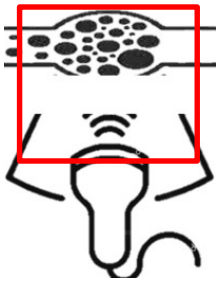
US-DICOMizer



Application for Anonymizing Ultrasound Diagnostic DICOM Images

User Manual for Version 4.15

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1. Application Installation

Install the application using the setup file **setup_US-DICOMizer.exe**.

By default, the program installs in the folder "**C:\Program Files\US-DICOMizer**" and creates a desktop shortcut for launching the application..

2. Importing DICOM Files

You can import DICOM files in three different ways:

1. Directly selecting the *.dcm file (even if it lacks the .dcm extension)
2. Selecting a folder containing multiple DICOM files
3. Selecting a compressed .zip file containing multiple DICOM files

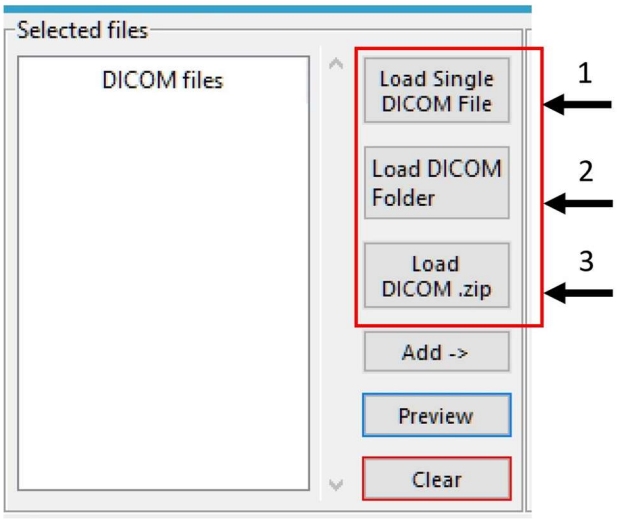

Image 1. The Selected files section

In each case, a new dialog window opens.

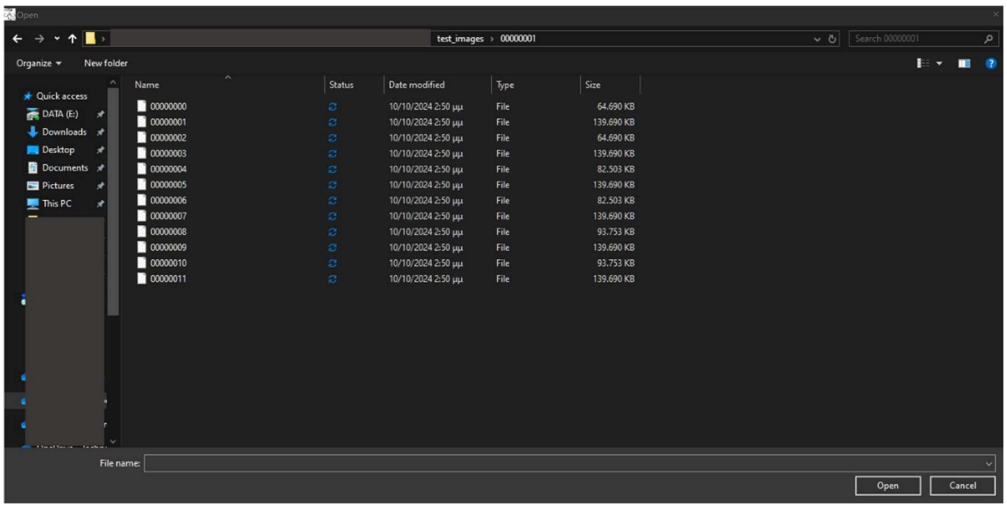

Image 2. DICOM file selection dialog box

The files are then imported and displayed in the "**Selected files**" field.

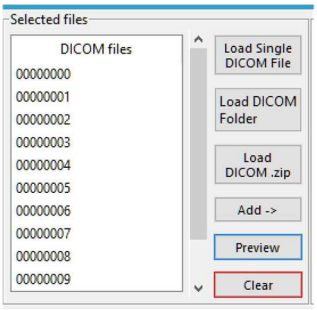

Image 3. List of DICOM files in the Selected files section

3. Operations in Selected & Ordered Files Sections

In the Selected files section, you can:

- **Add**: Move the selected file to the Ordered files list
- **Preview**: Display the DICOM file as an image and view its tags
- **Clear**: Remove all items from the Selected files list

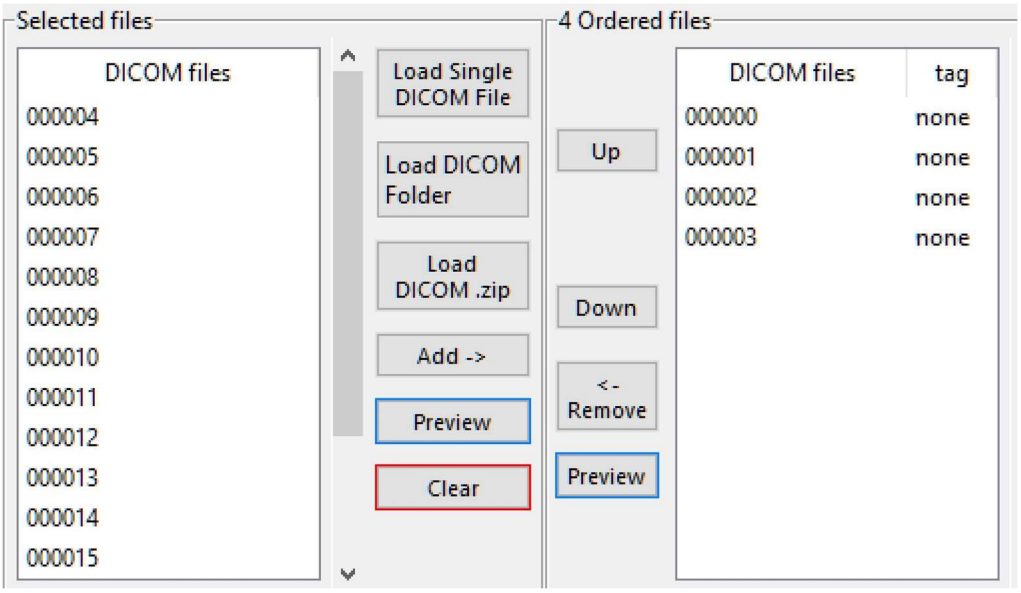

Image 4. List of files in the Ordered files section

In the **Ordered files section**, you can:

- **Up / Down**: Change the order of the selected file
- **Remove**: Return the file to the Selected files field
- **Preview**: Display the DICOM file as an image and view its tags

4. Image Preview and DICOM Attributes Sections

File preview can occur at any stage of the process from any section by double-clicking the desired file or selecting it and clicking the **Preview** button. On the right side of the screen, you'll see the Metadata and Attributes of the file, which contain information defined by the DICOM standard. User can copy the values with tags, name, value or the entire series by right-clicking. The image loads in the center of the application along with key characteristics such as dimensions, number of frames, etc.

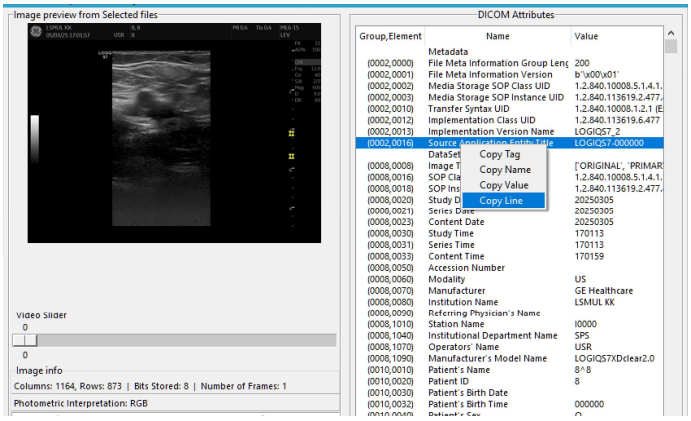

Image 5. The Image preview & DICOM Attributes sections

For multiframe files, the "**Video Slider**" scroll bar activates, allowing you to view all frames. Double-clicking on the image opens a viewing window for the current frame in actual dimensions. From here, you can zoom in or save the image as a .png file.

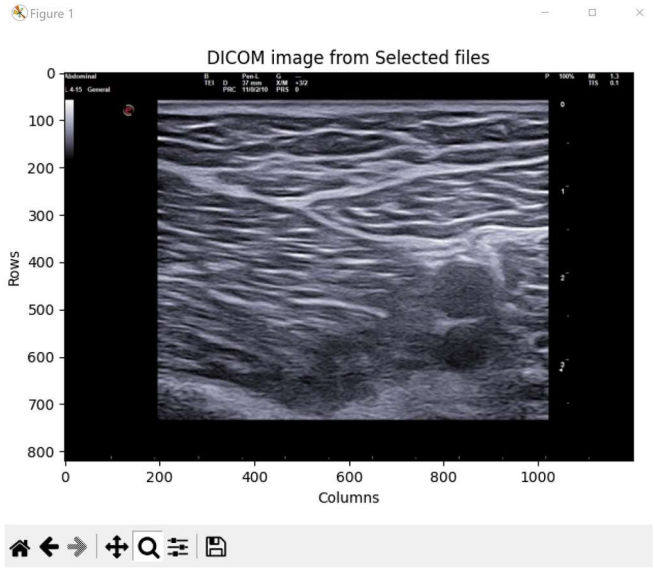

Image 6. Full size image preview

Additional options appear when previewing a file from the Ordered Files list.

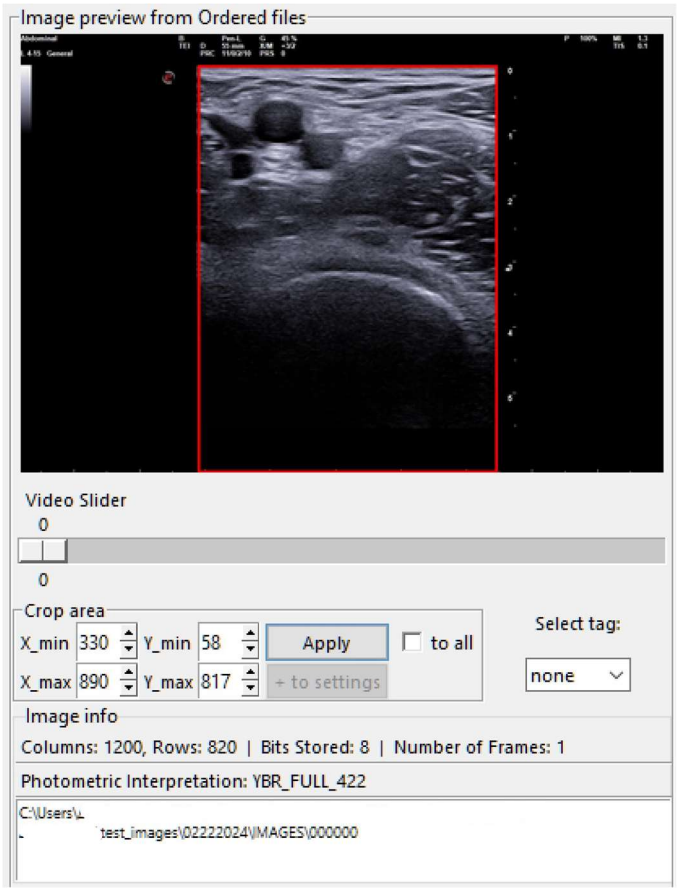

Image 7. Preview of the crop area

Initially, the image shows a frame indicating the cropping area. If the cropping area is incorrect, the user can define the cropping regions and click **Apply** to update and save the new values. In the Select tag option, specific predefined values must be selected by the user.

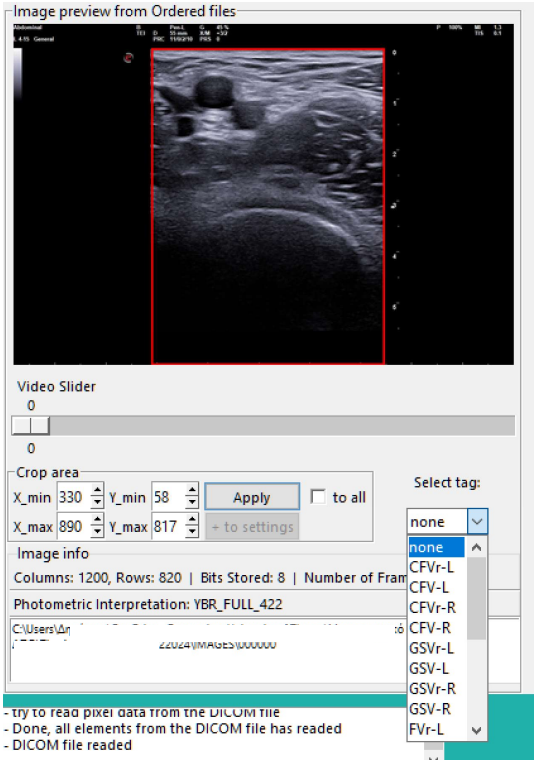

Image 8. Inserting the extra tag

If you check the box "**to all**," the cropping area is applied to all corresponding files (single or multiframe) in the **Ordered files** list, with a confirmation message displayed.

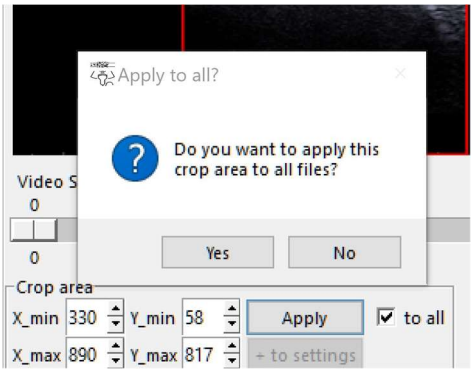

Image 9. Confirmation window

The **"+ to settings**" button activates only when an "**identifier**" with appropriate cropping areas is not found in the settings file. A relevant message appears during file reading.

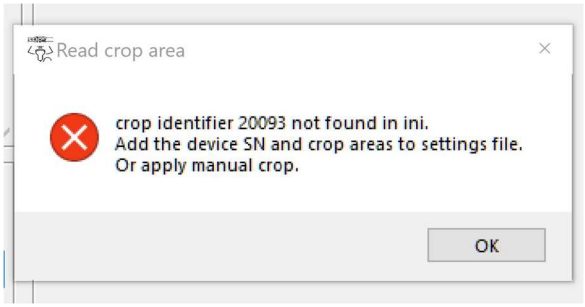

Image 10. Error window

Defining the correct cropping areas (Crop area) and clicking "+ to settings" records them in the settings.ini file under the [devices] section.

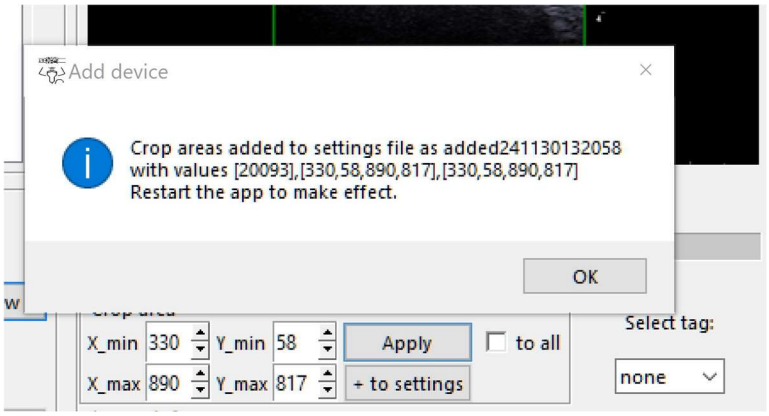

Image 11. Information window

Note that cropping areas are recorded uniformly for both single-frame and multiframe files. To customize cropping areas, modify the **settings.ini** file.

To apply the changes, restart the application.

For anonymization, the user must select the required tag and **Apply** the cropping area. If no process is skipped, files in the **Ordered List** are marked green, with defined cropping areas and correct tags. Otherwise, attempting anonymization will display a related message.

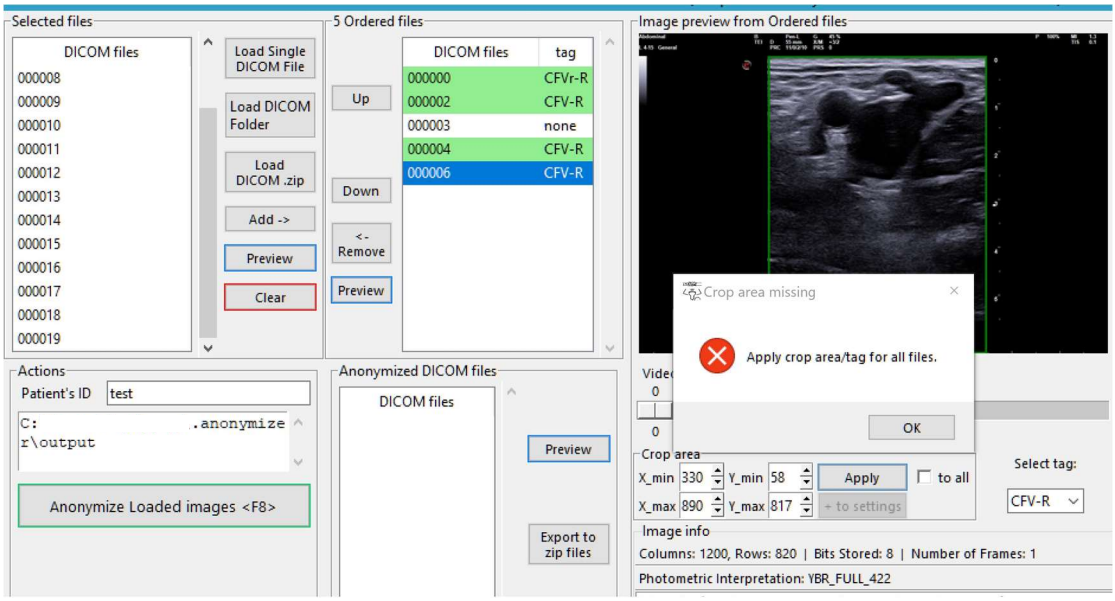

Image 12. Error window, no crop areas or extra tags defined

5. Applying Anonymization

To anonymize, add at least one file to the **Ordered files** list and follow the instructions in the previous section. Filling in the **Patient's ID** field is also required. Then click the **Anonymize Loaded images** button or press **F8**.

Image 13. Ready list for the anonymization process

6. Completion and Export to .zip file

The anonymization process completes by exporting files to a *.zip file. To perform this step, the **Anonymized DICOM files** list must contain at least one file..

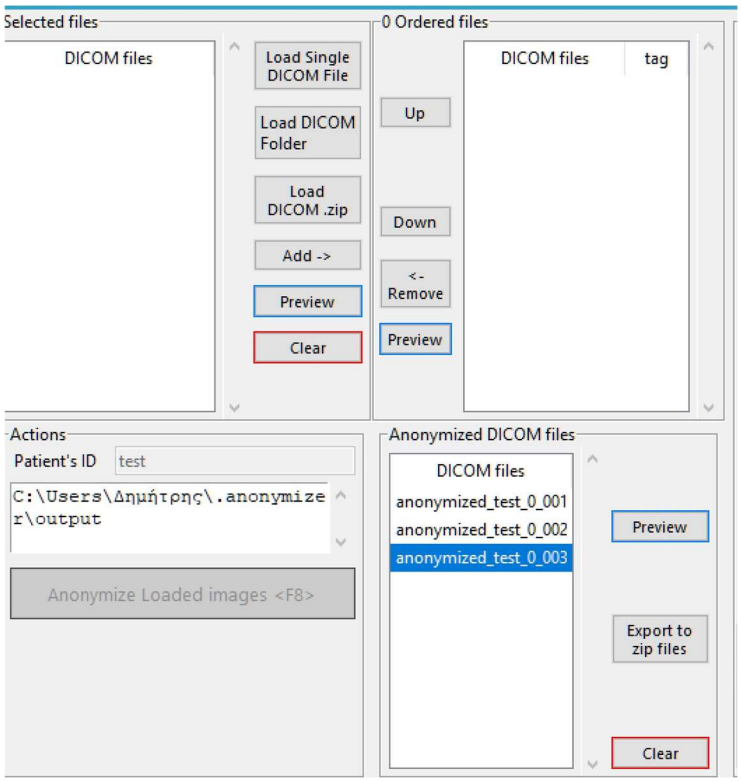

Image 14. The Anonymized DICOM files list

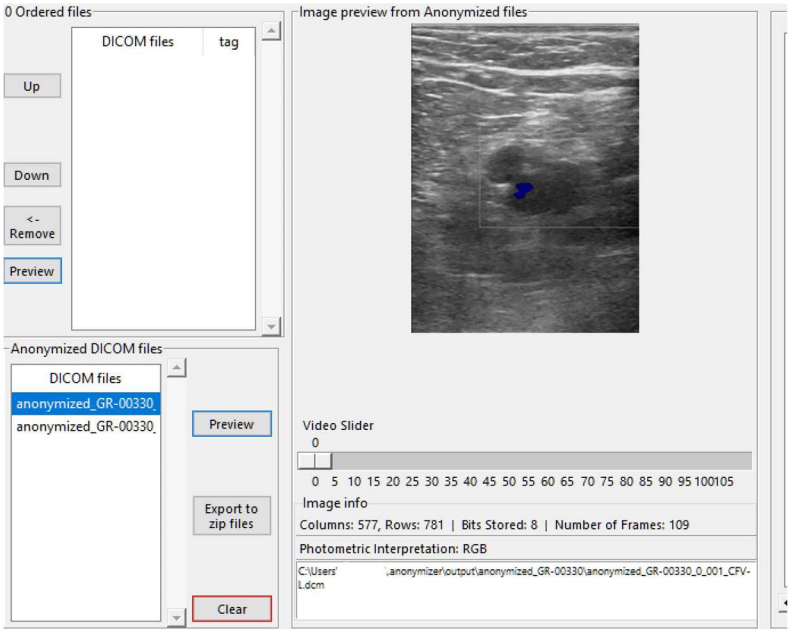

Image 15. DICOM file with image cropping applied

Clicking the **Export to zip** button, opens a dialog window for selecting the folder where the .zip file will be saved.

The **Clear** button deletes files from the list and reactivates the anonymization option. Use it only if you don't want to export files from the Anonymized DICOM files list.

7. Settings and other functions

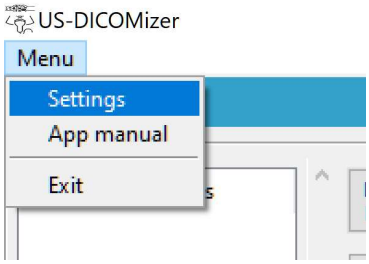

Image 16. Accessing to settings

In the settings window, users can control the JPEG compression level applied to images. Values range from 0 (lowest quality) to 95 (highest quality). Values above 95 are considered uncompressed. A value of 85 is recommended. The ability to change the image compression level is only allowed if the "yes" option is present in the appropriate variable in the configuration file. Additionally, users can change the folder where temporary files are extracted.

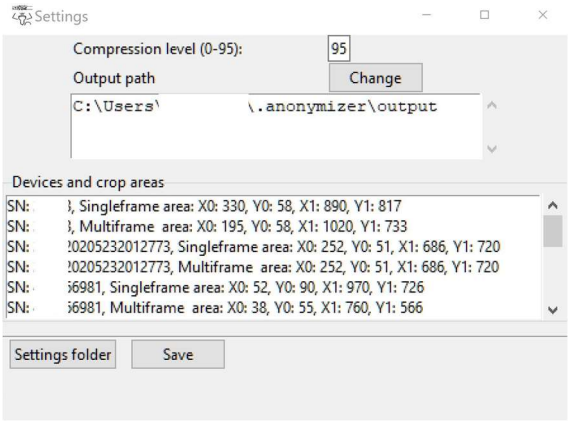

Image 17. The settings window

The defined crop areas are displayed, and clicking the **Settings folder** button opens the folder containing the application's settings and log files.

If changes are applied and saved, the application must be restarted for the new values to take effect.

Finally, at the bottom of the application is the "**Console logs**" which displays logs that help in debugging in case an error occurs during operation. The "**Delete files**" button deletes any temporary files that have been created in the application folder.

Image 18. The Console text box

8. Keyboard Shortcuts

Keyboard shortcuts replace button actions or execute additional processes.

- **F6** – Transfers all files from the **Selected files** list to the **Ordered files** list
- **F8** – Executes anonymization, replacing the **Anonymize Loaded images** button
- **F9** – Replaces the **Export to zip folder** button
- **PG UP / PG DN** – The **Page Up** and **Page Down** keys on your keyboard execute the Up / Down commands to change the order of the selected file.

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