



## Briefly: What's New in FastRawViewer Version 2

FastRawViewer 2.0 adds the following features (*each described in more detail in corresponding sections*):

1. **Multi-window Display Mode** with synchronous zoom, pan, focus peaking, over/underexposure highlighting, and the ability to copy the rendering parameters of RAW files
2. **Renaming files**: either single files or groups, with optional use of templates.
3. **Improved performance**, especially when using fast and slow data media at the same time.

Before installing the new version, please read the following section (*Forewarning*).

## Forewarning

### Extended Trial Period

This version is activated in trial mode for 45 days (*or 90 days if you have FastRawViewer v1 license installed*), and we hope in this time frame to finish testing.

### Inherited Settings

The beta version is installed “on top of” version 1; this is done in order to avoid confusion with file association, default applications, etc. We tested this and consider it to be risk-free: the base functionality of FastRawViewer has been tested via multi-year use of version 1 and has not changed; the new and improved performance architecture has been tested on a sufficient audience with the FastRawViewer 1.8 Technical Preview.

The application **Preference** settings, hotkey settings, and lists of ‘last used folders’ are shared between the two versions. Downgrading from version 2 to version 1 can be done by de-installing the new version and installing the old version.

The settings in version 2 whose names have not been changed but whose meanings or effects have (*those are graphic mode and several performance settings*), have been internally separated, and changing them in version 2 will not affect version 1 (*and vice versa*).

### Hardware and OS Support

We have chosen to not support antiquated/outdated OSs (*and in the case of Windows, old graphic modes*), so the system requirements are as follows:

- Mac: macOS 10.12 and newer, Intel or Apple M1 processors.  
There are no other requirements – if your graphics card works with macOS 10.12, then it's compatible with FastRawViewer 2.0
- Windows: Windows 7 – Windows 10/64 bit, “a relatively new graphics card” with support for DirectX11:
  - Intel (*integrated/CPU*): Core 3<sup>rd</sup> generation (*i3/i5/i7-3xxx*) processors and newer
  - ATI/AMD: we recommend Radeon HD 5000 and newer.
  - NVIDIA: GeForce 400 series and newer



## Table of Contents

Briefly: What's New in FastRawViewer Version 2.....	1
Forewarning.....	1
Beta Version Limitations .....	1
Inherited Settings.....	1
Hardware and OS Support .....	1
Multi-window Mode .....	3
How It Works .....	3
Synchronous Zoom / Pan .....	8
Synchronizing Special Display Modes .....	9
Scope of Hotkey and Menu Actions .....	9
Copying RAW Rendering Parameters from a Secondary to the Main Window .....	10
Why Do We Have the Main - Secondary Window Distinction? .....	11
Other Characteristics .....	11
Multi-window Mode Settings .....	11
Hotkeys .....	13
Renaming Files .....	14
How It Works .....	14
Generating Names for Rename.....	14
Specifying the date in arbitrary format.....	21
Improved User Interface .....	22
Advanced Selection mode.....	22
Grid Mode .....	24
Move from _Rejected .....	25
Alt key for Grid / Filmstrip drag-n-drop / context menu operations .....	25
Other .....	25
Improved Performance. New and Changed Settings.....	26
File Handling Tab.....	26
Removable Media Tab .....	26
Performance Tab.....	26
Performance – Thumbnail Cache Tab .....	28
Performance – Slow Media Tab .....	28
Some Tuning Advice .....	29
Changes in GPU Processing.....	30
Compatibility / System Requirements .....	31



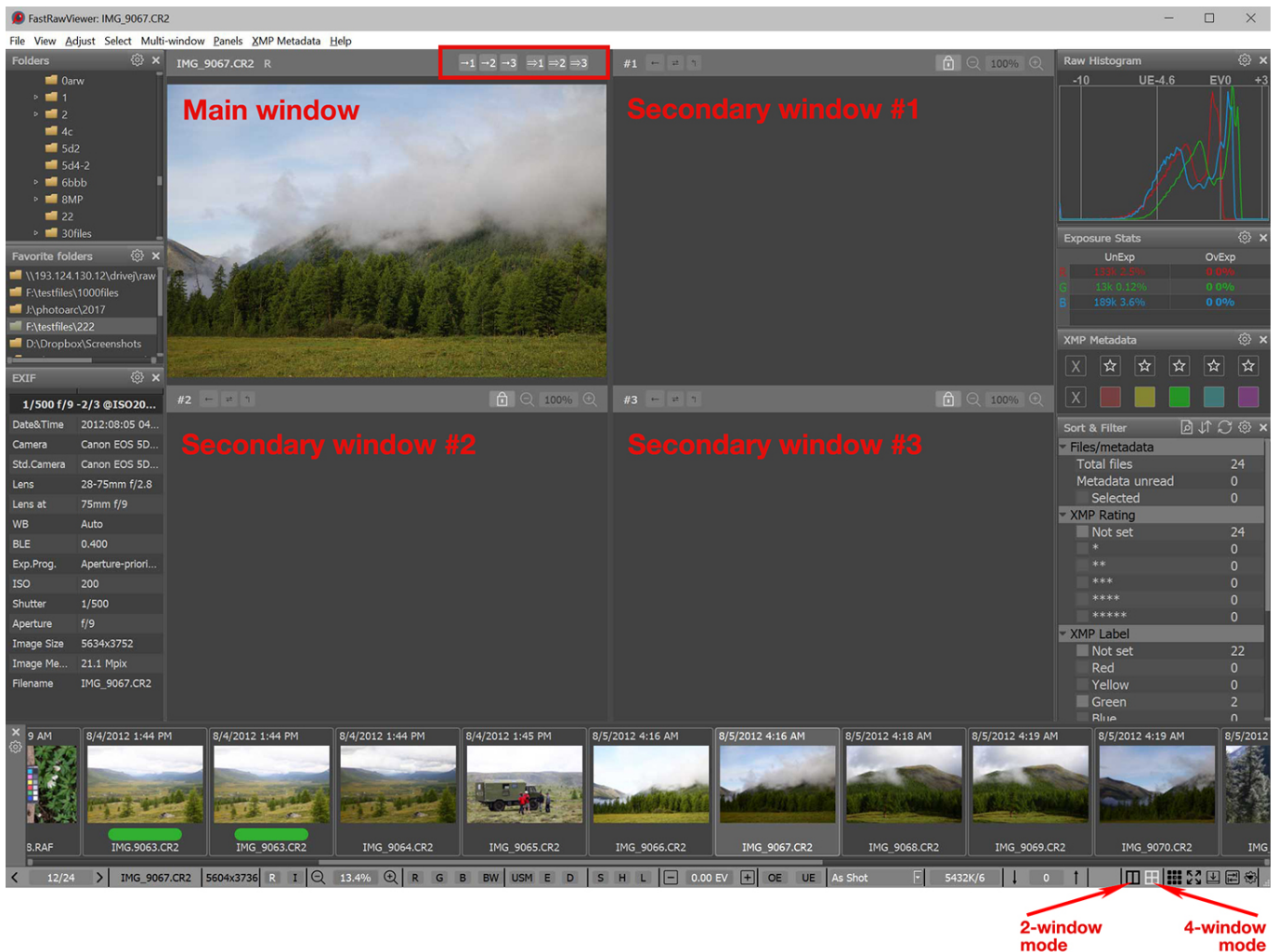
## Multi-window Mode

### How It Works

Switching to multi-window mode can be done through **Menu – Multi-window – Window layout**.

Switching to multi-window mode and back can also be done via the buttons (“2o-window mode” or “4-window mode”) in the right part of the application’s bottom bar. When 2/4-window mode is active, the lines on the button become white. In **Grid View** mode, these buttons are inactive. How these buttons are displayed can be tuned through **Menu – File – Customize – Customize status bar** (the corresponding element in the list is called *Multi-window mode controls*).

A switch to multi-window mode will cause two or four subviews to open on the screen (the screenshot below shows four subviews):



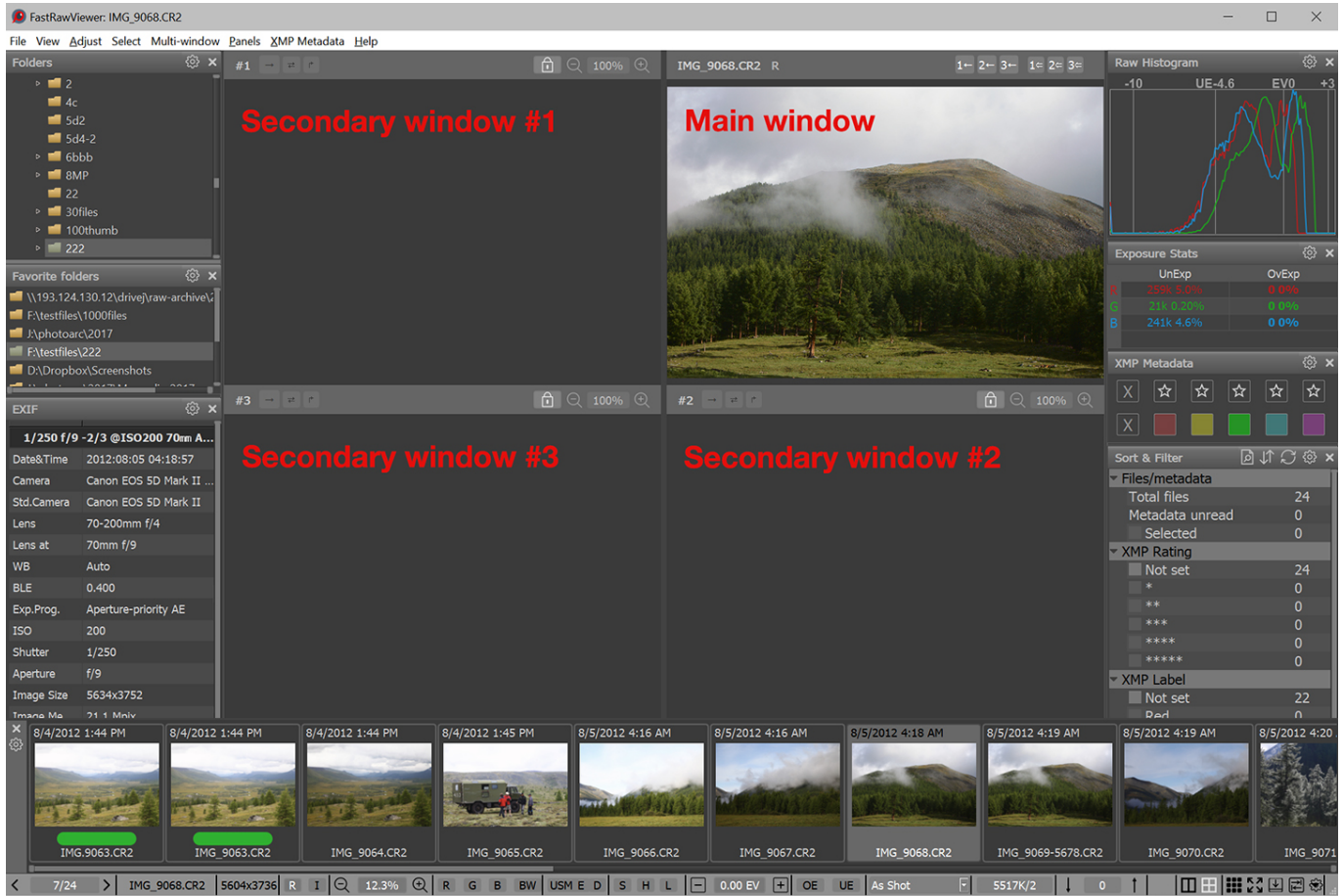
- The top-left (or just left for two-subview mode) is the **main window**, analogous in function to the window in Single Image View.

In particular:

- All hotkeys affect this window (exception: zoom, pan, and display modes, see below).
- Histogram, EXIF, exposure statistics, etc., are displayed only for the main window
- Changing the rendering parameters (lightness, contrast, white balance) for a RAW image is only possible for the main window.



- The other windows are secondary (*additional/ancillary*), they display copies of some images that cannot be edited, that is the rendering parameters for the views in secondary windows can't be changed in those windows.
- The order of the windows (*main is at the top left*) is the default. The main window and the secondary subview #2 can be placed at the right column via **Preferences – Multi-window mode - Main/secondary window order** (please see the [“Multi-window Mode Settings”](#) section).



To populate windows, you can use the following options:

- Drag-n-drop a file from the Filmstrip to the desired window
- Drag-n-drop a file from one window to another one (*attention: drag-n-drop from a window works if the file zoom is “fit to window” or smaller. If the scale is larger, then the image will move around the original window*).
- The file’s context menu, both in the window or in Filmstrip (*in the menu, it’s Open in Window...*). This menu element appears if the application is switched to Multi-window mode.





If a group of files is selected in the Filmstrip, then drag-n-dropping / the context menu will work for the whole group; a window, however, can only open one file at a time. To drag-n-drop / use the context menu for one file out of a selected group without destroying the selection, press and hold the Alt key (*Option key, if using macOS*) while executing the operation.

**Important:** both the context menu and drag-n-drop from the Filmstrip work normally when using **Advanced Selection mode** (*more about that in the section below*), this is set by default.

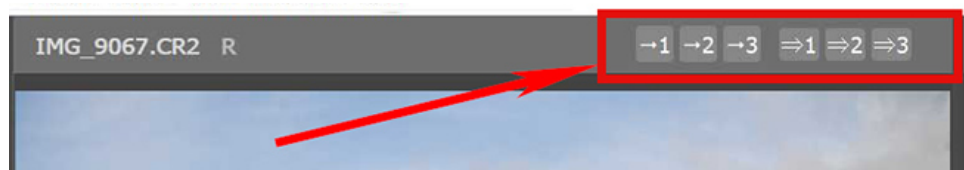
If FastRawViewer is switched to Standard Selection Mode, then when clicking on an element of the Filmstrip, that file will be activated and displayed in the main window. This behavior is an essential part of Standard Selection Mode and the way it selects groups, and it cannot be changed. However, in FastRawViewer 2.0 we've improved our Advanced Selection Mode, so there are even fewer reasons to use Standard Selection Mode.

If a file that is already opened in the main window is opened in a (*secondary*) window, then the image is copied from the main window to the secondary, and this is very fast. When opening other files, a full rendering cycle happens, with the following characteristics:

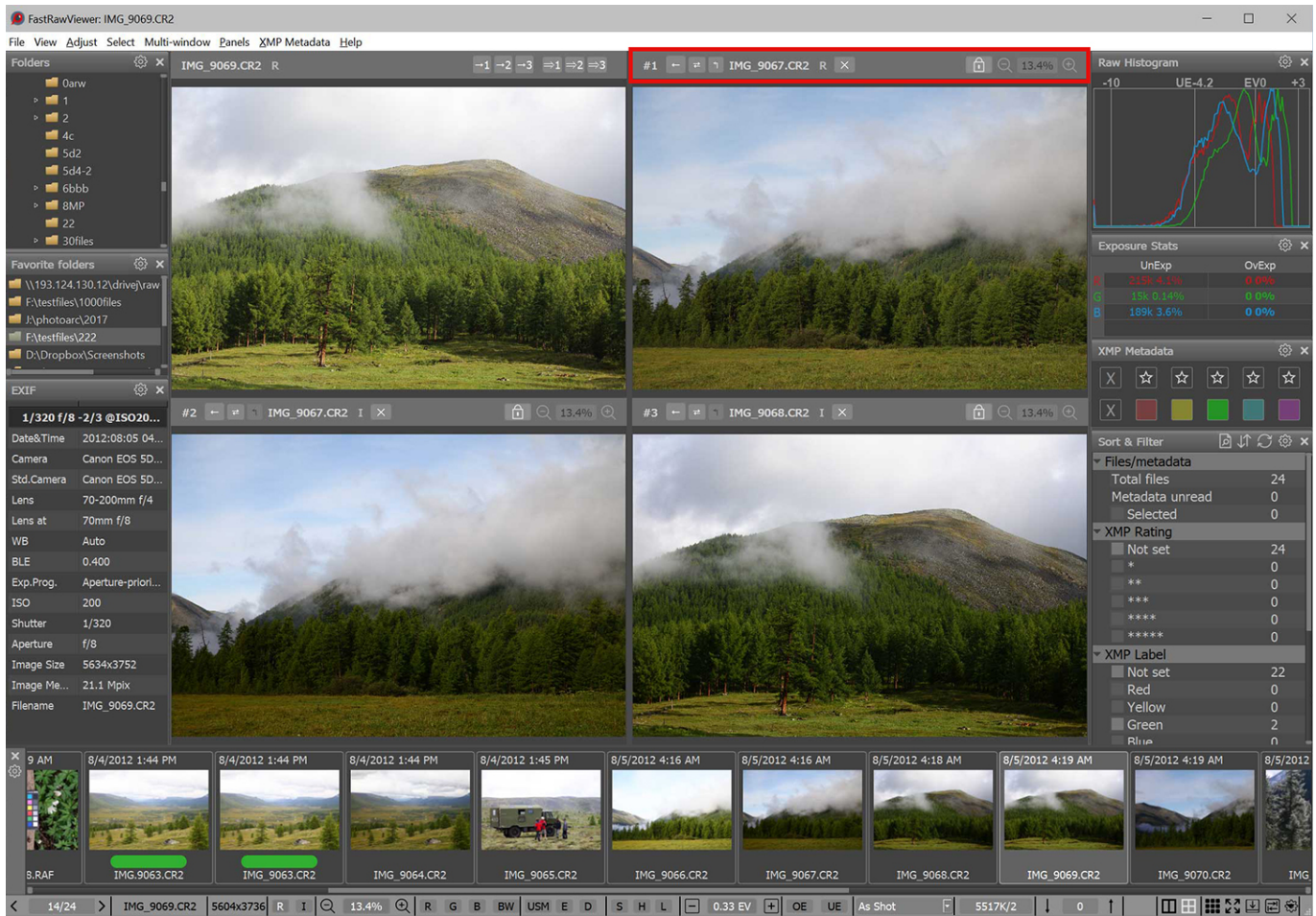
- The displayed "representation" (RAW/JPEG...) is selected in accordance with the settings in File Formats – Default image to display
- The rendering parameters are taken from the XMP (*if such exists*) or from the settings.
- The parameter Force create XMP is not applied

To copy an image from the main window to a secondary one, you can also use menu options/shortcuts or the buttons in the left part of the top panel of the main window (*the picture below is for the default order of the windows*):

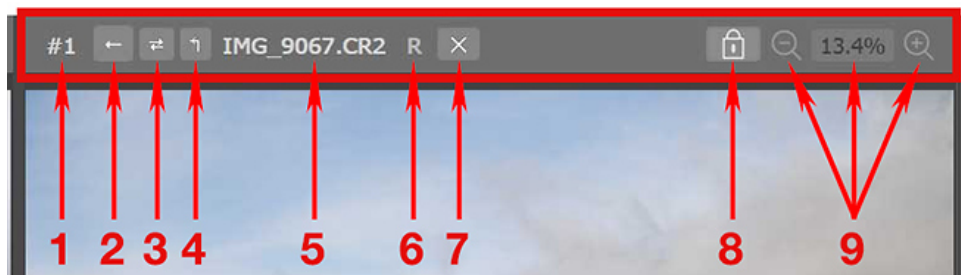
- **Menu – Multi-window – Copy image from Main window to Window N** (*or the buttons →1, →2, →3*) – copy an image from the main window to the secondary window #N
- **Menu – Multi-window – Copy image ... then open next file** (*or the buttons =>1, =>2, =>3*) – copy the image from the main window to the secondary, and then open in the main window the next file in the folder.



As a result, the secondary subviews (some or all) will also display some files:



The top bar of the secondary subview contains, left-to-right:





1. #n – subview number
2. ← – is a button for copying an image back, from the secondary window to the main window
3. ⇄ – is a button for swapping the images in the secondary and main windows.
4. ↕ – is a button for copying the rendering parameters of a RAW file from the secondary window to the main window.
5. The name of the file displayed in the secondary window
6. R/I/E/J – the type of the displayed representation (*Raw*, *Internal JPEG*, *External JPEG*, *Lone JPEG*)
7. × – is a button for clearing the secondary window
8. Lock icon
9. Zoom controls (in and out buttons and percentage)



8. Padlock – zoom/pan status; when the padlock is closed, zoom and pan are synchronized across the main window and all of the secondary windows. When it's open, each window can be zoomed/panned independently.
9. Button for zooming out, the current zoom level, and button for zooming in.

When the settings are changed such that the main window is positioned on the right side, all arrow icons are mirrored.

The contents of the secondary window can be returned to the main window using:

- **Menu – Multi-window – Copy image to Main window from...** ( or the button  ) will copy from the secondary window to the main window.
- **Menu – Multi-window – Swap Main window with image in...** ( or the button  ) on the secondary window swaps the content of the main and secondary windows.

When copying or swapping images, what's actually happening is a full-scale re-opening of a file in the main window; the displayed representation (*RAW, internal JPEG, external JPEG*) is determined through **Preferences – Multi-window mode – When opening a file from a secondary window use:**

- **Default image format to display:** the displayed image representation is determined by the setting **Preferences – File Formats – Default image**
- **Secondary window file format:** the image representation that was displayed in the secondary window will be opened in the main one.

**If the Shift key is held down while pressing a button in a top bar of a window to perform a copy or swap**, then RAW rendering parameters (*lightness, contrast, white balance*) will also be copied.

Furthermore, a file can be copied from a secondary window to the main window via:

- **Drag-n-drop** a file from a secondary window to the main window
- **The context menu** in the window (*Open in Window element*)

In this case, a full-scale re-opening and re-rendering happens, as if the file had been opened through **Menu – File – Open**.



## Synchronous Zoom / Pan

With the default settings, the shortcuts for zooming in/out affect:

- The window that is closest to the mouse cursor
- And the windows that are tied to it (*via the closed padlock*)

Similarly, the “padlock connection” affects panning an image in a window (*with the mouse, or scrollbars*), the connected windows will also pan the same distance.



There are three possible modes for zoom synchronization (*these are selectable, see below the **Preferences** section*)

- Same zoom value
- Same width
- Same size (*that is to say the length of the diagonal*)

For images that have the same size and orientation, all three options naturally give the same result; the three options therefore only have “meaning” when looking at images that have different sizes and/or orientation.

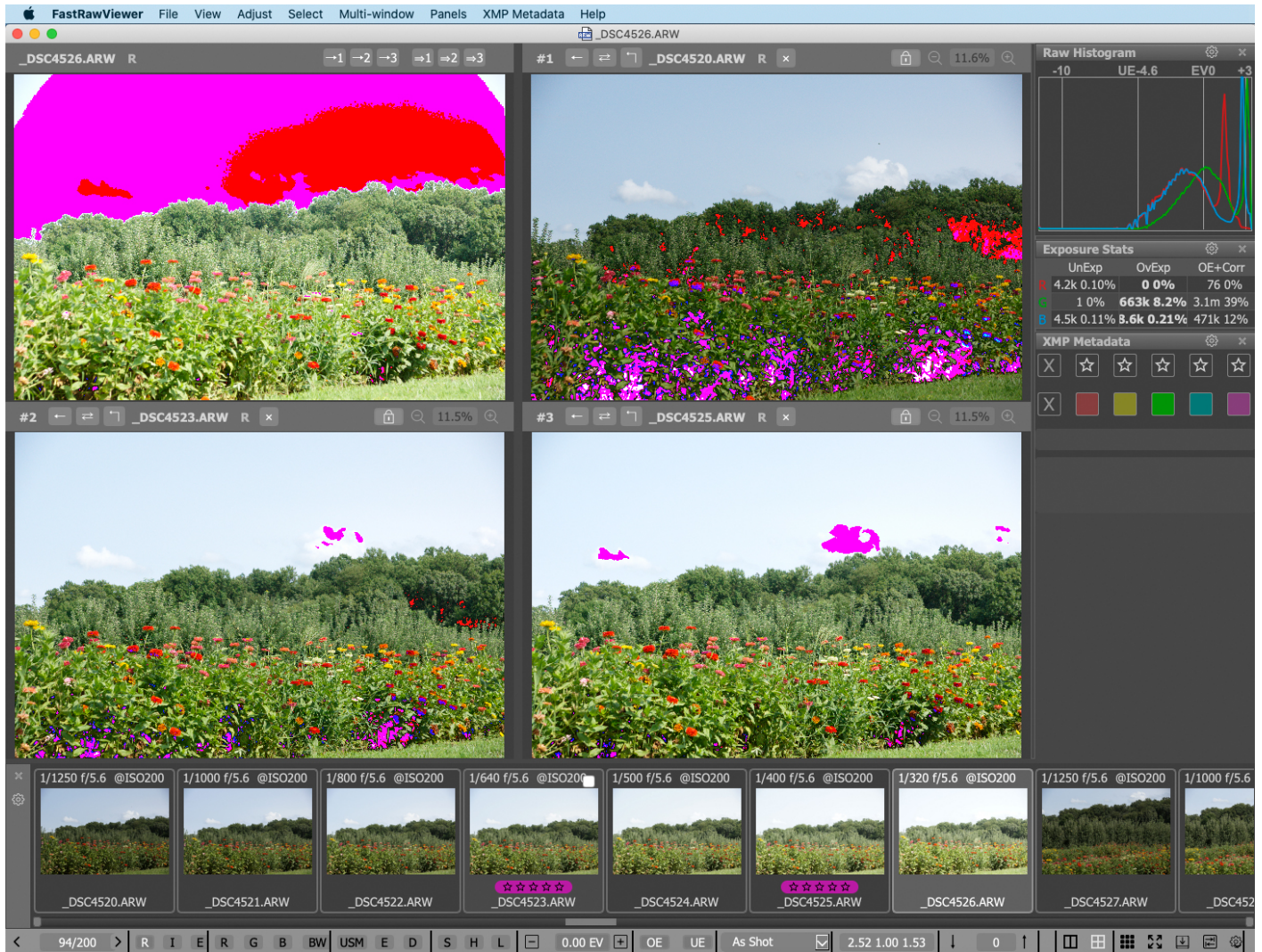


## Synchronizing Special Display Modes

**Special display modes** are applied simultaneously to all images opened in the main and secondary windows.

Here, by “special display modes” we mean:

- Screen sharpening
- Focus Peaking
- Per-channel (*R-G-B*) black and white display
- Over/underexposure indication (*only for RAW*)



## Scope of Hotkey and Menu Actions

- With the exception of zoom / pan and the special display modes listed above, all actions taken through the menu and / or via hotkeys are applied only to the main window.
- For the secondary windows, there are context menus that allow one to perform standard actions (*XMP ratings/labels, copy, move, pass to an external program*), excluding rotating the image.
- Also, from the secondary windows one can perform **Drag-n-Drop** actions to both external programs and the folder tree in the Folders panel.



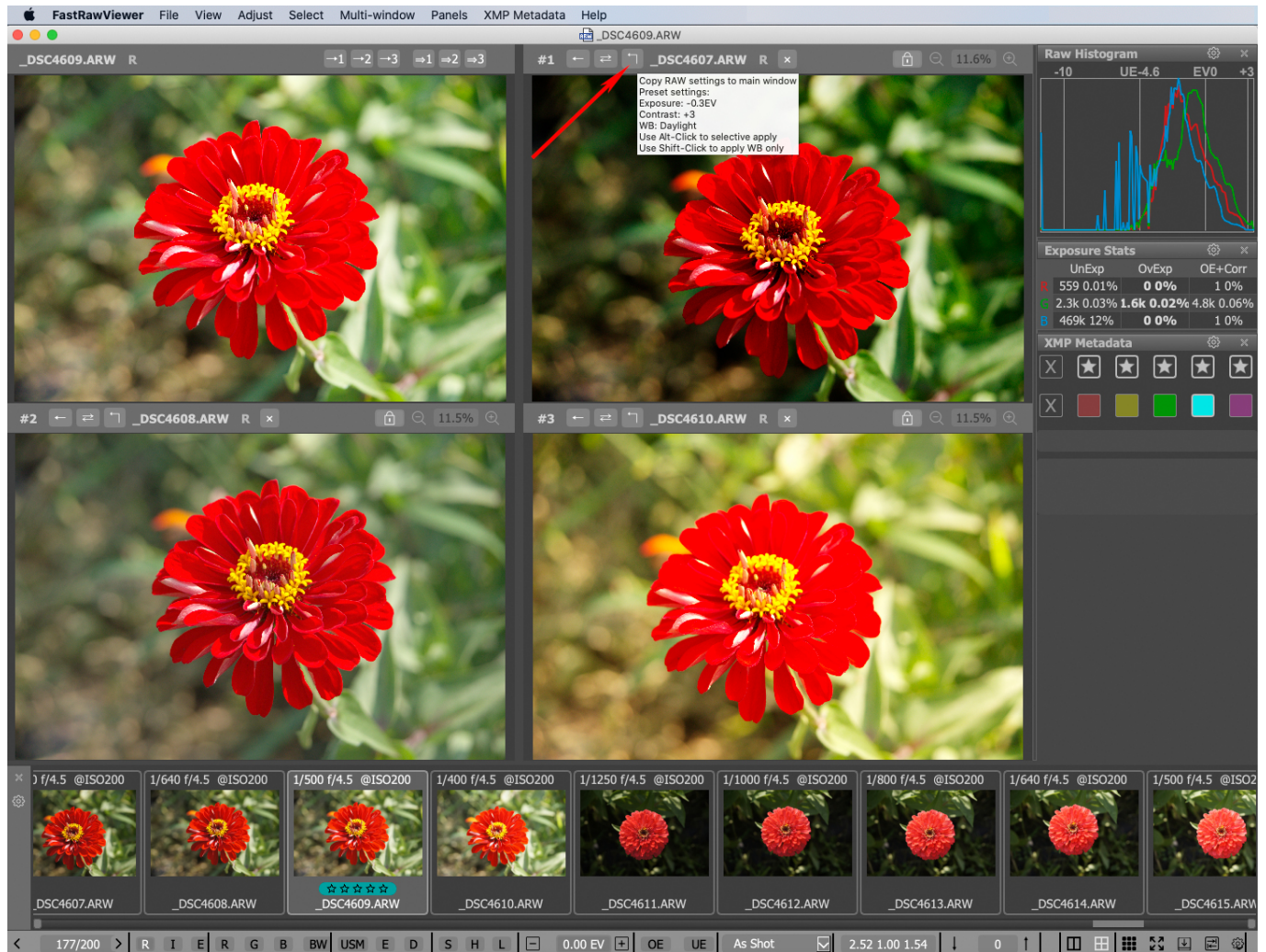
## Copying RAW Rendering Parameters from a Secondary to the Main Window

If the main window and a secondary window contain an image taken by the same camera model, and both windows are displaying RAW images, then you can copy the RAW rendering parameters (*namely, exposure correction, white balance, contrast*) from the secondary window to the main window. The copied settings will be applied to the RAW image in the main window and recorded to the corresponding XMP file.

This way, the secondary window can be used as a repository for processing presets.

Copying the settings can be done via:

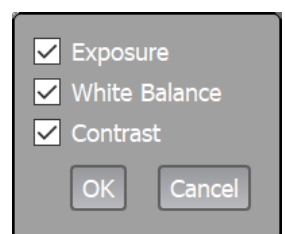
- **Menu – Multi-window – Copy processing from ... to Main Window** or by pressing the  $\uparrow$  button on the window top bar.



When this is done, all the above-listed rendering parameters are copied.

- Shift-Click on the  $\uparrow$  button in the top bar of the secondary window to only copy the white balance.
- Alt-Click (Option-Click for Mac) – opens a dialog window in which you can select which rendering parameters to copy

The checkbox settings in this window are saved for the duration of the session, and each secondary window has an individual list of settings.





## Why Do We Have the Main - Secondary Window Distinction?

If all of the windows were treated as equal, then a multitude of logical and interface problems would emerge, for example:

1. All actions that affect files (*exposure, white balance, contrast*) are immediately saved in an XMP sidecar file. As a result, the changes applied to one window would either have to be duplicated in all the windows where the file is opened (*but then why do you need several windows?*), or the results of the last change would have to be saved, leading to confusion and unwanted overwriting of the rendering parameters.
2. The user would have to constantly keep track of the context for their actions; which window is currently active, and which will be affected by a hotkey? Which window will be affected when clicking Next File? If the same file is opened across several windows, will they all be flipped through?

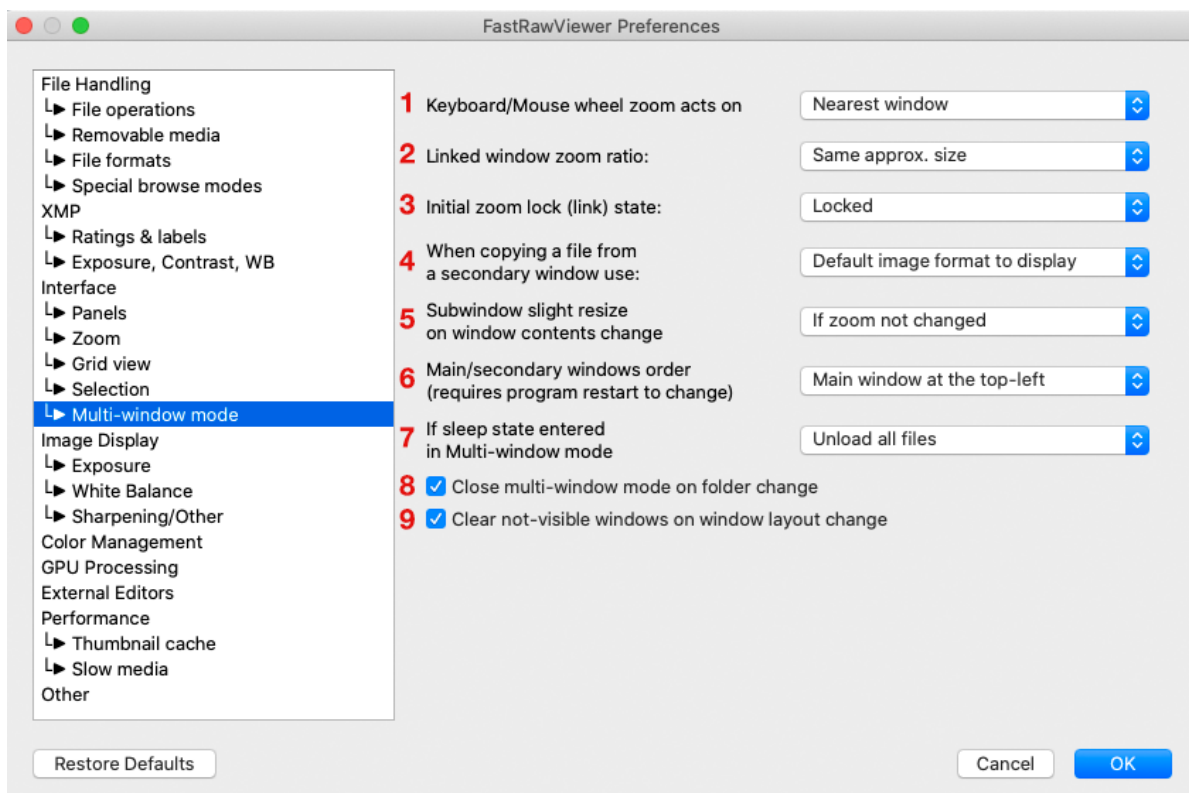
By delineating one window as the main one, where all actions “with consequences” can happen, and which is affected by shortcuts (*with the exception of shortcuts that affect their specific secondary window*), the problem of context is solved.

## Other Characteristics

1. The contents of the secondary windows are **only** stored in the video card memory (*GPU*). This approach allows one to copy the contents between windows almost instantaneously, but these GPU-stored objects do not survive the computer entering sleep mode or hibernation.
2. If a file that was displayed in a secondary window disappears from the zone of visibility (*filtered out through Sort&Filter or moved to a different folder*), the secondary window will be cleared and there will not be a move to the next file the way it happens for the main window.

## Multi-window Mode Settings

The settings for Multi-window mode are located in a separate **Multi-window mode** tab of FastRawViewer Preferences





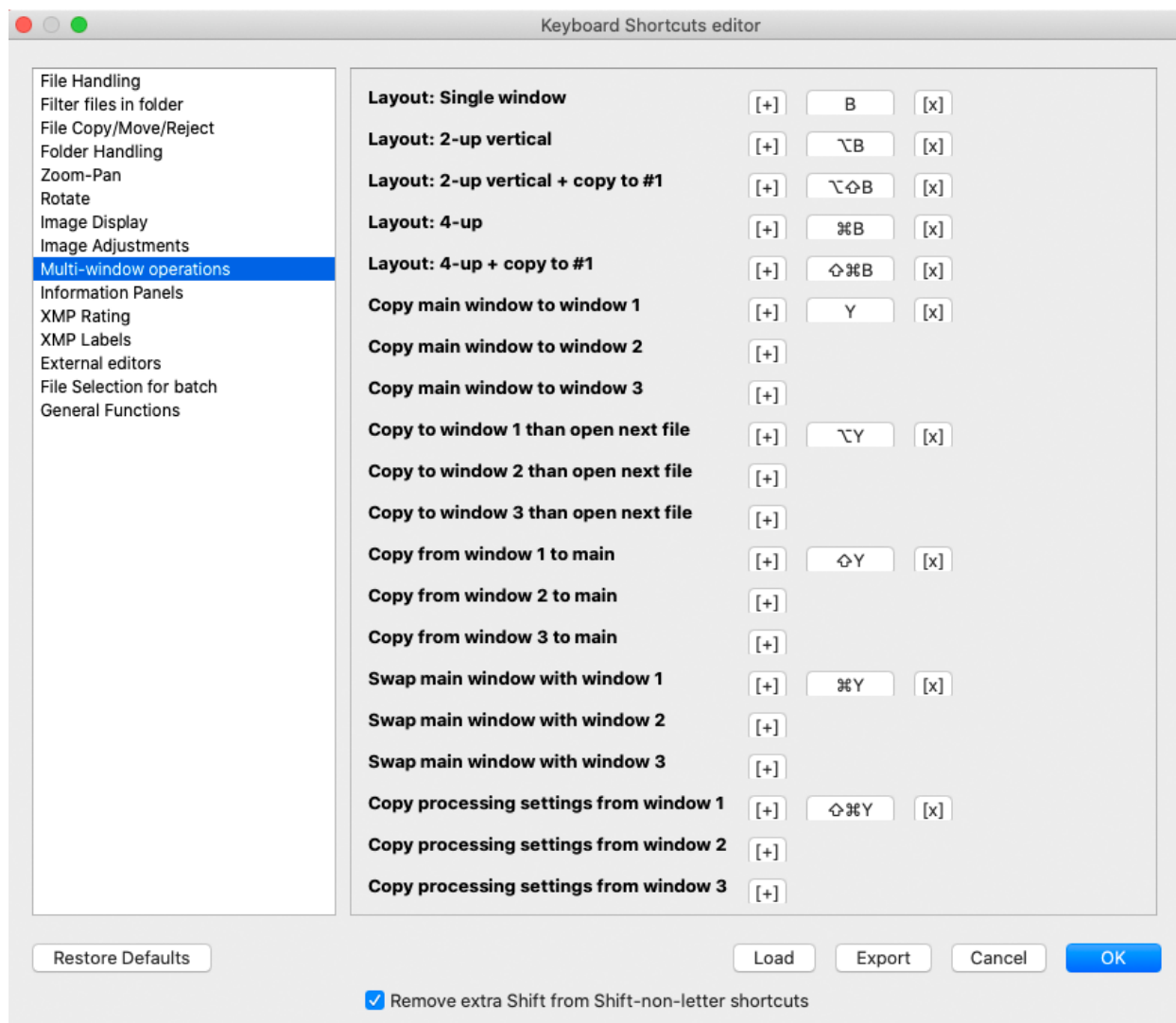
What's in this window:

1. **Keyboard/Mouse wheel zoom acts on** – which window is affected by the zoom hotkey:
  - **Main window** – the main window
  - **Nearest window** – the window closest to the mouse cursor
2. **Linked window zoom ratio** – the method for calculating the zoom for images of different size:
  - **Same zoom** – the same zoom size (*“in percent”*)
  - **Same width** – same image width
  - **Same approx. size** – same image size (*length of the diagonal*)
3. **Initial zoom lock (link) state** – the state of the zoom lock when opening secondary windows:
  - **Locked** – “closed padlock”
  - **Not locked** – open
  - **Keep previous** – the same as previous
4. **When copying a file from a secondary window use** – determines what is displayed (*RAW/Int. JPEG/Ext JPEG*) when using functions “copy from secondary window” and “swap with secondary window”:
  - **Default Format to display** – the displayed image type will be determined by the setting **Preferences – File Formats – Default image**
  - **Secondary window file format** – the displayed image type will correspond to what is displayed in the secondary window.
5. **Subwindow slight resize on window contents change** – some video cards/video drivers do not refresh the contents of the window even if the data for said window were changed.  
This setting turns on forced refresh:
  - **None** – do not refresh
  - **If zoom not changed** – refresh if the size of the zoom is unchanged
  - **Always** – forcible refresh whenever the window refreshes.
6. **Main/secondary window order**: this allows one to switch position of the main window between upper left and upper right.  
The change takes effect upon application restart.
7. **If sleep state entered in multi-window mode** – what to do when the computer enters sleep mode (*it is impossible in this case to save the contents of the secondary windows*):
  - **Unload all files**: clear all of the windows but stay in multi-window mode
  - **Switch to single-window mode**: switch to single-window mode.
8. **Close multi-window mode on folder change** – when moving to a different folder, multi-window mode will be turned off (*if the checkbox is unchecked, then the mode will stay but the secondary windows will all be cleared*).
9. **Clear non-visible windows in window layout change** – what to do when part of the (*secondary*) windows stop being viewable (*switching from 4 -> 2 windows or 4/2 -> 1 window*). If the checkbox is checked, then the non-visible windows will be cleared.



## Hotkeys

The hotkeys for multi-window mode are set through **Shortcuts Editor - Multi-window operations** tab



By default, only buttons for changing the window layout, and buttons for using secondary window #1 are set. Buttons for using the other windows can be set by the user in accordance with their preferences.





## Renaming Files

### How It Works

To rename files, you can use:

- **Menu – File – Rename File(s)** or the shortcut Shift-F2
- **Context menu** (*Rename file(s)*):
  - In Grid view mode
  - In Filmstrip
  - In Single file view mode
  - In secondary windows (*in Multi-window mode*)
- If the setting “**Single File keys works for multiple files too**” is turned off, then use **Menu – Select/Batch – Rename Files**

The context menu acts:

- On the group of selected files in Grid/Filmstrip, when the menu is called up for a file within the group of selected files
- On one file in all other cases.

The default Shortcut or calling up renaming options through **Menu – File** also acts depending on context:

- On one file in Single view mode (*in both single and multi-window modes*)
- On one file in Grid/Filmstrip mode if the current file is not part of a selected group.
- On the group of selected files when in Grid/Filmstrip mode and the current file belongs to the selected group.

### Generating Names for Rename

When **renaming one file**, a *simplified* renaming dialogue pops up on the screen:

Rename **IMG\_5031.CR2**  
(and 1 associated file)

New name or pattern:

Sample: IMG\_5031.CR2 -> IMG\_5031.CR2

☐ Extended parameters

There, you can simply type the new filename, press Enter or the button GO, and the file will be renamed.

The first lines of the dialogue show the name of the file being renamed and the number of associated files (*JPEG in a RAW+JPEG pair, XMP, additional connected files*).

The **Sample** line shows an example of “*before -> after*” file name change.





When **renaming several file**, or when the **Extended Parameters** checkbox is checked when renaming a single file, the *full* renaming dialogue will be displayed:

When renaming several files, they cannot have identical names; therefore, the filename will be generated from **tokens** (the keyword is enclosed in slashes, such as */Filename/*) and arbitrary symbols between tokens.

**Tokens** can be composed through a **drop-down Token list** (the *[+]* button can add a token to the current input bar, the *[+/-]* button replaces the entire contents of the bar with the token), and can also be manually composed (there is an abridged form for this).

#### List of tokens:

- */Filename/* or */Fn/* - the name of the source file that is being renamed, with the case being maintained.
- */FILENAME/* or */FN/*, */filename/* or */fn/* - the filename entirely upper/lowercase
- */NumFromFile/* or */NFF/* - sequence of digits (*one or more digits in a train*) extracted from the filename. If filename has no numeric in it, the token is empty.  
One can manually enter */NFF1/* */NFF2/* etc., which means first numeric sequence in the filename, second



numeric sequence in the filename, and so on. For example, if the filename is IMG123\_456\_7, then NFF1 is 123, NFF2 – 456, NFF3 – 7, NFF4 – to empty.

- /2 digit/ or /2d/, /3 digit/ or /3d/, /4 digit/ or /4d/, /5 digit/ or /5d/ - counter to be incremented by one for each consequent file.

The “**Sequence start**” field in the next line of the dialogue sets the starting value.

The options listed here can be selected through the **Token** drop-down list, or entered manually.

- /6 digit/ or /6d/, /7 digit/ or /7d/, /8 digit/ or /8d/ - 6, 7, or 8-digit counter.  
These options are not in the drop-down list because they are rarely used, and so they must be entered manually.
- /ddMMyy/, /MMddyy/ and so on – the EXIF timestamp (*specifically, just the date*) of the file in the indicated format (*dd – day, MM – month, yy/yyyy – two/four digit year number*).  
When entering this manually, it’s case-insensitive - /ddmmyyyy/ works as expected.
- Date and Time tokens (*following EXIF timestamp*) in an arbitrary format (*only manual entry*); the format itself is described below:
  - /Dformat/ - date in local format (*User Locale*)
  - /DIformat/ - date in International format (*DI: from Date International*).

When manually entering the tokens, we recommend immediately closing the token with the slash (*e.x., /DI /*) and only after that to start typing out the contents of the token. In this case, the effect of the token is immediately displayed in the **Sample** line.



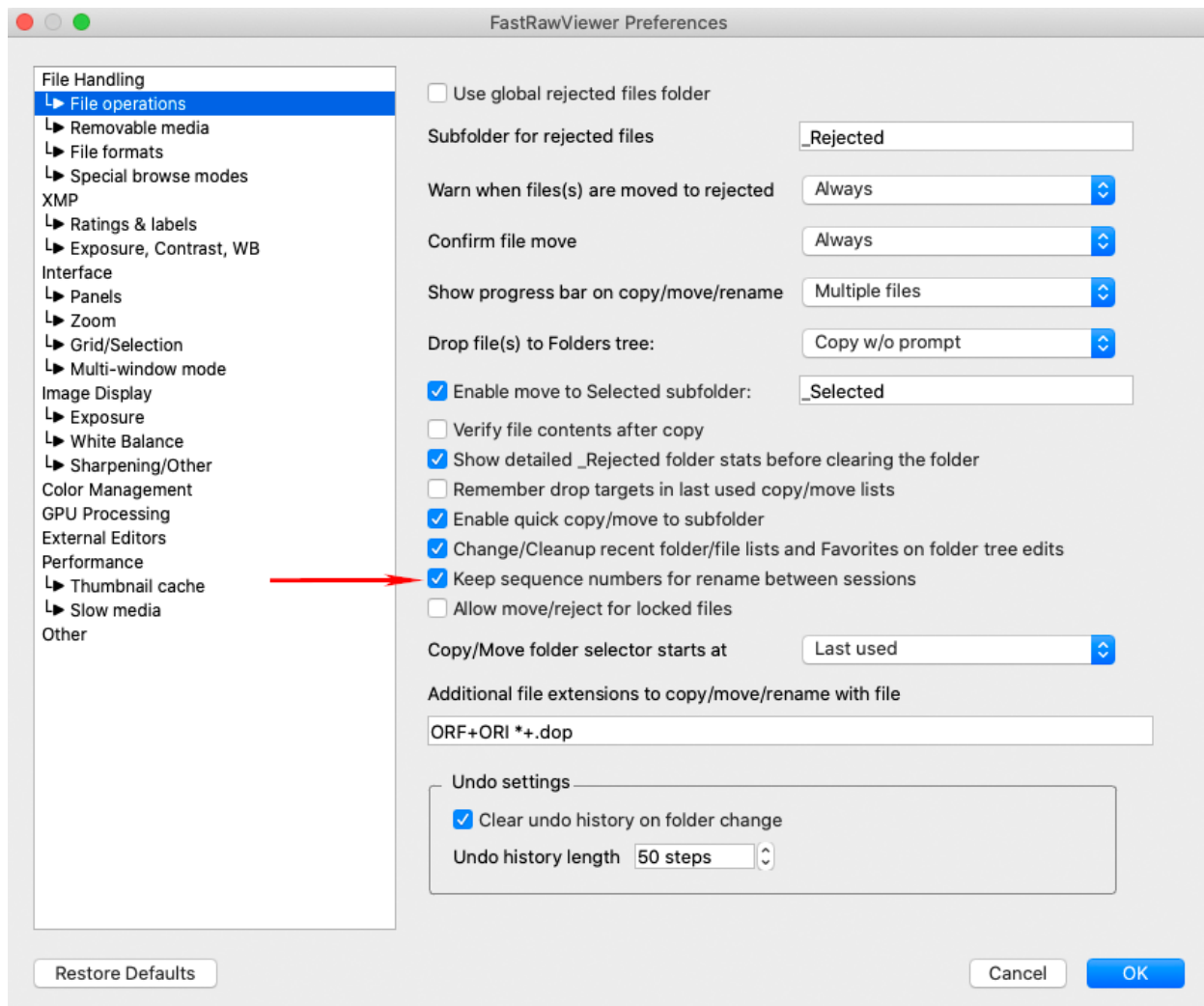
**Sequence start** field – the initial counter setting from which the incrementing starts, from 1 to 999999999. When the counter reaches 999999999 it restarts from 1.

The [X] button to the right of the **Sequence start** field resets its value to 1.

With standard settings the initial value of the sequence is set to 1 when FastRawViewer is launched; it increments as used during the session, but it's not saved on exit from FastRawViewer.

However, **Preferences – Copy/Move/Rename – Keep sequence numbers for rename between session** saves the counter globally:

- The counter is retrieved from the FastRawViewer system settings right before opening the **Rename Files** dialog
- The counter is saved in the FastRawViewer system settings right after the rename is complete.



As a result, unique numbers are ensured even if multiple instances of FastRawViewer are running concurrently (so long as the renaming dialogs are not launched simultaneously).



The ‘On conflict or error’ line determines behavior when a naming conflict and/or an error when renaming occurs:

- “**Stop**” – Stop
- “**Skip**” – Skip the files with renaming conflicts or errors
- “**Try –(NN) suffix, then stop**” – try adding a suffix –(nn) /two-digit number/, if this doesn’t work (files ...-(01)...-(99) already exist) – then stop.
- “**Try –(NN) suffix, then skip**” – try adding a suffix, if it doesn’t work then skip.

Rename **DSC03706.ARW**  
(and 1 associated file)

New name or pattern:

☐ Enable history

Sample: DSC03706.ARW -> DSC03706.ARW

☒ Extended parameters

Token:

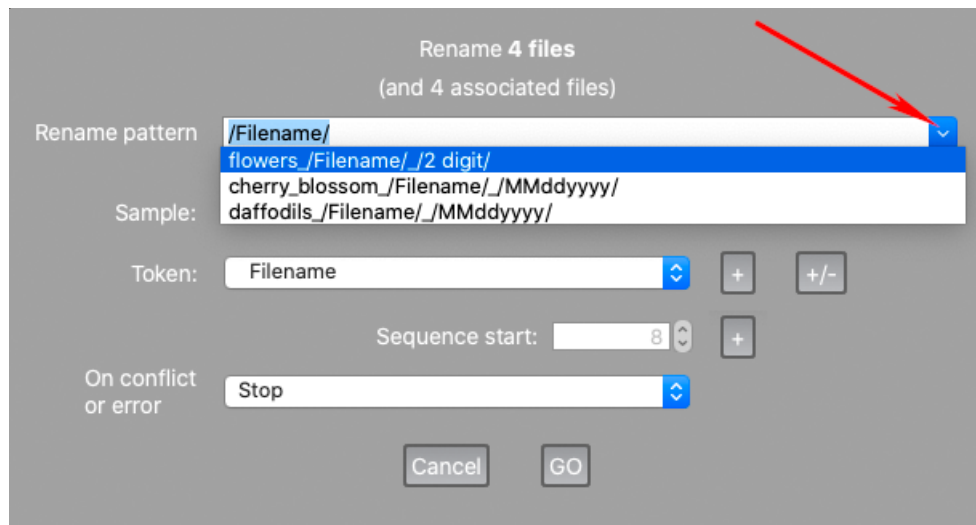
Sequence start:

On conflict or error:

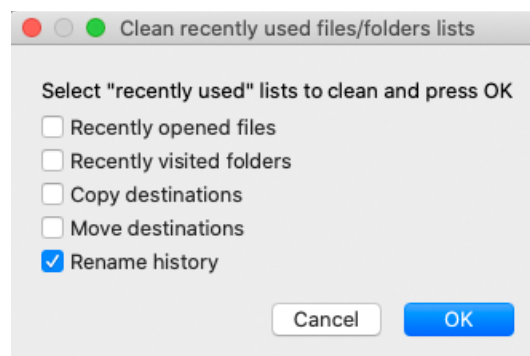


The **‘Enable history’** checkbox toggles rename history log:

- When the log is on, the input line becomes a drop-down list, and the elements of the list can be reused.
- This list stores the last 20 rename patterns (*only the ones that contain tokens*).



To clear the log, use **Menu – File – Customize – “Clean Recently used lists” – “Rename history”**.



**Associated files:** renaming files works for a group of associated files (*with the same name*), specifically:

- The “main” file – the one visible in the FastRawViewer interface
- Associated JPEG/HEIC file (*if RAW+JPEG/RAW+HEIC mode is turned on and a JPEG/HEIC file with the same name exists*).
- XMP file: if XMP support is not turned off and an XMP file with the same name and correct photoshop:SidecarForExtension tag exists.
- .rpps file, if support for RawPhotoProcessor is turned on and an rpps-sidecar exists.
- Additional files indicated in **Preferences – Copy/Move/Reject – Additional file extensions to copy/move/rename with file**.

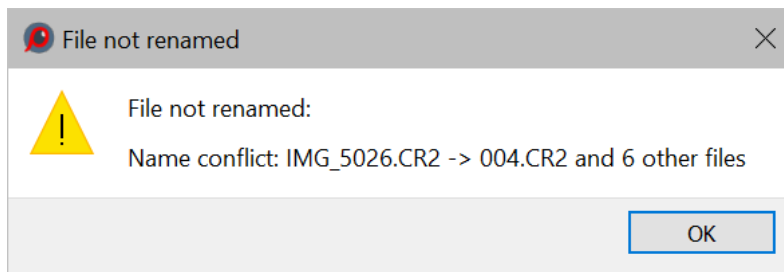
In other words, groups of associated files are created the same way as when copying or moving.





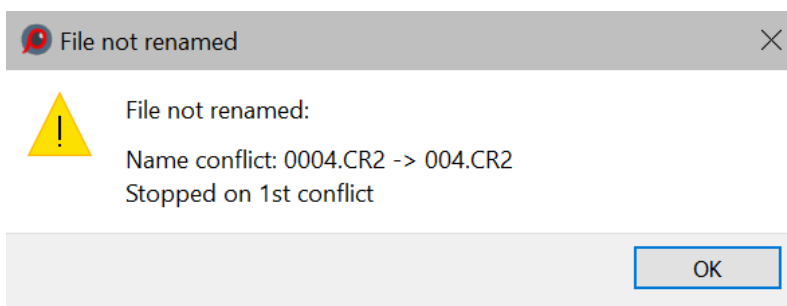
If an error or conflict occurs when renaming a single file in such a group (for example: *file.cr2 + file.jpg + file.xmp*), the entire group is returned to the initial name set.

If at least one error or naming conflict happens, then after renaming the following message pops up:



This message indicates that a naming conflict occurred for the indicated file and for 6 other files, and they were skipped.

When the “stop” option is selected, the error notification will only be for the first file:





## Specifying the date in arbitrary format

Date format codes:

- d – day of the month:
  - d – day number without the leading zero (1,2...31)
  - dd – day number with leading zero (01, 02...31)
  - ddd – abridged name of the day of the week
  - dddd – full name of the day of the week
- M – month (*the upper-case letter is obligatory, the lower-case letter is reserved for minutes, see below*)
  - M – month number without leading zero (January is 1)
  - MM – month number with leading zero (January is 01)
  - MMM – abridged name of the month
  - MMMM – full name of the month
- y – year
  - yy – only last two digits
  - yyyy – all four digits
- h, hh – hour (*with and without the leading zero*)
- m, mm – minute (*with and without the leading zero*)
- s, ss – second (*with and without the leading zero*)
- z, zzz – millisecond (*non-zero only if your camera records sub-second timestamp in EXIF*)
- a (or ap)/ A (or AP) – indicating before or after noon (*am/pm*) in lower- or upper-case. If your local time settings do not have AM/PM, the line will be empty.
- t – system name for the timezone.
- Any other symbol, except the codes listed above, is displayed “as-is”.
- If it is necessary to display one of the codes listed above “as-is”, enclose it in single quotes.
- If it is necessary to display a single quote, type it twice.

On the screenshot below, you can see an example of how to manually set the date in an arbitrary format:

Rename DSC03706.ARW  
(and 1 associated file)

New name or pattern:

Sample: DSC03706.ARW -> 2016 Mar, 29 12-34-14 PM-dsc03706.ARW

☐ Extended parameters



## Improved User Interface

### Advanced Selection mode

FastRawViewer offers a unique file group selection mode (*Advanced Selection Mode*). This mode fixes the shortcomings of the conventional selection mode.

In the case of **Advanced Selection Mode**:

- Clicking on a random file (*without modifiers*) doesn't de-select the selected group
- You can open the context menu/drag-n-drop for any file, without making it the "current" (active) file.
- The current/active file does not have to be part of the selected group.

Of course, because clicking on a file icon doesn't change the selection, this leads to significant changes to the user experience:

- To select one file, one needs to click on the checkbox, or **Ctrl-Click**, on its preview in the filmstrip or in the grid.
- The conventional way of creating a selection range (*Shift-Click*) works differently in Advanced Selection Mode, selecting either:
  - Starting from the last selected file, which was marked as selected via Ctrl-Click or clicking on the checkbox, to the one that was Shift-Clicked on
  - Or, if there was no selected file, then from the beginning of the file list.

The non-standard **Shift-Click** operation is not optimal for some users, and to account for this, some settings were changed and some were added

All settings that have to do with Selection were moved to a separate **Preferences – Selection** section. **The Advanced Selection Mode** group has been made *more pronounced (through the interface)*.

Two settings that tune **Shift-Click** behavior have been added to this group:

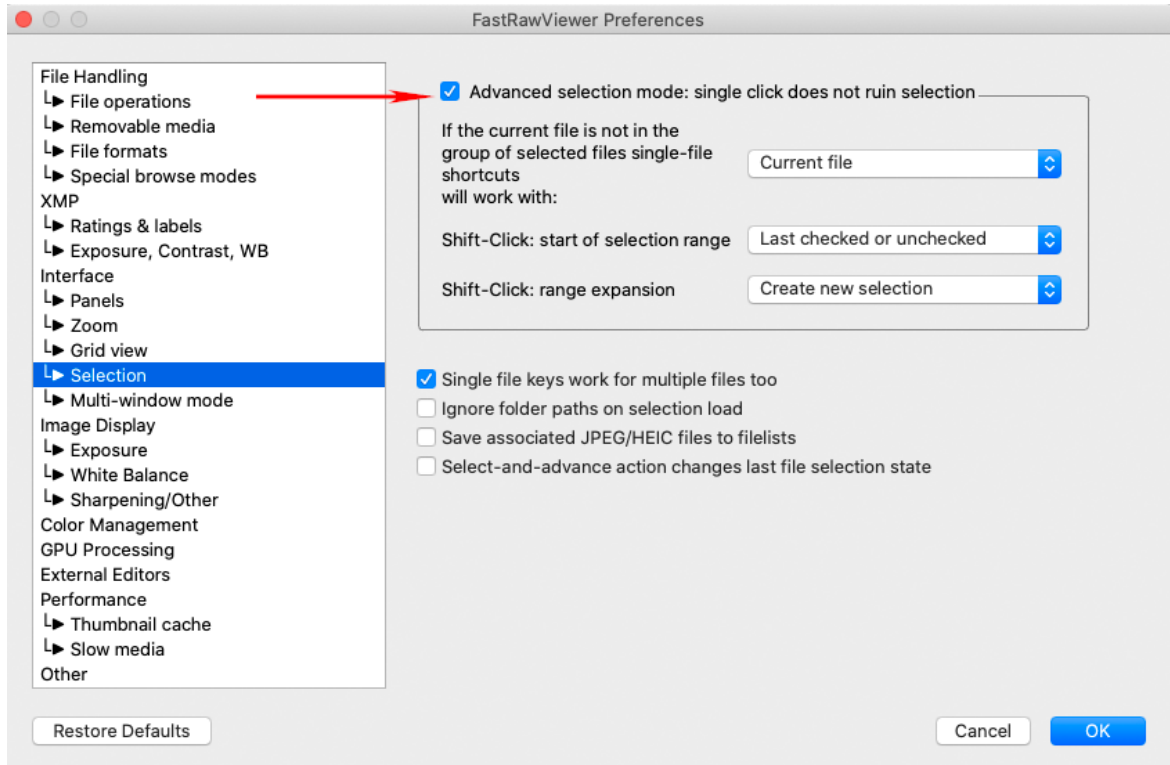
- I. **Shift-Click: start of selection range**, with possible values:
  - a. **Last Checked or unchecked**: the selection range for Shift-Click will start from the last file for which the selection status was changed (*whether by the checkmark or Ctrl-Click*).
  - b. **Last checked**: the selection range will start from the last file for which the selection status was changed, but only if it was set to **selected**.
  - c. **Active (current) file**: the range starts with the current file (*if it was not Shift-Clicked*)
  - d. **Active file/last selection changed**: the range starts with the current file, but if it was shift-clicked then with the last checked or unchecked.

In case it is impossible to determine where the range starts (*there is no current file, there is no file whose selection status has changed, etc.*) then the selection will start with the first file in the folder.



- II. **Shift-Click: range expansion:** sets the mode for range expansion:
- Create new selection:** the old selection is cleared, a new one is created
  - Expand existing selection:** a new selection is added to the existing one.

This parameter can be temporarily inverted using Ctrl-Shift-Click: if “Create new selection” is in effect, Ctrl-Shift-Click causes the expansion of the existing selection, and vice versa.

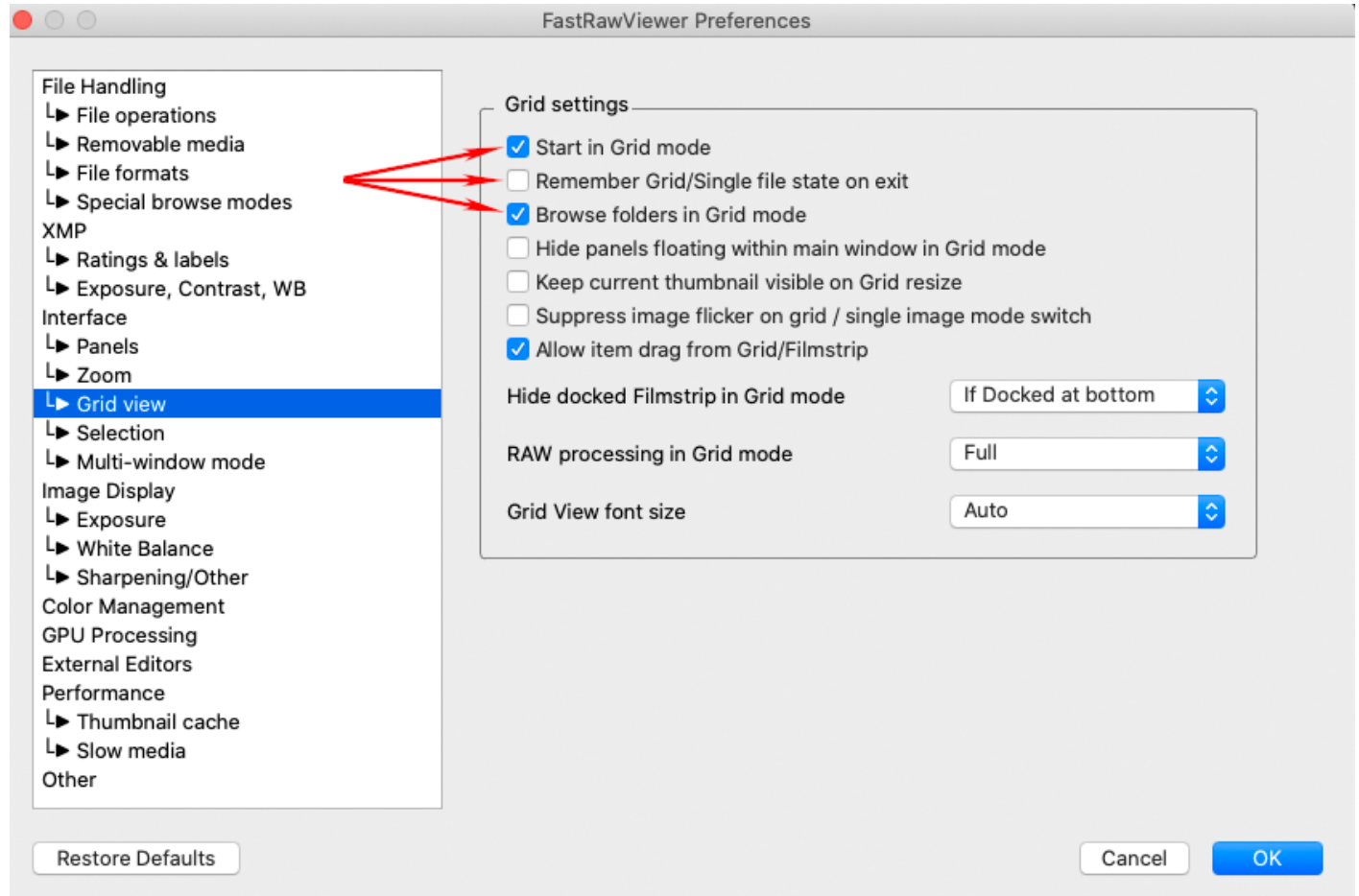




## Grid Mode

Grid mode now **cannot be fully turned off**.

If you do not like this mode, in **Preferences - Interface - Grid/Selection** turn off the checkmarks for 'Start in Grid mode', 'Browse folders in Grid mode', turn on 'Remember Grid/Single file state' (you can also remove the shortcut that switches from Grid to Single, so as to not accidentally press it).



The **Grid/Filmstrip** settings tab has been reorganized into two tabs: **Grid view** and **Selection**:

- Everything that has to do with the **Filmstrip** panels has been moved to a separate group in **Preferences - Panels**
- The checkbox **Apply automated brightening to thumbnails** has been moved to **Preferences - Performance - Thumbnail cache**
- Everything that has to do with **Selection** has been moved to **Selection** tab
- Everything that has to do with **Grid** has been moved to **Grid view** tab





## Move from \_Rejected

The following elements have been added to the context menu:

- **Menu – File – Move *file(s)* from \_Rejected**
- **Right click – Menu – Undelete: move one level up**
- **Menu – Select/Batch – Move NN files from \_Rejected** (*Only if the option “Single file keys work for multiple files too” is turned on in Preferences – Grid/Filmstrip.*)

All three options appear only when the two following conditions are met:

- A local (*not global*) \_Rejected folder is configured
- The name of the current (sub)folder corresponds to the name of the folder for Rejected.

All three options do the same thing – they move the selected file one level up. This is a standard move operation, which is recorded from the Undo list as a separate action.

## Alt key for Grid / Filmstrip drag-n-drop / context menu operations

As expected, drag-n-drop and context menu operations in the Grid and Filmstrip modes affect all the selected files.

In certain cases, more flexibility might be preferable. To override the default behavior described above and drag just the one file under the mouse cursor into a window without destroying the selection, press and hold the Alt key (*Option key, if using macOS*).

## Other

1. The group **Preferences – Copy/Move/Reject** has been renamed to **Preferences – File operations**.
2. Settings that have become outdated, are unnecessary, and/or are practically unused have been removed:
  - **Preferences**
    - Use non-standard file dialogs: the system’s dialogs are always used
    - Use system icons in the Folders panel: icons from FastRawViewer collection are always used
    - OS X 10.7 (Lion) full screen mode
  - Hidden: *UseMMapedIO, UseTBB, AlternateKeyHandler*



## Improved Performance. New and Changed Settings

### File Handling Tab

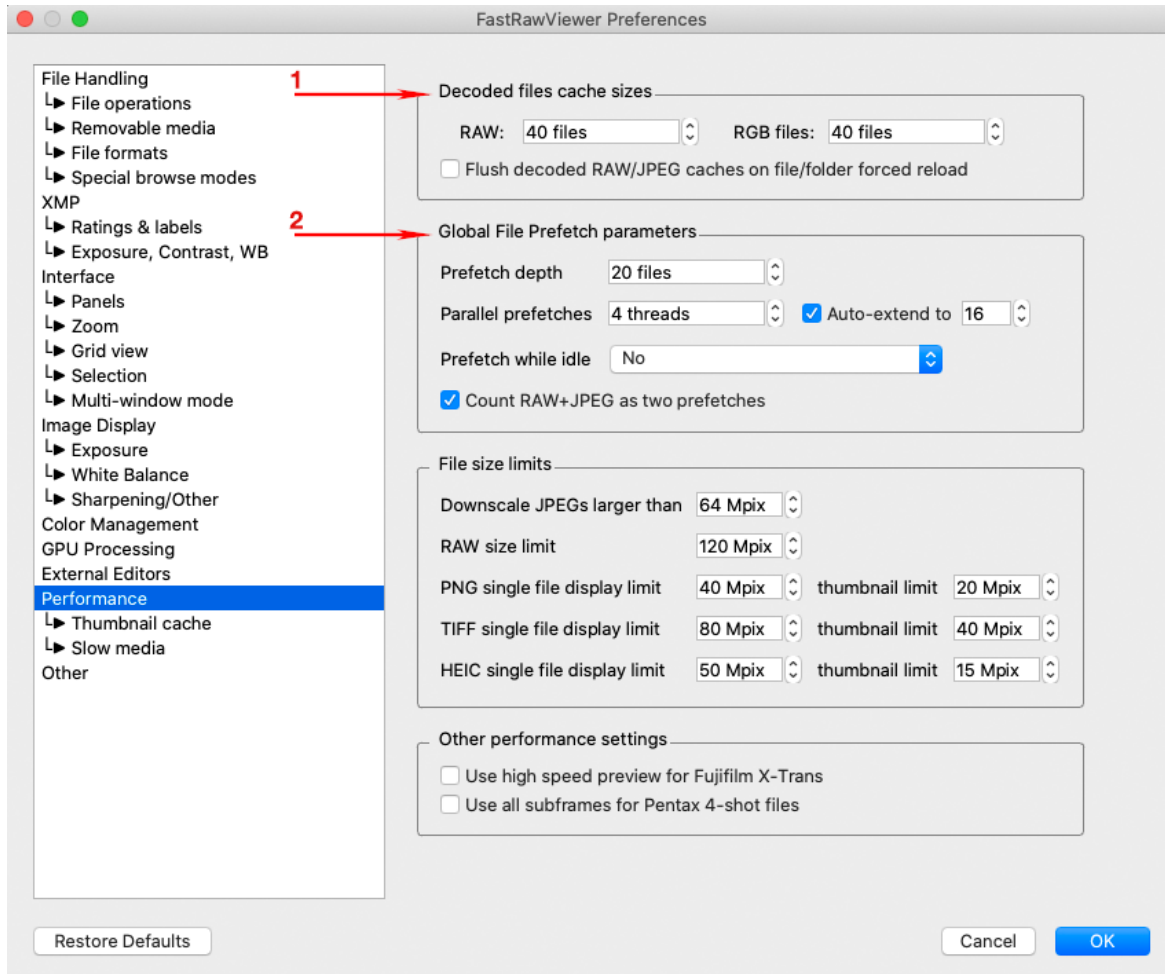
The **Check for folder updates** each ... setting has been transferred here from the old **Performance** tab

### Removable Media Tab

Settings for monitoring folder changes and the depths of file Prefetch have been moved to a new **Preferences - Performance – Slow Media** tab (see below).

### Performance Tab

This tab has been noticeably reworked (*in the upper part*)



### Decoded files cache size Group

- **RAW:, RGB files:** size of the cache of decoded files (*in files*)

Default values are set based on the amount of available memory.

When setting the cache size, it's important to take into account the amount of memory that is occupied by data:

- **2 megabytes per megapixel** for “regular Bayer files”
- **8 megabytes per megapixel** for “full-color” (*Linear DNG, Sony ARQ, Pentax 4-shot*)
- **16 megabytes per megapixel** for full-color in floating point (HDR composites and the like).
- **4 megabytes per megapixel** for RGB files (*JPEG, TIFF, HEIC, etc.*).



- **Flush decoded RAW/JPEG caches on file/folder forced reload** (*this setting has been moved from the **Other performance settings** group on the same tab*): if the checkbox is checked (*by default it's not*), then when using **Menu – File – Reload - ... caches will be cleared**.

The size of the caches can be changed on the fly, without restarting FastRawViewer. When decreasing, memory will be freed up (*but it may not be returned to the operating system, if the memory of fragmented. In that case, FastRawViewer uses that memory later for its own needs*).

### Global File Prefetch parameters Group

In this group, one can set the general behavior of FastRawViewer when prefetching files.

- **Prefetch Depth:** the maximum depth of prefetch (*in files/file pairs for RAW+JPEG*).  
Prefetch Depth cannot be greater than half the size of the cache of the corresponding type (*if the cache sizes are different, then the depth of the Prefetch will be limited separately for each file type*).  
If you are browsing files in random order (*that is to say, the flipping direction cannot be determined*), prefetching will be performed to half the Prefetch Depth in each direction. When flipping in one direction, the entire Prefetch Depth will be selected “in that direction”.
- **Parallel Prefetches ... Auto-Extend to....**  
When first opening a file in a folder, Parallel Prefetches will be launched (*see below for the limitations*). If you are flipping through files in one direction AND if Auto-Extend is turned on, then each succeeding one more Parallel Prefetch will be launched, until the total number of Parallel Prefetches reaches the Auto-extend value (*or the Prefetch Depth runs out*).  
When changing the flipping direction, everything begins again with Parallel Prefetches and will increase up to Auto-Extend to...
- **Prefetch while idle**  
If FastRawViewer isn't busy reading other data (*Parallel Prefetch, or reading metadata/previews*), and this setting is turned on (*not set to No*), then every two seconds an attempt to read one file will be launched (*without considering the direction of flipping around the current file*).  
Setting values:
  - **No** – do not do Prefetch in the background (*default value*)
  - **In Single View mode** – only in Single File View mode
  - **In Single View and Grid mode** – also in Grid View Mode (*in this case, the file that is selected in Grid Mode will be pre-fetched and given priority*).
- **Count RAW+JPEG as two prefetches:** for RAW+JPEG pairs, their pre-fetches will be treated as two simultaneous pre-fetches (*for example, with “Parallel Prefetches: 4”, two RAW+JPEG pairs will be read simultaneously*).

Other settings in this tab have not changed relative to version 1.7

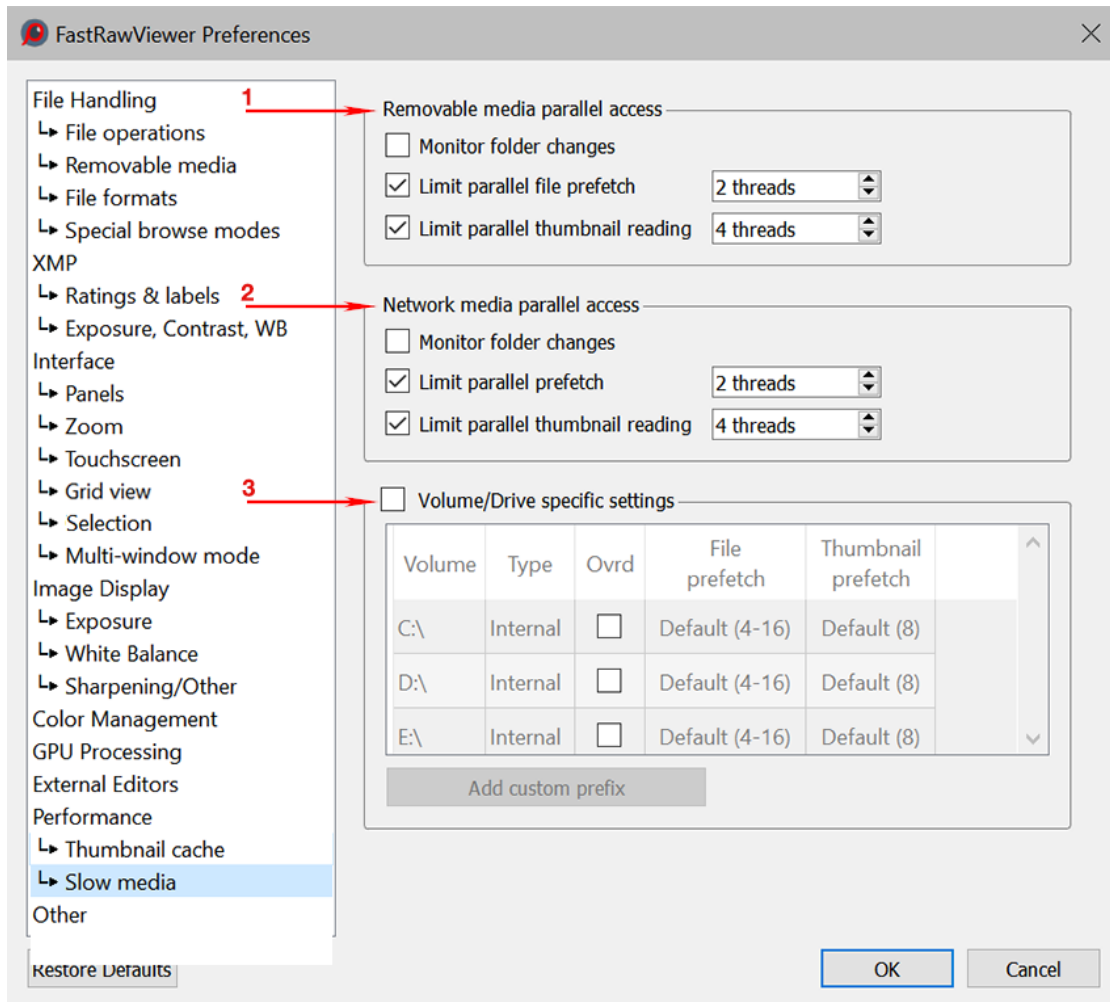


## Performance – Thumbnail Cache Tab

The appearance of this tab hasn't changed, but changing the settings in Thumbnail decoder thread count takes effect immediately, not when restarting FastRawViewer (*with consideration for the settings determined in the next tab*).

## Performance – Slow Media Tab

This tab in the settings allows one to set the parameters for Parallel Prefetch for media/drive types (*removable and network*), and for each (*volume/disk*) drive letter separately.



### Removable media parallel access Group

### Network media parallel access Group

(the settings in the two groups are completely identical)

- **Monitor folder changes:** monitor the appearance (*/disappearance*) of files in the folder that is currently being viewed.
- **Limit parallel file prefetch:**  
Limit the amount of parallel file pre-fetches to the indicated size.  
This limiter is used after calculating the number of parallel pre-fetches from Parallel Prefetches/Auto-extend to (*on the previous tab*).
- **Limit parallel thumbnail reading:**  
Limits the amount of parallel thumbnail and metadata reading.



Attention: if the setting **Preferences – Other – Use reduced Folders panel functions** is turned on, then determination of the media type (*network/removable/integrated*) is not performed and the described settings are not applied (*but limits can be set manually in the next section*).

### Volume/Drive specific settings Group

The following is listed in the table for this group:

- All the volumes mounted (Windows: drive letters)
- Manually added (*through the Add custom prefix button*) paths to folders.

For each path, one may

- Turn on one's personal parameters (*Ovrd checkmark*)
- File prefetch: the number of threads for parallel prefetch
- Thumbnail prefetch: number of threads for thumbnail and metadata prefetch.

When setting the parameters for a specific folder that is being viewed in FastRawViewer, the parameters are inherited from a path/prefix above that corresponds the most to the folder's path length.

### Some Tuning Advice

Default settings will be partially inherited from your current settings (*cache size and Prefetch depth – this parameter used to be called “Number of simultaneous Raw decode threads”*), and partially set to several *reasonable* defaults, based on the amount of RAM and the number of processor cores.

The *reasonable* defaults were not specifically picked out, but it is implicitly assumed that you are using an SSD drive(s), which does not decrease throughput with simultaneous requests.

If your main storage is an SSD (*or a very fast network storage with a 5/10Gbit Ethernet and an SSD cache on the server side*), then

- The main parameters can be left as-is
- Or one can try to increase the starting and maximum numbers of read threads.

For slow media (*mechanical/magnetic disks, network storage over a gigabit Ethernet*), we recommend setting a small maximum number of simultaneous read threads; either globally (*general setting*) or individually through the table of mounted media.



## Changes in GPU Processing

- **Downsampling the image: Area resize**

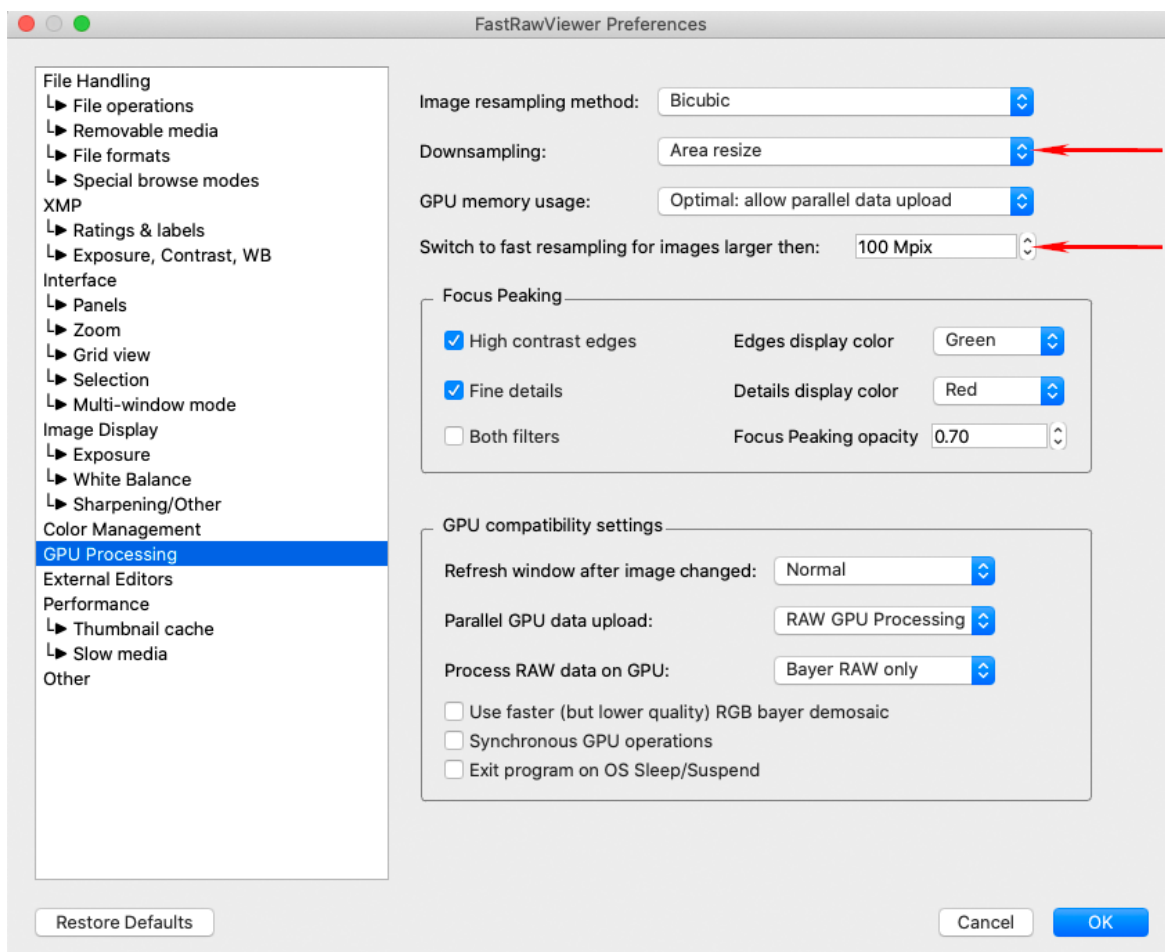
In the **Preferences – GPU Processing – Downsampling**, we have added the option **Area resize**, which is only available together with **Image resampling method: Bicubic**

**Area resize** virtually eliminates the resizing artifacts, however this is a computationally intensive method. We suggest that you experiment with some of your largest images before deciding to keep it on.

- **Switch to fast resampling for images larger than NN Mpix**

In the **Preferences - GPU Processing** we also added the option **Switch to fast resampling for images larger than NN Mpix**

Accordingly, if the image size is larger than the limit set here, then scaling will switch to the fastest option (*Image resampling: Bilinear, Downsampling: Generate low resolution Previews*)







## Compatibility / System Requirements

As we said at the beginning of this announcement, the requirements for working with FastRawViewer 2.0 are as follows:

- Mac: macOS 10.12 and newer, Intel or Apple M1 processors.  
There are no other requirements – if your graphics card works with macOS 10.12, then it's compatible with FastRawViewer 2.0
- Windows: Windows 7 – Windows 10/64 bit, “a relatively new graphics card” with support for DirectX11:
  - Intel (*integrated/CPU*): Core 3rd generation (*i3/i5/i7-3xxx*) processors and newer
  - ATI/AMD: we recommend Radeon HD 5000 and newer.
  - NVIDIA: GeForce 400 series and newer

For Windows, it's possible to use older video adapters as well:

- NVIDIA starting from Series 8000
- ATI/AMD: starting from Radeon HD 2000

In order to use them, you will need to explicitly change the graphics mode to OpenGL through the Registry Script  
C:\Program Files\LibRaw\FastRawViewer\scripts\GraphicsToOpenGL.reg