

Basic Operating Principles

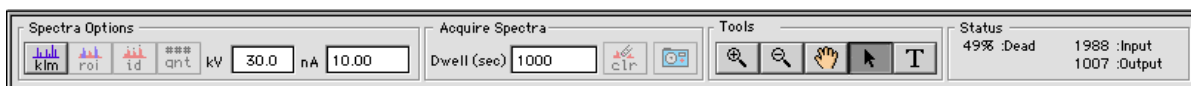
[\[download as pdf\]](#)

current for: v1.5.6

Launching Revolution

- Launching Revolution is easy: just double-click on the Revolution program icon. No special preparation is needed. The initial launch will automatically create default preferences in the Revolution folder. *Note the discussion below concerning preferences from older versions of Revolution!*
- **Preferences:** It is **recommended** that you place any **new** version of Revolution into its own new folder, and copy the preferences from the old version over to the new folder (all Revolution preference files start with an underscore). This insures that your original preferences are safe if any bug prevents older preferences from being read correctly. If you have settings you need to preserve, you should export them from the old version and import them into the new version. See the instructions for importing and exporting [Preview and Acquire Size Menu preferences](#) and [Mag Menu preferences](#).
- On Mac OS9, the default memory allocation may vary with the version of Revolution, as 4pi deems necessary. Most users will want to increase the memory allocation as needed. Windows and Mac OSX will use swap-file memory management as needed. Remember to do a back-of-the-envelope calculation on your memory needs. If you are displaying 4 real-time previews and you are also displaying another half-dozen images already acquired, it adds up! On Mac OS9, running with too little memory allocated may prevent Revolution from opening or acquiring more than a certain number of images at one time. On Windows or MacOSX, running with too little physical memory installed may cause swap-file access to significantly degrade performance of the entire computer.
- When Revolution is launched, the program looks to see what Spectral Engine hardware is installed on the computer, and probes the hasp. Based on this information, the program will attempt to open the most appropriate set of tools for your hardware. All subsequent launches of the program will return you to the last set of tools that were in use. Each toolset is accessed from the **Mode** menu. Each mode presents the user with the controls and instrument feedback needed to perform a particular task, all in one easy-to-navigate toolbar (x-ray mapping tasks currently require the use of the [multi-toolbar](#)). The individual toolbars are shown below:

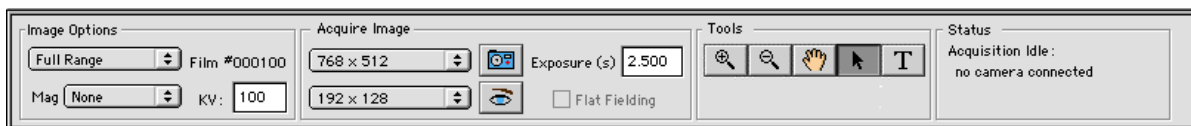
[EDX Spectra Mode Toolbar \(acquisition of X-ray spectra\):](#)



[SEM Image Mode Toolbar \(acquisition of SEM digital images\):](#)



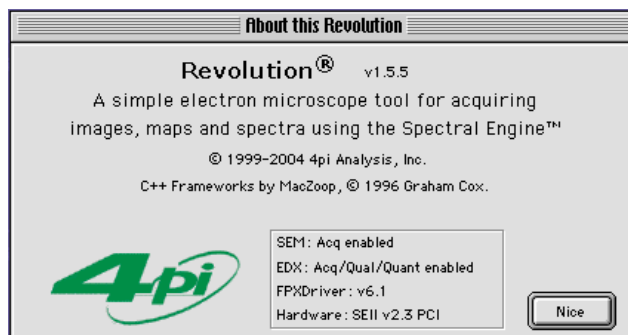
[TEM Image Toolbar \(acquisition of TEM images with CCD cameras\):](#)



Determining Hardware and Software Version Numbers

- To determine the version number of both **Revolution** and the **FPXDriver**, and detect the type of **Spectral Engine II** card installed in your computer, perform the following operation:
 - Macintosh OS9: select **About this Revolution...** under the **Apple** Menu
 - Macintosh OSX: select **About this Revolution...** under the **Revolution** Menu
 - Windows: select **About** under the **Help** Menu

The following dialog box will appear:



- The Revolution version number appears, as well as the FPXDriver version number, the type of Spectral Engine II installed, and the status of the SEM and/or EDX subsections of the board. Certain boards only have one subsection installed; however, if you know that a subsection is installed but is marked **not installed**, it may indicate a boot failure, and 4pi tech support should be contacted. The status of the SEM and EDX subsections of the board are also controlled by the hasp delivered with the product. If an analysis feature is not included, it will be missing from the status or marked "demo."
- If a subsection is not installed, Revolution will automatically run in demo mode for that subsection.

Runtime Notes

- Revolution is a fully multi-tasking application on all platforms. It can run in the foreground or background, and other programs can be run simultaneously; however, unless you have a very fast processor, running another application in the foreground may slow Revolution window updates, and vice versa. Note that the Spectral Engine runs independently of Revolution; therefore, low-level board functions such as scanning and acquiring data will always run at full speed, even if screen updates are slowed by other processes.
- (**Mac OS9 only**) Although NIH Image, Photoshop, DTSA, etc. can be open and running simultaneously with Revolution, we don't recommend trying to **acquire** data for the Spectral Engine with Revolution and any of them simultaneously. In case you do anyway, you may hit a number of debugger breaks complaining of something being busy. If you type **g** and **return** in response to each, it should continue operation. This mode of operation is not supported. It is merely a curiosity.
- In order for Revolution to communicate with the Spectral Engine II, the **FPXDriver** must be installed, and the hardware hasp must be installed. If not, Revolution will revert to a demo mode that mimics actual operation but does not allow access to acquisition or analysis features.

Quitting Revolution

- To quit Revolution on the Mac, either select **Quit** from the **File** menu or **clover-Q** on the keyboard.
- To quit Revolution on Windows, either select **Exit** from the **File** menu, or **control-Q** on the keyboard, or use the standard Windows close box.
- **Note:** Revolution will not quit if an active scan is in progress. Any scan acquisition must finish (or be halted by the user) before the program can be exited.

Revolution Preferences

- The key to understanding and using the full power of Revolution is its preferences. This page gives some general guidelines to using them. After Revolution is launched, the Preferences can be accessed in one of three ways:

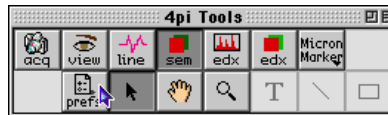
Select "Preferences..." from the **Edit** menu:



From any [modal toolbar](#), select the prefs button:



If the [multi-toolbar](#) is on-screen because the program is in x-ray mapping mode, select the prefs button:



- The Preferences window opens to the last set of preferences that were examined or set. If Revolution is being run for the first time, the initial preferences shown are the [General Prefs](#). The Preferences window and its individual panes can be left open or closed during the operation of Revolution, whichever one prefers. Most changes take effect immediately; if a change is one that could affect a preview display, the effect is shown in real time. Because of this, there is no "cancel" on a preference setting. To go back to a previous setting, simply reset it.
- **Note:** values entered into edit fields are also updated immediately unless illegal values are entered; in this case, the last known good value is retained. Further note that the keyboard filtering does not **visually** trap out illegal values until the prefs window is refreshed.
- Select from the ten pages below to view the individual preference settings in detail:

[General](#) [Scan Generate](#) [SEM Image](#) [SEM Linescan](#) [X-ray Image](#)
[X-ray Probe](#) [TEM Image](#) [Micron Marker](#) [File Formats](#) [Hardware Setup](#)