

# **NIS-Elements Viewer**

## User's Guide

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Laboratory Imaging, s. r. o., Za Drahou 171/17, CZ - 102 00 Praha 10

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# 1. Abilities

NIS-Elements Viewer is a software created to open and view all file formats created by NIS-Elements:

## **Features**

### *Image Sequence Playback*

You can play the ND2 image sequence as a movie or browse it frame by frame.

### *Views*

Four different views are available: *Main View*, *Slices View*, *Volume View*, *Tiled View*.

### **Note**

*Availability of the Slices, Tiles and Volume Views depends on the document's dimensions.*

### *Attachments*

Attachment files can be opened by clicking the icon from the toolbar or inside the image context menu.

### *Show Binary*

When active, this function turns on the binary layer previously saved in NIS-Elements.

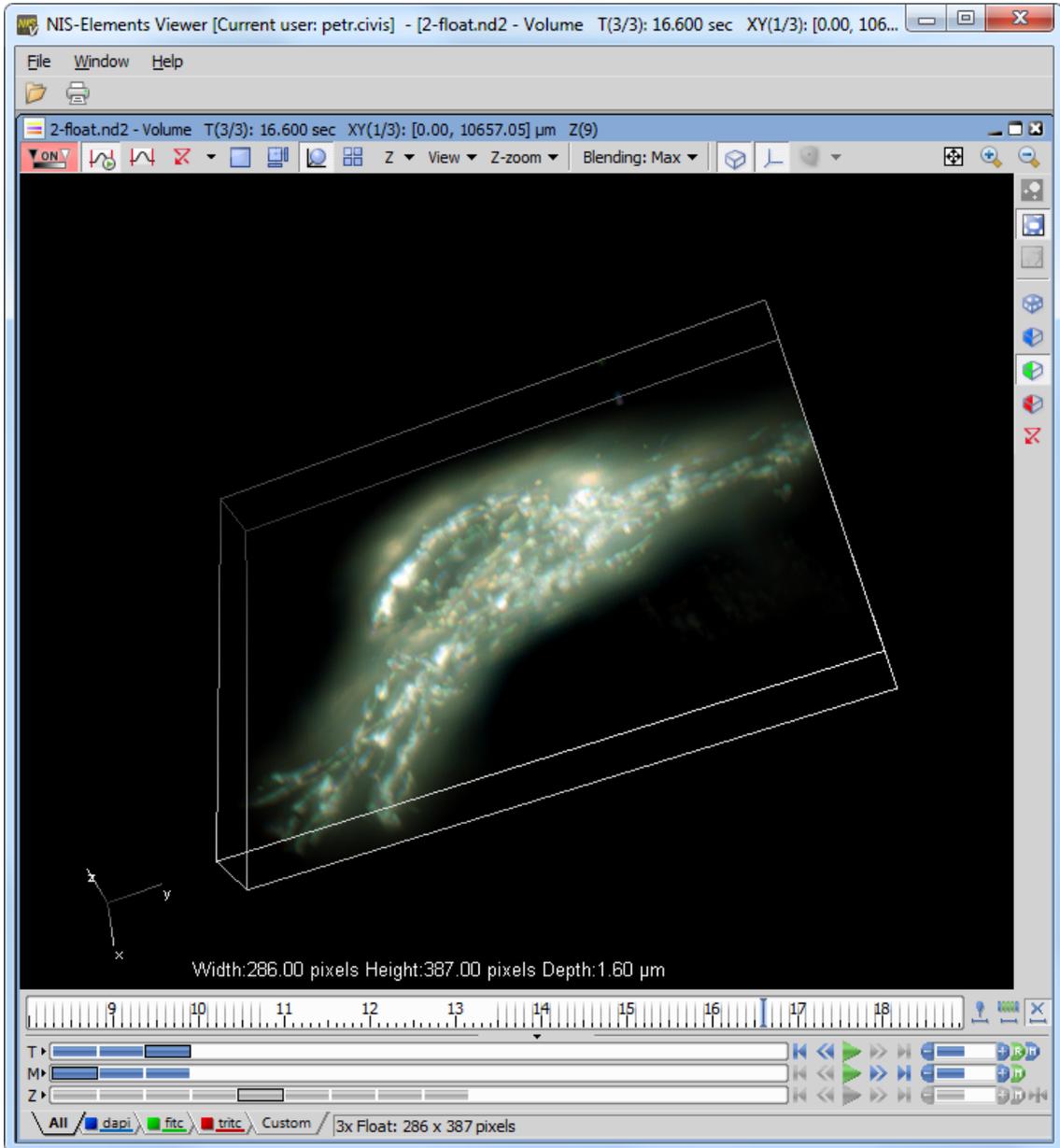
### *Exporting*

All images of an ND2 data-set can be saved as a TIF, Multi-Page TIFF, ND2 or JPEG2000 file. See **[File > Export ND Document...]**.

### *LUTs Adjusting*

A non-destructive contrast enhancement of the image can be applied using either the LUTs tool bar or the LUTs window. The parameters can be adjusted manually or automatically. Please see **[3.4 LUTs Tools]**.

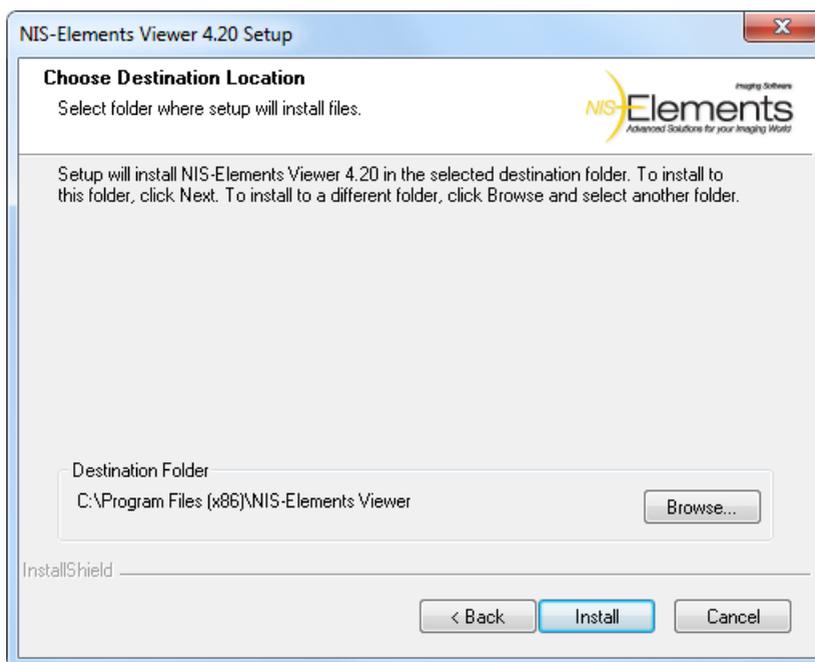
Figure 1.1. Volume View within NIS-Elements Viewer



## 2. Installation

- Run the *NIS\_Viewer\_x.exe* setup file. The installation wizard appears.
- Follow the instructions of the wizard.
- Click **Finish**.

Figure 2.1. Installation wizard

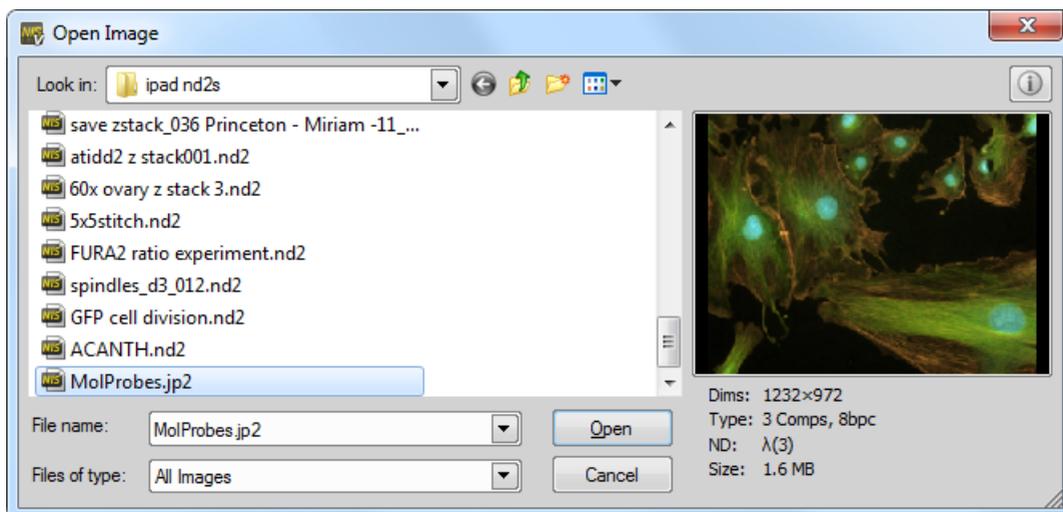




## 3. Observing a file

- Run the [Start > Programs > NIS-Elements Viewer > Viewer] command.
- Call the [**File > Open**] or the [**File > Open Report**] command and select the file to open.

Figure 3.1. Open dialog window



- Choose from different [**3.1 Viewing modes**] and enhance your image with [**3.4 LUTs Tools**].

### 3.1. Viewing modes

Depending on the dimensions contained in the ND2 file, you can display other views of the data set. These viewing modes can be switched by four icons on the left of the main tool bar.

-  **Split Components**  
Turns ON a special view, where color channels of the image are displayed separately (tiled).
-  **Main View**  
When you open an ND2 file, it opens in this view.
-  **Slices**  
This view displays orthogonal XY, XZ, and YZ projections of the image sequence (Requires Z or T dimension).

### Tiles

This view displays frames of the selected dimension arranged one next to other (Requires Z, T or XY dimension).

### Volume

This view creates a 3D model of the acquired object (Requires Z dimension).

## 3.2. Image window toolbar tools

Besides the view modes described above, following tools are also available:

### Open Attachment

Clicking this icon opens the attachment file in an associated program. If the association is missing, user is offered to save the document to a local drive. Attachments can also be opened/saved by clicking *Open Attachment.../Save Attachment As...* inside the image context menu.

### Fit to screen

Adjusts zoom to view the whole image within the NIS-Elements Viewer screen.

### Best Fit

Adjusts zoom to fit the NIS-Elements Viewer image window in one direction but to fill the screen.

### 1:1 Zoom

Adjust zoom so that one pixel of the image matches one pixel of monitor.

### Zoom In

Increases magnification of the image.

### Zoom Out

Decreases magnification of the image.

### Custom zoom

Custom zoom value can be selected from the combo box.

### Show Scale

Places a scale bar into the current image.

## 3.3. Control Bar

When an ND2 file is opened, its structure is pictured at the bottom of the image window. There is a time line with all captured images indicated by gray markers. The blue-highlighted marker indicates the currently observed image. Below the time line, loops of each dimension are indicated by rectangles. In case the multi-channel dimension is included and the number of channels does not exceed 10, the channels are indicated by the color tabs at the very bottom of the image window.

Browse the nd2 file by clicking inside the time line. You can also display a single loop by selecting the corresponding blue rectangle. There are some examples, how the nd2 file control bar can look like in different cases:

Figure 3.2. A T/Z/multi-channel image with some loops selected.



Figure 3.3. A T/Z/multi-channel image containing 11 channels and the time line hidden



Figure 3.4. An HDR multi-exposure image



## Playing Controls

- ▶ **Play Sequence**  
Plays all images of the dimension at selected speed. If a selection is applied, only the selected images will be included in the playback.
- ⏸ **Stop Playing**  
Stops playing the sequence at the last displayed frame.
- ◀ **Previous Position**  
Displays the previous frame of the dimension.
- ▶ **Next Position**  
Displays the next image of the dimension.
- ⏪ **Decrease/Increase Playing Speed**  
Changes the playback speed by one step down/up
- ⏩ **Real Time Playing Speed**  
Sets the playing speed to real-time (as the image was captured).
- ⏩ **Maximum Playing Speed for Every Frame**  
Sets the playing speed to maximum while the display of every frame is guaranteed (when the speed is set to maximum by the + button, some frames are usually omitted when playing the sequence depending on your graphic card).
- 🏠 **Home Position**  
Displays the frame of the Z dimension that was set as “home” during the acquisition.

## Event and Selection Controls

- 📍 **Insert Default User Event**  
This button inserts an event marker to the current frame.
- ◀▶ **Move to Previous/Next User event**  
Click these arrows to browse through the frames where user events occur.

### **User Event Selection**

This button selects frames of the ND2 file according to the *Event Playing Range* settings - right click this button and pick the *Event Selection Range* command from the context menu to view/modify them. A simple window appears. Define the number of frames/seconds which will be selected around each event.

### **Range Selection**

Clicking this button selects a user defined range of frames. The selection is done by mouse. A range can be selected by mouse while holding the **Shift** key down. Single frames can be added/removed while holding the **Ctrl** key down. Right-click the navigation bar to invoke the context menu. A selection can be adjusted, deleted, or the nd2 file can be cropped.

### **Note**

*ND2 files may contain extremely large number of frames so it may be helpful to omit some of the frames from the selection. Right click the Range Selection button and a context menu appears. It enables you to select every 2nd, 5th, 10th, 20th, 50th, 100th frame. The Select All Frames option selects the whole range of frames as if you have selected the first and the last time phase with the **Shift** key down, but preserves the Select Every... setting.*

### **Disable Selection**

Press this button to de-select all frames of the nd2 file.

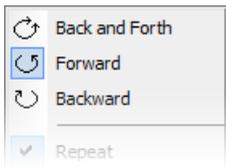
## Tips

- Right-click the selection to invoke a context menu. The selection can be adjusted, deleted, or the nd2 file can be cropped.

- Detailed info about dimensions will be displayed after you click the leftmost button of the control bar (T>, Z>, ...).
- Place the cursor over one of the dimensions. A tooltip which displays statistics of the dimension appears.

### **Playing options**

Right click the speed bar to display the following context menu and select the playing mode.

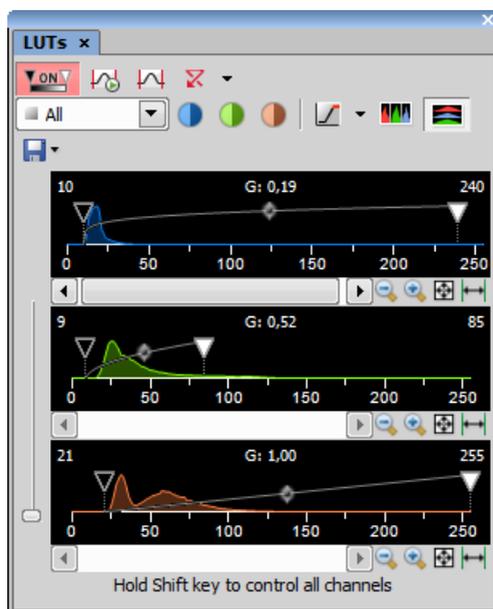


*Backward* selects the direction of playing the image sequence. When you check the *Stop on Events* option and then press the  *Play Sequence* button, a dialog window appears once the first user event is reached. The dialog window displays information about the reached user event. Use the *Continue* button to continue playing to the next event, or press the *Stop* button to stop the playback at the current frame. Within the window, you can also select the *Do not ask again in this session (Always stop)* option, the playing will stop automatically on every user event but the window will not appear. *Repeat* command sets the repetitive infinite playback. *Fast Advance* command corresponds to the  **Maximum Playing Speed for Every Frame** button described above. *Real Time* command corresponds to the  **Real Time Playing Speed** button described above.

## **3.4. LUTs Tools**

LUT (look-up table) is a useful tool for image color and brightness modifications. You can use LUTs to enhance images for observation purposes so the color modifications will be non-destructive to the image data. LUTs settings are saved along with the image file. Adjust LUTs settings within the central tool bar.

Figure 3.6. LUT's Control Panel



#### *Enable/Disable LUTs*

This button applies LUTs to the current image.

#### *Keep Auto Scale*

Press this button to run the auto scale procedure permanently (on each frame). When you turn this button OFF, the settings remain as if the *Auto Scale* button was pressed only once.

#### *Auto Scale*

This button adjusts the slider positions of all channel parameters automatically with the purpose to enhance the image reasonably.

#### *Reset*

Discard all LUTs settings and turn LUTs OFF by pressing this button.

#### *Show LUTs Window*

Show the window with LUTs settings.



## 4. Command Reference

### 4.1. File Menu

#### **File > Exit**

Exits the program.

#### **File > Export ND Document...**

This command opens the export dialog window with following options:

##### **Export Options**

##### *File folder*

Select the folder to where the images will be saved.

##### *File type*

Select the image format from the menu.

##### *File prefix*

Specify the prefix which will be used to name all files of the sequence. Dimension names and numbers will be appended to this prefix.

##### *Index order*

You can specify the order of dimensions. Select the This will influence the naming of the images.

##### *Apply LUTs*

Select this box to apply the current LUTs settings to the images.

#### **Note**

*Image data in the final format will be modified according to the current LUTs settings.*

#### *Insert Overlays*

This option merges all visible layers (binary, annotations,...) and inserts it to the underlying image data. If this option is used, the images are always exported as RGB images.

#### *Use Point Names*

XY point names are used if this function is checked.

#### *Channels*

Specify in which way will the exported image use the channel information from the source file.

#### *TIF Compatibility Options*

Specify the bit depth of the exported image.

#### **File > Image Properties**

Displays the Image Information window with Image Fields, Recorded Data, Experiment and Events metadata. It is also possible to open this window from the brief information label.

#### **File > Open**

You can load one or more images to the application. The *Open Image* dialog-box appears. Multiple files selection can be performed holding the *Ctrl* or the *Shift* key.

### Information button

Image properties of the selected file can be displayed by pressing this button (in the top right corner).

### File name

Typing in this edit box, you are offered files that matches the already-typed characters pattern.

### Files of type

Select an image format or *All Images* . Only the files of the selected format will be displayed in the upper window.

### Note

*Time Step Definition: Some ND2 files do not have the time step defined properly. When you are opening such ND2 document, a dialog window appears, where the proper time step between the frames shall be defined.*

## File > Open Report

Opens a report (\*.rpt) file.

## File > Print

This command displays the default *Print* window which enables you to select a printer and send the current image to it.

## File > Recent Files

Displays a pop-up menu containing the list of recently opened files.

## File > Recent Folders

Displays a pop-up menu containing the list of recently opened folders.

## 4.2. Help Menu

### Help > About

Opens a window with information about the currently used version of NIS-Elements Viewer.

### Help > Contents

Opens the NIS-Elements Viewer help file.

### Help > How To Buy

This command is an Internet link to the site with more information about NIS-Elements. The address is **http://www.nis-elements.com/howtobuy.html** [http://www.nis-elements.com/howtobuy.html]

### Help > Search

Opens the search tab of the help file.

## 4.3. Window Menu

### Window > Cascade

All opened images will be aligned in a cascade.

### Window > Close

Closes the current view.

### Window > Close All

Closes all opened images.

**Window > Close All but Current**

Closes all images except the currently selected one.

**Window > Next**

Switches to the next opened image.

**Window > Previous**

Switches to the previous opened image.

**Window > Show LUTs Window**

Displays the LUTs Control Panel. See [\[3.4 LUTs Tools\]](#).

**Window > Tile Horizontally**

All opened images will be tiled horizontally.

**Window > Tile Vertically**

All opened images will be tiled vertically.

