User Instructions for DS-L4 Viewer

1	**Overview**

- Installing the DS-L4 Viewer application on a PC or tablet allows live images to be transferred from the DS-L4 microscope camera control unit and displayed on the PC or tablet.
- The main functions of DS-L4 Viewer are as follows:
  - Display live images
  - Capture and save images on a viewer terminal
  - Display files captured by using a DS-L4 Viewer terminal

> ✅ **About viewer terminals**
>
> PCs and tablets in which DS-L4 Viewer is installed are referred to as "viewer terminals" in this user instruction manual.

> ❗ **Notes on focusing on specimens or moving the stage**
>
> Because images are transferred from the DS-L4 to the viewer terminal via a network, the live image displayed on DS-L4 Viewer might pause depending on the communication status.
>
> When focusing on the specimen or moving the XY stage to change the position of the image to be captured, be sure to check the image on the DS-L4 monitor but not on DS-L4 Viewer.
>
> If these operations are performed while checking the live image on DS-L4 Viewer, the tip of the objective may touch the specimen.

2	**Required Items**

- A PC or tablet (viewer terminal) on which DS-L4 Viewer is installed
  - Supported OSs: Windows 7 or later (except for Windows RT), Android 5.0 or later, Mac OS X, iOS 9.1 or later (for iPad, not iPhone)
  - Operation is not always guaranteed on all models that use any of the above OS.
- DS-L4 microscope camera control unit
- Wireless access point accessible from the viewer terminal (only when wireless connection is used)
  - Limited to products authorized in the country where used

> ✅ **When using the SoftAP function**
>
> To establish a wireless connection by using the SoftAP function (operating the DS-L4 as an access point), there is no need to separately provide a wireless access point. However, the data transfer rate with the SoftAP function is slower than the rate with an access point. If no images appear, open the [Setting] window and select [Low] for the [Live Speed] setting in the [Live Setting] area.

- Network hub
  - The DS-L4 and viewer terminal are cable-connected to the customer network (LAN) via a network hub. A network hub is not needed if the DS-L4 and viewer terminal are directly cable-connected without using a network.

Required items may depend on how the DS-L4 and a viewer terminal are connected. For details of connections, refer to sections 15.2 to 15.5 in the "Camera Operation" instruction manual for the DS-L4.

3	Preparations

3.1	Connecting the DS-L4 to a Network

See Chapter 13, "Changing Settings" in the "Camera Operation" instruction manual for the DS-L4.
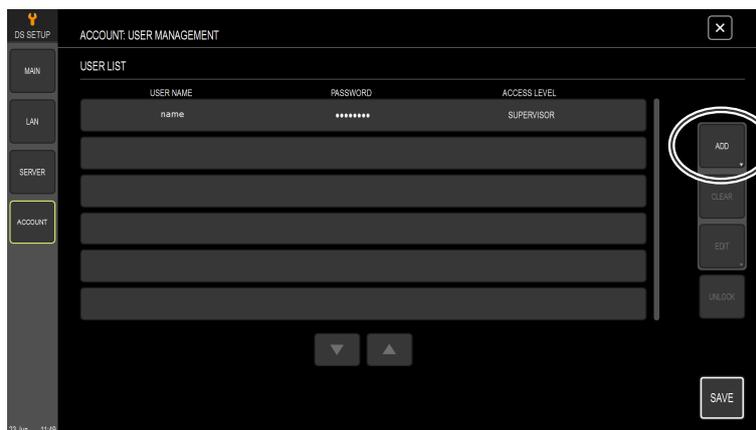
3.2	Registering the User Account on the DS-L4

At least one user account must be registered on the DS-L4 to use DS-L4 Viewer. If you have registered a DS-L4 user account, registration is not required here.

1 **In the LIVE menu or VIEW menu, tap [SETTINGS], and then select [DS SETUP] in the submenu.**

2 **Tap [ACCOUNT] to open the [ACCOUNT: USER MANAGEMENT] window.**

3 **Tap [ADD].**

4 **Set the user name, temporary password, and access level.**

> ✅ **About access by registered users**
>
> - Administrators, users, and terminal users can access the DS-L4 from DS-L4 Viewer.
> - A temporary password cannot be used to access the DS-L4 from DS-L4 Viewer. (A temporary password is the password that is set when a new administrator or user is created.)
> - If a user wants to set a permanent password instead of a temporary one, re-start the DS-L4 and set a permanent password in the login screen.
> - Users who are and are not logged in to the DS-L4 can access the DS-L4 from viewer terminals at the same time.

3.3   Preparations on the Viewer Terminal

(1) Install DS-L4 Viewer on a viewer terminal

MacOS and Windows users: Download DS-L4 Viewer from the download page of Nikon website.

http://www.nikon.com/products/microscope-solutions/support/download/software/camerasfor/index.htm#toc02

For installation procedures, see the related document supplied with the application.

Android tablet users: Download and install DS-L4 Viewer from Google Play.

iPad users: Download and install DS-L4 Viewer from App Store.

(2) Connect the viewer terminal to a network

For a wireless network connection, enable Wi-Fi on the viewer terminal. For details of viewer terminal network connections, see instruction manuals of the terminal.

> ✅ **When using the SoftAP function**
>
> When using the DS-L4 SoftAP function, select the SSID set by DS-L4 Administration Tool. Then, enter the security key set by DS-L4 Administration Tool. The SSID and security key can be checked in the SoftAP window of DS-L4 Administration Tool or [DS SETUP: LAN] window.

(3) Set the IP address of the DS-L4 in DS-L4 Viewer

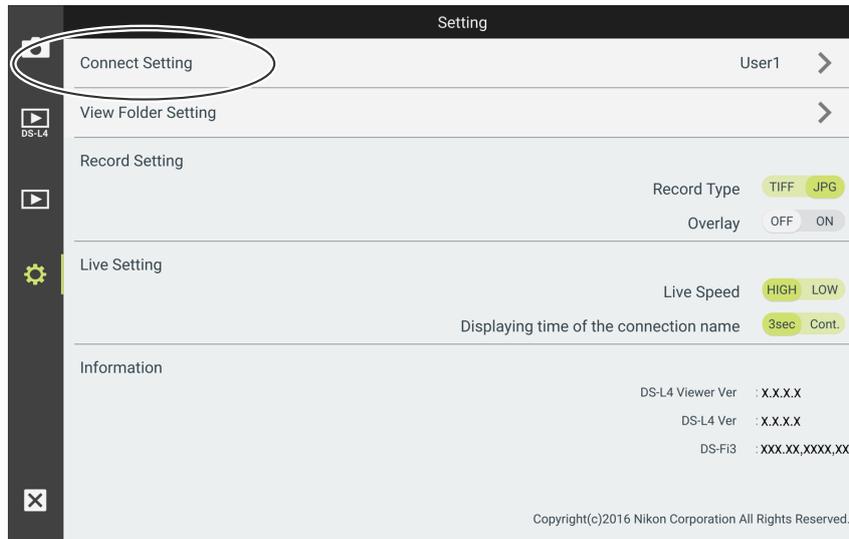**1** On the viewer terminal, start [DS-L4 Viewer].

DS-L4 Viewer icon

For Android or iPad users: When DS-L4 Viewer is started for the first time and terms of software license agreement are shown, tap [Agree to the conditions.].
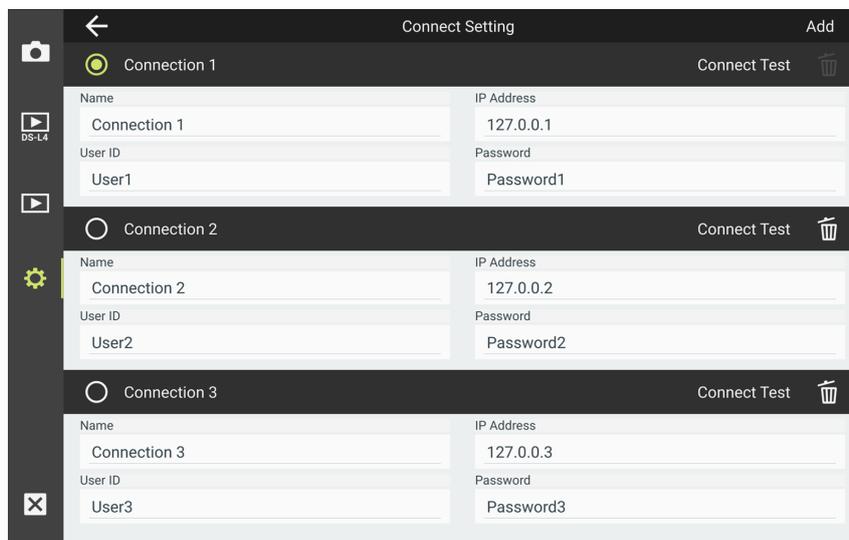
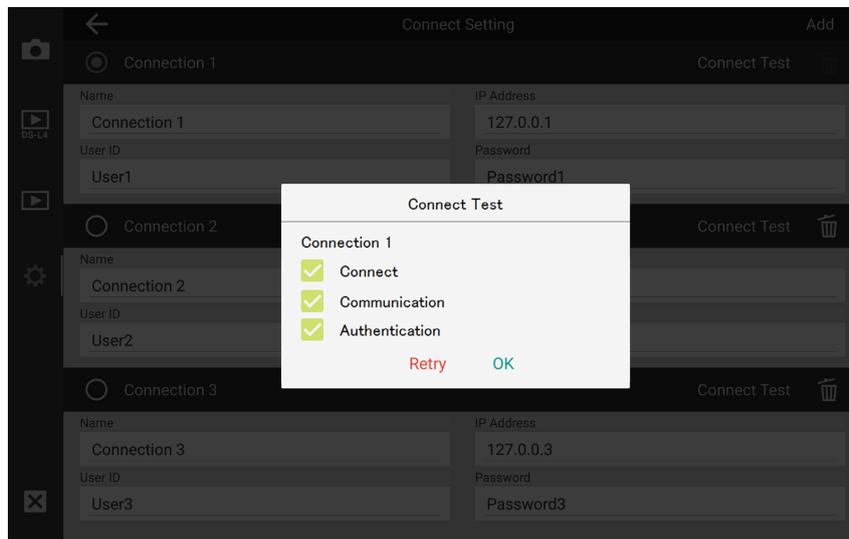**2** Tap the [Setting] icon.

3 **Tap [Connect Setting].**

4 **Set the information required for connection.**

- Thirty sets of connection settings can be registered (Connection 1 to 30). Select one of the connection settings to enable it.
- In the [Name] field, enter a name.
- In the [IP Address] field, enter the IP address of the DS-L4. This IP address can be checked in the [NETWORK (Wired)] or [NETWORK (Wireless)] area of the [LAN: NETWORK] window on the DS-L4.
- In the [User ID] field, enter the user name registered in Section 3.2, "Registering the user account on the DS-L4."
- In the [Password] field, enter the password registered in Section 3.2, "Registering the user account on the DS-L4."
- Tap [Add] to make an additional connection setting (available up to Connection 30).
- Tap 🗑 to delete the connection setting.

5 Tap [Connect Test] to conduct a connection test. Make sure that all test items are successful (check marks are displayed).
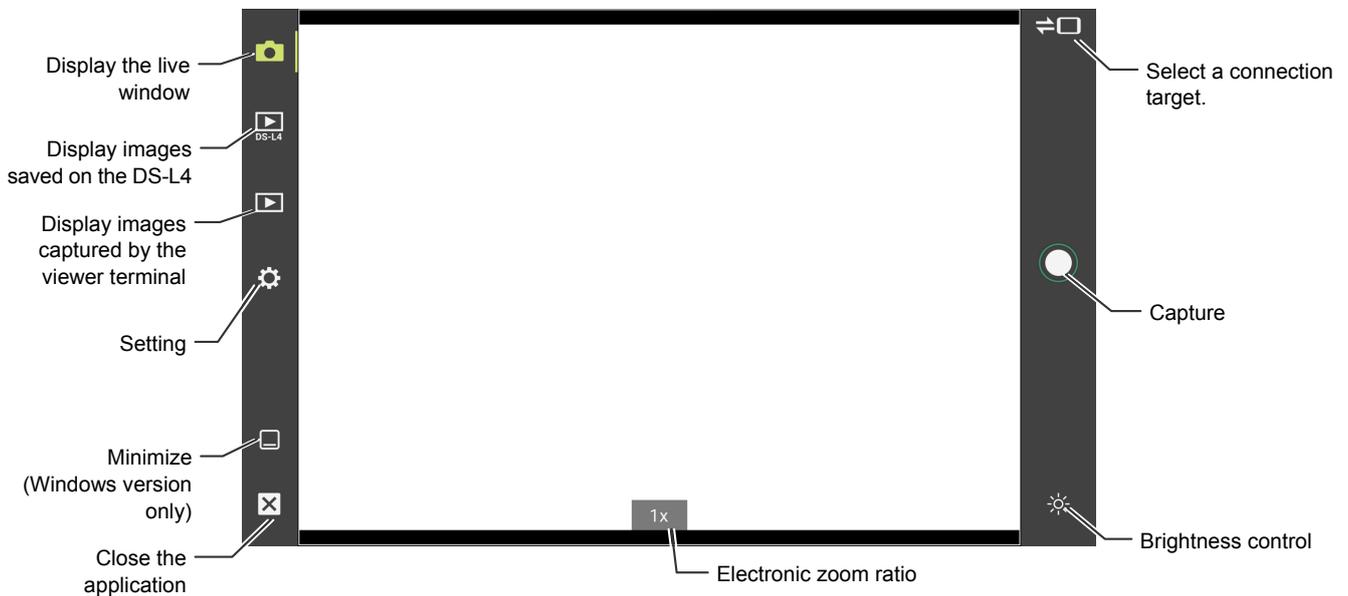

✅ **If the network connection cannot be established**

• If an error occurs in Connect or Communication, check the network connection and viewer terminal settings.

• If an error occurs in Authentication, re-enter the user name and password registered on the DS-L4.

4   Basic Operations (Live Window)

When DS-L4 Viewer starts up, the DS-L4 live window is displayed.

The electronic zoom can be used to enlarge the display by pinch operation (or mouse wheel operation). The display portion enlarged by the electronic zoom can be moved by swiping (or dragging the mouse pointer).

Display the live window

Display images saved on the DS-L4

Display images captured by the viewer terminal

Setting

Minimize (Windows version only)

Close the application

Electronic zoom ratio

Select a connection target.

Capture

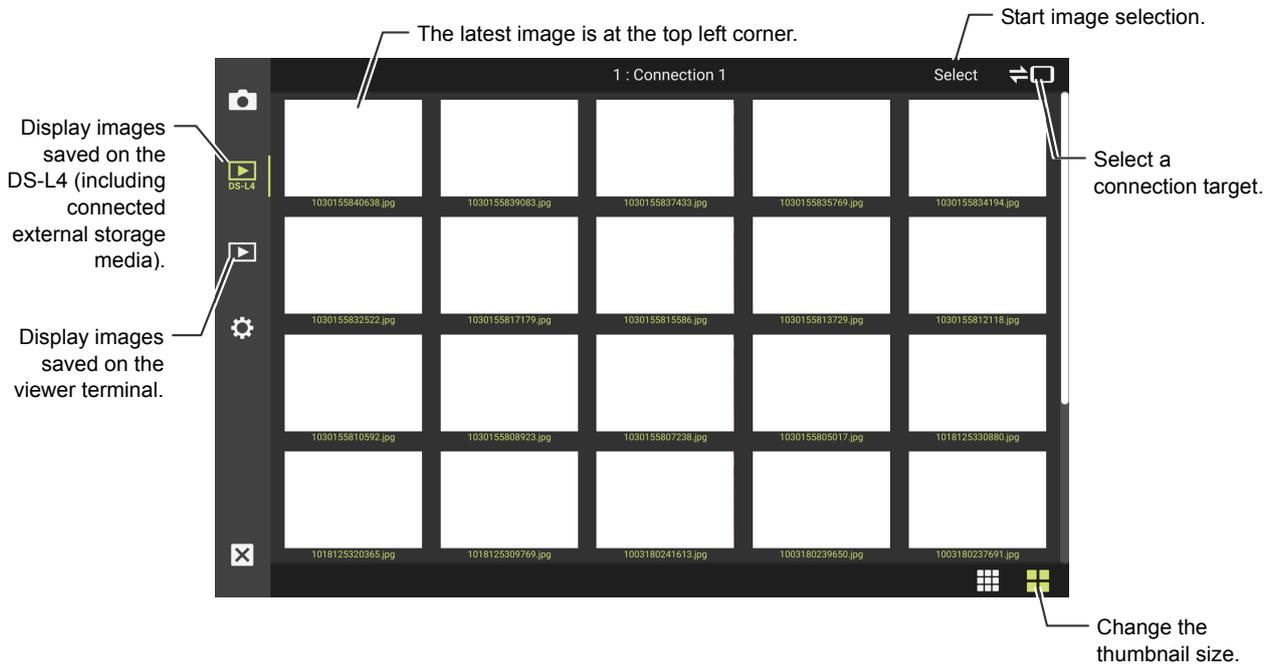Brightness control

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✅ **Capturing images in DS-L4 Viewer**

- Select the image format and specify whether to embed overlays in the [Record Setting] area of the [Setting] window.

- Images are saved with the number of recording pixels for the recommended image mode.

- An enlarged live image cannot be captured.

- A unique file name available in the viewer terminal is assigned.

✅ **Adjusting brightness**

Tap the brightness control button to display the slider. In automatic exposure mode (program or focus AE), move the slider to change the exposure correction value. In manual exposure mode, move the slider to change the gain.

5   Operations in the Thumbnail Window

The Thumbnail window displays a list of images in the folder.

The latest image is at the top left corner.

Start image selection.

Display images saved on the DS-L4 (including connected external storage media).

Display images saved on the viewer terminal.

Select a connection target.

Change the thumbnail size.

Download the selected images from the DS-L4 to this terminal.

✔ **Downloading images from the DS-L4 to the viewer terminal**

- Select an image saved on the DS-L4 (including connected external storage media), and then tap [Download]. The image is saved in the save folder of the viewer terminal. At this time, the file name is changed to a name available in the viewer terminal.

- The save folder is as follows:

    - Windows PC and Windows tablet: *<user-folder>*/Pictures/DSL4Viewer)

    - iMac and MacBook: *<user-folder>*/Pictures/DSL4Viewer

    - Android: *<Pictures-folder>*/DSL4Viewer

    - iOS: the standard photo folder

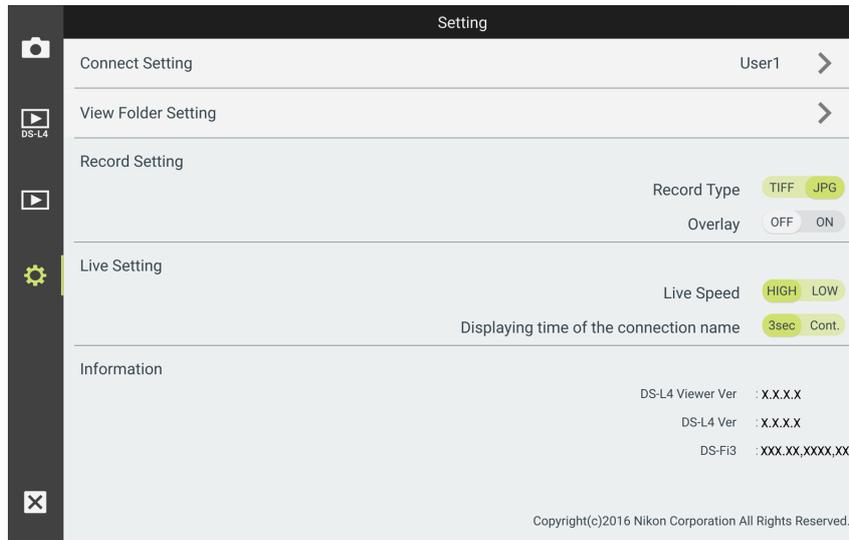### ✅ Deleting images in the viewer terminal

Select an image saved on the viewer terminal, and then tap [Delete] to delete that image. Images selected in the DS-L4 (including connected external storage media) cannot be deleted by operation on DS-L4 Viewer.

✅ Specifying favorite

Display an image saved on the viewer terminal, and then click [☆] in the lower right corner of the image to specify that image as favorite (not available for iPad).
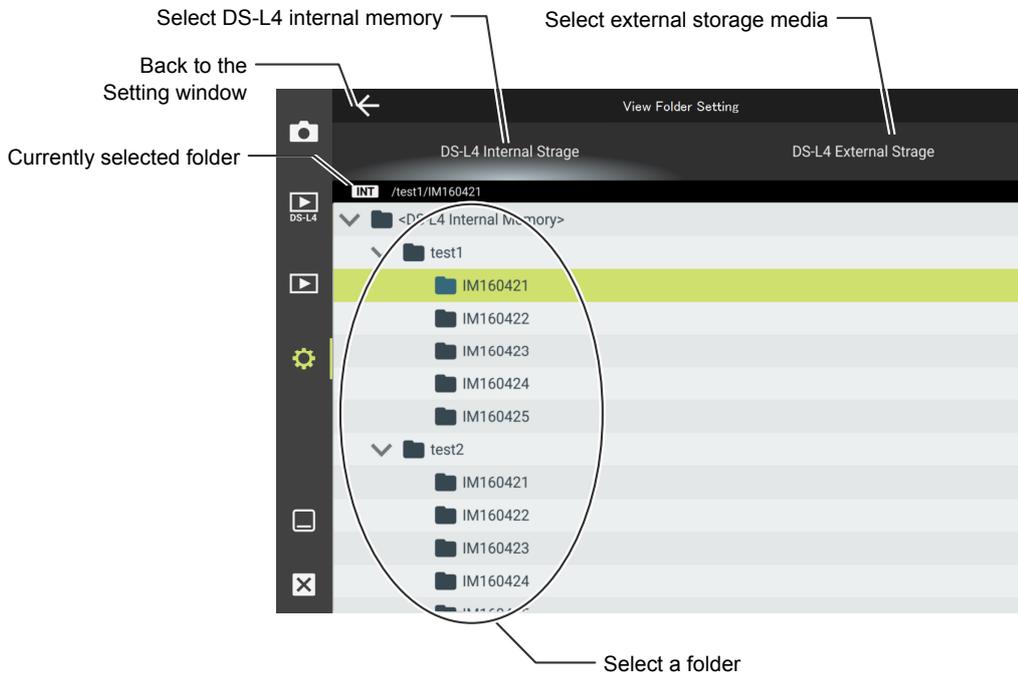
6   Operations in the Setting Window

Item		Settings
Connect Setting		Specify the settings required for connecting to the DS-L4. See "3.3 Preparations on the Viewer Terminal."
View Folder Setting		Select a DS-L4 folder as the replay target. See "7 Selecting Replay Target DS-L4 Folders."
Record Setting	Record Type	Select the save format of images (JPEG or TIFF) captured on the viewer terminal.
	Overlay	Select whether to embed overlays (measurements performed on the DS-L4, drawings, and scales) in the captured images. However, if overlay is set to OFF on the DS-L4, measurements or drawings are not embedded. Scales for which the display is set to OFF on the DS-L4 are not embedded.
Live Setting	Live Speed	Set the interval at which live images are transferred to DS-L4 Viewer. In an environment that has a low or unstable network speed, selecting [LOW] might provide stable communication.
	Displaying time of the connection name	Select how the currently selected connection name is displayed in the upper area of the live window. [3sec]: Currently selected connection name is displayed for three seconds after connections are changed. [Cont.]: Currently selected connection name is displayed continuously.
Information		The following are displayed: • DS-L4 Viewer version • DS-L4 version • Name of the camera connected to the DS-L4 • Version of the camera connected to the DS-L4

7 Selecting Replay Target DS-L4 Folders

In the following [View Folder Setting] window displayed from the Setting window, select a DS-L4 folder as the replay target.

Select DS-L4 internal memory

Select external storage media

Back to the Setting window

Currently selected folder

Select a folder

> ✓ **Updating the folder selection window**
>
> If the folder selection window is not updated after the storage media is removed from the DS-L4 and then inserted again, return to the Setting window, and then tap [View Folder Setting] again.