed below. Subjects that are moving too quickly may not be detected.
  - [**1**]: About 5 s or less
  - [**2**]: About 4 s or less
  - [**3**]: About 3 s or less
  - [**4**]: About 2 s or less
  - [**5**]: About 1 s or less
- Selecting [**1**] for both [**Subject Size**] and [**Speed**] makes it easier for the camera to detect subjects of a variety of sizes moving at a variety of speeds. We recommend that you begin from low values and then gradually raise them while checking the display of green boxes in the motion settings display or taking test pictures until subject detection functions as desired.

New Menu Item: "Auto Capture"

4   **Rotate the sub-command dial to choose the subject size.**

Rotate the sub-command dial to choose a [**Subject Size**] of [**1**] to [**5**]. Choose lower values to include smaller subjects, higher values to restrict subject detection to larger subjects.
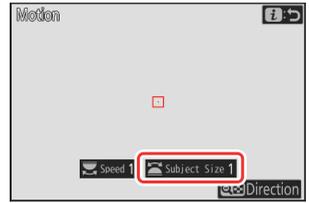
Tip: Size Options
- Subjects that meet the criteria for [**Subject Size**] and [**Speed**] are shown by green boxes in the motion settings display.

- The apparent subject size (measured in focus points) for each [**Subject Size**] option is listed below.
  - [**1**]: 4 focus points or larger
  - [**2**]: 8 focus points or larger
  - [**3**]: 14 focus points or larger
  - [**4**]: 24 focus points or larger
  - [**5**]: 34 focus points or larger
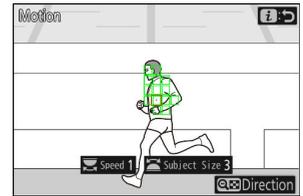
Subject detected in 14 focus points

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5   **Press the *i* button.**

The camera will save the changes and return you to the auto capture settings display.

▌"Capture Criteria" > "Subject Detection"

This option is used to choose the types and sizes of subject that trigger auto capture.

1 **Highlight [Advanced: Subject detection] in the auto capture settings display and press ⊗.**

Subject detection criteria will be displayed.
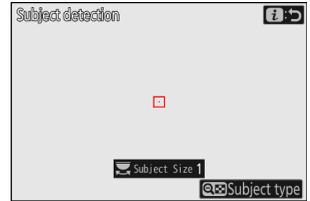
2 **Press the ⊖⊠ (?) button and select the desired subject types.**

- Your choices are auto, people, animals, vehicles and airplanes.
- Press ⊗ to save changes and return to the subject detection display.

3 **Rotate the main command dial to choose the subject size.**

Choose a [**Subject Size**] from values [**1**] through [**5**]. Choose lower values to include smaller subjects, higher values to restrict subject detection to larger subjects.
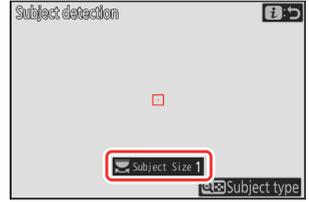
Tip: Size Options

- Subjects that meet the criterion for [**Subject Size**] are shown by green boxes in the subject detection display.

- The apparent subject size (as a percentage of the angle of view) for each setting is listed below.
   - [**1**]: 2.5% or more
   - [**2**]: 5% or more
   - [**3**]: 10% or more
   - [**4**]: 15% or more
   - [**5**]: 20% or more
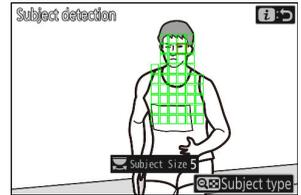
Subject detected at size of 20%

- A [**Subject Size**] of [**1**] makes it easier for the camera to detect subjects of a variety of sizes. We recommend that you begin from a low value and then gradually raise it while checking the display of green boxes in the subject detection display or taking test pictures until subject detection functions as desired.

4 **Press the *i* button.**

The camera will save the changes and return you to the auto capture settings display.

Caution: Subject Detection

If "auto" or "people" is selected, auto capture will begin when human portrait subjects are detected, whether or not they are facing the camera.

▊ "Capture Criteria" > "Distance"

Choose the maximum and minimum distances at which the camera will detect subjects for auto capture. Auto capture shooting will continue while the subject is within the specified range of distances.

☑ "Advanced: Distance"

You can use the [**Advanced: Distance**] feature when a NIKKOR Z lens is attached. It may not function with other lenses.

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1 **Highlight [Advanced: Distance] in the auto capture settings display and press ⊛.**

- Distance criteria will be displayed.
- A focus-point target will appear in the distance criteria display.
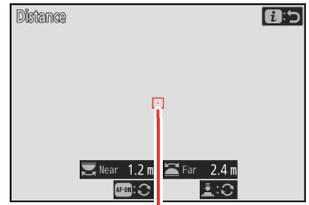
Focus-point target

2 **Choose the closest and farthest distances at which the camera will detect subjects for auto capture.**

- Place the target over a subject at the closest distance for auto capture subject detection and press the **AF-ON** button to set the minimum distance, which will appear in the display as [**Near**]. The minimum distance can be fine-tuned by rotating the main command dial.

- Place the target over a subject at the farthest distance for auto capture subject detection and press the shutter-release button halfway to set the maximum distance, which will appear in the display as [**Far**]. The maximum distance can be fine-tuned by rotating the sub-command dial.
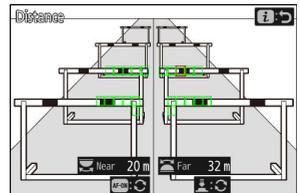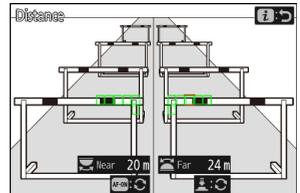
Tip: Fine-Tuning the Distances for "Near" and "Far"
Fine-tuning is available exclusively with Nikon Z mount lenses, but not with the NIKKOR Z 58mm f/0.95 S Noct.

Tip: The "Near" and "Far" Displays
The distances for [**Near**] and [**Far**] are displayed in meters only. They will not be displayed in feet even when [**Feet (ft)**] is selected for [**Distance units**] in the setup menu.

3 **Press the *i* button.**

The camera will save the changes and return you to the auto capture settings display.

Pausing and Ending Auto Capture

- To pause auto capture and return to the settings confirmation dialog, press the video-record button. Auto capture can be resumed by pressing the button again.
- To end auto capture and exit to the shooting display, press the 🗑 (▣▣▣) button.

✔ Cautions: Auto Capture
- During auto-capture standby, the camera focuses as described below.
  - [**Capture criteria**] > [**Distance**] enabled (☑): The camera focuses at the distance selected for [**Far**].
  - [**Capture criteria**] > [**Distance**] disabled (☐): The camera focuses at the distance in effect when auto capture began.
- The camera may fail to detect subjects in the [**Target area**] when there are multiple subjects in the frame.
- Falling rain and snow may interfere with subject detection. Auto capture may be triggered by falling snow, heat haze, or other weather phenomena.
- Auto capture may end automatically to prevent the camera overheating when the ambient temperature is high or the camera has been used to shoot for extended periods.

✔ During Auto Capture
All controls other than the **DISP**, video-record, and 🗑 (▣▣▣) buttons are disabled while auto capture shooting is in progress. End auto capture before attempting to adjust camera settings.

✔️ Auto Capture: Restrictions

Auto capture cannot be combined with some camera features, including:

- long time-exposures ("Bulb" or "Time"),
- the self-timer,
- bracketing,
- multiple exposures,
- HDR overlay,
- interval-timer photography,
- time-lapse video recording,
- focus shift
- pixel shift shooting, and
- electronic VR.

New Menu Item: "Auto Capture"

More Time for Pre-Release Capture

The length of time the camera will continue to buffer frames before cancelling shooting during the Pre-Release Capture phase of high-speed frame capture + has been increased from 30 to 300 seconds.

- If an option other than [**None**] is selected for Custom Setting d3 [**Pre-Release Capture options**] > [**Pre-release burst**], a green dot (●) will appear in the 🖼 icon in the shooting display when the shutter-release button is pressed halfway. If the shutter-release button is not pressed the rest of the way down before about 300 seconds have passed, the ● will change to ❶ and Pre-Release Capture will be cancelled. No pre-release burst will be recorded if the shutter-release button is pressed the rest of the way down while ❶ is displayed.
- Depending on camera settings, Pre-Release Capture may be cancelled before 300 seconds have passed.
- The 🖼 icon will start to flash about 30 seconds before Pre-Release Capture is cancelled.

New: Slow-Motion Videos

[**1920×1080; 30p ×4 (slow-motion)**], [**1920×1080; 25p ×4 (slow-motion)**], and [**1920×1080; 24p ×5 (slow-motion)**] have been added to the options available for [**Frame size/frame rate**] when [**H.264 8-bit (MP4)**] is selected for [**Video file type**] in the video recording menu. These options are used to record slow-motion videos.

- Videos shot using [**1920×1080; 30p ×4 (slow-motion)**], for example, are recorded at a frame rate of 120p and play back at a rate of 30p. It takes around 10 seconds of recording to produce about 40 seconds of footage. Slow-motion videos can be used to view crucial moments in sport and other events of brief duration in slow motion.
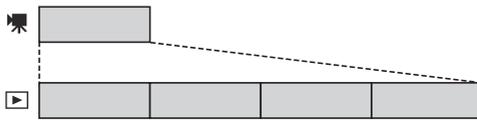
- Sound is not recorded.
- Selecting [**DX**] for [**Choose image area**] or mounting a DX lens on the camera increases the apparent focal length by approximately 2.3× when compared to FX format.
- Custom Setting g11 [**Extended shutter speeds (mode M)**] is disabled.
- Recording and playback speeds are shown below.

Frame size/frame rate	Rate frames are read at [*]	Rate frames are recorded/ play at [*]
[**1920×1080; 30p ×4 (slow-motion)**]	120p	30p
[**1920×1080; 25p ×4 (slow-motion)**]	100p	25p
[**1920×1080; 24p ×5 (slow-motion)**]	120p	24p

[*] Actual frame rate is 119.88 fps for values listed as 120p, 29.97 fps for values listed as 30p, and 23.976 fps for values listed as 24p.

- The average bit rate is 30 Mbps.
- The maximum recording time is about three minutes.

✅ Cautions: Recording Slow-Motion Videos

- Features that cannot be used during slow-motion video recording include:
    - flicker reduction,
    - electronic VR, and
    - time code output.
- When recording via HDMI output to an external recorder, video will be recorded at original speed, not in slow motion.

Color Change to Hi-Res Zoom In-Focus Display

The color of the in-focus AF-area brackets shown on the shooting display when [**ON**] is selected for [**Hi-Res Zoom**] in the video recording menu has been changed. While in earlier versions of the camera firmware, these brackets were shown in red, from "C" firmware version 2.00 they are shown in green.

Low ISO Sensitivity Settings for N-Log Video

Low ISO sensitivity options ranging from Lo 0.3 to Lo 2.0 have been added to the choices available for [**ISO sensitivity settings**] > [**ISO sensitivity (mode M)**] in the video recording menu when [**N-Log**] is selected as the video tone mode. Sensitivity can be set to values below ISO 800 by approximately 0.3 to 2.0 EV (equivalent respectively to ISO 640 and 200).

☑ Cautions: Low ISO Sensitivities

The maximum output level for videos recorded at low ISO sensitivities drops due to loss of highlight data. We recommend that you select a low value for Custom Setting g13 [**Zebra pattern**] > [**Highlight threshold**] when using the zebra pattern feature. A highlight threshold around [**230**] is recommended for Lo 0.3 to 1.0 and [**200**] for Lo 2.0.

Changes to Hi-Res Zoom Speeds Available in g8 "Hi-Res Zoom Speed" in the Custom Settings Menu

Custom Setting g8 [**Hi-Res Zoom speed**] now offers a choice of 11 speeds, from −5 to +5.

- Press ⏴ or ⏵ to choose the speed.
- The higher the value, the higher the speed; the lower the value, the lower the speed.
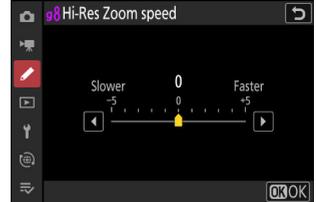
Changes to i-Menu "Select for Upload" Options

Changes have been made to the behavior of the [**Select for upload to computer**] and [**Select for upload (FTP)**] items in the playback i menu.

12
Manage series >
Rating
Select for upload to computer
Select for priority upload to computer
Filtered playback
Filtered playback criteria >
i Cancel

- These options are displayed only if the camera is connected to a computer or FTP server.
- While in earlier versions of the camera firmware, choosing [**Select for upload to computer**] or [**Select for upload (FTP)**] would mark the current picture for priority upload (⤳) and begin upload immediately, from "C" firmware version 2.00 these options simply mark the picture for upload (⤳). Pictures with this marking will be added to the end of the upload queue and not begin uploading until upload of any pictures ahead of them in the queue is complete.

Priority Upload Options Added to *i* Menu

[**Select for priority upload to computer**] and [**Select for priority upload (FTP)**] items have been added to the playback *i* menu.

	12
Manage series	>
Rating	
Select for upload to computer	
Select for priority upload to computer	
Filtered playback	
Filtered playback criteria	>
	i Cancel

- These options are displayed only if the camera is connected to a computer or FTP server.
- To mark the current picture for priority upload (☁) and begin upload immediately, press the *i* button, highlight [**Select for priority upload to computer**] or [**Select for priority upload (FTP)**], and press ®. Pictures marked for priority upload will be uploaded before pictures marked for upload using other means.

Addition of "Playback Speed" Item to the Video Playback *i* Menu

A [**Playback speed**] item has been added to the video playback *i* menu. Select the video playback speed from [**Original speed**], [**1/2× speed**], and [**1/4× speed**]. Playback will proceed in slow motion at 1/2× speed or 1/4× speed if [**1/2× speed**] or [**1/4× speed**] is selected, respectively. Additionally, video playback speed can be changed during playback when the video is paused, using [**Playback speed**] in the playback *i* menu.

Tip: Changing the Playback Speed Using the Main and Sub-command Dials
A [**Playback speed**] item has also been added to f3 [**Custom controls (playback)**] in the Custom Settings menu. When assigned to the main or sub-command dial, the playback speed can be changed during video playback by turning the command dial (📖 60).

Tip: Changing the Playback Speed
- If the playback speed is changed via the *i* menu, the new playback speed will apply to all video playbacks.
- If the playback speed is changed using a command dial to which [**Playback speed**] is assigned via Custom Setting f3 [**Custom controls (playback)**], the new playback speed only applies to the current video playback.

Addition of "Auto Series Playback Options" to "Series Playback" in Playback Menu

[**Auto series playback options**] has been added to the options available for [**Series playback**] in the playback menu. Choose options for viewing bursts when [**Auto series playback**] is set to [**ON**].

Option	Description
[**Loop playback**]	If [**ON**] is selected, the current series will playback repeatedly.
[**Wait before playback**]	Choose the time until auto series playback begins once the first picture in the series is displayed: [**Normal**], [**Long**], [**Short**] or [**Start immediately**].
[**Auto series playback speed**]	Select the playback speed for auto series playback. • [**5 fps**], [**15 fps**], [**30 fps**]: Playback proceeds at the selected speed. • [**At current release mode speed**]: Playback proceeds at the speed selected for the current release mode. - Playback proceeds at 5 fps when single frame or self-timer release mode is selected.

Addition of "Auto Image Rotation" to Playback Menu

An [**Auto image rotation**] item has been added to the playback menu.

- If [**ON**] is selected, information on camera orientation when the photograph was taken is recorded. During playback on the camera or on a computer, images are rotated automatically using the recorded orientation information.

- If [**OFF**] is selected, information on camera orientation is not recorded. In this case, images displayed during playback are always in landscape (wide) orientation.

✔ Caution: Auto Image Rotation

Camera orientation may not be correctly recorded in photos taken with the camera pointing up or down or while panning.

✔ "Auto-Rotate Pictures" in the Playback Menu

- If [**OFF**] is selected for [**Auto-rotate pictures**], images displayed on the camera during playback are always in landscape (wide) orientation, regardless of whether [**ON**] or [**OFF**] is selected for [**Auto image rotation**].
- If [**OFF**] is selected for [**Auto image rotation**], images displayed during playback are always in landscape (wide) orientation, even if [**ON**] is selected for [**Auto-rotate pictures**].

Support for Power Zoom

The camera now supports power zoom for use with power zoom (PZ) lenses. In addition to using the lens zoom ring, you now have the option of zooming power zoom lenses attached to the camera in and out using camera controls ("power zoom").

New Custom Setting: f12 "Assign Power Zoom Buttons"

Choose whether the ⊕ and ⊖ (**?**) buttons can be used for power zoom during still photography when a power zoom lens is attached.

Option	Description
[**Use ⊕/⊖ buttons**]	Selecting [**ON**] allows the ⊕ and ⊖ (**?**) buttons to be used for power zoom.
[**Power zoom speed**]	Choose the speed at which power zoom lenses can be zoomed in and out using the buttons.

New Custom Setting: g9 "Assign Power Zoom Buttons"

Choose whether the ⊕ and ⊖ (**?**) buttons can be used for power zoom during video recording when a power zoom lens is attached.

Option	Description
[**Use ⊕/⊖ buttons**]	Selecting [**ON**] allows the ⊕ and ⊖ (**?**) buttons to be used for power zoom.
[**Power zoom speed**]	Choose the speed at which power zoom lenses can be zoomed in and out using the buttons; if desired, you can choose one speed for use during recording and another for pre- and post-recording. • Note that the sounds produced by the lens may be audible in footage recorded during zoom. The effect can be mitigated by selecting a slower zoom speed.

Tip: Assigning Power Zoom to Camera Controls

The power zoom role can be assigned to camera controls using options newly added to Custom Settings f2 [**Custom controls (shooting)**] and g2 [**Custom controls**]. This role can be assigned to the **Fn1** and **Fn2** buttons (📖 55).

New Setup Menu Item: "Save Zoom Position (PZ Lenses)"

If [**ON**] is selected when a power zoom (PZ) lens is attached, the camera will save the current zoom position when turned off and restore it when next turned on. Note that this increases camera startup times.

SETUP MENU	
Auto rotate info display	ON
AF fine-tuning options	OFF
Non-CPU lens data	No. 1
Distance units	m
Save focus position	OFF
Save zoom position (PZ lenses)	ON
Auto temperature cutout	STNDRD
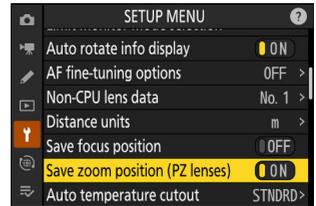
The Focal Length Display

The lens focal length is shown in the shooting display when a power zoom lens is attached.
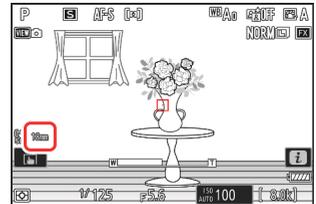
Addition of "Focus Point Border Width" Item to a11 "Focus Point Display" in the Custom Settings Menu

A [**Focus point border width**] item has been added to a11 [**Focus point display**] in the Custom Settings menu. Choose from 3 focus point border widths, from [**1**] to [**3**].

51   Addition of "Focus Point Border Width" Item to
a11 "Focus Point Display" in the Custom Settings
Menu

New Custom Setting: d5 "Exposure Delay Mode"

An [**Exposure delay mode**] item has been added to the Custom Settings menu at position d5. It can be used to delay the release of the shutter until about 0.2 to 3 seconds after the shutter-release button has been pressed, helping to reduce blur caused by camera shake.

- If an option other than [**Off**] is selected, a 🕐 icon appears in the shooting display.
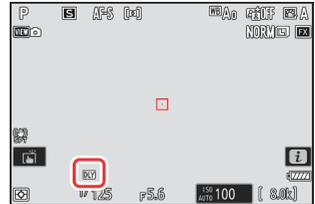
Addition of "Half-Press to Cancel Zoom (MF)" Item to d18 and g17 in the Custom Settings Menu

A [**Half-press to cancel zoom (MF)**] item has been added to d18 and g17 in the Custom Settings menu. If [**ON**] is selected while focus mode is set to manual focus and the view through the lens is zoomed in, zoom can be cancelled by pressing the shutter-release button halfway.

Exposure Compensation and White Balance Now Changeable During Shooting Function Recall

Exposure compensation and white balance settings can now be changed while recalling the shooting function settings by pressing the button assigned the role of [**Recall shooting functions (hold)**] in Custom Settings f2 [**Custom controls (shooting)**].

- To change the exposure compensation value, rotate the command dial while pressing the ☒ button (or the button to which the exposure compensation role is assigned). The changed value will be retained with the [**Recall shooting functions (hold)**] item if [**Exposure compensation**] is selected (☑) in the dialog where settings to be recalled are selected.
- To change the white balance setting, rotate the command dial while pressing the **WB** button (or the button to which the white balance role is assigned). The changed setting will be retained with the [**Recall shooting functions (hold)**] item if [**White balance**] is selected (☑) in the dialog where settings to be recalled are selected.

New Options for Custom Settings f2 "Custom Controls (Shooting)" and g2 "Custom Controls"

Additions have been made to the roles available and the controls to which they can be assigned for Custom Setting f2 [**Custom controls (shooting)**] or g2 [**Custom controls**]. In addition, custom controls can now be reset.

New Reset Option

You can now reset selected controls to their default roles in the control-selection displays for Custom Settings f2 [**Custom controls (shooting)**] and g2 [**Custom controls**].

- Highlight the desired control and press 🗑 (📷) to display a confirmation dialog where you can reset the control to its default role by highlighting [**Yes**] and pressing ⊛.
- Pressing and holding the 🗑 (📷) button for about three seconds when a control is highlighted displays a confirmation dialog where you can reset all controls to their default roles by highlighting [**Yes**] and pressing ⊛.
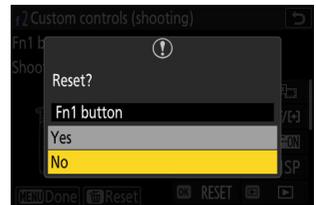
Newly Customizable Controls

- The following controls can now be customized:
  - ▶ [**Playback button**]
  - 🎬 [**BKT button**]
  - 🎬 [**WB button**]
- For f2 [**Custom controls (shooting)**], 🎬 [**Focus mode button**] can now also be customized.

New Roles Available via Custom Setting f2 "Custom Controls (Shooting)"

	Option	Description
⦿	[**Switch eyes**]	Press the control to choose the eye used for focus when the camera detects the eyes of a human or animal portrait subject.
[⫶]	[**Cycle AF-area mode**]	Press the control to cycle the AF-area mode. • To choose the AF-area modes to be cycled, press ⊕ when [**Cycle AF-area mode**] is highlighted. • Highlight options and press ⊗ or ⊕ to select (☑) or deselect (☐). Only items marked with a check (☑) will be cycled when the control is pressed.
⊡PIXEL	[**Pixel shift shooting**]	Press the control and rotate the main command dial to choose the pixel shift shooting mode and the sub-command dial to choose the number of shots.
PZ[T]	[**Power zoom +**]	Press the control to zoom in using power zoom when a power zoom lens is attached. This option is enabled automatically when [**Power zoom −**] is selected for [**Fn2 button**].
PZ[W]	[**Power zoom −**]	Press the control to zoom out using power zoom when a power zoom lens is attached. This option is enabled automatically when [**Power zoom +**] is selected for [**Fn1 button**].
DLY	[**Exposure delay mode**]	Hold the control and rotate a command dial to choose the exposure delay.

New Roles Available via Custom Setting g2 "Custom Controls"

Option		Description
◂◉▸	[**Switch eyes**]	Press the control to choose the eye used for focus when the camera detects the eyes of a human or animal portrait subject.
[⊕]	[**Cycle AF-area mode**]	Press the control to cycle the AF-area mode. • To choose the AF-area modes to be cycled, press ⊕ when [**Cycle AF-area mode**] is highlighted. • Highlight options and press ⊛ or ⊕ to select (☑) or deselect (☐). Only items marked with a check (☑) will be cycled when the control is pressed.
PZ⊤	[**Power zoom +**]	Press the control to zoom in using power zoom when a power zoom lens is attached. This option is enabled automatically when [**Power zoom −**] is selected for [**Fn2 button**].
PZ�🆆	[**Power zoom −**]	Press the control to zoom out using power zoom when a power zoom lens is attached. This option is enabled automatically when [**Power zoom +**] is selected for [**Fn1 button**].

New Options for Custom Setting f3 "Custom Controls (Playback)"

Additions have been made to the roles available and the controls to which they can be assigned for Custom Setting f3 [**Custom controls (playback)**]. In addition, custom controls can now be reset.

New Reset Option

You can now reset selected controls to their default roles in the Custom Setting f3 [**Custom controls (playback)**] control-selection display.

- Highlight the desired control and press 🗑 (🔳) to display a confirmation dialog where you can reset the control to its default role by highlighting [**Yes**] and pressing ⊛.
- Pressing and holding the 🗑 (🔳) button for about three seconds when a control is highlighted displays a confirmation dialog where you can reset all controls to their default roles by highlighting [**Yes**] and pressing ⊛.

Newly Customizable Controls

The following controls can now be customized:

- ▶ [**Playback button**]
- 🔳 [**ISO sensitivity button**]
- ☑ [**Exposure compensation button**]
- 🔳 [**BKT button**]
- 🔳 [**WB button**]
- 🔳 [**Lens Fn button**]
- 🔳 [**Lens Fn2 button**]

New Roles

Additional roles can now be assigned to buttons or the command dials.

Roles Which Can Be Assigned to Buttons

Option		Description
🗑	[**Delete**]	Press the control once to display a confirmation dialog. Press the control again to delete the current picture and return to playback.

Roles Which Can Be Assigned to the "Main Command Dial"/ "Sub-command Dial"

Option	Description
[**Frame advance zoom position**]	Choose how the camera centers the display when either the main or sub-command dial is rotated to scroll through pictures during playback zoom. • [**Keep current zoom position**]: Center the display on the current zoom location. • [**Prefer focus point**]: Center the display on the focus point active when the photograph was taken. • [**Prefer focus point (face priority)**]: Center the display on the focus point active when the photograph was taken. However, when a person's face is detected in the photograph, this setting centers the display on the detected face.
[**Playback zoom face selection**]	If [**ON**] is selected, when multiple faces are detected in the picture during playback zoom, the sub-command dial can be rotated to switch between the detected faces. • This can only be assigned to the [**Sub-command dial**].

New Roles Available Via "Main Command Dial"/"Sub-command Dial" > "Frame Advance"

Option	Description
[**Uploaded to FTP**]	Skip to the next or previous picture that has been uploaded to FTP.
[**Uploaded to computer**]	Skip to the next or previous picture that has been uploaded to the computer.

New Roles Available Via "Main Command Dial"/"Sub-command Dial" > "Video Playback"

Option	Description
[**Playback speed**]	Choose the video playback speed. Choose between the original speed, 1/2× speed, and 1/4× speed.

Changes to Method for Performing a Full Format with "Format Memory Card" in the Setup Menu

Changes have been made to how a full format is performed with [**Format memory card**] in the setup menu when using a CFexpress memory card compatible with full format.

Performing a Full Format

1 Select [Format memory card] in the setup menu and press ⊛.
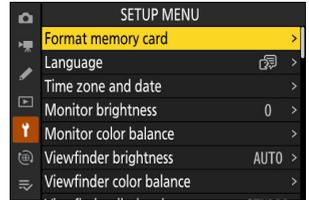
2 Select [CFexpress/XQD card slot] and press ⊛.
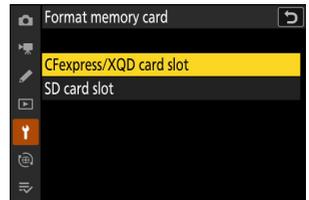
3 Press 🗑 (⚏) to proceed when the options are displayed.

4 **Highlight [Yes] and press ⊛.**

Changes to Method for Performing a Full Format
with "Format Memory Card" in the Setup Menu
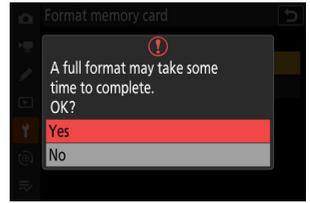
Updates to "Non-CPU Lens Data"

- The [**Focal length (mm)**] and [**Maximum aperture**] options for [**Non-CPU lens data**] in the setup menu can now be used to enter a value of your choice.
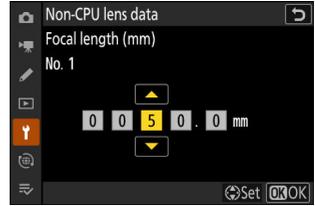
- Names can be assigned to lenses with a [**Lens number**] of from [**1**] to [**20**]. To enter a name of up to 36 characters, highlight [**Lens name**] and press ⊛.
  - The lens names assigned above are recorded in the Exif data stored in pictures.

Changes to Character Limit for "Category" Entries when Editing Presets with "IPTC" in the Setup Menu

The character limit for "Category" entries in IPTC presets created or edited using [**IPTC**] in the setup menu has been increased from 3 to 256.

Changes to Setup Menu "Camera Sounds" Options

New options have been added to the [**Camera sounds**] item in the setup menu. Shutter sound volume can now be set separately from other electronic sounds. You can also choose the types of the shutter sound.

Option	Description
[**Shutter sound**]	If [**ON**] is selected, the camera will make a sound when the shutter is released.
[**Volume**]	Choose the volume of the electronic shutter sound from a total of five options.
[**Type**]	Choose from 5 types of shutter sound.

[**Beep**]	• Same as the [**Beep on/off**] function in earlier versions of the camera firmware. If you select [**On**] or [**Off (touch controls only)**], beeps will sound when:
	  - the self-timer counts down,
	  - interval-timer photography, time-lapse video recording, focus shift, or pixel shift ends,
	  - the camera focuses in photo mode (note that this does not apply if AF-C is selected for focus mode or if [**Release**] is selected for Custom Setting a2 [**AF-S priority selection**]), or
	  - touch controls are used (but note that beeps will not sound for touch controls if [**Off (touch controls only)**] is selected).
	• Select [**Off**] to mute the beep speaker.

[**Volume**]	Choose from three options for beep volume.
[**Pitch**]	Choose the pitch of the beep from [**High**] and [**Low**].

Shooting Display Maximum Magnification Increased to 400%

While in earlier versions of the camera firmware, the maximum shooting display zoom was 200%, from "C" firmware version 2.00 the maximum magnification is 400%. Use the ⊕ and ⊖ (**?**) buttons to zoom in and out.

"Finder Display Size (Photo Lv)" Changed to "Viewfinder Display Size" in the Setup Menu

The selected option in [**Finder display size (photo Lv)**] in the setup menu now applies to both photo and video modes. This item has consequently been renamed [**Viewfinder display size**]. Select the viewfinder display magnification during shooting and playback from [**Standard**] and [**Small**].

Updated Distance Display for Manual Focus

The focus distance indicator for manual focus now shows the distance between the camera and the focus position in units of your choosing.
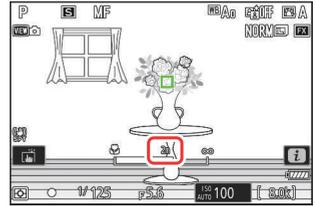
- The choice is made using a [**Distance units**] item newly added to the setup menu, which has options for [**Meters (m)**] and [**Feet (ft)**].
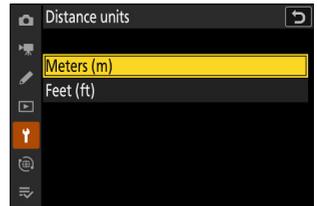
- The distance shown is intended as a guide only. It may vary from the actual distance, depending on the lens used.

Changes and Additions to "Connect to FTP Server"

Changes and additions have been made to the [**Connect to FTP server**] item in the network menu.

Increased Profile Storage

The number of network profiles that can be saved using [**Connect to FTP server**] > [**Network settings**] > [**Copy to/from card**] > [**Copy profile to card**] has been increased from 1 to 99.

- Highlight [**Copy profile to card**] and press ⊛, and then highlight a profile you wish to save and press ⊛ again. Select the destination (1–99) and press ⊛ to copy the profile to the card.
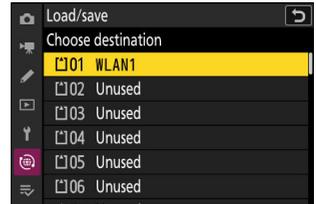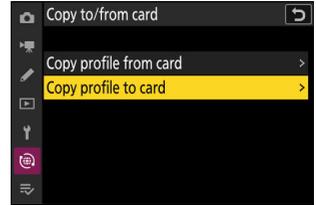
Auto Reconnect on Error

[**Keep connection**] has been added to the options available for [**Connect to FTP server**] > [**Options**] in the network menu. If the connection is lost due to a wireless, TCP/IP, or FTP error when [**ON**] is selected, the camera will automatically attempt to reconnect after about 15 seconds. The camera will attempt to reconnect repeatedly until the connection is re-established.

- The standby timer will not expire when [**ON**] is selected, regardless of the option selected for Custom Setting c3 [**Power off delay**] > [**Standby timer**]. Note that this increases the drain on the battery.

Changes to Synchronized Release

The addition of [**Group settings**] to [**Connect to other cameras**] in the network menu changes how cameras are configured for synchronized release. Cameras can be grouped for synchronized release and remote camera settings adjusted separately for each group. Switching groups also switches the remote cameras that the master camera controls.

- The procedure described below replaces that described under "Synchronized Release" in the "Connecting to Other Cameras" chapter of the *Reference Guide*.
- Remote cameras can now be grouped. [**Remote camera list**] has consequently been moved from its former location directly under [**Connect to other cameras**] in earlier firmware versions and placed in [**Connect to other cameras**] >[**Group settings**] > (group name) > [**Remote camera list**].

Configuring and Using Synchronized Release

Follow the steps below to create host profiles for synchronized release. Each camera saves the pictures it takes to its own memory card. Repeat the process to create identical profiles for each camera.

▌ Wireless LAN

To create host profiles when connecting via wireless LAN:

1 Select [**Connect to other cameras**] in the network menu, then highlight [**Network settings**] and press ⑨.

Connect to other cameras	↩
Synchronized release	❚ ON
Network settings	>
Master/remote	>
Group settings	>
Choose a profile.	

2 Highlight [**Create profile**] and press ⑧.

Network settings	↩
Create profile	>
Copy to/from card	>
End current connection	
	OK OK
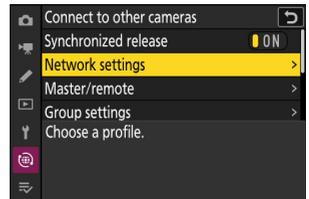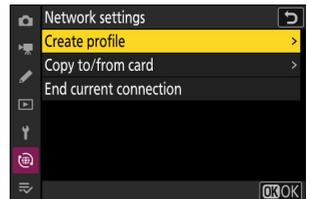
3 Name the new profile.

- To proceed to the next step without changing the default name, press ⊕.
- Whatever name you choose will appear in the network menu [**Connect to other cameras**] > [**Network settings**] list.
- To rename the profile, press ⊛. Press ⊕ to proceed after entering a name.
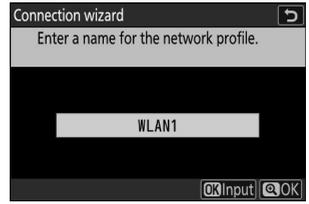
4 Highlight [Search for Wi-Fi network] and press ⊛.

The camera will search for networks currently active in the vicinity and list them by name (SSID).
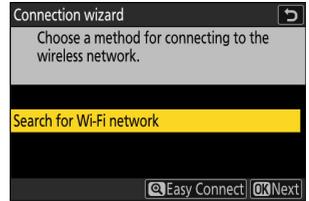
✅ "Easy Connect"

- To connect without entering an SSID or encryption key, press ⊕ in Step 4. Next, press ⊛ and choose from the options below.
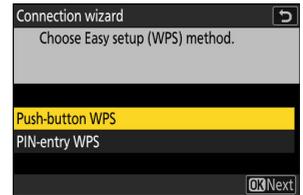
Option	Description
[**Push-button WPS**]	For routers that support push-button WPS. Press the WPS button on the router and then press the camera ⊛ button to connect.
[**PIN-entry WPS**]	The camera will display a PIN. Using a computer, enter the PIN on the router. For more information, see the documentation provided with the router.

- After connecting, proceed to Step 7.

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71   Changes to Synchronized Release

5 Choose a network.

- Highlight a network SSID and press ⊛.
- The band on which each SSID operates is indicated by an icon.
- Encrypted networks are indicated by a 🔒 icon. If the selected network is encrypted (🔒), you will be prompted to enter the encryption key. If the network is not encrypted, proceed to Step 7.
- If the desired network is not displayed, press ⊕ to search again.
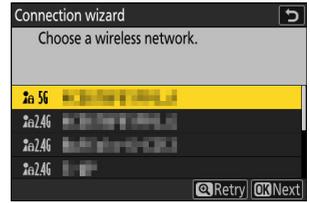
✅ Hidden SSIDs

Networks with hidden SSIDs are indicated by blank entries in the network list.

- To connect to a network with a hidden SSID, highlight a blank entry and press ⊛. Next, press ⊛; the camera will prompt you to provide an SSID.
- Enter the network name and press ⊕. Press ⊕ again; the camera will now prompt you to enter the encryption key.

Changes to Synchronized Release
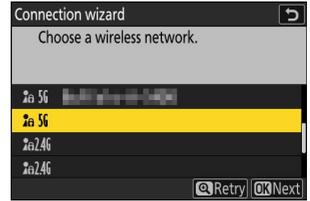
6 **Enter the encryption key.**

- Press ⊛ and enter the encryption key for the wireless router.

- For more information, see the documentation for the wireless router.
- Press ⊕ when entry is complete.

- Press ⊕ again to initiate the connection. A message will be displayed for a few seconds when the connection is established.

Changes to Synchronized Release

7 **Obtain or select an IP address.**

Highlight one of the following options and press ⊛.

Option	Description
[**Obtain automatically**]	Select this option if the network is configured to supply the IP address automatically. A "configuration complete" message will be displayed once an IP address has been assigned. • It is recommended that you note the remote camera IP address, as you will need it in subsequent steps.
[**Enter manually**]	Enter the IP address and sub-net mask manually. • Press ⊛; you will be prompted to enter the IP address. • Rotate the main command dial to highlight segments. • Press ◉ or ◉ to change the highlighted segment and press ⊛ to save changes. • Next, press ⍾; a "configuration complete" message will be displayed. Press ⍾ again to display the sub-net mask. • Press ⊕ or ⊝ to edit the sub-net mask and press ⊛; a "configuration complete" message will be displayed.

8 **Press ⊛ to proceed when the "configuration complete" message is displayed.**

The profile name is displayed when a connection is established.

9 **Highlight [Master/remote] and press ◉.**

Choose a role for each camera from "master" and "remote".

• [**Master camera**]: Pressing the shutter-release button on the master camera releases the shutters on the remote cameras. Each group can have only one master. If the group has multiple master cameras, only the first to connect to the network will actually serve in that capacity.
• [**Remote camera**]: The shutters on the remote cameras are synchronized with the shutter on the master camera.

Changes to Synchronized Release
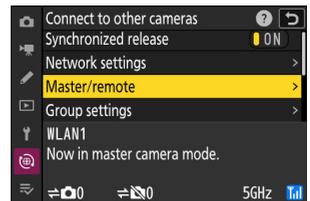
10   **Repeat Steps 1 through 9 for the remaining cameras.**

When configuring remote cameras, be sure to select [**Remote camera**] in Step 9.

11   **On the master camera, highlight [Group settings] and press ⊕.**
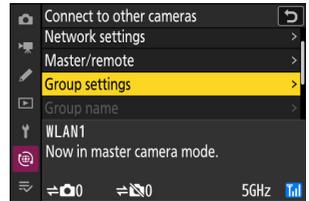
12   **Highlight [New] and press ⊗.**
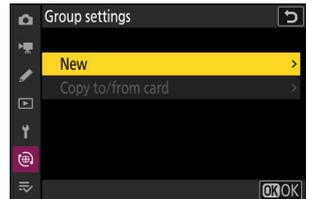
13   **Enter the group display name.**

- Choose the display name for the remote camera group. Display names can be up to 32 characters long.
- Press ⊕ to proceed once entry is complete.

14 **Highlight [Group name], press ⑥, and enter a group name.**

Enter a group name for the synchronized cameras. Group names can be up to eight characters long.

☑ Assigning Remote Cameras a "Group Name"
The group name selected on the remote cameras must match that chosen for the master camera. Choose the name using [**Connect to other cameras**] > [**Group name**] in the network menu.

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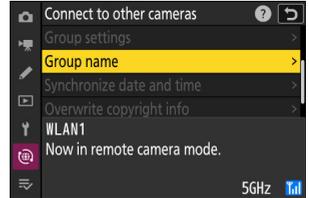
15 **Highlight [Remote camera list] and press ⑥.**

Add remote cameras to the group. The master camera can store information for up to 16 remote cameras in slots [**01**] through [**16**].

16 **Highlight the desired slot and press ⑥.**

Remote camera options will be displayed.

Changes to Synchronized Release
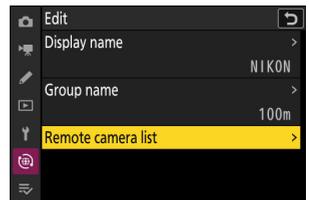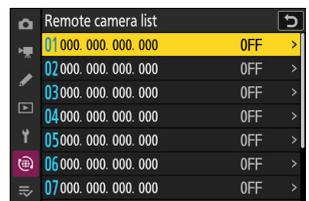
17 Highlight [Address] and press ⓑ.

You will be prompted to enter an IP address.
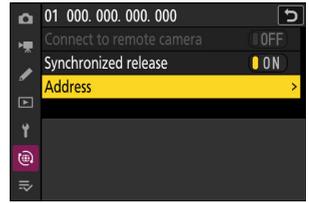
18 Enter the remote camera IP address.

Enter the remote camera IP address you noted in Step 7.

- Rotate the main command dial to highlight segments.
- Press ⓐ or ⓑ to change the highlighted segment and press ⓧ to save changes.
- Press ⓠ to add the remote camera to the master camera remote camera list and establish a connection.
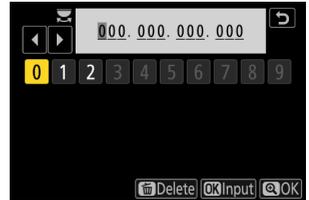
Tip: Viewing Remote Camera IP Addresses

To view a remote camera's IP address, select [**Connect to other cameras**] > [**Network settings**] in the camera's network menu, highlight a synchronized release host profile, press ⓑ, and select [**TCP/IP**].

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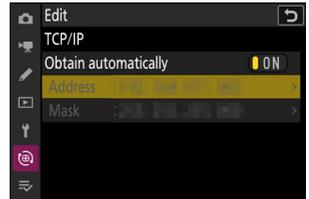
19 Add the remaining remote cameras.

- When connecting to wireless networks, the cameras will display the band used by the selected SSID.

- The master camera shows the group name (①) selected in Step 13 as well as the number of remote cameras connected and not yet connected (②).
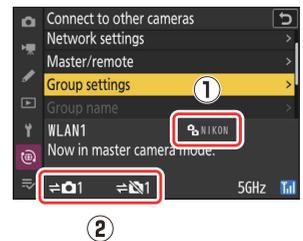
20 **Take pictures.**

- A ⇌📷 icon appears in the master camera shooting display together with the number of remote cameras connected.

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

✅ **Connection Errors**

In the event of remote camera connection errors, the remote camera count in the master camera shooting display will turn red and instead show the number of remote cameras that failed to connect.

Changes to Synchronized Release
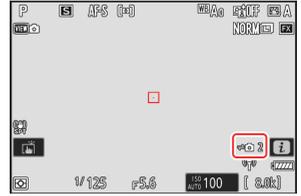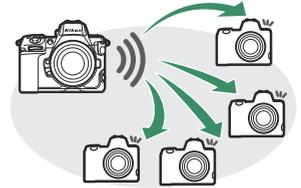
Ethernet

Follow the steps below to create host profiles for Ethernet connections. A USB (Type C) to Ethernet adapter (available separately from third-party sources) is required for Ethernet connections. Be sure to connect the adapter to the camera's USB data connector.

- The following USB-to-Ethernet adapters have been tested and approved for use:
  - Anker A83130A1 PowerExpand USB-C to Gigabit Ethernet adapters
  - Anker A83130A2 PowerExpand USB-C to Gigabit Ethernet adapters
- Note that USB-to-Ethernet adapters will not function when connected to the camera's USB Power Delivery connector.

Connect to other cameras via a third-party USB (Type C) to Ethernet adapter connected to the camera's USB data connector.

1   **Attach a third-party USB-to-Ethernet adapter to the camera's USB data connector and then connect to a router using an Ethernet cable.**

- Connect the Ethernet cable to the USB-to-Ethernet adapter. Do not use force or attempt to insert the connectors at an angle.
- Connect the other end of the cable to a router.
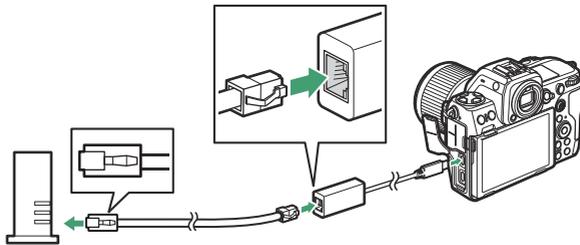
- Connect the remaining cameras to the router using Ethernet cables.

2   **Select [USB-LAN] for [USB data connection] in the network menu.**

Changes to Synchronized Release
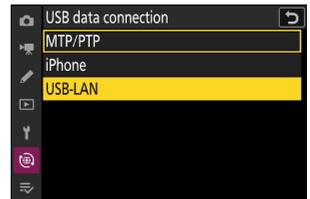
3 Select [**Connect to other cameras**] in the network menu, then highlight [**Network settings**] and press ⊛.
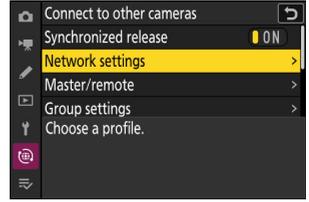
4 Highlight [**Create profile**] and press ⊛.
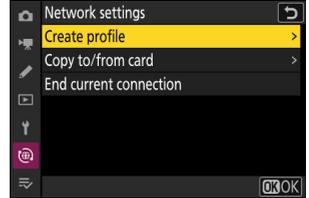
5 **Name the new profile.**

- To display IP address options without changing the default name, press ⍾.
- Whatever name you choose will appear in the network menu [**Connect to other cameras**] > [**Network settings**] list.
- To rename the profile, press ⊛. Press ⍾ to proceed after entering a name.
- There may be a delay before the camera detects the USB-to-Ethernet adapter. If the camera is unable to detect an Ethernet connection, the wizard will be configured to begin creation of a wireless LAN profile with the default name "WLAN1". Tap ⤺ or press ◁ to return to Step 4, wait about 10 seconds, and then try again.

6 Obtain or select an IP address.

Highlight one of the following options and press ⊛.

Option	Description
[**Obtain automatically**]	Select this option if the network is configured to supply the IP address automatically. A "configuration complete" message will be displayed once an IP address has been assigned. • It is recommended that you note the remote camera IP address, as you will need it in subsequent steps.
[**Enter manually**]	Enter the IP address and sub-net mask manually. • Press ⊛; you will be prompted to enter the IP address. • Rotate the main command dial to highlight segments. • Press ◂ or ▸ to change the highlighted segment and press ⊛ to save changes. • Next, press ℚ; a "configuration complete" message will be displayed. Press ℚ again to display the sub-net mask. • Press ▴ or ▾ to edit the sub-net mask and press ⊛; a "configuration complete" message will be displayed.

7 Press ⊛ to proceed when the "configuration complete" message is displayed.

The camera will initiate the connection. The profile name is displayed when a connection is established.

8 Highlight [Master/remote] and press ▸.

Choose a role for each camera from "master" and "remote".

• [**Master camera**]: Pressing the shutter-release button on the master camera releases the shutters on the remote cameras. Each group can have only one master. If the group has multiple master cameras, only the first to connect to the network will actually serve in that capacity.
• [**Remote camera**]: The shutters on the remote cameras are synchronized with the shutter on the master camera.

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81 Changes to Synchronized Release
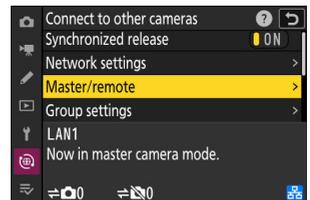
9 **Repeat Steps 3 through 8 for the remaining cameras.**

- To configure another Z 8 for use as a remote camera, repeat Steps 2 through 8.
- When configuring remote cameras, be sure to select [**Remote camera**] in Step 8.

10 **On the master camera, highlight [Group settings] and press ⑤.**
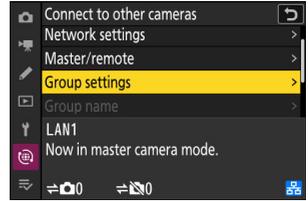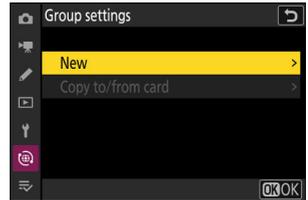
	Connect to other cameras	↰
◻	Network settings	›
⯬	Master/remote	›
✎	**Group settings**	›
▸	Group name	›
✇	LAN1	
⑩	Now in master camera mode.	
⯮	⇌◻0 ⇌📷0	🖧

11 **Highlight [New] and press ⑳.**

	Group settings	↰
◻		
⯬	**New**	›
✎	Copy to/from card	›
▸		
✇		
⑩		
⯮		OKOK

12 **Enter the group display name.**

- Choose the display name for the remote camera group. Display names can be up to 32 characters long.
- Press 🔍 to proceed once entry is complete.

NIKON

```
0 1 2 3 4 5 6 7 8 9
A B C D E F G H I J
K L M N O P Q R S T
U V W X Y Z _   A a &
```
Delete OKInput 🔍OK

13 **Highlight [Group name], press ⊛, and enter a group name.**

Enter a group name for the synchronized cameras. Group names can be up to eight characters long.

☑ Assigning Remote Cameras a "Group Name"

The group name selected on the remote cameras must match that chosen for the master camera. Choose the name using [**Connect to other cameras**] > [**Group name**] in the network menu.

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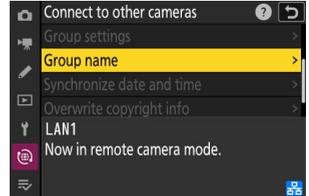
14 **Highlight [Remote camera list] and press ⊛.**

Add remote cameras to the group. The master camera can store information for up to 16 remote cameras in slots [**01**] through [**16**].
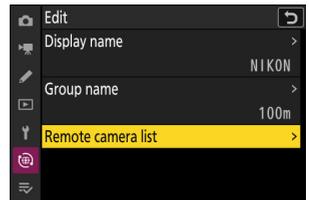
15 **Highlight the desired slot and press ⊛.**

Remote camera options will be displayed.

Changes to Synchronized Release
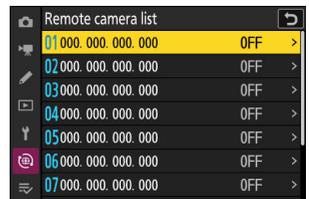
16 **Highlight [Address] and press ⊕.**

You will be prompted to enter an IP address.
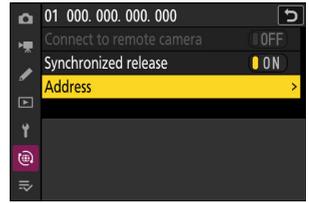
17 **Enter the remote camera IP address.**

Enter the remote camera IP address you noted in Step 6.

- Rotate the main command dial to highlight segments.
- Press ⊕ or ⊕ to change the highlighted segment and press ⊛ to save changes.
- Press ⊕ to add the remote camera to the master camera remote camera list and establish a connection.
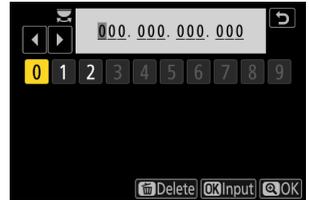
Tip: Viewing Remote Camera IP Addresses

To view a remote camera's IP address, select [**Connect to other cameras**] > [**Network settings**] in the camera's network menu, highlight a synchronized release host profile, press ⊕, and select [**TCP/IP**].

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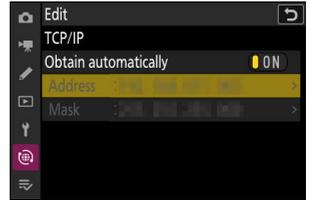
18 **Add the remaining remote cameras.**

The master camera shows the group name (①) selected in Step 12 as well as the number of remote cameras connected and not yet connected (②).
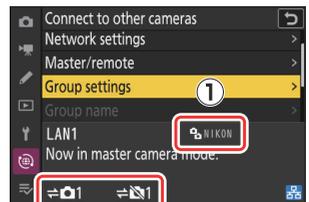
19 **Take pictures.**

- A ⇌ icon appears in the master camera shooting display together with the number of remote cameras connected.
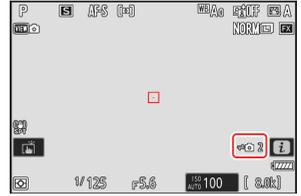
- Pressing the shutter-release button on the master camera releases the shutters on the remote cameras.
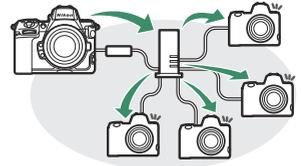
✅ Connection Errors

In the event of remote camera connection errors, the remote camera count in the master camera shooting display will turn red and instead show the number of remote cameras that failed to connect.

Tip: Suspending Synchronized Release

To temporarily disable synchronized release without ending the camera's connection to the network, select [**OFF**] for [**Connect to other cameras**] > [**Synchronized release**] in the network menu.

Tip: Viewing Remote Camera Status

To view remote camera status, go to [**Connect to other cameras**] > [**Group settings**] > (group name) in the master camera network menu, highlight [**Remote camera list**], and press ⊛.

- Remote cameras are identified by IP address.
- Remote camera status is displayed as follows:
  - [**Connected**]: Normal connection.
  - [**Busy**]: The camera is being controlled from another master camera.
  - [**Error**]: One of the following errors has been detected:
    - The remote camera standby timer has expired.
    - The remote camera is off.
    - The remote camera is not in the same group as the master camera.
    - The IP address is incorrect.
  - [**OFF**]: Either
    - no remote camera has been assigned to the slot, or
    - [**OFF**] is selected for [**Connect to remote camera**] on the camera in question.
- Highlighting a remote camera with the [**Connected**] label and pressing ⊛ displays the number of pictures awaiting upload from the camera via FTP, FTP connection status, the battery level, and the number of exposures remaining.
- The entries for the remote cameras previously used for synchronized release will show the time of the most recent shot.

- To edit remote camera settings from the master camera, highlight the camera in the remote camera list and press ⊛.
  - To temporarily suspend the connection to the selected camera, select [**OFF**] for [**Connect to remote camera**].
  - To temporarily suspend synchronized release on the selected camera, select [**OFF**] for [**Synchronized release**].
  - If desired, you can then edit the camera's IP address by highlighting [**Address**] and pressing ⊛. To reconnect, select [**ON**] for [**Connect to remote camera**]. No connection will be established if no remote camera exists at the specified address.

Changes to Synchronized Release
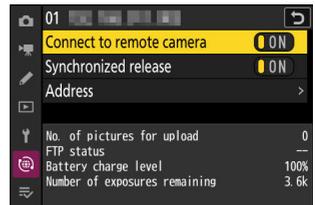
Tip: Saving Group Settings to a Memory Card.

Navigate to [**Connect to other cameras**] > [**Group settings**] > [**Copy to/from card**] in the network menu, highlight [**Copy to card**], press ⊕, and then highlight group settings you wish to save and press ⊕ again. Select the destination (1–99) and press ⊛ to copy the group settings to the card. Saved group settings can be loaded using [**Copy from card**].

Changes to Synchronized Release

New "Overwrite Copyright Info" Option for Master Cameras

[**Overwrite copyright info**] has been added to the options available for [**Connect to other cameras**] in the network menu. Selecting this option overwrites the copyright information on any remote cameras currently connected with the copyright information stored on the master camera.

Using AirGlu Accessories While MC-N10 Remote Grips Connected

In earlier versions of the camera firmware, all Bluetooth functions were disabled while an MC-N10 was connected to the camera, but from "C" firmware version 2.00, Atomos UltraSync BLUE AirGlu accessories can be used via Bluetooth.

Menu Items and Defaults for "C" Firmware Version 2.00

The menu items and defaults after the firmware has been upgraded to "C" firmware version 2.00 are listed below.

Photo Shooting Menu

- [**Shooting menu bank**]: A
- [**Extended menu banks**]: OFF
- [**Storage folder**]
    - [**Rename**]: NCZ_8
    - [**Select folder by number**]: 100
    - [**Select folder from list**]: —
- [**File naming**]: DSC
- [**Primary slot selection**]: CFexpress/XQD card slot
- [**Secondary slot function**]: Overflow
- [**Image area**]
    - [**Choose image area**]: FX (36×24)
    - [**DX crop alert**]: OFF
- [**Tone mode**]: SDR
- [**Image quality**]: JPEG/HEIF normal
- [**Image size settings**]
    - [**Image size**]: Large
    - [**Enable DX image sizes**]: OFF
    - [**Image size (DX)**]: Large
- [**RAW recording**]: High efficiency★
- [**ISO sensitivity settings**]
    - [**ISO sensitivity**]: 100
    - [**Auto ISO sensitivity control**]: ON
    - [**Maximum sensitivity**]: 25600
    - [**Maximum sensitivity with ⚡**]: Same as without flash
    - [**Minimum shutter speed**]: Auto
- [**White balance**]: Auto—Keep white (reduce warm colors)
- [**Set Picture Control**]: Auto
- [**Manage Picture Control**]: —
- [**Set Picture Control (HLG)**]: Standard
- [**Color space**]: sRGB
- [**Active D-Lighting**]: Off

- [**Long exposure NR**]: OFF
- [**High ISO NR**]: Normal
- [**Vignette control**]: Normal
- [**Diffraction compensation**]: ON
- [**Auto distortion control**]: ON
- [**Skin softening**]: Off
- [**Portrait impression balance**]: Off
- [**Photo flicker reduction**]: OFF
- [**High-frequency flicker reduction**]: Off
- [**Metering**]: Matrix metering
- [**Flash control**]
  - [**Flash control mode**]: TTL
  - [**Wireless flash options**]: Off
  - [**Remote flash control**]: Group flash
- [**Flash mode**]: Fill flash
- [**Flash compensation**]: 0.0
- [**Focus mode**]: Single AF
- [**AF-area mode**]: Single-point AF
- [**AF subject detection options**]: Auto
- [**Vibration reduction**]: Sport
- [**Auto bracketing**]
  - [**Auto bracketing set**]: AE & flash bracketing
  - [**Number of shots**]: 0
  - [**Increment**]: 1.0
- [**Multiple exposure**]
  - [**Multiple exposure mode**]: Off
  - [**Number of shots**]: 2
  - [**Overlay mode**]: Average
  - [**Save individual pictures (RAW)**]: ON
  - [**Overlay shooting**]: ON
  - [**Select first exposure (RAW)**]: —
- [**HDR overlay**]
  - [**HDR mode**]: Off
  - [**HDR strength**]: Auto
  - [**Save individual pictures (RAW)**]: OFF
- [**Interval timer shooting**]
  - [**Choose start day/time**]: Now
  - [**Interval**]: 1 min.
  - [**Intervals×shots/interval**]: 0001×1
  - [**Exposure smoothing**]: ON
  - [**Interval priority**]: OFF
  - [**Focus before each shot**]: OFF
  - [**Options**]: Off

- [**Starting storage folder**]
  - [**New folder**]: □
  - [**Reset file numbering**]: □
- [**Time-lapse video**]
  - [**Interval**]: 5 s
  - [**Shooting time**]: 25 min.
  - [**Exposure smoothing**]: ON
  - [**Choose image area**]: FX
  - [**Video file type**]: H.265 8-bit (MOV)
  - [**Frame size/frame rate**]: 3840×2160; 30p
  - [**Interval priority**]: OFF
  - [**Focus before each shot**]: OFF
  - [**Destination**]: CFexpress/XQD card slot
- [**Focus shift shooting**]
  - [**No. of shots**]: 100
  - [**Focus step width**]: 5
  - [**Interval until next shot**]: 0
  - [**First-frame exposure lock**]: ON
  - [**Focus position auto reset**]: OFF
  - [**Starting storage folder**]
    - [**New folder**]: □
    - [**Reset file numbering**]: □
- [**Pixel shift shooting**]
  - [**Pixel shift shooting mode**]: Off
  - [**Number of shots**]: 16
  - [**Delay**]: 2 s
  - [**Interval until next shot**]: 0
- [**Auto capture**]
  - [**Select user preset**]: P-1

Video Recording Menu

- [**Shooting menu bank**]: A
- [**Extended menu banks**]: OFF
- [**Storage folder**]
  - [**Rename**]: NCZ_8
  - [**Select folder by number**]: 100
  - [**Select folder from list**]: —
- [**File naming**]: DSC
- [**Destination**]: CFexpress/XQD card slot
- [**Video file type**]: H.265 8-bit (MOV)
- [**Frame size/frame rate**]: 3840×2160; 30p

- [**Video quality (N-RAW)**]: High quality
- [**Image area**]
  - [**Choose image area**]: FX
  - [**DX crop alert**]: OFF
- [**Extended oversampling**]: OFF
- [**ISO sensitivity settings**]
  - [**Maximum sensitivity**]: 25600
  - [**Auto ISO control (mode M)**]: ON
  - [**ISO sensitivity (mode M)**]: 100
- [**White balance**]: Same as photo settings
- [**Set Picture Control**]: Same as photo settings
- [**Manage Picture Control**]: —
- [**HLG quality**]
  - [**Quick sharp**]: 0
  - [**Contrast**]: 0
  - [**Saturation**]: 0
  - [**Hue**]: 0
- [**Active D-Lighting**]: Off
- [**High ISO NR**]: Normal
- [**Vignette control**]: Normal
- [**Diffraction compensation**]: ON
- [**Auto distortion control**]: ON
- [**Skin softening**]: Same as photo settings
- [**Portrait impression balance**]: Off
- [**Video flicker reduction**]: Auto
- [**High-frequency flicker reduction**]: Off
- [**Metering**]: Matrix metering
- [**Focus mode**]: Full-time AF
- [**AF-area mode**]: Single-point AF
- [**AF subject detection options**]
  - [**Subject detection**]: Auto
  - [**AF when subject not detected**]: ON
- [**Vibration reduction**]: Same as photo settings
- [**Electronic VR**]: OFF
- [**Microphone sensitivity**]: Auto
- [**Attenuator**]: OFF
- [**Frequency response**]: Wide range
- [**Wind noise reduction**]: OFF
- [**Mic jack plug-in power**]: ON
- [**Headphone volume**]: 15
- [**Timecode**]
  - [**Record timecodes**]: Off
  - [**Count-up method**]: Record run

- [**Timecode origin**]: —
- [**Drop frame**]: ON
- • [**External rec. cntrl (HDMI)**]: OFF
- • [**Hi-Res Zoom**]: OFF
- • [**Auto capture**]
  - [**Select user preset**]: P-1

Custom Settings Menu

- • [**Custom Settings bank**]: A
- • **a** [**Focus**]
  - a1: [**AF-C priority selection**]: Release
  - a2: [**AF-S priority selection**]: Focus
  - a3: [**Focus tracking with lock-on**]
    - [**Blocked shot AF response**]: 3
    - [**Subject motion**]: Steady
  - a4: [**Focus points used**]: All points
  - a5: [**Store points by orientation**]: Off
  - a6: [**AF activation**]: Shutter/AF-ON
  - a7: [**Focus point persistence**]: Auto
  - a8: [**Limit AF-area mode selection**]
    - [**Pinpoint AF**]: ☑
    - [**Single-point AF**]: ✔ (cannot be deselected)
    - [**Dynamic-area AF (S)**]: ☑
    - [**Dynamic-area AF (M)**]: ☑
    - [**Dynamic-area AF (L)**]: ☑
    - [**Wide-area AF (S)**]: ☑
    - [**Wide-area AF (L)**]: ☑
    - [**Wide-area AF (C1)**]: ☑
    - [**Wide-area AF (C2)**]: ☑
    - [**3D-tracking**]: ☑
    - [**Auto-area AF**]: ☑
  - a9: [**Focus mode restrictions**]: No restrictions
  - a10: [**Focus point wrap-around**]: OFF
  - a11: [**Focus point display**]
    - [**Manual focus mode**]: ON
    - [**Dynamic-area AF assist**]: ON
    - [**AF-C in-focus display**]: OFF
    - [**3D-tracking focus point color**]: White
    - [**Focus point border width**]: 1
  - a12: [**Built-in AF-assist illuminator**]: ON
  - a13: [**Focus peaking**]

- [**Focus peaking display**]: OFF
- [**Focus peaking sensitivity**]: 2 (standard)
- [**Focus peaking highlight color**]: Red
- a14: [**Focus point selection speed**]: Normal
- a15: [**Manual focus ring in AF mode**] [2]: ON
- **b** [**Metering/exposure**]
  - b1: [**ISO sensitivity step value**]: 1/3 step
  - b2: [**EV steps for exposure cntrl**]: 1/3 EV steps (comp. 1/3 EV)
  - b3: [**Easy exposure compensation**]: Off
  - b4: [**Matrix metering face detection**]: ON
  - b5: [**Center-weighted area**]: Standard
  - b6: [**Fine-tune optimal exposure**]
    - [**Matrix metering**]: 0
    - [**Center-weighted metering**]: 0
    - [**Spot metering**]: 0
    - [**Highlight-weighted metering**]: 0
  - b7: [**Keep exp. when f/ changes**]: Exposure maintenance off
- **c** [**Timers/AE lock**]
  - c1: [**Shutter-release button AE-L**]: Off
  - c2: [**Self-timer**]
    - [**Self-timer delay**]: 10 s
    - [**Number of shots**]: 1
    - [**Interval between shots**]: 0.5 s
  - c3: [**Power off delay**]
    - [**Playback**]: 10 s
    - [**Menus**]: 1 min
    - [**Picture review**]: 4 s
    - [**Standby timer**]: 30 s
- **d** [**Shooting/display**]
  - d1: [**Continuous shooting speed**]
    - [**Continuous high-speed**]: 20 fps
    - [**Continuous low-speed**]: 5 fps
  - d2: [**Maximum shots per burst**]: ∞
  - d3: [**Pre-Release Capture options**]
    - [**Pre-release burst**]: None
    - [**Post-release burst**]: Max.
  - d4: [**Sync. release mode options**]: Sync
  - d5: [**Exposure delay mode**]: Off
  - d6: [**Extended shutter speeds (M)**]: OFF
  - d7: [**Limit selectable image area**]
    - [**FX (36×24)**]: ✔ (cannot be deselected)
    - [**DX (24×16)**]: ☑
    - [**1:1 (24×24)**]: ☑

Menu Items and Defaults for "C" Firmware Version 2.00

- [**16:9 (36×20)**]: ☑
- d8: [**File number sequence**]: On
- d9: [**View mode (photo Lv)**]: Show effects of settings
  - [**Show effects of settings**]: Only when flash is not used
  - [**Adjust for ease of viewing**]: Auto
- d10: [**Starlight view (photo Lv)**]: OFF
- d11: [**Warm display colors**]
  - [**Warm display color options**]: Off
  - [**Warm color display brightness**]: 0
- d12: [**LCD illumination**]: OFF
- d13: [**View all in continuous mode**]: ON
- d14: [**Release timing indicator**]
  - [**Indicator type**]: Type B
  - [**Type A auto restore delay**]: 1/6 s
- d15: [**Image frame**]: ON
- d16: [**Grid type**]: 3×3
- d17: [**Virtual horizon type**]: Type A
- d18: [**Half-press to cancel zoom (MF)**]: OFF
- d19: [**Custom monitor shooting display**]
  - [**Display 1**]: ✔ (cannot be deselected)
  - [**Display 2**]: ☑
  - [**Display 3**]: ☑
  - [**Display 4**]: ☑
  - [**Display 5**]: ☑
- d20: [**Custom viewfinder shooting display**]
  - [**Display 1**]: ✔ (cannot be deselected)
  - [**Display 2**]: ☑
  - [**Display 3**]: ☑
  - [**Display 4**]: ☑
- d21: [**High fps viewfinder display**]: OFF
- **e** [**Bracketing/flash**]
  - e1: [**Flash sync speed**]: 1/200 s
  - e2: [**Flash shutter speed**]: 1/60 s
  - e3: [**Exposure comp. for flash**]: Entire frame
  - e4: [**Auto ⚡ ISO sensitivity control**]: Subject and background
  - e5: [**Modeling flash**]: ON
  - e6: [**Auto bracketing (mode M)**]: Flash/speed
  - e7: [**Bracketing order**]: MTR > under > over
  - e8: [**Flash burst priority**]: Prioritize precise flash control
- **f** [**Controls**]
  - f1: [**Customize 🛈 menu**]: Set Picture Control, White balance, Image quality, Image size, AF-area mode/subj. detection, Focus mode, Tone mode, Vibration reduction, Shooting menu bank, Custom controls (shooting), Airplane mode, View memory card info

- f2: [**Custom controls (shooting)**]
  - [**Fn1 button**]: Shooting menu bank
  - [**Fn2 button**]: Choose image area
  - [**Fn button for vertical shooting**]: Exposure compensation
  - [**Focus mode button**]: Focus mode/AF-area mode
  - [**Protect/Fn3 button**]: Set Picture Control
  - [**AF-ON button**]: AF-ON
  - [**Sub-selector center**]: AE/AF lock
  - [**DISP button**]: Cycle live view info display
  - [**OK button**]: Select center focus point
  - [**Playback button**]: Playback
  - [**Vertical multi selector center**]: AE/AF lock
  - [**AF-ON button for vertical shooting**]: Same as AF-ON button
  - [**Video record button**]: Live view info display off
  - [**Exposure compensation button**]: Exposure compensation
  - [**ISO sensitivity button**]: ISO sensitivity
  - [**Command dials**]
    - [**Exposure setting**] :**P**: 🎞--/🖲P*, **S**: 🎞--/🖲Tv, **A**: 🎞Av/🖲--, **M**: 🎞Av/🖲Tv
    - [**Focus/AF-area mode selection**]: 🎞[+]/🖲AF/MF
    - [**Sub-command dial zoom role**]: Exposure setting
  - [**BKT button**]: Auto bracketing
  - [**WB button**]: White balance
  - [**Lens Fn button**]: AE/AF lock
  - [**Lens Fn2 button**]: AF-ON
  - [**Lens Fn ring (counterclockwise)**]: Recall focus position
  - [**Lens Fn ring (clockwise)**]: Recall focus position
  - [**Lens memory set button**]: Save focus position
  - [**Lens control ring**]: (Varies with lens)
- f3: [**Custom controls (playback)**]
  - [**Fn1 button**]: None
  - [**Fn2 button**]: None
  - [**Fn button for vertical shooting**]: None
  - [**DISP button**]: Cycle info display
  - [**Protect/Fn3 button**]: Protect
  - [**Playback button**]: Resume shooting
  - [**OK button**]: Zoom on/off
  - [**Sub-command dial**]
    - [**Frame advance**]: 1 frame
    - [**Video playback**]: 10 s
    - [**Frame advance zoom position**]: Keep current zoom position
    - [**Playback zoom face selection**]: ON
  - [**Main command dial**]
    - [**Frame advance**]: 1 frame

- [**Video playback**]: 10 frames
  - [**Frame advance zoom position**]: Keep current zoom position
- [**Video record button**]: None
- [**ISO sensitivity button**]: None
- [**Exposure compensation button**]: None
- [**BKT button**]: None
- [**WB button**]: None
- [**Lens Fn button**]: None
- [**Lens Fn2 button**]: None
- f4: [**Control lock**]
  - [**Shutter speed lock**]: OFF
  - [**Aperture lock**]: OFF
  - [**Focus-point lock**]: OFF
- f5: [**Reverse dial rotation**]
  - [**Exposure compensation**]: ☐
  - [**Shutter speed/aperture**]: ☐
- f6: [**Release button to use dial**]: OFF
- f7: [**Reverse indicators**]: ➖ᵢᵢᵢᵢ⁰ᵢᵢᵢᵢ➕
- f8: [**Reverse ring for focus**]: OFF
- f9: [**Focus ring rotation range**]: Non-linear
- f10: [**Control ring response**]: High
- f11: [**Switch focus/control ring roles**]: OFF
- f12: [**Assign power zoom buttons**]
  - [**Use 🔍/🔎 buttons**]: OFF
  - [**Power zoom speed**]: +3
- f13: [**Full-frame playback flicks**]
  - [**Flick up**]: None
  - [**Flick down**]: None
  - [**Flick advance direction**]: Left→Right
- f14: [**Prefer sub-selector center**]: ON

• **g** [**Video**]
  - g1: [**Customize 🎬 menu**]: Set Picture Control, White balance, Frame size/frame rate, Microphone sensitivity, AF-area mode/subj. detection, Focus mode, Electronic VR, Vibration reduction, Shooting menu bank, Custom controls, Airplane mode, Destination
  - g2: [**Custom Controls**]
    - [**Fn1 button**]: Shooting menu bank
    - [**Fn2 button**]: Choose image area
    - [**Fn button for vertical shooting**]: Exposure compensation
    - [**Focus mode button**]: Focus mode/AF-area mode
    - [**Protect/Fn3 button**]: Set Picture Control
    - [**AF-ON button**]: AF-ON
    - [**Sub-selector center**]: AE/AF lock
    - [**DISP button**]: Cycle live view info display

- [**OK button**]: Select center focus point
- [**Playback button**]: Playback
- [**Vertical multi selector center**]: AE/AF lock
- [**AF-ON button for vertical shooting**]: Same as AF-ON button
- [**Video record button**]: Record videos
- [**Exposure compensation button**]: Exposure compensation
- [**ISO sensitivity button**]: ISO sensitivity
- [**Command dials**]
  - [**Exposure setting**]: **A**: 📷Av/📹--, **M**: 📷Av/📹Tv
  - [**Focus/AF-area mode selection**]: 📷[+]/📹AF/MF
  - [**Sub-command dial zoom role**]: Exposure setting
- [**Shutter-release button**]: None
- [**WB button**]: White balance
- [**BKT button**]: None
- [**Lens Fn2 button**]: AF-ON
- [**Lens Fn button**]: AE/AF lock
- [**Lens Fn ring (clockwise)**]: Recall focus position
- [**Lens Fn ring (counterclockwise)**]: Recall focus position
- [**Lens memory set button**]: Save focus position
- [**Lens control ring**]: (Varies with lens)
- g3: [**Control lock**]
  - [**Shutter speed lock**]: OFF
  - [**Aperture lock**]: OFF
  - [**Focus-point lock**]: OFF
- g4: [**Limit AF-area mode selection**]
  - [**Single-point AF**]: ✔ (cannot be deselected)
  - [**Wide-area AF (S)**]: ☑
  - [**Wide-area AF (L)**]: ☑
  - [**Wide-area AF (C1)**]: ☑
  - [**Wide-area AF (C2)**]: ☑
  - [**Subject-tracking AF**]: ☑
  - [**Auto-area AF**]: ☑
- g5: [**Focus mode restrictions**]: No restrictions
- g6: [**AF speed**]: 0
  - [**When to apply**]: Always
- g7: [**AF tracking sensitivity**]: 4
- g8: [**Hi-Res Zoom speed**]: 0
- g9: [**Assign power zoom buttons**]
  - [**Use 🔍/🔍 buttons**]: OFF
  - [**Power zoom speed**]
    - [**Pre/post recording**]: +3
    - [**During recording**]: 0
- g10: [**Fine ISO control (mode M)**]: Off

Menu Items and Defaults for "C" Firmware Version 2.00

- g11: [**Extended shutter speeds (mode M)**]: OFF
- g12: [**View assist**]: OFF
- g13: [**Zebra pattern**]
    - [**Pattern tone range**]: Zebra pattern off
    - [**Pattern**]: Pattern 1
    - [**Highlight threshold**]: 250
    - [**Mid-tone range**]: Value: 160; range: ±10
- g14: [**Limit zebra pattern tone range**]: No restrictions
- g15: [**Grid type**]: 3×3
- g16: [**Brightness information display**]: Histogram
- g17: [**Half-press to cancel zoom (MF)**]: OFF
- g18: [**Custom monitor shooting display**]
    - [**Display 1**]: ✔ (cannot be deselected)
    - [**Display 2**]: ☑
    - [**Display 3**]: ☑
    - [**Display 4**]: ☑
- g19: [**Custom viewfinder shooting display**]
    - [**Display 1**]: ✔ (cannot be deselected)
    - [**Display 2**]: ☑
    - [**Display 3**]: ☑
- g20: [**Red REC frame indicator**]: ON

1 Items modified from default values are indicated by asterisks ("✱").
2 Available with compatible lenses only.

Playback Menu

- [**Delete**]: —
- [**Playback folder**]: All
- [**Playback display options**]
    - [**Focus point**]: ☐
    - [**Mark first shot in series**]: ☐
    - [**Exposure info**]: ☐
    - [**Highlights**]: ☐
    - [**RGB histogram**]: ☐
    - [**Shooting data**]: ☐
    - [**Overview**]: ☐
    - [**None (picture only)**]: ☑
    - [**File info**]: ☐
    - [**Basic shooting data**]: ☑
    - [**Flash data**]: ☑
    - [**Picture Control/HLG data**]: ☑
    - [**Other shooting data**]: ☑

- [**Copyright info**]: ☑
  - [**Location data**]: ☑
  - [**IPTC data**]: ☑
- [**Delete pictures from both slots**]: Yes (confirmation required)
- [**Dual-format recording PB slot**]: CFexpress/XQD card slot
- [**Filtered playback criteria**]
  - [**Protect**]: ☐
  - [**Picture type**]: ☐
  - [**Rating**]: ☐
  - [**Select for upload to computer**]: ☐
  - [**Select for upload (FTP)**]: ☐
  - [**Voice memo**]: ☐
  - [**Retouched pictures**]: ☐
- [**Series playback**]
  - [**Sub-selector displays first shot**]: ON
  - [**Auto series playback**]: OFF
  - [**Auto series playback options**]
    - [**Loop playback**]: OFF
    - [**Wait before playback**]: Normal
    - [**Auto series playback speed**]: 30 fps
  - [**List series as single thumbnails**]: OFF
- [**Picture review**]: Off
- [**After delete**]: Show next
- [**After burst, show**]: Last picture in burst
- [**Auto Image Rotation**]: ON
- [**Auto-rotate pictures**]: ON
- [**Copy image(s)**]: —

Setup Menu

- [**Format memory card**]: —
- [**Language**]: (Default varies with country of purchase)
- [**Time zone and date**]
  - [**Time zone**]: (Default varies with country of purchase)
  - [**Date and time**]: —
  - [**Date format**]: (Default varies with country of purchase)
  - [**Daylight saving time**]: OFF
- [**Monitor brightness**]: 0
- [**Monitor color balance**]: A-B: 0, G-M: 0
- [**Viewfinder brightness**]: Auto
- [**Viewfinder color balance**]: A-B: 0, G-M: 0
- [**Viewfinder display size**]: Standard

- [**Limit monitor mode selection**]
  - [**Automatic display switch**]: ☑
  - [**Viewfinder only**]: ☑
  - [**Monitor only**]: ☑
  - [**Prioritize viewfinder (1)**]: ☑
  - [**Prioritize viewfinder (2)**]: ☑
- [**Auto rotate info display**]: ON
- [**AF fine-tuning options**]
  - [**AF fine-tune**]: OFF
  - [**Fine-tune and save lens**]: —
  - [**Default**]: —
  - [**List saved values**]: —
  - [**Choose value for current lens**]: —
- [**Non-CPU lens data**]
  - [**Lens number**]: 1
  - [**Focal length (mm)**]: – –
  - [**Maximum aperture**]: – –
  - [**Lens name**]: – –
- [**Distance units**]: Meters (m)
- [**Save focus position**]: OFF
- [**Save zoom position (PZ lenses)**]: OFF
- [**Auto temperature cutout**]: Standard
- [**Sensor shield behavior at power off**]: Sensor shield stays open
- [**Clean image sensor**]
  - [**Automatic cleaning**]: Clean at shutdown
- [**Image Dust Off ref photo**]: —
- [**Pixel mapping**]: —
- [**Image comment**]
  - [**Attach comment**]: OFF
- [**Copyright information**]
  - [**Attach copyright information**]: OFF
- [**IPTC**]
  - [**Edit/save**]: —
  - [**Delete**]: —
  - [**Auto embed during shooting**]: Off
  - [**Load/save**]: —
- [**Voice memo options**]
  - [**Voice memo control**]: Press and hold
  - [**Audio output (playback)**]: Speaker/headphones
- [**Camera sounds**]
  - [**Shutter sound**]: ON
  - [**Volume**]: 3
  - [**Type**]: Type A

- [**Beep**]: Off
- [**Volume**]: 2
- [**Pitch**]: Low
- [**Silent mode**]: OFF
- [**Touch controls**]
  - [**Enable/disable touch controls**]: Enable
  - [**Glove mode**]: OFF
- [**HDMI**]
  - [**Output resolution**]: Auto
  - [**Output range**]: Auto
  - [**Output shooting info**]: ON
  - [**Mirror camera info display**]: ON
- [**USB connection priority**]: Upload
- [**Location data**] *
  - [**Standby timer**]: ON
  - [**Set clock from satellite**]: OFF
  - [**Position**]: —
- [**Wireless remote (WR) options**]
  - [**LED lamp**]: ON
  - [**Link mode**]: Pairing
- [**Assign remote (WR) Fn button**]: None
- [**Conformity marking**]: —
- [**Battery info**]: —
- [**USB power delivery**]: ON
- [**Energy saving (photo mode)**]: OFF
- [**Slot empty release lock**]: Enable release
- [**Save/load menu settings**]: —
- [**Reset all settings**]: —
- [**Firmware version**]: —

* Displayed only when a GNSS device is connected.

Network Menu

- [**Airplane mode**]: OFF
- [**Connect to smart device**]
  - [**Pairing (Bluetooth)**]
    - [**Bluetooth connection**]: OFF
  - [**Select pictures for upload**]
    - [**Auto select for upload**]: ON
  - [**Wi-Fi connection**]
    - [**Wi-Fi connection settings**]
      - [**Authentication/encryption**]: WPA2-PSK/WPA3-SAE

- [**Channel**]: Auto
- [**Upload while off**]: ON
- [**Location data (smart device)**]: —
• [**Connect to computer**]
  - [**Network settings**]: —
  - [**Connection type**]: Picture transfer
  - [**Options**]
    - [**Auto upload**]: OFF
    - [**Delete after upload**]: OFF
    - [**Upload RAW + JPEG as**]
      - [**Overflow/backup**]: RAW + JPEG
      - [**RAW primary - JPEG secondary**]: RAW + JPEG
    - [**Upload RAW + HEIF as**]
      - [**Overflow/backup**]: RAW + HEIF
      - [**RAW primary - HEIF secondary**]: RAW + HEIF
    - [**JPEG+JPEG slot selection**]: Primary slot
    - [**HEIF+HEIF slot selection**]: Primary slot
    - [**Upload RAW video as**]: RAW video + MP4
    - [**Upload folder**]: —
    - [**Deselect all?**]: —
• [**Connect to FTP server**]
  - [**Network settings**]: —
  - [**Options**]
    - [**Auto upload**]: OFF
    - [**Delete after upload**]: OFF
    - [**Upload RAW + JPEG as**]
      - [**Overflow/backup**]: RAW + JPEG
      - [**RAW primary - JPEG secondary**]: RAW + JPEG
    - [**Upload RAW + HEIF as**]
      - [**Overflow/backup**]: RAW + HEIF
      - [**RAW primary - HEIF secondary**]: RAW + HEIF
    - [**JPEG+JPEG slot selection**]: Primary slot
    - [**HEIF+HEIF slot selection**]: Primary slot
    - [**Upload RAW video as**]: RAW video + MP4
    - [**Overwrite if same name**]: OFF
    - [**Protect if marked for upload**]: OFF
    - [**Upload marking**]: OFF
    - [**Upload folder**]: —
    - [**Deselect all?**]: —
    - [**Keep connection**]: OFF
    - [**Manage root certificate**]
      - [**Import root certificate**]: —
      - [**Delete root certificate**]: —

- [**View root certificate**]: —
- [**Connect if authentication fails**]: OFF
- [**Connect to other cameras**]
  - [**Synchronized release**]: ON
  - [**Network settings**]: —
  - [**Master/remote**]: Master camera
  - [**Group settings**]: —
  - [**Group name**]: —
  - [**Synchronize date and time**]: —
  - [**Overwrite copyright info**]: —
- [**ATOMOS AirGlu BT options**]
  - [**Connect to ATOMOS AirGlu BT**]: OFF
  - [**Save ATOMOS AirGlu BT pairing info**]: —
  - [**Delete ATOMOS AirGlu BT pairing info**]: —
  - [**Camera**]: NCZ8
- [**USB data connection**]: MTP/PTP
- [**Router frequency band**]: (Default varies with country of purchase)
- [**MAC address**]: —

My Menu/Recent Settings

- [**Add items**]: —
- [**Remove items**]: —
- [**Rank items**]: —
- [**Choose tab**]: MY MENU

Post-Upgrade Specifications for "C" Firmware Version 2.00

Product specifications following upgrade to "C" firmware version 2.00 are listed below.

Type	
Type	Digital camera with support for interchangeable lenses
Lens mount	Nikon Z mount
Lens	
Compatible lenses	• Z mount NIKKOR lenses • F mount NIKKOR lenses (mount adapter required; restrictions may apply)
Effective pixels	
Effective pixels	45.7 million
Image sensor	
Type	35.9 × 23.9 mm CMOS sensor (full-frame/FX-format)
Total pixels	52.37 million
Dust-reduction system	Image sensor cleaning, Image Dust Off reference data (requires NX Studio)

Storage	
Image size (pixels)	• **[FX (36 × 24)] selected for image area**: 　- 8256 × 5504 (Large: 45.4 M) 　- 6192 × 4128 (Medium: 25.6 M) 　- 4128 × 2752 (Small: 11.4 M) • **[DX (24 × 16)] selected for image area**: 　- 5392 × 3592 (Large: 19.4 M) 　- 4032 × 2688 (Medium: 10.8 M) 　- 2688 × 1792 (Small: 4.8 M) • **[1:1 (24 × 24)] selected for image area**: 　- 5504 × 5504 (Large: 30.3 M) 　- 4128 × 4128 (Medium: 17.0 M) 　- 2752 × 2752 (Small: 7.6 M) • **[16:9 (36 × 20)] selected for image area**: 　- 8256 × 4640 (Large: 38.3 M) 　- 6192 × 3480 (Medium: 21.5 M) 　- 4128 × 2320 (Small: 9.6 M)
File format (image quality)	• **NEF (RAW)**: 14 bit; choose from lossless compression, high efficiency★, and high efficiency options • **JPEG**: JPEG-Baseline compliant with fine (approx. 1:4), normal (approx. 1:8), or basic (approx. 1:16) compression; size-priority and optimal-quality compression available • **HEIF**: Supports fine (approx. 1:4), normal (approx. 1:8), or basic (approx. 1:16) compression; size-priority and optimal-quality compression available • **NEF (RAW)+JPEG**: Single photograph recorded in both NEF (RAW) and JPEG formats • **NEF (RAW)+HEIF**: Single photograph recorded in both NEF (RAW) and HEIF formats

Storage	
Picture Control System	Auto, Standard, Neutral, Vivid, Monochrome, Flat Monochrome, Deep Tone Monochrome, Portrait, Rich Tone Portrait, Landscape, Flat, Creative Picture Controls (Dream, Morning, Pop, Sunday, Somber, Dramatic, Silence, Bleached, Melancholic, Pure, Denim, Toy, Sepia, Blue, Red, Pink, Charcoal, Graphite, Binary, Carbon); selected Picture Control can be modified; storage for custom Picture Controls Note: Choice of Picture Controls is restricted to Standard, Monochrome, and Flat when HLG is selected for tone mode during still photography.
Media	CFexpress (Type B), XQD, SD (Secure Digital), and UHS-II compliant SDHC and SDXC memory cards
Dual card slots	Either card can be used for overflow or backup storage, for separate storage of NEF (RAW) and JPEG or HEIF pictures, or for storage of duplicate JPEG or HEIF pictures at different sizes and image qualities; pictures can be copied between cards.
File system	DCF 2.0, Exif 2.32, MPEG-A MIAF
Viewfinder	
Viewfinder	1.27-cm/0.5-in. approx. 3690k-dot (Quad VGA) OLED electronic viewfinder with color balance, auto and 18-level manual brightness controls, and support for high frame rates
Frame coverage	Approx. 100% horizontal and 100% vertical
Magnification	Approx. 0.8× (50 mm lens at infinity, $-1.0\ \text{m}^{-1}$)
Eyepoint	23 mm ($-1.0\ \text{m}^{-1}$; from rearmost surface of viewfinder eyepiece lens)
Diopter adjustment	$-4 - +3\ \text{m}^{-1}$
Eye sensor	Automatically switches between monitor and viewfinder displays

Monitor	
Monitor	8-cm/3.2-in., approx. 2100k-dot vertically and horizontally tilting TFT touch-sensitive LCD with 170° viewing angle, approximately 100% frame coverage, and color balance and 15-level manual brightness controls

Shutter	
Type	Electronic shutter with shutter sound and sensor shield
Speed	$\frac{1}{32000}$ – 30 s (choose from step sizes of $\frac{1}{3}$, $\frac{1}{2}$, and 1 EV, extendable to 900 s in mode **M**), bulb, time
Flash sync speed	Flash synchronizes with shutter at speeds of $\frac{1}{250}$ or $\frac{1}{200}$ s or slower (but note that the guide number drops at speeds of $\frac{1}{200}$ to $\frac{1}{250}$ s); sync speeds as fast as $\frac{1}{8000}$ s are supported with auto FP high-speed sync

Release	
Release mode	Single frame, continuous low-speed, continuous high-speed, high-speed frame capture + with Pre-Release Capture, self-timer
Approximate frame advance rate *	• **Continuous low-speed**: Approx. 1 – 10 fps • **Continuous high-speed**: Approx. 10 – 20 fps • **High-speed frame capture + (C30)**: Approx. 30 fps • **High-speed frame capture + (C60)**: Approx. 60 fps • **High-speed frame capture + (C120)**: Approx. 120 fps * Maximum frame advance rate as measured by in-house tests.
Self-timer	2 s, 5 s, 10 s, 20 s; 1–9 exposures at intervals of 0.5, 1, 2, or 3 s

Exposure	
Metering system	TTL metering using camera image sensor
Metering mode	• **Matrix metering** • **Center-weighted metering**: Weight of 75% given to 12 or 8 mm circle in center of frame or weighting can be based on average of entire frame • **Spot metering**: Meters circle with a diameter of approximately 4 mm centered on selected focus point • **Highlight-weighted metering**
Range *	−3 – +17 EV * Figures are for ISO 100 and f/2.0 lens at 20 °C/68 °F
Mode	**P**: programmed auto with flexible program, **S**: shutter-priority auto, **A**: aperture-priority auto, **M**: manual
Exposure compensation	−5 – +5 EV (choose from step sizes of $\frac{1}{3}$ and $\frac{1}{2}$ EV)
Exposure lock	Luminosity locked at detected value
ISO sensitivity (Recommended Exposure Index)	ISO 64–25600 (choose from step sizes of $\frac{1}{3}$ and 1 EV); can also be set to approx. 0.3, 0.7, or 1 EV (ISO 32 equivalent) below ISO 64 or to approx. 0.3, 0.7, 1, or 2 EV (ISO 102400 equivalent) above ISO 25600; auto ISO sensitivity control available Note: ISO sensitivity is limited to 400–25600 when HLG is selected for tone mode.
Active D-Lighting	Auto, Extra high 2, Extra high 1, High, Normal, Low, and Off
Multiple exposure	Add, average, lighten, darken
Other options	HDR overlay, photo mode flicker reduction, high-frequency flicker reduction

Autofocus	
Type	Hybrid phase-detection/contrast AF with AF assist
Detection range *	−7 – +19 EV (−9 – +19 EV with starlight view) * Measured in photo mode at ISO 100 and a temperature of 20 °C/68 °F using single-servo AF (**AF-S**) and a lens with a maximum aperture of f/1.2
Lens servo	• **Autofocus (AF)**: Single-servo AF (**AF-S**); continuous-servo AF (**AF-C**); full-time AF (**AF-F**; available only in video mode); predictive focus tracking • **Manual focus (M)**: Electronic rangefinder can be used
Focus points *	493 focus points * Number of focus points available in photo mode with single-point AF selected for AF-area mode and FX selected for image area
AF-area mode	Pinpoint (available in photo mode only), single-point, dynamic-area (S, M, and L; available in photo mode only), wide-area (S, L, C1, and C2), and auto-area AF; 3D-tracking (available in photo mode only); subject-tracking AF (available in video mode only)
Focus lock	Focus can be locked by pressing shutter-release button halfway (single-servo AF/**AF-S**) or by pressing the center of the sub-selector
Vibration reduction (VR)	
Camera on-board VR	5-axis image sensor shift
Lens on-board VR	Lens shift (available with VR lenses)

Flash	
Flash control	**TTL**: i-TTL flash control; i-TTL balanced fill-flash is used with matrix, center-weighted, and highlight-weighted metering, standard i-TTL fill-flash with spot metering
Flash mode	Front-curtain sync, slow sync, rear-curtain sync, red-eye reduction, red-eye reduction with slow sync, off
Flash compensation	−3 – +1 EV (choose from step sizes of $\frac{1}{3}$ and $\frac{1}{2}$ EV)
Flash-ready indicator	Lights when optional flash unit is fully charged; flashes as underexposure warning after flash is fired at full output
Accessory shoe	ISO 518 hot-shoe with sync and data contacts and safety lock
Nikon Creative Lighting System (CLS)	i-TTL flash control, radio-controlled Advanced Wireless Lighting, optical Advanced Wireless Lighting, modeling illumination, FV lock, Color Information Communication, auto FP high-speed sync, unified flash control

White balance	
White balance	Auto (3 types), natural light auto, direct sunlight, cloudy, shade, incandescent, fluorescent (3 types), flash, choose color temperature (2500–10,000 K), preset manual (up to 6 values can be stored), all with fine-tuning

Bracketing	
Bracketing	Exposure and/or flash, white balance, and ADL

Other options for still photography	
Other options for still photography	Vignette control, diffraction compensation, auto distortion control, skin softening, portrait impression balance, interval-timer, focus-shift, and pixel-shift photography, and auto capture

Video	
Metering system	TTL metering using camera image sensor
Metering mode	Matrix, center-weighted, or highlight-weighted
Frame size (pixels) and frame rate	• 7680 × 4320 (8K UHD): 30p (progressive)/25p/24p • 3840 × 2160 (4K UHD): 120p/100p/60p/50p/30p/25p/24p • 1920 × 1080: 120p/100p/60p/50p/30p/25p/24p • 1920 × 1080 (slow-motion): 30p (4×)/25p (4×)/24p (5×) Note: Actual frame rates for 120p, 100p, 60p, 50p, 30p, 25p, and 24p are 119.88, 100, 59.94, 50, 29.97, 25, and 23.976 fps respectively.
Frame size (pixels) and frame rate (RAW video)	• 8256 × 4644: 60p/50p/30p/25p/24p • 5392 × 3032: 60p/50p/30p/25p/24p • 4128 × 2322: 120p/100p/60p/50p/30p/25p/24p • 3840 × 2160: 120p/100p/60p/50p Note: Actual frame rates for 120p, 100p, 60p, 50p, 30p, 25p, and 24p are 119.88, 100, 59.94, 50, 29.97, 25, and 23.976 fps respectively.
File format	NEV, MOV, MP4
Video compression	N-RAW (12 bit), Apple ProRes RAW HQ (12 bit), Apple ProRes 422 HQ (10 bit), H.265/HEVC (8 bit/10 bit), H.264/AVC (8 bit)
Audio recording format	Linear PCM (48 KHz, 24 bit, for videos recorded in NEV or MOV format) or AAC (48 KHz, 16 bit, for videos recorded in MP4 format)
Audio recording device	Built-in stereo or external microphone with attenuator option; sensitivity adjustable
Exposure compensation	−3 – +3 EV (choose from step sizes of $\frac{1}{3}$ and $\frac{1}{2}$ EV)

Video	
ISO sensitivity (Recommended Exposure Index)	• **Mode M**: Manual selection (ISO 64–25600; choose from step sizes of $\frac{1}{6}$, $\frac{1}{3}$ and 1 EV); with additional options available equivalent to approximately 0.3, 0.7, 1, or 2 EV (ISO 102400 equivalent) above ISO 25600; auto ISO sensitivity control (ISO 64–Hi 2.0) available with selectable upper limit • **Modes P, S, A**: Auto ISO sensitivity control (ISO 64–Hi 2.0) with selectable upper limit Note: ISO sensitivity is limited to 400–25600 when HLG is selected for tone mode.
Active D-Lighting	Extra high, High, Normal, Low, and Off
Other options for video recording	Time-lapse video recording, electronic vibration reduction, time codes, N-Log and HDR (HLG) video, wave-form display, red REC frame indicator, video recording display zoom (50%, 100%, 200%, and 400%), extended shutter speeds (mode **M**), and dual-format (proxy-video) recording for RAW video; extended oversampling available; option to view video recording info available via i menu; Hi-Res Zoom; auto capture
Playback	
Playback	Full-frame and thumbnail (up to 4, 9, or 72 pictures) playback with playback zoom, playback zoom cropping, video playback, slide shows, histogram display, highlights, photo information, location data display, auto picture rotation, picture rating, voice memo recording and playback, IPTC information embedding and display, filtered playback, skip to first shot in series, series playback, save consecutive frames, and motion blend

Interface	
USB	Type C USB connectors • USB data connector (SuperSpeed USB) ×1 • USB Power Delivery connector ×1
HDMI output	Type A HDMI connector
Audio input	Stereo mini-pin jack (3.5 mm diameter; plug-in power supported)
Audio output	Stereo mini-pin jack (3.5 mm diameter)
Ten-pin remote terminal	Built-in (can be used with MC-30A/MC-36A remote cords and other optional accessories)

Wi-Fi/Bluetooth	

Wi-Fi	• **Standards**:
	  - IEEE 802.11b/g/n (Africa, the Middle East (other than Israel), Taiwan, Bangladesh, Pakistan, and Bolivia)
	  - IEEE 802.11b/g/n/a/ac (other countries in the Asia, Europe, Israel, Australia, New Zealand, the Republic of Fiji, U.S.A., Canada, and Mexico)
	  - IEEE 802.11b/g/n/a (other countries in the Americas)
	• **Operating frequency**:
	  - Europe (excluding the countries listed below), Israel, and Turkey: 2412–2472 MHz (channel 13) and 5180–5825 MHz (5180–5700 MHz and 5745–5825 MHz)
	  - Russia, Belarus, Kazakhstan, and Ukraine: 2412–2462 MHz (channel 11) and 5180–5320 MHz
	  - Australia, New Zealand, and the Republic of Fiji: 2412–2462 MHz (channel 11) and 5180–5825 MHz (5180–5580 MHz, 5660–5700 MHz, and 5745–5825 MHz)
	  - U.S.A., Canada, and Mexico: 2412–2462 MHz (channel 11) and 5180–5825 MHz (5180–5240 MHz, 5500–5580 MHz, 5660–5700 MHz, and 5745–5825 MHz)
	  - Other countries in the Americas: 2412–2462 MHz (channel 11) and 5180–5805 MHz (5180–5240 MHz and 5745–5805 MHz)
	  - Asia (other than Turkey, Kazakhstan, Taiwan, Bangladesh, Pakistan, and India), and New Caledonia: 2412–2462 MHz (channel 11) and 5745–5805 MHz
	  - India: 2412–2472 MHz (channel 13) and 5180–5825 MHz (5180–5320 MHz and 5745–5825 MHz)
	  - Africa, the Middle East (other than Israel), Taiwan, Bangladesh, Pakistan, and Bolivia: 2412–2462 MHz (channel 11)
	• **Maximum output power (EIRP)**:
	  - 2.4 GHz band: 1.4 dBm
	  - 5 GHz band (5180–5320 MHz): 10.8 dBm
	  - 5 GHz band (5500–5825 MHz): 7.8 dBm
	• **Authentication**: Open system, WPA2-PSK, WPA3-SAE

Wi-Fi/Bluetooth	

Bluetooth	• **Communication protocols**: Bluetooth Specification version 5.0
	• **Operating frequency**:
	  - Bluetooth: 2402–2480 MHz
	  - Bluetooth Low Energy: 2402–2480 MHz
	• **Maximum output power (EIRP)**:
	  - Bluetooth: -4.1 dBm
	  - Bluetooth Low Energy: -5.6 dBm

Power source	
Battery	One EN-EL15c rechargeable Li-ion battery [*] * EN-EL15b and EN-EL15a batteries can be used in place of the EN-EL15c. Note, however, that fewer pictures can be taken on a single charge than with the EN-EL15c. EH-7P charging AC adapters and EH-8P AC adapters can be used to charge EN-EL15c and EN-EL15b batteries only.
Battery pack	MB-N12 power battery packs (available separately) taking two EN-EL15c [*] batteries * EN-EL15b and EN-EL15a batteries can be used in place of the EN-EL15c. Note, however, that fewer pictures can be taken on a single charge than with the EN-EL15c.
AC adapter	• EH-7P charging AC adapters (available separately) • EH-8P AC adapters; requires UC-E25 USB cable (available separately) • EH-5d, EH-5c, and EH-5b AC adapters; requires EP-5B power connector (available separately)

Tripod socket	
Tripod socket	0.635 cm (¼ in., ISO 1222)
Dimensions/weight	
Dimensions (W × H × D)	Approx. 144 × 118.5 × 83 mm/5.7 × 4.7 × 3.3 in.
Weight	Approx. 910 g (2 lb. 0.1 oz.) with battery and memory card but without body cap and accessory shoe cover; approx. 820 g/1 lb. 13 oz. (camera body only)
Operating environment	
Temperature	−10 °C– 40 °C (+14 °F – 104 °F)
Humidity	85% or less (no condensation)

- Unless otherwise stated, all measurements are performed in conformity with Camera and Imaging Products Association (CIPA) standards or guidelines.
- All figures are for a camera with a fully-charged battery.
- Throughout this document, "FX format" and "FX" are used in reference to an angle of view equivalent to that of a 35 mm format ("full frame") camera and "DX format" and "DX" to an angle of view equivalent to that of an APS-C camera.
- The sample images displayed on the camera and the images and illustrations in this document are for expository purposes only.
- Nikon reserves the right to change the appearance and specifications of the hardware and software described in this document at any time and without prior notice. Nikon will not be held liable for damages that may result from any mistakes that this document may contain.

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