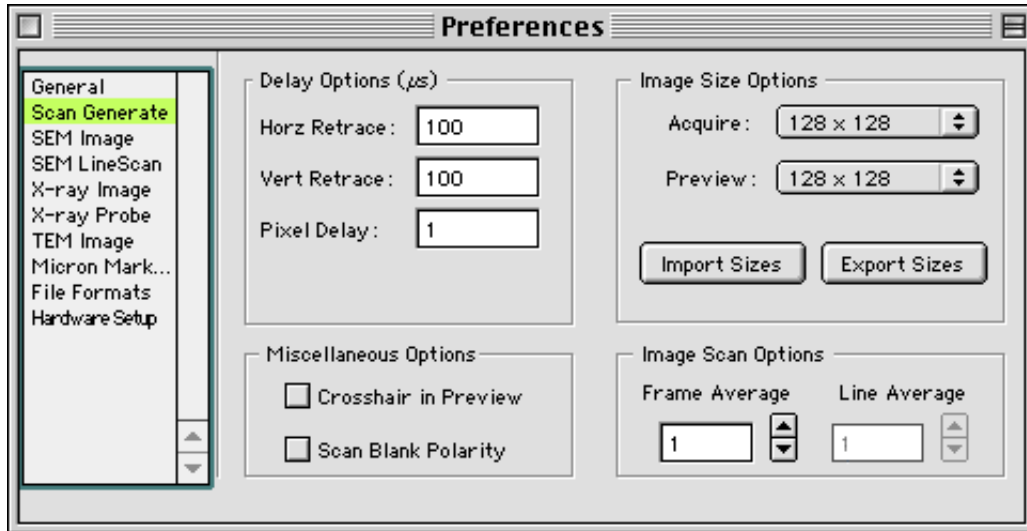


Scan Generate Preferences

[\[download as pdf\]](#)

current for: v1.5.6

The Scan Generate Preferences panel is shown below:



Other Preferences

[General](#)

• [Scan Generate](#) •

[SEM Image](#)

[SEM Linescan](#)

[X-ray Image](#)

[X-ray Probe](#)

[TEM Image](#)

[Micron Marker](#)

[File Formats](#)

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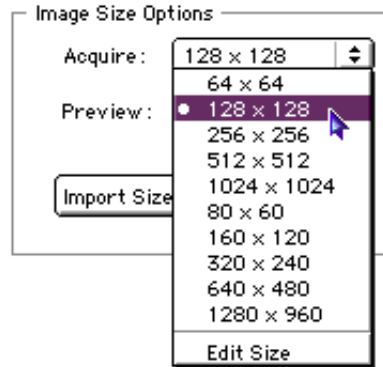
• *Delay Options*

- **Horizontal Retrace Delay.** The amount of time the software idles after setting the first-pixel beam-position in **each linescan**. It allows the electron beam enough time to retrace and settle before acquiring the first pixel in **each linescan**. The allowable range is 0-1600 microseconds. Typical values are 100-500. See [Park Beam at Zero](#) for important additional information.
- **Vertical Retrace Delay.** The amount of time the software idles after setting the first-pixel beam-position in the **first linescan**. It allows the electron beam enough time to retrace and settle before acquiring the **first pixel** in the **first linescan**. The allowable range is 0-1600 microseconds. A typical value is 100.
- **Pixel Delay.** The amount of time the software idles after setting **each** pixel beam-position in **each linescan**. It allows the electron beam enough time to settle before acquiring **each pixel**, if necessary. The allowable range is 0-800 microseconds. Typical values are 0-10.

• *Image Size Options*

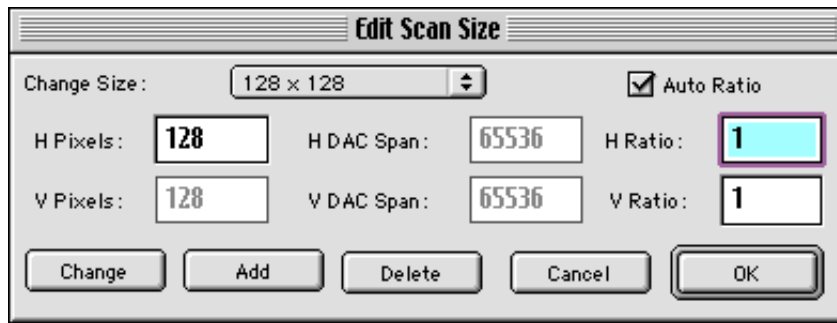
- **Preview.** Use this menu to select a preview size. Defaults (shown below) include several resolutions at both 1:1 and 4:3 aspect ratios. The preview size menu has its own size-editing

function (description further below) that is independent of the acquire menu.



There is no explicit "sort" function built into Revolution; however, see the discussion below of either the **Edit Size** window or the **Import/Export** functions for workarounds.

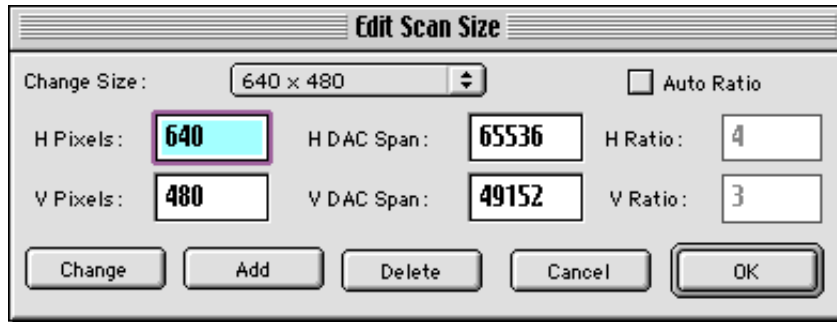
- **Acquire.** Use this menu to select an acquire size. Defaults (shown above for preview, identical for acquire) include several resolutions at both 1:1 and 4:3 aspect ratios. The acquire size menu has its own size-editing function (description below) that is independent of the preview menu.
- **Edit Size.** Select **Edit Size** from either the acquire or preview popup menu (above). A new window appears that can be used to change, add, or delete items from the size menu:



128 square (aspect ratio of 1:1) is the default image size for both preview and acquire. A new size can be selected from this window's pop-up menu as it can be from the image-size menus. Selecting a different size will update the window's image parameters immediately

The **Auto Ratio** check box simplifies image size definition. When checked, only the horizontal size needs to be supplied. The other sizes and spans will be calculated according to the horizontal and vertical ratios. The ratio entries cannot be decimal fractions, but can each be as high as 16384. Therefore, a ratio of 4.151 x 3.227 can be created by entering 4151 and 3227 into the respective ratio boxes; however, the spans are necessarily limited to integer values, so that such high precision in selecting the ratios may be meaningless. Aspect ratios of greater than or less than one are supported.

With **Auto Ratio** unchecked, the user is free to select both the horizontal and vertical sizes, as well as the spans:



When any available edit field changes, the rest of the fields are recalculated on-the-fly. The software tries to be smart about second-guessing what the user wants, but changing too many parameters back and forth may confuse the recalculation. Before adding/ changing a newly defined image, double check that all the numbers are correct.

Any number of sizes can be set up and saved independently for both preview and acquire. After entering the desired values, the user must click on either **Change** or **Add** (the user can also **Delete** any defined image size) before exiting by clicking **OK**. If this is neglected, the new definitions or deletions will not stick. Clicking **OK** will automatically sort the sizes in ascending order according to horizontal size, and sub-sort the sizes in ascending order according to vertical size.

N.B.: The spans can be used to restrict the possible DAC values, and should be modified only by experienced users. Note especially that changing the spans can result in non-square pixels unless special adjustments are made to the SIU, and that selecting a preview and an acquire size with different aspect ratios will guarantee non-square pixels regardless of the SIU settings. Contact 4pi before changing the spans for any defined sizes.

- **Import and Export Sizes.** **Imports** or **Exports** a straightforward text file that contains the full menu of acquire and preview sizes. This feature is for backing up the size data in order to transfer the information to another copy of Revolution, or if a file corruption forces the main prefs to be thrown away (after the sizes are reset to defaults by throwing away preferences, previously exported images sizes can be imported to restore extensive additions or modifications).

This feature can also be used to reorder the image sizes as they appear in the menu(s). The text files have a sort option built in; with a text editor, the sort can be changed to **Ascending** (default), **Descending**, or **NoOrder** (both spelling and case counts), and the file can be reimported to implement the sort.

It is possible to import a different number of menu items than were exported, so the user can construct all menu items by hand independently of the program, if desired.

- ***Image Scan Options***

- ***Frame Average.*** Sets the number of frames to average. Frame averaging occurs **in addition to** any pixel averaging or line averaging set by the user. Each subsequent frame is averaged with all the ones that came before it, allowing the user to see the signal-to-noise refining itself in real time. Preview windows repeat themselves automatically and it may be difficult to tell how this setting affects the image while in preview mode. When an image is actually acquired, the number of frames for the acquisition is set here. For the fastest possible averaging when beam effects are apparent, set the [Acquire Mode to Single](#) and select the minimum number of frames required for acceptable signal-to-noise.
- ***Line Average.*** Sets the number of lines to average before scanning a subsequent line. Each line is repeated and averaged before the next is executed. Preview windows repeat themselves automatically and it may be difficult to tell how this setting affects the image while in preview mode. When an image is actually acquired, the number of lines to be scanned per line for the acquisition is set here. Line averaging occurs **in addition to** any pixel averaging or frame averaging set by the user. The default setting is 1 and should be left at this default unless the user has a specific need to change it.

- ***Miscellaneous Options***

- ***Crosshair in Preview.*** Places a crosshair at dead center of the image for alignment purposes.
- ***Scan Blank Polarity.*** This signal is available on CN11 of Rev2.2 SIUs. Most installations do not use this signal. It is normally 0V before/after scan and +5V during scan. The checkbox inverts this polarity. Requires FPXDriver 5.3 or later.